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## From Traditional to Digital: How Baby Boomer and Generation X MSMEs Adapt to Online Marketing

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**Abstract:** The acceleration of digital transformation has profoundly reshaped the operational logic and market engagement patterns of Micro, Small, and Medium Enterprises (MSMEs). Yet, adaptation to online marketing among Baby Boomer and Generation X entrepreneurs remains uneven and context-dependent. This *systematic literature review (SLR)* synthesizes findings from fourteen peer-reviewed studies published between 2019 and 2025 to examine how these generational cohorts navigate the transition from traditional to digital marketing ecosystems. Following the PRISMA 2020 protocol, the analysis integrates multilevel perspectives encompassing individual (digital literacy, motivation, and self-efficacy), organizational (leadership, orchestration, and digital transformation), and ecosystemic dimensions (policy, infrastructure, and inclusion). Results highlight that Generation X entrepreneurs demonstrate performance gains through competence-driven adoption and motivational reinforcement, while Baby Boomers exhibit stronger engagement through emotionally familiar and trust-based channels such as WhatsApp and Facebook. Generational tensions in transformation processes can be mitigated through transparent leadership communication, structured operational routines, and cross-generational mentoring. From these insights, the MOSAIC framework *Motivation & Skills, Orchestration, Safety & Trust, Affiliation-based Content, Integration of Channels, and Cashless Conversion* is proposed as an inclusive roadmap for sustainable MSME digitalization led by senior cohorts. This review contributes to bridging *Generational Cohort Theory, Self-Efficacy Theory, and Dynamic Capability Theory*, thereby offering theoretical integration and practical policy implications for advancing intergenerational digital transformation.

**Keywords:** MSMEs, Baby Boomer, Generation X, Digital Marketing, Self-Efficacy, Generational Transformation, MOSAIC Framework

## INTRODUCTION

Over the past two decades, digitalization has become a major determinant of the sustainability and competitiveness of micro, small, and medium enterprises (MSMEs). Digital transformation is no longer merely a matter of technological adaptation, but a paradigm shift that demands a reorientation of business culture, leadership, and marketing communication patterns. The shift from traditional face-to-face marketing models to online marketing via digital platforms has created new dynamics, especially for business owners from generations that grew up in a pre-digital context.

This phenomenon has become increasingly significant given that the demographic structure of Indonesian MSMEs is still dominated by business owners from the Baby Boomer group (born 1946–1964) and Generation X (born 1965–1980). According to data from the Ministry of Cooperatives and SMEs (2024), more than 50% of MSME owners in Indonesia belong to these two cohorts. Although their contribution to the national Gross Domestic Product (GDP) reaches 61%, only about 35% have optimally adopted digital-based marketing strategies. This disparity is not solely due to technological infrastructure limitations, but also to cognitive, motivational, and work-culture differences across generations.

In this context, digitalization is not merely the application of tools but a socio-technological transformation involving changes at the individual, organizational, and ecosystem levels. Cecconi et al. (2025) emphasize that low digital literacy among older generations directly affects low levels of digital participation and resistance to adopting new technologies. However, Latiep et al. (2024) found that improved digital competence significantly increases motivation and entrepreneurial performance among Generation X. These findings reveal substantial generational differences in how MSME actors interpret, learn, and implement digital technology.

Meanwhile, research by Carrillo-Durán et al. (2022) in Southern Europe identified that Baby Boomers exhibit a strong preference for communication channels with affective and familiar dimensions, such as Facebook and WhatsApp, where trust and social closeness are key elements in digital engagement. Conversely, Generation X tends to evaluate technology instrumentally and pragmatically; they adopt technology insofar as it demonstrably improves operational efficiency or business profitability (Sirait & Purnama, 2022).

Thus, the success of MSME digitalization cannot be separated from the interaction between digital competence, psychological motivation, and organizational capability — all inherently influenced by generational cohort characteristics. The process of digital adaptation among Baby Boomers and Generation X is not merely technological adoption, but a reflection of cognitive and social transformation in understanding and utilizing technology as a new economic instrument.

## Conceptual Framework and Theoretical Foundations

The phenomenon of cross-generational digital adaptation can be understood through three complementary theoretical frameworks.

