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UTILIZING ARTIFICIAL INTELLIGENCE (AI) TO ENHANCE THE PRODUCTIVITY AND DIGITAL MARKETING OF MICRO, SMALL, AND MEDIUM ENTERPRISES (MSMES) IN SITAMPA SIMATORAS VILLAGE, BATANG ANGKOLA DISTRICT, SOUTH TAPANULI REGENCY

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Abstract

Micro, small, and medium enterprises (MSMEs) need practical digital capabilities to manage business information and communicate product value effectively. This community service program aimed to support artificial intelligence (AI) literacy, task productivity, and digital marketing among MSMEs in Sitampa Simatoras Village, Batang Angkola District, South Tapanuli Regency. The activity took place on September 26–27, 2026. The manuscript outlines a participatory approach involving needs assessment, demonstrations, practical assignments, and planned mentoring. Its evaluation framework combines knowledge tests, output quality rubrics, task completion records, and qualitative feedback. Training applications encompass product descriptions, promotional captions, customer response templates, and content schedules, with human verification of factual accuracy. Because participant assessment records were unavailable, numerical outcomes are presented exclusively as simulations. The illustrative knowledge scores increase from 52 to 82 on a scale of 100, while illustrative practical quality scores rise from 8.4 to 13.8 out of 16. Simulated task completion times demonstrate how reductions of 30–40% could be reported when outputs satisfy equivalent quality requirements. These figures illustrate evaluation procedures and do not establish participant improvement, intervention effectiveness, or statistical significance. No verified evidence supports claims of increased sales, revenue, profit, or sustained adoption. The manuscript contributes an integrated framework that distinguishes immediate learning, task performance, marketing responses, and financial outcomes. It concludes that AI applications warrant contextual evaluation supported by accurate business information, independent practice, and assistance. Empirical conclusions require documented participant data, comparable baseline and subsequent assessments, and follow-up records establishing whether owners maintain useful AI practices in everyday business operations.

Keywords: artificial intelligence; MSMEs; digital marketing; task productivity; community empowerment.

INTRODUCTION

Micro, small, and medium enterprises (MSMEs) contribute to local economic development through employment, household business activities, and the provision of goods and services. Their ability to maintain competitiveness increasingly depends on how effectively they manage resources, respond to customer needs, and use digital technologies. However, technology adoption requires more than access to applications. Business owners also need practical skills, suitable business processes, and adequate support. Recent international evidence identifies time constraints, maintenance costs, and skills gaps as barriers to effective digital technology implementation among smaller enterprises (Organisation for Economic Co-operation and Development (OECD), 2026).

Artificial intelligence (AI), particularly generative AI, offers opportunities to support business activities that involve producing and organizing information. For MSMEs, potential applications include drafting product descriptions, preparing promotional messages, developing content calendars, and creating responses to frequently asked customer questions. These applications provide a practical starting point for business owners who need assistance with recurring administrative and marketing tasks. The OECD (2025) identifies the potential of generative AI to help smaller enterprises address skill needs, while emphasizing the importance of preparation and support for effective adoption.

Empirical research provides evidence that AI assistance can improve performance in selected work settings. Noy and Zhang (2023) found that access to generative AI reduced completion time and improved output quality in professional writing tasks. Similarly, Brynjolfsson et al. (2025) documented productivity improvements following the introduction of an AI assistant in customer support work. These findings provide a basis for examining AI applications in MSMEs. However, their implications require careful interpretation because benefits depend on the task, user capabilities, and implementation context. Results from professional writing and large organizational settings cannot automatically represent outcomes among village-based enterprises.

This community service program focuses on MSMEs in Sitampa Simatoras Village, Batang Angkola District, South Tapanuli Regency. Its proposed approach connects AI applications with business activities that participants identify as relevant to their daily operations. Before implementation, a needs assessment should establish the characteristics of participating enterprises, their existing marketing practices, access to digital devices, and familiarity with AI. Such an assessment will help determine whether participants primarily need assistance with basic digital literacy, content creation, customer communication, or the organization of routine business information.

Productivity represents one of the program's principal areas of attention. In this context, productivity refers to the relationship between acceptable business outputs and the time or resources required to produce them. An AI-assisted product description, for example, may offer a practical benefit when an owner can prepare accurate and complete information more efficiently. Nevertheless, evaluation must include the time required to prepare instructions, verify facts, revise unsuitable wording, and finalize the material. Faster generation alone does not establish a meaningful productivity improvement. This task-specific approach reflects the importance of examining actual work outcomes when assessing AI assistance (Noy & Zhang, 2023; Brynjolfsson et al., 2025).

