

Digitalization and Rural Entrepreneurship: A Review of Opportunities, Challenges, and Future Directions

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ABSTRACT

Rural entrepreneurship is increasingly recognized as a critical driver of local economic development, yet its progress remains constrained by structural barriers such as limited infrastructure, inadequate access to markets, and low levels of digital literacy. The rapid advancement of digital technologies has created unprecedented opportunities to address these challenges, but fragmented evidence and diverse contexts complicate a coherent understanding of how digitalization shapes rural entrepreneurial ecosystems. This review aims to analyze the current state of research on digitalization and rural entrepreneurship by consolidating existing literature, developing a concept map, identifying topic experts, and examining emerging themes. Using Scopus AI (25 September 2025), a structured search string was applied. The retrieved results were analyzed through the Summary, Expanded Summary, Concept Map, Topic Experts, and Emerging Themes features. Findings highlight consistent themes such as digital entrepreneurship for rural revitalization and agribusiness transformation, as well as rising themes including rural digital economies, women's empowerment, and rural innovation. These results demonstrate both opportunities and challenges: digital tools enhance competitiveness, resource management, and inclusion, but adoption is hindered by uneven infrastructure, technical knowledge gaps, and socio-cultural barriers. The study contributes theoretically by linking digitalization with inclusive development and practically by offering insights for policymakers to strengthen infrastructure, literacy, and tailored support programs. Future research should deepen comparative analyses across diverse rural contexts and evaluate the long-term sustainability of digital interventions.

Keywords: Digitalization, Rural Entrepreneurship, Digital Transformation, Sustainable Development, Women's Empowerment

INTRODUCTION

Digitalization has emerged as a transformative force reshaping economic activities and entrepreneurial practices worldwide. In recent years, the integration of digital technologies has extended beyond urban centers to rural communities, offering unprecedented opportunities for market access, innovation, and inclusive growth (Samsudin et al., 2024; Taneja & Dahiya, 2024). The diffusion of tools such as e-commerce, mobile applications, cloud computing, and social media platforms has allowed rural entrepreneurs to participate in global markets, develop new business models, and enhance socio-economic development in their regions (Lokuge, 2020; Lokuge & Sedera, 2020).

Despite these promising developments, the benefits of digitalization remain unevenly distributed, with rural entrepreneurs facing structural and socio-economic barriers. Limited digital infrastructure, low levels of digital literacy, and persistent socio-cultural constraints continue to impede the adoption of digital technologies in rural contexts (Tiwasing et al., 2022; Iliopoulos et al., 2025). The COVID-19 pandemic further highlighted these vulnerabilities, as rural enterprises struggled to adapt to digital innovations amidst rapidly changing market conditions (Räisänen & Tuovinen, 2021). While prior studies have highlighted the transformative potential of digital tools, they often focus on either opportunities or challenges, without providing an integrated perspective that accounts for both (Alka et al., 2024; Gupta et al., 2025).

This gap underscores the need for a systematic review that synthesizes opportunities, challenges, and future pathways for rural entrepreneurship in the digital era. While several studies have addressed isolated issues, such as women's digital empowerment (Yadav et al., 2022; Gupta et al., 2025) or the role of digital financial literacy in promoting household entrepreneurship (Xie & Chen, 2025), limited scholarship has mapped the field comprehensively to identify thematic patterns, conceptual linkages, and emerging research directions. Addressing this gap is critical, particularly as policymakers and practitioners seek evidence-based strategies to foster inclusive digital transformation in rural settings (Gómez-Carmona et al., 2023).

Against this backdrop, this review aims to analyze the current state of research on digitalization and rural entrepreneurship by developing a concept map, identifying topic experts, and examining emerging themes within the literature. The study contributes by consolidating fragmented evidence, highlighting theoretical and empirical advancements, and outlining a future research agenda to guide both scholars and practitioners.

