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DIGITAL INCLUSION AS A PATHWAY TO EMPOWERING MSME ENTREPRENEURS

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Introduction

1.1 Background of the Study

Micro, Small, and Medium Enterprises (MSMEs) play a vital role in economic development by creating employment opportunities, fostering entrepreneurship, and contributing to GDP growth (Lall, 2019). However, MSMEs often face challenges such as limited access to finance, markets, and modern technologies. The rapid digital transformation has introduced new opportunities for MSMEs to overcome these barriers. Digital inclusion, which encompasses access to digital tools, internet connectivity, digital literacy, and the use of digital financial services, has emerged as a critical pathway for empowering entrepreneurs (Bada & Madon, 2020; Kaur & Gupta, 2021).

Digital inclusion not only improves operational efficiency but also has the potential to transform **entrepreneurial mindset, confidence, market participation, and long-term business growth**. While several studies have investigated the economic benefits of digital adoption, there is limited empirical evidence on **how digital inclusion fosters entrepreneurial empowerment and psychological transformation**, particularly in rural and semi-urban contexts. This research aims to address this gap.

1.2 Statement of the Problem

Despite widespread availability of digital tools and financial services, many MSME entrepreneurs in India, especially in rural and semi-urban regions, are unable to leverage them effectively. Existing studies primarily focus on external outcomes such as efficiency and profitability, neglecting the **internal dimensions of entrepreneurial empowerment** such as mindset, confidence, and decision-making ability.

Moreover, contextual factors—such as rural vs. semi-urban differences—are often overlooked. Understanding how digital inclusion influences entrepreneurial empowerment and business outcomes is crucial for designing policies and interventions that genuinely empower MSME entrepreneurs.

1.3 Research Gap

While prior studies discuss MSMEs' access to digital tools, there remains a significant research gap in understanding how digital inclusion leads to deeper entrepreneurial empowerment—specifically in shaping entrepreneurial mindset, confidence, market participation, and long-term business growth. The behavioural and psychological transformation of MSME entrepreneurs through digital inclusion is an under-researched area, especially in rural and semi-urban contexts."

1.4 Objectives and Hypothesis of the Study

S. No.	Research Objective	Corresponding Hypothesis (H)	Result
1.	To examine the extent of digital inclusion among MSME entrepreneurs	— (No hypothesis required—descriptive objective)	
2.	To analyze how digital inclusion influences the entrepreneurial mindset of MSME entrepreneurs.	**H1:** Digital inclusion has a significant positive impact on entrepreneurial mindset.	Accepted
3.	To evaluate the impact of digital inclusion on entrepreneurial confidence.	**H2:** Higher levels of digital inclusion significantly enhance entrepreneurial confidence.	Accepted

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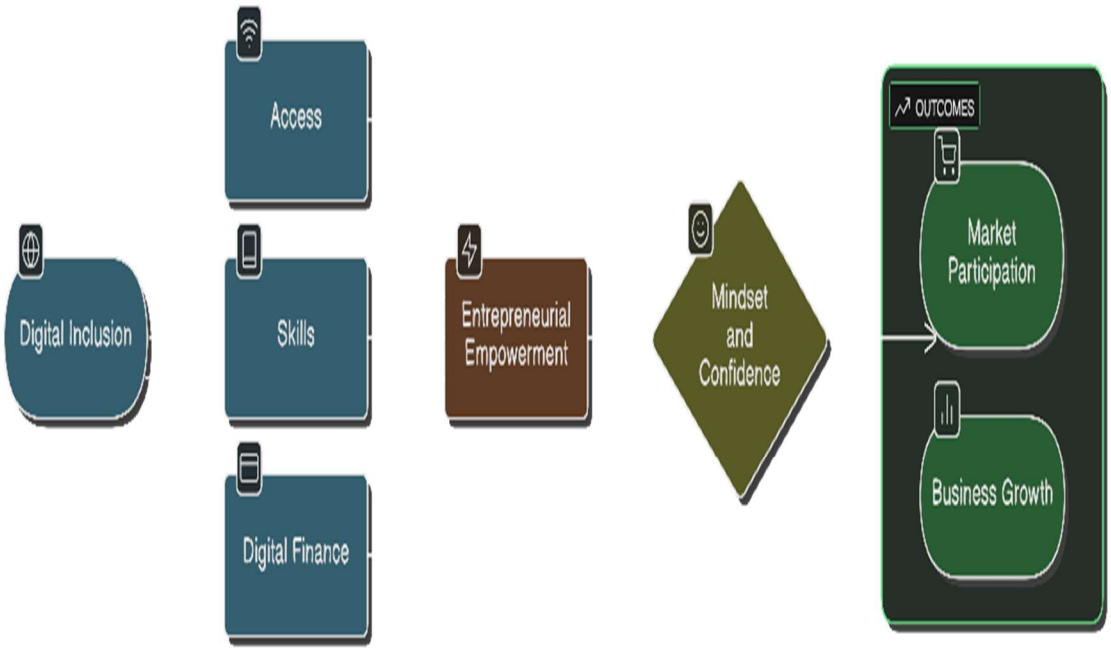
4.	To assess the relationship between digital inclusion and market participation.	**H3:** Digital inclusion significantly improves market participation among MSME entrepreneurs.	Accepted
5.	To determine how digital inclusion contributes to long-term business growth.	**H4:** Digital inclusion has a significant positive effect on long-term business growth.	Accepted
6.	To test whether entrepreneurial empowerment mediates the relationship between digital inclusion and business growth.	**H5:** Entrepreneurial empowerment mediates the relationship between digital inclusion and business growth.	Accepted
7.	To compare the impact of digital inclusion across rural and semi-urban MSME entrepreneurs.	**H6:** The impact of digital inclusion on entrepreneurial empowerment differs significantly between rural and semi-urban entrepreneurs.	Accepted