Digital marketing constitutes the second major focus of the program. Effective digital marketing involves identifying customer needs, communicating product value, selecting suitable channels, and maintaining customer relationships. Huang and Rust (2021) explain that AI can support marketing research, marketing strategy, and marketing actions. Their framework suggests that AI adoption should extend beyond producing promotional text. Business owners also need to decide whom they intend to reach, which product benefits they can substantiate, and how they will evaluate customer responses.

For the proposed intervention, participants can apply this framework by preparing verified product information before requesting AI-generated promotional alternatives. They can then review the alternatives, select suitable wording, and adapt the material to their chosen digital channels. Practical assignments may include product catalog entries, promotional captions, customer response templates, and short content schedules. These activities aim to connect content production with a clear marketing purpose. Owners will retain responsibility for checking prices, product characteristics, availability, and ordering conditions before publishing any material.

Technology acceptance also requires attention because participation in training does not necessarily lead to continued use. Davis (1989) identifies perceived usefulness and perceived ease of use as important determinants of technology acceptance. Applied to this program, usefulness concerns whether AI helps participants complete a relevant business task. Ease of use concerns whether they can provide instructions, revise outputs, and complete the task with manageable effort. Training should therefore begin with accessible exercises and allow participants to practice repeatedly using information from their own enterprises.

The integration of AI into MSME activities also requires appropriate quality controls. Promotional materials must accurately represent the products and services offered. Participants should avoid unsupported claims, fabricated customer testimonials, and visual representations that mislead prospective buyers. Customer information and confidential business records should remain protected during practical exercises. These controls will form part of the proposed training process so that participants learn to assess generated material rather than publish it without review.

The literature reviewed provides evidence of AI's potential and identifies implementation challenges among smaller enterprises. However, it does not establish the effectiveness of an AI empowerment program in Sitampa Simatoras Village. International SME surveys provide useful context, but their findings cannot substitute for local evidence. The OECD's 2026 survey, for example, examines a non-representative sample of enterprises across 12 OECD countries, which limits direct generalization to the proposed setting (OECD, 2026). The present program therefore addresses an implementation need: translating broader evidence into practical activities whose relevance and outcomes can be evaluated locally.

Accordingly, this community service program aims to strengthen the capacity of MSME owners in Sitampa Simatoras Village to use AI for selected productivity and digital marketing tasks. The proposed activities comprise needs assessment, introductory AI education, practical business assignments, guided content development, and follow-up mentoring. Evaluation will examine changes in knowledge, independent task completion, output quality,

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and the time required to produce acceptable materials. Where reliable records are available, the program may also monitor customer inquiries and orders. Sales and income improvements will require separate evidence and should not be inferred from training participation or increased content production.

The program's intended contribution is a practical approach to developing AI capabilities that business owners can maintain after training. Its emphasis on relevant tasks, verified information, and independent practice seeks to connect technological access with useful business routines. Through this approach, AI can be evaluated as a supporting resource for MSME development while preserving the owner's responsibility for business decisions and customer communication. The program's effectiveness will ultimately depend on documented improvements in participants' capabilities and business practices.

LITERATURE REVIEW

1. MSME Empowerment and Digital Capability Development

MSME empowerment involves strengthening business owners' ability to identify problems, manage resources, and implement improvements independently. In a digital business environment, this process includes developing the skills required to select appropriate technologies, produce accurate business information, and communicate effectively with customers. Access to digital applications provides an opportunity for improvement, but business owners also need the knowledge and organizational routines required to use them effectively.

The Organisation for Economic Co-operation and Development (OECD, 2026) identifies skills gaps, time constraints, and maintenance costs as barriers to effective technology implementation among smaller enterprises. These findings suggest that digital empowerment programs should combine practical training with continued assistance. Introducing applications without addressing their relevance to daily business activities may produce limited benefits.

For the proposed program in Sitampa Simatoras Village, empowerment therefore concerns participants' ability to apply AI to relevant business tasks and assess the resulting outputs. Training can address product information preparation, promotional communication, and recurring customer inquiries. The specific activities should follow a local needs assessment rather than assume that all participating enterprises face identical problems.

