

## Local Businesses Adaptation Using Business Models Linking Tourism and Fisheries in Coastal Areas of Satun Province, Thailand through Participatory Action Research

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### Abstract

This research aims to study the adaptation of local businesses using business models linking tourism and fisheries affected by COVID-19 pandemic in the coastal areas of Satun Province, Thailand which is a key challenge in the revitalization of regional economy. Participatory action research (PAR) methods were applied with five main sectors: community, private sector, public sector, political sector and academic sector.

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Qualitative data were collected through focus groups and Business Model Canvas (BMC) analysis. Moreover, quantitative data were analyzed for means and standard deviations to assess satisfaction and readiness to adapt. The study found seven innovative business models in three main business groups (tourism, fisheries and retail) that clearly reflect community-driven adaptation and innovation, including the transformation of Pakbara from a “passing point” to a “stopover point”, as well as Satun Fishery Start-up model for creative use of resources. The successful implementation of these models has been tangible with strong social capital among various sectors. This research filled a gap in the literature that had largely focused on business model innovation in large organizations. It presented empirical evidence of adaptation and innovation in the context of small businesses and communities affected by crisis, which systematically integrates the concepts of organizational adaptation theory, community innovation, and social capital theory. These findings had practical significance for promoting experiential tourism and strengthening local collaborative networks. This also led to important policy recommendations to support infrastructure development and promote entrepreneurial potential for sustainable long-term local economic development.

**Keywords:** Business Model Innovation, Local Business Adaptation, Fishing Tourism, Participatory Action Research, Social Capital

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## การปรับตัวของธุรกิจท้องถิ่นโดยใช้โมเดลธุรกิจเชื่อมโยง การท่องเที่ยวและการประมงในพื้นที่ชายฝั่งจังหวัดสตูล ด้วยการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วม

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### บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาการปรับตัวของธุรกิจท้องถิ่นโดยใช้โมเดลธุรกิจเชื่อมโยงการท่องเที่ยวและการประมงที่ได้รับผลกระทบจากการระบาดของโรคโควิด-19 ในพื้นที่ชายฝั่งจังหวัดสตูล ซึ่งเป็นความท้าทายสำคัญในการฟื้นฟูเศรษฐกิจระดับภูมิภาค โดยประยุกต์ใช้ระเบียบวิธีวิจัยเชิงปฏิบัติการแบบมีส่วนร่วม (PAR) ของห้าภาคส่วนหลัก ได้แก่ ชุมชน ผู้ประกอบการ ภาครัฐ ภาคการเมือง และภาควิชาการ การเก็บรวบรวมข้อมูลเชิงคุณภาพผ่านการสนทนากลุ่มและการวิเคราะห์โมเดลธุรกิจแคนวาส (BMC) เสริมด้วยการวิเคราะห์ข้อมูลเชิงปริมาณด้วยค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน เพื่อประเมินความพึงพอใจและความพร้อมในการปรับตัว ผลการศึกษา พบว่า ได้โมเดลธุรกิจเชิงนวัตกรรม 7 โมเดลใน 3 กลุ่มธุรกิจหลัก

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(ธุรกิจท่องเที่ยว ธุรกิจประมง และธุรกิจค้าปลีก) ที่สะท้อนถึงการปรับตัวและนวัตกรรมที่ขับเคลื่อนโดยชุมชนอย่างเด่นชัด ได้แก่ การเปลี่ยนจากบารจาก “จุดผ่าน” สู่ “จุดพัก” และโมเดล Satun Fishery Start-up ซึ่งเป็นการใช้ทรัพยากรอย่างสร้างสรรค์ การขับเคลื่อนโมเดลเหล่านี้ประสบความสำเร็จอย่างเป็นรูปธรรมด้วยทุนทางสังคมที่แข็งแกร่งระหว่างภาคส่วนต่าง ๆ งานวิจัยนี้เติมเต็มช่องว่างในวรรณกรรมที่ส่วนใหญ่ให้ความสำคัญกับนวัตกรรมโมเดลธุรกิจในองค์กรขนาดใหญ่ โดยนำเสนอหลักฐานเชิงประจักษ์ของการปรับตัวและนวัตกรรมในบริบทธุรกิจขนาดเล็กและชุมชนที่ได้รับผลกระทบจากวิกฤต ซึ่งบูรณาการแนวคิดทฤษฎีการปรับตัวขององค์กร นวัตกรรมชุมชน และทุนทางสังคมเข้าด้วยกันอย่างเป็นระบบ ข้อค้นพบนี้มีนัยสำคัญเชิงปฏิบัติเพื่อส่งเสริมการท่องเที่ยวเชิงประสบการณ์และเสริมสร้างเครือข่ายความร่วมมือในพื้นที่ รวมถึงนำไปสู่ข้อเสนอแนะเชิงนโยบายที่สำคัญในการสนับสนุนการพัฒนาโครงสร้างพื้นฐาน และการส่งเสริมศักยภาพผู้ประกอบการ เพื่อการพัฒนาเศรษฐกิจท้องถิ่นที่ยั่งยืนในระยะยาว

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## Introduction

The ocean economy is a globally important economic system because it uses resources from ocean and sea as a base for producing goods and services to drive economic growth. It covers both direct and indirect economic activities such as being a source of food, minerals, energy, transportation, and related service sectors (Seenprachawong, 2023). The Organization for Economic Co-operation and Development (OECD) (Seenprachawong, 2023) classifies maritime economic activities into 12 sectors. Among these, fields relate to this research include fisheries, seafood processing, and marine and coastal tourism. Moreover, tourism is one of the most important economic sectors in the world that faces intense competition to attract the same group of tourists (Nordic Council of Ministers, n.d.).

The fishing industry is currently facing a shift towards tourism, a global trend where fishermen are turning to marine tourism activities to create memorable experiences for visitors. Fishing tourism is a relatively new development in sustainable tourism, offering tourists the opportunity to participate in fishing activities such as setting nets or retrieving them and tasting freshly caught fish on board (Tsafoutis & Metaxas, 2021). This linkage of fisheries and tourism sectors not only addresses the need for developing innovative tourism products but also represents an important approach to finding new sources of income to increase profitability and sustainability of the fisheries sector (Meneghello & Mingotto, 2016). In addition, such linkages also include aquaculture and livestock farming under product groups with quality certification or eco-labeling (CTA, PIPSO, & SPC, 2016).

