

Digital Support Framework for Micro-Entrepreneurs in Naga City People's Mall

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ABSTRACT

This research explored the readiness of micro-entrepreneurs at the Naga City People's Mall in utilizing digital tools for their daily business operations. This study primarily focused on their digital awareness and skills, attitude towards digitalization, and barriers affecting digital adoption. This research is anchored in the Diffusion of Innovations Theory and the Technology Acceptance Model (TAM). A quantitative, descriptive-correlational design was utilized, and data were collected through structured surveys administered to randomly selected micro-entrepreneurs using a 5-point Likert scale. The findings showed skilled, educated, and experienced micro-entrepreneurs working mainly in lean setups. Respondents showed a "Very High" level of digital awareness and "High" overall attitude towards digitalization. While highly confident in their personal digital skills, they feel only "moderately" comfortable with the specific tools needed for e-commerce, indicating a clear gap between personal digital use and business application. Results from the Chi-Square test showed that Age and Education are significantly related to both digital awareness and digital skills ($p = 0.000$). Length of Business Experience and Business Type also affected specific readiness dimensions. Furthermore, external barriers played a critical role, with poor internet connectivity (mean of 3.62) and a strong preference for cash transactions (mean of 3.94) as the main obstacles preventing digital adoption. Addressing these gaps, the study presents the "SAOD KITA" Digitalization Support Framework, which focuses on four key areas: specialized knowledge in strategic use of social media for business, cybersecurity, especially along the use of QR and digital payments, accessible infrastructure through reliable WiFi connection, operational improvements by use of POS, and a local "Digital Buddy" mentorship program. Ultimately, the framework offers tailored programs for local governments and private partners to promote sustainable, inclusive digital change in the public market ecosystem, specifically at the Naga City People's Mall.

Keywords: digital readiness, digitalization framework, micro-entrepreneurs, public market, technology adoption

INTRODUCTION

Background of the Study

Technology continues to affect the core fundamentals of global business management significantly. According to a Fortune Business Insights study, North America accounted for 43% of the global digital transformation market share in 2024. Digital transformation is a key driver of global economic growth. Particularly for the micro, small, and medium enterprises (MSMEs), digital transformation is beneficial in generating significant employment and promoting inclusive growth. Cutting-edge technologies such as Artificial Intelligence (AI), blockchain, and e-commerce platforms offer MSMEs the chance to improve market access, increase operational efficiency, and enhance their competitiveness. Nevertheless, ongoing issues such as inadequate digital infrastructure, a skills gap, and cybersecurity concerns continue to restrict the broad adoption of technology among smaller businesses (Davis, 1989). The necessity of focused readiness assessments to close these gaps and enable sustainable change is highlighted by the global situation (Pingali et al., 2023).

In the Philippines, over 99% of all registered businesses are MSMEs, which employ over 65% of the overall workforce and contribute roughly 45% to the country's GDP. Even though they have great potential, these

MSMEs face persistent difficulties, such as limited access to funding, limited digital proficiency, and inadequate infrastructure that impedes the full integration of delivery systems, payment options, and inventory management technologies (DTI, 2024). The DTI's MSMED Plan for 2023-2028, along with programs such as the Agrinista Program and the Maya Palengke QR system, aims to promote the adoption of digital practices. Nevertheless, there are considerable challenges, particularly in moving away from cash-dependent traditional methods toward cashless options and digital logistics (Seráfica, 2018). The necessity of empirical research to guide policy measures that support fair technology adoption is highlighted by these national dynamics (Flores, 2025).

Naga City People's Mall (NCPM), established in the 1970's and located in the Bicol Region of the Philippines, houses over a thousand MSMEs in Naga City, reflecting the informal economy's reliance on locally sourced fresh produce. Due to unscaled digital awareness, connectivity issues, and socioeconomic vulnerabilities, digital tools such as cashless payment schemes, delivery apps, and online inventory management are still underutilized. MSMEs report ongoing challenges, such as fear of scams and limited training opportunities, despite local efforts, including the 8th Bicol Agri Summit and Naga City's startup ecosystem initiatives. This results in varying degrees of adoption throughout the payment, delivery, and inventory sectors (Campollo, 2024). This localized situation underscores a major research gap in MSME preparedness in Naga City and the need for tailored frameworks to enhance digital integration (UPLB, 2024).

This study is crucial for adopting and advancing the digital transformation of micro-entrepreneurs in the Naga City People's Mall. This research employs a quantitative approach to identify the technical and behavioral factors influencing micro-entrepreneur behavior, drawing on well-established models such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). By doing this, it fills a localized research vacuum that has not yet been adequately addressed by current national programs such as the Agrinista Program and the DTI MSMED Plan 2023-2028. Ultimately, this research provides a statistically supported foundation for a digital assistance framework for the NCPM's micro-entrepreneurs.