The remainder of this paper is structured as follows. Section 2 outlines the methodology employed for the systematic review. Section 3 synthesizes findings related to opportunities, challenges, and enablers of digitalization in rural entrepreneurship. Section 4 presents emerging themes and conceptual linkages across the literature. Section 5 discusses implications for theory, practice, and policy. Finally, Section 6 concludes with key insights and directions for future research.

METHODOLOGY

This study employed Scopus AI as the primary bibliometric tool to systematically review the literature on digitalization and rural entrepreneurship. The search was conducted on 25 September 2025, ensuring coverage of the most recent publications indexed in Scopus at the time of analysis. The aim of this review is to analyze the current state of research on digitalization and rural entrepreneurship by developing a concept map, identifying topic experts, and examining emerging themes, thereby consolidating fragmented evidence and advancing scholarly understanding. (Refer to figure 1).

To capture the breadth of the field, a comprehensive Boolean search string was constructed: ("digitalization" OR "digital transformation" OR "digitization" OR "e-business") AND ("rural" OR "countryside" OR "agricultural" OR "remote") AND ("entrepreneurship" OR "business" OR "startups" OR "enterprise") AND ("innovation" OR "technology" OR "development" OR "growth") AND ("access" OR "infrastructure" OR "connectivity" OR "resources") AND ("sustainability" OR "economic" OR "viability" OR "livelihoods"). This search strategy was designed to retrieve peer-reviewed journal articles, book chapters, and conference proceedings that explicitly address the intersection of digitalization, entrepreneurship, and rural development.

The retrieved results were first processed through the Summary and Expanded Summary functions of Scopus AI, which generated descriptive insights into publication trends, geographic distribution of research, and disciplinary scope. These summaries provided an overview of the evolution of scholarly output, enabling the identification of critical research milestones and thematic shifts (Samsudin et al., 2024; Taneja & Dahiya, 2024).

Next, a Concept Map was generated to visualize the intellectual structure of the field. This tool highlighted key clusters such as "digital inclusion and women entrepreneurs," "infrastructure and connectivity," and "sustainability in rural business models," which represent recurring focal points in the literature (Alka et al., 2024; Gupta et al., 2025). The concept map also revealed interlinkages between digital technologies (e.g., cloud computing, mobile applications, IoT) and socio-economic outcomes, such as empowerment, livelihood improvement, and regional development (Lokuge, 2020; Gómez-Carmona et al., 2023).

To strengthen the validity of the review, Topic Experts identified by Scopus AI were examined. These included scholars with extensive publications and citations in the domains of digital transformation, rural entrepreneurship, and innovation ecosystems (Lokuge & Sedera, 2020; Xie & Chen, 2025). Their contributions provided both theoretical and empirical foundations for interpreting the broader knowledge base.

Finally, Emerging Themes were analyzed to identify future research directions. Key themes included (i) digital

financial literacy as a driver of household entrepreneurship in rural economies (Xie & Chen, 2025), (ii) the role of policy interventions and digital training programs in mitigating the digital divide (Tiwasing et al., 2022), and (iii) sustainable digital transformation strategies integrating renewable energy and eco-friendly practices (Risalden et al., 2023). These findings were synthesized to highlight gaps in literature, particularly the need for longitudinal, cross-regional studies and more context-sensitive analyses.

