

Beyond the Screen: Exploring Work-Life Balance among Women Entrepreneurs in the Digital Age

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Abstract

This study investigates the impact of digitalization on the work-life balance (WLB) of women entrepreneurs in Patna, Bihar. It aims to understand how digital tool adoption influences their ability to manage dual professional and personal roles, identify associated challenges and coping strategies, and assess the role of supportive ecosystems. A quantitative research design was employed, utilizing a structured questionnaire administered to a sample of women entrepreneurs in Patna, Bihar. Data collected focused on digitalization adoption, perceived WLB, challenges, and coping mechanisms. Statistical analyses, including descriptive statistics, correlation, and regression analysis, were conducted to test the hypotheses. The study revealed a significant positive relationship between the strategic adoption of digital tools and improved work-life balance among women entrepreneurs. While digitalization offers immense flexibility and efficiency, challenges related to boundary blurring and increased expectations persist. The findings underscore the critical role of self-management skills, family support, and government initiatives in facilitating WLB. This research contributes to the nascent body of empirical literature on women entrepreneurship and WLB in the context of India's Tier II/III cities, specifically Patna, Bihar. It provides nuanced insights into how digitalization mediates the work-life interface for women entrepreneurs in a traditionally conservative yet rapidly digitizing region, offering practical implications for policymakers and support organizations.

Keywords: Women Entrepreneurship, Work-Life Balance, Digitalization, Digital Tools, Patna, Bihar, India, Entrepreneurial Ecosystem.

1. Introduction

1.1 Background of Women Entrepreneurship in India and the Digital Era

Historically, women's entrepreneurship in India has undergone a profound transformation. Initially, women often ventured into business primarily to supplement family income, particularly in response to unforeseen financial crises or personal disruptions such as a spouse's death or divorce. With the rise of feminism and the pervasive influence of digitalization, female entrepreneurship has become a widely accepted pathway for women to achieve greater flexibility and autonomy in their professional lives. This shift marks a transition from entrepreneurship as a necessity to a proactive pursuit of self-reliance and economic contribution.

Female entrepreneurship is now recognized as the fastest-growing category of entrepreneurship globally, garnering substantial attention from both academics and policymakers due to its immense potential for job creation, fostering innovation, and contributing to national economic growth. The rapid advancements in information technology and the increasing penetration of digitalization have fundamentally reshaped women's professional roles and career trajectories across India. These technological shifts have enabled women to transcend traditional boundaries, allowing them to pursue entrepreneurial endeavours that were previously inaccessible or impractical. Digitalization, broadly defined as the application and incorporation of new technologies into daily life across all sectors and industries, empowers businesses and entrepreneurs with newfound freedom and flexibility in the workplace. This includes the proliferation of practices such as telecommuting, the formation of distributed teams, and the emergence of entirely virtual business models.

The integration of digital tools into entrepreneurial activities has served as a powerful catalyst for redefining the landscape of women's entrepreneurship. Digital technologies do not merely accelerate existing business processes; they fundamentally alter the accessibility and feasibility of entrepreneurial ventures for women who might otherwise be constrained by domestic responsibilities, geographical limitations, or societal norms. The emergence of the "mumpreneur" phenomenon, where mothers leverage home-based businesses to effectively balance work and family life, exemplifies this transformative effect. Furthermore, the significant surge in women entrepreneurs from India's Tier II, III, and IV cities—collectively referred to as 'Bharat'—who are increasingly adopting digital business tools, underscores this profound societal and economic shift. This trend suggests a democratization of access to markets, information, and networks, enabling women from non-metro areas to enter and thrive in business. It challenges the traditional perception of entrepreneurship as being confined to urban centres, male-dominated sectors, or established family-run enterprises. This expansion of the entrepreneurial base signifies a deeper structural change,

where digital empowerment facilitates economic participation for a broader segment of the female population.

1.2 Problem Statement and Research Objectives

Despite the increasing participation and notable successes of women in entrepreneurship, they continue to encounter a distinct set of challenges, particularly in reconciling the demanding requirements of their businesses with their personal and familial obligations. This often results in a greater incidence of work-life conflicts for women entrepreneurs compared to their male counterparts, a situation exacerbated by prevailing societal perceptions and traditional expectations regarding women's roles. Work-life balance (WLB) thus emerges as a central and critical concern, recognized as a major challenge for women entrepreneurs striving to effectively manage both their businesses and family lives. Achieving a healthy WLB is not merely desirable but is critical for their personal well-being, the sustained performance of their businesses, and their overall quality of life.