Research Objectives

This study aimed to evaluate the readiness of micro-entrepreneurs in Naga City People's Mall to utilize digital tools for their daily business operations. Specifically, it achieved to determine the entrepreneurial profile of micro-entrepreneurs in Naga City People's Mall along age, sex, educational attainment, types of business, length of business experience, and number of assistance received; assessed the level of readiness of micro-entrepreneurs in terms of digital awareness, digital skills, and attitude towards digitalization; determined the significant relationship between the entrepreneurial profile and the level of digital readiness of micro-entrepreneurs; identified the factors affecting the micro-entrepreneurs digital readiness in terms of support system and technology adoption; and developed a digitalization support framework to enhance the level of readiness of micro-entrepreneurs in Naga City People's Mall.

Scope and Delimitation

This research study assessed the digital readiness levels among micro-entrepreneurs at the Naga City People's Mall. The researcher evaluated how micro-entrepreneurs view technology adoption in terms of digital awareness, digital skills, and attitude towards digitalization. Perceived barriers were also captured to fully understand micro-entrepreneurs' perspectives on digital tools, including delivery systems, payment methods, and inventory management technologies. Data collection was conducted in 2026 during non-peak hours of operation. The researcher distributed structured survey questionnaires to a targeted group of 126 micro-entrepreneurs using stratified random sampling. To ensure the data analysis was thorough and precise, the study used Jamovi (Version 2.6), an open-source statistical software, to calculate all descriptive statistics and perform inferential tests. This includes the Chi-Square statistical test used for hypothesis testing.

To ensure a highly focused and localized analysis, the delimitations of this study strictly excluded non-micro-entrepreneurs operating businesses within the Naga City People's Mall, as well as micro-entrepreneurs operating in other public markets within Naga City. Furthermore, the technological scope is confined solely to

micro-entrepreneurs' digital awareness, digital skills, and digital use, as well as their willingness to adapt to digitalization in terms of the use of digital payments and inventory management and delivery systems; other peripheral digital areas are excluded. Finally, the study relies on the micro-entrepreneurs' self-reported perceptions and self-assessments rather than conducting independent technical audits of their devices, software, or financial ledgers.

Theoretical/Conceptual Framework

This study primarily anchors on the Technology Acceptance Model (TAM), Diffusion of Innovations Theory, and the Unified Theory of Acceptance and Use of Technology (UTAUT).

The Technology Acceptance Model theory, a user's acceptance of an information system developed by Fred Davis in 1989 based on principles adopted from Fishbein and Ajzen's (1975) attitude paradigm in psychology, is a practical tool for early user acceptance theory. It explains how users are encouraged to accept and utilize new technology, focusing on two determinants, which are perceived usefulness and perceived ease of use. The Diffusion of Innovations Theory, developed by sociologist Everett Rogers in 1962, explains how, why, and at what rate innovations spread through a community. The Unified Theory of Acceptance and Use of Technology is a comprehensive theoretical model that predicts and explains why individuals adopt or reject new information systems and technologies. Developed by Venkatesh, Morris, Davis, B., and Davis, F. The conceptual framework posited that entrepreneurial profile predictors influence digital readiness of micro-entrepreneurs in terms of digital awareness, digital skills, and attitude towards digitalization.

METHODOLOGY

This study discusses the methodology and numerical techniques used to explore how ready micro-entrepreneurs in Naga City are to adopt digital technologies for their businesses. It also discusses the survey instruments and the rigorous data collection, analysis, and procedures utilized.

Research Design

This study used a quantitative descriptive-correlational design to profile respondents. It assessed digital readiness across awareness, skills, and attitudes. The study examined the links between entrepreneurial profiles and digital readiness in terms of digital awareness, digital skills, and attitude towards digitalization. It also identified the factors influencing these relationships using a two-tailed Chi-Square test. A structured survey questionnaire with a 5-point Likert scale that captured key variables that relate to the Technology Acceptance Model and Diffusion of Innovations Theory. Data analysis employs statistical software that performs descriptive statistics and various tests, such as the Chi-Square test.

Respondents

The data provided by Market Enterprise and Promotions Office of the Local Government Unit of Naga, as of July 2025, the population of Naga City People's Mall comprises of 1,133 registered stallholders. The researcher determined the sample size for this study through a priori power analysis using G*Power 3.1 software, conducted prior to data collection. G*Power is free statistical software designed to help researchers determine the most appropriate sample size for their study (LibGuides: Statistical & Qualitative Data Analysis Software: About GPower, n.d.). The statistical model includes nine main predictor variables. These are six entrepreneurial profile variables, technological factors, micro-entrepreneur behavior, and support systems. Using G*Power with these parameters shows that at least 114 respondents are required. To account for possible non-responses or incomplete questionnaires, the researcher oversampled by 10%. This finalized the target sample size of 126 respondents.

Data Gathering Tools

The research tool used for this study is a structured survey questionnaire. It is designed to evaluate how prepared micro-entrepreneurs in Naga City are to use digital technologies for their daily operations, especially

in terms of delivery systems, payment methods, and inventory management. This tool utilized a 5-point Likert scale questionnaire to gather quantitative data and measure NCPM micro-entrepreneurs' attitudes, perceptions, and intentions toward using digital technology.

