

Promoting stakeholder optimism about local development through science, technology, and innovation planning

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ABSTRACT

Science, technology, and innovation (STI) are essential to attaining sustainable development. However, utilizing any development platform requires proper planning. In the Philippines, there is limited guidance for systematically mainstreaming or integrating STI into local plans, making it difficult for local governments to effectively use STI for local development. This study employed a quantitative, exploratory, descriptive-correlational case study design to examine the Masbate Framework for STI Planning, which was implemented during a workshop for mainstreaming STI into the Comprehensive Development Plan of the Municipality of Mandaon, Province of Masbate. It applied futures thinking to formulate the development vision; problem and objective tree analysis to identify development issues, goals, and objectives; vision-reality gap analysis to determine development gaps and identifying the programs, projects, and activities that would address them; and project planning and prioritization. This study examines how workshop participants perceived the planning process and whether their satisfaction with the workshop stages was associated with their optimism about the outcomes of applying STI to development. Using post-workshop survey data and the chi-squared test, the study examines the association between participants' workshop satisfaction and their optimism about STI-based development. Findings indicate that participants generally reported high optimism about STI and development. Significant associations were observed only for the stages involving the identification and prioritization of programs, projects, and activities. This study provides exploratory insights into how a structured STI planning workshop may help strengthen stakeholder confidence in STI-oriented development, while also pointing to the need for further testing in other local government contexts.

Keywords: planning process, science town, smart and sustainable communities, STI policy, workshop design

INTRODUCTION

Science, technology, and innovation (STI) have become an essential platform for achieving the sustainable development goals (Surana et al. 2020). In particular, STI are considered the most important factor for a country to strengthen its global competitiveness, while sustaining economic growth (Şener and Saridoğan 2011). Thus, these are also advocated to have a central role in a country's long-term development (Long 2019). However, the capacity to effectively mainstream STI in development processes remains unequally distributed worldwide, with developing countries usually lacking sufficient socioeconomic and institutional structures to strengthen it (Mormina 2019). Such a divide highlights the importance of planning the establishment of these structures in developing countries to advance STI-based development (High-Level Political Forum on Sustainable Development 2021).

Planning is the process of determining and implementing a strategy that sets the course of action to attain development over a period of time, considering the scarcity of and competition for resources and a rapidly changing world (Wagle 1971). As a future-oriented process, it is an avenue for promoting the local stakeholders' optimism, which is the "tendency to expect good things in the future" (Conversano et al. 2010). In the context of establishing the socioeconomic and institutional structures for an STI-based development, this implies that planning can foster stakeholder optimism about a future shaped by STI. This is important because stakeholder optimism may shape how local actors view the feasibility, legitimacy, and worth of development interventions (Jaljalis et al. 2026), especially in participatory settings where support for implementation partly depends on whether participants believe that the planning process can lead to meaningful outcomes (Abas et al. 2023).

In the Philippines, local government units (LGUs) are mandated to undertake planning and to prepare two essential plans, namely, the comprehensive land use plan (CLUP) and the comprehensive development plan (CDP) (Serote 2008). The CDP typically covers a period of six years and is comprehensive in the sense that it covers the five major development sectors, namely, environmental, social, economic, infrastructure, and institutional (DILG 2017). On the other hand, the CLUP typically covers a period of nine years and is comprehensive in the sense that it encompasses an LGU's territorial jurisdiction on both land and water (DILG 2017). Given that these plans guide local development; they are prepared through planning workshops with stakeholders representing various sectors of an LGU (Serote 2008). These workshops are designed in a way that ensures that the plans produced reflect the context of the locality, addressing the interests and concerns of its development sectors (Gabriel et al. 2016). In practice, this is reflected in the workshop satisfaction of the sectoral stakeholders attending them (Babin and Griffin 1998).

