Strategic Planning for Product Diversification of SITTI Technology

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ABSTRACT

Sriharjo Village is one of the villages in the Yogyakarta Special Region with the highest poverty rate. Most of Sriharjo Village's residents work in the agricultural sector, fish farming, animal husbandry, and SMEs. Optimizing rural community participation through Sriharjo Village Development Strategy Plan 2019-2025, focusing on financial independence, is estimated to reduce poverty. The Faculty of Agriculture Technology Universitas Gadjah Mada's team introduced cadet farmers called Taruna Tani Hijaunya Cinta to the SITTI Concept, which is a system that integrates plants, livestock, and fish through the BCG economy approach. SITTI aims to maximize Sriharjo Village's poverty-reduction potential while adhering to sustainability—its downstream technology affected various economic, social, and environmental improvements the previous year. This study examined the potential and strategies for developing product diversification of SITTI. Surveys and questionnaires were used to conduct qualitative research with 30% of cadet farmer members in the village. Data were analyzed using an evaluation matrix of internal and external factors to create a SWOT analysis for the implementation strategy, and Rank Order Centroid (ROC) was used for sensitivity testing on each factor. The Strength, Weakness, Opportunities, and Threats scores are 4.6, 4,0; 3,9; and 2,7; with a consistency ratio of <0,1. According to the evaluation matrix, cadet farmer members could capitalize on their strengths and opportunities while addressing their weaknesses and threats through the SITTI technology development. Strength-Opportunities (SO) strategy to develop and diversify SITTI technology by institutional strengthening, increasing upstream-downstream productivity through henhouse and maggot box expansion, developing product diversification, and product marketing yielded Quadrant 1 results.

Keywords: Development Strategy, Green Economy, Integrated Farming, Product Diversification, Sustainability.

1 Introduction

According to the data collected from BAPPEDA DIY in 2021, Bantul is an area in the Special Region of Yogyakarta with the highest poverty rate. For optimal management, this condition is the focus of the government's attention [1]. Sriharjo Village is one of the settlements in Imogiri District, Bantul Regency, where poverty has persisted since the 1970s due to its remote location, inadequate transit amenities, and low resource quality [2, 3]. Sriharjo Village comprises 501.36 acres and is dominated by hills. It is surrounded by Kebon Agung Village and Karang Tengah Village on the northern side and Mangunan Village and Dlingo District on the eastern side. It is bordered to the south by Selopamioro Village and to the west by Srihardono Village.

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Sriharjo Village's population is involved in various economic sectors, including agriculture, fishery, animal husbandry, tourism, and home industries focused on MSME, contributing to economic growth [4, 5]. Most of Sriharjo Village's population is engaged in agriculture, including rice and secondary crops (*palawija* crops). The operational fisheries and livestock are cultivated freshwater fish and farmed chickens, goats, and cattle. The entire village community will be planned to be involved in the construction project to eradicate poverty. The strategy for Sriharjo Village's development strategy plan over the next six years (2019-2025) will be oriented toward accomplishing the village's vision and mission, which prioritizes establishing economic independence fundamental. The village development's primary objectives are alleviating poverty and maintaining resource management sustainability to foster a prosperous society [6].

Groups of younger farmers who support Sriharjo Village's development strategy plan are potentially responsive and reactive in accepting the introduction of new technology in agriculture. It was seen by effortlessly adapting to technological advancements and ensuring the sustainable development of the Sriharjo Village area, particularly the agricultural sector. The Directorate of Community Service of Universitas Gadjah Mada, along with the Farmer Cadets Group, Taruna Tani Hijaunya Cinta, applied the development and implementation model of the plants, livestock, and fish's system integration called SITTI (*Sistem Integrasi Tanaman, Ternak, dan Ikan*) Technology, approaching to the Bio-circular Green Economy (BCG Economy) in 2021-2022 via the Community Service Program with the Fostered Village Scheme. The downstream of SITTI technology in Sriharjo Village positively impacted economic, social, and environmental factors. It is also required to construct the SITTI technology's tremendous upstream-downstream capabilities regarding strengthening the development of product diversification, marketing, institutional strengthening, and any additional assistance.

