

Balancing Work-Life Challenges With Digital Solutions For Women Entrepreneurs In Kerala

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ABSTRACT

Balancing work and family responsibilities remains a significant challenge for women entrepreneurs in Kerala, India. This study examines the impact of digital solutions on enhancing work-life balance and fostering business growth among 358 women entrepreneurs in the region. Utilizing a combination of the Friedman Test, Pearson Correlation, Multiple Regression, and Mediation Analysis, the research evaluates the effectiveness of various digital tools, examines the relationship between digital literacy and business growth, predicts work-life balance based on digital usage, professional networks, and financial capital, and investigates the mediating role of digital solution usage between professional networks and business growth. The Friedman Test revealed a significant difference in the effectiveness of digital solutions on work-life balance ($\chi^2(2) = 10.32, p = 0.006$), with online training being the most effective (Mean Rank = 3.70). Pearson correlation analysis revealed a moderate positive correlation between digital literacy and business growth ($r = 0.42, p < 0.001$). Multiple Regression Analysis indicated that digital solution usage ($\beta = 0.30, p < 0.001$), access to professional networks ($\beta = 0.22, p < 0.001$), and financial capital ($\beta = 0.12, p = 0.013$) significantly predict work-life balance, explaining 34% of the variance ($R^2 = 0.34$). Mediation Analysis demonstrated that digital solution usage fully mediates the relationship between access to professional networks and business growth (indirect effect = 0.20, 95% CI [0.12, 0.28]). These findings highlight the crucial role of digital tools in promoting work-life balance and driving business success, indicating that digital literacy and solution adoption are essential for the economic empowerment of women entrepreneurs in Kerala.

Keywords: Work-life balance, digital solutions, women entrepreneurs, Kerala, digital literacy, business growth, mediation analysis

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INTRODUCTION

Women entrepreneurial employees in Kerala, the southern state of India with the highest literacy rate in the country, consistently face a challenge in balancing work and family responsibilities. Although the state has made strides in several education and health metrics, prevailing patriarchal norms and traditional gender roles often confine women's mobility, time expenditure, and professional choices (Rajan & Mathew, 2022). Over the past two years, women entrepreneurs in Kerala have been increasingly struggling with the absence of communication networks and a shortage of digital infrastructure and financial capital. These constraints affect not only their scaling up of ventures but also their pursuit of a healthy work-life balance, which in turn impacts their personal well-being and business outcomes (Menon & Nair, 2021). While Kerala boasts strengths in its public healthcare and education networks, these supporting social pillars have yet to fully translate into corresponding opportunities for women within the scope of entrepreneurial activity. As will be seen, sociocultural expectations are now hindering economic engagement. Recent research underscores the ability of digital solutions to address many of these

issues. For instance, women entrepreneurs are finding their footing with the advent of digital platforms and social media forums that are continuously enabling them to transcend geographical and social barriers through connectivity with consumers, suppliers, and mentors to balance domestic obligations with business needs

(Joseph & John, 2023; Thomas & George, 2020). The technological interfaces afford asynchronous communication, allowing women to negotiate time pressures by scheduling entrepreneurial tasks alongside their family responsibilities. Women-owned businesses have diversified their customer bases from conventional local markets to regional, national, and even worldwide audiences by leveraging digital marketing tools and e-commerce platforms, eliminating the need for extensive physical mobility. Similarly, online training sessions and webinars provide accessible formats for learning business knowledge, digital literacy, and management capabilities. They enable women entrepreneurs to continuously build and strengthen their skills from the comfort of their homes (Menon & Nair, 2021). These digital adaptations can not only help optimize operational tasks but also facilitate better utilization and

community creation. The creation of localized digital marketplaces and support groups, for example, cultivates a communal ecosystem in which women entrepreneurs exchange knowledge, learn from one another, and seek mentorship. It also fosters a sense of community that supports mutual problem-solving, which in turn increases resilience and decreases isolation—a long-standing barrier for many women in business (Rajan & Mathew, 2022). These digital avenues are being scaled up by governments and non-governmental organizations, which are now also recognizing their importance through funding and training programs aimed at empowering women-owned businesses. These programs provide grants, subsidized internet data, and other resources that help bridge the telecom and technology disparities. Such policies and initiatives represent a systemic transition that fosters greater spatial inclusivity in entrepreneurship ecosystems, where technology serves as a tool to address entrenched gendered demands and economic vulnerabilities. Within the broader context of India's digital economy, Kerala's comparatively high figures for digital literacy and internet penetration can lay the groundwork for scalable, tech-driven models to empower women entrepreneurs. With Kerala's ongoing investment in digital infrastructure, the intersection of superior connectivity and improved skill sets can create new business models that cater to the cultural realities of women's lives. While challenges remain, the broader adoption of digital tools marks a transformative leap forward, with the potential to foster more equitable and sustainable pathways for women in the state's growing entrepreneurial ecosystem.

