The Enhancement Product of Hom Mali 105 Rice Flour Through a Participatory Action Research Process in Ban Lao Community, Nong Kae Subdistrict, Mueang Roi Et District, Roi Et Province

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Abstract

Community enterprises in Thailand often struggle with limited product innovation and weak marketing strategies, leading to low competitiveness and unsustainable growth. This study addresses this gap by focusing on the Ban Lao community enterprise producing Hom Mali 105 rice flour. The research aimed to evaluate management potential, develop a prototype product, apply the marketing mix (4Cs), design a Business Model Canvas, and examine the relationship between management capacity and marketing strategies. A mixed-methods approach was employed: qualitative data were collected through interviews with 46 members, a two-month product development experiment with 25 participants, and focus group discussions with 60 stakeholders, while quantitative data were obtained from 400 consumers. Results indicated that the enterprise demonstrated strong management capacity and that prototype product development was effectively driven by participatory processes. The marketing mix and Business Model Canvas were both rated highly, reinforcing strategic planning and community engagement. Statistical analysis confirmed that management capacity significantly correlated with and influenced the marketing mix, particularly in areas of customer service, reputation, product value, quality of life, and environmental factors. These findings highlight that strengthening management potential and integrating participatory approaches are critical for enhancing competitiveness and sustainability of community enterprises.

Keywords: Hom Mali 105 rice flour, Community Enterprise, Participatory Action Research, Management Capacity, Marketing mix

Introduction

The development of Thailand, as outlined in the 13th National Economic and Social Development Plan spanning from 2023 to 2027, signifies a period of technological advancement. There is a notable increase in the intensity of climate change, an aging society, and geopolitical changes among countries. Driving the country's development necessitates a focus on strengthening internal capabilities to ensure sustainable growth amidst the various uncertainties. It also entails considering the long-term benefits for the country's economy, society, and environment.

However, community businesses have a continuous need to develop and adapt to rapidly changing environments and increased competition in the present. Therefore, community businesses require strategic business development to enhance competitiveness. Using the Business Model Canvas (BMC) theory as a tool can help visualize every aspect of the business, analyze its strengths and weaknesses, and most importantly, serve as a tool for business growth and differentiation. The analysis involves synthesizing data in each relationship channel relevant to the business model (Anukun, 2023).

The community enterprise producing Hom Mali 105 rice flour, located in Ban Lao Village, group 3, Nong Kaeo Sub-district, Mueang Roi Et District, Roi Et Province, is a registered community enterprise established on June 14, 2010. It started with 35 initial members and currently has a total of 45 members. The production equipment includes 3 machines, each with 25 horsepower, and 4 flour mixing machines. There are also packaging and warehouse storage rooms. The purpose of its establishment is to develop rice husks, create commercial added value, and generate income for community members to strengthen sustainability following the sufficiency economy philosophy.

The operations have provided livelihoods for members and some level of self-reliance. However, there is a lack of innovative ideas to significantly increase income and expand production and marketing bases to meet market demand. The emergence of the new epidemic, COVID-19, has adversely affected the sales of Hom Mali 105 rice flour, leading to a reduction in sales to date. Therefore, members of the group have expressed the need to elevate the development of Hom Mali 105 rice flour by introducing new products to offer the market.

Given these challenges, researchers are interested in studying the elevation of Hom Mali 105 rice flour products through participatory action research in the Ban Lao community, Nong Kaeo sub-district, Mueang Roi Et district, Roi Et province. This involves changing community perspectives and attitudes, creating new commercial value for customers, product development, packaging design, market channel development, and marketing promotion, leading to a genuine understanding of customers' needs, both current and future.

Objective

1. To study the management capabilities of the community enterprise producing Hom Mali 105 rice flour, located in Ban Lao Village, Group 3, Nong Kaeo Sub-district, Mueang Roi Et District, Roi Et Province.

2. To develop a prototype community product of semi-finished Hom Mali 105 rice flour.

3.To develop the marketing mix components (4C’s) for the prototype community product of semi-finished Hom Mali 105 rice flour.

4.To develop a Business Model Canvas for the prototype community product of semi-finished Hom Mali 105 rice flour.

5. To test the relationship between management capabilities l and the development of marketing mix components (4C's) for the prototype community product of semi-finished Hom Mali 105 rice flour.

6.To test the impact of management capabilities on the development of marketing mix components (4C's) for the prototype community product of semi-finished Hom Mali 105 rice flour.

Literature Review

Participatory Action Research (PAR) is the application and integration of ideas from Action Research (AR), which is research related to problem identification and resolution. It starts by understanding the current situation and making improvements for better development. Bergold and Thomas (2012) participatory Research (PR) is a collaborative search for knowledge as a group, where all researchers have equal importance and roles in every research process. Amornpinyo (2021) this is appropriate for the context of community enterprises. Participatory Action Research comprises three main components: 1) research, 2) action, and 3) participation from the involved group.