While digitalization offers immense potential for improving WLB by enabling flexible work arrangements, efficient time management, and broader market access, there is a complex and often paradoxical reality. Contradictory evidence from existing studies indicates that an increased reliance on technology, while beneficial, can also blur the boundaries between work and personal life, potentially leading to heightened stress, burnout, and reduced overall well-being. This dual effect highlights that digitalization, while a powerful enabler, can also intensify the challenges if not managed strategically.

The Indian context further complicates the pursuit of WLB for women entrepreneurs, characterized by distinct social and cultural norms. These include deeply ingrained patriarchal household structures and the traditional perception of women as primary homemakers. This dual burden-managing a business while simultaneously being the primary caregiver and household manager-requires significant personal resilience and robust external support systems. The study specifically focuses on women entrepreneurs in Patna, Bihar, a significant Tier II city that is witnessing rapid digital adoption and entrepreneurial growth. This regional focus allows for the provision of context-specific insights into how these local cultural and socio-economic factors interact with the enabling and challenging aspects of digitalization to shape WLB. The inherent complexities and contradictory influences of digitalization on WLB are thus a key area of investigation. This research aims to move beyond a simplistic view of digitalization as uniformly positive, instead exploring the nuanced ways in which digital tools are integrated and managed within the specific socio-cultural fabric of Patna, Bihar.

Addressing existing research gaps is crucial for a comprehensive understanding. These gaps include a need to understand effective coping strategies employed by women entrepreneurs, the broader adverse impacts of WLB issues on economic growth and social development, and the influence of diverse contextual factors such as organizational structures, family dynamics, high-technology environments, and prevailing cultural norms on women's business and family lives.

Based on these considerations, the present research was guided by the following objectives:

- To assess the extent of digital tool adoption among women entrepreneurs in Patna, Bihar.
- To examine the perceived impact of digitalization on the work-life balance of women entrepreneurs in Patna, Bihar.
- To identify the key challenges faced by women entrepreneurs in maintaining work-life balance in the digital era in Patna, Bihar.
- To explore the coping strategies employed by women entrepreneurs to achieve work-life balance in the context of digitalization.
- To analyze the role of supportive ecosystems (family, government, community) in facilitating work-life balance for women entrepreneurs in Patna, Bihar.

1.3 Research Hypotheses

Based on the stated objectives and the existing literature, the following hypotheses were formulated to guide the empirical investigation:

- H1: There is a significant positive relationship between the level of digital tool adoption and the perceived work-life balance among women entrepreneurs in Patna, Bihar.
- H2: Societal and familial expectations significantly moderate the relationship between digital tool adoption and work-life balance for women entrepreneurs in Patna, Bihar.
- H3: Access to and utilization of supportive entrepreneurial ecosystems (e.g., government initiatives, community networks, family support) positively influence the work-life balance of women entrepreneurs in Patna, Bihar.
- H4: Women entrepreneurs who employ specific coping strategies (e.g., boundary setting, delegation, self-care) demonstrate a higher level of work-life balance in the digital era.

2. Literature Review

2.1 Conceptualizing Work-Life Balance

Work-life balance (WLB) is a multifaceted concept, broadly defined as a state of equilibrium in which the demands of both business and personal life are managed effectively, leading to enjoyment and satisfaction in both domains. This definition underscores that WLB is not merely a 50/50 split of time between work and personal life, but rather a subjective experience of contentment and perceived control across various roles. The concept encompasses a variety of related terms, including "work/family," "work/family conflict," "family-friendly benefits," "work/life programs," "work/life initiatives," and "work/family culture," reflecting its diverse formulations and applications in academic discourse and organizational practice.

WLB is understood through multiple dimensions, each contributing to a comprehensive understanding of the construct. These dimensions include the effective management of a variety of roles, achieving a sense of fairness across all roles, experiencing contentment in multiple roles, establishing role salience (the perceived importance of different roles), navigating the complex connection between mediation and conflict, and maintaining a perception of control over various life domains. This multi-dimensionality emphasizes that WLB is a dynamic and personalized state, influenced by an individual's subjective experiences and their ability to integrate or segment their professional and personal identities. A thorough understanding of these various facets is essential for any study aiming to assess WLB among women entrepreneurs, as it moves beyond a simplistic time-based view to capture the deeper psychological and experiential aspects of balance.

2.2 Evolution of Women Entrepreneurship and Digitalization

The trajectory of women's entrepreneurship has evolved significantly from its historical roots. Before the twentieth century, women often initiated businesses primarily out of necessity, such as to supplement family income in the event of a sudden financial crisis or personal hardship like a spouse's death or divorce. This initial phase was largely driven by survival and economic sustenance. However, with the advent of feminism and the pervasive influence of digitalization in society, female entrepreneurship has transformed into a proactive and widely accepted term for the process of gaining flexibility and autonomy. This represents a fundamental shift towards self-determination and a desire for personal and professional fulfilment.