The main objective of developing SITTI technology product diversification is to increase productivity, provide added value to economic and social aspects, expand markets while increasing product competitiveness, and efficiently use natural resources. In addition, it will undoubtedly produce a sustainable environment as SITTI technology is created to minimize waste (if possible, zero waste) from the production process. A Strength, Weakness, Opportunity, and Threats (SWOT) analysis requires potential and strategic analysis to accelerate the achievement of the SITTI technology products diversification's development as supporting the green economy area's realization.

2 Research Methodology

2.1 Mechanism of Priority Issue Determination

The mechanism of the discussion carried out between the two parties (Universitas Gadjah Mada (UGM) team and Taruna Tani Hijaunya Cinta) to determine priority issues in several ways, such as (i) in-depth interviews with village officials and group administrators; (ii) rapid rural appraisal (RRA) to solicit input from members of the wider community; (iii) direct observation and direct field measurements; and (iv) discussion of the joint observations' results between the UGM team and partner groups. Aside from referring to the joint discussions' results between the two parties, other primary considerations in determining priority issues include the village development strategy plan, the availability of existing resources, the commitment of partner group participation, and government support.

2.2 IFE, EFE and SWOT Analysis

This program was conducted from August to October 2022 in Sriharjo Village, Imogiri, Bantul, Yogyakarta. Respondents for this study represented 30% of the total number of cadet farmers (10 persons), as determined by a purposive sampling technique based on the researcher's goals and considerations. The techniques that are used to collect information are by conducting interviews and surveys. The qualitative

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descriptive analysis used a SWOT framework to analyze the SITTI technology product diversification. The study describes the Internal Factor Evaluation (IFE) for SITTI implementation potential, product creation, accessibility, management, productivity, and facilities. In addition, the External Evaluation Factors (EFE) were also determined by analyzing the opportunities and threats offered by commercial, public, and government support to strengthen the SITTI technology's future development [7].

Each identified internal and external criteria is weighted to demonstrate their proportional significance in determining the success of implementing SITTI technology product diversification. This weighted value ranges from 0.0 – 1.0, obtained from the division of the significance rating value by the total number of significance rating values for each factor in one matrix. The total weighting will be worth 1.0 for each matrix. Each factor's success in implementing SITTI is proportional to its weighting value. Scoring and rating assessment is carried out afterward by the respondents obtained through a questionnaire—which the scoring illustrates the relative importance of each factor in determining the SITTI implementation's success. It is defined into five items on the Likert scale, where the numbers 1 = disagree, 2 = disagree, 3 = quite agree, 4 = agree, and 5 = strongly agree.

The weight assessment and ranking results will then be multiplied by the number of respondents to get a percentage of the score for each statement in the factor. The scoring assessment compares the respondents' scores with the maximum number of scores set in the questionnaire. After obtaining the percentage score data for each statement on internal and external factors, the percentages are converted into a combined rating to determine the criteria for internal and external conditions by determining the interval distance. Validation of each statement in the factors is carried out to determine the total score of the internal and external conditions of the SITTI implementation by multiplying the combined rating by the weighting. The validation criteria used are described in Table 1. The strategy is developed based on a combination of strategies, the S-O (Strength-Opportunity) Strategy, the W-O (Weakness-Opportunity) Strategy, the S-T Strategy (Strength-Threat), and the W-T (Weakness-Threat) Strategy [7].

Table 1: *Eligibility criteria intervals.*

Percentage	Criteria	Combined Rating
84% –100%	Very worth it	4 - 5
68% – 83%	Well worth it	3 - 4
52% – 67%	Decent enough	2 - 3
36% – 51%	Less feasible	1 - 2
20% – 35%	Not feasible	1

2.3 Sensitivity Analysis Using Rank Order Centroid (ROC)

Rank Order Centroid (ROC) is carried out to determine the weight replacement for each factor according to the ranking based on priority. The factor weight values in the ROC were obtained for each factor; then, a sensitivity test was carried out. The weight value that has been obtained will be multiplied by the rating that has been determined earlier to determine the sensitivity score for each factor. The value of the consistency index (CI, %) is obtained by subtracting the score from the survey results from the score from the sensitivity test and dividing it by the number of factors. The Consistency Ratio (CR) value is obtained by dividing the CI value by the Random Index (RI, %) value, 0, 0, 0.58, 0.9, and 1.12 for matrix orders 1, 2, 3, 4, and 5, respectively. CR values that show ≤ 0.1 indicate that the factors made are consistent [8].

