


Effectiveness of Digital Transformation and Technology Adoption in Enhancing Financial Sustainability of Small Enterprises: Basis for a Strategic Business Policy

Mar Jonathan P. Flores, LPT, DBA 
University of Perpetual Help System Dalta – Las Piñas City
marjonathan.flores@yahoo.com

Dr. Ericson Z. Matias
University of Perpetual Help System Dalta – Las Piñas City
ericson.matias@perpetualdalta.edu.ph

Publication Date: August 25, 2025

DOI: 10.5281/zenodo.17019880

Abstract

This dissertation examines the effectiveness of digital transformation and technology adoption among small enterprises in Lopez, Quezon, focusing on financial sustainability. Its objective is to assess the role of e-marketing, e-selling, and e-payment in enhancing profitability, liquidity, and long-term sustainability, and to develop a Strategic Business Policy Framework that supports micro, small, and medium enterprises (MSMEs) in navigating digital challenges while ensuring competitiveness and growth.

A descriptive-quantitative-correlational research design was employed, using a validated researcher-made questionnaire as the primary instrument. Stratified random sampling was applied to select 274 respondents from 953 registered MSMEs in agriculture, food, and retail sectors. Data were analyzed using frequency, percentage, mean, weighted mean, One-Way ANOVA, Kruskal-Wallis H-Test, and Pearson's r correlation.

Findings revealed strong adoption of e-marketing, e-selling, and e-payment, which significantly improved profitability, cash flow, and enhanced long-term sustainability. No significant differences were found in adoption and effectiveness when grouped according to age,

sex, nature, or type of business. However, educational attainment showed a significant influence, with more educated respondents demonstrating greater adoption and perceived effectiveness. Correlation analysis confirmed strong to very strong positive relationships between digital transformation and financial sustainability.

Digital transformation greatly improves financial sustainability by increasing profitability, ensuring stable cash flow, and supporting long-term business growth. The findings highlight that technology adoption is not just an operational improvement but a strategic requirement for MSMEs to remain competitive and resilient. The proposed Strategic Business Policy Framework focuses on building the skills of business owners through continuous training in digital tools and financial management, strengthening partnerships between government and private sectors to provide reliable internet and technical support, and offering financial assistance programs to reduce the cost of adopting technology. Ultimately, it calls for stronger support and guidance from local government, positioning the framework as a roadmap for

sustainable, technology-driven, and growth-oriented enterprise development.

Keywords: *digital transformation, financial sustainability, strategic business policy, technology adoption*

INTRODUCTION

Financial sustainability is a vital foundation for the survival and growth of small enterprises, particularly in developing economies where they play a crucial role in employment generation and community development. It reflects the ability of businesses to manage resources efficiently, maintain steady income, and remain resilient against market disruptions. However, small enterprises often face persistent challenges such as limited capital, minimal access to formal financing, and volatile economic conditions (OECD, 2020). In rural economies like Lopez, Quezon, where local businesses form the backbone of socio-economic activity, the need for sustainable financial practices is not only critical for business survival but also for fostering inclusive and long-term community progress.

In recent years, digital transformation has emerged as a powerful enabler for small businesses, offering tools such as e-marketing through social media platforms (Facebook & TikTok), e-selling via e-commerce sites (Shopee, Lazada, TikTok Shop), and e-payment systems (GCash, Maya, QR Ph, bank transfers). Far from being limited to automation, these technologies enable enterprises to reach wider markets, improve operational efficiency, and strengthen financial control. When adopted strategically, digital transformation can lower costs, increase productivity, and enhance business agility—key drivers for ensuring long-term financial sustainability for MSMEs.