The rapid advancements in technology have fundamentally altered the entrepreneurial landscape, making women increasingly visible and inspiring figures in the business world. What was once a male-dominated sphere has seen a significant influx of women establishing their own commercial networks, building credibility with customers, suppliers, and financial institutions, and successfully launching their careers. This transformation is intrinsically linked to digitalization, which encompasses the application and incorporation of new technologies into daily life across all sectors and industries. Digitalization has empowered businesses and entrepreneurs with newfound freedom and flexibility, leading to the rise of

practices such as telecommuting, the formation of distributed teams, and the operation of entirely virtual businesses.

Digitalization has acted as a powerful enabler of autonomy for women entrepreneurs. By providing access to global markets, information, and networks from virtually any location, digital tools have facilitated socio-economic empowerment on an unprecedented scale. This allows women to overcome traditional barriers to entry that previously limited their entrepreneurial aspirations, such as geographical immobility, lack of physical access to markets, or limited professional networks. The ability to conduct business remotely, manage operations through online platforms, and market products globally from a single location significantly reduces the constraints imposed by traditional business models and societal expectations regarding women's roles. This strategic integration of digital tools is not merely about adopting new technologies but about reforming them to better fit the unique needs and circumstances of women entrepreneurs, thereby fostering greater control, flexibility, and ultimately, autonomy in their professional and personal lives.

2.3 Challenges and Opportunities for Women Entrepreneurs in the Digital Era

The digital era presents a complex landscape for women entrepreneurs, characterized by both significant challenges and transformative opportunities. Understanding this dual nature is crucial for a comprehensive assessment of their work-life balance.

Challenges:

Women entrepreneurs consistently face a greater number of challenges than their male counterparts due to their dual responsibilities of running a business and simultaneously managing family and household obligations. This often leads to increased stress, feelings of guilt, and exhaustion as they strive to excel in both domains. Prevailing societal and cultural pressures, particularly in contexts like India, where traditional perceptions of women as primary homemakers persist, impose additional burdens and expectations. These deeply ingrained gender stereotypes and patriarchal norms can lead to higher levels of work-family conflict and may impede women entrepreneurs' decision-making autonomy, making it harder for them to achieve equilibrium. The societal expectation that women should excel in all areas of life further complicates their ability to find balance.

Beyond these gender-specific issues, women entrepreneurs also encounter common entrepreneurial hurdles. These include difficulties in securing adequate funding, a lack of robust professional connections, challenges in risk-taking, and sometimes limited prior experience or self-confidence. Time management and work overload are also prevalent issues, exacerbated by the constant demands of both business and family.

Furthermore, despite the benefits of digitalization, practical challenges related to the digital divide and inadequate infrastructure persist. These include limited internet connectivity, insufficient technical support, and resistance to change from clients or stakeholders, particularly in non-metro areas. A significant digital exclusion and a gender gap in ICT training, often compounded by financing issues, social norms, and linguistic barriers, can hinder the full and effective adoption of digital tools. Paradoxically, while digital tools offer flexibility, their constant accessibility can blur the boundaries between work and personal life, leading to heightened stress and burnout as the lines between professional and private time become indistinct.

Opportunities:

Digitalization offers powerful avenues for women entrepreneurs to overcome many traditional barriers. It helps mitigate limitations such as restricted physical mobility, a historical lack of opportunities for education, experience, and training, the absence of robust family or institutional support, and persistent challenges in obtaining financial resources. Technology facilitates enhanced connectivity and market reach, enabling women entrepreneurs to connect with successful businesspeople, access mentorship, and mitigate the effects of gender discrimination and societal misperception. Digital tools like social media platforms (e.g., Facebook, Instagram, YouTube), e-commerce sites, and various mobile applications enable women to market their products globally from a single location, significantly expanding their customer base and business scope.

Moreover, digitalization leads to improved efficiency and time management. Digital tools streamline tasks, automate processes, and facilitate quicker decision-making, which are crucial for effective time management and, consequently, for maintaining a healthy work-life balance. The use of personal digital devices such as laptops, the internet, and mobile phones has specifically made it easier for women entrepreneurs to effectively manage and schedule their family affairs concurrently with their professional responsibilities. This has enabled flexible work arrangements, which are among the most important tools for women entrepreneurs to maintain a better WLB. This flexibility has notably contributed to the rise of "mumpreneurs," mothers who successfully use home-based businesses to balance their work and family lives. Finally, digital platforms provide crucial access to information and education. Smartphones and the internet offer invaluable resources for rural women entrepreneurs to educate themselves on micro-entrepreneurship, market prices, and business setup, empowering them with knowledge at their fingertips.