3 Results and Discussion

3.1 SITTI Technology Implementation and Product Diversification

Plant - Livestock - Fish Integration System (*Sistem Integrasi Tanaman, Ternak, dan Ikan,* SITTI) integrates three interrelated systems that provide a positive-closed loop response in the form of material and energy flows. SITTI technology is synergized with the BGC economy idea, namely (i) bio-economy, (ii) green economy, and (iii) circular economy, to provide assurances of resolving challenges based on the improvement of the community's economic situations by optimizing agricultural systems. The synergy between SITTI and the BGC economy is a comprehensive solution to solving problems while still considering the balance of the ecosystem, both from the residents' economic, social, and environmental aspects. Figure 1 explains the connection between SITTI technological products and providing solutions to prioritized challenges.

In 2021, through the Community Service Program under the Fostered Village Scheme, the Directorate of Community Service UGM and the Cadets Group, Taruna Tani Hijaunya Cinta, implemented the development of the SITTI technology by the BGC economy approach. At the stage of cultivation, it has been observed to have the most significant impact on production and resource utilization. The tremendous impact is related to the use of maggot larvae to replace chicken and catfish feed by 20-30%; this utilization will reduce costs or production capital incurred by farmers. In addition, the management of household organic waste becomes more optimal with the help of maggot farming. The Cadets group has benefited from applying this SITTI technology, such as the first catfish harvest of 250 kg and hens production of up to 45 kg of eggs/month. SITTI can increase the productivity of the farming system; specifically, the laying hens' subsystem that can produce eggs, the catfish subsystem produces fresh catfish meat, the fly subsystem (BFS) produces eggs, maggot larvae, pupae, and fertilizer processed by maggot larvae.

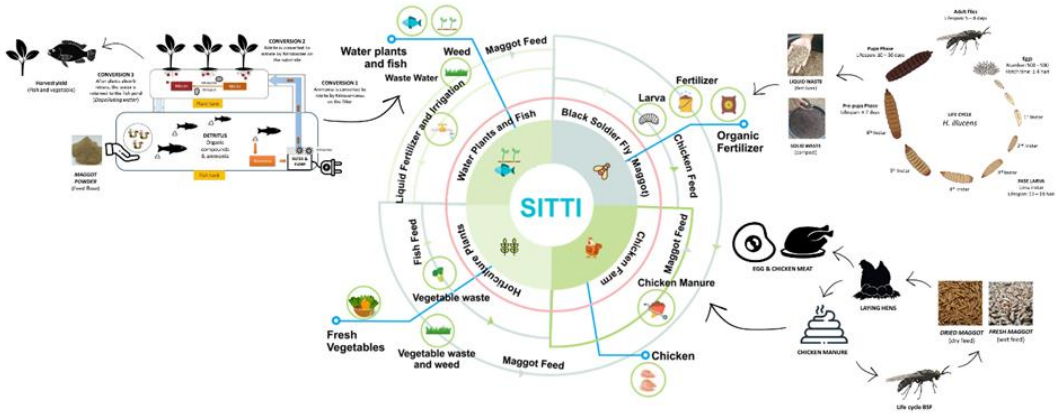

Figure 1: *SITTI technology product development model for diversification*

Based on the agreement between the UGM Team and the partner group, several priority issues were formulated that had to be addressed immediately, which are; (i) increasing the production capacity of SITTI (laying hens and horticultural products) to meet the set demand as of expanding the market, (ii) increasing the capacity for processing waste using BFS maggot, (iii) the need to develop diversification of processed products to be able to increase the SITTI products' selling value. In addition, the UGM Team and Cadets farmer group agreed that implementing the developed SITTI technology would resolve the three issue formulations.

To support the maggot production capacity escalation from the previous program, in 2022, the maggot breeding ground was expanded (Figure 2). UGM team and Cadet's farmer group identified a suitable location to build maggot breeding grounds through discussion with the beneficiary group. The construction

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was carried out jointly by the Taruna Tani Hijaunya Cinta. Figure 2 shows the maggot breeding ground building, which was expanded from 1 x 2 m2 to 2 x 4 m2 to accommodate 100 kg of maggots. The initial process of cultivating in a new maggot breeding ground is carried out by providing five-day-old maggot seeds, commonly known as *fivedoll*.

a b c

Figure 2: *Expansion of the existing maggot cage; cage on the exterior (a), cage on the interior (b), and maggot farming (c)*