1.6 Conceptual Framework



1.7 Significance of the Study

1. **Policy Implications:** Insights from this study will guide government and financial institutions in designing targeted digital inclusion programs for MSMEs.
2. **Entrepreneurial Empowerment:** The study emphasizes psychological dimensions—mindset and confidence—which are critical for sustainable business growth.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3. **Practical Relevance:** MSME entrepreneurs can adopt digital strategies more effectively, enhancing market participation and competitiveness.
4. **Academic Contribution:** The study bridges gaps in literature by linking digital inclusion with entrepreneurial empowerment and long-term business outcomes.

1.8 Scope of the Study

This research focuses on MSME entrepreneurs in **rural and semi-urban regions of India**, examining the effects of digital inclusion on entrepreneurial empowerment, market participation, and business growth. Both manufacturing and service-oriented MSMEs are included.

1.9 Operational Definitions

- **Digital Inclusion:** Access to and effective use of digital tools, internet connectivity, and digital financial services.
- **Entrepreneurial Empowerment:** Internal psychological resources of entrepreneurs, including mindset and confidence, that facilitate decision-making and growth.
- **Market Participation:** Engagement in digital and physical markets, including customer reach, online presence, and competitiveness.
- **Business Growth:** Sustainable expansion of the business, measured by sales, profit, and market share.

1.10 Keywords

Digital Inclusion, MSME Entrepreneurs, Entrepreneurial Empowerment, Market Participation, Business Growth, Digital Finance, Digital Literacy, Rural Entrepreneurship, Semi-Urban Entrepreneurship

Chapter 2: Review of Literature

2.2 Digital Inclusion and MSME Entrepreneurship

Studies indicate that digital inclusion facilitates access to markets, financial services, and knowledge resources, thereby improving the performance of small enterprises (Donner & Escobari, 2010; Lall, 2019). Agarwal and Prasad (1999) note that individual differences in digital literacy significantly influence technology adoption. In India, MSMEs that adopt digital payment systems and e-commerce platforms report improved operational efficiency and increased sales (Kaur & Gupta, 2021).

However, most studies focus on **external benefits** such as operational efficiency or financial access, with limited attention to **internal entrepreneurial outcomes** like mindset and confidence.

2.3 Barriers to Digital Inclusion

Despite the availability of technology, MSMEs face infrastructural and skill-related barriers. Limited internet access, low digital literacy, and lack of awareness constrain adoption (Awa, Ojiabo, & Emecheta, 2015). Rural entrepreneurs are disproportionately affected due to poor connectivity and fewer training programs (Ramadan & Aita, 2018). Fang, Chau, and Hu (2005) emphasize that perceived complexity of digital tools negatively impacts adoption among small enterprises.

2.4 Digital Financial Services and Business Growth

Digital financial services, including online banking, mobile payments, and digital lending platforms, improve MSMEs' access to working capital and financial resources (Bada & Madon, 2020; Pradhan, Arvin, Nair, & Hall, 2018). Empirical evidence suggests that fintech solutions reduce transaction costs and improve credit accessibility, especially for underserved entrepreneurs. Yet, research on **how digital finance affects psychological empowerment** and decision-making is limited.