### a. Generational Cohort Theory

This theory asserts that distinct historical experiences and socialization contexts shape the values, orientations, and behaviors of each generation (Cecconi et al., 2025). Baby Boomers were shaped by social stability and strong interpersonal communication, whereas Generation X grew up during the transition toward the digital era, making them relatively more adaptive to technological change. In the MSME context, these differences result in divergent marketing orientations: Boomers emphasize long-term customer relationships, while Gen X focuses more on efficiency and innovation.

### b. Self-Efficacy Theory

According to Bandura (1997), self-efficacy refers to an individual's belief in their ability to organize and execute actions necessary to achieve desired outcomes. In digitalization,

digital self-efficacy becomes a key determinant of successful learning of new technologies. Sirait & Purnama (2022) show that digital self-efficacy directly affects online transaction behavior and indirectly influences MSME marketing performance.

#### c. Dynamic Capability Theory

As explained by Teece (2007), dynamic capabilities refer to an organization's ability to integrate, build, and reconfigure internal and external competencies in response to environmental change. In the context of cross-generational MSMEs, this theory is relevant for explaining how Generation X business leaders orchestrate human resources and technology in the face of digital turbulence.

The combination of these three theories forms the conceptual foundation of this study, affirming that digital adaptation results from the interaction between psychological, structural, and contextual factors.

### Research Gap

Although research on digital adoption among MSMEs has grown, literature addressing generational dimensions remains fragmented. Most studies highlight the technical aspects of digital adoption (such as social media use, e-commerce, and electronic payment systems), yet have not systematically linked them to generational factors, psychological motivations, or organizational dynamics.

Moreover, most available digital transformation models are developed based on the context of large companies or startups, which possess far greater resources compared to MSMEs. As a result, these models cannot be fully transferred to small-business contexts with financial, competency, and infrastructure limitations.

Therefore, a systematic literature review (SLR) is needed to comprehensively synthesize empirical findings on how Baby Boomers and Generation X adapt digital marketing strategies at individual, organizational, and ecosystem levels.

### Research Objectives

The main objectives of this study are to:

1. Identify individual-level factors that influence cross-generational MSME digital adaptation, particularly in digital literacy, motivation, and self-efficacy.
2. Analyze the most effective communication channels, content formats, and conversion strategies for entrepreneurs and consumers from senior age groups.
3. Evaluate forms of organizational and ecosystem support that can accelerate digital adaptation in MSMEs managed by Baby Boomers and Generation X.

### Research Questions

To achieve these objectives, this study poses three key research questions:==

1. RQ1: What enabling and inhibiting factors shape digital adaptation behaviors among Baby Boomer and Generation X MSMEs?
2. RQ2: Which digital channels and content formats are most aligned with the behavioral characteristics and preferences of these generations?
3. RQ3: What organizational support and ecosystem policies are most effective in accelerating inclusive digitalization among cross-generational MSMEs?

### Research Contributions

This study provides three main contributions:

#### 1. Theoretical contribution:

This study integrates three major perspectives — Generational Cohort Theory, Self-Efficacy Theory, and Dynamic Capability Theory — to construct a conceptual model explaining digital adaptation mechanisms among cross-generational MSMEs.

## 2. Practical contribution:

This study introduces the MOSAIC Framework as a strategic roadmap that MSMEs can apply to orchestrate resources, improve digital literacy, and expand online marketing reach through age-sensitive approaches.

## 3. Policy contribution:

The findings are relevant for public policymakers in designing digital literacy programs and economic transformation policies that consider generational factors and intergenerational equity in access to technology.

## METHOD

### Research Design

This study employs a Systematic Literature Review (SLR) approach to obtain a comprehensive and integrated understanding of the digital adaptation process among MSME actors from the Baby Boomer and Generation X cohorts. The SLR approach is chosen because of its ability to consolidate various empirical findings from previous studies in a systematic, measurable, and replicable manner (Tranfield, Denyer, & Smart, 2003).

The SLR methodology in this research follows the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, which emphasize transparency in the processes of searching, selecting, quality assessing, and synthesizing research findings. This approach ensures that all included articles meet strict methodological standards and thematic relevance, thereby producing a synthesis with strong academic validity.

### Literature Search Strategy

The literature search process was conducted in stages through three main phases: identification, screening, and eligibility.

The identification phase was carried out using credible scientific databases such as Scopus, ScienceDirect, Emerald Insight, and Google Scholar. The keywords used in the search consisted of combinations of the following terms: “MSMEs” OR “small business” OR “entrepreneurship” AND “digital marketing” OR “online marketing” AND “Baby Boomer” OR “Generation X”.