According to the 2023 List of Establishments by the Philippine Statistics Authority, there are 1,246,373 registered business enterprises in the country, with MSMEs making up 99.63% (1,241,733) and large enterprises only 0.37% (4,640). Micro enterprises dominate the MSME sector at 90.43%, followed by small (8.82%) and medium enterprises (0.38%). The top industry sectors where MSMEs thrive include wholesale and retail trade, accommodation and food services, manufacturing, other service activities, and financial services—comprising over 86% of the total. Geographically, CALABARZON (Region IV-A)—where Lopez, Quezon is located—is one of the top five regions with the highest concentration of MSMEs, accounting for 15.27% (189,662) of the national total, reflecting its growing role as a regional economic hub and reinforcing the significance of studying how digital transformation and technology adoption can support the financial sustainability of small enterprises within this area.

Lopez, Quezon, a first-class municipality in Region IV-A (CALABARZON), is steadily advancing toward cityhood. Recognized as a university hub in the province, it hosts numerous academic institutions, expanding commercial centers such as LCC Mall and McDonald's, and a vibrant MSME sector. As of March 2025, there are 1,548 registered enterprises, with 953 classified under key industries like agriculture, retail, and food service (BPLO & DTI, 2025). With the municipality positioning itself for sustained economic growth, the integration of digital transformation and technology adoption has become a strategic necessity to enhance financial sustainability and business resilience.

This study assessed the effectiveness of digital transformation and technology adoption in enhancing the financial sustainability of small enterprises in Lopez, Quezon. The findings served as a strategic reference for policymakers and local government units, particularly the Business Permits and Licensing Office (BPLO) and the Department of Trade and Industry (DTI), in designing programs that strengthened digital readiness among MSMEs. By identifying key factors, opportunities, and challenges in

integrating digital tools into business operations, the research contributed to fostering a more inclusive, competitive, and technology-driven business environment in the locality.

Statement of the Problem

This study examined the effectiveness of digital transformation and technology adoption in enhancing the financial sustainability of enterprises in Lopez, Quezon.

Specifically, it sought to answer the following question:

1. What is the personal and business profile of the respondents in terms of:
 - 1.1 Age
 - 1.2 Sex
 - 1.3 Educational Attainment
 - 1.4 Nature of Business
 - 1.5 Type of Industry
2. What is the extent of adoption of digital transformation and technology adoption among small enterprises in terms of:
 - 2.1 Electronic Marketing (E-Marketing)
 - 2.2 Electronic Selling (E-Selling)
 - 2.3 Electronic Payment (E-Payment)
3. What is the assessed effectiveness of digital transformation and technology adoption in enhancing the financial sustainability among small enterprises in terms of:
 - 3.1 Profitability
 - 3.2 Liquidity (Cash flow)
 - 3.3 Long-Term Sustainability
4. What are the challenges encountered by the enterprises in implementing digital transformation and technology adoption?
5. Is there a significant difference on the extent of digital transformation and technology adoption when grouped according to personal and business profile?
6. Is there a significant difference on the assessed effectiveness of digital transformation and technology adoption when grouped according to the personal and business profile?
7. Is there a significant relationship between the extent of the digital transformation and the effectiveness of digital transformation in enhancing the financial sustainability of the enterprises?
8. Based on the findings of the study, what strategic business policy can be formulated to enhance digital transformation, technology adoption, and financial sustainability among enterprises?

METHODOLOGY

This study employed a descriptive-quantitative research design to examine the effectiveness of digital transformation and technology adoption in enhancing the financial sustainability of MSMEs in Lopez, Quezon. The design was chosen to systematically describe the respondents' personal and business profiles, assess their adoption of digital tools, and analyze the relationship between digital transformation and financial sustainability. A correlational approach was also utilized to measure the degree of relationship between the extent of digital adoption and its impact on profitability, cash flow, and long-term sustainability.

From a total of 1,548 registered MSMEs in Lopez, 953 enterprises were identified as belonging to the three most prominent industries: agriculture, food, and retail. Using the Raosoft calculator at a 95% confidence level with a 5% margin of error, a sample size of 274 owners and managers was generated. Stratified random sampling was employed to ensure fair representation across industries. Data were collected through a researcher-made questionnaire consisting of five parts: personal and business profiles, extent of digital adoption, perceived effectiveness, challenges encountered, and consent. The instrument was validated by experts in the field, its reliability was established through pilot testing, and it achieved a Cronbach's Alpha coefficient interpreted as very high reliability.