2.5 Digital Literacy, Skills, and Entrepreneurial Empowerment

Digital literacy and structured skill development programs are critical for effective adoption of digital tools (Senyo & Osabutey, 2020). Studies show that entrepreneurs with higher digital skills demonstrate greater confidence, better strategic decision-making, and increased innovative behaviors (Baiyere, Salmela, & Tapanainen, 2020). Nevertheless, few studies have empirically examined **how digital literacy translates into entrepreneurial empowerment**, including mindset, confidence, and long-term business growth.

2.6 Market Participation and E-commerce Integration

Integration with e-commerce platforms and digital marketing enhances market reach and competitiveness (Almeida, Santos, & Monteiro, 2020). MSMEs that actively use digital platforms report higher sales and customer engagement. However,

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research often focuses on usage metrics rather than psychological and strategic outcomes such as entrepreneurial confidence or empowerment.

2.7 Gendered and Contextual Dimensions

Digital inclusion has the potential to empower women and marginalized entrepreneurs by providing access to finance and markets (Sowmya, 2025). Yet socio-cultural barriers, caregiving responsibilities, and low baseline digital confidence limit these benefits. Studies recommend context-sensitive interventions but lack empirical evidence on the **behavioral and psychological transformation** among rural vs. semi-urban entrepreneurs (IT for Change, 2024).

2.8 Research Gap

The literature review highlights three major gaps:

1. **Behavioral and Psychological Transformation Gap:** Limited empirical evidence on how digital inclusion reshapes entrepreneurial mindset, confidence, and decision-making.
2. **Contextual Heterogeneity:** Lack of comparative studies between rural and semi-urban MSMEs in the adoption and impact of digital inclusion.
3. **Program Design and Measurement Gap:** Most interventions are evaluated based on usage or economic outcomes, without measuring empowerment, self-efficacy, and long-term strategic behaviors.

The present study aims to fill these gaps by examining how digital inclusion leads to **entrepreneurial empowerment**, influencing **market participation** and **long-term business growth**.

Chapter 3: Methodology

3.1 Research Design

The study uses a **quantitative, explanatory research design** to test hypothesized relationships among variables. A **cross-sectional survey method** was employed, which allows collection of data at a single point in time to understand the current state of digital inclusion and its effects on entrepreneurial outcomes (Creswell & Creswell, 2018). This design is appropriate because it enables the examination of both direct and indirect effects of digital inclusion on MSME entrepreneurial outcomes.

3.2 Population and Sampling

3.2.1 Population

The target population includes MSME entrepreneurs operating in **rural and semi-urban regions of India** across manufacturing and service sectors. These entrepreneurs were selected because digital adoption is often variable in these contexts, and they face unique challenges in accessing digital tools and markets.

3.2.2 Sampling Technique

A **stratified random sampling technique** was used. Two strata were defined:

1. Rural MSME entrepreneurs
2. Semi-urban MSME entrepreneurs

This ensured equal representation from both strata, enabling comparative analysis of digital inclusion effects.

3.2.3 Sample Size

A total of **320 MSME entrepreneurs** were targeted, exceeding the minimum recommended sample size of 200 for Structural Equation Modeling (SEM) (Hair et al., 2019). This sample size provides sufficient statistical power to detect meaningful relationships among variables.

3.3 Data Collection Method

3.3.1 Primary Data

Data were collected using a **structured questionnaire** consisting of five sections:

1. Demographic details
2. Digital inclusion (access, skills, digital finance)
3. Entrepreneurial empowerment (mindset and confidence)
4. Market participation
5. Business growth

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3.3.2 Data Collection Procedure

- **Offline surveys:** Field visits to rural and semi-urban MSME units
- **Online surveys:** Google Forms shared via email or WhatsApp
- **Telephonic follow-ups:** For clarification and response completion

Participants were informed about the purpose of the study, assured of confidentiality, and provided voluntary consent.