2. Artificial Intelligence and Organizational Capability

AI capability extends beyond possessing or accessing an application. Mikalef and Gupta (2021) conceptualize it through an organization's ability to combine and deploy AI-related resources. Their study develops a measurement instrument and examines the relationship between AI capability, organizational creativity, and firm performance. This perspective highlights the importance of integrating technology with human skills and organizational resources.

Applied to MSMEs, this perspective suggests that useful AI adoption requires accurate business information, clear instructions, critical assessment, and opportunities for repeated practice. A business owner who generates promotional text but cannot identify incorrect prices or unsupported claims has not yet developed sufficient capability for independent use.

Accordingly, the proposed community service program treats AI capability as a practical learning outcome. Participants should learn to define a task, provide relevant information, evaluate generated suggestions, and revise the final output. This operational interpretation adapts the organizational capability perspective to the scale and learning needs of participating enterprises.

3. Generative AI and Business Productivity

Productivity concerns the relationship between outputs and the resources required to produce them. In AI-assisted business activities, an appropriate assessment considers both completion time and output quality. Faster production offers limited value when the resulting material requires extensive correction or contains information that could mislead customers.

Noy and Zhang (2023) examined generative AI in an experiment involving professional writing tasks. Their findings showed improvements in task completion time and output quality. The study provides evidence that AI assistance can support particular information-based activities, although its results do not establish equivalent benefits across all business tasks.

Brynjolfsson et al. (2025) provide complementary workplace evidence from the introduction of an AI assistant among customer support agents. Their findings indicate productivity improvements with substantial differences across workers. This variation demonstrates why evaluations should consider user experience and task characteristics rather than assume uniform benefits.

For MSMEs in Sitampa Simatoras Village, suitable activities for evaluation may include preparing product descriptions, drafting customer responses, and organizing promotional schedules. These applications concern administrative and marketing task productivity. They should remain distinct from physical production capacity, which requires separate measurements of output, labor, materials, and production time.

4. AI-Assisted Digital Marketing

Digital marketing involves using digital channels to communicate product value, reach customers, and maintain business relationships. Its effectiveness depends on more than publishing content. Business owners must identify an appropriate audience, communicate credible benefits, provide clear ordering information, and respond to customer needs.

Huang and Rust (2021) develop a framework that positions AI within marketing research, marketing strategy, and marketing actions. Their framework distinguishes different AI contributions, including supporting repetitive activities, analyzing information, and facilitating customer interactions. It provides a theoretical basis for connecting AI applications with marketing objectives.

For the proposed program, this framework can guide a sequence that begins with identifying intended customers and verified product benefits. Participants can then use AI to prepare alternative descriptions, captions, and response templates. Owners must review these materials before adapting them to their selected channels. This application represents a proposed translation of the framework into training activities. Its effectiveness requires local evaluation. Generating more content does not necessarily improve customer engagement or sales, particularly when messages lack relevance, contain inaccurate information, or reach unsuitable audiences.

5. Technology Acceptance Model

The Technology Acceptance Model provides a foundation for understanding whether individuals accept and use information technology. Davis (1989) identifies perceived usefulness and perceived ease of use as important determinants of acceptance. Perceived usefulness concerns the belief that a technology improves work performance, while perceived ease of use concerns the effort associated with using it.

Within the proposed intervention, participants may perceive AI as useful when it helps them complete a recurring business task. They may perceive it as easier to use when instructions are understandable, revision procedures are manageable, and exercises work on their available devices. These considerations support training that starts with a small number of practical assignments. The model also provides a basis for evaluating continued adoption. Attendance and satisfaction do not establish that participants will use AI independently. Follow-up assessment should examine whether owners continue using the technology, which tasks they select, and what difficulties lead them to discontinue use.

6. Resource-Based View and Dynamic Capabilities

The resource-based view explains competitive advantage through the characteristics of resources available to an enterprise. Barney (1991) emphasizes resources that are valuable, rare, difficult to imitate, and without strategically equivalent substitutes. This perspective suggests that access to a widely available AI tool is insufficient, by itself, to create sustained competitive advantage.

For MSMEs, potential value lies in combining AI assistance with enterprise-specific knowledge and practices. Relevant resources include accurate product information, customer relationships, a recognizable business identity, and routines for assessing promotional materials. The proposed program therefore emphasizes developing reusable business resources rather than copying generic generated content.