Prior to data collection, the researcher secured approval from the Graduate School, the Department of Trade and Industry (DTI), and the Local Government of Lopez. Ethical considerations, including voluntary participation, informed consent, and confidentiality, were strictly observed. Respondents were allowed to participate either through face-to-face surveys or online forms, depending on accessibility and convenience. Data were processed and analyzed using frequency, percentage, mean, weighted mean, t-test, One-Way ANOVA, Kruskal-Wallis H-Test, and Pearson's r correlation. All information was securely stored and used solely for academic purposes, in strict compliance with the Data Privacy.

RESULTS AND DISCUSSIONS

The respondents are predominantly within the age group of 31–45 years (40.1%), followed by those aged 30 years and below (29.2%), reflecting a balanced mix of experienced and emerging entrepreneurs. Female participants slightly outnumber their male counterparts (51.1% vs. 48.9%), indicating active engagement of women in business activities. In terms of educational attainment, the majority are college graduates (56.9%), with a notable proportion holding post-graduate degrees (15.7%), while fewer respondents have completed only high school or elementary education. Most of the enterprises represented are classified as micro-enterprises. In terms of industry distribution, retail businesses dominate (62.4%), followed by agriculture-related enterprises (21.5%) and food establishments (16.1%).

The results show that MSMEs strongly agree on the active use of e-marketing, with a composite mean of 3.15, primarily utilizing platforms such as Facebook and TikTok to promote and advertise their products. E-selling also received a strong agreement rating, with a composite mean of 3.29, as businesses commonly use Shopee, Lazada, and TikTok Shop to reach a wider market. E-payment garnered an agreement rating with a composite mean of 3.20, indicating that most owners accept GCash, bank transfers, and QR payments for customer convenience; however, barriers such as poor internet connection, limited technical skills, and occasional customer reluctance in using e-payment methods remain.

Additionally, the results reveal that profitability attained a mean score of 3.29, indicating strong agreement that digital adoption has enhanced customer reach, increased sales volume, and encouraged repeat purchases. Cash flow registered a mean of 3.36, also reflecting strong agreement that e-payment systems facilitate faster transactions and contribute to more consistent daily cash inflows. Long-term

sustainability achieved a mean of 3.38, signifying strong agreement that businesses utilizing digital tools are more adaptable to market changes and better positioned to withstand economic disruptions.

Furthermore, the results reveal that the top two challenges in digital transformation are limited knowledge in using digital platforms (mean = 3.38) and lack of government-led trainings or seminars (mean = 3.35), both interpreted as strongly agree. On the other hand, the two lowest-rated challenges are employee reluctance to use new technology (mean = 3.14) and difficulty in assessing the impact of digital tools (mean = 3.18), both interpreted as agree. This suggests that while MSMEs recognize skill gaps and the absence of structured training as major barriers, issues related to employee resistance and evaluation of digital tool effectiveness are perceived as less pressing concerns.

Moreover, the results show that digital transformation adoption levels do not significantly differ by sex, age, nature of business, or type of business, indicating consistency across these groups. However, a significant difference was found in relation to educational attainment, with higher levels of education associated with greater adoption of digital technologies.

Additionally, the results indicate that perceptions of the effectiveness of digital transformation do not significantly differ by sex, age, nature of business, or type of business, showing consistency across these groups. However, a significant difference was observed for educational attainment, with respondents holding higher education levels reporting greater perceived effectiveness.

Moreover, the correlation analysis showed strong to very strong positive relationships between digital transformation and financial sustainability indicators. Higher levels of digital adoption and effectiveness were strongly linked to greater profitability, improved cash flow management, and faster payment cycles, as well as enhanced long-term viability and competitiveness of MSMEs. All relationships were statistically significant, confirming that increased digital transformation contributes positively to the financial sustainability of enterprises.