To ensure relevance, the search was limited to articles published between 2019 and 2025, with a geographical focus on developing countries and Southeast Asia, including Indonesia.

The initial search yielded 97 conceptually relevant articles. A screening process was then conducted on abstracts and keywords to remove duplicates and studies that did not focus on generational variables. After this stage, 28 articles met the preliminary criteria.

At the eligibility stage, an in-depth assessment was conducted on the methodology, contextual relevance, and scientific contribution of each article. This process resulted in 14 main articles used for the final synthesis, as detailed in the Extraction Matrix in Appendix A.

### Inclusion and Exclusion Criteria

The inclusion criteria used in this study are as follows:

1. Articles must be peer-reviewed and published in scientific journals indexed in Scopus, DOAJ, or Sinta 2–3.
2. Articles must examine digital adaptation, online marketing, or technological transformation in MSMEs involving Baby Boomers or Generation X.
3. Studies must be written in English or Indonesian, with clear abstracts and methodological data available.
4. Articles must contain empirical data, whether qualitative, quantitative, or mixed-methods.

The exclusion criteria include:

- a. Conceptual studies without empirical data,

- b. Conference papers without peer-review processes,
- c. Publications focusing solely on Generations Y/Z without involving Baby Boomers–Gen X.

**Quality Assessment (Critical Appraisal)**

Quality assessment of the articles was conducted using the Critical Appraisal Skills Programme (CASP) framework, adapted to the context of social and management research. Each article was evaluated based on three main dimensions:

**Table 1.** Critical Appraisal

Assessment Dimension	Description	Score Range
Conceptual Relevance	The degree of alignment between the research focus and generational issues and digital adaptation.	1–5
Methodological Rigor	Accuracy of the research design, instrument validity, and transparency of analysis.	1–5
Scientific Contribution	The level of novelty and significance to the digital marketing and entrepreneurship literature.	1–5

Each article received a maximum cumulative score of 15. Only articles with a score of 10 or higher were included in the thematic synthesis stage. The scoring process was conducted independently to maintain objectivity, and the aggregate results are presented in the CASP Matrix (Table 2).

**Table 2.** Article Quality Assessment Matrix (CASP Scoring Summary)

No	Authors & Year	Research Focus	Relevance	Rigor	Contribution	Total Score
1	Cecconi et al. (2025)	Digital literacy & technology adoption among older generations in SMEs in Italy and Southeast Asia	5	5	5	15
2	Sirait & Purnama (2022)	Digital self-efficacy and adaptive behavior of Generation X SME actors in Indonesia	4	5	5	14
3	Carrillo-Durán et al. (2022)	Digital behavior of Baby Boomers in social marketing strategies in Southern Europe	5	4	4	13
4	Latiep et al. (2024)	Digital competence and marketing performance of Generation X SME actors in the Asia-Pacific	5	4	5	14
5	Fadhilah & Adiarsi (2019)	Transformational leadership and digital readiness of small organizations in Indonesia	4	4	4	12
6	Nuriana et al.	Barriers to digital	5	3	4	12

	(2019)	technology adoption among senior entrepreneurs in the retail sector				
7	Ahmad, Rahman, & Nawaz (2019)	Entrepreneurial orientation and digital transformation of SMEs in developing countries	5	4	4	13
8	Carrillo & Castaño (2021)	Social media adoption by senior entrepreneurs: an affective approach in digital communication	4	4	4	12
9	Fadhilah et al. (2020)	Organizational learning dynamics and technological readiness of Generation X SMEs	5	4	5	14
10	Darmawan & Setiawan (2023)	Relationship between digital literacy and market orientation of SMEs in the post-pandemic era	4	4	4	12
11	Lestari & Suprpto (2021)	Community-based marketing strategies for senior SME actors in rural areas	5	3	4	12
12	Rahman & Aziz (2020)	Influence of government support on SME digitalization readiness across generations	4	4	4	12
13	Kurniawan et al. (2022)	Integration of traditional and digital channels in SME marketing strategies	5	5	4	14
14	Susanto & Wibowo (2023)	Digital inclusion and business sustainability of senior-generation SME actors	5	4	5	14

All articles listed in the table met the eligibility criteria ( $\geq 10$  points), making them suitable for analysis in the thematic synthesis stage.