Product processing training is carried out to provide added value from the fish subsystem, specifically catfish. In the previous program, SITTI's fish subsystem products focused more on selling fresh catfish as raw material without being processed. However, there is a sorting process for catfishes, resulting in fishes that do not pass the sorting procedure being dumped due to the rejection of the market standards. The development of product diversification is likely a solution to overcome this situation and can provide added value to the beneficiaries. This training activity involves a group of farmers, whether women or cadet members, making processed catfish products, which can be classified into four kinds: fish balls, fish roulade, crispy fish skin, and seasoned catfish (Figure 3).

a b c d

Figure 3: *Processed production of catfish; fish ball (a), crispy skin (b), seasoned catfish (c), fish roulade (d)*

3.2 Product Diversification Strategy of the SITTI Technology Implementation

The Taruna Tani Hijaunya Cinta Group received assistance in developing SITTI technology from the UGM Team. This involvement successfully overcame group challenges associated with agricultural technology's productive, economic, and social factors and insufficient knowledge of agricultural technology. Implementing SITTI technology can also encourage group members to adopt it sustainably. For instance, there is a commitment to expand the breeding area, which is supported by the expansion of the breeding ground as seen by the waste management that has been performed using maggots. Group members also carry out SITTI technology management by ongoing bookkeeping. In addition, the group members' initiative and enthusiasm in implementing SITTI technology may indicate that the production's usage efficiency inputs have been able to be increased by applying an integrated agricultural system to conserve and maximize the use of existing resources (Table 2).

Table 2: *Internal factors strength score*

No.	Strengths	Survey results			Sensitivity test results			
		Weight	Rating	Score	Weight	Rating	Score	CI
1.	The SITTI technology has been implemented correctly and meets the community's requirements.	0,3	5	1,5	0,5	5	2,3	-0,2
2.	The implemented SITTI technology motivates community groups to maintain and operate it.	0,2	4	0,8	0,3	4	1,0	-0,1
3.	Institutions and group management have been established and are operational.	0,2	5	1	0,2	5	0,8	0,1
4.	There are records (basic bookkeeping) of regular and traceable cultivation activities.	0,1	5	0,5	0,1	5	0,5	0,0
5.	Location availability for derivative products' cultivation and processing has been established (production house).	0,2	4	0,8	0,0	4	0,2	0,2
	Total	**1,0**	**23**	**4,6**	**1,0**	**23**	**4,7**	**0,0**

Members of the group believe that the program still needs improvement to increase income optimization. However, SITTI technology is seen as a technology that could enhance households' income in the previous program. Agricultural and livestock products are still supplied as raw materials; product diversification has yet to be established. In addition, the high public demand for certain products, especially chicken eggs, catfish, and maggot, differed from the production capacity increment and thus tended to fluctuate, resulting in the unfulfilled market demand. On the other hand, institutional group management related to marketing strategies tends to be inconsistent and limited, resulting in limiting marketing networks. Word of mouth and limited online Whatsapp strategies are the only ways to use product marketing (Table 3).

Table 3: *Internal factors weaknesses score.*

No.	Weaknesses	Survey results			Sensitivity test results			
		Weight	Rating	Score	Weight	Rating	Score	CI
1.	Productivity (chicken eggs, catfish, and maggot) is limited and fluctuating.	0,2	4	0,8	0,5	4	1,8	-0,3
2.	In an institutional implementation, consistency and community cooperation are inconsistent.	0,2	5	1	0,3	5	1,3	-0,1
3.	Insufficient technology and facilities exist for processing processed products (diversification).	0,1	3	0,3	0,2	3	0,5	0,0
4.	Less marketing management has constrained the marketing network.	0,3	3	0,9	0,1	3	0,3	0,2
5.	Most harvested products are sold as raw materials (fresh catfish, chicken eggs, and maggots).	0,2	5	1	0,0	5	0,2	0,2
	Total	**1,0**	**20**	**4**	**1,0**	**20**	**4,1**	**0,0**

The demand for processed catfish, chicken, and maggot products is recognized by the Taruna Tani Hijaunya Cinta group as an opportunity for business development, especially seeing that Bantul is an area with a strategic position for tourism and culinary development, as seen by the presence of souvenir shops. Word-

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of-mouth (WOM) strategies must be combined through online marketing to build trust and persuasion, even though groups have carried out this marketing strategy and are considered adequate communication in conventional marketing. Recommendations, endorsements, and promotions between WOM and online marketing can support the product's credibility [9, 10]. In addition, online marketing, such as using Facebook and Google, can provide consumers' data to validate segmentation more quickly, research materials in market positioning, and formulate appropriate marketing strategies [11]. On the other hand, capital assistance, local government support, and requests for the cooperation received by groups have increased significantly along with the increased implementation of SITTI technology (Table 4).