Data Gathering Procedure

The data gathering procedure for this study has been conducted systematically to ensure the reliability and validity of the collected data based on the readiness of micro-entrepreneurs in the Naga City People's Mall to adopt digital technologies. Prior to conducting data gathering, the researcher visited the Market Enterprise and Promotions Office and secured approval for data collection. Once approval was received, questionnaires were sent to the micro-entrepreneurs via Google Forms and in-person surveys. In this way, micro-entrepreneurs who might have limited reading skills or access to digital tools have been reached and assisted. Before any data were collected, verbal consent was obtained from every participant, assuring them that sensitive information would be kept private and confidential and that participation in the study was completely voluntary.

Every data collection was scheduled during non-peak operational hours over a predetermined period to maximize micro-entrepreneur availability. The researcher assisted the respondents by thoroughly analyzing each statement with them and ultimately helping them complete the survey. This support clarified questions and ensured respondents provided clear answers. After completion, the responses were checked for completeness before coding and analysis. To ensure accurate data consolidation, the researcher manually entered respondents' answers from the physical questionnaires into a structured Google Form, which automatically generated a secure, cloud-based master spreadsheet. The entire data-gathering process prioritized ethical standards and aimed to yield comprehensive, representative data to address the research objectives effectively.

Data Analysis Techniques

The data gathered from the survey questionnaire were carefully examined to meet the research objectives using descriptive and inferential statistics. Descriptive statistics, including frequencies, percentages, means, and standard deviations, provided a clear profile of entrepreneurial traits such as age, sex, education level, types of businesses, years of business experience, and the number of assistance counts. Digital readiness composites include awareness, skills, and attitudes for delivery systems, payment methods, and inventory management. The verbal interpretation utilized in this study is anchored at Low (1.00-2.50), Moderate (2.51-3.50), High (3.51-4.00), and Very High (4.01-5.00).

Inferential analyses tested the null hypothesis that there is no significant relationship between the entrepreneurial profile variables and overall digital readiness. This was done using Pearson's r correlation coefficient via a two-tailed Chi-Square test for nominal variables, including age groups, education levels, business types, length of business experience, and assistance count. Frequency distributions and rankings helped identify the main factors influencing readiness, including support systems like training and infrastructure, as well as technology adoption barriers such as cost, complexity, and trust. This study uses a two-tailed Chi-Square test to analyze the association between each predictor variable and micro-entrepreneurs' digital awareness, digital skills, and attitude toward digitalization. The analysis showed Pearson's correlation r -value and p -value.

Ethical Considerations

This study adheres to established ethical standards for social research, including informed consent prior to data collection, confidentiality and anonymity of all respondents, voluntary participation and non-coercion, beneficence and non-maleficence, inclusivity for vulnerable populations, and data integrity.

RESULTS AND DISCUSSION

This part presents and interprets the data collected from the structured surveys administered for the Digital Support Framework for Micro-entrepreneurs in Naga City People's Mall.

Entrepreneurial Profile of Micro-entrepreneurs in Naga City People's Mall

Micro-entrepreneurs in the Naga City People's Mall show a bimodal age distribution. The age groups of 26 to 35 years and 46 and above have the largest populations. Each group makes up 31% of the total respondents. In contrast, the 16 to 25-year-old bracket shows the lowest, with only 21 respondents, representing 16.7% of the population.

The demographic profile of the respondents also indicates a strong female dominance at the Naga City People's Mall. Specifically, 96 females account for 76.2% of the total respondents, while 30 males account for 23.8%. This data serves as the baseline for the gender-based analysis of the micro-entrepreneurs local ecosystem.

The data also shows that Naga City People's Mall's educational profile is notably high and academically diverse. The majority of our micro-entrepreneurs are college graduates, corresponding to 72 of the total respondents, accounting for 57.1%. It is followed by 38 respondents, 30.2% from the total sample population, who have earned high school diplomas. Only 4 respondents, representing 3.2%, reported elementary as their highest educational attainment.

The business landscape of the micro-entrepreneurs of Naga City People's Mall is primarily dominated by the Food and Prepared Foods sector, with 31 from the total sample population, accounting for 24.6%. The second is 27 from the Fresh Produce sector, 21.4% from the respondents. Other sectors, such as clothing, dry goods, and meat/fish, constitute smaller fractions of the total.

Given that Naga City People's Mall was established in the 1970s (Naga City Tourism, 2025), it is reasonable to assume that most of our micro-entrepreneurs are long-established in the community. According to the data, a clear majority of our respondents, totaling 70 individuals, accounting for the 55.6%, have been in operation and have business experience for more than 10 years. On the other hand, there are only 17 newcomer micro-entrepreneurs with only 1 to 3 years of business experience.

Lastly, Naga City People's Mall is currently dominated by lean-numbered micro-entrepreneurs, with very few assistants per stall. According to the data, 67 individuals have 1 to 2 additional staff members, accounting for 53.2%. There are 32 individuals who are solo operators, accounting for 25.4% of the total population size. Collectively, over 78% of micro-entrepreneurs employ one to two additional staff.

Level of Readiness of Micro-entrepreneurs in Naga City People's Mall

The level of readiness is determined from the Digital Awareness and Digital Readiness of micro-entrepreneurs in Naga City People's Mall.