The COVID-19 pandemic since late 2019 has severely impacted the tourism industry both globally and nationally. Data presented in Figure 1 shows that Satun Province was significantly affected by the situation during 2020-2021. However, tourism in Satun Province has begun to recover gradually since 2022. Although the Pakbara coastal area in Satun Province has high tourism potential due to diversity of its resources, including nature tourism, ecotourism and lifestyle tourism, a major problem is that tourists often use Pakbara as a passing point on their journey to Ko Lipe or to wait for their flight in Hat Yai District, Songkhla Province.

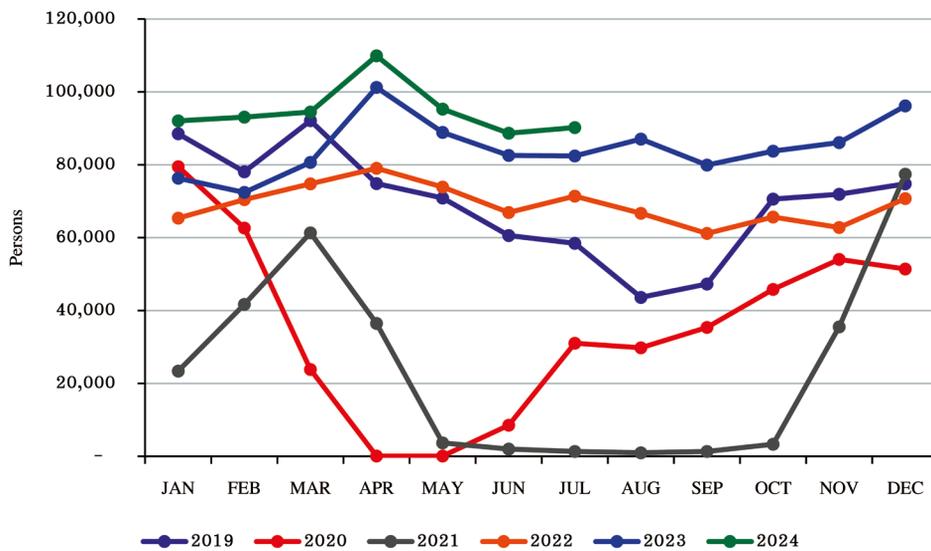


Figure 1 : TAT Intelligence Center (Online) (2024) Reported Number of Guests in Satun Province 2019-2024.

Given these challenges, it is imperative to study adaptation strategies for local businesses in coastal areas of Satun Province to enhance their capacity in order to cope with impacts and build long-term resilience. Therefore, this research aims to study adaptation of local businesses under the following main conceptual frameworks:

- Organizational Adaptation Theory helps in understanding how strategies and structures change in response to environmental volatility.
- Community-Based Innovation Concept emphasizes creating new things from the grassroots with participation of local people.
- Social Capital Theory explains the role of networks of relationships and collaboration in driving sustainable change in communities.

However, there are still limited numbers of studies that integrate perspectives on local business adaptation, community-driven innovation, and the role of social capital in the context of tourism and fisheries business linkages in specific areas such as Satun Province.

Therefore, this study aims to study adaptation of local businesses using the business models that links tourism and fisheries affected by the COVID-19 pandemic in the coastal areas of Satun Province.

## Objective

To study adaptation of local businesses using the business models that links tourism and fisheries affected by the COVID-19 pandemic in the coastal areas of Satun Province.

## Literature Review

This part is organized to present literature review related to the concepts and theories essential for our study, such as “local business adaptation” and “business model innovation development,” that links tourism and fisheries. The review will cover the following principal issues: 1) ocean economy and tourism, 2) business model innovation, 3) business model canvas, 4) participatory action research, and importantly, 5) theoretical frameworks of organizational adaptation theory, community innovation, and social capital theory. Synthesizing this literature will help in building a deep understanding of the context, concepts, and mechanisms driving adaptation and innovation development of local businesses.

### *1. Ocean Economy and Tourism*

The coastal and marine economy is relevant to many principal sectors, such as fisheries, seafood processing, marine transport, and marine and coastal tourism (Rayner et al., 2019; Seenprachawong, 2023). Globally, it was valued at approximately 1.5 trillion USD in 2010 and is expected to increase to over 3 trillion USD by 2030 (Rayner et al., 2019; Sumaila et al., 2021). For Thailand, the coastal and marine economic sector contributed 23.44% of GDP in 2018, with marine and coastal tourism being one of the main drivers (Seenprachawong, 2023).

The transformation of the fisheries industry to fishing tourism is crucial for generating sustainable income and innovative products. This linkage allows visitors to participate in fishing activities and gain local experience (González et al., 2020).

In some areas, like Ko Libong in Trang province, marine resources conservation has been promoting sustainable fisheries and eco-tourism, with communities as the primary beneficiaries through community collaboration. (Tantrajin, 2023).

## *2. Business Model Innovation*

The Business Model Innovation (BMI) is relevant to modifying or designing a new business using business model principles. The template involves creating organizational value by managing internal processes and external stakeholder relationships in a unique business and an appropriate market context to gain a competitive advantage (Vils et al., 2017). The element of BMI comprises three parts: the current business model (“as is”), partial changes in the current model, and a new business model (“to be”). The BMI is crucial to maintaining competencies regarding quick environmental changes (Ibarra et al., 2020). In addition, the BMI enables these businesses to respond to crisis issues quickly and effectively by identifying threats and opportunities, creating value, and increasing business resilience during critical times (Salamzadeh et al., 2023).

Previous reports point out that BMI drives business growth and improves elasticity. However, gaps and challenges still remain because published studies were conducted on large businesses. This does not apply to SMEs or small local businesses that have different resources and business structures (Ibarra et al., 2020). In contrast, this study emphasizes the BMI at the community level or in small businesses that connect several partners, such as those in tourism and fisheries but is still limited, especially during the crisis. Furthermore, it is recognized that the BMI can be applied to a wide range of business activities, yet it is still limited to the role of digital transformation. Therefore, the study's gap is not technological application but ordinary or local businesses that may rely on local wisdom rather than advanced technologies.

## *3. Business Model Canvas (BMC)*

The Business Model Canvas (BMC) is recognized as a strategic tool for business pattern analysis and communication (Kim, 2021). BMC comprises nine components: Customer Segments, Value Propositions, Channels, Customer Relationships, Revenue Streams, Key Activities, Key Resources, Key Partners, and Cost Structure (Osterwalder & Pigneur, 2010). This helps entrepreneurs and businesses to visualize details systematically and comprehensively and understand their own businesses (Kreinberger et al., 2014).