In the case of preparing the CDP (DILG 2017), the process begins with organizing and mobilizing the planning team, whose formation and work plan are issued through an executive order by the LGU's Mayor. Next is revisiting the LGU's existing plans and reviewing its development vision. In this stage, the planning team finalizes the LGU's new development vision and identifies the existing but effective plans that are still to be absorbed into the new CDP, the existing plans that need updating, and the accomplished programs, projects, and activities (PPAs). Third is preparing an ecological profile of the LGU and a structured list of all PPAs. The ecological profile provides a comprehensive assessment of the situation of the LGU's development sectors, using the local development indicator system. Considering this assessment, the planning team formulates a comprehensive set of PPAs for every sector to address its development needs. Fourth is preparing the local development investment program (LDIP), which includes the project briefs for the PPAs, a ranked list of PPAs for investment prioritization, a projection of new development investment financing potential, a local resource mobilization program, a summary of medium-term financing plans, and a summary of the LDIP. Last is finalizing the implementation instruments for the PPA including the annual investment program (or the annual portion of the LDIP), the capacity development program for the LGU to implement the PPAs, a list of priority legislative requirements enabling or supporting the PPAs, a matrix of annual accomplishment targets, and a monitoring and evaluation strategy.

While there are thirty-three sectoral and thematic concerns that are mandated to be mainstreamed or integrated in the CDP or to be created with their own plans to support the CDP, ranging from the protection of children to transportation management, STI is not one of them (Sicat et al. 2019). Thus, there is still no established planning system specifically dedicated to mainstreaming or integrating STI in the CDP or in creating a plan specifically for the development of STI in a locality. Nevertheless, the Philippines' Department of Science and Technology (DOST) initiated the Innovation, Science, and Technology for Accelerating Regional Technology-Based Development (iSTART) Program to support a balanced development across the Philippine regions by accelerating economic growth through STI (DOST 2020). Among its specific objectives is to assist the LGUs in developing an STI-based development plan for the advancement of their agricultural, manufacturing, and services sectors through a science-based, multi-sectoral, and consultative planning process (DOST 2020).

Among the first beneficiary LGUs of the iSTART program in the Philippines was the LGU of the Municipality of Mandaon (LGU Mandaon), the first and only beneficiary LGU in the Province of Masbate, Bicol Region, as of 2025. It was chosen because their CDP vision of becoming "A Smart Mandaon: The Science Town of Masbate, with progressive and eco-friendly economy, resilient infrastructure, improved, protected and

sustainable environment, participative, empowered and God-fearing communities, and a people-centered and proactive government with responsive leadership” by 2030 highly demands STI-based solutions (LGU Mandaon 2021). Additionally, it capitalizes on the municipality’s role of hosting the main campus of the Province of Masbate’s only state college, the Dr. Emilio B. Espinosa, Sr. Memorial State College of Agriculture and Technology (DEBESMSCAT), promoting it as a live laboratory for the higher education institution’s research endeavors (LGU Mandaon 2021). Because this vision also explicitly positions the municipality as a smart community, the LGU Mandaon was also selected as one of the 80 LGUs nationwide serving as pilot sites for DOST’s Smart and Sustainable Communities (SSC) Program (Sigue 2023), resulting in its combined implementation with the iSTART program, a similar case with some LGUs like Pasig City (Marcelo 2024).

To prepare the STI-based development plan for LGU Mandaon, the DOST Provincial Science and Technology Office of Masbate (PSTO Masbate) partnered with the DEBESMSCAT in formulating and implementing a planning workshop design to do so. For the purpose of this study, the planning workshop design is referred to as the Masbate Framework for STI Planning, given its origins in the Province of Masbate. Considering its potential to be replicated in other LGUs, this study has two objectives. First, it documents the structure and application of the Masbate Framework for STI Planning in the STI planning workshop of LGU Mandaon. Second, it analyzes how the participants’ satisfaction with each stage of the STI planning workshop is associated with their optimism about the workshop outcomes, including the LGU’s success in using STI in local development programs and the positive impacts of STI on local development. Rather than establishing causal effectiveness, the study offers an exploratory assessment of stakeholder perceptions within a specific local planning case. The findings provide important considerations for further refining and assessing a planning process for an STI-based development across the LGUs in the Philippines, which is necessary for enhancing their competitiveness and for attaining the sustainable development goals at the local level.

METHODS

This study employed a quantitative, exploratory, descriptive-correlational case study design. It used post-workshop survey data to describe participants’ satisfaction with the workshop stages and optimism about STI-based development, and to examine the association between these variables in the case of the STI planning workshop in the Municipality of Mandaon.