Awareness of digital technology refers to understanding its use for growth for social and business purposes (Saranya & Chandrasekar, 2021). According to Diaz-Arancibia et al. (2024), a digital awareness mentality, which includes a positive attitude towards new technology and digital trust, contributes to successful digital transformation. The study's data on Digital Awareness shows an overall mean of 4.35, indicating that the micro-entrepreneurs of Naga City People's Mall possess Very High digital awareness. Individual indicators range from a mean of 4.18 for Google Maps awareness to a peak of 4.52 for knowledge of QR payments or online bank transactions. All indicators have a Very High verbal interpretation, suggesting a strong foundation in digital awareness.

The highest mean of 4.52 for QR payments indicates that the NCPM micro-entrepreneurs are aware of financial technology platforms and initiatives. Conversely, the 4.18 mean, the lowest for Google Maps, suggests that location-based services are still slightly less understood and utilized. However, with a very high level of digital awareness, NCPM micro-entrepreneurs are prepared for digital integration across various operational platforms.

This Very High digital awareness is likely a result of a rapid push toward online ordering and delivery, as well as cashless payment schemes, following the pandemic. The slightly lower awareness of Google Maps might

stem from the accessibility and location of the business stalls, as Naga City People's Mall is a 3-storey, single-roofed structure. This implies that NCPM micro-entrepreneurs rely more on foot traffic than on digital wayfinding for customers and attractions. Also, the data suggests that the primary barrier to digital adoption is not a lack of knowledge and awareness of digital tools.

On the other hand, capabilities are defined as the power or ability to generate an outcome from Digital Skills (Scuotto et al., 2021). The data for Digital Skills indicate that the micro-entrepreneurs in Naga City People's Mall possess a High level, with an overall mean of 3.69. The indicator related to device ownership and navigating the application has the highest mean at 4.37, but the lowest, still considered under the Moderate level, is having a Facebook business page, with a mean of 2.56. Three indicators relating to personal use suggest a Very High interpretation; however, troubleshooting and leveraging social media as a business platform are both at the Moderate level. This provides a clear contrast between high device literacy and lower technical application skills among NCPM micro-entrepreneurs.

The mean score data reveal a digital skills gap between consumption and operational skills. The highest mean indicator suggests that nearly all micro-entrepreneurs are equipped with the hardware needed for digital adoption and possess basic internet navigation skills. However, the drop in the business page indicator to a moderate level suggests that most micro-entrepreneurs use the platform solely for personal use and have not capitalized on it for digital marketing.

The moderate scores for indicators of business page and troubleshooting suggest that while the micro-entrepreneurs are comfortable using technology, they are not yet keen on managing it to support their commercial growth. Given that the Naga City Government has secured funding for Naga City AI urban planning, which positions Naga City as a digital hub, the low adoption and utilization of social media for business pages suggest that micro-entrepreneurs view digital presence as self-gratification rather than a business growth opportunity. This frames current digital skills among micro-entrepreneurs as a functional plateau, where digital literacy is abundant but business-centric technical competence is still lacking.

Significant Relationship between the Entrepreneurial Profile and the Level of Digital Readiness of Micro-entrepreneurs

The Chi-Square test results determined the relationship between the entrepreneurial profile and the specific variables of digital readiness. The results reveal that Age and Highest Educational Attainment are highly significantly related to both Digital Awareness and Digital Skills (p -values = 0.000). Furthermore, Length of Business Experience affect both Digital Skills and Attitude towards Digitalization, while Business Type directly impacts Digital Skills. On the other hand, demographic variables such as Sex and Number of Assistance Received present no statistically significant relationships across any dimension of digital readiness, as all their corresponding p -values far exceed the 0.05 threshold.

The strong significance of age and education may stem from the fact that older micro-entrepreneurs and those without higher formal education find the cognitive demands of navigating new digital technologies particularly difficult. It is most likely that micro-entrepreneurs with longer business operations have deeply established traditional routines, which might explain why their operational tenure directly affects their attitude toward digital adoption. Additionally, the type of business affects the digital skills required. Selling highly perishable goods requires certain technical skills that are fast-paced. Other dry goods sectors may not need these skills as urgently. As a result, differences in digital readiness across the market might stem from personal human capital gaps and experience, rather than from gender or the size of the workforce.

This data clearly shows that the technology gap at the Naga City People's Mall is mainly due to differences in age, education, and operational practices. An older micro-entrepreneur and a younger micro-entrepreneur will experience very different digital realities, regardless of gender or the number of assistance they have. The results show that extensive digitalization efforts will likely struggle to reach older groups who lack the basic education needed to learn technical skills easily. This highlights the need for programs focused on specific demographics to promote inclusive technological growth for all market participants.

Factors Affecting the Micro-entrepreneurs Digital Readiness in terms of Support System and Technology Adoption

The factors affecting micro-entrepreneurs' digital readiness are determined through two categorized perceived influences, which are Support System and Technology Adoption Barriers.

The infrastructure challenges present a Moderate barrier to digital readiness with a mean of 3.40. The most significant hurdles identified by the respondents are poor internet connectivity within the Naga City People's Mall and the high cost of smartphones and data plans, both with a mean of 3.62 and registered as High barriers. Conversely, a lack of support from family and friends was ranked as the lowest barrier with a mean of 3.10.