Product Development: Wanitkittikul et al. (2023) the development of products to increase value stems from leveraging existing resources to enhance competitiveness, fostering innovation, and creating novel solutions that meet market demands. This results in improved product quality, uniqueness, difficulty for competitors to replicate, and the ability to create value for customers beyond expectations. Ultimately,
this leads to a competitive advantage. Calantone et al. (2014) suggest that to drive innovative behaviors or practices, it is essential to focus on entrepreneurship, which involves processes, actions, and decision-making patterns that lead to entering new markets with existing or newly developed products and services.

Management potential: Saelee (2015) Potential business management refers to the ability to plan business operations effectively to achieve the highest level of success. It encompasses financial management, production management, human resources management, and marketing management.

Marketing Mix: Kotler et al. (2000) defines the marketing mix as a set of marketing tools that organizations use to implement marketing strategies to achieve the objectives of the target market, which are essential components of marketing strategies comprising of Product, Price, Place, and Promotion. Lauterborn (1990) mentioned that the 4C's Marketing framework consists of Consumer wants and needs, Consumer cost, Convenience to buy, and Communications. Jetsuwarattanamanee (2021) The Marketing Mix Model 4C's refers to the marketing mix components that have an impact on the effectiveness of marketing activities for the group of agricultural homestays. It consists of Consumer Wants and Needs, Consumer's Cost, Convenience to Buy, and Communication.

Although previous studies have focused on product development, management potential, and the application of marketing mix concepts ($_4$P and $_4$C) in community enterprises, there is a lack of integrated research applying Participatory Action Research (PAR) in combination with product development and marketing mix strategies. In particular, studies that involve stakeholders equally in all stages of the research process are limited. Such an approach

could generate locally appropriate strategies that enhance competitiveness and sustainable value creation for community enterprises.

Research Methodology

This study adopted a mixed-methods design, integrating both qualitative and quantitative approaches to provide a comprehensive understanding of the research problem. The rationale for using both methods lies in their complementarity: qualitative methods captured in-depth insights into community perspectives, practices, and challenges, while quantitative methods measured the broader patterns and statistical relationships necessary to validate and generalize findings. This integration ensured that the research objectives - evaluating management capacity, developing a prototype product, and analyzing its marketing potential - were addressed from both exploratory and confirmatory perspectives.

1. Qualitative Research The qualitative phase aimed to explore community context, management capacity, and innovation opportunities. Data were collected using three main tools: In-depth interviews with 46 key informants, including one community leader and 45 members of the community enterprise producing Hom Mali rice flour. A semi-structured interview guide was used, covering topics such as group background, product potential, marketing, innovation, challenges, and development guidelines. Participant observation, enabling the researchers to gain first-hand understanding of practices and group dynamics. Focus group discussions with 60 stakeholders, including one community marketing expert, three university professors, one community leader, 45 members of the enterprise group, and ten students from Roi Et Rajabhat University. To enhance validity, the triangulation method (Denzin, 1978) was employed by combining multiple data sources and techniques. Purposive sampling was applied to select participants with relevant knowledge and direct involvement. The number of informants followed Macmillan's (1971) recommendations to ensure sufficient representation. Data collection was carried out from March to July 2023, including a two-month product demonstration with 25 participants (five nutrition experts, ten enterprise members, and ten students) to test semi-finished rice flour development.

2. The quantitative phase aimed to validate and measure the broader applicability of findings. Data were collected through questionnaires distributed to 400 consumers residing in Nong Kaeo Subdistrict. The sample was calculated from a population of 7,155 individuals using Yamane's formula (1973). To ensure representativeness, a stratified sampling method was employed. The population was first divided into strata by village. Within each stratum, participants were then selected using simple random sampling to minimize selection bias and ensure that each individual in the stratum had an equal chance of being chosen. This approach helped improve the accuracy and generalizability of the study results. The selection criteria required participants to be residents and potential consumers of community products. All questionnaires were returned, giving a 100% response rate.

3. Qualitative data were analyzed thematically to identify patterns, themes, and insights. Quantitative data were analyzed using both descriptive and inferential statistics. Descriptive statistics included percentage, mean, and standard deviation, while the reliability of the measurement instruments was assessed using Cronbach's alpha. Inferential statistics were applied to explore relationships and causal effects among variables: Correlation Analysis: Pearson's correlation was used to examine the strength and direction of relationships between variables, allowing the identification of significant associations. Regression Analysis: Multiple regression analysis was conducted to determine the predictive power of independent variables

on the dependent variable, quantifying the influence of each predictor while controlling for others. The interpretation of mean scores followed the guidelines of Akamavi et al. (2015), providing a standardized framework for evaluating respondents' perceptions.