Dynamic capabilities provide a complementary explanation. Teece et al. (1997) emphasize the ability to integrate, build, and reconfigure competences in changing environments. This perspective directs attention to how enterprises revise their practices when technologies, customer expectations, or business conditions change.

Applied to the program, participants can develop adaptive practices by reviewing customer questions, identifying weaknesses in existing messages, and adjusting their communication procedures. Mentoring can support this process through repeated assessment and revision. These activities constitute proposed applications of the theories, rather than capabilities already demonstrated among local participants.

7. Implementation Conditions and Business Outcomes

International SME evidence highlights the importance of implementation conditions. The OECD (2025), drawing on a survey of more than 5,000 SMEs across seven countries, examines generative AI use, skill needs, and organizational preparation. The report identifies opportunities alongside the need for structured support. Its findings provide context for program design but do not establish adoption levels or outcomes in Indonesia.

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The OECD (2026) further reports uneven strategic integration of AI among surveyed enterprises. These findings support examining affordability, available time, digital skills, and support arrangements before selecting applications. Local assessment must establish which conditions affect MSMEs in Sitampa Simatoras Village.

Evaluation should also distinguish several levels of outcomes. Improved knowledge indicates learning. Better task performance indicates practical capability. Continued use indicates adoption. Customer inquiries and completed orders indicate different marketing responses. Revenue and profit require financial records. Maintaining these distinctions will prevent the program from interpreting increased promotional activity as evidence of higher business income.

8. Research Gap and Position of the Community Service Program

The reviewed literature offers three complementary foundations. Experimental and workplace studies support investigating task-level productivity benefits from generative AI (Brynjolfsson et al., 2025; Noy & Zhang, 2023). Marketing research explains how AI applications can relate to strategic business activities (Huang & Rust, 2021). Capability and acceptance perspectives explain why technology access requires supporting skills, resources, and organizational practices (Davis, 1989; Mikalef & Gupta, 2021). However, these sources do not establish the effectiveness of the proposed intervention in Sitampa Simatoras Village. The gap addressed here concerns contextual implementation and evaluation. It does not imply that no previous AI-related MSME programs exist. Rather, the selected literature leaves unanswered how participating enterprises in this location can use AI effectively under their actual operating conditions.

The community service program consequently positions AI-assisted productivity and digital marketing as complementary areas of capability development. Training will connect relevant business tasks with accurate information, guided practice, and human review. Mentoring will support independent application and adaptation. Evaluation will assess whether these activities produce acceptable outputs, manageable effort, and sustained use before considering broader business outcomes.

METHOD

1. Program Approach and Evaluation Design

This community service program will adopt a participatory approach that positions MSME owners as active partners in identifying problems, selecting relevant AI applications, completing practical assignments, and evaluating outcomes. The approach aims to ensure that training addresses participants' business needs, available resources, and existing digital capabilities.

The program will focus on two interconnected areas: AI-assisted task productivity and digital marketing capability. Productivity activities will address selected administrative and communication tasks. Digital marketing activities will emphasize accurate product information, promotional content development, customer communication, and content planning. This focus draws on Huang and Rust's (2021) framework, which connects AI applications with marketing research, strategy, and actions.

Evaluation will combine quantitative measurements with qualitative interviews and observations. A single-group baseline and follow-up design will assess changes in participants' knowledge, practical skills, task completion time, and continued technology use. The evaluation will align program objectives, activities, indicators, and evidence sources, consistent with the Centers for Disease Control and Prevention's (CDC, 2024) program evaluation framework. Without a comparison group, observed changes will not establish that AI alone caused the outcomes.

2. Location and Target Participants

The planned location is Sitampa Simatoras Village, Batang Angkola District, South Tapanuli Regency, North Sumatra, Indonesia. Target participants will comprise owners or managers of active MSMEs who participate directly in business administration, marketing, or customer communication.

The team will use purposive recruitment based on the following criteria:

1. Operating an active MSME in the target village.
2. Participating in daily business management or marketing.
3. Identifying at least one business task that may benefit from digital assistance.
4. Agreeing to attend training and follow-up mentoring.
5. Providing informed consent for the collection of evaluation data.

Recruitment will accommodate different levels of digital experience. Shared devices and guided practice will be considered where feasible to support participants with limited access to suitable equipment. The final report will document participant numbers, business characteristics, recruitment procedures, attendance, withdrawals, and evaluation completion.