Study Area

The Municipality of Mandaon (12.22664°N, 123.28586°E) (Figure 1) is located in the western portion of the Province of Masbate in Bicol Region, the Philippines. It has a land area of 314.29 square kilometers, while

its municipal waters cover 361.88 square kilometers (LGU Mandaon 2021). As of 2024, the municipality has a population of 44,177 people, distributed across 26 barangays (loosely translated as “villages”), in which 3 are considered urban (PSA 2025).

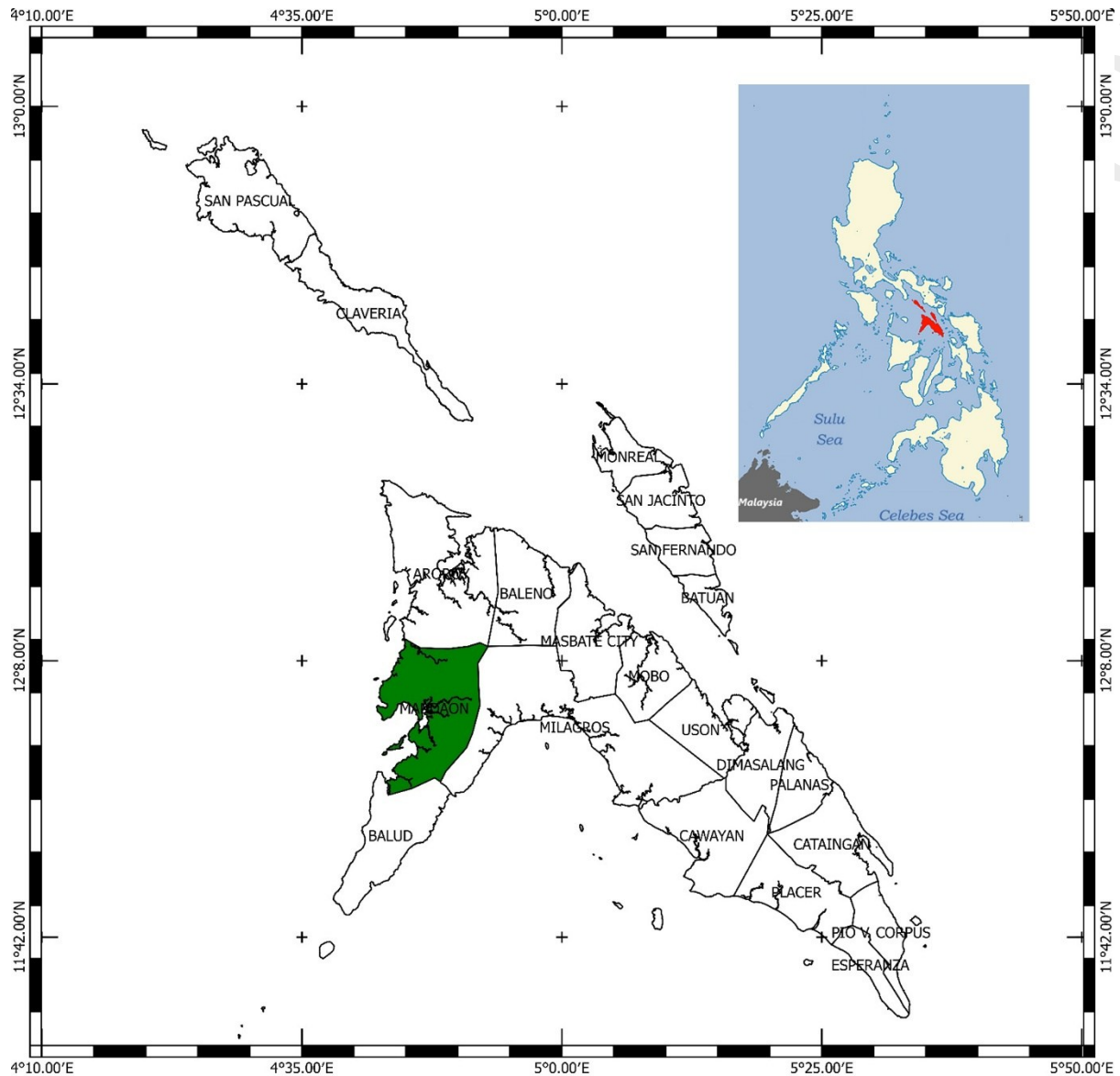


Figure 1. Map showing the location of the study site in the Province of Masbate, the Philippines. Source: Adapted from LGU Mandaon (2021).