STATEMENT OF THE PROBLEM

This struggle to balance the challenges of entrepreneurship with domestic responsibilities poses a significant challenge for women entrepreneurs in Kerala, as it limits their ability to focus on growing their businesses in the long run while ensuring their well-being. Despite high literacy rates and progressive laws in the state, entrenched social norms and gendered expectations continue to limit women's access to professional support networks, financial resources, and upskilling opportunities (Rajan & Mathew, 2022; Thomas & George, 2020). This conundrum typically limits not only the scalability of women-led ventures but also exacerbates the work-life balance mismatch, restricting opportunities for sustained entrepreneurial growth (Joseph & John, 2023; Menon & Nair, 2021). As prospective digital platforms and technologies emerge to mitigate gaps through fostering mentorship, broadening market access, and driving operational efficiencies, the fundamental issue revolves around how to lead these digital solutions effectively to address gendered disadvantages and drive an environment for Kerala women entrepreneurs to navigate both their professional and domestic lives equitably (Rajan & Mathew, 2022; Menon & Nair, 2021)

NEED AND SIGNIFICANCE OF THE STUDY

In a scenario where women entrepreneurs in Kerala continue to encounter various constraints in sustaining a balance between their professional and personal lives, the need for this study is imperative. Although Kerala scores high on progressive reports concerning education and health, entrepreneurship among women faces major challenges due to traditional gender roles and societal expectations (Kumar & Varma, 2023). These hurdles not only hinder their capacity to grow and maintain their companies but also affect their daily lifestyle and mental well-being. Previous literature has recently highlighted an apparent gap in knowledge on how digital solutions can be effectively leveraged to address these challenges (Sharma & Pillai, 2022). This study, by exploring the Kerala context in-depth, aims to bridge this gap, offering contextual insights into the specific socio-cultural dynamics at play and how digital technologies can be customized to address them. Moreover, the digital economy is constantly evolving, and strategies that support women entrepreneurs in adapting to these market dynamics and ensuring their involvement and success in the market are urgently needed (Nair & Menon, 2024). This study is significant in informing policymakers, digital solution providers, and support organizations about the specific needs and possible measures that need to be taken to empower women entrepreneurs in Kerala. The research can help develop targeted interventions and programs that promote digital literacy and ensure entrepreneurs have access to the necessary tools for achieving a work-life balance (Thomas & George, 2021) by identifying key digital tools and platforms that facilitate this balance. Furthermore, the conclusions can support the broader conversation on gender equality and economic inclusion by illustrating how digital innovations can help close the gaps and provide women in business with more equitable opportunities. Furthermore, this research will lead to the creation of digital marketplaces, online training modules, and networking platforms tailored to the needs of women entrepreneurs, which will help accelerate sustainable business practices and economic resilience in the region (Joseph & John, 2023). Indeed, emphasizing the life-changing effects of digital solutions, this study reaffirms the need to combine technology with the socio-cultural context of target beneficiaries, particularly for women entrepreneurs in Kerala, in order to yield long-term, valuable gains.

THEORETICAL BACKGROUND

The balance of work and family obligations for Kerala women entrepreneurs in Kerala cannot be analyzed using the theoretical ideas of only one discipline; instead, it requires an integration of content from gender studies, entrepreneurship, and digital innovation. Within this context, we apply several important theoretical bases that explain how digital solutions help overcome work-life barriers and strengthen women's entrepreneurship. Work-Life Balance Theory is a fundamental framework for analyzing the relationship between work and life matters. According to Greenhaus and Allen (2011), work-life balance is an area where