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3. Problem Identification and Needs Assessment

The initial stage will identify participants' business practices, digital capabilities, and priority problems. The team will collect information through field observations, brief interviews, questionnaires, and a group discussion. Field observations will examine existing product information, promotional materials, customer communication procedures, and business records. Interviews will explore recurring tasks, difficulties in preparing marketing content, previous technology use, and expectations of AI assistance. Questionnaires will record device access, internet availability, digital experience, and current marketing channels.

Participants will also complete an initial practical assignment, such as preparing a product description or responding to a customer inquiry. The team will record completion time and assess output quality using a predefined rubric. These baseline records will guide training content and provide a reference for subsequent evaluation. The assessment will identify suitable tasks rather than assume that AI can address every business problem. Production constraints, insufficient capital, or delivery difficulties may require support beyond the scope of this intervention.

4. Training Material Development

The team will develop training materials based on the needs assessment. Materials will include short instructional modules, demonstrations, worksheets, verified product information templates, prompt examples, and output review checklists.

The curriculum will cover four components:

- AI literacy: basic functions, limitations, factual verification, and appropriate handling of business information.
- Prompt development: specifying the task, relevant product facts, intended customer, output format, and constraints.
- Task productivity: preparing product descriptions, business checklists, customer response drafts, and content schedules.
- Digital marketing: communicating product benefits, adapting messages to selected channels, and reviewing customer responses.

Training design will consider perceived usefulness and perceived ease of use, which Davis (1989) identifies as important determinants of technology acceptance. Exercises will therefore use manageable tasks and information drawn from participants' own enterprises. Materials will distinguish AI-generated drafts from verified business information. Participants will learn to check prices, availability, product characteristics, contact details, and ordering conditions before approving an output.

5. Training and Practical Implementation

The proposed training will comprise three sessions delivered over three days, subject to agreement with participants. Each session will combine a short explanation, facilitator demonstration, individual practice, peer discussion, and feedback.

Day 1: AI Literacy and Business Task Selection

The first session will introduce AI-assisted business activities and establish basic quality controls. Participants will identify one recurring task, prepare the information required to complete it, and practice writing clear instructions.

Topics will include:

1. Opportunities and limitations of generative AI.
2. Selecting suitable business tasks.
3. Preparing accurate input information.
4. Writing and revising prompts.
5. Identifying factual errors and unsupported claims.
6. Protecting customer and business information.

Each participant will produce a verified business information sheet and a reusable prompt for one selected task.

Day 2: AI-Assisted Task Productivity

The second session will focus on completing administrative and communication tasks. Participants will develop product descriptions, frequently asked question responses, and simple operational checklists.

Timed exercises will include prompting, reviewing, correcting, and formatting the final material. This task-level assessment reflects the focus of empirical research on AI-assisted writing and customer support performance (Brynjolfsson et al., 2025; Noy & Zhang, 2023). These studies inform task selection but do not establish expected local improvement rates. Participants will retain their initial drafts, corrected versions, and completion records. Facilitators will assess whether outputs meet the agreed quality requirements.

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The second session will connect AI-generated drafts with practical marketing objectives. Participants will identify an intended customer group, select verified product benefits, and prepare materials for a suitable digital channel. Practical assignments will include:

1. One complete product catalog entry.
2. Two promotional caption alternatives.
3. One short promotional video script.
4. One customer response template.
5. A one-week content schedule.

Participants will review all materials before publication. Visual materials must represent actual products accurately. Fabricated testimonials, unsupported product claims, and misleading product images will not form part of the assignments.

6. Technology Selection and Application

The team will select technologies according to affordability, device compatibility, language accessibility, internet requirements, and relevance to participants' tasks.

The proposed technology categories include:

- Smartphones or shared computers for practical exercises.
- A general-purpose generative AI application for drafting and revising text.
- Design or video-editing software where relevant.
- Existing business communication and marketing channels.
- Spreadsheets or simple record templates for evaluation.

The team will distinguish AI functions from ordinary digital functions. For example, publishing a catalog or scheduling a message will not automatically count as AI use. The final implementation report will record application names, versions or access dates, relevant settings, subscription costs, and the functions used. Financial calculations will require independent checking with a calculator or spreadsheet.

7. Mentoring and Monitoring

A proposed eight-week mentoring period will follow the training. Weekly consultations will provide feedback on assignments, address technical difficulties, and support independent application. The schedule represents a proposed program arrangement and should be adjusted to the actual implementation plan.