Previous studies have shown that BMC is applied in varied contexts. For example, Ely et al. (2020) researched sustainability of fishery tourism and analyzed the business models of fish farming groups (Benarda et al., 2018). Additionally, BMC has been used as a tool for SMEs' recovery after major crises, such as COVID-19, especially in the service sector (Gregurec et al., 2021; Hadi & Palupi, 2020).

Although BMC is a powerful tool recognized in a wide range of business sectors, it is still limited in both theory and practice. Especially in an era when sustainability and adaptation are essential, development of a new version, such as the Triple Layered BMC or the Social BMC, becomes a better practical option in certain social contexts (Joyce & Paquin, 2016).

#### **4. Participatory Action Research (PAR)**

Participatory action research (PAR) is a qualitative research methodology recognized and carried out within the framework of social justice. The application of PAR also serves as a learning process, creating new knowledge and driving change to improve people's quality of life and develop consciousness for liberation from domination (Wilson, 2019). In addition, PAR usage enhances empowerment and local development because it emphasizes deep participation of stakeholders and respect for their wisdom (Soedarwo et al., 2022). PAR has a cycling characteristic, typically comprising four stages: Plan, Act, Observe, and Reflect (Soulard & Lardon, 2019). This cycle process helps participants to continue learning and improving towards change (Wilson, 2019).

PAR is an appropriate research methodology that focuses on participation, bottom-up development, as well as creates change in the local context (Bennett, 2019). The knowledge co-creation and empowerment of stakeholders characterize PAR as an effective tool to promote campaigns for local sustainable development (Keahey, 2021; Trott et al., 2018). Therefore, PAR is an appropriate research method for this case, focusing on local business adaptation through business model innovation in the complex context of a coastal community.

Although PAR is a powerful approach for promoting sustainability, participation, and social change, it is still limited in itself. For example, it lacks a mechanical analysis framework for describing how social change occurs through research operations (Greenwood & Levin, 2007). In practice, measuring outcomes and maintaining balance of power in the research process are also difficult (McIntyre, 2008; Cook, 2012).

### ***5. Organizational Adaptation Theory***

Organizational adaptation refers to intentional decisions by organizational members that lead to notable actions to reduce the gap between the organization and its economic environment (Sarta et al., 2021). Organizational adaptation theory studies how organizations change and adapt to external environments such as economic crises, epidemics, or technological disruptions (Gregurec et al., 2021; Rachmad, 2022). Adaptation also involves internal change suitable to environmental demands for survival and growth of the business (Riza et al., 2020). Understanding human resources and organizational change in their learning method and guidelines to cope with the needs of context and goal changes is crucial for success within a continuously varying environment (Rachmad, 2022).

Organizational adaptation can emerge in different forms. In typical cases, it is not just an incremental effectiveness transformation. A radical transformation is also necessary to reinvent an organization (Mithani et al., 2021). Organizational adaptation is a complex process and has a circular loop. These circles include learning and changing for improved organizational continuity (Rachmad, 2022; Koçak et al., 2023). The key factors for adaptation include innovative leadership and creative leadership (Riza et al., 2020), flexibility, self-awareness, and coping strategies (Rachmad, 2022). Decisions and activities of executives and organizations in the ecosystem play a significant role in changing and developing a better organization (Adner, 2017).

The organization adaptation theory provides a framework for analyzing how local businesses in Satun Province have adapted to cope with the impacts of COVID-19. However, previous studies have almost focused on large and formal organizations, which may create gaps in understanding the adaptation principles for small businesses or an informal-driven context of local businesses. In addition, previous studies also focused on selected factors affecting organizational adaptation. An integrated analysis pointed out that relationship among these complex factors in the field is still rare.

### ***6. Community-Based Innovation Concept***

Community-based innovation is the concept whose meaning extends beyond a new product or technology. It also includes process, concept, or management model designed to respond to needs or fix social problems, underlining the participation of community members (Sarabia-Molina et al., 2022). These innovations were created for social challenges such as

poverty, health, and education (Rashid et al., 2024). Innovation in community tourism is a complex process that relates to knowledge and resources exchange among diverse players (Madanaguli et al., 2022).

Community-based innovation is initially characterized by the grassroots, which rely on their own support and link with local wisdom. Local participation and knowledge transfer can improve the quality of life of community members by introducing eminent concepts like “bonding, bridging, and linking” into the community. Community-based tourism (CBT) is a good example of an innovative community approach to improve the quality of life for community members (Rashid et al., 2024). However, running a community-based innovation is frequently complex, involving dynamic interactions between bottom-up initiatives and top-down support to collaboratively develop governance mechanisms connected to grassroots levels (Castro-Arce & Vanclay, 2020).

PAR has a crucial role in promoting and driving local innovation. Research that enhances participation can empower the community through fishery community research (Wiber et al., 2009). Diverse sector participation, including community, private sector, and public sectors, is necessary for driving social innovation. Therefore, research aiming to study local business adaptation through the specific business model innovation, such as public area usage for aquaculture or new activity/landmark creation, is an example of innovation generated from the grassroots level. The present research will fulfill the gap in understanding how innovation drives the community towards local business adaptation and creates diverse value in a crisis environment.

Although local innovation is a powerful concept that originated from local knowledge and participation, it is still limited by the lack of clear underlined theories and practical guidelines for sustainability and measurable output (Neumeier, 2012).

### ***7. Social Capital Theory***

Social capital is a set of resources embedded in relationships among individuals or social networks. These relationships facilitate their operation and support them in achieving their target (Claridge, 2018; Tsounis & Xanthopoulou, 2024). This concept underlies the social relationship as valued property, generating individual and public benefits (Portes, 1998; Kim, 2018). Social capital reflects a positive side of social relationships, reaching beneficial outcomes such as cooperation and trust (Claridge, 2018).

Social capital consists of three main dimensions. The first dimension is structural social capital which refers to characteristics of the social system and patterns of relationship networks, such as number and density of relationships, roles, rules, and procedures that facilitate access to information and resources (Nahapiet & Ghoshal, 1998; Ansari et al., 2012). The second dimension is relational social capital which concerns the nature and quality of personal relationships, such as trust, obligations, respect, and friendship developed through interactions (Nahapiet & Ghoshal, 1998; Tsounis & Xanthopoulou, 2024). The last dimension is cognitive social capital which is relevant to resource sharing perceptions, interpretations, and co-meaning systems, such as language, codes, narratives, values, attitudes, and beliefs that promote mutual understanding (Nahapiet & Ghoshal, 1998; Claridge, 2018).