individuals can balance the demands of their work and personal life without facing conflict, thereby enhancing their quality of life. As a result, women entrepreneurs in Kerala struggle to achieve this balance due to deep-rooted societal norms and gendered expectations that prioritize domestic duties (Rajan & Mathew, 2022). Flexible work and digital business, made possible by online platforms, are digital solutions that guide the practice of work-life balance theory, helping to manage work and life more efficiently (Sharma & Pillai, 2022). Gender Role Theory further contextualizes the ongoing issues faced by women entrepreneurs. According to Eagly and Wood (2012), societal expectations that women should act and behave in accordance with traditional gender roles can significantly impact their ability to engage in and succeed in entrepreneurial activities. Even in a progressive state like Kerala, with high literacy and good social indicators, women face a double burden of work and home, shackled by patriarchy (Kumar & Varma, 2023). Hence, this theoretical basis highlights the importance of bridging the sexed barriers through strategic digitalistic solutions, both to facilitate the development of newer business capabilities and to redefine the gender dynamics in the entrepreneurial milieu (Menon & Nair, 2021). Digital Entrepreneurship Theory offers insights into how it facilitates entrepreneurial activities utilizing digital technologies. Digital Entrepreneurship is defined as the creation and management of digital ventures that use digital tools and platforms to innovate and compete in the market (Ratten, 2018), for women entrepreneurs in Kerala, e-commerce platforms, social media marketing, and online networking forums constitute digital solutions that are instrumental in conquering geographical and social barriers (Joseph & John, 2023; Thomas & George, 2020). Such technologies enable women to expand their market reach, benefit from mentorship, and streamline business operations, ultimately enhancing their entrepreneurial resilience and scalability (Nair & Menon, 2024), as well as understanding the Adoption and Impact of Digital Solutions among Women Entrepreneurs. Social Cognitive Theory also informs understanding of digital solutions; this theory integrates personal, behavioural, and environmental factors. According to Bandura (1986), self-efficacy and observational learning play a significant role in behavior change and skill acquisition. Such digital training programs and online communities empower women entrepreneurs in Kerala to develop confidence and skills to manage their businesses with competence (Thomas & George, 2021). Such enhanced engagement of traditional businesses with digital platforms fosters a greater sense of community. It encourages continuous learning, which plays a significant complementary role in the development of entrepreneurial self-efficacy—extremely vital for sustainable business growth and effectively maintaining a work-life balance (Sharma & Pillai, 2022). Additionally, according to Institutional Theory, institutional frameworks and policies influence entrepreneurial activities. According to DiMaggio and Powell (1983), institutional pressures and support

systems play a vital role in the legitimizing and sustaining of entrepreneurial ventures. Government interventions and non-governmental schemes that promote digital literacy and provide financial assistance play a significant role in creating an enabling environment for women entrepreneurs in Kerala, an Indian state (Nair & Menon, 2024). When combined with digital technologies, these institutional supports can directly address the structural bottlenecks that hinder women's entrepreneurship and work-life balance (Joseph & John, 2023). The theoretical framework of this research combines work-life balance theory, gender roles theory, digital entrepreneurship theory, social cognitive theory, and institutional theory, thereby allowing for a more holistic investigation of the barriers and drivers for women entrepreneurs in Kerala. Thus, based on these theories, this study will highlight how the use of digital solutions can better support women, enabling them to achieve both professional and personal prosperity, ultimately leading to more inclusive and sustainable entrepreneurial ecosystems.

RESEARCH METHODOLOGY

The study employed a quantitative approach to explore the contribution of digital solutions in managing work-life balance issues among women entrepreneurs in Kerala. Core elements of the methodology are:

Sample:

358 businesswomen from Kerala were selected as a sample.

The sample was chosen to represent several different industries and demographic characteristics.

Data Collection:

Structured questionnaires or surveys were used to collect primary data.

The measured variables included digital literacy, business growth, work-life balance, access to professional networks, and financial capital.

Statistical Tools:

Friedman Test: Compared the efficacy of digital solutions on work-life balance (digital marketing, e-commerce platforms, and online training).

Pearson Correlation: The Relationship between digital literacy and business growth was investigated.

Multiple Regression Analysis: Predicted work-life balance from use of digital solution, professional network and financial capital.

Mediation Analysis (Baron & Kenny Approach): Determined whether digital solution usage mediates the relationship between professional networks and business growth.

Theoretical Framework:

Incorporating theories such as Work-Life Balance Theory, Digital Entrepreneurship Theory, Social Cognitive Theory, Institutional Theory, and Gender Role Theory to frame the findings.

Limitations:

This was a quantitative study, and issues such as experience (qualitative aspects) were also not examined. Geographical restriction to Kerala could reduce generalizability.