Based on the indicator levels, the data reveal that physical and financial infrastructure are significantly more obstructive to the digital readiness of NCPM micro-entrepreneurs than educational and social factors. Even with High level of social support and guidance, micro-entrepreneurs are hindered by external technical and economic realities. The data suggests that while some micro-entrepreneurs may have access to personal data plans, a large portion of the NCPM community still feels severely underserved by the current infrastructure.

The High interpretation of connectivity issues suggests that the physical structure of Naga City People's Mall may be causing a dead zone. The businesses are located in dense, concrete buildings that block cellular signals. This directly affects real-time transactions, such as online payments. Also, without a proper telecommunications infrastructure in NCPM, the high cost of data plans is perceived as an additional expense rather than a cost-saving investment. Furthermore, while the LGU assistance score is moderate, indicating that government presence is felt, it has not yet reached the transformative digital support micro-entrepreneurs require.

Moreover, the micro-entrepreneurs view internal factors as a "Moderate" barrier, yielding a composite mean of 3.12. Strikingly, the perception that customers heavily prefer cash over QR payments was identified as the absolute highest barrier, ranking first with a "High" mean of 3.94. Meanwhile, the belief that digital tools are too complicated for their age or level of education ranked as the lowest hurdle, with a moderate mean of 2.62.

The strong concern about customer payment preferences may stem from the fact that wet market transactions are based on haggling and quick, small cash exchanges. Micro-entrepreneurs might see moving to cashless systems as a real economic risk if their regular buyers do not have digital wallets. The low ranking in technological complexity might indicate that the micro-entrepreneurs actually possess the self-efficacy to learn the tools if the market demands them. Therefore, their hesitation to adopt technology may be a completely rational economic response to consumer behavior rather than sheer technological illiteracy.

This data conclusively shows that digital adoption in the informal sector is a two-sided marketplace issue that depends heavily on consumer readiness. It indicates that micro-entrepreneurs will not proactively modernize their payment systems if they believe it will alienate their traditional cash-paying customer base. The findings suggest that barriers to adopting technology are mainly influenced by external market forces rather than by internal cognitive limitations. This shows that any digital effort that only targets the micro-entrepreneur side will fail without also involving consumers.

Digital Support Framework for Micro-entrepreneurs in Naga City People's Mall

To directly address the gaps identified in the study, this research proposes the SAOD KITA framework. SAOD KITA is a skills-driven framework for adoption and operational digitalization intended for Naga City People's Mall micro-entrepreneurs, primarily focusing on knowledge transfer, infrastructure access, and technical assistance. SAOD KITA stands for Skills Adoption for Operational Digitalization: Knowledge, Infrastructure, and Technology Assistance. The main aim of this framework is to close the gap between micro-entrepreneurs' strong personal digital awareness and their moderate professional e-commerce abilities. By focusing on the major infrastructure challenges and generational barriers in the NCPM, SAOD KITA provides a clear, local approach to integrating technology. Ultimately, it aims to provide a stable economic environment that supports micro-entrepreneurs' peak sales hours while helping them transition effectively into the digital economy.

With SAOD KITA, every micro-entrepreneur will be empowered by modern technology. This will help transform Naga City People's Mall into a lively, smart-ready ecosystem that furthers Naga City's drive toward a digital future. It transcends a regular training program for informal micro-entrepreneurs; it will demonstrate a strong commitment to sustainable digital commerce made by the local community for the community. By emphasizing these inclusive values, the framework ensures that modernization efforts maintain the NCPM's cultural heritage while improving its long-term economic potential. Moreover, to make this vision a reality, the program is based on four main pillars that work collaboratively within the implementation model.

Pillar 1: Knowledge and Awareness. This stage aims to help micro-entrepreneurs bridge the gap between general awareness and business-specific skills. This will transition their awareness of digital tools into active use to further their business. This pillar provides targeted workshops on using social media platforms, specifically Facebook Business Pages or the Meta Business Suite, as digital marketing tools. With an online business presence, they can ultimately expand their reach and not depend on daily foot traffic inside the NCPM. By posting their products, daily prices, and offering discounts, they can attract followers and convert social inquiries into sales. This pillar also includes seminars on secure QR payments and scam prevention. By leveraging QR payments, enhanced operational efficiency can be observed. This can be linked to the business's digital presence, as consumers prefer to order and transact via the business's page.

Pillar 2: Accessible Infrastructure and Devices. This pillar focuses on eliminating the identified number one barrier for digital readiness. In this stage, the programs aim to eliminate the serious technical and financial obstacles that hinder micro-entrepreneurs from adopting digitalization. With aid from the Local Government Unit of Naga (LGU Naga) and partnerships with the Telecommunications Sector to subsidize and install mesh WiFi systems, it can resolve dead zones and provide a reliable network inside the Naga City People's Mall. Providing hardware caravans, in partnership with local cooperatives and Fintech companies, for low-interest microloans to buy business-ready smartphones and data plans can also be implemented. Incentive programs can also be launched from LGU partnerships with the Fintech Sector to subsidize transaction fees and promote the use of digital wallets for both consumers and micro-entrepreneurs.