Monitoring will examine whether participants can:

1. Complete selected tasks without direct facilitator assistance.
2. Produce accurate and usable outputs.
3. Revise prompts when initial outputs are unsuitable.
4. Maintain current product and ordering information.
5. Apply AI to recurring business activities.
6. Document relevant customer inquiries and orders.

Participants will maintain brief activity logs containing the task, application used, time spent, corrections required, and final use of the output. Facilitators will gradually reduce assistance to assess independent capability.

8. Evaluation Indicators and Instruments

Evaluation will distinguish learning outcomes, task performance, continued adoption, marketing responses, and financial outcomes.

Evaluation dimension	Indicator	Instrument or evidence	Timing
AI knowledge	Correct understanding of AI use and limitations	Matched pre-test and post-test	Before and after training
Practical capability	Independent completion of a business task	Observation checklist	Baseline, post-training, and follow-up
Task efficiency	Total time per acceptable output	Timed task record	Baseline and follow-up
Output quality	Accuracy, completeness, clarity, and suitability	Standardized rubric	Baseline and follow-up
Continued adoption	Documented independent AI use	Activity logs and work samples	During mentoring

Marketing response	Customer inquiries and attributable orders	Channel records and order logs	Before and during follow-up
Participant experience	Usefulness, ease of use, and difficulties	Questionnaire and interview	Post-training and follow-up
Financial outcomes	Revenue and relevant business costs	Available business records	Comparable observation periods

Knowledge tests will use a fixed scoring key. Practical outputs will receive ratings from 1 to 4 on each quality dimension, producing a total score between 4 and 16. Before data collection, the team will define the rating descriptors and the minimum acceptable output standard.

Factual accuracy will serve as a mandatory requirement. An output containing an incorrect price, misleading claim, or inaccurate ordering instruction will require correction before it qualifies as acceptable. A second assessor will review a subset of outputs to examine scoring consistency.

9. Data Analysis

Quantitative analysis will summarize participant characteristics, attendance, knowledge scores, task completion times, quality ratings, and documented adoption. Each participant will receive a unique code to support matched comparisons while limiting the use of identifying information.

Baseline and follow-up assignments will use comparable difficulty, equipment, and assistance conditions. Any differences will be documented. Descriptive reporting will remain the primary analysis. Where sample size and measurement properties permit, paired statistical analysis may supplement the results. Interview and observation data will undergo thematic analysis. The process will include familiarization, initial coding, theme development, theme review, definition, and reporting, following Braun and Clarke (2006). Quantitative and qualitative findings will then be compared to explain patterns such as improved task performance accompanied by limited continued use. Missing data, participant withdrawals, and incomplete records will be reported. Customer inquiries will remain distinct from completed orders, and revenue will remain distinct from profit.

10. Ethical Considerations and Follow-Up

Participants will receive information about program activities, evaluation procedures, and intended reporting. Participation will remain voluntary. Consent for photographs, quotations, and publication of business examples will be requested separately.

The team will avoid entering customer identifiers, passwords, payment details, or confidential records into general-purpose AI applications. Business owners will approve promotional materials before publication. Where institutional review is required, the team will obtain approval before collecting research data.

Follow-up decisions will use the evaluation findings to identify further needs, such as basic digital literacy, content management, customer service, or financial recordkeeping. This use of evidence for program improvement follows the CDC's (2024) evaluation framework. The final report will distinguish documented outcomes from anticipated benefits and acknowledge the limits of the single-group design.

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RESULTS AND DISCUSSION

Results









1. Program Implementation

The community service program entitled "Utilizing Artificial Intelligence (AI) to Enhance the Productivity and Digital Marketing of Micro, Small, and Medium Enterprises (MSMEs) in Sitampa Simatoras Village, Batang Angkola District, South Tapanuli Regency" took place on September 26–27, 2026, according to the implementation information provided by the organizer.

The program's stated focus was the application of AI to business productivity and digital marketing. Relevant evaluation areas include understanding AI functions and limitations, preparing effective prompts, developing promotional materials, and checking the accuracy of generated outputs.

Illustrative evaluation statement: The scores and task completion times presented below are simulated examples. They do not represent measured outcomes from the September 26–27, 2026 program. Participant numbers, assessment instruments, attendance, and actual work samples remain necessary for an empirical results report.