Social capital significantly drives community development, especially resource pooling, cooperative building across multiple sectors, and fixing complicated problems (Halstead et al., 2022). This capital enables communities to efficiently manage resource-sharing through cooperation (Sakamoto, 2024). This promotes participation of citizens and builds trust in the local communities, which is a fundamental basis for sustainable development (Kim, 2018). Studies in rural contexts found that social capital played a significant role in poverty reduction and economic growth (Lang & Fink, 2019; Halstead et al., 2022).

This research aims to analyze a collaborative network of five sectors in Satun Province (community, private sector, public sector, political sector, and academic sector), which is a social capital that enables development and implementation of business models in practice. This study also focuses on understanding relationships and trust among these sectors which help local businesses to adapt and create business model innovations in the post-COVID-19 crisis context.

Despite this, Social Capital Theory has been recognized as a powerful conceptual framework for describing social, economic, and community development mechanisms, with emphasis on relationships, trust, networks, and norms as valuable resources (Coleman, 1988; Putnam, 1993). In theory, however, this concept is still vague because it omits the idea of mechanical measuring for systematic changes and effectiveness (Portes, 1998). Similarly, in practice, promoting social capital sometimes have negative effects. That is, bonding social capital, while powerful internally, can create mechanisms of excluding those who are different, such as excluding of outsiders or members of the same group who have different religion, or even making judgments based on beliefs (Putnam, 2000; Portes, 1998).

## Research Methodology

This study used a participatory action research (PAR) methodology, which promotes collaborative learning, community empowerment, and facilitates the emergence of community-based innovation through participation process of all sectors (co-thinking, co-decision-making, co-implementation, co-benefiting, and co-evaluation), using social capital available in the community as an important driving mechanism. The research process was a cyclical process that involved planning, implementing, observing, and reflecting to ensure continuous improvement within specific context of the area. Community forums and small group meetings were used as primary methods for data collection and activities implementation.

### *1. Study Area*

The study covered coastal areas of Satun Province with a variety of natural resources and tourism potential, which consisted of the main areas of Pakbara, Paknam Subdistrict, La-ngu District, including Ko Pu Yu, and Ko Lipe, Mueang District.

### *2. Stakeholders*

Stakeholder selection was conducted using purposive sampling to ensure coverage of key stakeholders whose important roles directly affected tourism and fisheries businesses in the areas. The following stakeholders were included:

2.1 The area-level main stakeholders consisted of three sectors. Firstly, the community sector included tourism community enterprises, Kon Jab Pla community enterprise, the seafood processing groups, a fish cage culture group, and the handicraft product groups using coconut shells and nipa palm leaf stalks. Secondly, business entrepreneurs included hotels/accommodations, restaurants, a pearl jewelry shop, and tour agencies. Lastly, the public sector in the area included village headmen, subdistrict headman, Paknam Subdistrict Administrative Organization (Paknam SAO), district chief, Ban Pakbara School, Mu Ko Phetra National Park, and Satun Marine Fisheries Research and Development Center (In this context, Pakbara entrepreneurs refer to both community and private sector entrepreneurs).

2.2 The provincial-level supporting stakeholders consisted of three sectors: 1) Public sector (the Satun Provincial Fisheries Office, the Satun Provincial Commercial Office, the Satun Provincial Agriculture and Cooperatives Office, the Satun Provincial Community Development Office, the Satun Provincial Tourism and Sports Office); 2) Private sector

(the Satun Provincial Chamber of Commerce, the YEC Satun [Satun Young Entrepreneur Chamber of Commerce]); and 3) Political sector (Satun MP for District 2, and members of the Satun Provincial Administrative Organization Council [PAO]).

These multi-stakeholder groups were key drivers of business models by reflecting the creation and utilization of social capital to solve the problems and develop the areas.

### ***3. Sample Size/Participants***

Number of participants in different activities reflects a wide range of participation throughout the research process. For example, in the second stage, Current business model development, the online meetings for Pakbara tourism business had 33, 28, 20, 18 and 21 participants, respectively. The on-site meetings for the Fishery Start-up Satun business model creation had eight and ten participants. The creation of other business models had three to nine participants per activity. In the third step that concerned activities to prepare communities and tourist attractions, there were 22 participants in the tourist attraction readiness survey, and 21 and 15 people in the community readiness meetings. For steps 5 and 8, which were the trial and implement of the business models, the number of participants ranged from five people (Coconut Shell workshop) to 109 people (“Transforming Pakbara from a Passing Point to a Stopover Point” forum).

However, the nature of PAR methodology emphasized participation of multi-sectors in iterative processes and collaborative learning. It was difficult to determine a constant and exact sample size of research participants throughout the entire activity because participants came from various sectors, including communities, entrepreneurs, and public sector. They might participate in any activity based on their interests, relevance, or convenience, but might not participate in all activities. Therefore, the study presented number of participants from all sectors in each activity in details to reflect the actual participation at each step of the research process.

### ***4. Research Instrument***

The main research tool used was a Focus Group Form based on the Business Model Canvas (BMC) framework. This form consisted of nine elements: Customer Segments, Value Propositions, Channels, Customer Relationships, Revenue Streams, Key Activities, Key Resources, Key Partners, and Cost Structure. In addition, community potential analysis using SWOT and TOWS matrix, as well as questionnaires, were also used to evaluate the business models in various activities.

### **5. Data Collection**

Qualitative data were collected through in-depth interviews, community forums and small group meetings to gain stakeholders' opinions and input. For quantitative data, the questionnaires were used to measure level of trial tourists' satisfaction and readiness for tourism.

### **6. Data Analysis**

Qualitative data were analyzed using content analysis to summarize the current business models (from BMC) and community potential (from SWOT and TOWS matrix). This analysis also synthesized data from post-event summary records, small group meetings, and other activities. This analysis helped to gain a deeper understanding in the processes of "organizational adaptation" and "community innovation" that had taken place.

Quantitative data were analyzed for means and standard deviation. The means helped to identify central tendency of the data, such as overall level of trial tourists' satisfaction or level of readiness of tourist areas, while standard deviation was used to show the spread of data, revealing diversity of opinions or perceptions. Examples of applications in this research included assessing satisfaction levels with tourism programs and activities, including an assessment of the Pakbara's readiness to be converted into a stopover point. Results were clearly presented by means and standard deviations in the study results section.

## **Results**

This section presents results of the study on local business adaptation and development of business models linking tourism and fisheries in the coastal areas of Satun Province by using 8-step PAR process. It also presents seven business models in three main business groups (tourism fisheries and retail businesses) that have been developed from operations.