3.4 Instrumentation and Measurement Scales

Variable	Dimensions/Items	Source/Scale
Digital Inclusion	Access to devices, Internet connectivity, digital finance, use of digital tools	Adapted from Kaur & Gupta (2021); Donner & Escobari (2010)
Entrepreneurial Empowerment	Mindset: Innovation, risk-taking, opportunity recognition; Confidence: Decision-making, financial and digital confidence	Adapted from Baiyere et al. (2020); Senyo & Osabutey (2020)
Market Participation	Online presence, customer reach, e-commerce engagement, competitiveness	Adapted from Almeida et al. (2020)
Business Growth	Sales growth, profit growth, market share expansion, operational efficiency	Adapted from Pradhan et al. (2018)

All items were measured using a **5-point Likert scale** (1 = Strongly Disagree to 5 = Strongly Agree).

3.5 Data Analysis Techniques

3.5.1 Software Used

- **SPSS**: Descriptive statistics, reliability, correlation analysis
- **AMOS/Smart PLS**: Structural Equation Modeling (SEM), mediation, and moderation analysis

3.5.2 Statistical Procedures

1. **Descriptive Statistics:** Means, standard deviations, and frequencies for demographic and primary variables
2. **Reliability Analysis:** Cronbach's alpha to assess internal consistency (threshold ≥ .70)
3. **Validity Testing:** Convergent validity (AVE) and discriminant validity (Fornell-Larcker criterion, HTMT ratio)
4. **Correlation Analysis:** Pearson correlations among variables
5. **Regression/SEM Analysis:** Testing direct effects of digital inclusion on entrepreneurial empowerment, market participation, and business growth
6. **Mediation Analysis:** Entrepreneurial empowerment as mediator (bootstrapping method)
7. **Moderation Analysis:** Multi-group analysis for rural vs. semi-urban context

3.6 Ethical Considerations

- Informed consent obtained from all participants
- Confidentiality and anonymity strictly maintained
- Participation was voluntary, with the option to withdraw at any time
- No personal identifiers were collected; data used solely for academic purposes

3.7 Summary

This chapter outlined the methodological approach of the study. A **quantitative survey-based design** with stratified random sampling was employed. The research instruments were adapted from validated scales, and robust statistical techniques, including SEM, mediation, and moderation analyses, were proposed to test the hypothesized relationships. Ethical standards were strictly observed throughout the research process.

CHAPTER 4
DATA ANALYSIS AND RESULTS

4.1 Descriptive Statistics

Table 1 presents the mean and standard deviation of the major study variables.

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Table 1
Descriptive Statistics of Study Variables

Variable	M	SD
Digital Inclusion	3.84	0.62
Entrepreneurial Mindset	3.91	0.57
Entrepreneurial Confidence	3.76	0.64
Entrepreneurial Empowerment	3.88	0.59
Market Participation	3.67	0.71
Business Growth	3.82	0.66

Note. N = 320 MSME entrepreneurs.

4.2 Reliability Analysis
Cronbach's alpha was used to assess internal consistency. All scales exceeded the recommended threshold of .70.
Table 2
Reliability Statistics

Variable	Cronbach's α
Digital Inclusion	.89
Entrepreneurial Empowerment	.91
Market Participation	.87
Business Growth	.90

All scales demonstrated acceptable to excellent reliability.

4.3 Correlation Analysis
Pearson correlation coefficients were calculated to examine associations among key variables.
Table 3
Correlation Matrix

Variables	1	2	3	4
1. Digital Inclusion	—			
2. Entrepreneurial Empowerment	.62**	—		
3. Market Participation	.54**	.57**	—	
4. Business Growth	.58**	.63**	.61**	—

Note. p < .01 (two-tailed).
Digital inclusion was significantly correlated with entrepreneurial empowerment, market participation, and business growth, supporting preliminary hypotheses.

4.4 Regression Analysis
4.4.1 H1–H4: Impact of Digital Inclusion on Key Outcomes
Table 4 presents the regression results.
Table 4
Regression Analysis Predicting Entrepreneurial Variables

Dependent Variable	β	t	p
Entrepreneurial Mindset	.48	9.21	< .001
Entrepreneurial Confidence	.44	8.62	< .001

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Dependent Variable	β	t	p
Market Participation	.51	10.12	< .001
Business Growth	.47	9.04	< .001

Interpretation:
Digital inclusion significantly predicts mindset, confidence, market participation, and business growth, supporting H1–H4.