Research Finding

Part 1: Findings from Interviews. Interviews were conducted with the community leader and 46 members of the community enterprise group producing Hom Mali rice flour, revealing key insights regarding demographics, agricultural practices, and environmental conditions. The majority of the population is engaged in agriculture, including rice farming, animal husbandry, and gardening, with rice cultivation being the primary occupation. Geographically, the area consists of flat plains interspersed with hills and sandy soil, experiencing seasonal flooding during the rainy season and droughts during the hot season. Most land is used for rice cultivation, with some areas dedicated to other crops such as tobacco and vegetables. Water resources, including large and small ponds and the Isaan Green Canal, play a vital role in supporting both agriculture and animal husbandry. Overall, the community demonstrates potential for producing Hom Mali 105 rice flour and for further innovation using local wisdom in product processing.

Part 2: Prototype Community Product Development. Based on the insights from Part 1, the research team developed and experimented with a semi-finished Hom Mali rice flour 105 product. The participants included 5 nutrition and dietetics experts from Roi Et Vocational College, 10 community enterprise members, and 10 university students, totaling 25 individuals.

The semi-finished rice flour formulation consists of Hom Mali rice flour (45.45%), glutinous rice flour (18.19%), soybean flour (27.27%), and taro flour (9.09%). Ingredients are mixed and baked in a hot air oven at 38°C for 3–4 hours, then ground and packaged for distribution. A specific product, "Lod Chong," was prepared by mixing the flours, kneading, molding, and pressing in cold water before serving with sweetened coconut cream and ice water. The coconut cream recipe included coconut milk (1,000 g), palm sugar (1,000 g), salt (3 g), and condensed milk (80 g).

Part 3: Focus Group Discussion. A focus group discussion was conducted to gather further insights, with 60 participants including 1 community leader, 1 marketing expert, 3 university professors, 45 community enterprise members, and 10 students from Roi Et Rajabhat University. Discussions focused on developing a marketing mix (4C's) for the prototype semi-finished product: Customer Consultation: The product brand "Pechpantong" (Golden Diamond) was adopted, featuring a diamond on a golden platform symbolizing the value of rice grains and the benefits delivered to customers. Customer Cost: Pricing was determined based on total production cost (54 baht) plus a profit margin (15 baht), resulting in a selling price of 69 baht. Convenience: Distribution channels were developed for customer convenience, including direct online marketing via Facebook and indirect offline channels through middlemen in multiple provinces. Communication: Marketing communications were primarily conducted through social media to reduce operational costs and effectively reach the target audience.

Part 4: Synthesis and Community Participation. Research team meetings and stakeholder consultations highlighted that the community's strong agricultural base, natural water resources, and willingness to engage in collaborative development create an enabling environment for value-added products like Hom Mali 105 rice flour. A learning exchange platform was established, emphasizing the importance of ingredient combinations for product quality, such as green bean flour for clarity and taro flour for softness.

A Business Model Canvas for the semi-finished product was collaboratively developed by researchers, community leaders, marketing experts, university professors, enterprise members, and students. Community participation was observed to be active, with leaders motivating members, raising awareness, and fostering supplementary livelihoods. Members demonstrated understanding and receptivity to participatory approaches, highlighting the importance of collaboration in ensuring enterprise success.

Connection to Previous Studies and Contributions. These findings align with previous research on community enterprise development and value-added agricultural products, which emphasize the significance of participatory approaches, local knowledge, and effective marketing strategies in enhancing community livelihoods (e.g., Charoenwong, 2018; Somchai & Phumiphat, 2020). This study contributes to existing knowledge by providing a practical framework for integrating community participation, product innovation, and marketing strategies specifically in the context of Hom Mali rice flour production.

Practical Implications and Recommendations. Based on the findings, several practical implications for community enterprises can be drawn: Product Innovation: Communities should leverage local resources and knowledge to develop semi-finished products that add value and meet market demands. Participatory Management: Active involvement of community members and leaders is essential for successful enterprise operations and sustainability. Marketing Strategy: Implementing a structured marketing mix (brand identity, pricing, distribution, and communication) enhances product visibility and customer engagement. Capacity Building: Training and knowledge exchange platforms strengthen skills, encourage innovation, and foster collaborative problem-solving within the community.

Overall, this study demonstrates that integrating local wisdom, community participation, and systematic marketing strategies can enhance the sustainability and competitiveness of community enterprises producing Hom Mali 105 rice flour.

Part: 5 The quantitative research. (1) Results of the Evaluation of Management Potential of the Hom Mali Rice Flour Production Community Enterprise, 105 Based on the assessment presented in Table 1, the overall management potential of the community enterprise involved in the production of Jasmine Rice 105 Flour in Group 3 is rated at a high level ($\bar{x}$= 3.70). When analyzing the specific aspects in order of rank, the top three are as follows: Production ($\bar{x}$= 3.81), Product Value ($\bar{x}$ = 3.79), and Reputation ($\bar{x}$ = 3.77), as detailed in Table 1.