The general topography of Mandaon is characterized by rolling and mountainous areas and plains (LGU Mandaon 2021). Its inland central portion is a fertile valley surrounded by hills on both the municipality’s western and eastern boundaries. The municipality’s coasts are defined by mangrove forests and long stretches of sandy beaches. Its upper coastal area directly faces the Sibuyan Sea, a major fishing ground in central Philippines, while its central coastal area is surrounded by the Nin Bay and Alas Bay, and its lower coastal area, by the Looc Bay

(LGU Mandaon 2021). Both the central and lower coastal areas serve as important sites for shrimp and prawn farms. Such physical characteristics make the municipality a predominantly agricultural community, with farming and fishing as the primary sources of livelihood for the majority of its population (LGU Mandaon 2021).

However, despite its natural wealth, the municipality, which is situated 64 kilometers away from the provincial capital and economic center of Masbate City, continues to face socioeconomic development challenges. While Mandaon was elevated from third class to first class municipality in 2024 for maintaining an annual regular income of PHP 200 million (1 USD is around PHP 59 as of January 2025) or more in the past three consecutive years (Department of Finance 2024), it is still highly dependent on its Internal Revenue Allotment (or an LGU's share of revenues from the Philippine national government), which represented 98.24% of its annual regular income of PHP 242,353,635.44 in 2022 (Commission on Audit 2022). This implies that the municipality has very limited economic opportunities that could serve as alternative sources of income. Additionally, in 2021, Mandaon still had a poverty incidence of 25.40% despite a decreasing trend since 2012 (PSA 2024), reflecting how its economic marginalization has affected the quality of life of the local people.

Workshop Design: Masbate Framework for STI Planning

The study's planning workshop design, purposely named the Masbate Framework for STI Planning, was developed based on the established process of preparing the CDP, which tackles five development sectors: environmental, social, economic, infrastructure, and institutional (DILG 2017). As shown in Figure 2, considering that a situational analysis of the municipality had been conducted beforehand by the planning team, the planning workshop design involves seven stages, whose specific activities are discussed below. It was applied during a four-day workshop for mainstreaming STI in the CDP of Mandaon held on 20-21 June 2024 and 11-12 July 2024 at the Municipal Hall of Mandaon in Barangay Poblacion, Municipality of Mandaon, Province of Masbate. Stages 1 and 2 were held on the first day, while Stages 3, 4, and 5 were held on the second day. Stage 6 was held on the third day and the earlier half of the fourth day, and Stage 7 was held on the latter half of the fourth day.