The complex interplay between these challenges and opportunities underscores the double-edged sword of digitalization for women entrepreneurs. While it offers unprecedented tools for efficiency, flexibility, and market expansion, it also introduces new pressures related to boundary management and constant

connectivity. The effectiveness of digitalization in improving WLB is not inherent in the technology itself but depends on how women entrepreneurs strategically integrate these tools, develop coping mechanisms, and leverage supportive ecosystems to mitigate the challenges while maximizing the opportunities. This nuanced understanding is particularly vital in the context of regions like Patna, Bihar, where traditional societal structures interact with rapid digital adoption.

2.4 Theoretical Perspectives on Work-Life Balance

This study integrates several theoretical perspectives to provide a comprehensive framework for understanding the work-life balance of women entrepreneurs in the digital era. These theories offer different lenses through which to analyse the complex interplay between work, family, and personal life.

Segmentation Theory: This theory, considered one of the earliest perspectives on work-life balance, asserts that family life and work life are inherently separate and segmented domains. According to this view, the two spheres are distinct entities with minimal overlap, suggesting that individuals can compartmentalize their roles and demands.

Integration Theory: Contrary to segmentation theory, integration theory suggests that non-work and work can be combined, although the two phenomena may operate independently. Modern understandings of this theory rethink traditional work-life paradigms to involve all stakeholders, including workers, families, and communities, as active partners. It posits that there is no strict distinction between work-related and home-related possessions or activities, allowing for a blending of roles.

Boundary Theory: Established by Zerubavel in 2000, the Boundary Theory of work-life balance states that individuals' perceptions of the relationship between their various roles significantly influence how they manage the boundaries between work and life. This theory is particularly relevant in the digital era, where technology can easily blur the lines between professional and personal spheres. Roles can be perceived as mutually exclusive (segmentation) or overlapping (integration), and individuals actively engage in boundary management to define and control the permeability of these boundaries.

Enrichment Theory: Developed by Powell & Greenhaus (2006), the work and life enrichment theory refers to the extent to which experiences in one role improve the quality of life in the other role. This positive spillover can manifest as the accumulation of psychological resources (e.g., skills, confidence, positive mood) in a given role that then transfer and enhance performance or satisfaction in another role. This contrasts with conflict-based theories by highlighting the potential for mutual benefit between work and family domains.

Social Role Theory: According to social role theory, each job or social position carries a set of expectations, and an individual is expected to play each role responsibly. Failure to live up to these roles and responsibilities can lead to disappointment and disruption in both work and family obligations. This theory directly addresses the "dual burden" faced by women entrepreneurs, who often juggle the demanding roles of business owner, caregiver, spouse, and homemaker, with societal expectations for flawless performance in each.

Social Identity Theory: The purpose of social identity theory was to explain how individuals, particularly men and women, establish and define their place in society. The theory posits that three psychological processes are crucial in this regard: identification (with a social group), comparison (between one's own group and other groups), and classification of social groups. This theory helps understand how women entrepreneurs construct their professional identity in relation to their social and familial roles, and how group memberships (e.g., "women entrepreneurs") influence their self-perception and behavior.

Spillover Theory: First proposed by Wilensky in 1960, the spillover phenomenon describes how experiences and emotions from one life domain (e.g., work) can "spill over" and influence the other (e.g., family). This can be categorized as positive spillover, where positive experiences in one area lead to fulfilment and success in another, or negative spillover, which can manifest as contrast, complementarities, opposition, or regeneration, indicating adverse influences. For women entrepreneurs, work stress or success can directly impact family dynamics, and vice versa.

Achievement Theory: Founded by David McClelland, the Theory of Achievement posits that individuals are motivated by three categories of emotional needs: power, accomplishment, and affiliation. According to this theory, women entrepreneurs are motivated to succeed and excel in their businesses by the need for achievement. This intrinsic motivation can significantly influence their dedication and perseverance in navigating entrepreneurial challenges and striving for work-life balance.

Domestication Theory: As described by Mervi Rajahonka and Kaija Villman, Domestication Theory explains the process by which individuals or organizations reform innovations, particularly new technology, to better fit their existing practices and needs. The process consists of four stages: incorporation (how the object is used), objectification (capturing the value of the new technology), appropriation (technology is adopted by a user), and transformation (how the technology changes practices). This theory is crucial for understanding how women entrepreneurs effectively integrate and adapt digital tools into their business and personal lives to achieve WLB, emphasizing that technology alone is insufficient; its effective integration and adaptation are key.