Table 1: Results of the evaluation of the management potential Management Potential

Management Potential	$\bar{x}$	S.D.	Evaluation
1. Product value (V)	3.79	0.38	Much
2. Access (C)	3.73	0.38	Much
3. Management system (S)	3.60	0.32	Much
4. Facilities (F)	3.55	0.29	Much
5. Support Customers (SE)	3.76	0.24	Much
6. Environmental (P)	3.64	0.24	Much
7. Reputation (G)	3.77	0.32	Much
8. Production (A)	3.81	0.19	Much
9. Participation (PA)	3.69	0.28	Much
10. Quality of Life (Q)	3.67	0.32	Much
Total	3.70	0.10	Much

From table 1, The community primarily relies on agriculture, providing a solid foundation for the Hom Mali 105 rice flour enterprise. Seasonal flooding and drought affect production, while land use balances rice cultivation with supplementary crops. Adequate water resources and local knowledge support the potential for value-added product development.

Table 2: The evaluation of the development of the marketing mix (4C's) for the community prototype product "Hom Mali Rice Flour 105 Semi-Processed Lod Chong" indicates that the overall rating, as well as the ratings for each individual aspect, is high ($\bar{x}$= 4.16). When ranking these aspects from highest to lowest, the top three are as follows: Communication ($\bar{x}$ = 4.25), Customer Cost ($\bar{x}$= 4.11), and Customer Care/Problem Solving ($\bar{x}$= 4.04), as shown in Table 2.

Table 2: Result of Marketing Mix

Marketing Mix (M)	$\bar{x}$	S.D.	Evaluation
Customer solution	4.04	0.34	Much
Customer cost	4.11	0.39	Much
Convenience	4.25	0.35	Much
Communication	4.25	0.29	Much
Total	4.16	0.17	Much

From Table 2, The prototype Hom Mali 105 semi-processed rice flour product is well-developed according to the marketing mix framework, with particular strengths in communication and convenience. This suggests that community enterprises can leverage these strengths to promote the product successfully and increase customer engagement.

(3) Hypothesis Testing Results: The Relationship Between the Management Potential of the Community Enterprise Producing Jasmine Rice Flour 105, Village No. 3, and the Development of the Marketing Mix (4C's) for the Prototype Community Product "Lod Chong Jasmine Rice Flour 105, Semi-Processed Lod Chong". The analysis, as presented in Table 3, reveals a significant correlation between the management potential of the community enterprise and the development of the marketing mix (4C's) for the community prototype product "Jasmine Rice 105 Semi-Processed Lod Chong" at a statistically significant level of 0.01. The specific correlations observed for each aspect are as follows: Product Value (V): No significant correlation with the marketing mix components (r = -0.087). Customer Convenience (C): A very low significant correlation with the development of the marketing mix (4C's) for the community prototype product "Jasmine Rice 105 Semi-Processed Lod Chong" in the same direction (r = 0.297). Group Management System (S): No significant correlation with the development of the marketing mix (4C's) (r = 0.012). Facilities (F): No significant correlation with the marketing mix components (r = -0.009). Customer Service Ability (SE): A moderate significant correlation with the development of the marketing mix (4C's) in the opposite direction (r = -0.526). Environment (P): A low significant correlation with the development of the marketing mix in the opposite direction (r = -0.207). Reputation (G): A low significant correlation with the development of the marketing mix in the opposite direction (r = -0.388). Production Activities (A): A very low significant correlation with the development of the marketing mix in the opposite direction (r = -0.141). Community Participation (PA): No significant correlation with the development of the marketing mix (4C's) (r = -0.070). Quality of Life and Community Economy (Q): No significant correlation with the development of the marketing mix (4C's) (r = 0.019). These findings are shown in Table 3.

Table 3: Hypothesis testing Relationship of management potential towards marketing mix

Correlations												
Variable		**V**	**C**	**S**	**F**	**SE**	**P**	**G**	**A**	**PA**	**Q**	**M**
V	r	1	-.085	-.310**	.030	.283**	-.175**	.156**	-.112*	-.158**	-.248**	-.087
C	r		1	.186**	-.010	-.305**	.268**	-.180**	.033	.169**	.020	.297**
S	r			1	-.166**	.038	.116*	-.323**	-.437**	-.052	.066	.012
F	r				1	.261**	.438**	.354**	.178**	-.161**	-.021	.009
SE	r					1	-.039	.393**	.271**	.136**	.151**	-.526**
P	r						1	.102*	.138**	-.072	-.016	.207**
G	r							1	.344**	-.122*	.343**	-.388**
A	r								1	-.082	.253**	-.141**
PA	r									1	-.014	-.070
Q	r										1	.019
M	r											1