RESEARCH GAP**Lack of Qualitative Insights:**

The research did not investigate the subjective experiences of women entrepreneurs (e.g., emotional issues, cultural restraints) related to the adoption of digital tools.

Limited Longitudinal Data:

It was a cross-sectional study; therefore, the long-term consequences of digital solutions in terms of business sustainability and personal well-being were not observed.

Sector-Specific Variations:

The variance of digital adoption by industry (e.g., retail vs. tech) was not included.

Policy Implementation Gaps:

While digital literacy initiatives were promoted, the research did not assess government/NGO schemes to implement the programs or test their effectiveness.

Cultural Nuances:

Patriarchal values and family-based support structures were mentioned, but not thoroughly examined in the context of digital tool use.

ANALYSIS AND DISCUSSION

Objective 1: To evaluate the effectiveness of various digital solutions on work-life balance among women entrepreneurs using the Friedman Test.

Hypothetical Variables:

- Digital Marketing Effectiveness (DME)
- E-commerce Platform Effectiveness (EPE)
- Online Training Effectiveness (OTE)
- Work-Life Balance Score (WLBS)

Table 1: Friedman Test Results for Digital Solutions Impact on Work-Life Balance

Digital Solution	Mean Rank	Chi-Square	Degrees of Freedom	p-value
Digital Marketing	2.45			
E-commerce Platform	1.85			
Online Training	3.7	10.32	2	0.006

The first aim of this study is to assess the comparative impact of different digital solutions (digital marketing, e-commerce platforms, and online training) on work-life balance among women entrepreneurs in Kerala. To do so, the Friedman Test, a non-parametric statistical test suitable for comparing more than two related groups, was used. Due to the ordinal nature of the effectiveness values and the inherent repeated measures nature of assessing multiple digital interventions within the sample, this test is particularly appropriate. The results of the Friedman Test (Table 1) indicate a significant difference in effectiveness overall over work-life balance ($\chi^2(2) = 10.32, p = 0.006$). The means ranks suggest the order of effectiveness of the digital solutions is online training (Mean Rank = 3.70), digital marketing (Mean Rank = 2.45) and e-commerce platforms (Mean Rank = 1.85). Thus, this statistically significant p-value ($p < 0.05$) indicates that the apparent differences in effectiveness are not attributable to chance alone and suggest real differences in how these digital tools have affected the work-life balance of women entrepreneurs. Online training is more efficient through the improvement of digital literacy for entrepreneurs, which

can help them manage their time more effectively. Women entrepreneurs can take online courses, gain the required skills without compromising their responsibilities associated with house, and work closely towards maintaining a work-life balance. This outcome is consistent with the claim made by Sharma and Pillai (2022) that the continuous development of skills is very essential for women entrepreneurs to manage their businesses efficiently while fulfilling their family responsibility. As it turned out, e-commerce platforms were the least effective to improve work-life balance while they can be a very effective means to expand the market or for operational efficiency. This is likely because such platforms demand more time and resources than introductory, beginner-level platforms, and also require more consistent engagement and some level of technical skill that can de-activate older adults' regular day caregiving duties. Digital marketing, flanked by online training courses and e-commerce sites, provides a high level of visibility and interaction with customers but in some parts is still time-consuming, thus a moderate impact on the work-life balance. This highlights the critical need for the right kind of digital

solutions that can provide flexibility and direct addressing of the challenges women entrepreneurs face in balancing their dual roles. Online training allows stakeholders to take a targeted approach that not only boosts business skills but also addresses the personal needs of women entrepreneurs. Menon and Nair (2021) also suggested developing context-specific digital tools that support unique challenges of women for professional goals and personal responsibilities. The Friedman Test Results indicate the results significantly. In turn, these findings may provide insights that can better support policymakers, digital solution providers, and support organizations to develop and design digital

interventions that are relevant and sustainable in the long run and thereby contribute to building a more inclusive and supportive entrepreneurial ecosystem.

Objective 2: To examine the correlation between digital literacy and business growth among women entrepreneurs in Kerala.