2. Illustrative Knowledge Assessment

Table 1 demonstrates how pre-test and post-test scores could be presented using a 0–100 scale. The assessment domains distinguish basic AI knowledge from its application to marketing and information verification.

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Table 1. Simulated Knowledge Assessment Scores

Assessment domain	Simulated pre-test score	Simulated post-test score	Difference in score points
Understanding AI functions and limitations	52	82	30
Identifying suitable business applications	56	84	28
Preparing clear and relevant prompts	44	78	34
Understanding AI-assisted digital marketing	58	86	28
Recognizing inaccurate or misleading outputs	50	80	30
Unweighted mean across domains	**52**	**82**	**30**

Source: Author-generated simulation for reporting illustration. These are not participant assessment data.

Within this simulated example, the unweighted mean increases from 52 to 82, equivalent to a difference of 30 score points. Prompt preparation receives the lowest simulated post-test score, illustrating how an evaluation might identify a topic requiring further practice despite an overall improvement.

These descriptive differences cannot establish statistical significance. Participant-level matched scores and information about the assessment instrument would be required for further analysis.

3. Illustrative Practical Skills Assessment

Practical assessment should examine whether participants can produce usable materials rather than merely explain AI concepts. Table 2 illustrates a reporting format for assessing accuracy, completeness, clarity, and suitability. Each dimension uses a proposed scale from 1 to 4.

Table 2. Simulated Practical Output Quality Scores

Quality dimension	Simulated baseline score	Simulated post-training score	Difference
Factual accuracy	2.0	3.5	1.5
Information completeness	2.2	3.6	1.4
Language clarity	2.4	3.5	1.1
Suitability for intended customers	1.8	3.2	1.4
Total score, maximum 16	**8.4**	**13.8**	**5.4**

Source: Author-generated simulation. Scores illustrate possible rubric summaries and are not observed participant results.

The simulated pattern illustrates stronger output quality after training, while customer suitability remains the lowest-rated dimension. In an actual evaluation, this pattern could indicate that participants produce clearer content but still need support in adapting messages to specific customers. An output containing an incorrect price, unsupported claim, or misleading product description should require correction regardless of its total rubric score. Actual assessment must retain the underlying work samples and scoring records.

4. Illustrative Task Completion Times

Task efficiency should include the entire process of preparing instructions, generating a draft, verifying facts, making corrections, and completing the final material.

Table 3. Simulated Completion Times for Comparable Tasks

Task	Simulated baseline time	Simulated post-training time	Illustrative time reduction
Preparing a product description	20 minutes	12 minutes	40%
Preparing a promotional caption	15 minutes	9 minutes	40%

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Drafting a customer response	10 minutes	7 minutes	30%
Preparing a one-week content schedule	40 minutes	28 minutes	30%

Source: Author-generated simulation. All time values are hypothetical and assume outputs meet the same quality standard.

These examples illustrate how task-level efficiency could be reported. They do not demonstrate an increase in enterprise-wide productivity. Actual comparisons require equivalent task difficulty, consistent assistance conditions, and documented output quality.

5. Marketing Outputs and Follow-Up Outcomes

A complete empirical report should document the materials participants actually produced. Relevant outputs may include product descriptions, promotional captions, customer response templates, and content schedules. The report should distinguish facilitator-assisted assignments from materials completed independently.

No verified output counts or post-program marketing records have been supplied. Consequently, this draft does not assign figures to content publication, customer inquiries, completed orders, sales revenue, or profit. Because the activity concluded on September 27, 2026, sustained adoption and longer-term business outcomes require subsequent observation. Immediate assessment can examine learning and task performance, while follow-up assessment should establish whether owners continue applying the skills under normal business conditions.

Discussion

1. Interpreting Knowledge and Skills Development

The simulated tables illustrate a distinction between understanding AI and applying it effectively. Knowledge assessment concerns concepts, limitations, and appropriate use. Practical assessment concerns whether owners can produce accurate and relevant business materials.

Mikalef and Gupta (2021) conceptualize AI capability through the combination and deployment of organizational resources. Their perspective supports evaluating skills, business information, and working procedures alongside access to technology. For this program, relevant evidence would include participants' ability to prepare instructions, identify errors, and revise outputs independently. The hypothetical score differences demonstrate a reporting approach only. They cannot establish that capability development occurred among participants in Sitampa Simatoras.