****Significant** at the 0.01 level (2-tailed) *Significant at the 0.05 level (2-tailed)

From Table 3, the community enterprise's management potential shows a very low positive correlation with Customer Convenience (C), while Customer Service Ability (SE), Environment (P), Reputation (G), and Production Activities (A) have significant negative correlations with the marketing mix. These negative relationships suggest that high performance in these areas does not automatically translate into effective marketing mix development, highlighting the need for strategic alignment and coordinated planning. Overall, these findings highlight that certain management potential components do not always directly enhance marketing mix development, emphasizing the need for strategic alignment between internal capabilities and marketing initiatives.

(4) Hypothesis Testing Results: The Impact of Management Potential of the Community Enterprise Producing Jasmine Rice Flour 105, Village No. 3, on the Development of the Marketing Mix (4C's) of the Prototype Community Product "Lod Chong Jasmine Rice Flour 105, Semi-Processed" Stepwise multiple regression analysis was conducted to test the impact of management potential on the development of the marketing mix (4C's) for the community prototype product "Jasmine Rice 105 Semi-Processed Lod Chong." The analysis followed the preliminary steps of stepwise regression to ensure that the independent variables were not highly correlated with each other (i.e., no multicollinearity), as presented in Table 4. The analysis indicated that the error terms were independent, as evidenced by a Durbin-Watson value of 1.673, which falls within the acceptable range of 1 to 3 (Field, 2009). Therefore, it can be concluded that the independent variables used in the analysis did not exhibit multicollinearity, a crucial assumption for multiple regression analysis.

Further assessment of the independence of the variables was conducted using the statistical measures of Tolerance and Variance Inflation Factor (VIF). The Tolerance values were close to 1, indicating that the variables were independent. While some variables had Tolerance values greater than 0.5, the VIF values for all independent variables were below 10, confirming that multicollinearity was not an issue (Zahra & Pearce, 1989). The analysis revealed that management potential significantly impacts the development of the marketing mix (4C's) for the community prototype product "Jasmine Rice 105 Semi-Processed Lod Chong" at a statistically significant level of 0.01. The coefficient of determination (R) was 0.697, indicating that 46% of the variance in marketing mix development can be explained by management potential. The standard error of estimate (SEE) was 0.129. The most significant

impact of management potential on the marketing mix development was found in the ability to accommodate customers (SE), with a standardized regression coefficient (ß) of -0.521. This was followed by reputation (G) with ß = -0.416, facilities (F) with ß = 0.213, quality of life and community economy (Q) with ß = 0.303, product value (V) with ß = 0.226, and environment (P) with ß = 0.180. In terms of directionality, management potential positively influenced the development of the marketing mix in aspects such as facilities, quality of life and community economy, product value, and environment, with respective increments of 0.213, 0.303, 0.226, and 0.180. Conversely, management potential had a negative impact on the development of the marketing mix for customer service ability and reputation, with decrements of -0.521 and -0.416, respectively. The analysis also found that customer convenience (C), group management system (S), production activities (A), and community participation (PA) did not significantly impact the development of the marketing mix for the community prototype product "Jasmine Rice 105 Semi-Processed Lod Chong." The final regression equation obtained through stepwise regression analysis is:

Y = 4.482 - 0.368X1 - 0.224X2 + 0.127X3 + 0.166X4 + 0.104X5 + 0.127X6.

In summary, qualitative research findings suggest a positive correlation between community involvement and the development of the community prototype product "Jasmine Rice 105 Semi-Processed Lod Chong." Community leaders play a critical role in raising awareness about community development, creating additional income opportunities, and fostering collaboration. This highlights the importance of community involvement as a key factor for the success of community enterprises, influencing product marketing, enhancing community leader credibility, and fostering motivation and learning within community groups. However, the quantitative research revealed no significant correlation between community involvement and the development of the marketing mix (4C's) of the community prototype product. This suggests that, in quantitative research, community involvement may not have a significant impact on the development of the marketing mix. These differences in outcomes underscore the nature of qualitative research as naturalistic and exploratory, while quantitative research may not always find significant associations between community involvement and specific outcomes like marketing mix development. In conclusion, the significance of community involvement in research processes may differ between qualitative and quantitative approaches. While qualitative research emphasizes community involvement in driving various aspects of community development, quantitative research may not always identify substantial associations between community involvement and specific outcomes. Therefore, the role of community involvement in research processes may not consistently be of significant importance in quantitative research. The factors that most significantly affect the development of the marketing mix (4C's) for community enterprise operators are customer service ability (SE), reputation (G), facilities (F), customer convenience (C), quality of life and community economy (Q), product value (V), and the environment (P). These factors play a crucial role in creating a competitive advantage for community enterprises in the future.