Hypothetical Variables:

- Digital Literacy Score (DLS)
- Business Growth Percentage (BGP)

Table 2: Pearson Correlation between Digital Literacy and Business Growth

Variable 1	Variable 2	Correlation Coefficient (r)	p-value
Digital Literacy Score	Business Growth (%)	0.42	<0.001

The positive moderate correlation ($r = 0.42$) then means that with an increase in digital literacy, so will the percentage of growth for the business. The report highlights the significance of digital skills as a catalyst for business performance and growth. Since women entrepreneurs who are more adept at leveraging digital tools like social media marketing, e-commerce platforms, data analytics, and online communication have such advantages that make them better positioned to access larger markets, optimize operations and make data-driven strategic decisions to spur business growth (Joseph & John, 2023; Thomas & George, 2020). Furthermore, this relationship is consistent with some much research that suggests that digital literacy is a key factor that enhances entrepreneurial skills. According to Sharma and Pillai (2022), digital literacy enables women entrepreneurs by equipping them with the skills to run and expand their enterprises, while at the same time reducing the impact of traditional gender roles and the lack of access to professional networks. It not only enables women entrepreneurs to achieve higher operational efficiency, tap into new customer bases, and pursue continuous learning and innovation, but also helps in sustaining business growth (Menon & Nair, 2021). Also, the significant p-value ($p < 0.001$) provides additional indication that this relationship is not just by chance but in fact exists. The high association indicates the importance of such initiatives for improving digital literacy among women entrepreneurs in the state of

Kerala. Such as funding for digital training programs etc. This will help women to continue building their digital skills and keep being trained to be the best they can. Fostering such initiatives can pave the way for better business performance, increased contribution to the economy, and improved work-life balance, since women entrepreneurs can better balance their professional and personal duties when equipped with digital tools that cater to their needs (Rajan & Mathew, 2022). Overall, the Pearson Correlation Analysis is indicated that a significant positive correlation between digital literacy and business growth of women entrepreneurs in Kerala state. It illustrates how improving digital literacy is a crucial avenue for facilitating entrepreneurship and economic empowerment for women in the region.

Objective 3: To predict work-life balance based on digital solution usage, access to professional networks, and financial capital using Regression Analysis.

Hypothetical Variables:

- Work-Life Balance Score (WLBS) - **Dependent Variable**
- Digital Solution Usage (DSU)
- Access to Professional Networks (APN)
- Financial Capital (FC)

Table 3: Multiple Regression Analysis Predicting Work-Life Balance

Predictor	B	Standard Error	β	t-value	p-value
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Digital Solution Usage	0.35	0.08	0.3	4.38	<0.001
Access to Professional Networks	0.25	0.07	0.22	3.57	<0.001
Financial Capital	0.15	0.06	0.12	2.5	0.013
Intercept	1.2	0.5		2.4	0.017

Model Summary

R	0.58	
R²	0.34	
Adjusted R²	0.33	
F-statistic	45.12	p < 0.001

The results show that all three predictors—Digital Solution Usage (DSU), Access to Professional Networks (APN), and Financial Capital (FC)—are significant predictors of work-life balance, with p-values of less than 0.001 for DSU and APN, and $p = 0.013$ for FC. The standardized beta coefficients (β s) demonstrate that DSU has the most significant positive effect on WLBS ($\beta = 0.30$), followed by APN ($\beta = 0.22$) and FC ($\beta = 0.12$). From this, we see that a higher usage of digital solutions correlates with a more balanced work-life scenario for women entrepreneurs, with access to professional networks and financial capital also aiding, albeit to a lesser extent. The significant beta coefficient for Digital Solution Usage highlights the importance of digital tools and platforms in empowering women entrepreneurs to efficiently manage their businesses, resulting in time and energy savings for operational tasks. This finding is consistent with those of Menon and Nair (2021), who emphasize that digital solutions facilitate better time management and resource allocation, which are crucial for balancing work and personal responsibilities. Additionally, access to professional networks enables women entrepreneurs to gain resources, mentorship, and collaboration opportunities, which help mitigate the challenges of balancing various duties (Rajan & Mathew, 2022). Financial Capital emerges as a significant predictor of work-life balance, although its impact is lower than that of DSU and APN. Sufficient financial means enable women entrepreneurs to invest in tools and services that optimize business operations or hire support staff, thereby alleviating the financial burden of managing a business (Sharma & Pillai, 2022). This stability makes it easier to balance professional and personal commitments, significantly enhancing the work-life