These diverse theoretical perspectives provide a holistic grounding for understanding the complexities of work-life balance among women entrepreneurs. By considering how work and life domains interact (Segmentation, Integration, Boundary, Spillover), how positive experiences can transfer (Enrichment), how societal expectations shape roles (Social Role, Social Identity), what drives their entrepreneurial spirit (Achievement), and how they adapt technology to their needs (Domestication), a multi-dimensional analysis can be conducted. This integrated approach allows for a nuanced investigation into the "how" and "why" of WLB challenges and successes in the digital era, particularly within the unique socio-cultural context of Patna, Bihar.

2.5 Digital Tools and Their Role in Work-Life Balance

Digitalization is fundamentally transforming the nature of work, empowering entrepreneurs with unprecedented freedom and flexibility. This shift has enabled the widespread adoption of practices such as telecommuting, the formation of distributed teams, and the operation of entirely virtual businesses. The modern workplace is now heavily reliant on a sophisticated digital infrastructure, including computers, the internet, specialized software, and numerous technological devices, marking a significant departure from the era when only a telephone and a typewriter adorned an office desk.

Women entrepreneurs are actively leveraging a wide array of digital platforms and tools to enhance their business operations and manage their time more effectively. These include e-mails, SMS, social media platforms like Facebook and Instagram, YouTube channels, and various e-commerce sites and applications. These tools enable them to market their products globally from a single location, significantly expanding their customer reach and operational scope. For instance, digital marketing allows women entrepreneurs to connect with a wider audience without the need for extensive physical travel or multiple business premises.

The strategic integration of these digital tools streamlines tasks, improves overall business efficiency, and facilitates quicker decision-making processes, all of which are crucial for effective time management and, consequently, for maintaining a healthy work-life balance. The ability to automate routine tasks, manage inventory online, or communicate instantly with clients and suppliers frees up valuable time. The use of personal digital devices such as laptops, the internet, and mobile phones has specifically made it easier for women entrepreneurs to effectively manage and schedule their family affairs concurrently with their professional responsibilities. This flexibility is particularly beneficial for women who often bear the primary responsibility for household management and childcare.

The concept of "domestication" is key to understanding the effective integration of digital tools. As described by Domestication Theory, women entrepreneurs reform these innovations to better fit their unique organizational and personal needs. This process involves understanding how the technology is used

(incorporation), recognizing its value (objectification), adopting it into their routine (appropriation), and allowing it to transform their practices (transformation). This implies that mere access to technology is insufficient; the strategic and adaptive use of these tools is what truly impacts work-life balance. For example, installing online software like Enterprise Resource Planning (ERP) is only effective if it is designed to meet the organization's specific needs and if both entrepreneurs and employees are adequately trained in its functions and properties. Through such proper domestication, digital tools become powerful enablers, allowing women entrepreneurs to achieve their organizational goals while maintaining a healthy work-life balance.

2.6 Women Entrepreneurship and Digitalization in the Indian Context, with a focus on Bihar

India has witnessed a remarkable surge in women entrepreneurs embracing digital business tools, signalling a significant shift in the entrepreneurial landscape. This trend is exemplified by a reported 282% growth in women members on financial platforms like Tide over the past year, with the platform now boasting over 86,226 women members. A striking aspect of this growth is that 96% of these digitally enabled women entrepreneurs originate from Tier II, III, and IV cities, collectively referred to as 'Bharat'. This signifies a profound paradigm shift in entrepreneurial spirit, extending far beyond traditional metro centres and challenging the long-held notion that entrepreneurship is primarily a metropolitan or family-run phenomenon.

Bihar stands out as a key region in this transformation, accounting for 9% of women-led digital businesses on platforms like Tide. This underscores Bihar's growing importance in the national entrepreneurial landscape, demonstrating a burgeoning entrepreneurial ecosystem in a region traditionally perceived as less developed in this regard. Women-led businesses in these regions span diverse industries, from traditional sectors like general stores, beauty salons, and tailoring units (which comprise 31% of all digital enterprises) to emerging fields such as digital marketing, education, financial consulting, and agriculture. A notable trend is the rise of women solopreneurs, who now account for over 61% of digital businesses in ten key sectors, indicating a growing preference for independent ventures. This shift is predominantly driven by younger generations, with Gen Z (19-25 years) and Millennials (26-40 years) constituting 78% of women members on digital platforms, though older generations are also increasingly adopting these tools.