Table 4: Hypothesis testing results the impact of the management potential on the marketing mix.

Management Potential	B	Std. Error	ß	t	P	Tolerance	VIF
Constant	4.482	0.172		25.980**	0.000**		
Support Customers (SE)	-0.368	0.30	-0.521	-12.191**	0.000**	0.752	1.330
Reputation (G)	-0.224	0.025	-0.416	-3.122**	0.000**	0.659	1.517
Facilities (F)	0.127	0.027	0.213	-4.691**	0.000**	0.665	1.504
Quality of Life (Q)	0.166	0.023	0.303	7.078**	0.000**	0.748	1.337
Product value (V)	0.104	0.019	0.226	5.362**	0.000**	0.774	1.291
Environmental (P)	0.127	0.030	0.180	4.237**	0.000**	0.760	1.316
R	R^2	Adjust R^2	SE(est.)	F	Sig	Durbin-Watson	df1 = 2
0.679	0.461	0.452	0.12954	55.952	0.000**	1.673	df2 = 397

****Significant** at the 0.01 level (2-tailed)

From Table 4 , Stepwise regression shows that management potential significantly affects marketing mix development, explaining 46% of the variance ($R^2 = 0.460$). Positive impacts are seen in Facilities, Product Value, Environment, and Quality of Life, while Customer Service Ability (SE) and Reputation (G) have moderate to low negative impacts, suggesting the need for strategic alignment. Customer Convenience, Group Management, Production Activities, and Community Participation are not significant. Qualitative findings highlight the importance of community involvement and leadership, though quantitatively, participation does not significantly influence marketing mix development. Practically, enterprises should align service quality and brand image while leveraging strengths in facilities, product value, environment, and community quality of life to enhance competitiveness. Overall, strategic alignment between management capabilities and marketing activities is essential for sustainable growth and competitive advantage in community enterprises.

Discussion/Conclusion

1 . The evaluation results of the community enterprise potential management for producing Hom Mali 105 rice flour in Moo 3 are at a high level. When considering each aspect, they are as follows: production activity aspect: Emphasizing processes to instill consciousness in conserving natural resources and culture. Creating learning and understanding about the community's way of life and culture. Unique aspects of production activities. Diversity in production activities. Product value aspect: developing products to be aesthetically pleasing. Creating ambiance and natural landscape. Incorporating historical heritage and demonstrating community lifestyles. Reputation Aspect: Establishing recognizable product trademarks. Product image and diversity to gain acceptance from customers. These findings align with the research conducted by Liengjindathaworn & Sansom (2017), which investigated the potential analysis format for developing community products based on resources. The research found

that community development to sustain livelihoods requires self-analysis. Communities must analyze their potential and make efforts to utilize community resources for benefits. Members must analyze strengths, weaknesses, opportunities, and threats to identify problems leading to product development, emphasizing self-reliance. Additionally, Sanont et al. (2022) researched the management potential and business competitiveness strategies of community enterprises producing herbal products in Pak Chong District and Sikhiu District, Nakhon Ratchasima Province. The research found: Management Ability: Group management structure relies on interdependent relationships within the enterprise, utilizing informal relationships for collaborative management. This collaborative work approach ensures the success of the entire group, not just individual members. Product, Process, and Service: Establishing criteria and standards for quality, moisture, cultivation, harvesting, care, and processing. Resource Capability: The area is suitable for herbal cultivation; hence good soil can yield good products. Community members share knowledge and cooperate continuously. The main strategy is to foster cooperation through continuous knowledge sharing, monitoring, and problem-solving, such as helping each other during flood seasons by moving goods to dry storage.

2. The development of the prototype community product, semi-finished Hom Mali 105 rice flour, found that community involvement in the activity is crucial. Regarding community participation, it was found that community leaders are the driving force in stimulating group members and the community towards development. They raise awareness about community development, creating supplementary occupations, generating income, and gaining acceptance and understanding of collaborative management practices within the community. This serves as a vital tool to lead the community towards success, impacting learning, product marketing, community leaders, and group leaders, thus inspiring continued work, learning, and fostering good relationships among group members. These findings are consistent with the research conducted by Chaisuwan et al. (2022), which studied participatory action research for developing community products and digital marketing communication strategies to sustainably boost the community economy. The research discovered that the community products that have been developed and operated by skilled operators have officially established community working groups in the form of community enterprises. For instance, the Nong Noi community has established the Nong Noi Transformation Community Enterprise, while the Wang Man community has established the Good Home Community Enterprise. These community enterprises are managed by local people and have elevated the community's distinctive products, expanding their market. Additionally, sustained group work has been implemented according to the community enterprise process, ensuring continuous collaboration. Furthermore, Innunja & Natakalo (2022) studied the co-creation and development of community products in Kanchanat sub-district, Mueang Phrae district, Phrae province. The research found that the integration of traditional and new knowledge, as well as the artistic identity of the community, has been incorporated into the design and development of community products in Kanchanat sub-district, Mueang Phrae district, Phrae province. The product development begins with the adoption of new technology, such as the use of new rice color sorter machines to maintain the quality of rice for longer periods. With the support of local parents and community leaders, the Kanchanat sub-district designed product labels, specifically for new rice. This new design aims to showcase the local identity.

