



Exploring Digital Platform Adoption among Women Entrepreneurs: Opportunities and challenges

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Abstract: The digital transformation of entrepreneurial ecosystem has considerably shifted opportunity recognition, venture creation and business scalability. The increasing use of social media and e-commerce to overcome structural barriers by women entrepreneurs in emerging economies improves economic outcomes. The empirical descriptive study explores empirical digital adoption amongst women entrepreneurs in the Delhi/NCR area. The study based on a set of primary data of 212 women-owned micro and small enterprises analyzes adoption intensity, perceived usefulness, entrepreneurial performance outcomes, and the entrepreneurial challenges. Descriptive statistical analysis indicates that women are very dependent on social media to brand and interact with customers, and online stores are very important in revenue growth and expansion to various geographical locations. Nevertheless, the remaining critical barriers are digital skill gaps, platforms dependency, uncertainty with algorithms, and cybersecurity concerns. The results are added to the research on digital entrepreneurship and give some ideas on how to enhance inclusive digital ecosystem in India.

Keywords: Women Entrepreneurship, Digital Entrepreneurship, Social Media Adoption, E-Commerce Platforms, Delhi/NCR, Entrepreneurial Performance, Digital Ecosystem

1. Introduction

Entrepreneurship plays a key role in driving economic growth, spreading innovation diffusion, and generating employment (Acs et al., 2018). The entrepreneurial processes have redefined by emergence of digital technologies, giving rise to the term, what scholars describe as digital entrepreneurship (Nambisan, 2017). Digital infrastructures support entrepreneurs to identify opportunities, mobilize resources, and scale ventures without requiring high capital investments. In emerging economies such as India, structural barriers are often faced by women entrepreneurs including limited financial access, institutional constraints, and restricted mobility (Brush et al., 2009; Jennings & Brush, 2013). Digital platforms have emerged as alternative channel for market entry and business growth especially social media and e-commerce marketplaces. Delhi/NCR, characterized by high internet penetration, startup density, and digital marketplace activity represent one of the India's most robust and flourishing ecosystems. The region features a substantial number of women-led enterprises in fashion, home-based food services, beauty handicrafts, and boutique retail sectors. Despite increasing digital participation, there is still limited empirical descriptive research that focus specifically on women entrepreneur's platform adoption patterns in Delhi/MCR. This study seeks to addresses this gap by examining:

- Extent of digital platform usage
- Entrepreneurial performance outcomes
- Perceived usefulness and ease of use
- Digital barriers and ecosystem challenges

2. Theoretical Framework

2.1 Digital Entrepreneurship

Digital entrepreneurship by using digital technologies to create ventures and business growth (Nambisan, 2017). Digital platforms enable value co-creation and network effects (Parker et al., 2016). (Nambisan et al., 2019) argue that dig-

ital transformation by allowing scalable experimentation reshapes innovation dynamics. In such ecosystems, participation on platforms becomes a strategic entrepreneurial decision.

2.2 Technology Acceptance Model (TAM)

The technology Acceptance Model (Davis, 1989) explains adoption behaviour through:

- Perceived usefulness
- Perceived ease of use

These factors influence entrepreneurs’ decision to integrate social media and e-commerce platforms into their business operations.

2.3 Diffusion of Innovation Theory

Rogers (2003) identifies innovation adoption factors:

- Relative advantage
- Compatibility
- Complexity
- Observability

Digital platforms provide a clear advantage in terms of market access and scalable market growth.

2.4 Women Entrepreneurship and Ecosystem constraints

Women Entrepreneurs often encounter:

- Limited access to capital (Brush et al.,2009)
- Restricted network participation (Jennings & Brush,2013)
- Work family role conflicts (Eddleston & Powell,2012)

Digital technologies may mitigate such constraints (Dy et al.,2017).

3. Literature Review

3.1 Social Media in Entrepreneurship

Social media allows businesses to communicate interactively and encourage content created by users (Kaplan & Haenlein,2010). Social media can be used

by small firms for branding, marketing, and customer feedback (Parveen et al.,2016). Tajvidi and Karami (2021) demonstrate that performance of the firms positively affects by the capability of social media. Similarly, (Trainor et al.,2014) shows that through social CRM systems business strengthen their relationship with customers.

3.2 E-Commerce Adoption

The operational efficiency and geographic reach enhance by e-commerce (Zhu & Kraemer, 2005). (Bharadwaj et al.,2013) argues that competitive advantage enhances by digital business strategies. However, entrepreneurs ‘autonomy may restrict by platform governance structures (Cennamo, 2021). And relying heavily on this platform can reduce their strategic control.