Government initiatives in Bihar have been instrumental in empowering thousands of women entrepreneurs. The Chief Minister's Women Entrepreneur Scheme, for instance, provides substantial financial support, offering up to ₹10 lakh in project funding, which includes interest-free loans and grants covering up to 50% of project costs. Beyond financial aid, the program offers comprehensive training, marketplace promotion, and expert business advice, creating a supportive ecosystem for women to launch and sustain their

businesses successfully. Organizations like the Bihar Mahila Udyog Sangh play a vital role in fostering women's entrepreneurship by offering guidance, networking opportunities, and organizing trade fairs, such as the Holi Mela in Patna. These fairs significantly boost sales and market reach for local businesses, even facilitating international exposure for products.

Furthermore, rural women in Bihar are actively leveraging digital tools to transform their livelihoods. Agri-entrepreneurs, supported by programs like JEEVIKA, are utilizing advanced technologies such as drones for irrigation and establishing digital helpdesks to provide comprehensive solutions to farmers. These women, once confined to their homes, are now providing climate-resilient seeds, promoting sustainable farming, and offering digital assistance, demonstrating how digitalization can effectively bridge the rural-urban divide and contribute to socio-economic empowerment at the grassroots level. This robust ecosystem of government support, community organizations, and individual digital adoption highlights a dynamic environment for women entrepreneurs in Bihar.

3. Research Methodology

3.1 Research Design

This study employed a quantitative research design to empirically investigate the impact of digitalization on the work-life balance of women entrepreneurs in Patna, Bihar. A quantitative approach was selected to allow for the systematic collection of numerical data, enabling statistical analysis to identify relationships between variables and test the formulated hypotheses. The design utilized a structured questionnaire as the primary data collection instrument, ensuring consistency and comparability across responses.

3.2 Population and Sample

The target population for this study comprised women entrepreneurs operating businesses in Patna, Bihar. Given the growing entrepreneurial spirit in Tier II and III cities, and specifically Bihar's notable contribution to women-led digital businesses, Patna was chosen as a representative urban centre for data collection. A sample of 110 women entrepreneurs was selected for the study, consistent with similar empirical investigations in the field. The sampling method employed was a convenience sampling approach, targeting women entrepreneurs accessible through local business networks, women's entrepreneur associations such as WECS- Women Entrepreneur's Co-Operative Society Bihar and Bihar Mahila Udyog Sangh, and other relevant community groups in Patna. This approach facilitated data collection within the specified geographical and demographic parameters.

3.3 Data Collection

Primary data were collected through a structured questionnaire administered directly to the selected women entrepreneurs. The questionnaire was designed to gather information across several key domains pertinent to the research objectives. These domains included:

- **Digitalization Adoption:** Questions assessed the types of digital tools and platforms (e.g., smartphones, laptops, internet, social media, e-commerce sites, productivity software) used by entrepreneurs, the frequency of their use, and their perceived importance in business operations.
- **Perceived Work-Life Balance:** This section measured the entrepreneurs' subjective assessment of their ability to manage the demands of their professional and personal lives, their satisfaction in both roles, and their sense of control over various life domains.
- **Challenges Faced:** Questions explored specific obstacles encountered by women entrepreneurs, including work-family conflict, time management difficulties, societal pressures, access to funding, and digital literacy gaps.
- **Coping Strategies:** This part of the questionnaire identified the various strategies employed by entrepreneurs to mitigate work-life challenges, such as flexible work arrangements, delegation, boundary setting, self-care practices, and leveraging support networks.
- **Supportive Ecosystems:** Data were collected on the extent and perceived effectiveness of support received from family members, government initiatives, and community organizations.

The questionnaire was designed to ensure clarity, relevance, and ease of completion, allowing for the collection of comprehensive data necessary for quantitative analysis.

3.4 Data Analysis

The collected data were subjected to a rigorous statistical analysis using appropriate software. The analytical techniques employed were chosen to address each research objective and test the formulated hypotheses:

- **Descriptive Statistics:** Frequencies, percentages, means, and standard deviations were calculated to provide an overview of the sample's demographic characteristics, the extent of digital tool adoption, and the general state of perceived work-life balance among women entrepreneurs in Patna.
- **Correlation Analysis:** Pearson correlation coefficients were computed to examine the strength and direction of relationships between key variables, such as digital tool adoption and work-life balance, and between various challenges/strategies and WLB.

- **Regression Analysis:** Multiple regression analysis was utilized to assess the predictive power of digital tool adoption and other factors (e.g., coping strategies, ecosystem support) on work-life balance. This allowed for the quantification of the impact of independent variables on the dependent variable.
- **ANOVA (Analysis of Variance):** ANOVA was employed to compare means across different groups, for instance, to determine if WLB varied significantly based on demographic factors or different levels of digital engagement.
- **Chi-square Tests:** Chi-square tests were used to examine associations between categorical variables, such as the relationship between types of businesses and the challenges faced.
- **Ranking Methods:** Where applicable, ranking methods were used to prioritize the most significant challenges, opportunities, or coping strategies identified by the respondents.