### Data Synthesis Procedure

The data obtained from the 14 articles were analyzed using a thematic synthesis approach with three main analytical stages (Thomas & Harden, 2008):

1. Line-by-line coding of the empirical findings and main conclusions from each study.
2. Grouping codes into initial themes based on conceptual similarities.
3. Development of descriptive and analytical themes to answer the research questions.

The synthesis process was conducted at three levels:

- a. Individual level: digital literacy, motivation, and self-efficacy;
- b. Organizational level: leadership style, resource orchestration, and business model transformation;

- c. Ecosystem level: public policy, infrastructure, and digital network support.

### **Validity and Reliability**

To ensure the reliability and validity of the synthesis, two control steps were conducted:

1. Cross-validation: each key finding was verified from at least two different articles.
2. Methodological audit: all stages of the article search and selection were documented using the PRISMA checklist to ensure the process could be replicated.

Thus, the results obtained in this study not only describe empirical phenomena but also represent conceptual trends in the international literature on digital adaptation across generations.

### **PRISMA 2020 Flowchart (Textual Summary)**

1. Identification: 97 initial articles were found from four major databases.
2. Screening: 69 articles were eliminated due to duplication and inconsistency of focus.
3. Eligibility: 28 articles were fully reviewed; 14 of them met the quality and relevance criteria.
4. Final Synthesis: 14 articles were analyzed within the conceptual framework of digital adaptation across the Boomer–Gen X generations.

## **RESULT AND DISCUSSION**

### **Overview of Findings**

Based on the synthesis of fourteen selected articles, it was found that the digital adaptation process among Baby Boomer and Generation X MSMEs is not linear, but rather a multi-level phenomenon influenced by psychological, organizational, and structural factors. Empirical findings indicate that although both generational groups face the pressures of digitalization, their adaptation mechanisms differ significantly in terms of motivation, risk perception, and orientation towards technology learning.

The synthesis process resulted in three main themes and six sub-themes, which then formed the basis for the formation of the MOSAIC Framework as an integrative conceptual model. These themes include:

1. Individual Adaptation: encompassing digital literacy, motivation, and self-efficacy.
2. Organizational Transformation: encompassing leadership, resource orchestration, and a culture of innovation.
3. Ecosystemic Context: relating to policy, infrastructure, and digital inclusion.

### **Theme I: Individual Adaptation**

#### **a. Digital Literacy and Generational Cognition**

The analysis shows that digital literacy levels play a key role in determining the speed and depth of digital marketing adoption. Cecconi et al. (2025) emphasized that older generations have a slower learning curve in understanding the logic of digital platforms, especially algorithmic ones like Instagram Ads or Google Analytics. However, this gap can be narrowed through guided learning and community-based training.

Latiep et al. (2024) added that Generation X tends to learn instrumentally, only to the extent that the technology provides practical value to business performance. Meanwhile, Baby Boomers rely more on intuition and relational experience to build customer trust. Therefore, strategies to improve digital literacy need to be designed in a generation-sensitive manner—for example, through a peer mentoring approach where younger entrepreneurs act as digital coaches for more senior colleagues.

#### **b. Motivation and Digital Self-Efficacy**

A study by Sirait & Purnama (2022) confirmed that digital self-efficacy has a significant positive correlation with the successful adoption of online marketing technology.

Entrepreneurs with high levels of self-efficacy demonstrate confidence in managing content, interacting with customers online, and measuring digital performance. Conversely, those with low self-efficacy tend to avoid digital activities due to fear of failure or loss of control.

Interestingly, Nuriana et al. (2019) identified that intrinsic motivation (curiosity, pride in achievement) has a stronger influence than extrinsic motivation (market pressure, customer demand) in accelerating digital adoption. This suggests that digital behavior change in the older generation must be facilitated through empowerment, not simply external instruction.

## **Theme II: Organizational Transformation**

### **a. Leadership and Resource Orchestration**

The cross-generational digital transformation of MSMEs relies heavily on leadership roles that integrate technical expertise and social sensitivity. According to Fadhillah & Adiarsi (2019), transformational leadership has been shown to drive innovation and open up intergenerational dialogue in small organizations. Leaders who can translate digital visions into simple operational procedures will more easily gain support from team members who are less familiar with technology.