3.3 Digital Empowerment and Gender

Digital tools help women to achieve financial independence and control over their businesses (Dy et al.,2017). Sussan and Acs (2017) digital ecosystems emphasizes greater role as inclusive growth enablers. Women entrepreneurs also gain flexibility by digital ventures provide (Eddleston & Powell, 2012).

4. Research Objectives

1. To examine the extent of social media among women entrepreneurs in Delhi/NCR
2. To analyze e-commerce participation patterns of women entrepreneurs.
3. To assess the importance of digital adoption on business performance and ventures outcomes.

5. Research Methodology

This study aims to investigate the technological, individual, and business-related determinants influencing the adoption of social media and e-commerce platforms among women entrepreneurs, drawing upon the Technology Acceptance Model proposed by Fred Davis (1989) and the Technology-Organization-environment framework developed by Louis G. Tornatzky and Mitchell Fleischer

(1990). It further examines how the entrepreneurial performance in terms of revenue growth, market expansion, customer acquisition affected by adoption of digital platforms consistent with digital entrepreneurship literature (Nambisan,2017; Kraus et al.,2019). Additionally, aligning with empowerment and gendered entrepreneurship research, the study evaluates to which extent digital adoption enhances financial independence, decision-making autonomy, and long-term business sustainability among women entrepreneurs (Jennings & Brush,2013; Sundermeier et al.,2020). By aligning technology adoption theory with women entrepreneurship perspectives, the research seeks to show how social media and e-commerce platforms empower women entrepreneurs and help businesses grow.

6. Results and Statistical Interpretation

6.1 Demographics Profile

Table 1: Demographic Profile of Respondents (N = 212)

VARIABLE	CATEGORY	FREQUENCY (N)	PERCENTAGE
AGE	25-35	96	45%
	36-45	74	35%
	46+	42	20%
BUSINESS EXPERIENCE	< 3 Years	88	41%
	3-7 Years	79	37%
	7+ Years	45	22%
EDUCATION LEVEL	Undergraduate	68	32%
	Postgraduate	102	48%
	Professional/Other	42	20%
BUSINESS SECTOR	Retail and Fashion	82	39%
	Services (Beauty, Education, Consulting)	74	35%
	Home-Based Manufacturing/Handicrafts	56	26%

Interpretation: The demographic profile shows that a majority of respondents (45%) fall within the age of 25-35 age group, showing high digital adoption among younger women entrepreneurs. Most participants (41%) have less than three years of business experience, reflecting a relatively new and emerging entrepreneurial segment in the Delhi/NCR Ecosystem. Nearly half of respondents (48%) hold postgraduate qualifications, suggesting a well-educated entrepreneurial base. Sector-wise, retail, and fashion businesses dominate (39%), succeeded by service-oriented enterprises (35%) showcasing sectors where digital platforms are highly significant for market outreach and customer engagement.