Pillar 3: Operational Automation and Ease. The focus of this pillar is to ensure the functionality of digital tools for our micro-entrepreneurs. LGU Naga, in partnership with Startup communities, can innovate an automated Point-of-Sale (POS) system to simplify transactions and inventory management. This automated POS can integrate with inventory management systems, streamline retail operations, and handle payments. A workshop on integrating digital operations into their daily business, such as using POS and accepting digital payments alongside traditional cash handling, can be conducted. This ensures that these digital tools can fit flexibly into their current workload, enabling a smooth transition and limiting resistance. Once micro-entrepreneurs are accustomed to and can utilize the POS with ease, to further digital adoption of NCPM, the LGU Naga may explore creating a dedicated application that can connect NCPM micro-entrepreneurs with consumers via an online order and delivery system, where LGU Naga can collaborate with local delivery partners, promoting a local economy boost.

Pillar 4: Technical Assistance and Community Advocacy. This last stage focuses on building a community support system to ensure no micro-entrepreneur is left behind. This is achieved through a Digital Buddy System that connects tech-savvy younger micro-entrepreneurs with established legacy owners, aged 46 and above, for on-site mentoring. This support is bolstered by a real-time NCPM Help Desk, staffed by local government IT experts, which can be stationed at the Market Enterprise and Promotions Office on the 2nd floor of Naga City People's Mall.

Based on the data from this research, it is significant to administer training, workshops, or seminars during non-peak hours and in sessions. Additionally, it is necessary to touch the roots of the community by engaging in the Bikol language. These are suggested to avoid disrupting their daily operations and to provide a straightforward understanding of the interventions. Also, by leveraging a mixed approach, this effectively presents the program as a helpful support for efficient business operations that integrates digital solutions and not a replacement for their important manual traditions.

Saod is market-translated into Bikol, while Kita means 'we' or 'togetherness' (W. Mintz, 1971). Saod kita, as

interpreted from the vernacular language, can mean "we are the market" for the micro-entrepreneurs, and can be a verb that translates "to go shop in the market" for consumers. What distinguishes the SAOD KITA framework is its focus on a community-based approach grounded in the Bicolano principle of Kita (Together). This principle emphasizes deep local inclusivity above all else. The SAOD KITA framework is a data-driven intervention created to tackle the specific skill gaps and challenges faced by micro-entrepreneurs in Naga City People's Mall. Ultimately, effective collaboration among the Naga City LGU, MEPO, Fintech Innovators, Startup communities, and the Naga City community can help establish a progressive digital future for the Naga City People's Mall.