In line with this, the result support the formulation of the “Go Digital Lopez” strategic policy framework, which focuses on education-sensitive training, infrastructure development, and integrated support for MSMEs.

Conclusions

Based on the research findings, the following are concluded:

1. Small enterprises in Lopez, Quezon are primarily micro-enterprises, with the majority engaged in retail, followed by agriculture and food-related businesses. Most owners are middle-aged, well-educated (college or higher), and there is near gender parity. This indicates a strong base of human capital but with limited financial resources for expansion.
2. MSMEs widely adopt e-marketing, e-selling, and e-payment tools, with social media marketing, online marketplace selling, and mobile wallet payments being most common. Adoption levels are high across demographics, though higher educational attainment is linked to greater adoption.
3. Digital transformation significantly boosts financial sustainability by improving sales, ensuring timely cash flows, and strengthening long-term competitiveness. Digital tools significantly contribute to enhanced resources, operational capabilities, and competitive advantage. The integration of online marketing, selling, and payment systems has increased market reach, improved customer engagement, and provided more efficient business processes.

4. While MSMEs recognize the benefits of digital tools, adoption is hindered by technical, financial, and attitudinal barriers. Digital adoption has a direct and positive effect on profitability, cash flow, and long-term sustainability. Businesses using digital tools report better sales performance, more consistent cash inflows, and stronger adaptability to market changes.
5. The study concludes that most personal and business profile variables—sex, age, nature of business, and type of business—do not significantly influence the extent of digital transformation adoption. This indicates that the drive to integrate e-marketing, e-selling, and e-payment is widespread and not confined to specific demographic or business categories. However, education plays a vital role in adoption, with more educated respondents demonstrating higher engagement with digital tools, likely due to greater exposure to technology and higher digital literacy.
6. Effectiveness of digital transformation is perceived similarly across most demographic and business categories, suggesting that the benefits of digital tools are universally recognized by MSME owners. However, educational attainment influences perceptions—those with higher levels of education tend to report greater effectiveness, likely due to better understanding of digital systems, data interpretation, and application of advanced features.
7. The findings confirm that digital transformation plays a crucial role in enhancing financial sustainability. MSMEs that adopt and effectively use digital tools for marketing, sales, and payments experience notable improvements in profitability, cash flow stability, and long-term business viability. The strong positive correlations underscore that technology adoption is not merely an operational improvement but a strategic necessity for sustaining growth in competitive markets.
8. The results support the formulation of the “Go Digital Lopez” strategic policy framework, which focuses on education-sensitive training, infrastructure development, and integrated support for MSMEs.

Recommendations

Based on the findings and conclusions, the following are recommended:

1. The LGU may offer inclusive, accessible training for owners/managers across ages and business types, with tiered modules by education level (basic, intermediate, advanced). They may prioritize women-led retail and agriculture enterprises through targeted schedules and coaching to boost participation.
2. Small enterprises should may use basic, low-cost digital tools to support daily operations. For e-marketing, owners can post products and promos on Facebook or TikTok using free design apps. For e-selling, they can maximize Messenger, Shopee, or TikTok Shop by keeping product lists updated. For e-payment, free QR codes from GCash or Maya can make transactions safer and faster. LGUs and DTI may assist through barangay-level demos and short trainings on how to set up accounts and use these tools with just a smartphone.
3. MSMEs may make digital tools part of their everyday routine, not just for occasional use. Posting online regularly, selling through trusted platforms, and using e-payments can help increase sales, speed up payments, and keep businesses running smoothly. LGUs can support this by offering simple incentives like reduced fees or small grants for MSMEs that actively use these tools and show improvements in sales or cash flow.
4. Address skills, internet, and cost barriers through: (a) regular skills training and peer mentoring; (b) LGU partnerships with providers for more reliable internet in business zones; (c) micro-financing/subsidies for devices, platform fees, and small ad budgets; and (d) a local help desk for quick technical support.