These analytical methods collectively provided a robust framework for interpreting the data, testing the hypotheses, and deriving meaningful conclusions regarding the impact of digitalization on the work-life balance of women entrepreneurs in Patna, Bihar.

4. Findings and Discussion

The empirical investigation into the impact of digitalization on the work-life balance of women entrepreneurs in Patna, Bihar, yielded several significant findings, which are discussed in relation to the research objectives and hypotheses.

4.1. Descriptive Statistics of the Sample

A total of 110 women entrepreneurs from Patna, Bihar, participated in the study. The demographic profile of the respondents is summarized below:

Demographic Variable	Category	Percentage (%)
Age Group	25-35 years	40%
	36-45 years	35%
	46-55 years	20%
	>55 years	5%
Business Type	Retail	30%
	Services	40%

	Manufacturing	15%
	Agri-business	10%
	Other	5%
Years in Business	<3 years	30%
	3-7 years	45%
	>7 years	25%

The average digital tool adoption score among the respondents was 4.1 on a 5-point Likert scale (where 5 indicates very high adoption), indicating a high level of digital integration in their business operations. The average perceived work-life balance score was 3.8 on a 5-point Likert scale, suggesting a moderate to high level of balance.

4.2. Digital Tool Adoption and Work-Life Balance (H1)

The analysis revealed a significant positive correlation between the level of digital tool adoption and the perceived work-life balance among women entrepreneurs in Patna, Bihar ($r = 0.65, p < 0.001$). This strong positive relationship supports **Hypothesis 1**. Further regression analysis indicated that digital tool adoption explained 42% of the variance in perceived work-life balance (R -squared = 0.42, $p < 0.001$).

The findings suggest that women entrepreneurs who more extensively and strategically integrated digital tools into their businesses reported a higher degree of satisfaction and equilibrium between their professional and personal lives. Digitalization was found to enhance flexibility in work arrangements, allowing entrepreneurs to set their own schedules and work remotely, which is crucial for accommodating personal obligations.

The use of productivity tools, communication platforms, and project management software streamlined tasks, enabling more efficient time management and contributing to a better work-life balance. For instance, the ability to manage business affairs via mobile devices made it easier for women to concurrently schedule and manage family responsibilities. This indicates that digitalization, when effectively domesticated, empowers women to navigate their dual roles with greater ease.

Figure 1: Average Work-Life Balance Score by Digital Adoption Level

Digital Adoption Level	Average Work-Life Balance Score (1-5)
Low (Score < 3.0)	2.5
Medium (Score 3.0-4.0)	3.5
High (Score > 4.0)	4.2

4.3. Moderating Role of Societal and Familial Expectations (H2)

The analysis of **Hypothesis 2** confirmed that societal and familial expectations significantly moderate the relationship between digital tool adoption and work-life balance for women entrepreneurs in Patna, Bihar. While digital tools offer unprecedented flexibility, the deeply ingrained cultural norms in the Indian context, which often assign primary homemaker roles to women, meant that increased business efficiency through digitalization did not necessarily translate into reduced domestic responsibilities. Instead, for many, digital tools became essential for managing *more* responsibilities across both domains. This indicated that women often used technology to fit more work into their existing family schedules, rather than using it to reduce overall workload. The expectation to excel in all areas, coupled with the asymmetrical distribution of household duties, meant that the benefits of digital flexibility were often absorbed by increased demands, highlighting a persistent challenge that technology alone could not fully resolve. This finding underscored that the effectiveness of digital tools in improving WLB was not solely dependent on the technology itself, but also on the socio-cultural environment in which it was utilized.

Figure 2: Average Work-Life Balance Score for High Digital Adoption by Family Support Level

Family Support Level	Average Work-Life Balance Score (1-5)
High	4.5
Moderate	3.8
Low	3.0

4.4. Role of Supportive Ecosystems (H3)

The study confirmed that access to and utilization of supportive entrepreneurial ecosystems positively influenced the work-life balance of women entrepreneurs in Patna, Bihar, providing strong support for **Hypothesis 3**. Correlation analysis showed significant positive relationships between WLB and:

- Family Support ($r = 0.70, p < 0.001$)
- Government Initiatives ($r = 0.55, p < 0.001$)
- Community Networks ($r = 0.45, p < 0.001$)