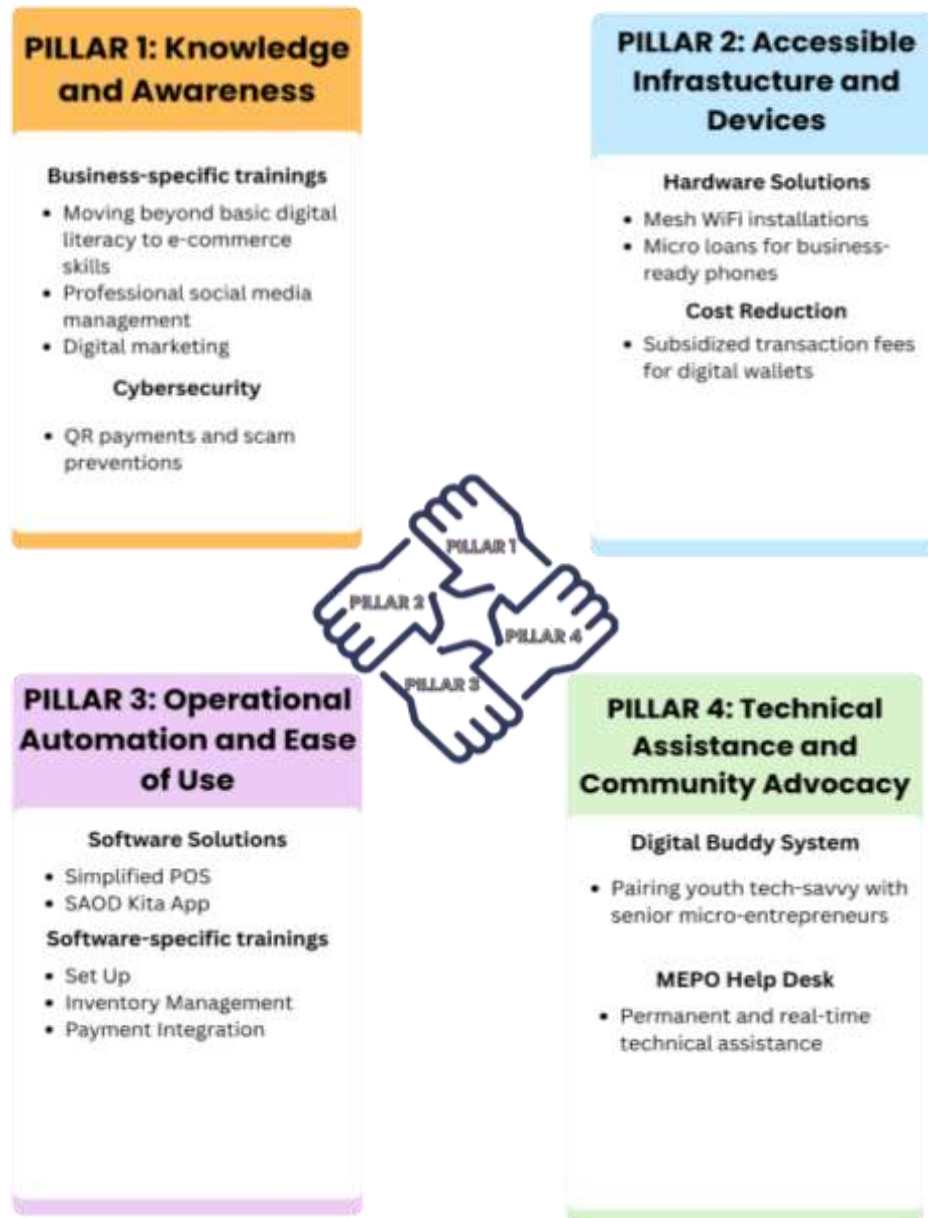


Figure 1 SAOD KITA Digitalization Support Framework

Limitations of the Study

To ensure a highly focused and localized analysis, this study strictly excluded non-micro-entrepreneurs operating businesses within the Naga City People's Mall, as well as micro-entrepreneurs operating in other public markets within Naga City. Furthermore, the technological scope is confined solely to micro-entrepreneurs' digital awareness, digital skills, and digital use, as well as their willingness to adapt to digitalization through the use of digital payments and inventory management and delivery systems; other peripheral digital areas are excluded. Finally, the study relies on the micro-entrepreneurs' self-reported perceptions and self-assessments rather than conducting independent technical audits of their devices, software, or financial ledgers.

CONCLUSIONS

This section summarizes the research findings on the digital readiness of micro-entrepreneurs at the Naga City People's Mall (NCPM).

1. **Age:** The bimodal distribution shows a mix of different generations. Young adults and experienced micro-entrepreneurs work together, but they move at different speeds when it comes to digital tasks. **Sex:** The large number of women shows that the physical market's economic base is strongly influenced by a business and management style dominated by women. **Highest Educational Attainment:** The micro-entrepreneurs defy the low-literacy stereotype of the informal sector, possessing a strong cognitive foundation that enables them to absorb complex information. **Business Type:** The concentration in perishable goods dictates that micro-entrepreneurs operate in high-turnover environments where transaction speed is an absolute survival mechanism. **Length of Business Experience:** The long-lasting manual operations show strong traditional business skills. **Tenured micro-entrepreneurs** are very reluctant to abandon trusted routines for unproven new technologies. **Number of Assistance Received:** Operating with a minimal workforce places these micro-entrepreneurs under severe time constraints, severely limiting their capacity to explore or troubleshoot complex administrative software.
2. **Digital Awareness:** Micro-entrepreneurs possess an exceptionally strong baseline recognition of mobile wallets such as GCash and Maya, demonstrating they are not technologically isolated from modern consumer trends. **Digital Skills:** There is a clear difference between the micro-entrepreneurs' strong skills as personal digital users, like navigating basic gadgets, and their average, less developed ability as business digital sellers, such as managing business pages. **Attitude toward Digitalization:** Micro-entrepreneurs show a very positive, practical attitude toward using familiar social media platforms to market their businesses. However, they face considerable mental resistance and hesitation when it comes to adding unfamiliar tracking systems, such as inventory apps, to their established, quick routines.
3. **Age:** The generational demographic affects a micro-entrepreneur's basic knowledge and technical skills. This shows a significant gap in digital literacy between younger and older micro-entrepreneurs. **Sex:** A vendor's gender plays absolutely no role in determining their technological capacity, confirming that male and female stallholders face the same digital realities and hurdles. **Highest Educational Attainment:** Formal academic schooling is important for gaining digital awareness and skills. **Basic cognitive abilities** greatly influence how well people learn technical concepts. **Business Type:** The specific type of perishable or dry goods sold dictates the required technical competencies; for example, high-turnover stalls require distinct, fast-paced digital skills compared to other sectors. **Length of Business Experience:** A micro-entrepreneur's experience significantly shapes their technical skills and attitude. This suggests that long-established micro-entrepreneurs are more resistant to giving up traditional manual routines. **Number of Assistance Received:** The physical scale of the business workforce does not dictate digital readiness, meaning solo operators and larger stall teams face the same technological barriers.
4. **Support System:** The main external challenges to full digital adoption are significant infrastructure and economic gaps, such as physical market dead zones and high data costs. These issues are more significant than any lack of social support from family or friends. **Technology Adoption:** Micro-entrepreneurs' hesitation is largely a rational economic response to the reality that their customers overwhelmingly prefer traditional cash transactions, rather than stemming from internal technological illiteracy or sheer complexity.
5. **Pillar 1 (Knowledge and Awareness):** Bridging the operational gap between personal digital use and professional e-commerce needs focused, business-specific training instead of broad, basic computer courses. **Pillar 2 (Accessible Infrastructure and Devices):** Digital readiness cannot be achieved just through skills training. Providing subsidized hardware and stable public telecommunications is essential for modernizing the market. **Pillar 3 (Operational Automation and Ease of Use):** Technology

will only be embraced by micro-entrepreneurs if it serves as a seamless virtual assistant that reduces their daily administrative burden and respects the rapid pace of traditional market transactions. Pillar 4 (Technical Assistance and Community Advocacy): A successful digital transition requires sustained, community-wide support and real-time, vernacular troubleshooting to ensure that vulnerable, older micro-entrepreneurs are not left behind.