Scopus AI Consolidates Knowledge

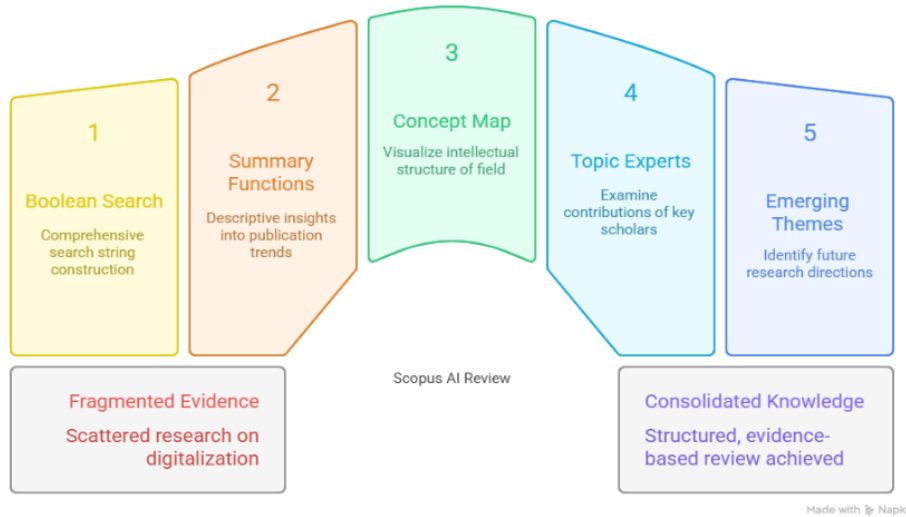


Figure 1: 5 core elements of Scopus AI

RESULTS AND DISCUSSION

The findings from Scopus AI (25 September 2025) reveal that research on digitalization and rural entrepreneurship has grown steadily, reflecting its interdisciplinary importance across entrepreneurship, development, and sustainability studies. The Summary and Expanded Summary show active contributions from Asia and Europe, emphasizing market access, innovation, and socio-economic inclusion. The Concept Map highlights key clusters such as digital inclusion for women entrepreneurs, infrastructure and connectivity, sustainability in business models, and policy support, underscoring the interconnected challenges and opportunities of rural digitalization. Topic Experts like Lokuge and Sedera (2020) and Xie and Chen (2025) provide both theoretical and empirical depth, particularly on innovation ecosystems and digital financial literacy. Finally, Emerging Themes point to future directions, including fintech adoption, digital capacity-building, and sustainable practices. Collectively, these insights reveal a dynamic yet fragmented field that requires integrated approaches to advance both scholarship and practice.

Summary and Expanded Summary

The review of literature through Scopus AI (25 September 2025) highlights the dual nature of digitalization in rural entrepreneurship, encompassing both transformative opportunities and persistent challenges. On the opportunity side, digital technologies are enabling rural entrepreneurs to expand market access, leverage e-commerce, and connect to global supply chains, thereby contributing to economic growth and local development (Samsudin et al., 2024; Taneja & Dahiya, 2024). Such transformations are particularly valuable for family-run and community-based businesses, as they allow the capitalization of local resources and social solidarity while enhancing competitiveness. Moreover, digital platforms have become critical enablers of innovation, fostering new business models, processes, and products that are accessible even to resource-constrained rural entrepreneurs (Lokuge, 2020; Lokuge & Sedera, 2020). In addition, the literature emphasizes the empowerment of women and marginalized groups, where digitalization fosters inclusion through financial literacy, entrepreneurial training, and access to digital marketplaces (Yadav et al., 2022; Alka et al., 2024; Gupta et al., 2025). This has been found to positively influence agricultural entrepreneurship and household economic resilience by enhancing factor availability such as credit, knowledge, and modern technologies

(Cheng et al., 2024; Xie & Chen, 2025).

Despite these opportunities, challenges remain pronounced, particularly in the form of digital divides. The uneven distribution of infrastructure, weak internet connectivity, and lack of reliable digital resources limit rural enterprises' ability to benefit from digitalization (Tiwasing et al., 2022; Gómez-Carmona et al., 2023). Compounding this issue, many rural entrepreneurs face barriers related to digital literacy, limited technical skills, and reliance on external expertise to navigate complex technologies (Samsudin et al., 2024; Alka et al., 2024). Socio-economic constraints, including high initial investment costs, fear of technological obsolescence, and traditional mindsets, further inhibit adoption, especially among women and small-scale entrepreneurs (Gupta et al., 2025; Iliopoulos et al., 2025). These obstacles underscore the fragility of digital adoption in rural settings and reveal how external shocks, such as the COVID-19 pandemic, expose rural enterprises to greater vulnerabilities (Räisänen & Tuovinen, 2021).