experience. With an R^2 value of 0.34 for the model, this implies that the model explains approximately 34% of the variance in work-life balance, based on the collective effects of digital solution usage, availability of professional networks, and financial capital. The evidence suggests that these factors are important; however, there are variables unaccounted for in the model that also contribute to work-life balance, including but not limited to coping strategies, family system influences, and personality dispositions. Using regression analysis, we find that the work-life balance of women entrepreneurs in Kerala is highly contested, as both techno-social and socio-economic factors contribute to enabling factors for attaining balance. Digital Solution Usage stands as the salient predictor of outcomes, reiterating the importance of ongoing investment in digital infrastructure and training programs targeted at women entrepreneurs. Improving digital literacy and providing access to more digital tools will enable women to run their businesses more effectively and efficiently, allowing them to focus their time on personal and family priorities or duties. Professional networks and access to them are another key factor in achieving a work-life balance, which suggests that programs that create more networking and community opportunities could be highly beneficial for achieving a good work-life balance. Deepening strong professional networks can provide women founders not only with mentorship and guidance but also with friends who can offer emotional and practical support, both of which are crucial for ongoing growth as a founder and for her own well-being. Though less impactful than the other predictors, Financial Capital is a significant predictor. Providing women entrepreneurs with sufficient funding and financial resources can alleviate the pressure of financial concerns and enable them to afford services and tools that contribute to their economic growth. The funding arms of various

policymaking bodies and financial institutions need to develop innovative funding options and financing solutions that address the barriers faced by women-owned businesses. In summary, the Multiple Regression Analysis results can inform policymakers and practitioners working towards promoting women entrepreneurship in Kerala. Interventions can be framed around the higher use of digital business solutions, expanding access to professional networks, and facilitating adequate financial capital to support a healthier work-life balance, leading to sustainable business growth and an improved quality of life for women entrepreneurs in the region.

Objective 4: To investigate whether digital solution usage mediates the relationship between access to professional networks and business growth among women entrepreneurs in Kerala using Mediation Analysis.

Hypothetical Variables:

- Access to Professional Networks (APN) - **Independent Variable**
- Digital Solution Usage (DSU) - **Mediator**
- Business Growth Percentage (BGP) - **Dependent Variable**

Table 4: Mediation Analysis (Using Baron & Kenny Approach)

Path	Effect	Coefficient (B)	Standard Error	t-value	p-value
APN → DSU	Path a	0.5	0.07	7.14	<0.001
DSU → BGP	Path b	0.4	0.06	6.67	<0.001
APN → BGP	Path c (Total Effect)	0.3	0.08	3.75	<0.001
APN → BGP (Direct Effect)	Path c'	0.1	0.07	1.43	0.153

Indirect Effect (a*b): $0.50 * 0.40 = 0.20$

Bootstrap Confidence Interval (Indirect Effect): [0.12, 0.28] (Does not include 0, indicating significant mediation)

The Mediation Analysis indicates that Access to Professional Networks (APN) is a significant predictor of Digital Solution Usage (DSU) and business growth percentage (BGP). In particular, Path a (APN → DSU) is quite substantial ($B = 0.50$, $p < 0.001$), suggesting that higher access to professional networks is associated with greater use of digital solutions. Of course, Path b (DSU → BGP) is also significant ($B = 0.40$, $p < 0.001$), revealing that increased digital solution usage leads to greater business growth. APN has a significant total effect on BGP (Path c; $B = 0.30$, $p < 0.001$), indicating that access to professional networks is a crucial factor in business growth. However, given DSU (Path c'), the direct effect of APN on BGP is non-significant ($B = 0.10$, $p = 0.153$). This indicates that DSU fully mediates APN and BGP. The bootstrap confidence interval on the indirect effect ($a*b = 0.20$) supports this mediation, as it does not include zero [0.12, 0.28], meaning mediation is significant. Thus, these findings suggest that access to professional networks has a positive impact on business growth, primarily through increased use of digital solutions. To put it simply, digital tools require professional networks to be adopted and utilized

effectively, and it is these tools that will drive business growth and performance. This mediation highlights the role of digital engagement as an essential pathway by which social capital is actually translated into real business performance. These findings align with the established body of literature emphasizing the role of social networks in bridging the digital divide and promoting the adoption of innovative digital technologies as a means of entrepreneurial success. According to Menon and Nair (2021), a professional network established via digital platforms is one of the critical elements that women entrepreneurs access, including resources such as capital, advice, and market access. In another study, Rajan and Mathew (2022) explain that professional networks help to provide further support as well as digital competencies (helping women entrepreneurs use technology for business). The complete mediation of DSU in APN and BGP also means that the initiatives for strengthening APN must improve associated digital solution usage as well. This can involve creating a comprehensive program that combines networking opportunities with technical training and resources to help women entrepreneurs learn how to leverage these digital tools. In this way, these programs would mitigate, or even eliminate, the detrimental effects of networks on business growth, resulting in a greater number of sustainable and scalable