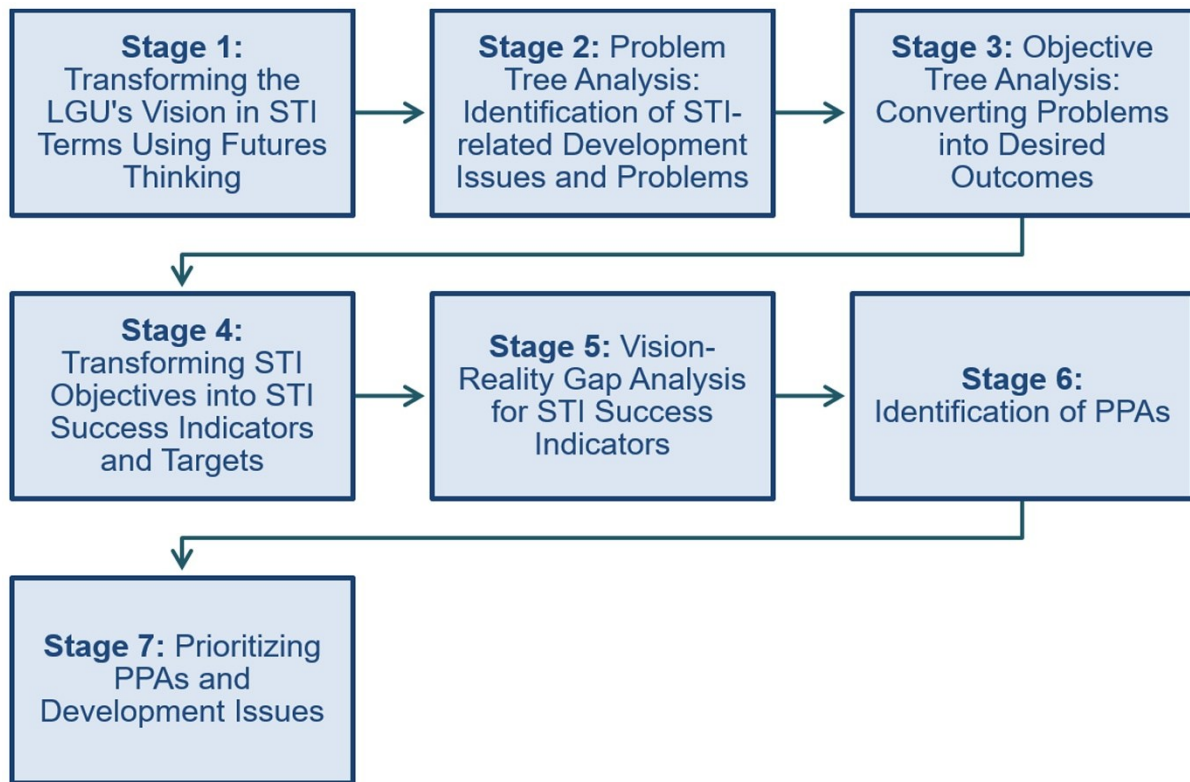


Figure 2. Stages of the Masbate Framework for STI Planning. Source: Author's own work.

Stage 1: Transforming the LGU's vision in STI terms using futures thinking. STI is explained using common metrics (i.e., research output, innovation and commercialization, knowledge transfer and collaboration, human capital development, and social impact) (Surana et al. 2020), the 2030 Sustainable Development Goals (Walsh et al. 2020), the Pagtanaw 2050: The Philippine Foresight for STI (NAST PHL 2021), and the various indicators outlined in the DOST SSC program (DOST-PCIEERD 2021). Meanwhile, futures thinking is introduced as a foresight tool that examines the interactions among three drivers of the future: the pulls of the future (i.e., aspirations and desired outcomes), the pushes of the present (i.e., ongoing socioeconomic, technological, environmental, and cultural changes), and the weights of the past (i.e., existing constraints such as belief systems and institutional barriers) (Asian Development Bank 2020).

The workshop participants identified the drivers of the future for their assigned development sector, and developed four alternative future scenarios based on different combinations of these drivers. They then evaluated these scenarios in terms of likelihood, potential impact, preparedness, interconnectedness, stakeholder perspectives, urgency, and data availability, and selected the most plausible scenario for their sector. Based on the selected scenarios, the workshop participants formulated single-statement sectoral visions, which were then consolidated to finalize the municipality's STI-aligned comprehensive development vision.

Stage 2: Problem tree analysis (Identification of STI-related development issues and problems).

The workshop participants identified the major problems of each development sector, along with their causes and effects, and organized them into a problem tree structure (with causes as roots, the core problem as the trunk, and effects as the canopy) (Regional Resource Centre for Asia and the Pacific).

Stage 3: Objective tree analysis (Converting problems into desired outcomes).

The workshop participants converted the negative statements in the problem tree into positive statements. The identified problems became sectoral objectives, the causes became an initial list of sectoral projects, and the effects became sectoral goals, forming an objective tree (Regional Resource Centre for Asia and the Pacific).

Stage 4: Transforming STI objectives into STI success indicators and targets.

The workshop participants developed at least one success indicator for each objective. These indicators were formulated using the SMART framework (i.e., specific, measurable, achievable, relevant, and time-bound) to support the evaluation of STI-related PPAs (Jenster 1987).

Stage 5: Vision-reality gap analysis for STI success indicators.

The workshop participants assessed the gap between the desired STI success indicators and the current situation using a rating scale adapted from the DILG (2017). In this scale, 0 indicates “Absolutely nothing has been done about the goal,” 1-4 indicates “Something is already being done to achieve the goal but the level of attainment is still on the low side,” 5 indicates “The goal is half-accomplished,” 6-9 indicates “The goal is more than half-fulfilled but still short of full attainment,” and 10 indicates “The goal is completely attained.”