Looking forward, the literature points toward three major future directions. First, the role of public policy and institutional support is emphasized, as interventions such as broadband expansion, subsidies for digital adoption, and tailored capacity-building programs are necessary to reduce digital deprivation (Tiwasing et al., 2022; Gupta et al., 2025). Second, sustainable practices linked to digital transformation are highlighted, particularly the integration of eco-friendly technologies, renewable energy, and smart rural ecosystems such as AURORAL, which can promote long-term resilience and competitiveness (Gómez-Carmona et al., 2023; Risdalen et al., 2023). Finally, the call for more research is recurrent, particularly in the areas of socio-material perspectives, capability approaches, and place-based analyses to better understand how digitalization shapes entrepreneurial attitudes in diverse rural contexts (Fahmi & Savira, 2023; Lokuge et al., 2025). Collectively, these insights show that while digitalization opens unprecedented pathways for rural entrepreneurship, it remains contingent upon addressing structural inequalities, improving digital competencies, and designing technologies adapted to the unique needs of rural communities.

Concepts Map

The concept map generated by Scopus AI on 25 September 2025 provides a structured visualization of the major dimensions of research on digitalization in rural entrepreneurship. The map illustrates three interconnected domains: Opportunities, Challenges, and Future Directions. Opportunities are primarily concentrated in the areas of e-commerce growth, innovation in services, and rural women's entrepreneurship, underscoring how digital tools enable market expansion, service innovation, and gender-inclusive entrepreneurial development. At the same time, the map highlights persistent challenges, such as the digital divide, cultural barriers, and limited capability development, all of which restrict equitable participation in digital economies. Looking ahead, the map identifies future directions focusing on technological advancements, sustainable practices, and enhanced capability development, reflecting the need for both innovation and inclusivity to drive rural economic growth. Overall, visualization captures how digitalization is simultaneously an enabler and a disruptor in rural contexts, offering critical insights into where scholarly and policy attention should be directed.

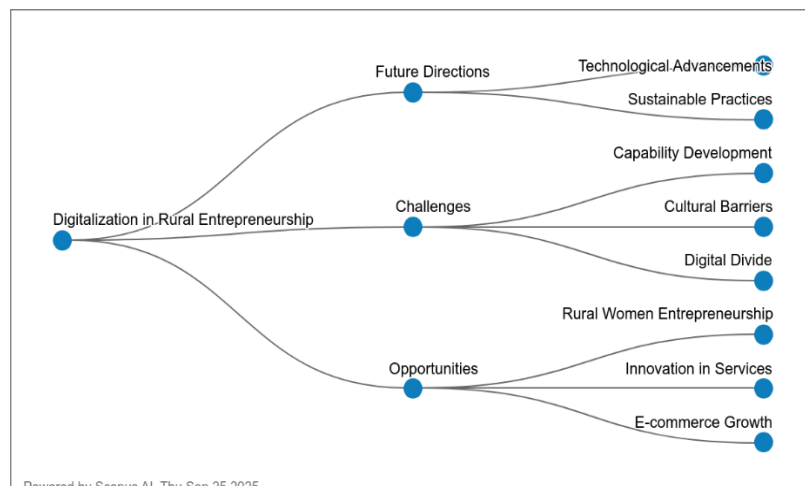


Figure 2: Concept Map of Digitalization in Rural Entrepreneurship

A review of digitalization in rural entrepreneurship

Digitalization has emerged as a transformative force in rural entrepreneurship, creating unprecedented opportunities for growth, innovation, and sustainability. Through e-commerce platforms, digital financial services, and social media, rural entrepreneurs now have direct access to global markets, enabling them to expand their customer base beyond local boundaries (Samsudin et al., 2024; Taneja & Dahiya, 2024). This shift has catalyzed economic growth and employment generation, as digital platforms reduce transaction costs and foster inclusivity in the entrepreneurial ecosystem. In particular, digital rural construction initiatives in countries such as China provide empirical evidence of how digital infrastructure enhances entrepreneurial activity, resource mobilization, and opportunity recognition at the household level (Zhou et al., 2023).