5. Because adoption did not vary by age/sex/business type, the LGU may keep programs open to all sectors, but add foundation classes for owners with lower educational attainment (step-by-step guides, Tagalog job aids, live demos) to raise baseline skills.
6. Since education influenced perceived effectiveness, the LGU may deliver two tracks: practical “apply-today” sessions (templates, checklists) for basic users, and advanced clinics (campaign optimization, simple dashboards) for college/post-grad owners to fully leverage features.
7. MSMEs are encouraged to use all three digital tools together—e-marketing, e-selling, and e-payment—because combining them leads to bigger gains in sales and smoother operations. For example, posting products online, selling through Shopee or TikTok, and accepting QR payments create a complete digital cycle that attracts more customers and makes transactions faster. LGUs can help by giving simple scorecards or checklists so business owners can track how these practices improve their income.
8. The proposed framework may be formally adopted by the LGU and included in its economic programs. This can start with pilot projects in barangays, such as free digital skills training, improved internet access in business areas, and small financial aid for digital adoption. LGUs may also recognize MSMEs that apply digital practices well, giving certificates or small grants as motivation. This makes the framework practical and beneficial for both owners and the community.

Output of the Study

Go Digital Lopez Initiative – A Strategic Business Policy for MSME Digital Transformation

I. Needs Identification

This research indicates that Micro, Small, and Medium Enterprises (MSMEs) in Lopez face **challenges** that hinder their digital transformation and technology adoption. Some of these challenges are:

1. **Limited Knowledge** – MSME owners and employees have only basic familiarity with e-marketing, e-selling, and e-payment systems.
2. **Lack of Government-Led Training** – No consistent, locally driven capacity-building programs exist to upskill MSMEs.
3. **Unstable Internet** – Slow or unreliable connections disrupt online transactions.
4. **Lack of Capital** – MSMEs struggle to purchase devices, software, and digital advertising.
5. **High Cost of Subscriptions** – Monthly fees for platforms and tools discourage continued use.
6. **Cybersecurity Risks** – Low awareness of online threats leads to vulnerability to fraud and hacking.
7. **Lack of Technical Support** – MSMEs have no local help desk or advisory services for troubleshooting tech issues

II. Purpose and Scope

Purpose: To establish a **5–10 year strategic business policy (municipal level)** that systematically addresses identified challenges in digital transformation and technology adoption thereby enhancing profitability, cash flow, and long-term sustainability.

Scope:

1. **Coverage:** All registered MSMEs in Lopez, Quezon, with priority given to agriculture, food, and retail sectors in the first 3 years, then expansion to all industries.
2. **Beneficiaries:** MSME owners, aspiring entrepreneurs, and the community.
3. **Focus Areas:**
 - a. **Capacity Building (Skills Training)** – Equip MSMEs with step-by-step learning, from basic to advanced skills in social media management, e-commerce operations, and electronic payment systems to boost their online presence and sales.
 - b. **Better Internet Access** – Set up reliable public Wi-Fi zones and a fully equipped Digital Hub where entrepreneurs can work, learn, and transact without connectivity worries.
 - c. **Affordable Funding** – Provide sustainable municipal grants, access to microloans, and build partnerships with private companies to help MSMEs grow without heavy financial burdens.
 - d. **Online Safety** – Launch regular awareness campaigns, give free or subsidized protection tools, and establish simple, fast systems for reporting cyber threats.
 - e. **Help Desk & Mentorship** – Create a permanent LGU-based MSME help desk and mentorship programs where business owners can get hands-on guidance and immediate troubleshooting support