3. The development of the marketing mix (4C's) for the prototype community product, semi-finished Hom Mali 105 rice flour, found that overall, and in each aspect, it is at a high level. When considering the ranking from highest to lowest, the top three aspects are as follows: Customer Convenience: This aspect involves direct distribution through online systems, product distribution, transportation, and inventory management, as well as multi-channel distribution. It ensures that customers can access the product conveniently through various channels. Communication: Marketing communication involves appointing sales personnel to sell products and services, advertising to stimulate purchase, and promotional activities that are interesting and encourage increased purchases. Effective communication strategies contribute significantly to customer engagement and sales promotion. Customer cost: Setting product prices that are suitable for customers' budgets, offering multiple price levels, and considering both costs and profits when pricing products. Additionally, addressing customer concerns by creating distinctive product brands that are memorable and align with customers' personalities, as well as ensuring that the products meet customers' needs and preferences. These findings are consistent with the research conducted by Udthakham & Sirisugandha (2019), which studied community participation and marketing mix factors affecting the operation of ceramic tourism villages in Koh Kha district, Lampang province. The research found that these villages have well-dressed and articulate staff or entrepreneurs who provide prompt service. They also have convenient locations for travel and a variety of distribution channels. Additionally, they offer attractive products or services that meet customers' needs. Staff or entrepreneurs can provide various information, acting as learning sources about ceramic products, which impresses customers. They also promote sales through discounts, exchanges, giveaways, and reasonable pricing. Moreover, Wangmeng (2021) studied strategies for creating value to deliver woven fabric products of the Mhong hill tribe in Chiang Mai province to digital markets. The research found that respondents' opinions on marketing mix factors were generally at a high level. The most important factors were the necessity and demand of consumers, the cost to consumers, convenience in purchasing, and marketing communication factors. Kaweera (2017) studied the development potential of marketing for the Mae Kai chili farmer group in Ban Tak district, Tak province. The research found that marketing development strategies for the Mae Kai chili farmer group need to be developed collectively to compete in the market. This includes having distinctive products with unique identities, using technology to assist in production to control prices, setting prices suitable for target groups and competitive pricing, identifying target groups clearly in advance and increasing distribution channels, developing promotional plans to promote marketing, and improving personnel.

4. The development of the Business Model Canvas (BMC) for the prototype community product, semi-finished Hom Mali 105 rice flour, has led to clearer goals and objectives in the operation. Members of the community enterprise are now more aware of the necessity and importance of planning operations, helping to define clearer directions and significant outcomes. One key result is that the community enterprise can increase sales by 50% per year, which aligns with the research conducted by Pansomboon (2022) research studied the factors affecting the sales efficiency of jewelry distributor representatives. The study found that using business tools to analyze and evaluate companies helps develop strategies and operational formats. The results of this operational analysis provide insights into the behaviors and expectations of distributor representatives, including the need for useful and continuous sales-related activities, quick information and responses, and a company image that builds trust among distributor groups. When analyzing this data alongside the results of using business tools such as the Business Model Canvas (BMC) and the SWOT-TOWS Matrix, it's observed

that sales for distributor representatives increased by 10.99% in 2020 (the first operational period) compared to the year before the project began. In 2022 (second operational period), sales increased by 6.54% over the previous year and by 18.16% compared to the year before the project began (2019). One study focuses on creating sustainable business models using the BMC to ensure that. Schoormann et al. (2022) business practices align with ecological and social concerns. This research emphasizes the need for tools that support different stages of business model development, from design to implementation and evaluation, while incorporating sustainability aspects.

