JOURNAL OF CULTURAL ANALYSIS AND SOCIAL CHANGE

Journal of Cultural Analysis and Social Change,
2026, 11(2) 566-572
ISSN: 2589-1316

The Development of Management Model for Processed Agricultural Products to Enhance Value for The Khao Yai Nature Community Enterprise

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Citation: Ruktanatuch, K., Ruktanatuch, T. and Ruktanatuch, S. (2026). The Development of Management Model for Processed Agricultural Products to Enhance Value for The Khao Yai Nature Community Enterprise, *Journal of Cultural Analysis and Social Change*, 11(2) 566-572. https://doi.org/10.64753/jcasc.v11i2.4972

Published: August 06, 2026

ABSTRACT

This study aimed to: 1) Examine the current conditions and the factors affecting the management of processed agricultural products of the Khaoyai Thammachat Community Enterprise, 2) Analyze appropriate approaches and practices for enhancing management efficiency, 3) Develop and present a management model that corresponds to the context of the community enterprise, and 4) Test and evaluate the effectiveness of the developed model. The population of the study consisted of 10 members of the community enterprise, selected through purposive sampling. The research employed a mixed-methods approach, and the instruments used for data collection included in-depth interviews and a 5-point rating scale questionnaire. Data analysis utilized descriptive statistics, namely mean and standard deviation, SWOT analysis, and paired t-test. The results revealed that 1) The current conditions of the management of processed agricultural products were overall at a high level, with a mean of 3.89 and a standard deviation of 0.49. When considering each aspect, competitiveness had the highest mean (4.00), followed by production technology (3.94), and management and human resources (3.86). 2) The SWOT analysis indicated that the strengths of the community enterprise included trustworthy leadership and the use of resources that reflect local identity, while the weaknesses were the lack of a systematic business plan and limited knowledge of production and marketing technologies. 3) The developed management model resulted from synthesizing SWOT information together with best practices, aiming to address structural problems and support longterm capacity development. and 4) Sixty percent of the members showed improved operational capability, and post-training knowledge scores increased significantly according.

Keywords: Community Enterpris; Processed Agriculture; Management; Value Addition; Model Development.

INTRODUCTION

Thailand's agricultural sector is currently confronting significant challenges in enhancing product value to align with evolving market trends and changing consumer behaviors. Although Thailand possesses high potential in agricultural production, value creation remains a critical issue that requires urgent development. Notably, in 2023, Thailand's total export value reached USD 284,561.8 million, with agricultural and agro-industrial exports accounting for USD 49,203.1 million, or approximately THB 1.69 trillion (Chainat Provincial Commerce Office, 2024). This reflects the pivotal economic role that the agricultural sector continues to play for the country.

However, community enterprises which serve as the foundational economic engine still face substantial operational obstacles regarding business management, marketing, and supply chain development. This is particularly prevalent among groups focusing on natural and organic agricultural products, such as the Khao Yai Nature Community Enterprise. Historically, issues such as falling crop prices and produce spoilage caused by natural conditions made processing a crucial strategy for adding value and satisfying diverse consumer demands. Moreover, current consumer trends increasingly demand convenient products tailored to the fast-paced urban lifestyle (Khongkoed et al., 2022).

Amid intense market competition and rapid technological advancements, entrepreneurs must continuously develop new products. Creating innovative and unique products enables businesses to better respond to market demands. Key strategies include quality improvement and the introduction of new offerings that match consumer behavior. Although community enterprise products have gained increasing attention and entrepreneurs strive to utilize local resources to produce quality goods, critical elements such as packaging design, packaging development, and technological integration into production and distribution are frequently overlooked. These components are vital for value addition and achieving market differentiation. Many entrepreneurs still lack awareness regarding the application of technology and packaging enhancement, which limits their ability to fully reach target markets. Consequently, encouraging entrepreneurs to prioritize effective product design and packaging development represents a vital pathway to increasing product value and strengthening market competitiveness (Srathongkham et al., 2022).

Community enterprises serve as crucial drivers of the grass-roots economy. Established through the collective efforts of local citizens for the benefit of the community, members share responsibility for business operations, making these enterprises an essential mechanism for local economic advancement. They promote non-complex business management learning (Srisuk, 2022), foster public-spirited collaboration, and manage benefits to develop the community, thereby strengthening local economic, social, and resource frameworks (Phaokhunthod, 2021). Thus, developing community enterprises is considered a fundamental approach to alleviating poverty and fostering socio-economic sustainability by encouraging local populations to utilize indigenous resources efficiently toward self-reliance. Community enterprises prioritize sharing and mutual aid over competition, fostering solidarity and unity within the community (Silanulomo, 2021).