### ***Step 1: Studying Community Needs and Researcher Readiness***

Initial results of the study revealed that business entrepreneurs in the Pakbara area showed great interest and were willing to participate in the research project. They provided basic information about the Pakbara area that was useful for the study. Meanwhile, the research team received training on the BMC, enabling them to apply their knowledge to communities and entrepreneurs.

### *Step 2: Developing the Current Business Model by Applying BMC*

This step focused on understanding the current status of the businesses through application of BMC with five online meetings and seven on-site meetings. The result yielded the current business models with SWOT analysis of the seven main businesses, organized into three business groups:

#### *Group 1: Tourism Businesses – Comprising One Model*

##### *1. Pakbara Tourism Business Model*

The goal was to adapt and transform Pakbara from a “passing point” to a “stopover point” for tourists. Three target customer groups had been identified: family tourists, retired tourists and Thai biker tourists. The main income came from tour services, food, accommodation and souvenirs.

#### *Group 2: Fisheries Businesses – Comprising Four Models*

##### *2. Kon Jab Pla Community Enterprise Frozen Seafood Business Model*

This model's main revenue came from selling fresh seafood, frozen seafood, processed seafood products, and seafood trimming services, as well as new services that reflected adaptation, such as catering and boxed lunches.

##### *3. Pa Khiao Pakbara Seafood Processing Business Model*

The main source of income was processed seafood products such as sweetened fish, dried salted fish, and dried squid. Moreover, the business had expanded by opening a processed seafood souvenir shop at Pakbara View Point.

##### *4. Ko Puyu Seafood Processing Business Model*

The main source of income was from mantis shrimp meat, processed seafood products (such as mantis shrimp chili paste, sweetened short mackerel, salted fish, shrimp paste), and the creation of new products such as mantis shrimp roll, mantis shrimp keropok, mantis shrimp fish cakes, mantis shrimp roe, and mantis shrimp sauce.

### ***5. Satun Fishery Start-up Aquaculture Business Model***

The main source of income came from selling imported undulated surf clams from Malaysia, cultured blood cockles, and a new product - Nile tilapia culture in the water source of Ratchaprachanukroh School 42, Satun Province, which was a vocational training center for students. The fish cages were laboratories to train students' vocational skills by feeding and raising Nile tilapia while the entrepreneurs also provided scholarships to the school. This model demonstrated social innovation in using public spaces to create economic and social benefits, including investing in long-term human resources of communities.

### ***Group 3: Retail Businesses – Comprising Two Models***

#### ***6. Ko Lipe Retail Cooperative Business Model (New Business)***

The main income came from selling products to foreign tourists (main group), Thai tourists, local people and entrepreneurs on Ko Lipe.

#### ***7. Satun Duty-Free Business Model (New Business)***

The main source of income was from selling products to foreign tourists and Thai people, including online selling.

### ***Step 3: Preparing Community and Tourist Attraction Readiness***

At this stage, stakeholders collaborated to explore and brainstorm ideas to improve tourist attractions and create new check-in points. The key outcomes of this stage were:

1) A map of tourist attractions in Villages Moo 2, 4, 5, and 6 had been developed, indicating appropriate travel times.

2) Highlights and areas for improvement of nine tourist attractions in the community had been identified.

3) The “Pakbara Village Destination” operational plan had been drafted in both short term and long term.

4) A summary of proposals for the creation of seven new check-in points, reflecting community innovations in improving the area, such as landscaping of Khao To Ngai, Mu Ko Phetcha National Park, transforming the Satun Marine Fisheries Research and Development Center into an anemone fish learning center and Street Art check-in point, and developing the Ban Pakbara School area into a recreational center.

5) Survey and evaluation for the potential of important tourist attractions, such as Ko Lidi (ready for one day trip activities) and Ban Tha Yang community tourism (potential of natural routes, local lifestyle), mangrove forest at canal of Ban Bo Chet Luk (abundant, important tourist attraction), Khao To Ngai hiking trail (viewing nature and wildlife), Ko Bulon (Urak Lawoi community way of life and homestay), Ban Hua Thang community rafting rote (abundant biodiversity and local food), and Ban Thon Kai community tourism rote (beautiful stone walls).

6) Quality inspection of green mussel production at Ko Puyu.

7) Collection of data on types, quantities and values of aquatic animal from seven local aquatic animal middlemen to compile developing Satun Province Aquatic Animal Fishing Season Calendar, which was important information in linking with the tourism business.

#### ***Step 4: Designing New Business Models Linking Tourism and Fisheries Businesses***

This step focuses on establishing business linkage in the Pakbara area across B2C, B2B, and B2B2C formats. Results of the new model design included:

1) Kon Jab Pla Community Enterprise had designed B2C activities such as fishing trips and installation of traditional artificial reef (Sung Kor), and B2B activities to sell raw materials (seafood) to local restaurants such as Lan Khao Restaurant, Royal Hill Hotel, Rak Lay Restaurant, and Papaya Mom.

2) Andaman Pearl Shop has designed B2C activities linked to tourism programs through pearl stringing workshops with knowledge and lunch arrangements for tourists.

3) Pakbara Local Handicraft Community Enterprise (Kala Bara shop) had developed a workshop on making productions from coconut shells such as keychains and refrigerator magnets and has provided snacks/lunch for participants.

4) The Satun Marine Fisheries Research and Development Center had designed a B2B2C model by opening up space for storytellers to take tourists to see aquatic animals, with coordination to community enterprise groups.

5) Ko Khao Yai Community Enterprises (14 enterprises) had experimented with selling new 2-day, 1-night and 3-day, 2-night tour programs that link water and land tourism, including the addition of adventure activities, nature study and handicrafts.

### ***Step 5: Conducting Business Model Trial***

This stage involved pioneering the designed business models, which was an important part of evaluating adaptability and innovation.

#### ***5.1 Trial with B2B Models through Business Matching Activities***

1) Kon Jab Pla Shop and Lan Khao Restaurant: Lan Khao Restaurant was interested in purchasing rare products like mullet, banana shrimp, and grouper heads from the Kon Jab Pla Shop.

2) Kon Jab Pla Shop and Papaya Mom Restaurant: Papaya Mom Restaurant recommended that Kon Jab Pla Shop produced various grades of products to meet the needs of restaurants and offered to expand the market to Ko Lipe. So, it was willing to test the products.

3) Kon Jab Pla Shop and Royal Hill Hotel and Rak Lay Restaurant: Royal Hill Hotel would help in promoting the products, filming a video of the seafood trimming process, and supporting the set-up of a booth to sell products, while Kon Jab Pla Shop gave certain percent of sales to the employees. Rak Lay Restaurant requested fresh seafood for barbecue grilling on Ko Lipe.