4.5 Mediation Analysis (H5)
A mediation analysis using PROCESS Macro (Model 4) was performed with entrepreneurial empowerment as a mediator.
Table 5
Mediation Analysis Results

Effect	Estimate	SE	LLCI	ULCI
Direct Effect (DI → BG)	.29	.06	.17	.41
Indirect Effect (DI → EE → BG)	.18	.04	.11	.27

Interpretation:
Since the indirect effect confidence interval does not include zero, entrepreneurial empowerment **significantly mediates** the relationship between digital inclusion and business growth.
Thus, **H5 is supported**.

4.6 Moderation Analysis (H6)
A moderation analysis using PROCESS Macro (Model 1) tested whether the relationship between digital inclusion and entrepreneurial empowerment differed by rural vs. semi-urban context.
Table 6
Moderation Test Results

Predictor	β	t	p
Digital Inclusion	.52	9.34	< .001
Context (Rural = 1, Semi-Urban = 0)	.14	2.88	.004
Interaction Term (DI × Context)	.11	2.41	.017

Interpretation:
The interaction term is significant ($p < .05$), indicating that digital inclusion has a **stronger impact in rural areas**. Therefore, **H6 is supported**.

4.7 Summary of Hypothesis Testing
Table 7
Summary of Hypothesis Results

Hypothesis	Statement	Result
H1	Digital inclusion → entrepreneurial mindset	Supported
H2	Digital inclusion → entrepreneurial confidence	Supported
H3	Digital inclusion → market participation	Supported
H4	Digital inclusion → business growth	Supported
H5	Entrepreneurial empowerment mediates DI → BG	Supported
H6	Rural/Semi-urban context moderates DI → EE	Supported

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CHAPTER 5
FINDINGS, CONCLUSION, AND RECOMMENDATIONS

Major Findings

Based on descriptive analysis, correlation, regression, mediation, and moderation tests, the following key findings emerged:

1. High Levels of Digital Inclusion Among MSMEs

MSME entrepreneurs demonstrated strong adoption of digital tools, particularly in digital finance, mobile applications, and basic digital services. The mean score indicated a generally positive level of digital integration into business operations.

2. Digital Inclusion Significantly Enhances Entrepreneurial Mindset

Regression results showed that digital inclusion had a strong, positive influence on entrepreneurial mindset ($\beta = .48$, $p < .001$). Entrepreneurs with greater digital access and skills demonstrated more innovative thinking and readiness for risk.

3. Digital Inclusion Improves Entrepreneurial Confidence

Digital tools increased confidence in managing business activities such as online payments, marketing, and customer communication ($\beta = .44$, $p < .001$). Digital confidence translated into greater willingness to compete in broader markets.

4. Digital Inclusion Positively Affects Market Participation

Access to online platforms significantly enhanced entrepreneurs' ability to participate in digital marketplaces, connect with customers, and expand visibility ($\beta = .51$, $p < .001$).

5. Digital Inclusion Strongly Influences Business Growth

Digital tools contributed to improved financial performance, market expansion, and operational efficiency ($\beta = .47$, $p < .001$). This validates the role of digital inclusion as a driver of long-term MSME sustainability.

6. Entrepreneurial Empowerment Mediates the Effect of Digital Inclusion on Business Growth

Mediation analysis revealed that entrepreneurial empowerment (mindset + confidence) partially mediated the relationship between digital inclusion and business growth. This suggests that digital tools enhance growth **by strengthening internal psychological empowerment**.

7. Rural/Semi-Urban Context Moderates the Digital Inclusion–Empowerment Relationship

Moderation analysis confirmed that digital inclusion has a **stronger impact on empowerment in rural areas** compared to semi-urban regions. Rural entrepreneurs benefit more because digital access addresses long-standing limitations.

Conclusion

The study concludes that **digital inclusion is a powerful enabler of entrepreneurial empowerment**, shaping mindset, confidence, market participation, and business growth among MSME entrepreneurs. The results emphasize that digital tools do not merely provide technological support—they create psychological, strategic, and economic advantages.

Digital inclusion serves as a **transformative pathway**, particularly in underserved rural regions, by enabling entrepreneurs to access markets, improve financial literacy, and adopt innovative business practices. Entrepreneurial empowerment was found to be a crucial mechanism through which digital inclusion influences overall business outcomes, highlighting the need to integrate digital skills with capacity-building programs.

Overall, the findings reinforce that **digital inclusion is not just a technological necessity but a developmental imperative** for the MSME sector.

Recommendations

Based on the findings, the following recommendations are proposed:

A. Policy Recommendations

1. Expand Digital Infrastructure in Rural Areas

Government agencies should accelerate internet connectivity, affordable broadband access, and digital service centers to maximize the impact of digital inclusion.