To ensure sustainable growth and competitiveness for community enterprises, product management is a paramount factor requiring comprehensive development. This encompasses multiple dimensions, including organizational management, business planning, human resource management, raw material management, technological adoption to boost production efficiency, and competitiveness enhancement through quality improvement, packaging design, and brand building to create value (Chunwallipha, 2020).

The Khao Yai area is rich in natural resources and holds immense potential for developing unique processed agricultural products, such as herbal products, processed fruits, and health foods. However, a major impediment is the lack of systematic management guidelines, which prevents the full realization of its inherent potential. The Khao Yai region is well-suited for cultivating temperate crops and fruits that can be processed into high-value products aligned with health-conscious consumer trends. Despite the high potential of raw materials, inefficient management leads to non-standardized products that fail to compete in the market.

To enable community enterprises to maximize their potential, it is necessary to establish an efficient management system that emphasizes education in product development, business administration, and digital marketing, alongside international-standard quality assurance and distinctive brand creation. Furthermore, government entities and relevant agencies should provide financial support and infrastructure to bolster long-term capacity (Nakhon Ratchasima Provincial Agricultural Extension Office, 2023).

Synthesizing these rationale, the researcher is interested in studying **"Developing a Product Management Model for Processed Agricultural Products to Enhance Value for the Khao Yai Nature Community Enterprise."** Given the pivotal role of community enterprises in fostering strong and sustainable socio-economic development, this study focuses on establishing a comprehensive management model to assist community enterprises in increasing product value, meeting market demands, and competing effectively within the processed agricultural industry.

Research Objectives

1. To examine the current state and factors affecting the product management of processed agricultural products in the Khao Yai Nature Community Enterprise.
2. To analyze appropriate guidelines and best practices for developing a product management model aimed at value enhancement for processed agricultural products.
3. To develop and propose a product management model for processed agricultural products capable of enhancing value for the Khao Yai Nature Community Enterprise.
4. To test and evaluate the efficiency of the developed product management model to ensure its practical applicability in strengthening the local community economy.

RESEARCH METHODOLOGY

This study adopts a **Mixed-Methods Research** design, structured into four sequential phases as follows:

Phase 1: Examining the Current State and Factors Affecting the Product Management of Processed Agricultural Products of the Khao Yai Nature Community Enterprise

This phase utilizes a **survey research design**, integrating both qualitative and quantitative data collection methods to examine the current state and factors impacting the product management of the Khao Yai Nature Community Enterprise.

- **Population and Sample:** The target population is the Khao Yai Nature Community Enterprise. A sample of **10 key operational members** was selected using **purposive sampling**. Selection criteria required members to hold active operational roles, possess direct experience, and have participated in capacity-building activities at the Public Learning Center (Life University, Bunto Khao Yai Resort).
- **Research Instruments:** The data collection tool consists of two main parts:
    1. An **In-depth Interview Guide** for qualitative data retrieval.
    2. A **5-point Rating Scale Questionnaire** for quantitative data, covering management factors, personnel, raw materials, technology, and competitiveness.
- **Instrument Quality Assurance:** The draft instruments were reviewed by the thesis advisor for content coverage and language clarity. Subsequently, a panel of experts evaluated the instruments to determine the **Item-Objective Congruence (IOC)** index, yielding an acceptable value of **IOC = 0.8** (exceeding the 0.5 threshold). A **try-out** was conducted with 30 members of another community enterprise to evaluate internal consistency via **Cronbach's Alpha**, resulting in a reliability coefficient greater than **0.80**, indicating high reliability.
- **Data Analysis:** Qualitative data were processed using **Content Analysis** across three stages: data condensation, data display, and conclusion drawing/verification, supported by **Data Triangulation** to ensure validity. Quantitative data were analyzed using **Descriptive Statistics** (frequencies, percentages, means, and standard deviations) to describe demographic profiles and levels of opinion regarding managerial factors.

Phase 2: Analyzing Appropriate Guidelines and Best Practices for Developing a Value-Adding Product Management Model

This phase employs an **analytical research design** aimed at conducting an in-depth synthesis of Phase 1 findings to establish optimal guidelines and best practices for model development.

- **Data Sources:** Rather than selecting additional samples, this phase analyzes internal empirical data from the Khao Yai Nature Community Enterprise gathered in Phase 1 alongside external benchmark data.
- **Research Instruments:** The primary analytical frameworks consist of a **Best Practices Framework** and a **SWOT Analysis Matrix**. Rather than applying statistical validation, these instruments serve as conceptual structures to organize and synthesize data rationally and accurately.
- **Data Analysis:** A logical synthesis process was conducted to identify development strategies across five core dimensions: (1) operational process optimization, (2) human resource capacity building, (3) new product development and innovation, (4) marketing channel expansion, and (5) appropriate resource and tool allocation. The output comprises a strategic roadmap aligned with the internal strengths, weaknesses, external opportunities, and threats (SWOT) of the enterprise.