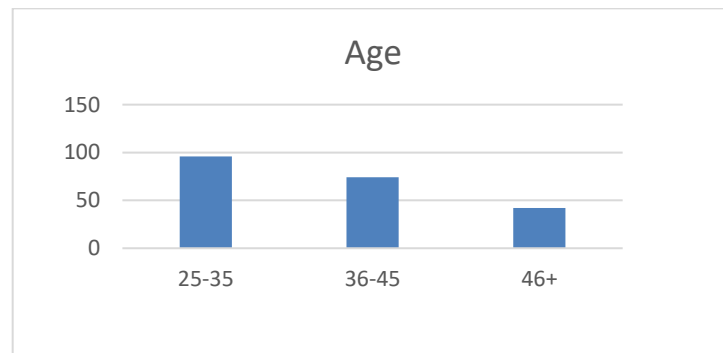


Fig. 1. Age

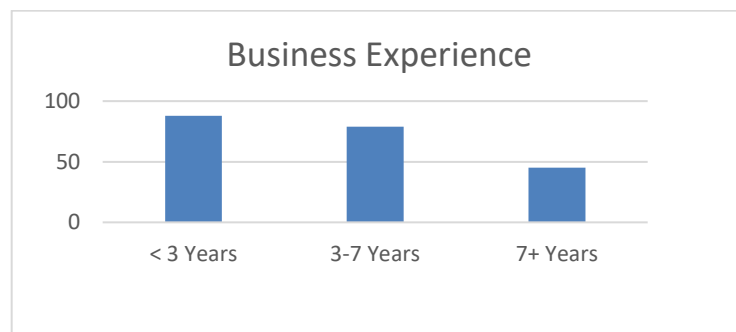


Fig. 2. Business Experience

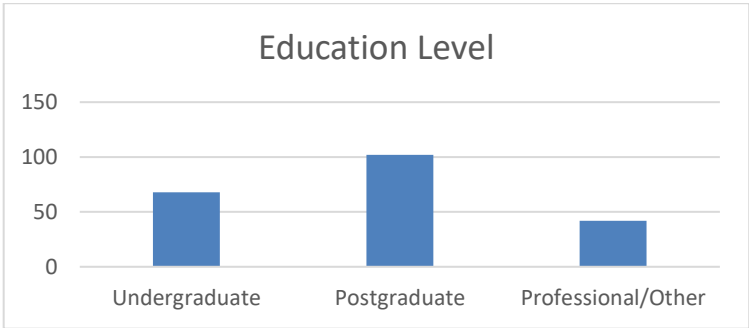


Fig. 3. Education level

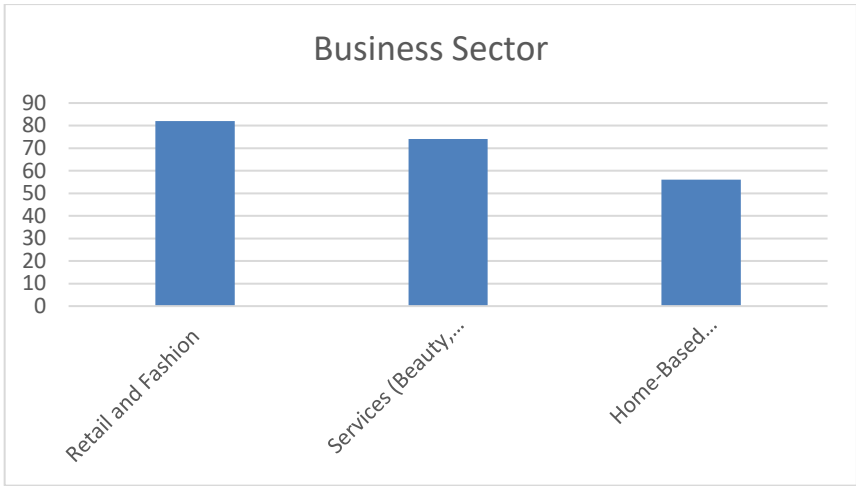


Fig. 4. Business Experience

6.2 Social Media Adoption

Table 2: Social Media Adoption

PLATFORM	USAGE (%)
Instagram	82%
WhatsApp Business	76%
Facebook	61%
YouTube	29%

Mean Score (Social Media Use Intensity): 4.12

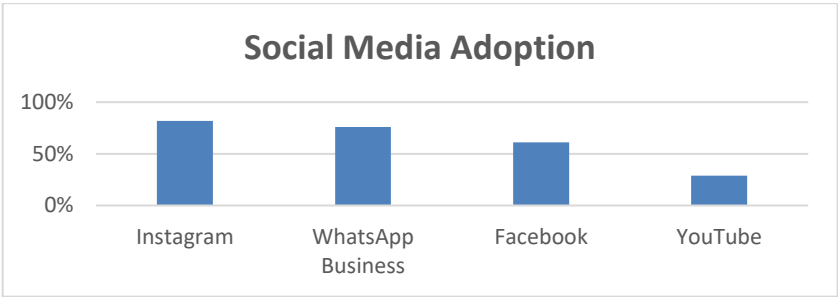


Figure 5: Social Media Adoption

Interpretation: Usage trend shows that Instagram (82 percent) is the most popular digital platform among the female entrepreneurs, which has a high-visual factor, simple product display feature, and high level of engagement in consumer and brand building. The fact that WhatsApp Business is used by the majority of the participants (76%), demonstrates its relevance as a direct communication channel, when an entrepreneur communicates with a customer on a personal level, orders control, retention of customers. Facebook (61%) remains a significant platform, especially in terms of community building, marketplace selling, and targeted advertising, but its usage is relatively less than Instagram. By comparison, YouTube (29%) is comparatively less adopted, which can be attributed to significant effort needed to create more content, technical needs, and increased time investment. Overall, the findings suggest that in the digital ecosystem women entrepreneurs, prefer platforms that are easy to manage, visually appealing and facilitate them to interact customers immediately, rather than platforms requiring advanced content production skills.