Stage 6: Identification of PPAs.

The workshop participants reviewed and refined the initial list of projects identified in the objective tree analysis to finalize the PPAs of the municipality. Additional projects were identified as needed, and related projects were grouped into programs. Activities were then specified for each project, along with their implementation period, responsible entities, and required supporting policies or documents (DILG 2017).

Stage 7: Prioritizing PPAs and development issues.

Given resource and time constraints, the workshop participants prioritized projects based on the following criteria: 1) impact on development issues, 2) alignment with STI goals, 3) cost, 4) feasibility and sustainability, and 5) stakeholder engagement and support (Purnus and Bodea 2014). A total of 25 projects that met these criteria were identified as priority interventions of the LGU.

Workshop and Study Participants’ Profiles

A total of 62 stakeholders from various LGU departments, national government agencies, civil society organizations, and business groups recommended to represent the municipality’s five development sectors (DILG

2017) attended the four-day workshop. As shown in Table 1, Day 2 recorded the highest attendance with 40 participants, while Day 4 had the lowest with 23 participants. Moreover, only seven stakeholders attended all four days of the workshop, while 10 were present for three days, 15 for two days, and 30 for just one day.

Table 1. Summary of workshop attendance and completion. Note: Total number of participants in the entire duration of the workshop: 62. Source: Author's workshop attendance record.

Workshop attendance and completion	Description	Number of participants
Attendance in workshops	Day 1	35
	Day 2	40
	Day 3	20
	Day 4	23
Workshop days completed	4 days	7
	3 days	10
	2 days	15
	1 day	30

On the other hand, Table 2 reveals that only 16 out of the 62 stakeholders (25.81%) who attended the workshop participated in this study. The participants include 3 from the economic sector, 4 from the environmental sector, 2 from the institutional sector, 4 from the infrastructure sector, and 3 from the social sector. The study group is predominantly male, born and raised in Mandaon, and with permanent residency in Mandaon. Educationally, half of the participants are college graduates, while the other half have attained graduate education. On average, the participants are 43.45 years old and have been employed in Mandaon for 15.54 years. Given that the respondents were only those who remained until the last day of the workshop, the study group may be more engaged and committed than the broader set of workshop participants. This creates a possible response bias and limits the representativeness of the findings.

Table 2. Profile of the study participants (n=16).

Basic information	Description	Value
Workshop sector (number per group)	Economic	3
	Environmental	4
	Institutional	2
	Infrastructure	4
	Social	3
Sex (number per group)	Male	11
	Female	5
Age (years)	Range	25-59
	Average	43.45
Educational attainment (number per group)	College graduate	8
	Graduate education	8
Place of birth (number per group)	Born in Mandaon	9
	Born elsewhere	7
Place of growth (number per group)	Raised in Mandaon	10
	Raised elsewhere	6
Place of permanent residence (number per group)	Permanent residence in Mandaon	13
	Permanent residence elsewhere	3
Years employed in Mandaon	Average	15.54

Data Collection

A self-report survey questionnaire was administered at the end of the four-day planning workshop for mainstreaming STI in the CDP of Mandaon on 12 July 2024. A total of 16 respondents, representing the workshop participants who remained until the final day, participated. The survey collected data about the respondent's demographic profile, perceived satisfaction with the workshop stages or sessions, and perceived optimism about the workshop outcomes. In particular, the demographic characteristics asked were the respondent's assigned workshop sector, sex, age, highest educational attainment, birthplace, hometown, permanent address, and year of employment in the study area. On the other hand, to measure the respondent's perceived satisfaction with each workshop stage, a five-point Likert rating scale was used, with the response choices being "Unsatisfactory", "Poor", "Average", "Good", and "Excellent". The same scale was used for the respondent's perceived optimism about the workshop outcomes, but with the response choices being "Strongly Disagree", "Disagree", "Neutral", "Agree", and "Strongly Agree". The questionnaire was assessed for face and content validity by checking whether the items corresponded to the workshop stages, objectives, and expected outcomes. It was also pre-tested for clarity, relevance, and comprehensibility before revision and administration. However, because the study relied solely on post-workshop quantitative self-report data, the reasons behind the observed statistical associations could not be examined in depth. In addition, while the instrument was pre-tested and revised, the study did not operationalize the satisfaction and optimism items as formal multi-item scales for psychometric testing, which should be considered in future refinements of the questionnaire.