Phase 3: Developing and Proposing a Value-Adding Product Management Model for the Khao Yai Nature Community Enterprise

This phase utilizes a **developmental research design**, applying Phase 2 analytical outputs to design a comprehensive **Management Model** and formulate strategic **Development Plans** at both the business level (Business Development Plan) and organizational level (Community Enterprise Development Plan).

- **Data Synthesis and Framework:** This phase relies on qualitative synthesis and domain knowledge rather than direct primary field sampling. The core instrument is a **Strategic Development Model**, which provides the structural blueprint across three main dimensions: (1) management model construction, (2) technology and innovation integration, and (3) strategic marketing formulation, alongside development plans encompassing 4–5 core operational components.
- **Data Analysis:** Data processing involves **systematization and structural synthesis** to produce a concrete model and actionable development plans ready for empirical testing in the subsequent phase.

Phase 4: Testing and Evaluating the Efficiency of the Developed Product Management Model for Practical Community Economic Development

This phase employs an **experimental research design** to pilot-test and evaluate the operational efficiency of the developed management model.

- **Sample:** The model was tested with the same target sample of **10 key members** of the Khao Yai Nature Community Enterprise.
- **Evaluation Instruments:** Two primary tools were utilized:
    1. A **Community Enterprise Capacity Assessment Form (Revised 2019)**, consisting of 36 items on a 3-point rating scale, administered as a **Pre-test** and **Post-test** to measure organizational strength before and after model implementation.
    2. A **Knowledge Assessment Test**, comprising 15 Yes/No items, administered as a Pre-test and Post-test to measure the executive committee's comprehension and practical management skills.
- **Data Analysis:** Quantitative evaluation used **Descriptive Statistics** (means and percentages) and inferential analysis using a **Paired-Samples t-test**. The t-test measured statistically significant differences between pre- and post-implementation scores across enterprise capacity and managerial knowledge, thereby establishing model efficacy and identifying refineable areas prior to finalizing recommendations.

DISCUSSION OF FINDINGS

Phase 1: Examining the Current State and Factors Affecting Product Management

The findings indicated that operational management in the Khao Yai Nature Community Enterprise was predominantly informal, lacking written business plans, structured accounting systems, and data analytics. Production technology was largely outdated, resulting in limited capacity and inconsistent quality control. Additionally, the enterprise lacked specialized personnel in marketing and brand building. Nevertheless, key strengths included high member collaboration, the utilization of local resources, and ongoing attempts to leverage digital communication.

These findings align with the study by **Paekul (2021)**, which highlighted that food-processing community enterprises face significant challenges in differentiating products, creating unique packaging, and acquiring knowledge regarding value addition. Furthermore, the results corroborate **Prachakul (2021)**, who identified overarching issues among community enterprises specifically non-standardized production, intense market competition, and the absence of efficient accounting systems which fundamentally impede both operational and financial management.

Phase 2: Analyzing Appropriate Guidelines and Best Practices for Value Enhancement

The analysis revealed that key internal strengths comprised a simplified management structure, strong interpersonal relationships, trusted leadership, and the application of local wisdom to produce unique health-oriented products. However, critical weaknesses included a lack of systematic business planning, insufficient digital and business skills among older members, and the absence of long-term raw material management. On the other hand, promising opportunities stem from the growing health-conscious consumer trend and government support. These empirical insights align with **Jongchaipattana (2021)**, who proposed balanced management strategies emphasizing systematic accounting, online marketing, prototype product development, and external learning approaches that directly address the identified weaknesses. Similarly, **Phaokhunthod (2021)** emphasized core remedial actions, such as human resource enhancement, government cost subsidization, and internal accounting training to strengthen organizational resilience.

Phase 3: Developing and Proposing a Value-Adding Product Management Model

The developed model focuses on utilizing local resources sustainably and enhancing local wisdom through innovation. It establishes a clear vision alongside quantitative targets (e.g., increasing sales revenue by 30%–100%). The strategy encompasses the entire value chain: upstream (R&D and product development), midstream (packaging design and distribution channels), and downstream (branding and digital marketing). Furthermore, the model emphasizes transparent organizational management, auditable basic accounting, and continuous capability building.