#### ***5.2 Trialing with Workshop Activities***

1) Coconut Shell Craft Workshop: A family of five tourists tried making two types of fossil magnets and received them as souvenirs.

2) Local Dessert Workshop: Seven researchers and experts participated in the activity of making Roti Rang Hae and ancient Bamba desserts. They suggested that the community enterprise should sold flour to customers so they can make it themselves at home.

#### ***5.3 Trialing with Overnight Tourism Programs in Pakbara***

1) Retired tourists (program B: 3-day, 2-night). The business model evaluation found that retired tourists were satisfied with overall tourism program at a moderate level (mean = 3.23). However, there was a high level of satisfaction for the Prasat Hin Pan Yod and the Dragon's Spine (mean = 3.81) as well as the visit to Kon Jab Pla shop (Frozen Seafood) with lunch (mean = 3.80).

2) Family tourists (program A: 3-day, 2-night) The business model evaluation found that family tourists were highly satisfied with overall tourism program (mean = 4.65), and had the highest level of satisfaction for the route from Ban Tha Yang (mean = 4.84) and Ko Lidi (mean = 4.83).

***Step 6: Communicating to Build Understanding of Business Models and Progress***

At this stage, there were continuous meetings with entrepreneurs and Pakbara working groups throughout the duration of the project, both formally and informally. Key communication outcomes included consideration of online market training, development of a tourism guide, and creation of a promotional clip for “Pakbara Village Destination”, as well as reports of tourist satisfaction assessment results. In addition, there was coordination with provincial-level agencies and the Ko Lipe Business Association to prepare for and promote business linkages.

***Step 7: Establishing Mechanisms to Drive the Business Models***

At this stage, a collaborative mechanism had been established to drive the “Pakbara Village Destination”. Key outcomes included:

1) The meeting to establish a cooperation mechanism at Pakbara Pier concluded that there was a need for “handshake” cooperation between the community, private sector and public sector to drive the transformation of Pakbara from a “passing city” to a “stopover city”.

2) The meeting at Paknam SAO summarized nine key driving issues, along with designating responsible agencies/persons, such as human resources, environmental management, and the tourism calendar.

3) The synthesis of the “Satun Province Development Model”, the result of upgrading seven business models, was a provincial-level strategic plan with a mechanism driven by cooperation from five sectors: the community, the private sector, the public sector, the political sector, and the academic sector (as shown in Fig.2). This mechanism reflected the creation and utilization of strong social capital.

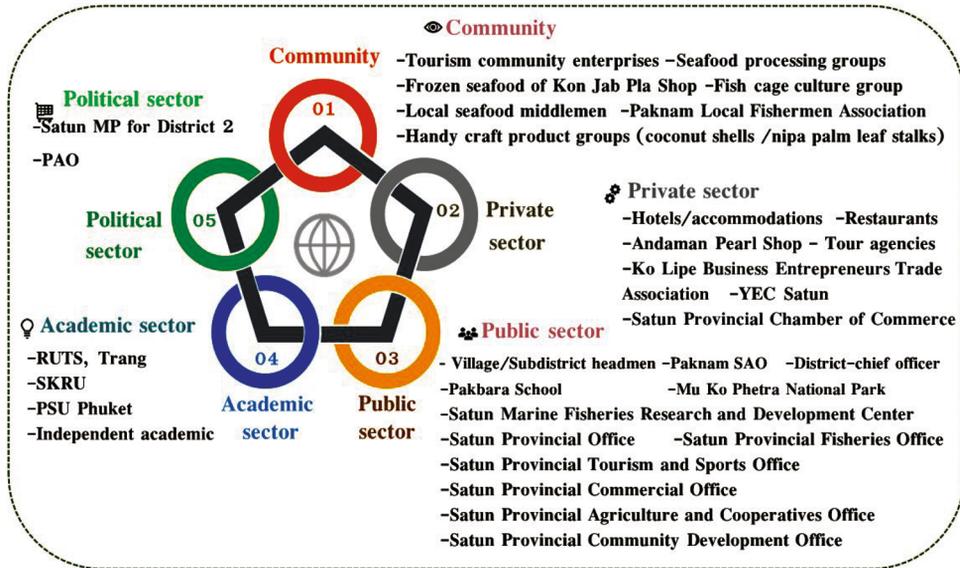


Figure 2 : A Network of Cooperation for Driving the Pakbara Village Destination.

### Step 8: Driving the Business Models

This step focused on implementing the business models at both local and provincial levels.

#### 8.1 Driving the Local Business Models

1) A master plan for Pakbara area for tourism was prepared by landscape architecture scholars, dividing into many pilot projects such as design of a multi-purpose yard and a car park in front of the Pakbara Pier, and development of sidewalks, etc. There were also support projects such as designing areas to promote local business identity, developing tourist areas at child development centers, Satun Marine Fisheries Research Center, and Mu Ko Phetcha National Park. These plans represented “adaptation” and “innovation” in developing infrastructure and services.

2) Digital marketing trainings were conducted for entrepreneurs

3) An exhibition of “Pakbara Village Destination” was organized at the “From the Mountains to the Andaman” event at Pakbara View Point which was a check-in point, as well as activity that attracts a large number of tourists and locals.

4) A forum on “Transforming Pakbara from a passing point to a stopover point” was organized with 109 participants.

5) An assessment of Pakbara tourism readiness was conducted. The survey results found that overall readiness was at a high level (mean = 3.90). In particular, five aspects with high readiness included accommodation (mean = 4.15), tourist attractions (mean = 3.99), tourist activities (mean = 3.90), convenience in accessing tourist attractions (mean = 3.79), and facilities in tourist attractions (mean = 3.70).

6) Evaluation results from entrepreneurs indicated that the rate of tourists staying for 3-day, 2-night remained at 1.5%, which was still less than 3%. This was because the Thai-Malaysian border had just been opened after the COVID 19 pandemic situation. It was suggested that there should be large events and sales of package tour programs. Moreover, hotels should create their own landmarks/check-in points to attract tourists to stay longer.

7) A working group to drive Pakbara Village Destination (PVD) tourism with a clear committee structure was established.

8) Various forms of Pakbara tourism public relations media, such as E-book guides, six video clips and a data system showing tourist destinations for 35 sets, were created.

### ***8.2 Driving the Provincial Business Models***

1) A budget was set up to drive “Pakbara Village Destination” by proposing a project to develop Pakbara tourism destinations to the Provincial Tourism and Sports Office for the amount of 8.5 million baht. This budget was designed to improve public transportation systems, upgrade pushcart vendors, adapt traditional fishing boats for tourism purposes, construct walkway using modular floating pontoons, host the Pakbara Festival, and organize international water sports competitions.