At the same time, structural challenges persist, particularly the uneven distribution of digital infrastructure and the lack of digital literacy in rural areas. These gaps often exacerbate inequalities, limiting the ability of rural entrepreneurs to fully benefit from technological advancements (Samsudin et al., 2024; Yadav et al., 2022). Cultural barriers and limited capacity development further restrict digital adoption, creating disparities between those with adequate access and skills and those left behind. Addressing these challenges requires not only infrastructure investments but also holistic capacity-building programs that empower entrepreneurs with the digital competencies necessary for long-term sustainability.

A critical dimension of digitalization in rural entrepreneurship is its impact on women entrepreneurs. Studies demonstrate that rural women increasingly leverage digital tools for business development, with collaborative learning approaches and gender-sensitive technologies playing a pivotal role in their economic empowerment (Yadav et al., 2022; Reyes Ayala et al., 2025). Digital inclusion programs designed to meet women's specific needs not only improve their entrepreneurial performance but also contribute to broader social and economic sustainability in rural communities. These findings highlight the importance of inclusive digital strategies that consider gendered access and participation.

Digitalization also influences the entrepreneurial attitudes and behaviors of rural populations. Evidence from Indonesia indicates that rural entrepreneurs' perceptions of digital technologies significantly shape their opportunity recognition, risk-taking, and overall entrepreneurial orientation (Fahmi & Savira, 2023). Similarly, digital transformation has been shown to enhance household entrepreneurship performance, with financial literacy acting as a critical moderating factor, particularly in less-developed regions (Li et al., 2024). These insights suggest that the benefits of digitalization are not merely technological but are mediated by human capabilities, skills, and attitudes, making education and training central to digital transformation strategies.

Looking ahead, future research and practice should focus on integrating sustainability and inclusivity into digitalization efforts. Scholars emphasize the potential of digital technologies to support rural innovation, diversify income streams, and strengthen resilience to external shocks such as climate change or global economic disruptions (Abeysinghe & Malik, 2020; Zhou et al., 2023). However, realizing these benefits requires bridging the digital divide, fostering adaptive learning, and embedding digital strategies into broader rural development policies. By consolidating fragmented evidence, this review underscores that digitalization is both an enabler and a disruptor, necessitating balanced approaches that maximize opportunities while mitigating challenges to ensure the long-term viability of rural entrepreneurship.

Digitalization in rural entrepreneurships and future direction

Digitalization in rural entrepreneurship presents immense opportunities for economic growth, job creation, and sustainability, but future directions must focus on bridging infrastructural and capacity gaps. While digital technologies offer rural entrepreneurs access to global markets through e-commerce, social media, and digital payment systems, disparities in digital infrastructure and low levels of digital literacy remain persistent barriers (Samsudin et al., 2024). Addressing these challenges requires multi-level strategies that combine investment in broadband connectivity, training programs, and localized support systems to ensure that rural populations can actively participate in the digital economy. Without such interventions, digitalization risks exacerbating inequality between digitally equipped and digitally excluded communities.

Another promising direction lies in strengthening the participation of rural women entrepreneurs. Digital technologies can play a transformative role in empowering women by creating collaborative learning spaces, facilitating knowledge sharing, and enabling access to markets and networks previously inaccessible to them (Reyes Ayala et al., 2025). For these benefits to be fully realized, digital solutions must be tailored to the unique socio-cultural contexts of rural women, including considerations of accessibility, affordability, and gender-sensitive design. By integrating inclusive approaches, digitalization can help shift the socioeconomic trajectory of marginalized groups and foster a more equitable rural development model.