6.3 E-Commerce Platform Usage

Table 3: E-Commerce Platform Usage

PLATFORM	PARTICIPATION (%)
Amazon	48%
Flipkart	41%
Meesho	52%
Own Website	27%

Mean Score (E-Commerce Perceived Usefulness): 3.89

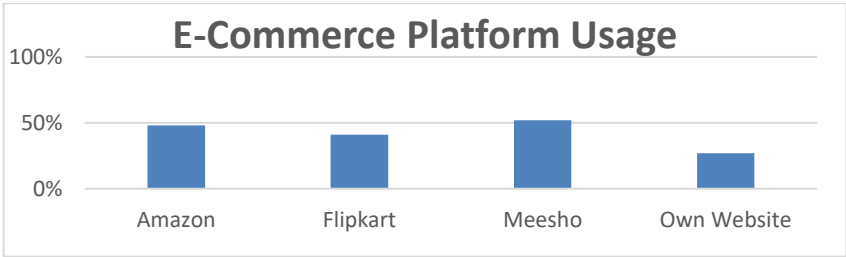


Figure 6: E-Commerce Platform Usage

Interpretation: The participation trend shows that Meesho (52%) is the most adopted among women entrepreneurs on all e-commerce platforms, as it is easy to use, has low entry barriers and the business model is reseller friendly. This indicates that those platforms that need less initial capital and less complex logistics are especially appealing to women-run small and home-based businesses. There is also a significant presence in Amazon (48%) which suggests that entrepreneurs are interested in the opportunities offered by the existing marketplaces, which have broader national coverage and well-organized fulfilment procedures. On the same note, Flipkart (41) shows moderate engagement, and this signifies that the company has a great scope in widening its customer bases beyond local markets through the company. Conversely, only a quarter of the respondents work with their own websites implying that independent digital infrastructure demands greater technical skill, investment, market effort. On the whole, the results indicate that women entrepreneurs are very keen on using third-party market place systems as opposed to self-managed websites, and platforms ecosystems are very crucial in helping women entrepreneurs gain digital accessibility and scaled up growth.

6.4 Entrepreneurial Performance Outcomes

Table 4: Entrepreneurial Performance Outcomes

PERFORMANCE INDIACTOR	MEAN	SD
Revenue Growth	3.96	0.81
Customer Base Expansion	4.21	0.74
Brand Visibility	4.34	0.69
Operational Flexibility	4.02	0.77

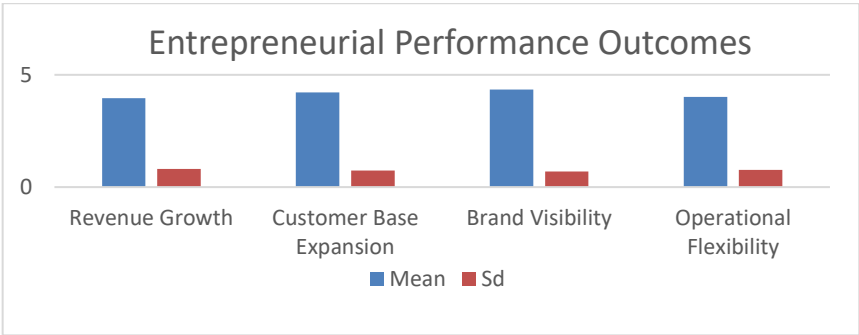


Fig. 7. Entrepreneurial Performance Outcomes

Interpretation: The descriptive statistics suggests entrepreneurial performance could be positively influenced by adoption of digital platform. The highest mean score is recorded by Brand Visibility ($M= 4.34$, $SD= 0.69$), suggesting that women entrepreneurs believe that their market presence and recognition is increased by adopting digital platforms. The relatively low standard deviation indicates that most respondents show similar views. Customer Base Expansion also demonstrates a high mean value ($M=4.21$, $SD = 0.81$) showing moderately high mean scores, indicating that digital adoption supports business adaptability and financial performance, although opinions about revenue growth display slightly higher scores. Overall, the findings suggest that digital platforms play a crucial role in increasing both market-oriented and operational performance in women entrepreneurs.