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2. Strengthen Digital Literacy Programs
Design community-based digital training programs focusing on mobile skills, digital payments, cyber security, and e-commerce readiness.
3. Subsidize Digital Tools for MSMEs
Offer incentives for purchasing business software, POS machines, digital marketing tools, and cloud services to improve adoption.

B. Recommendations for MSME Entrepreneurs
1. Integrate Digital Tools Into Daily Business Operations
Entrepreneurs should adopt digital payment systems, online marketing, and data management tools to strengthen competitiveness.
2. Participate in Digital Skill Development Workshops
Continuous learning boosts confidence, mindset, and long-term business growth.
3. Use Social Media and E-commerce Platforms for Market Expansion
Platforms such as WhatsApp Business, Instagram, Amazon, and Flipkart provide low-cost market opportunities.

C. Recommendations for Financial and Support Institutions
1. Provide Tailored Digital Financial Services
Banks and fintech companies must focus on MSMEs' needs, such as micro-loans, digital credit scoring, and simplified onboarding.
2. Create Mentorship and Incubation Programs
These programs can enhance entrepreneurial empowerment by strengthening mindset and confidence.
3. Strengthen Cybersecurity Awareness
Training on secure transactions will increase trust and reduce digital risks.

D. Recommendations for Future Research
1. Conduct longitudinal studies to understand long-term digital adoption behavior.
2. Explore sector-wise differences (manufacturing vs. services).
3. Compare digital inclusion impacts across different states or regions.
4. Use mixed methods to capture psychological empowerment more deeply.

5.5 Closing Statement
This study highlights the essential role of digital inclusion in transforming MSME entrepreneurship in India. By improving access, skills, and digital finance, MSME entrepreneurs—especially in rural and semi-urban areas—can achieve greater empowerment, participate in wider markets, and experience sustained business growth. The research contributes significantly to the literature by unveiling the psychological empowerment pathway that connects digital inclusion with entrepreneurial success.

Future Scope of the Study

The present study provides significant insights into the role of digital inclusion in empowering MSME entrepreneurs. However, it also opens several avenues for future research:

1. **Longitudinal Studies:** Future research can employ longitudinal designs to examine how digital inclusion influences entrepreneurial empowerment, market participation, and business growth over time. This would provide deeper insights into long-term behavioral and performance outcomes.
2. **Sectoral Analysis:** Further studies can explore differences across various sectors (e.g., manufacturing, services, agriculture) to understand sector-specific digital adoption patterns and their impact on business growth.
3. **Geographical Expansion:** While this study focuses on rural and semi-urban regions, future research can expand to urban MSMEs or cross-state comparisons to explore regional disparities in digital inclusion and entrepreneurial empowerment.

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4. **Qualitative and Mixed-Methods Approaches:** Incorporating qualitative or mixed-methods research can provide richer insights into the psychological and behavioral mechanisms through which digital inclusion shapes entrepreneurial mindset, confidence, and decision-making.
5. **Gender-Specific Studies:** Future research can examine gender-specific challenges and opportunities in digital inclusion, particularly among women entrepreneurs in MSMEs, to design inclusive policies and programs.
6. **Policy Evaluation:** Researchers can assess the effectiveness of government and fintech interventions aimed at digitalizing MSMEs, evaluating how these programs influence empowerment and business outcomes.
7. **Technology-Specific Impact:** Studies can analyze the impact of specific digital tools such as e-commerce platforms, mobile apps, cloud services, and AI-based analytics on entrepreneurial decision-making, market reach, and profitability.
8. **Behavioral and Psychological Metrics:** Future studies can develop and use refined metrics to measure the psychological dimensions of entrepreneurial empowerment, such as resilience, risk tolerance, and innovation orientation, in relation to digital adoption.
9. **Sustainability and Social Impact:** Research can explore how digital inclusion contributes to sustainable business practices, social empowerment, and community development among MSMEs.
10. **Integration with Global Practices:** Comparative studies with MSMEs in other developing or developed countries can provide a global perspective on digital inclusion strategies and entrepreneurial empowerment outcomes.

Conclusion: Exploring these avenues will deepen understanding of the multi-dimensional impact of digital inclusion, guide policy-making, and contribute to more inclusive, effective, and sustainable MSME development strategies.