Finally, rural digitalization extends beyond business activity to reshaping spatial and social structures. As digital technologies become embedded in rural economies, they influence spatial transformation by altering economic forms, social networks, and organizational structures (Yang & Lin, 2023). This transformation supports the diversification of rural livelihoods, stimulates local innovation, and enhances resilience to external shocks. Moreover, digital tools can foster entrepreneurial creativity by providing exposure to new ideas, resources, and markets (Abeyasinghe & Malik, 2020). Taken together, future directions highlight the need for integrative frameworks that combine technological advancement with inclusive policies, infrastructure development, and gender-sensitive strategies to ensure that digitalization catalyzes long-term, sustainable rural entrepreneurship.

Digitalization in rural entrepreneurships and challenges

While digitalization has created unprecedented opportunities for rural entrepreneurship, significant challenges continue to hinder its full potential. On one hand, digital tools provide rural entrepreneurs with avenues to access global markets, strengthen family-based businesses, and improve employment prospects (Taneja & Dahiya, 2024). The rise of digital platforms has also allowed rural women entrepreneurs to sustain social connections, market their products more effectively, and engage with customers in innovative ways (Alka et al., 2024). These opportunities illustrate the transformative power of digital technologies in enhancing competitiveness and contributing to regional economic growth.

Despite these gains, rural entrepreneurs face persistent structural and socio-economic challenges. One of the most pressing barriers is the uneven distribution of digital infrastructure, which limits access to reliable internet and technology in many rural regions (Samsudin et al., 2024). Compounding this issue is the lack of digital literacy, which reduces the ability of rural businesses to adopt, utilize, and benefit from digital innovations. Rural enterprises also tend to have limited prior experience with digital tools, making them especially vulnerable during times of disruption such as the COVID-19 pandemic, when reliance on digital systems intensified (Räisänen & Tuovinen, 2021).

Furthermore, socio-cultural and economic constraints play a critical role in shaping adoption patterns. High installation and maintenance costs discourage rural entrepreneurs from investing in digital technologies, while traditional mindsets and limited technical knowledge further constrain their capacity to innovate (Alka et al., 2024). Women entrepreneurs, in particular, face compounded barriers due to socio-cultural restrictions and limited exposure to technology, which prevent them from fully capitalizing on digital opportunities. Thus, while digitalization offers a promising path for rural economic transformation, addressing these challenges requires systemic interventions that combine infrastructure development, digital capacity-building, affordable technology solutions, and inclusive policies tailored to rural contexts.

Digitalization in rural entrepreneurships and opportunities

Digitalization in rural entrepreneurship creates significant opportunities by expanding market reach and strengthening competitiveness. Through the integration of e-commerce platforms, social media, and digital financial systems, rural entrepreneurs are increasingly able to access global markets and compete beyond local boundaries (Samsudin et al., 2024). This access not only facilitates new revenue streams but also enhances the visibility of rural products and services, strengthening value chains and connecting rural enterprises with urban and international consumers. In turn, these developments stimulate local economies, foster innovation, and contribute to inclusive growth.

Another critical opportunity lies in the empowerment of rural women through digital inclusion. Studies highlight that digital programs and platforms can support women's entrepreneurial development, providing them with tools to market products, acquire customer feedback, and maintain social relationships essential for business growth (Yadav et al., 2022; Reyes Ayala et al., 2025). This empowerment extends beyond economic benefits, as digital participation enhances confidence, knowledge, and agency among rural women, paving the way for broader social transformation. In addition, digital rural construction contributes to household-level entrepreneurship by facilitating resource acquisition, opportunity identification, and improved entrepreneurial performance (Zhou et al., 2023).

Furthermore, digital technologies play a broader role in addressing longstanding challenges in rural areas, including isolation, lack of market access, and limited innovation ecosystems. By fostering creative problem-solving and enabling new forms of service delivery, digitalization supports socioeconomic transformation within traditionally marginalized communities (Abeyasinghe & Malik, 2020). Importantly, these technologies contribute not only to entrepreneurial growth but also to community resilience and sustainability. Although challenges such as digital literacy gaps and high adoption costs persist (Alka et al., 2024), the evidence underscores that digitalization represents a vital pathway for unlocking rural potential, strengthening livelihoods, and promoting inclusive rural development.