Table 4: *External factors opportunities score.*

No.	Opportunities	Survey results			Sensitivity test results			
		Weight	Rating	Score	Weight	Rating	Score	CI
1.	The demand for processed catfish, chicken, eggs, and maggots is exceptionally high.	0,3	4	1,2	0,5	4	1,8	-0,2
2.	Numerous tourist and souvenir shops represent an economic opportunity.	0,2	3	0,6	0,3	3	0,8	0,0
3.	The participation of bank credit and investors in developing businesses is rising.	0,3	4	1,2	0,2	4	0,6	0,1
4.	The activities have received substantial support from the local government and stakeholders.	0,1	5	0,5	0,1	5	0,5	0,0
5.	There has been an increase in the formation of improved partnerships to organize marketing management training and strengthen institutions.	0,1	4	0,4	0,0	4	0,2	0,1
	Total	**1,0**	**20**	**3,9**	**1,0**	**20**	**3,8**	**0,0**

Table 5: *External factors threat score.*

No.	Threats	Survey results			Sensitivity test results			
		Weight	Rating	Score	Weight	Rating	Score	CI
1.	The marketing of fresh catfish products is not generating much interest.	0,3	3	0,9	0,5	3	1,4	-0,1
2.	Determining processed products' potential and market segmentation is not yet possible.	0,1	2	0,2	0,3	2	0,5	-0,1
3.	The price and quality of competitive processed products produced have not been improved.	0,2	2	0,4	0,2	2	0,3	0,0
4.	People's ability to spend money on food and other goods is diminished due to the pandemic.	0,2	3	0,6	0,1	3	0,3	0,1
5.	There is competitive envy in the social realm regarding the activities carried out.	0,2	3	0,6	0,0	3	0,1	0,1
	Total	**1,0**	**13**	**2,7**	**1,0**	**13**	**2,6**	**0,0**

Based on external threat factors, the diversified product's marketing results have the potential to face the diversity of consumer preferences. In addition, the unclear market segmentation requires the group to conduct market research, specifically in determining market segmentation, product positioning, and marketing strategy. Furthermore, based on the problems experienced by partners, the management of partner groups needs to be strengthened by structuring their institutional systems and increasing the

competence of managers through various activities. The necessary competency improvement may involve coaching, training, mentorship, or other production management, accounting, and marketing-related activities. In addition, the group members' capacity-building skills program will undoubtedly be able to increase production capacity and develop diversification of SITTI technology products. On the other hand, partners are also faced with potential threats in the form of social jealousy from people outside the group and people's purchasing power which is still low during the COVID-19 pandemic (Table 5).

The internal and external factors derived from the IFE and EFE analyses are categorized as S-O, W-O, S-T, and W-T strategies. The results show that the internal strength factor has a higher value than the internal weakness factor (strength 4.6 > weakness 4.0). In comparison, the opportunities factor also has a higher value than the threat factor (opportunities 3.9 > threat 2.7). The result indicates that the Taruna Tani Hijaunya Cinta group has an acceptable internal and external standing. These conclude that to leverage all strengths and opportunities, consistency and a big desire is the next necessary step to overcome weaknesses and threats. The implementation of the most offered strategy is S-O, with the following implications and indicators shown in Table 6. Moreover, Table 7 highlights the strategic recommendations required to maximize the supporting parts of the SITTI technology implementation.