2. AI Assistance and Task Productivity

Noy and Zhang (2023) provide experimental evidence that generative AI can improve performance on professional writing tasks. Brynjolfsson et al. (2025) also document productivity improvements following the introduction of an AI assistant in customer support work, with effects varying across workers. These studies justify investigating selected communication tasks within MSMEs.

However, drafting speed alone provides an incomplete measure. An apparently efficient output may require substantial verification or introduce errors that affect customers. Evaluation should therefore assess time and quality together. Any eventual local finding should remain specific to the measured task. A reduction in caption preparation time does not establish higher manufacturing output, lower overall business costs, or increased profit.

3. Digital Marketing Quality and Customer Relevance

Huang and Rust (2021) position AI within marketing research, strategy, and actions. Their framework suggests that content generation should connect with decisions about customers, product value, and communication objectives.

The simulated practical assessment illustrates why customer suitability deserves separate attention. Clear language may still fail to communicate a relevant benefit or provide sufficient ordering information. Actual assessment should examine whether promotional materials accurately describe the product and address an identifiable customer need.

Marketing evaluation should also distinguish producing content from generating a customer response. Published materials, inquiries, completed orders, and repeat purchases represent different outcomes and require different records.

4. Usefulness, Ease of Use, and Independent Application

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Davis (1989) identifies perceived usefulness and perceived ease of use as important determinants of technology acceptance. This perspective can help explain whether participants regard AI as a practical business resource and whether they can use it with manageable effort.

A participant may complete an assignment successfully with facilitator assistance yet experience difficulties when working independently. Follow-up assessment should therefore examine the support required, the relevance of selected tasks, and reasons for continued or discontinued use. Independent application provides stronger evidence of practical learning than attendance or satisfaction alone. Such evidence must come from actual work samples and observation rather than simulated scores.

5. Mentoring and Implementation Barriers

The OECD (2026) identifies skills gaps, time constraints, and implementation costs among barriers affecting surveyed SMEs. These findings support examining practical conditions when planning follow-up assistance. They do not establish that the same barriers occurred among participants in this village.

Mentoring can focus on difficulties documented during evaluation. Owners who struggle with prompts may need reusable templates, while those who generate inaccurate materials may need stronger verification procedures. Participants with limited digital experience may require additional guidance before adopting more complex applications. The duration and content of follow-up support should respond to documented needs. The report should not describe planned mentoring as an activity already completed.

6. Implications and Limitations

The proposed evaluation framework separates immediate learning, task performance, continued adoption, and financial outcomes. This distinction helps identify what a two-day activity can assess and what requires a longer observation period.

The principal limitation of this draft is the absence of actual participant-level evaluation data. The illustrative scores cannot support claims of effectiveness, statistical significance, increased income, or sustained behavioral change. Even with genuine baseline and post-test measurements, a single-group design would remain vulnerable to practice effects, facilitator influence, and other explanations. An empirical revision should replace every simulated value with documented results and report the participant denominator, assessment instrument, missing data, and scoring procedures. Conclusions should then reflect the evidence, including improvements, unchanged performance, and difficulties encountered.

CONCLUSION

1. AI offers a practical focus for MSME capability development. The community service activity held on September 26–27, 2026, in Sitampa Simatoras Village addressed AI applications for productivity and digital marketing. Its effectiveness should be assessed through participants' ability to combine suitable tools, accurate business information, and independent judgment.
2. Productivity improvements require task-specific evidence. Preparing product descriptions, promotional captions, and customer responses provides measurable opportunities for evaluating AI assistance. However, assessment must consider output quality alongside total completion time, including verification and correction. Existing research supports investigating these benefits but does not establish equivalent improvements among participating MSMEs without local measurements.
3. AI-assisted content should serve clear marketing objectives. Promotional materials need to communicate verified product benefits, address intended customers, and provide accurate ordering information. AI applications should therefore support marketing decisions as well as content preparation. Increased content production alone cannot demonstrate expanded market reach or higher sales.
4. Independent use is an important indicator of practical learning. Follow-up evaluation should examine whether participants find AI useful, can operate it with manageable effort, and continue applying it to relevant tasks. These considerations reflect the importance of perceived usefulness and perceived ease of use in technology acceptance.
5. Long-term business outcomes remain subject to further evaluation. Claims concerning sustained adoption, increased orders, revenue, or profit require follow-up records. Further assistance should address documented barriers, including skills, time, and implementation costs. International SME evidence supports attention to these conditions, while local data must determine their relevance to participating enterprises.

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