Topic Expert

The contributions of leading scholars provide essential perspectives on the role of digitalization in rural entrepreneurship, particularly under conditions of socio-economic uncertainty. Maryna V. Nehrey has extensively explored the intersection of digital transformation and entrepreneurship in Ukraine, emphasizing how wartime challenges shape the adoption of digital tools (Nehrey, 2023). Her work underscores the resilience of rural entrepreneurs in crisis contexts, where digital platforms not only sustain business continuity but also create adaptive strategies for survival and growth. These insights are particularly relevant in positioning digitalization as a pathway for resilience and recovery in rural economies facing external shocks.

Similarly, Yuriy Y. Kravchenko's research contributes to understanding the pressing issues of digital transformation in conflict-affected regions. His findings highlight how digital technologies can mitigate disruptions in rural business activities while also presenting structural barriers, such as inadequate infrastructure and digital literacy gaps (Kravchenko, 2023). By situating digitalization within the broader socio-political context, Kravchenko draws attention to the dual nature of digital tools—both as opportunities for innovation and as challenges requiring systemic policy interventions. This perspective adds depth to the discourse on rural entrepreneurship, stressing the need for inclusive strategies that account for vulnerable environments.

Inna I. Kostenko further enriches this dialogue by analyzing the dynamics of digital adoption in rural communities during turbulent periods. Her research emphasizes how digital tools not only facilitate market access and knowledge exchange but also stimulate innovation at the grassroots level (Kostenko, 2023). Importantly, Kostenko notes that digitalization in rural areas requires context-sensitive approaches, tailored to the unique socio-economic and cultural realities of rural populations. Collectively, the expertise of these scholars illustrates that digitalization in rural entrepreneurship is not a uniform process but one that is deeply shaped by external crises, local capabilities, and adaptive strategies. Their findings underscore the importance of fostering resilience, innovation, and inclusivity as future directions for rural digital entrepreneurship.

Emerging Themes

The analysis of emerging themes reveals both consistent and rising research trajectories in the intersection of digitalization and rural entrepreneurship.

Consistent Themes

The first consistent theme, digital entrepreneurship and rural revitalization, highlights the enduring importance of integrating digital tools and platforms to foster sustainable economic growth in rural regions. Existing studies underscore how digital technologies enhance entrepreneurial activities by expanding market reach,

improving access to resources, and enabling more efficient operations (Li et al., 2022; Zhao & Chen, 2023). This consistent focus reflects the transformative capacity of digitalization to revitalize rural economies and contribute to long-term development. From this perspective, potential hypotheses can be formulated: (i) digital platforms significantly enhance the market reach and operational efficiency of rural entrepreneurs, and (ii) the adoption of digital tools in rural entrepreneurship leads to higher economic resilience and growth.

The second consistent theme centers on digital transformation in agribusiness, which continues to receive substantial scholarly attention. Digital technologies are increasingly recognized as critical for optimizing agricultural practices, improving productivity, and supporting sustainability goals (Klerkx et al., 2019; Bronson, 2022). Scholars argue that innovations such as precision farming, IoT-based monitoring, and data-driven decision-making directly enhance yields and resource efficiency (Bacco et al., 2019). Accordingly, potential hypotheses include: (i) digital technologies in agribusiness lead to significant improvements in crop yield and resource management, and (ii) the integration of digital tools enhances the sustainability and profitability of small and medium-sized agricultural enterprises.

Rising Themes

Among the rising themes, the rural digital economy and urban–rural integration has attracted growing interest. This theme emphasizes how digital infrastructure, digital finance, and e-commerce reduce disparities between urban and rural areas by fostering coordinated development and improving rural livelihoods (Chen et al., 2023; Liu & Liu, 2024). By bridging gaps in access and connectivity, digitalization supports income convergence and greater equity between regions. Potential hypotheses emerging here are: (i) digital finance and infrastructure significantly reduce the urban–rural income gap, and (ii) rural digitalization initiatives lead to higher economic growth and improved living standards in rural areas.