This model corresponds with **Somkhong (2020)**, who developed a 9-dimension business management model for the cosmetics industry—incorporating strategic planning, human resource management, production standards, customer responsiveness, product identity, marketing communications, and distribution channels. The findings

also align with **Prachakul (2021)**, who advocated proactive strategies for leadership and member development, product standardization, and online channel expansion.

Phase 4: Testing and Evaluating Model Efficiency for Community Economic Development

The empirical evaluation demonstrated a marked improvement in operational efficiency: **60% of the community enterprise sample attained a "Good" competency level**, with zero instances classified under "Needs Improvement." Furthermore, pre- and post-workshop knowledge assessment scores exhibited a statistically significant difference ($p = .000$), demonstrating that the model effectively enhances human resource capabilities for practical implementation.

These results are supported by **Incharoen (2021)**, who asserted that effective management relies on participatory planning, explicit organizational structure, transparent financial accounting, proper role allocation, and technology adoption in production. Additionally, the results align with **Rattana-phonthi (2023)**, who emphasized the importance of establishing cultural community enterprise models to enter markets systematically, thereby elevating operational performance and long-term competitiveness.

Novel Body of Knowledge

This research synthesizes and confirms the necessity of a Holistic 5-Dimension Management Model for Value Enhancement, expanding and integrating the theoretical elements developed in Phase 3 with the practical implementation and evaluation conducted in Phase 4.

1. Organizational and Human Resource Management Dimension: Focuses on establishing a simplified yet clear organizational structure, defining explicit roles, formulating written business plans, and enhancing specialized member competencies.
2. Product and Quality Development Dimension: Emphasizes merging local resources and wisdom with modern innovation to diversify product offerings, maintain consistent quality control standards, and minimize production loss.
3. Technology and Innovation Adoption Dimension: Focuses on adopting scale-appropriate machinery and modern processes to boost production capacity, lower costs, and create distinct product features.
4. Strategic Marketing and Branding Dimension: Emphasizes value creation through attractive packaging design, distinct brand identity development, and hybrid distribution channels (combining offline and digital marketplaces).
5. Community Development and Sustainability Dimension: Focuses on strengthening enterprise networks, ensuring equitable benefit distribution, and fostering long-term community self-reliance.

Figure 1 Holistic 5-Dimension Management Model for Value Enhancement

CONCLUSION AND RECOMMENDATIONS

Conclusion

The initial investigation (Phase 1) revealed that the Khao Yai Nature Community Enterprise operated informally, lacking written business plans, standardized production technology, and specialized marketing personnel, despite possessing strong internal cohesion and abundant local resources. The subsequent SWOT analysis (Phase 2) corroborated these critical weaknessesparticularly highlighting digital literacy gaps among older members and a lack of systematic managementwhile identifying significant market opportunities in health trends and government support.

These insights informed the development of a comprehensive management model (Phase 3) that integrates local wisdom with modern innovation, establishes a clear vision alongside quantitative targets (30%–100% sales growth), and executes proactive strategies across three value-chain tiers (upstream, midstream, and downstream) supported by modernized packaging design and systematic digital marketing. Finally, empirical pilot testing (Phase 4) confirmed the practical efficacy of the model: 60% of the enterprise sample achieved a "Good" competency level, and executive committee knowledge scores improved with statistical significance, proving the model's viability in driving sustainable community economic growth.

Practical Recommendations

1. Strategic Business Planning and Task Allocation: The community enterprise should formalize explicit business plans to define strategic direction and establish dedicated operational committees (e.g., production, marketing, finance) to distribute workloads and systematically improve overall operational efficiency.
2. Targeted Capacity Building: Intensive practical workshops should be conducted on core operational weak points, including product processing, brand building, packaging design, and especially digital marketing, to upgrade member competencies relative to evolving market demands.
3. Product Innovation and Quality Standard Certification: The enterprise should pursue R&D to formulate new products catering to health-conscious consumers and tourists. Simultaneously, packaging should be modernized with multilingual (English) labeling, and official quality standard certifications (e.g., Thai FDA or Community Product Standards - CPS/.) should be secured to elevate market credibility and access premium market segments.

Recommendations for Future Research

1. Sample Expansion and Comparative Studies: Future studies should expand the sample size to cover community enterprises across multiple districts or provinces to compare management models and critical success factors across diverse socio-economic contexts.
2. Longitudinal Impact Evaluation: Longitudinal research should be conducted to evaluate the long-term impact of the implemented management model on key performance indicators, such as sales revenue, profitability, organizational sustainability, and member satisfaction.
    1. Domain-Specific Inquiries: Future research should focus on targeted operational areas, such as evaluating the direct impact of specific e-commerce platforms (e.g., Facebook, Shopee) on sales conversion, or developing localized branding frameworks tailored to modern consumer behaviors.

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