Furthermore, Latiep et al. (2024) highlight the importance of orchestration capability, namely the leader's ability to allocate resources (human, technological, and information) adaptively to external changes. Generation X, who are in the transition between analog and digital, have a relatively higher ability to orchestrate resources than Baby Boomers, who tend to maintain traditional work structures. However, the combination of these two leadership styles can create organizational ambidexterity—the organization's ability to balance digital exploration and conventional business exploitation.

### **b. Culture of Innovation and Organizational Learning**

Innovation in the context of MSMEs means not only the creation of new products, but also the ability to continuously learn from digital experiences. Carrillo-Durán et al. (2022) showed that small companies managed by older generations tend to maintain hierarchical work patterns, which often hinder open communication. In contrast, Generation X adopts collaborative learning patterns through online knowledge sharing, such as WhatsApp business communities and e-commerce groups.

The organizational transformation process is more effective when a culture of innovation is not imposed top-down, but rather built through trust-based leadership and horizontal feedback mechanisms. Thus, the success of digital adaptation depends heavily on the extent to which an organization is able to build a learning climate that encourages experimentation without fear of failure.

## **Theme III: Ecosystem Context**

### **a. Digital Policy and Infrastructure**

The external context plays a significant role in accelerating or slowing down digital transformation. The Ministry of Communication and Informatics (2023) emphasized that the 1000 Digital Start-ups program and the National Digital Literacy Movement are still dominated by the younger generation, leaving older age groups relatively marginalized. Meanwhile, Ahmad et al. (2019) underlined that the availability of internet infrastructure in semi-urban areas is a major barrier for Baby Boomers to regularly access digital platforms.

Inclusive policies are needed to bridge this gap. For example, the government can integrate cross-generational digital mentoring into regional MSME development programs. Community-based interventions will be more effective than one-way, bureaucratic approaches.

**b. Inclusion and Sustainability of the Digital Ecosystem**

Digital transformation depends not only on infrastructure, but also on the ecosystem's ability to foster a sense of ownership of technology. Sirait & Purnama (2022) emphasized that the success of MSME digitalization programs is measured not by the number of actors using social media, but by how consistently they maintain their digital presence.

Social engagement and digital sustainability are two crucial aspects. Senior MSME actors will be more committed if their digital activities are rooted in a real social network they trust. Therefore, trust serves as a connecting variable between the individual and ecosystem dimensions in the MOSAIC framework.

**Integrative Synthesis and Development of the MOSAIC Framework**

Based on the findings above, the MOSAIC Framework conceptual framework was developed, which serves as an integrative model to explain the mechanisms of cross-generational digital adaptation. The acronym MOSAIC refers to six interrelated dimensions:

**Tabel 3.** Integrative Synthesis and Development of the MOSAIC Framework

<b>Component</b>	<b>Conceptual Description</b>	<b>Level of Analysis</b>
M – Motivation & Skills	Enhancement of intrinsic motivation and digital skills through experience-based training.	Individual
O – Orchestration	Leadership ability to manage human and technological resources adaptively.	Organization
S – Safety & Trust	Establishing a sense of security and trust in digital systems and online transactions.	Ecosystem
A – Affiliation-based Content	Digital content strategies emphasizing emotional closeness and community values.	Individual–Organization
I – Integration of Channels	Synchronization between traditional and digital channels to create a consistent customer experience.	Organization
C – Cashless Conversion	Strengthening the adoption of easy and secure cashless payment systems for senior age groups.	Ecosystem

The MOSAIC framework demonstrates that MSME digital adaptation is not simply a technological process, but rather a social learning ecology that integrates personal motivation, organizational structure, and ecosystem support. In other words, the success of digitalization is determined by the systemic ability to orchestrate interactions between cross-generational actors within a mutually reinforcing ecosystem.

**Discussion and Implications**

**Critical Analysis of Key Findings**

The thematic synthesis confirms that digital adaptation among MSMEs from the Baby Boomer and Generation X generations is a multidimensional process that cannot be explained in a reductionist manner. This adaptation is not solely the result of technological intervention, but rather the result of a complex interaction between psychological, organizational, and ecosystemic factors that shape the learning trajectory of each generation.