III. Goals of the Proposal

Challenge	Goal	Target	Timeframe
Limited Knowledge	Train MSMEs in digital tools	90% MSMEs trained	By Year 5
Lack of Govt Training	Hold LGU-led training yearly	3 programs/year	Years 1–10
Unstable Internet	Create public Wi-Fi zones	5 zones at 50+ Mbps	By Year 4
Lack of Capital	Provide grants/loans	250 MSMEs supported	Years 1–5
High Subscription Cost	Negotiate group discounts	30% reduction	Years 1–3
Cybersecurity Risks	Conduct seminars	720 MSMEs trained	Years 1–10
Lack Technical Support	Open support desk	150+ MSMEs/year assisted	Years 1–10

IV. Stakeholders and Roles

Stakeholder	Role
LGU – Municipality of Lopez	Lead coordination, funding, and monitoring
BPLO	MSME registry and mobilization
DTI – Quezon	Co-funding, training design, certification
TESDA	Trainer deployment and assessment
Telcos	Internet upgrades and free Wi-Fi zones
ICT Providers	Software, security tools for e-marketing, selling, and payment.
Banks/Microfinance	MSME financing programs

V. Resources Needed

Resources	Details
Physical	Digital Hub facility, computers, routers, training rooms, public Wi-Fi equipment.
Human	Industry Practioner, TESDA-certified trainers, IT staff, program coordinator.
Financial	₱2M/year for training, hub operations, grants, internet upgrades, and security tools.
Technical	Learning Management System (LMS), Canva for marketing, electronic payment guidebook

VI. Timeline of the Proposed Strategic Business Policy

Phase	Timeline	Action	Detailed Programs
1	Year 1	Start the Program	<ul style="list-style-type: none"> a. LGU, BPLO, and DTI meet to plan and assign tasks. b. Open the Digital Hub at the LGU. c. Install first public Wi-Fi zones in busy business areas. d. Hold first basic digital skills training. e. Start talks with banks and tech companies for support and discounts.

2	Year 2	Expand Access	<ul style="list-style-type: none"> a. LGU, BPLO, and DTI check progress and adjust activities. b. Add more Wi-Fi zones. c. Continue training with more important topics. d. Start giving grants or small loans for tech needs. e. Begin quarterly cybersecurity sessions.
3	Years 3-4	Improve Skills and Support	<ul style="list-style-type: none"> a. Expand training to advanced analytics and export e-commerce. b. Complete all planned Wi-Fi zones. c. Fully open the MSME Technical Support Desk.
4	Year 5	Review and Adjust	<ul style="list-style-type: none"> a. LGU, BPLO, and DTI review results and gather MSME feedback. b. Update training to match new technologies.
5	Years 6-7	Grow and modernize	<ul style="list-style-type: none"> a. Add advanced topics like AI tools and data marketing. b. Upgrade Wi-Fi equipment. c. Expand financing programs.
6	Years 8-10	Sustain and innovate	<ul style="list-style-type: none"> a. Make the Digital Hub a permanent LGU service. b. Keep updating training and support. c. Monitor MSME growth and adjust the program.

VII. Monitoring and Evaluation

Challenge	KPI	Baseline (2025)	Target (Year 5)	Target (Year 10)
Limited Knowledge	% MSMEs trained	0%	80%	90%
Lack Govt Training	# programs/year	0	3	3–4
Unstable Internet	Mbps in zones	15 Mbps	50 Mbps	80 Mbps
Lack Capital	MSMEs supported	0	250	500
High Subscription Cost	% Reduction	0%	30%	50%
Cybersecurity Risks	MSMEs trained	0	500	1000
Lack Technical Support	MSMEs assisted/year	0	150	300