RECOMMENDATIONS

This section summarizes the recommendations of the author for this study:

1. **Age:** The local government should set up structured mentoring programs. These programs should pair younger, tech-savvy micro-entrepreneurs with senior micro-entrepreneurs. This will help transfer digital skills within the community. **Sex:** Digital support frameworks should emphasize collaborative, female-led mentorship networks. This is an edge as women are viewed as natural teachers due to inherent nurturing aptitude, patience, and empathy. **Highest Educational Attainment:** Capacity-building seminars should completely bypass basic remedial computer literacy and immediately introduce advanced, value-added e-commerce features. **Business Type:** Technology providers must create digital Point-of-Sale (POS) systems that guarantee quick settlements. This is essential to keep up with the fast pace and quick turnover of fresh produce sales. **Length of Business Experience:** Digital advocates should present digital tools as low-risk, hybrid additions to micro-entrepreneurs' successful routines rather than as total replacements. **Number of Assistance Received:** Developers must ensure that all implemented tools have a near-zero learning curve and require minimal administrative maintenance. This way, individual operators can use them easily while working with customers.
2. **Digital Awareness:** Initiate programs that leverage the micro-entrepreneur's strong knowledge of mobile wallets by directly integrating e-commerce. This will avoid unnecessary basic digital orientation campaigns. **Digital Skills:** Capacity-building seminars need to quickly help micro-entrepreneurs move from using personal devices to managing their own business systems. Hands-on workshops that focus on creating official Facebook business pages, handling online customer questions, and performing basic technical troubleshooting can help micro-entrepreneurs enhance their digital skills. **Attitude toward Digitalization:** When creating an application, software developers must ensure that new digital market features closely resemble the easy-to-use interfaces of popular social media apps. By focusing on smooth, tap-based designs, they can reduce the perceived learning curve and avoid major workflow disruptions for micro-entrepreneurs.
3. **Age:** The local government should establish structured digital mentorship programs. Younger micro-entrepreneurs who are tech-savvy can be paired with older stallholders. This will help close the important skills gap. **Sex:** Program organizers must maintain strictly gender-neutral capacity-building initiatives, ensuring equal access to technology resources without assuming any gender-based technological deficits. **Highest Educational Attainment:** Training modules must skip basic computer skills for college-educated micro-entrepreneurs. At the same time, they should create highly visual, simple language modules specifically for those with lower educational backgrounds. **Business Type:** Technology providers must tailor digital tool introductions to specific market sectors, prioritizing fast-paced, tap-based Point-of-Sale applications specifically for highly perishable food vendors. **Length of Business Experience:** Digital advocates should present technological tools as low-risk, hybrid additions instead of complete replacements. This approach respects the successful and established manual traditions of veteran micro-entrepreneurs. **Number of Assistance Received:** Software developers need to create all digital tools with a near-zero learning curve. This ensures that even individual users can easily operate the tools while also managing customer interactions.
4. **Support System:** The local government unit or partner institutions should focus on installing subsidized, high-speed public WiFi access points in Naga City People's Mall (NCPM). This will help reduce hardware connectivity issues and data costs before making large investments in software training. **Technology Adoption:** Digitalization campaigns need to focus on two areas. Along with micro-entrepreneur training, starting incentive programs such as QR discount days, to encourage daily

shoppers at the NCPM to use digital wallets, can also be implemented. This approach will help boost micro-entrepreneur adoption by creating direct consumer demand. A partnership between the local government unit and digital wallet providers to reduce transaction fees for consumers when cashing in and for micro-entrepreneurs when cashing out can also be explored.

5. Pillar 1 (Knowledge and Awareness): Implement a series of workshops focused on utilizing social media platforms in business pages, posting etiquette, and converting inquiries into sales. Digital payments seminars focused on using QR Ph effectively, and cybersecurity talks focused on easy recognition of scams and fraudulent payments are also significant. Pillar 2 (Accessible Infrastructure and Devices): The Naga City Local Government Unit must work closely with private telecommunications and Fintech partners to address dead zones within NCPM, subsidize the costs of mesh WiFi installations, and consistently eliminate transaction fees for micro-entrepreneurs. Micro-loan programs from local cooperatives and corporate partners may also be implemented to eliminate the barrier to the cost of smartphones for business use. Pillar 3 (Operational Automation and Ease of Use): Collaborate with the local Startup community to develop a simplified, integrated POS. This POS should support a hybrid workflow so micro-entrepreneurs can seamlessly operate and track both digital and traditional transactions. Pillar 4 (Technical Assistance and Community Advocacy): Implement the Digital Buddy System to pair young tech-savvy micro-entrepreneurs with legacy owners, and establish a permanent NCPM Help Desk at the MEPO for real-time technical assistance.

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