Within the context of Generational Cohort Theory, differences in value orientations and historical experiences explain why Generation X is more flexible in adopting technology than Baby Boomers. Generation X was shaped by the digital transition—they witnessed the shift from analog to digital and, therefore, better understand the rationality of efficiency and the commercial potential of technology. In contrast, Baby Boomers were raised in an economic

system based on interpersonal relationships and stability, so their approach to technology is more cautious, trust-oriented, and prioritizes a sense of security.

This difference creates an epistemic asymmetry in perceptions of digital technology. Baby Boomers view digitalization as something that needs to be tamed through social trust, while Generation X sees it as a strategic tool to increase competitiveness. Nevertheless, these two groups can reach a point of convergence through intergenerational interactions facilitated by open organizational structures and collaborative learning.

### **Interpretation Based on Self-Efficacy Theory**

According to Bandura (1997), self-efficacy is a person's belief in their ability to organize and execute specific actions. In the context of digitalization, digital self-efficacy becomes cognitive capital that determines the speed and success of technology adaptation.

The findings in this study indicate that Generation X has higher levels of digital self-efficacy due to their previous exposure and experience using computer-based devices and the internet. They tend to experiment, learn through trial and error, and seek direct feedback from online marketplaces. In contrast, Baby Boomers tend to rely on external guidance, such as from children, coworkers, or formal training, before feeling confident enough to conduct digital transactions.

This suggests that increasing digital self-efficacy cannot be achieved through a one-way, instruction-based approach, but rather through experiential learning that positions senior business owners as active learners. This approach not only improves competency but also builds a sense of ownership of the digitalization process itself.

### **Discussion from a Dynamic Capability Perspective**

From the perspective of Dynamic Capability Theory, an organization's ability to adapt to environmental changes depends on the extent to which it can integrate and reconfigure its resources. In the context of cross-generational MSMEs, this is reflected in the leadership's ability to orchestrate cognitive and value differences among organizational members.

Fadhilah & Adiarsi (2019) suggest that transformational leadership plays a crucial role in shaping organizational readiness for digitalization. Generation X leaders, who possess an operational understanding of technology, are able to act as bridges between younger, digitally native staff and senior, digitally immigrated business partners. This leadership style creates what's known as "ambidextrous capabilities"—a balance between exploiting traditional knowledge and exploring new digital opportunities.

In the context of MSMEs, this ambidexterity is crucial because digitalization doesn't mean replacing old practices entirely, but adapting them to new paradigms. Thus, sustainable digital transformation requires a synergy between the stability of conventional values brought by Baby Boomers and the adaptive flexibility of Generation X.

### **Integration of Three Levels of Digital Adaptation**

Thematic analysis shows that digital adaptation occurs at three interconnected levels: individual, organizational, and ecosystem. These three levels form a coherent adaptive system, as depicted in the MOSAIC framework.

#### **1. Individual Level:**

At this level, digital literacy, motivation, and self-efficacy are key drivers. Personal capacity building should be facilitated through experiential learning, mentoring, and motivational incentives.

#### **2. Organizational Level:**

The adaptation process depends on leadership style, organizational structure, and resource orchestration capabilities. Organizations that develop a culture of innovation and collaborative learning mechanisms will be better prepared to face technological change.

### 3. Ecosystem Level:

The external environment, including government policies, digital infrastructure, and social networks, serves as a catalyst that accelerates or hinders adaptation. Collaboration across government, community, and private sector actors is necessary to create an inclusive digital ecosystem.

These three levels are mutually reinforcing: individual competencies strengthen organizations, innovative organizations expand ecosystems, and supportive ecosystems create incentives for individuals to continue learning and transform. This relationship is circular, not linear, indicating that MSME digitalization is an evolutionary and continuous process.

### Practical Implications

The results of this study provide several practical implications that can serve as the basis for formulating cross-generational digital adaptation strategies in the MSME sector:

#### 1. Strengthening Inclusive Digital Literacy:

Digital literacy programs need to be designed with an intergenerational approach. Younger entrepreneurs can act as digital mentors for older entrepreneurs, while the older generation transfers proven social and ethical business knowledge.

#### 2. Digital Leadership Transformation:

Leadership in MSMEs must shift from a hierarchical model to a collaborative, learning-based model. Digital leadership training can focus on cross-generational communication skills and change management.

#### 3. Developing Affective and Authentic Marketing Content:

Content strategies must consider the older generation's affective tendencies toward trust and social relationships. A community-driven marketing approach is more effective than impersonal, massive promotional strategies.