Data Analysis

The chi-squared test of independence, which is used to measure the association between two categorical variables (Ugoni and Walker 1995), was used to analyze the association between the respondents' perceived satisfaction with each workshop stage and their perceived optimism about the workshop outcomes. In particular, seven variables represented the respondents' perceived satisfaction with the workshop stages, while two variables represented their perceived optimism about the workshop outcomes. The use of the test was appropriate in principle because both satisfaction and optimism variables were categorical. However, given the small sample size and the limited variation in some responses, the results were interpreted cautiously, since chi-square estimates become less robust when cell counts are sparse and expected frequencies are low (Kim 2017). Stata/SE17 and Microsoft Excel were used for the statistical analysis and data management, respectively.

RESULTS

The findings reveal that the respondents were highly satisfied with all the workshop stages, with the majority of them rating each stage as “excellent” and very few rating each stage as “good” (Table 3). Similarly, the respondents were also highly optimistic about the workshop outcomes, with 15 of the 16 respondents strongly agreeing that the LGU would succeed in using STI in its development programs and that STI would help promote local development (Table 4). Taken together, these results suggest that the workshop was perceived positively by the respondents, although they should not be interpreted as evidence of causal effectiveness.

Table 3. Level of satisfaction, per workshop session (n=16).

Workshop stages	Number of respondents, per level of satisfaction		
	No response	Good	Excellent
Stage 1: Transforming the LGU’s Vision in STI Terms using Futures Thinking	3	1	12
Stage 2: Problem Tree Analysis: Identification of STI-related Development Issues and Problems	3	3	10
Stage 3: Objective Tree Analysis: Converting Problems into Desired Outcomes	4	4	8
Stage 4: Transforming STI Objectives into STI Success Indicators and Targets	4	1	11
Stage 5: Vision-Reality Gap Analysis for STI Success Indicators	4	2	10
Stage 6: Identification of PPAs	2	1	13
Stage 7: Prioritizing PPAs and Development Issues	0	2	14

Table 4. Level of agreement, per outcome of workshop session (n=16).

Outcome of workshop stages	Number of respondents, per level of agreement	
	Agree	Strongly agree
LGU will succeed in the use of STI in its development programs	1	15
STI will help in development	1	15

On the other hand, Table 5 shows that the respondents’ satisfaction with Stages 6 and 7 of the workshop was significantly associated with their optimism about the success of the LGU in using STI in local development programs ($P < 0.01$ for Stage 6 and $P < 0.01$ for Stage 7) and the positive impact of STI on local development ($P < 0.01$ for Stage 6 and $P < 0.01$ for Stage 7). However, it also shows that the limited variation in the respondents’ satisfaction with Stages 1 to 5, as highlighted in Table 3, resulted in the inability of this study to test the associations between these stages and their optimism about the workshop outcomes. This means that only the later, more implementation-oriented stages of the workshop generated enough variation for statistical testing, while the earlier stages were evaluated too uniformly to allow meaningful association analysis.

Table 5. Association between respondents’ satisfaction with the workshop stages and their perceived optimism regarding the LGU’s success in using STI in local development programs and the positive impact of STI on local development (Significance codes: ** < 0.01 , * < 0.05).

Satisfaction with workshop stages	Perceived success of LGU in using STI in development programs		Perceived positive impact of STI in development	
	Pearson Chi-Square	P-value	Pearson Chi-Square	P-value
Stage 1: Transforming the LGU's Vision in STI Terms using Futures Thinking	Insufficient responses for satisfaction with workshop stages	n/a	Insufficient responses for satisfaction with workshop stages	n/a
Stage 2: Problem Tree Analysis: Identification of STI-related Development Issues and Problems				
Stage 3: Objective Tree Analysis: Converting Problems into Desired Outcomes				
Stage 4: Transforming STI Objectives into STI Success Indicators and Targets				
Stage 5: Vision-Reality Gap Analysis for STI Success Indicators				
Stage 6: Identification of PPAs	14.00	<0.01	14.00	<0.01
Stage 7: Prioritizing PPAs and Development Issues	7.47	<0.01	7.47	<0.01