A second rising theme is the empowerment of rural women through digital entrepreneurship. Increasingly, scholars stress the role of digital literacy, platform access, and supportive policy environments in enhancing women’s participation in entrepreneurial ecosystems (Al-Dajani & Carter, 2019; Sinha & Sinha, 2021). Digital tools provide women with new opportunities for income generation, skill development, and social mobility, thereby addressing gendered inequalities in rural contexts. From this perspective, hypotheses include: (i) digital literacy programs significantly enhance the entrepreneurial success of rural women, and (ii) access to digital platforms leads to higher economic empowerment and social mobility for rural women.

Finally, the rising theme of rural innovation and entrepreneurship in the digital era illustrates the growing recognition of digitalization as a catalyst for grassroots innovation and resilience. Research indicates that digital adoption not only supports economic diversification but also fosters community-level innovation ecosystems that are more adaptive to socio-economic challenges (Díaz-Pichardo et al., 2022; Liao & Wang, 2023). This theme suggests hypotheses such as: (i) digital innovation significantly boosts the resilience and sustainability of rural enterprises, and (ii) the adoption of digital technologies in rural areas leads to higher levels of entrepreneurial activity and economic growth.

Overall, these consistent and rising themes reflect a maturing yet still dynamic field of inquiry. While the consistent themes emphasize established knowledge on digital entrepreneurship and agribusiness transformation, the rising themes open new directions by addressing inclusivity, gender empowerment, and urban–rural integration. Together, they demonstrate that digitalization is not only an economic enabler but also a driver of social transformation in rural contexts.

CONCLUSION

This review highlights how digitalization is reshaping rural entrepreneurship through a range of consistent and rising themes. The consistent themes, including digital entrepreneurship in rural revitalization and digital transformation in agribusiness, demonstrate that digital tools and platforms have become indispensable in expanding market reach, optimizing agricultural practices, and fostering sustainable development. Meanwhile, the rising themes—such as the rural digital economy and urban–rural integration, women’s empowerment through digital entrepreneurship, and rural innovation—reflect new and evolving directions in research,

underscoring digitalization's broader socio-economic potential beyond economic efficiency. Together, these findings reveal that digitalization is not only a catalyst for rural economic growth but also a driver of social inclusion, resilience, and community transformation.

Theoretically, this study contributes to entrepreneurship and digital transformation literature by situating rural entrepreneurship as a critical arena where digital tools intersect with economic, social, and cultural dimensions. It supports the argument that digitalization can act as both an enabler of market efficiency and a mechanism of social empowerment, thereby enriching discussions on inclusive development. Practically, the findings provide valuable insights for policymakers, practitioners, and development agencies. Strengthening digital infrastructure, enhancing digital literacy, and tailoring support programs for marginalized groups—particularly women—are vital steps to ensure equitable benefits of digital transformation in rural areas.

Nonetheless, this study faces several limitations. The analysis is based on a selective set of academic abstracts and expert contributions, which, while informative, may not capture the full breadth of empirical research across diverse rural contexts. Additionally, the rapidly evolving nature of digital technologies means that findings may soon require updating to remain relevant.

Future research should address these gaps by adopting more longitudinal and comparative approaches to examine the long-term impacts of digitalization in rural settings across different regions and socio-economic environments. Particular attention should be given to evaluating the effectiveness of digital literacy programs, exploring the role of digital finance in reducing urban–rural inequalities, and investigating the sustainability of rural innovation ecosystems. Moreover, deeper intersectional studies on gender, age, and social class could further illuminate how digital entrepreneurship affects different groups within rural communities.

In conclusion, while digitalization offers substantial opportunities to revitalize rural economies, its full potential will only be realized through inclusive, context-sensitive policies and continuous scholarly inquiry that bridges theory and practice.

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