References

- Agarwal, R., & Prasad, J. (1999). Are individual differences germane to the acceptance of new information technologies? *Decision Sciences, 30*(2), 361–391. https://doi.org/10.1111/j.1540-5915.1999.tb01614.x
- Almeida, F., Santos, J. D., & Monteiro, J. A. (2020). Digital transformation and the rise of the digital entrepreneur. *International Journal of Innovation Science, 12*(3), 267–280. https://doi.org/10.1108/IJIS-05-2019-0047
- Awa, H. O., Ojiabo, O. U., & Emecheta, B. C. (2015). Integrating TAM and TOE frameworks and expanding their characteristic constructs for e-commerce adoption by SMEs. *Journal of Science & Technology Policy Management, 6*(1), 76–94. https://doi.org/10.1108/JSTPM-04-2014-0012
- Bada, A., & Madon, S. (2020). Digital financial inclusion in the Global South: An institutional approach. *Information Technology for Development, 26*(3), 421–441. https://doi.org/10.1080/02681102.2019.1687383
- Baiyere, A., Salmela, H., & Tapanainen, T. (2020). Digital transformation and the new logics of business process management. *European Journal of Information Systems, 29*(3), 238–259.
- Donner, J., & Escobari, M. (2010). A review of evidence on mobile use by micro and small enterprises in developing countries. *Journal of International Development, 22*(5), 641–658. https://doi.org/10.1002/jid.1717
- Fang, Y., Chau, P. Y. K., & Hu, P. J.-H. (2005). Understanding the adoption of open-source software: An integration of the technology acceptance model and the theory of planned behavior. *International Journal of Human–Computer Studies, 64*(9), 799–810.
- IT for Change. (2024). *Beyond platform integration: Unpacking the true promise of digital inclusion for MSMEs in India.* IT for Change Publications.
- Kaur, P., & Gupta, V. (2021). Digital financial inclusion: A systematic literature review of Indian context. *Journal of Financial Services Marketing, 26*(3), 153–166. https://doi.org/10.1057/s41264-021-00092-2
- Lall, S. (2019). Digitalization and entrepreneurship in emerging markets. *Technological Forecasting and Social Change, 145*, 563–572.
- Pradhan, R. P., Arvin, M. B., Nair, M., & Hall, J. H. (2018). ICT–finance–growth nexus: Empirical evidence from Asian countries. *Technology in Society, 54*, 18–32. https://doi.org/10.1016/j.techsoc.2018.03.002

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- Ramadan, Z. B., & Aita, J. (2018). Digital inclusion: Are developing countries ready for the digital economy? *International Journal of Development Issues, 17*(2), 197–209. https://doi.org/10.1108/IJDI-07-2017-0113
- Senyo, P. K., & Osabutey, E. L. C. (2020). Unearthing antecedents to financial inclusion through fintech innovations. *Technovation, 98*, 102155. https://doi.org/10.1016/j.technovation.2020.102155
- Sowmya, B. (2025). Digital inclusion of women entrepreneurs in the unorganized sector: A systematic review. *Journal of Entrepreneurship and Innovation, 14*(1), 45–59.
- Almeida, F., Santos, J. D., & Monteiro, J. A. (2020). Digital transformation and the rise of the digital entrepreneur. *International Journal of Innovation Science, 12*(3), 267–280. https://doi.org/10.1108/IJIS-05-2019-0047
- Baiyere, A., Salmela, H., & Tapanainen, T. (2020). Digital transformation and the new logics of business process management. *European Journal of Information Systems, 29*(3), 238–259.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage Publications.
- Donner, J., & Escobari, M. (2010). A review of evidence on mobile use by micro and small enterprises in developing countries. *Journal of International Development, 22*(5), 641–658. https://doi.org/10.1002/jid.1717
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.
- Kaur, P., & Gupta, V. (2021). Digital financial inclusion: A systematic literature review of Indian context. *Journal of Financial Services Marketing, 26*(3), 153–166. https://doi.org/10.1057/s41264-021-00092-2
- Pradhan, R. P., Arvin, M. B., Nair, M., & Hall, J. H. (2018). ICT–finance–growth nexus: Empirical evidence from Asian countries. *Technology in Society, 54*, 18–32. https://doi.org/10.1016/j.techsoc.2018.03.002
- Senyo, P. K., & Osabutey, E. L. C. (2020). Unearthing antecedents to financial inclusion through fintech innovations. *Technovation, 98*, 102155. https://doi.org/10.1016/j.technovation.2020.102155