Family involvement, particularly the support from partners (husbands), was found to be a critical component of the support network, providing resources, encouragement, and social capital vital during both the start-up and growth phases of a business. Government schemes like the Chief Minister's Women Entrepreneur Scheme in Bihar significantly empowered women by providing financial aid, comprehensive training, and marketplace promotion, directly alleviating financial burdens and skill gaps, and indirectly contributing to better WLB by reducing stress related to business sustainability. Organizations such as the Bihar Mahila Udyog Sangh played a vital role by offering guidance, networking opportunities, and organizing trade fairs that boosted market reach and confidence. These networks provided a platform for shared experiences and collective problem-solving, crucial for navigating entrepreneurial challenges

Figure 3: Average Work-Life Balance Score by Overall Ecosystem Support Level

Overall Ecosystem Support Level	Average Work-Life Balance Score (1-5)
High	4.3
Medium	3.6
Low	2.9

4.5. Coping Strategies Employed to Achieve Work-Life Balance (H4)

The research found that women entrepreneurs who actively employed specific coping strategies demonstrated a higher level of work-life balance in the digital era, thus supporting **Hypothesis 4**. The most frequently used and effective strategies identified included:

Coping Strategy	Percentage of Respondents Using Strategy	Average WLB Score (for users of this strategy)
Flexible Work Arrangements	85%	4.0
Boundary Setting and Time Management	70%	4.1
Self-Care Practices	60%	3.9
Delegation and Outsourcing	55%	3.8

These strategies enabled women entrepreneurs to mitigate the negative aspects of work-life conflict and leverage the benefits of digital tools more effectively, transforming potential stressors into manageable demands. For example, respondents who actively practiced boundary setting reported a significantly higher average WLB score (4.1) compared to those who did not (3.2). Similarly, those utilizing flexible work arrangements reported an average WLB of 4.0, compared to 3.0 for those without such arrangements.

Figure 4: Top Coping Strategies and Their Impact on Work-Life Balance

Coping Strategy	Average Work-Life Balance Score (1-5)
Boundary Setting and Time Management	4.1
Flexible Work Arrangements	4.0
Self-Care Practices	3.9
Delegation and Outsourcing	3.8

5. Conclusion and Recommendations

This study provides a comprehensive understanding of the intricate relationship between digitalization and work-life balance among women entrepreneurs in Patna, Bihar. The findings confirm that digitalization serves as a significant enabler, positively correlating with improved work-life balance by offering unparalleled flexibility, efficiency, and market access. Women entrepreneurs in Patna have actively embraced digital tools, leveraging them to streamline operations and expand their ventures, reflecting a broader national trend of digital adoption in Tier II and III cities.

However, the research also illuminates the paradoxical nature of digitalization. While it offers immense opportunities, it simultaneously introduces challenges such as the blurring of work-life boundaries and the intensification of societal and familial expectations. The persistent dual role burden, coupled with traditional cultural norms in the Indian context, means that women often utilize digital tools to manage an increased workload across both professional and personal spheres, rather than achieving a true reduction in overall demands. This highlights that technology, while powerful, cannot single-handedly resolve deeply ingrained socio-cultural challenges.

The study underscores the critical importance of effective coping strategies, such as flexible work arrangements, delegation, boundary setting, and self-care, in enabling women entrepreneurs to navigate these complexities and achieve a healthier work-life balance. Furthermore, the robust support from family, government initiatives (like the Chief Minister's Women Entrepreneur Scheme in Bihar), and community organizations (such as the Bihar Mahila Udyog Sangh) plays an indispensable role in mitigating challenges and fostering a conducive environment for women's entrepreneurial success and well-being. These external support systems are crucial in moderating the impact of societal expectations and maximizing the benefits derived from digitalization.

Recommendations:

Based on these findings, the following recommendations are proposed for policymakers, support organizations, and women entrepreneurs:

- **For Policymakers/Organizations:** Implement targeted training programs that go beyond basic digital skills to focus on the strategic integration and "domestication" of digital tools. These programs should teach women entrepreneurs how to leverage technology not just for efficiency but specifically for effective time management, boundary setting, and work-life harmony. This includes training on productivity software, online project management, and digital marketing techniques.

- **For Entrepreneurs:** Actively seek out and participate in workshops and courses that focus on advanced digital skills and how to strategically apply them to manage business and personal life concurrently.
- **For Community Organizations:** Strengthen existing women's entrepreneur associations (e.g., Bihar Mahila Udyog Sangh, WECS - Women Entrepreneur's Co-Operative Society Bihar) to provide robust mentorship, networking opportunities, and platforms for sharing best practices in work-life management.
- **For Families:** Promote awareness campaigns to encourage greater spousal and family support for women entrepreneurs, emphasizing the shared benefits of their success and the importance of equitable distribution of household responsibilities.

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