Table 6: *S-O Strategy Implications and Indicators of SITTI Technology.*

No.	Implications	Indicators	
		2021	2022
1	The increasing added value for system actors in the form of higher productivity and economics through the development of product diversity utilizing sustainable and environmentally responsible raw resources.	100% of agricultural and livestock products are still supplied as raw material	50:50% of agricultural and livestock products are still supplied as raw materials and processed food.
2	Improving environmental sustainability and self-sustaining community development (green economy principles) is done through implementing SITTI technology, a technology solution for agricultural systems from upstream to downstream that considers zero waste and efficient resource utilization.	Utilization of maggot larvae to replace chicken and catfish feed is 20-30% for groups independently.	Increasing maggot production capacity by 30% by expanding and constructing maggot cages, developing maggot product diversification, and marketing outside the group.
3	Increasing the capacity of technical goods in the form of a Plant - Livestock - Fish Integration System (SITTI) is to satisfy the demands of the community to create a self-sufficient and productive village based on the green economy principle.	Capacity is still limited, and marketing is constricted to the immediate neighborhoods.	The capacity to produce processed product diversification from eggs and fish increased by 30%, whereas selling eggs, fish, and processed products was expanded to villages outside Sriharjo Village.
4	Increasing the competence of group human resources is done through training and support in implementing green economy area development initiatives - fostering stronger community connections amongst group members.	Improved expertise and understanding of laying hens, aquaculture, and maggot cultivation.	Improved production diversification processing capabilities of the four subsystems and marketing expertise. Developed a SITTI diversification product that became the signature of the Sriharjo village and candidacy for the MSME group.

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Table 7: *SWOT Matrix Results*

IFE / EFE	**Strengths (S)**	**Weaknesses (W)**
	1. The SITTI technology has been implemented correctly and meets the community's requirements. 2. The implemented SITTI technology motivates community groups to maintain and operate it. 3. Institutions and group management have been established and are operational. 4. There are records (basic bookkeeping) of regular and traceable cultivation activities. 5. Location availability for cultivation and processing derivative products has been established (production house).	1. Productivity (chicken eggs, catfish, and maggot) is limited and fluctuating. 2. In an institutional implementation, consistency and community cooperation are inconsistent. 3. Insufficient technology and facilities exist for processing processed products (diversification). 4. Less marketing management has constrained the marketing network. 5. Most harvested products are sold as raw materials (fresh catfish, chicken eggs, and maggots).
Opportunities (O)	**S-O Strategies**	**W-O Strategies**
1. The demand for processed catfish, chicken, eggs, and maggots is exceptionally high. 2. Numerous tourist and souvenir shops represent an economic opportunity. 3. The participation of bank credit and investors in developing businesses is rising. 4. The activities have received substantial support from the local government and stakeholders. 5. There has been an increase in the formation of improved partnerships to organize marketing management training and strengthen institutions.	1. Increasing added value for system actors through higher productivity and economics by developing product diversity utilizing sustainable and environmentally responsible raw resources. 2. Improving environmental sustainability and self-sustaining community development (green economy principles) through implementing SITTI technology, a technology solution for agricultural systems from upstream to downstream that considers zero waste and efficient resource utilization. 3. Increasing the capacity of technical goods in the form of a Plant - Livestock - Fish Integration System (SITTI) to satisfy the demands of the community to create a self-sufficient and productive village based on the green economy principle. 4. Increasing the competence of group human resources through training and support in implementing green economy area development initiatives - fostering stronger community connections amongst group members.	1 Expand SITTI and increase productivity. 2 There is intensive assistance from academics and local government until the group can be independent. 3 Technology-related support from academia and local government. 4 Expansion of the marketing network in collaboration with local stakeholders. 5 Process product diversification to increase added value by forming a local food group

Threats (T)	S-T Strategies	W-T Strategies
1. The marketing of fresh catfish products is not generating much interest. 2. Determining processed products' potential and market segmentation is not yet possible. 3. The price and quality of competitive processed products have not improved. 4. People's ability to spend money on food and other goods is diminished due to the pandemic. 5. There is competitive envy regarding the activities carried out in the social realm.	1. Carrying out product diversification processing to increase added value and people's purchasing power. 2. Conducting a survey related to consumer interest in processed products from SITTI. 3. Conducting product promotions and branding in the nearest environment. 4. Involving community leaders and local stakeholders in the development of activities.	1. Increasing production capacity and marketing network. 2. Involvement of local stakeholders and academics in helping activities and growing marketing to ensure that the organization can become self-sufficient. 3. Increasing people's purchasing power by highlighting the significance of a balanced diet. 4. Formation of groups involving multiple social strata.