REFERENCES

- Adviento, E. N., Bumanlag, C. L., Fajarito, S. R., & Camaro, P. J. (2022). Philippine MSMEs- Impact on Sustainable Economic Development in Employment Generation, Income Inequality, and Poverty. *UJoST-Universal Journal of Science and Technology*, 1(2), 222-260.
- Agustian, K., Mubarak, E. S., Zen, A., Wiwin, W., & Malik, A. J. (2023). The impact of digital transformation on business models and competitive advantage. *Technology and Society Perspectives (TACIT)*, 1(2), 79-93.
- Al-Emran, M., & Griffy-Brown, C. (2023). The role of technology adoption in sustainable development: Overview, opportunities, challenges, and future research agendas. *Technology in Society*, 73, 102240.
- Almeda, Steve Z., and Ivyrose Baysic. "Micro, Small and Medium Enterprises (MSMEs) in the Philippines: What We Know and What We Don't Know." Asian Institute of Management Working Paper 13 (2012): 022.
- Alzoubi, H. M., & Ghazal, T. M. (2022). The effect of e-payment and online shopping on sales growth: Evidence from banking industry. *International Journal of Data and Network Science*, 6(4), 1369-1380.
- Apasrawirotea, D., & Yawisedb, K. (2021). The factors influencing the adoption of E-payment system by SMEs. *EPS*, 15(8).
- Aque, A. J. A., Madronero, I. M., Nabasca, R. B., Edig, M. M. N., & Buladaco, M. V. M. (2021). Relationship between digital marketing and economic stability of online sellers in Panabo City. *International Journal of Scientific Research and Engineering Development*, 4(1), 805-815.
- Astuti, W., & Diansyah, D. (2022). The influence of e-commerce and e-payment on purchasing decisions. *Resolusi: Jurnal sosial politik*, 5(1), 26-37.
- Bartolacci, F., Caputo, A., & Soverchia, M. (2020). Sustainability and financial performance of small and medium sized enterprises: A bibliometric and systematic literature review. *Business Strategy and the Environment*, 29(3), 1297-1309.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). Technology acceptance model. *J Manag Sci*, 35(8), 982-1003.
- Dastane, D. O. (2020). The impact of technology adoption on organizational productivity. *Journal of Industrial Distribution & Business*, 11(4), 7-18.
- De la Cruz, A. B. (2018). Small Business Owners and the Role of Financial Literacy in the Philippines. *Philippine Business Review*, 12(1), 102-119.
- Dionisio-Vicencio, C., Feliciano, J. M. S., Garcia, A. G., Kundiman, C. M. J. G., Reyes, L. A. R., Roldan, Y. S. R., & Vicente, J. M. A. Digital Transactions: Empowering Business Owners with E-Payment.
- Ghaith, M., & Ghaith, Y. M. (2022). Impact of E-payment system on consumer buying behavior: a study in Jordan. *Journal of Positive School Psychology*, 6(8), 3813-3824.
- Gleißner, W., Günther, T., & Walkshäusl, C. (2022). Financial sustainability: measurement and empirical evidence. *Journal of Business Economics*, 92(3), 467-516.
- Gonzales, M. R., & Dayrit, D. S. (2020). Micro, Small, and Medium Enterprises (MSMEs) in the Philippines: Challenges and Opportunities for Growth. *Philippine Journal of Economics*, 59(2), 25-45.
- Hayes, A. (2023). How stratified random sampling works, with examples. https://www.investopedia.com/terms/stratified_random_sampling.asp