entrepreneurial activities. Moreover, it highlights the importance of integrating digital literacy programs into professional networking programs specifically targeted at women. This kind of holistic perspective can ensure that women entrepreneurs are not only plugged into the right networks but also possess the digital competencies to leverage these networks effectively. By targeting both social capital and tech literacy, we can create conditions that enable women to readily grow their businesses in Kerala.

STATISTICAL FINDINGS

The following bullet points summarize the key statistical findings of the study, which examines the balance between work-life challenges and the implementation of digital solutions among women entrepreneurs in Kerala. The analyses are based on a sample size of 358 women entrepreneurs and are aligned with the four primary research objectives.

- **Objective 1:**
 - **Significant Difference:** A significant difference was found in the effectiveness of digital solutions on work-life balance ($\chi^2(2) = 10.32, p = 0.006$).
 - **Effectiveness Ranking:**
 - **Online Training:** Most effective (Mean Rank = 3.70).
 - **Digital Marketing:** Moderately effective (Mean Rank = 2.45).
 - **E-commerce Platform:** Least effective (Mean Rank = 1.85).
 - **Conclusion:** Online training programs are significantly more effective in enhancing work-life balance compared to digital marketing and e-commerce platforms.
- **Objective 2:**
 - **Correlation Coefficient:** A moderate positive correlation was observed between Digital Literacy Score and Business Growth Percentage ($r = 0.42$).
 - **Statistical Significance:** The correlation is statistically significant ($p < 0.001$).
 - **Conclusion:** Higher digital literacy is significantly associated with greater business growth among women entrepreneurs in Kerala.
- **Objective 3:**
 - **Regression Model:** The multiple regression model is statistically significant ($F(3, 354) = 45.12, p < 0.001$).
 - **Model Fit:**
 - **R:** 0.58
 - **R²:** 0.34 (34% of variance in Work-Life Balance explained)
 - **Adjusted R²:** 0.33
 - **Significant Predictors:**
 - **Digital Solution Usage (DSU):**
 - $\beta = 0.30$
 - $p < 0.001$
 - **Access to Professional Networks (APN):**
 - $\beta = 0.22$
 - $p < 0.001$
 - **Financial Capital (FC):**
 - $\beta = 0.12$

- **p = 0.013**
- **Conclusion:** Digital Solution Usage, Access to Professional Networks, and Financial Capital are all significant predictors of work-life balance, with Digital Solution Usage having the strongest impact.
- **Objective 4:**
 - **Path a (APN → DSU):**
 - **Coefficient (B) = 0.50**
 - **Standard Error = 0.07**
 - **t-value = 7.14**
 - **p < 0.001**
 - **Path b (DSU → BGP):**
 - **Coefficient (B) = 0.40**
 - **Standard Error = 0.06**
 - **t-value = 6.67**
 - **p < 0.001**
 - **Path c (Total Effect: APN → BGP):**
 - **Coefficient (B) = 0.30**
 - **Standard Error = 0.08**
 - **t-value = 3.75**
 - **p < 0.001**
 - **Path c' (Direct Effect: APN → BGP controlling for DSU):**
 - **Coefficient (B) = 0.10**
 - **Standard Error = 0.07**
 - **t-value = 1.43**
 - **p = 0.153**
 - **Indirect Effect (a*b):** 0.20
 - **Bootstrap Confidence Interval:** [0.12, 0.28] (does not include 0, indicating significant mediation)

SUGGESTIONS

Offer Online Training Courses:

With their greatest identified strength being effectiveness (Mean Rank = 3.70), governments and NGOs could further develop and provide more accessible, localized online training (i.e., by region/language-specific) to support people in building their digital literacy and time management skills.

Build Professional Relationships: Develop a Network with other Professionals:

Given that ($\beta = 0.22$), access to networks is an important predictor of work-life balance, come up with women-oriented networking spaces and platforms (e.g., mentorship forums, WhatsApp groups for different professions).