6.5 Challenges Identified

Table 5: Challenges Identified

CHALLENGE	MEAN
High Competition	4.18
Platform Commission	3.87
Algorithm Dependency	3.91
Cybersecurity Risk	3.76
Lack of Advanced Skills	3.82

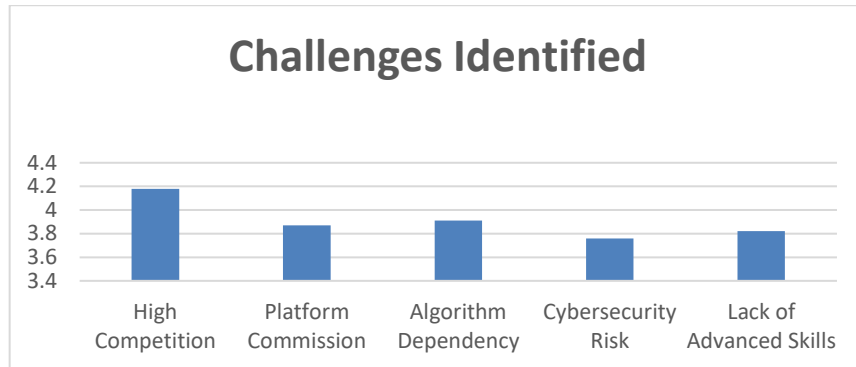


Fig. 8: Challenges Identified

Interpretation: The problem analysis of the issues associated with the adoption of the digital platform shows that Highly Competitive environment ($M = 4.18$) is the most perceived barrier by women entrepreneurs. This implies that as competitive pressure grows through the digital platforms offered, it also increases in terms of market accessibility, making it even more difficult to retain difficulty and product differentiation. Another significant issue that appears is Algorithm Dependency ($M = 3.91$), which suggests fear of a shift in platform algorithms which has a direct influence on visibility, reach, and sales performance. Platform Commission ($M = 3.87$) owes to marketplace fees and transaction charges which are based on concern over diminished profit margins and also seen as a significant challenge. Additionally, for fully leverage platform capabilities, Lack of Advanced Skills ($M = 3.82$) highlights the need for digital literacy, marketing expertise, technical knowledge. Finally, Cybersecurity Risk ($M = 3.76$), which is somewhat lower, indicating the data privacy, fraud, and online security concerns, is also a crucial problem. In general, the results suggest that, women entrepreneurs are exposed to structural, financial and skills-based limitations which can restrict optimal use of those despite the advantages of performance in digital platforms.

7. Discussion

The results align with the theory of digital entrepreneurship (Nambisan, 2017), and shows that engaging in digital platforms improves the customer reach and

increases scalability. The hegemony of social media is in line with Tajvidi and Karami (2021). The adoption of e-commerce is also perceived to be useful in line with TAM (Davis, 1989). Nonetheless, the barriers to governance according to Cennamo (2021) imply the platforms dependency risks. The current research is a descriptive, empirical study about the adoption of digital platforms by women entrepreneurs in Delhi/NCR. The findings reveals that for entrepreneurial visibility, customer acquisition, and operational flexibility the digital platforms particularly social media and marketplace-based e-commerce serves as critical enablers.

7.1 Social Media as Entrepreneurial Infrastructure

The high usage rate of Instagram and WhatsApp Business shows that social media functions as a primary entrepreneurial infrastructure rather than merely a communication tool. This aligns with the conceptualization of digital entrepreneurship as embedded within digital ecosystems (Nambisan, 2017; Nambisan et al., 2019). The strong mean scores for brand visibility (4.34) and customer base expansion (4.21) confirm prior empirical findings that social media capability positively affects performance (Tajvidi & Karami, 2021; Trainor et al., 2014). Social media allows the relationship marketing, co-creation, and rapid feedback cycles, thereby improving the response of the market. In the Delhi/NCR context where the consumers of the urban areas are digitally active social media can reduce the traditional marketing costs and contributes to direct customer engagement.

7.2 E-Commerce Platforms and Revenue Scalability

Market inclusion (Amazon, Meesho, Flipkart) explains the importance of platform-based business models in business expansion. The findings are integrated with Zhu and Kraemer (2005), they stress the importance of value creation following adoption through digital integration. Perceived barriers such as commission fees and algorithm dependency confirm government tensions in platform markets (Cennamo, 2021). Women Entrepreneurs in Delhi/NCR seems that they prefer broader reach and logistics backing over complete autonomy. This shows that platform ecosystem logic described by Parker et al., 2016, where value is generated through network participation despite structural disparities.