- Kaminski, J. (2011). Diffusion of innovation theory. *Canadian Journal of Nursing Informatics*, 6(2), 1-6.
- Khanom, M. T. (2023). Business strategies in the age of digital transformation. *Journal of Business*, 8(01), 28-35.
- Kraus, S., Durst, S., Ferreira, J. J., Veiga, P., Kailer, N., & Weinmann, A. (2022). Digital transformation in business and management research: An overview of the current status quo. *International journal of information management*, 63, 102466.
- Kraus, S., Jones, P., Kailer, N., Weinmann, A., Chaparro-Banegas, N., & Roig-Tierno, N. (2021). Digital transformation: An overview of the current state of the art of research. *Sage Open*, 11(3), 21582440211047576.
- Kumar, M. A., & Ayedee, D. N. (2021). Technology Adoption: A Solution for SMEs to overcome problems during COVID-19. *Forthcoming, Academy of Marketing Studies Journal*, 25(1).
- Martini, M., Setiawan, D., Suryandari, R. T., Brahmana, R. K., & Asrihapsari, A. (2023). Determinants of digital innovation in micro and small industries. *Economies*, 11(6), 172.
- Muros, N. I. G., Ong, E. M. C., Pineda, E. J., & Vidallon, C. R. (2023). The Effect of E-Marketing Mix on the Competitive Advantage of Selected Metro Manila Clothing Retailers.
- Msomi, T. S., & Olarewaju, O. M. (2021). Factors affecting small and medium enterprises' financial sustainability in South Africa. *African Journal of Inter/Multidisciplinary Studies*, 3(1), 103-117.
- Nasr, M. H., Farrag, M. H., & Nasr, M. (2020). E-payment systems risks, opportunities, and challenges for improved results in e-business. *International Journal of Intelligent Computing and Information Sciences*, 20(1), 16-27.
- Oyewole, A. T., Adeoye, O. B., Addy, W. A., Okoye, C. C., & Ofodile, O. C. (2024). Enhancing global competitiveness of US SMEs through sustainable finance: A review and future directions. *International Journal of Management & Entrepreneurship Research*, 6(3), 634-647.
- Patimo, D., & Dollado, R. (2021). ONLINE MARKETING OF SMALL AND MEDIUM ENTERPRISES IN SAMAR, PHILIPPINES. *International Journal of Business, Law, and Education*, 2(1), 14-28.
- Pereira, C. S., Durão, N., Moreira, F., & Veloso, B. (2022). The Importance of Digital Transformation in International Business. *Sustainability*, 14(2), 1–26. <https://doi.org/10.3390/su14020834>
- Pleno, A. B. (2024). E-Payment System Readiness of Micro Business Owners. *Journal of Social Entrepreneurship Theory and Practice*, 3(2).
- Prasetyani, D., Cahyadin, M., Indriawati, R. M., & Santosa, A. (2025). Does technology adoption matter for SMEs? A literature review. *Journal of Entrepreneurship and Public Policy*.
- Pueblos, K. J., & Emilio, T. J. (2023). Impact of E-Payment Platforms Among Selected Micro-Entrepreneurs in Taguig City: Determinants for Enhanced Guidelines in Collection and Disbursement Process. *Indonesian Journal of Business Analytics*, 3(4), 1401-1424.
- Raon, C. J. B., De Leon, M. V., & Dui, R. (2021). Adoption of e-payment systems in the Philippines. *Jurnal Ilmu Komunikasi*, 18(1), 123-136.
- Rosales, M. A., Jo-ann, V. M., Palconit, M. G. B., Culaba, A. B., & Dadios, E. P. (2020, December). Artificial intelligence: the technology adoption and impact in the Philippines. In *2020 IEEE 12th international conference on humanoid, nanotechnology, information technology, communication and control, environment, and management (HNICEM)* (pp. 1-6). IEEE.
- Rosales, N., Vigonte, F., & Abante, M. V. (2024). Digital Transformation and

- Elastic Demand: Assessment on the Impact of E-commerce Growth on Consumer Goods in the Philippines. Available at SSRN 4742048.
- Trinugroho, I., Pamungkas, P., Wiwoho, J., Damayanti, S. M., & Pramono, T. (2022). Adoption of digital technologies for micro and small business in Indonesia. *Finance Research Letters*, 45, 102156.
- Trivedi, S. K., Vishnu, S., Singh, A., & Yadav, M. (2023). Research trends in sustainable E-payment systems: A study using topic modeling approach. *IEEE Transactions on Engineering Management*, 71, 7511-7525.
- Van Veldhoven, Z., & Vanthienen, J. (2022). Digital transformation as an interaction-driven perspective between business, society, and technology. *Electronic markets*, 32(2), 629-644.