DISCUSSION

The findings of this study suggest that the Masbate Framework for STI Planning was positively received by the respondents in terms of both satisfaction with the planning process and optimism about STI-based local development. The results show that the participants were generally highly satisfied with all the stages of the workshop, with the majority rating each stage as "Excellent." Additionally, almost all participants expressed strong optimism about the LGU's success in using STI in local development programs and the positive impacts of STI on local development. This is essential for LGU Mandaon, whose vision for the municipality as a smart community necessitates the integration of advanced STI solutions, supporting Şener and Saridoğan (2011), who argued that STI is a critical driver of sustainable development. Collectively, these results are in line with recent work on participation and planning, which emphasizes that stakeholder support for participatory processes is shaped not only by formal inclusion (Abas et al. 2023), but also by how participants experience the process, interpret its legitimacy, and perceive its relevance to concrete local needs (Jaljalis et al. 2026).

On the other hand, in terms of the association between the participants' satisfaction with the workshop stages and their optimism about the workshop outcomes, the study found that only the respondents' satisfaction with Stages 6 and 7, namely, identification of PPAs and prioritization of PPAs and development issues, respectively, was significantly associated with their optimism about the workshop outcomes. This finding cautiously suggests that the outputs of these stages, including clearly defined priority PPAs, played a critical role in making the participants confident about the LGU's capacity to achieve its vision of transforming the municipality into a smart community. This is consistent with Purnus and Bodea (2014), who stressed the

importance of the structured prioritization of programs for implementation to maximize the impact of an organization's limited resources. It may also indicate that participants became more optimistic when STI was no longer framed only as an abstract development aspiration, but was instead translated into concrete, prioritized, and institutionally actionable initiatives. However, the insufficient variation in the responses for Stages 1 to 5 prevented the analysis of the association between the participants' satisfaction with these stages and their optimism about the workshop outcomes. This limitation reinforces the need to ensure participants' complete attendance throughout the workshop.

Overall, the Masbate Framework for STI Planning appears promising in promoting stakeholder satisfaction and optimism about the integration of STI into the local development process, particularly during the identification and prioritization of PPAs. However, a key limitation of this study was the small sample size, particularly the number of respondents providing feedback on the first five stages of the workshop framework. This constraint affected the study's ability to draw robust conclusions about the association between satisfaction with the workshop framework and optimism about its outcomes. Relatedly, the study relied only on the perceptions of the 16 participants who remained until the final day of the workshop, which likely introduced response bias in favor of those who were more engaged, committed, or satisfied with the process. The study also did not employ a longitudinal or comparative design, making it impossible to determine whether the reported optimism would be sustained over time or whether similar patterns would emerge in other LGU settings. Future research could address this limitation by implementing strategies that ensure participants' complete attendance of and consistent participation across all the stages of the workshop. These include regularly reinforcing the tangible benefits that each sector could gain if its representative PPAs were properly planned. Moreover, while the study highlights the potential usefulness of the Masbate Framework for STI Planning in the context of the Municipality of Mandaon, further research is necessary to assess its applicability in other LGUs. Valuable insights about the framework's adaptability and scalability could be gained from comparative studies across different LGUs with varying local conditions.

Ultimately, the findings of this study suggest that the Masbate Framework for STI Planning could serve as an initial model for further refinement and wider application in integrating STI into the CDPs of other LGUs in the Philippines. The significant association between the respondents' satisfaction with the methods used for identifying and prioritizing PPAs in the framework and their optimism about the success of the LGU in using STI in local development programs and the impacts of STI on local development suggests that participants perceived clear connections between the planning process and local development goals, thereby enhancing their confidence

and support for local development initiatives. At the same time, these findings should be read as exploratory and context-specific rather than as definitive evidence of the framework's effectiveness across local government settings. This calls for policymakers and planners to consider further testing, refinement, and capacity-building support for this framework before broader institutionalization is pursued.

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GENERATIVE AI STATEMENT

The author used ChatGPT (OpenAI) to assist with grammar and language refinement. The author retains full responsibility for the content.

ETHICAL CONSIDERATIONS

Prior informed consent, data privacy, and the confidentiality of the respondents were ensured before the conduct of the survey.

DECLARATION OF COMPETING INTEREST

The author declares no competing interests.

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