7.3 Digital Empowerment Outcomes

The descriptive results indicates that digital adoption contributes to:

- Financial Autonomy
- Decision Authority
- Work life balance

These results relate with research on gender and entrepreneurship (Jennings & Brush, 2013; Dy et al.,2017). Online business allows women to manage online business with their family responsibilities, supporting work life balance. (Eddleston & Powell, 2012). In Delhi/NCR, where urban mobility % time constraints may limit the growth of physical business, digital modes enable more flexible strategies.

7.4 Technology Acceptance Perspective

The strong mean scores for perceived usefulness reflect that (3.89 for e-commerce) and the ability to easily market products using social media that support the Technology Acceptance Model (Davis, 1989). Women entrepreneurs adopt digital platforms when users observe clear performance benefits and minimal complexity in using the technology. The findings also reflect Diffusion of Innovation principles (Rogers, 2003), particularly the perceived relative advantage and visible benefits. Entrepreneurs see fellow entrepreneurs successfully using digital platforms, facilitating incorporation.

8. Theoretical Implications

This study makes several important contributions to the entrepreneurship literature in many ways. First, the study adds to digital entrepreneurship theory by examining region specific evidence from an emerging economy, thus contributing to a deeper theoretical understanding of digital ventures (Nambisan, 2017). Second, it draws attention on role of gender in platform-based entrepreneurship showing that engagement on digital platforms is often shaped by structural gender inequalities (Brush et al.,2009). Third, from a digital ecosystem perspective the study supports the digital entrepreneurial ecosystem framework (Sussan & Acs, 2017) by confirming in formal institutions how online infrastructure can

replace the gaps. Finally, unlike most existing literature that are largely dependent on structural equation modelling (SEM), this descriptive study offering an empirical foundation for future analytical research in that area.

9. Managerial Implications

Women entrepreneurs in the Delhi/NCR region are motivated to follow strategic approaches to upgrade their digital ventures. They should differentiate their platform presence to reduce reliance on a single source, invest in improving skills in digital brand building, and harness analytical tools to efficiently reach and know their customers. Additionally enhancing cyber security awareness is must to protect business operations in the digital world. Involvement in digital literacy workshops and learning communities can boost entrepreneurial potential, offer practical insights, exchanges experiences and promoting long term growth.

10. Limitations

There are some limitations that the study has and it is prudent to consider them when interpreting the findings of the study. To begin with, the research design applied in this study is a cross-sectional study design, which narrows down the possibility of making causal inferences. Secondly, reliance on self-administered measures can create a bias that can never end, since participants base their answers on their subjective perceptions. Lastly, the concern of the Delhi/NCR urban ecosystem limits external validity of findings to other geographical regions.

11. Future Research Directions

Future studies may consider applying Structural Equation Modelling (SEM) to look at the complex ways different factors in digital entrepreneurship and conducts longitudinal studies to understand how entrepreneurial behaviours and evolve over time. Further focus could be on comparing Tier 2 cities with metro politician cities to gain insights into regional differences in digital entrepreneurship success and adoption. In addition, the discussion of the role of AI Driven

digital entrepreneurship shows how new technologies that generate new business opportunities and business approaches to digital ecosystems.

12. Conclusion

The research contributes to the understanding of women entrepreneurs in digital contexts in the Delhi/NCR area by addressing the interplay of gender and digital platforms and entrepreneurial ecosystems. The results of empirical studies that platform diversification, digital branding, adoption of analytics, and cybersecurity awareness play a crucial role in the maintenance of business growth and strengthening of competitiveness. In addition, the opportunity to participate in digital literacy initiatives and peer learning networks may enhance entrepreneurial experience and equal access to digital opportunities. Theoretically, the research will add value to the body of digital entrepreneurship research by looking at evidence in specific areas, emphasizing the feminized use of platforms, and showing how digital infrastructure may compensate institutional lapses in emergent economies. The results in particular provide some important lessons to women entrepreneurs, policy makers, and the stakeholders of the ecosystem. Although these contributions exist, the study has certain limitations, along with its cross-sectional design, self-reported data, and urban ecosystem, which may limit the generalizability and inference. Longitudinal and comparative studies in future would address these constraints in more regions and promote entrepreneurship among women by investigating more determinants.

On the whole, this work offers an empirical grounded groundwork to further research and planning in women led digital ventures, and to facilitate inclusive growth in the digital economy it has offered findings that are academically important and applicable.

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