#### 4. Integration of Traditional and Digital Marketing Channels:

Cross-generational MSMEs need to maintain traditional strengths such as local customer relationships, while leveraging digital channels to expand market reach. This integration can strengthen the overall customer experience.

#### 5. Generational Inclusion-Based Incentives and Policies:

The government needs to adopt policies that ensure the participation of older age groups in national digitalization programs. Technology-based microfinance schemes, adaptive training, and cross-generational incubators need to be systematically developed.

### Theoretical Implications

Theoretically, this study expands the literature on MSME digital transformation with three main contributions:

#### 1. Cross-level theoretical integration:

By combining Generational Cohort Theory, Self-Efficacy Theory, and Dynamic Capability Theory, this study demonstrates that digital adaptation is a cross-level process that simultaneously involves psychological, structural, and institutional dimensions.

#### 2. Development of the MOSAIC conceptual framework:

This framework offers a new model that emphasizes the synergy between motivation, orchestration, and trust as central to the success of cross-generational digitalization.

#### 3. Reconceptualizing digital adaptation as a social phenomenon:

Digitalization is not only defined as a technological transformation, but also as a social construction in which experiences, values, and interpersonal relationships mediate the adoption and innovation processes.

## CONCLUSION

This review concludes that the digital adaptation process among MSME actors from the Baby Boomer and Generation X cohorts is a multi-dimensional, cross-level, and interdependent phenomenon. Adaptation does not occur uniformly; instead, it is influenced by a combination of cognitive, social, and structural factors that shape individual and organizational readiness for digital transformation.

In general, Generation X demonstrates a more progressive adaptive capacity than Baby Boomers, as they have broader technological exposure and a pragmatic orientation toward business efficiency. However, Baby Boomers possess advantages in social and relational ethics, serving as the foundation for building customer trust in the digital era. These two generations have the potential to complement each other when integrated into a cross-generational collaborative model rooted in shared learning.

Based on the synthesis of fourteen articles that met the PRISMA 2020 criteria, the success of MSME digitalization is influenced by three main levels of determinants:

1. Individual Level:

Enhancing digital self-efficacy, intrinsic motivation, and digital literacy is key to reducing resistance toward new technologies.

2. Organizational Level:

Inclusive leadership and adaptive resource orchestration enable cultural transformation from traditional models toward more collaborative digital practices.

3. Ecosystem Level:

Infrastructure support, responsive government policies, and community-based social networks are prerequisites for sustaining MSME digitalization.

All findings are integrated into the MOSAIC framework (Motivation & Skills, Orchestration, Safety & Trust, Affiliation-based Content, Integration of Channels, Cashless Conversion), which functions as a conceptual roadmap for developing inclusive cross-generational digitalization strategies. MOSAIC not only explains the technical dimensions of digital adoption but also emphasizes the importance of trust, motivation, and social orchestration as foundations for sustainable adaptation.

## Policy and Practical Implications

Based on the findings of this SLR, several strategic recommendations can be applied by government institutions, educational organizations, and MSME associations:

1. Local and National Governments:

- a. Develop cross-generational digital literacy programs based on community engagement with a two-way mentoring approach.
- b. Provide fiscal incentives for MSMEs that implement digital payment systems and online marketing strategies rooted in local content.
- c. Integrate generational inclusion indicators into national digital economic transformation policies.

2. Educational Institutions and Business Incubators:

- a. Develop training curricula that combine digital technology learning with psychological aspects and business ethics.
- b. Promote academic–industry partnerships in action research to support MSME digital transformation in rural and semi-urban areas.

3. MSME Actors and Business Associations:

- a. Implement participatory leadership models and open internal learning systems.
- b. Utilize digital technologies not only for transactions but also to build brand communities and strengthen customer relationships.
- c. Apply the MOSAIC principles as a guide in designing cross-channel marketing strategies and managing digital trust.

## Research Limitations

As a systematic literature review, this study has several limitations that should be noted:

1. The analysis is limited to fourteen articles published between 2019–2025; therefore, the generalization of findings remains contextual.
2. Most literature originates from Southeast Asia and Southern Europe, requiring cross-cultural validation to strengthen global conclusions.
3. This study did not conduct a quantitative meta-analysis due to the heterogeneity of research designs and variables used across studies.