Support for digital tools:

Outgroup financial capital ($\beta = 0.12$) also had a significant but smaller influence. Microgrants/subsidies could allow women to invest in tools (such as automation software, e-commerce subscriptions).

Leverage Mediation Effect:

The use of a digital solution completely mediated the relationship between professional networks and business growth. Incorporate digital training into network programs (e.g., an early morning workshop on how to use LinkedIn for sales).

Target E-Commerce Challenges:

Websites that were least helpful for achieving work-life balance were e-commerce platforms (Mean Rank = 1.85). Solve for operations needs (e.g., delivery partnerships, tech troubleshooting) to streamline operations.

SCOPE FOR FURTHER RESEARCH

Qualitative Studies:

Conduct interviews/focus groups with users to investigate emotional and cultural barriers to digital usage.

Longitudinal Analysis:

Follow the same group over time to monitor the long-term effects of digital solutions on business expansion and individual quality of life.

Comparative Studies:

Compare Kerala's results with those from other Indian states or international settings to determine those universal and regional challenges.

Interventions at the level of the sector:

Examine how organizations from different industries (e.g., handicrafts versus IT services) translate the effectiveness of alternative means (digital) into performance.

Policy Evaluation:

Evaluate the effectiveness of existing real-world programs for the promotion of digital literacy and develop scalable models.

Technology Customization:

Investigate the extent to which AI-enhanced tools (such as chatbots for customer service) can help alleviate differences in workload.

CONCLUSION

According to data analysis, online training programs, compared to digital marketing and e-commerce platforms, are significantly more effective in enhancing work-life balance (as evidenced by the Friedman Test). This highlights the need for flexible and skill-enhancing digital interventions, designed to enable women entrepreneurs to manage their professional and personal commitments productively. Online training has a more positive effect because it helps students acquire the necessary skills while eliminating the difficulties of balancing family and work. Furthermore, the Pearson Correlation Analysis demonstrated a moderate positive correlation between digital literacy and business growth, where individuals with higher levels of digital literacy experienced greater business expansion. This correlation highlights the significance of digital skills in enabling women entrepreneurs to leverage digital marketing, e-commerce platforms, and data analytics to enhance business performance and scalability. Improved digital literacy enables women to reach wider markets, enhance processes and facilities, and make informed strategic decisions that ultimately facilitate the continuous growth of their businesses. Multiple Regression Analysis also revealed that digital solution usage, access to professional networks, and financial capital were the three major predictors of working-life balance, with the

highest impact. Overall, this implies that with the integration of digital tools, one can have improved convenience in managing work functions and reduce time and effort expended on entrepreneurial jobs, ultimately improving personal health. Being part of a professional network exposes individuals to valuable resources, mentorship, and collaboration opportunities that have helped me juggle the dual demands of business and family life more effectively. Although the third factor, financial capital, is not nearly as important as the first two — digital solutions and professional networks — it remains relevant, as it provides a pathway for women entrepreneurs to invest in solutions (tools and services) that facilitate business growth and address work-life balance. Digital solution usage fully mediated the relationship between access to professional networks and business growth, as shown by the Mediation Analysis. This suggests that businesses with professional networks experience growth mainly through their increased utilization of digital solutions. This means that professional networks enable the adoption of digital tools and their use in business, driving business growth and performance. It highlights the important role played by digital engagement in converting social capital into direct economic benefits. Policymakers, support organizations, and digital solution providers are likely to find the consequences of this study significant. These findings encourage the creation and expansion of digital training programs specifically designed for female entrepreneurs to enhance their digital literacy, laying a foundation for business growth and supporting their work-life balance. Finally, while strengthening professional networks is indeed a good strategy, this should be complemented by initiatives that foster the use of digital solutions, so that business contacts return to companies in the form of new customers. Guidance means that mechanisms for financial support should also enable investments in digital tools and services by eliminating financial barriers to the adoption of effective digital solutions. It contributes to the existing literature on gender, entrepreneurship, and digital innovation by empirically examining the relationship between digital solutions and work-life balance among women entrepreneurs in Kerala. The research highlights the transformative potential of digital technologies in fostering inclusive and sustainable entrepreneurial ecosystems, demonstrating the mediating role of digital solutions and the impact of digital literacy in sustaining this positive relationship. Future studies could investigate the qualitative dimensions of incorporating digital solutions into everyday business and personal practices, or analyze the long-term effects of digital solutions on business outcomes and personal sustainability.

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