2) A seminar on fisheries business and community products linked to the tourism business on Ko Lipe was organized, which led to business matching (e.g., Nai Ek Robusta Coffee with Pa Mali Omakase). A Community retail business plan was drafted, as well as One Tumbon One Product (OTOP) certification for sweetened fish products of the Pa Khiao Pakbara seafood processing group. This result demonstrated creation of cross-sectoral linkages (as shown in Fig. 3) and innovations in distribution.

3) The PVD Working Group met with the Provincial Governor and relevant government agency heads, who received positive feedback and support for the drive to develop Pakbara tourism.

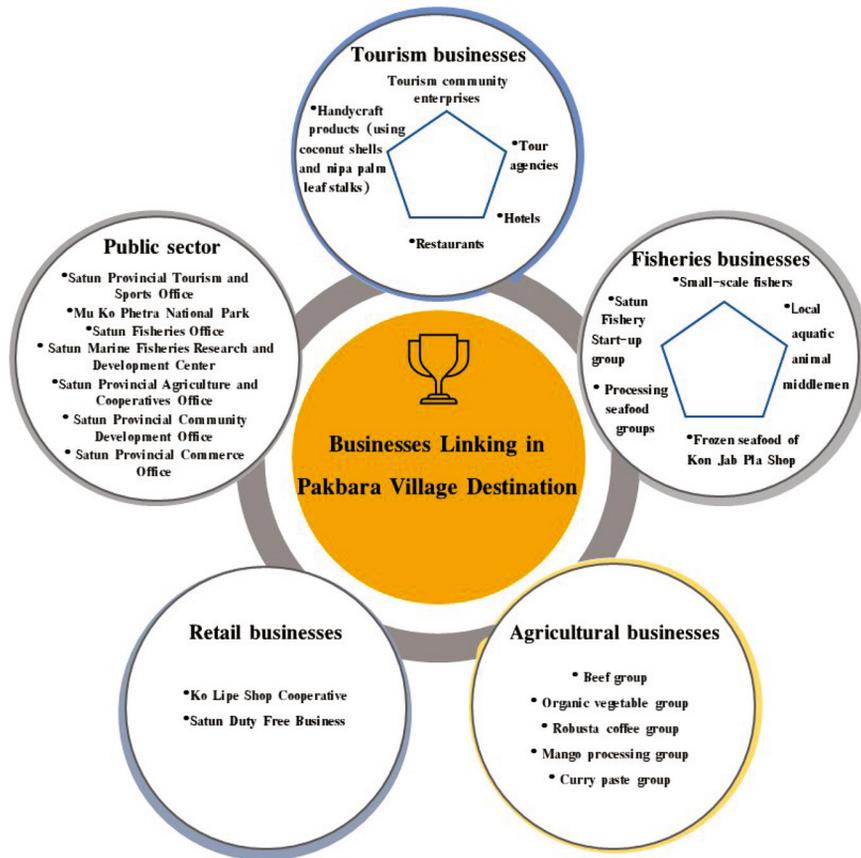


Figure 3 : Linking the Tourism Businesses, the Fisheries Businesses, the Agriculture Businesses, the Retail Businesses, and Public Sector

Source: Improved from Burch and Maes (2017)

## Conclusion

The above activities reflect the ability of local communities and businesses to recover, adapt and create new opportunities amidst challenges, with an emphasis on participation, collaboration and innovation. Business Model Innovation (BMI) and Business Model Canvas (BMC) were key tools for creating value and driving strategic changes. In addition, participatory action research (PAR) methodology promoted participatory approaches involving community, business sector, public sector, political sector and academic sector to understand problems, develop solutions and lead to tangible changes.

However, although this research report did not directly address the Sustainable Development Goals (SDGs), the content and objectives of the research were linked to several SDG targets, particularly sustainability in the economic, social, and environmental dimensions, including SDG 8: Decent Work and Economic Growth; SDG 14: Life Below Water; SDG 17: Partnerships for the Goals; SDG 1: No Poverty; SDG 11: Sustainable Cities and Communities; and SDG 12: Responsible Consumption and Production.

In conclusion, this research presents a concrete approach for local business adaptation, with a collaborative mechanism with the public sector and other sectors. These mechanisms contribute to effective policy change and investment decisions, and support the achievement of sustainable development goals in multiple dimensions

## Discussion

This study aims to investigate adaptation of local businesses using the business models that link tourism and fisheries affected by the COVID-19 pandemic in the coastal areas of Satun Province. The research yields seven business models in three main business groups, which are the results of applying the PAR process. This section analyzes the study findings in depth under the framework of key concepts and theories, including organizational adaptation theory, business model innovation, community innovation, and social capital theory, and compares them with relevant research. It highlights new research findings and presents both limitations and future research directions.

## Adaptation of Local Businesses in Crisis

The study clearly shows that local businesses in the coastal areas of Satun Province have significantly “adapted” to cope with the impacts of the COVID-19 crisis and market changes. The development of seven new business models across three business sectors-tourism, fisheries and retail-reflects efforts to transform strategies and operational processes to build resilience and survival. This finding is consistent with organizational adaptation theory which states that organizations need to adapt in response to fluctuated external environments (Sarta et al., 2021). For example, Pakbara's attempt to transform its status from a “passing point” to a “stopover point” through the creation of new overnight tour programs and check-in points represents a strategic shift to enhance its competitiveness.

This adaptation has been both incremental, such as the expansion of Kon Jab Pla Shop' services to offer catering and boxed lunches, and rapid changes that could lead to long-term radical transformation, such as the Satun Fishery Start-up model that uses school grounds for aquaculture. These are examples of creative use of resources to generate income and social benefits. This finding is consistent with research indicating that SMEs are flexible in adapting to rapid change (Gregurec et al., 2021). However, despite the aggressive adjustment, the 3-day, 2-night occupancy rate remained at 1.5%, below the 3% target. This indicates that business's adaptations continue to face obstacles from an unfavorable external environment. (Sarta et al., 2021) or from the tourists that still not fully recovered after the crisis.

### **Business Model Innovation and Community Innovation**

The new business models emerging in this study are clear examples of "Business Model Innovation" (BMI), which is not simply technological innovation but rather a transformation or redesign of the business to create value and enhance competitive advantage (Vils et al., 2017). The development of the business models that link tourism and fisheries businesses in B2C, B2B and B2B2C formats demonstrates the creation of creative and differentiated business practices.