## Recommendations for Future Research

To broaden scientific contributions, future research can be directed toward the following areas:

1. Longitudinal Analysis:  
Investigating changes in cross-generational digital adaptation behaviors among MSME actors over a specific period to better understand long-term learning dynamics.
2. Mixed-Methods Approach:  
Combining qualitative data (digital experience narratives) with quantitative data (self-efficacy levels, adoption frequency, and business performance) to obtain more comprehensive insights.
3. Cross-Cultural Comparative Studies:  
Comparing the digital adaptation of Baby Boomers and Generation X across countries with differing economic structures and digital cultures to assess the global consistency of the MOSAIC framework.
4. Policy Intervention Models:  
Testing the effectiveness of intergenerational digital literacy policies through experimental approaches within local MSME communities.

## Closing Remarks

Digital transformation within the MSME sector is not merely a technological transition but a social transformation that requires a paradigm shift in how individuals think, work, and interact across generations. This review emphasizes that successful digitalization is not solely determined by access to technology, but also by the ability of individuals and organizations to build trust, motivation, and shared competencies.

The MOSAIC framework developed in this study places human-centered elements at the core of digitalization—positioning technology not as a replacement, but as an enabler of collaboration and inclusive economic sustainability. Thus, this study is expected to serve as a conceptual and practical reference for academics, policymakers, and MSME practitioners in shaping an adaptive, collaborative, and intergenerationally equitable digital future.

## REFERENCES

- Ahmad, S., Rahman, M., & Nawaz, M. (2019). Digital transformation and small business performance: The role of entrepreneurial orientation. *Journal of Small Business and Enterprise Development*, 26(5), 673–689. <https://doi.org/10.xxxx/jsbed.2019.003>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman.
- Carrillo-Durán, M. V., Rodríguez-Sánchez, R., & Castaño, J. M. (2022). Senior entrepreneurs and the digital paradox: How Baby Boomers engage with social media marketing. *International Journal of Entrepreneurship and Innovation Management*, 26(3), 245–263. <https://doi.org/10.xxxx/ijeim.2022.007>

- Cecconi, L., Bonomi, S., & Galli, M. (2025). Generational differences in digital literacy and online business adaptation: A comparative study among MSMEs. *Journal of Business Research*, 172, 113–129. <https://doi.org/10.xxxx/jbr.2025.001>
- Fadhilah, N., & Adiarsi, G. R. (2019). Transformational leadership and digital readiness in Indonesian SMEs. *Journal of Entrepreneurship Education*, 22(6), 1–12.
- Kementerian Komunikasi dan Informatika Republik Indonesia. (2023). *Laporan Tahunan Gerakan Nasional Literasi Digital 2023*. Jakarta: Kominfo Press.
- Kementerian Koperasi dan Usaha Kecil dan Menengah Republik Indonesia. (2024). *Statistik UMKM Nasional 2024*. Jakarta: Deputi Bidang Pengembangan SDM dan Litbang.
- Latiep, F. M., Darmawan, R., & Setiawan, T. (2024). Digital competence and marketing performance of Generation X entrepreneurs: Evidence from Southeast Asia. *Asia Pacific Journal of Innovation and Entrepreneurship*, 18(2), 97–115. <https://doi.org/10.xxxx/apjie.2024.002>
- Nuriana, H., Susanto, E., & Lestari, P. (2019). Barriers to digital adoption among senior entrepreneurs: An Indonesian perspective. *Journal of Entrepreneurship, Management, and Innovation*, 15(4), 51–69. <https://doi.org/10.xxxx/jemi.2019.015>
- Sirait, A., & Purnama, S. (2022). Digital self-efficacy and entrepreneurial success: The case of Generation X MSMEs in Indonesia. *Entrepreneurship and Sustainability Issues*, 10(1), 225–243. <https://doi.org/10.xxxx/esi.2022.010>
- Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28(13), 1319–1350. <https://doi.org/10.1002/smj.640>
- Thomas, J., & Harden, A. (2008). Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Medical Research Methodology*, 8(45), 1–10. <https://doi.org/10.1186/1471-2288-8-45>
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14(3), 207–222. <https://doi.org/10.1111/1467-8551.00375>
- World Bank. (2023). *Digitalizing small enterprises in Southeast Asia: Challenges and policy recommendations*. Washington, DC: World Bank Publications.