5. The results of measuring the relationship between management capabilities and the 4C's (Customer solution, Customer cost, Convenience, and Communication) of the community prototype product, semi-finished Hom Mali 105 rice flour, show statistically significant correlations at the 0.01 level. Customer Support (SE): There is a moderately negative correlation with the 4C's, indicating that as customer support improves, the other components of the marketing mix tend to decrease. (r = -0.526). Reputation (G): There is a low negative correlation with the 4C's, indicating that as reputation improves, the other components of the marketing mix tend to decrease. (r = -0.388) Convenience (C): There is a very low positive correlation with the 4C's, suggesting that as convenience increases, the other components of the marketing mix tend to increase as well. (r = 0.297) Environment (P): There is a low negative correlation with the marketing mix, indicating that as environmental factors improve, the other components of the marketing mix tend to decrease. (r = -0.207) Production Activities (A): There is a very low negative correlation with the 4C's, indicating that as production activities increase, the other components of the marketing mix tend to decrease. (r = -0.141) These findings are consistent with the research conducted by Solimun & Fernandes (2018) These findings underline the critical role of management in shaping and implementing effective marketing strategies. By focusing on customer needs, costs, convenience, and communication (the 4C's), management can better align their marketing efforts with consumer expectations, leading to enhanced market performance and customer satisfaction. Akgün & Polat (2022) relationship between management capabilities and the marketing mix. Several studies have shown that effective management plays a crucial role in optimizing the components of the marketing mix (Product, Price, Place, Promotion) and improving overall market performance and customer satisfaction. But Pommarang (2022) on the development of management practices to enhance the effectiveness of community enterprises. The research indicates that overall operational effectiveness of community enterprises, including process and outcome, is not significantly correlated with product and service groups. This may be due to differences in operational processes between product and service groups. However, there is statistically significant correlation at the 0.05 level between community enterprises, indicating a clear direction for both groups.

6. The impact assessment of management capabilities on the marketing mix (4C's) of the semi-finished community prototype product, Hom Mali 105 rice flour, reveals statistically significant correlations at the 0.01 level. The coefficient of determination (R^2) is 0.461, indicating that 46% of the variance in marketing mix components can be explained by management capabilities. The standard error of the estimate (SEE) is 0.129. The management capabilities that have the greatest impact on the marketing mix components are as follows: Customer Support (SE): The standardized regression coefficient (ß) is -0.521, indicating a significant negative impact on customer support, implying that as management capabilities increase, customer support decreases. Reputation (G): The standardized regression coefficient (ß) is -0.416, indicating a significant negative impact on reputation, implying that as management capabilities increase, reputation decreases. Facilities (F): The standardized

regression coefficient (ß) is 0.213, indicating a significant positive impact on convenience, implying that as management capabilities increase, convenience increases. Quality of Life (Q): The standardized regression coefficient (ß) is 0.303, indicating a significant positive impact on quality of life and economic development, implying that as management capabilities increase, quality of life and economic development increase. Product Value (V): The standardized regression coefficient (ß) is 0.226, indicating a significant positive impact on product value, implying that as management capabilities increase, product value increases. Environment (P): The standardized regression coefficient (ß) is 0.180, indicating a significant positive impact on the environment, implying that as management capabilities increase, environmental factors improve. Overall, the findings suggest that management capabilities significantly influence the marketing mix components of the community prototype product. Specifically, improvements in management capabilities are associated with decreases in customer support and reputation but increases in convenience, quality of life and economic development, product value, and environmental factors. "SEGFQVP: Ability to support customers (SE), reputation (G), and facilities. Convenience (F) for improving quality of life, community economy (Q), product value (V), and environment (P) affect the development of the marketing mix (4Cs) for community enterprise operators in creating a competitive advantage in the future." These results align with the research conducted by Pratt (2022) More consumer-centric approach is beneficial for businesses. It emphasizes that management's ability to understand and implement strategies based on customer needs, communication, cost, and convenience can lead to better market performance and customer satisfaction. McKinsey & Company (2024) Effective management plays a crucial role in optimizing the marketing mix (product, price, place, promotion). Strong management capabilities help in making informed decisions that align with strategic goals, ultimately enhancing market performance and customer satisfaction. Kanishk Gupta (2020) One significant study explored the role of the 4C's in building trust and achieving brand loyalty in the fasteners industry. This study demonstrated that strong management capabilities in addressing consumer needs, effective communication, managing costs, and ensuring convenience positively influenced trust. In turn, trust had a strong positive impact on brand loyalty. But Chuayraksa (2016) on the development guidelines for community enterprises, which emphasized factors such as production, marketing, leadership, member involvement, and external relations.

Suggestion

General Suggestions

1. Community enterprises should enhance operational convenience to improve service efficiency and overall productivity.
2. Community enterprises should focus on product design and development to better meet customer needs and maintain market competitiveness.
3. Community participation should be encouraged, as it provides valuable insights into local preferences that can enhance the development of marketing mix components.
4. Involving the community in decision-making fosters stakeholder ownership and loyalty, positively impacting marketing mix development and business success.
5. While customer support is important, management capabilities such as market research, product innovation, and strategic planning are also crucial for developing the marketing mix.

Suggestions for Future Research

1. Study the influence of market potential on community enterprise performance to identify opportunities for growth, customer targeting, and resource optimization.

2. Investigate which marketing mix components most influence consumer behavior toward community products to tailor marketing strategies more effectively.

3. Examine the impact of management capabilities on community enterprise operations to identify key success factors and inform strategies for improving performance.

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