4 Conclusions

Developing SITTI technology product diversification increased yield productivity by expanding the construction of maggot breeding grounds. It increased maggot production capacity as additional feed for chicken and catfish and training in processing catfish products such as fish balls, roulade, and instant seasoned fish. All program was done to expand the market, increase product competitiveness, and efficiently use natural resources. Based on the survey results, the Cadets Group, Taruna Tani Hijaunya Cinta, has utilized its strengths and potential in dealing with weaknesses and threats. The best strategic planning for product diversification of SITTI Technology is by implementing the Strength-Opportunities (SO) strategy.

5 Declarations

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5.3 Competing Interests

The authors declare no competing interests.

6 Human and Animal-Related Studies

6.1 Informed Consent

The respondents comprehend the offered question and have the chance to provide extra clarification. However, the responders are aware that involvement as group representatives is voluntary.

6.2 Publisher's Note

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References

[1] BAPPEDA DIY, Pengentasan Kemiskinan Daerah Istimewa Yogyakarta, accessed 16 Nov 2022 at http://bappeda.jogjaprov.go.id/dataku/infografik/kemiskinan.

[2] P. Indroyono and E. Junarsin, "Kemiskinan di Sriharjo Dewasa Ini," Jurnal Ekonomi dan Bisnis Indonesia, vol. 17, no. 1, pp.13-26. 2002. https://jurnal.ugm.ac.id/jieb/article/download/6705/5259

[3] P. M. Kutanegara, "Akses Terhadap Sumber Daya dan Kemiskinan di Pedesaan Jawa: Kasus Desa Sriharjo, Yogyakarta," Humaniora, vol. 12, no. 3, pp. 313-323. 2000. https://journal.ugm.ac.id/jurnal-humaniora/article/view/704

[4] A. A. Widianto, and L. H. Masrifah, "Mengkompromikan yang Formal dan Moral: Rasionalitas Tindakan Ekonomi Home Industry di Sriharjo, Bantul, Yogyakarta," Jurnal Sosiologi Pendidikan Humanis, vol. 1, no. 2, pp.87-102, 2016. https://doi.org/10.17977/um021v1i22016p087

[5] P. D. Beda, and S. Supardal, "Pengelolaan Desa Wisata Srikeminut di Kalurahan Sriharjo Kapanewon Imogiri Kabupaten Bantul Daerah Istimewa Yogyakarta," Jurnal Politik dan Pemerintahan Daerah, vol. 4, no. 1, pp.174-182. 2022. https://jppd.org/index.php/jppd/article/view/44/43

[6] Pemerintah Desa Sriharjo, Rencana Strategi Pembangunan Desa Sriharjo, accessed 16 Nov 2022 at https://sriharjo.bantulkab.go.id/first/artikel/5.

[7] A. A. Fauzi, M. A. F. Falah, and E. Suwondo, "Analisis SWOT Untuk Menentukan Strategi Pengembangan Usaha Pengolahan Cokelat di Taman Teknologi Pertanian Nglanggeran Gunungkidul," Journal of Physics: Conference Series, vol. 1367, no. 1, p. 012045. 2019. http://etd.repository.ugm.ac.id/penelitian/detail/181148

[8] I. G. I. Sudipa and I. A. D. Puspitayani, "Analisis Sensitivitas AHP-SAW dan ROC-SAW dalam Pengambilan Keputusan Multikriteria," International Journal of Natural Science and Engineering, vol. 3, no. 2, pp.85-95. 2019. https://doi.org/10.23887/ijnse.v3i2.22229

[9] H. Hasan, "Word-of-mouth Marketing sebagai Bauran Komunikasi Pemasaran," Jurnal Dinamika Ekonomi & Bisnis, vol. 6, no. 2. 2009. https://ejournal.unisnu.ac.id/JDEB/article/view/136

[10] G. G. Sari and G. E. Gusti, "Penerapan Strategi Word to Mouth dalam Sistem Jual Beli di Kelompok Pengajian Salafi Kota Pekanbaru," LONTAR: Jurnal Ilmu Komunikasi, vol. 5, no. 1. 2017. https://e-jurnal.lppmunsera.org/index.php/LONTAR/article/view/483

[11] R. A. A. Asse, "Strategi Pemasaran Online (Studi Kasus Facebook Marketing Warunk Bakso Mas Cingkrank di Makassar)," KAREBA: Jurnal Ilmu Komunikasi, pp.219-231. 2018. https://doi.org/10.31947/KAREBA.V7I2.6907