Moreover, the emergence of these models reflects "community-based innovation," which is an innovation initiated from the grassroots, emphasizing self-reliance and link to local wisdom (Sarabia-Molina et al., 2022). Community participation in surveying community potential, including designing new check-in points or using public areas for aquaculture, are innovations that result from cooperation and creativity of local people. This finding fills a gap where BMI research has often focused on large organizations or technological innovations (Ibarra et al., 2020). This research suggests that innovation can also take place in the context of local businesses and traditional sectors, with community participation as a key driving force.

### **The Strategic Role of Social Capital in Community-Based Business Transformation**

The success of driving business models and tangible adaptations in Satun Province does not come from economic factors alone, but also from strong "social capital". Stakeholders from five sectors (community, private sector, public sector, political sector and academic sector) can gather, discuss and work together continuously. This reflects the effective creation and utilization of networks of relationships, mutual trust, and shared social norms. The organization

of a seminar on fisheries businesses and community products linked to tourism on Ko Lipe, leading to business matching and OTOP certification, is a clear example of the use of “Linking Capital” (relationships linked to those with power in the social hierarchy) and “Bridging Capital” (ties that connect different groups) (Nahapiet & Ghoshal, 1998; Tsounis & Xanthopoulou, 2024). These will facilitate resource mobilization, coordination, and collaborative decision-making. This finding is consistent with research indicating that social capital is crucial in driving community development and solving complex problems (Halstead et al., 2022; Kim, 2018). This research therefore fills a gap in the study of social capital in the context of local businesses affected by the crisis by demonstrating the mechanisms through which social capital can be transformed into tangible outcomes in adaptation and innovation.

### **The Role of Participatory Action Research (PAR)**

Participatory action research (PAR) plays a crucial role in facilitating these adaptations and innovations. PAR processes emphasize collaborative learning, empowerment, and deep stakeholder engagement (Soedarwo et al., 2022) enable communities to collaboratively analyze problems, design business models, and drive grassroots change. PAR also prioritizes local wisdom and promotes independent thinking, ensuring that the resulting business model is appropriate and sustainable within the community context. Although PAR may have limitations in terms of strictness in specifying the exact numbers of sample (Bennett, 2019), the depth of understanding of the processes and actual outcomes of participation is invaluable to this research.

### **Suggestions**

#### ***1. Practical Recommendations***

The findings of this research have practical implications for local businesses and stakeholders in the coastal areas of Satun Province, particularly in promoting adaption and innovation during crises, namely:

1.1 Entrepreneurs in the tourism, fisheries, and retail sectors should consider applying the seven developed business models for their own use or investment in their own context, especially models that focus on connecting among sectors (B2C B2B B2B2C) to create new sources of income and increase variety of products and services. Focus should be placed on promoting experiential tourism such as handicraft workshops, fishing, etc., to attract tourists to stay longer and create different value from the passing point.

1.2 Emphasis should be placed on strengthening cooperation networks, in which entrepreneurs and communities should continue and expand cooperation networks with various sectors (public sector, private sector, political sector, and academic sector) in order to mobilize resources, exchange knowledge, solve problems together and access new markets. This will not only help to build social capital and enhance capacity to drive development projects, but also reduce risks, create added value, open up new business opportunities, and increase investment opportunities for entrepreneurs. In addition, vertical relationships, such as OTOP product producers collaborating with designers to create local identities, could be used to increase value of the products.

1.3 Local businesses should be encouraged to leverage digital technologies for public relations, online marketing and customer data management to increase market access.

1.4 Emphasis should be placed on developing the unique features and identity of Pakbara and nearby areas to become known as a “stopover point” with diverse activities and outstanding cultural and natural values.

1.5 Data-driven management should be promoted, with entrepreneurs taking advantage of Satun Province Aquatic Animal Fishing Season Calendar for tourism and resource management.

## ***2. Policy Recommendations***

The findings of this research have policy implications for government agencies and policymakers in supporting adaptation for sustainable local business development, as well as policy and regulatory development. This research suggests that relevant policies should be developed as follows:

2.1 Promote sectoral linkages: Government agencies should have policies that promote and facilitate business matching among tourism, fisheries, and retail businesses, as well as to support the creation of concrete cross-sector cooperation networks to strengthen local business ecosystem.

2.2 Develop the potential of entrepreneurs: Government agencies should continuously provide training and knowledge to local entrepreneurs, especially in digital marketing, business model management and experiential product development, in order to enhance competitiveness and adaptability.

2.3 Support community innovation: Government agencies should have policies that support and provide rewards for community-based innovations (such as the Satun Fishery Start-up model) in order to promote creative resource utilization and create economic and social benefits at the local level. Furthermore, there should be cooperation among the public sector, private sector, and academic sector to support resources, knowledge, and problem-solving in implementing community innovations, such as incubator units or mechanisms that specifically support community innovations.

2.4 Provide continuous monitoring and evaluation: Government agencies should establish a system for monitoring and evaluating occupancy rates and the impact of tourism development so that policies and strategies can be adjusted in a timely and effective manner.

2.5 Ensure alignment of policies with local needs: Government agencies should develop provincial and local policies that are consistent with the areas' needs. This research uses participatory action research (PAR) methodology that involved stakeholders from five sectors. This participation process ensures that the developed business models are aligned with local needs and possibilities, which is a crucial basis for formulating targeted policies. Furthermore, the Satun Provincial Development Model is resulting from synthesis and enhancement of seven business models, a strategic plan model that emerges from a collaborative network. This demonstrates that research findings can be directly transformed into provincial strategic plans.

2.6 Develop infrastructure and tourism promotion: Government agencies should develop infrastructure and promote tourism in the area. A survey and assessment of the potential tourist attractions has resulted in findings on the strengths and improvements of nine tourist attractions, including the creation of seven new check-in points. This information is directly useful for government agencies decision-making in allocating budgets to develop infrastructure and promote tourism in the area.

2.7 Provide regulatory support aligned with UNESCO guidelines: Government agencies should support regulations. Satun Province's status as a UNESCO Global Geopark means that any development in the area must be considered in accordance with the UNESCO's requirements. The research findings and recommendations on new check-in points can help government agencies to consider policies and regulations that promote tourism while preserving the environment and natural heritage.

### 3. Recommendations for Future Research

This study has some limitations that should be considered. First, the study focused on a specific area in Satun Province, which may limit the scope of the results from other geographic contexts or business types. Second, in developing new business models, local cultural factors, community values, and social relations should be considered in all elements of the BMC to ensure that the business model is more contextual and more community-acceptable.

### Acknowledgments

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