

Factors Impacting the Performance of Women e-Entrepreneurs in Bangladesh

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Abstract

This study identifies and examines the factors that affect the performance of women e-entrepreneurs (those involved in Internet technology-driven entrepreneurship) in Bangladesh and develops a conceptual model incorporating these factors. It assesses knowledge, skill, and attitudes as human capital, and financial, technological, and legal factors as external supports that might affect the performance of women e-entrepreneurs. This quantitative research used a structured questionnaire to collect primary data from 131 self-employed women e-entrepreneurs. Both in-person interviews and Google Forms sent through e-mails and social networking sites were used to collect data at the respondents' convenience. The SmartPLS 4.0 software was used to analyse data and develop a regression model. It integrated and validated a conceptual model from a resource-based view and an entrepreneurial opportunities perspective. Human capital and external support factors moderately impacted the performance of women e-entrepreneurs. Resource-based constructs include knowledge, attitude, and skill, whereas opportunity-based constructs include financial, legal, and technological support in women's e-entrepreneurial performance. Although all resource-based constructs were found statistically significant in e-entrepreneurial performance achievement, the support factors were found statistically insignificant. Despite being self-resilient, there is a discrepancy between the support women e-entrepreneurs receive and their capabilities to utilise this support for e-entrepreneurial performance. No prior research focused on these five major sectors – cosmetics, aesthetics, clothing, food, and agro and agro-based - while assessing the performance of women e-entrepreneurs in Bangladesh.

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INTRODUCTION

Women's entrepreneurship is recognised as a significant driver of economic and social change worldwide, including in Bangladesh (Akter et al., 2019; Elam et al., 2019; Emon & Nipa, 2024). Women entrepreneurs own and manage 42% of all operating global companies, 40% of which are small and medium enterprises (ITC, 2017; Mori, 2014). Globally, 15% of women-led businesses are making strides in the international market, with one-sixth of women intending to start a business, a figure slightly lower than the corresponding figure for men (one-fifth) (Akter et al., 2019). Worldwide, 274 million women are involved in operating business startups, with 139 million being owners of established businesses (GEM, 2021). In June 2024, Bangladesh had 196.08 million mobile subscribers with a consistently growing pattern, but after that, the figure gradually decreased to 186.5 million in February 2025 (BTRC, 2025). Internet subscribers also gradually decreased to 130.07 million in February 2025 (ibid). In Bangladesh, 60.3 % of urban and 46% of rural households have access to the Internet, while about 23% of rural and 62% of urban women individually can access and use the Internet (BBS, 2023, 2025). Since the COVID-19 pandemic, women's ownership of e-entrepreneurship on Instagram has increased by 65%, and 70% of women-owned Facebook-based e-entrepreneurship (Hasan, 2023).

Entrepreneurship is becoming a career option that needs knowledge, skills, and attitude to drive entrepreneurial activities with financial, logistical, and technological support (Tabassum, 2018). The utilisation of the Internet or digital tools and e-entrepreneurial performance are not the same (ITU, 2024). Also, there are market needs and successful business formation (Ardichvili et al., 2003). Market requirements and the desire for quality are typically met with specialised, technology-driven products and services. Internet technology-driven entrepreneurship, i.e., e-entrepreneurship, becomes appealing due to minimal initial investment requirements, lucrative profit margin, simplified payment process, and expanded customer base. Effective e-business engagement depends on efficient networking in supply chain management, product marketing, maintaining customer relations, and discharging personal responsibilities (Rajput, 2021). The performance of women entrepreneurs may not be confined to economic gains but is also related to the development of business capabilities and achievement of personal satisfaction (Barrett & Mayson, 2008). Women entrepreneurs draw inspiration from economic endeavours by receiving economic incentives, financial resources, infrastructural availability, investment prospects, and favourable market conditions (Khondkar, 1998; Wennekers & Thurik, 1999). These financial endeavours could be resource-based, leveraging financial, human, and technological competitive advantages. From the feminist and entrepreneurial point of view, economic reward (only profit-making) might not always be the prime objective of women's entrepreneurship, whether in e-businesses or traditional brick-and-mortar. Women entrepreneurs are more likely to limit themselves to short-term self-employment and are less active than men in ICT use (World Bank, 2023). Women-owned businesses are commonly perceived to grow more slowly and be less successful, innovative, and profitable (Ahl, 2006). Women business owners differ from male business owners regarding education, work experience, skills, venture creation and acquisition approach, business goals, and performance (Brush, 1992; Dimick et al., 2025; Fairlie & Robb, 2009).

Researchers primarily measure performance in terms of the number of employees, growth in employees, sales turnover, and value of capital assets (Kiyabo and Isaga, 2020; Rosa *et al.*, 1996; Unger *et al.*, 2011). It is argued that the performance of women-owned businesses not only relies on financial measures, but also incorporates other factors such as employee satisfaction, social contributions, goal achievement, and effectiveness (Ghag *et al.*, 2025; Rosa *et al.*, 1996). Scholars identified that family embeddedness plays a critical role in women's entrepreneurship and that women's priority for work-life balance affects their entrepreneurial performance (Mari *et al.*, 2016). Business growth remains a second priority to many women business owners, as they emphasise pursuing other goals like growing in knowledge and ability. Hence, the assessment of business performance for women-owned businesses should include financial measures and other variables, including their satisfaction, social contributions, empowerment, and efficiency (Rosa *et al.*, 1996). This study aims to conceptualise and develop an integrated model and test it for validity and reliability. It also identifies and examines the factors that influence the performance of self-employed women entrepreneurs in the e-businesses of Bangladesh.

LITERATURE REVIEW

Entrepreneurship in economics refers to the innate ability to assess and predict situations despite uncertainties. It is also perceived as a market process driven by knowledge differentiation or entrepreneurial alertness (Kirzner, 1973). Entrepreneurs leverage their domain-specific knowledge to identify market opportunities and strive for profits through their alertness (Akter *et al.*, 2019). This could be possible because of the idiosyncratic personal attributes of the individual women entrepreneurs, because, despite similar backgrounds, women entrepreneurs may place varying significance on their self-efficacy and locus of control when engaging in entrepreneurial activities (Chen *et al.*, 1998; Rauch & Frese, 2007). However, through the lens of psychology, women entrepreneurs delve into individual mindsets, motivations, risk tolerance, and cognitive biases that shape their entrepreneurial decisions and actions. They become influenced by their personality traits and the need for achievement, critical factors for entrepreneurial success (Akter *et al.*, 2019). Women entrepreneurs in developing regions commonly exhibit adaptability, enabling them to manage uncertainty and stress while overcoming systemic challenges (Khan et al., 2021). Through the sociological lens, women entrepreneurs' success is influenced by diverse social and cultural aspects, including values, customs, religious beliefs, and cultural norms (Thornton, 1999). It requires specific personal, cultural, and institutional interactions and involvements of legislative intermediaries to leverage opportunities to capitalise on economic growth (Wennekers &

Thurik, 1999). Shifting cultural values, evolving gender norms, and institutional changes have gradually enhanced women's participation in business leadership (Cardella et al., 2020). Hence, entrepreneurship encompasses multidisciplinary perspectives.

There are gaps in understanding women's involvement in business and entrepreneurship in developing economies (Nevi et al., 2025). Women who own small businesses have the potential to boost socio-economic development in their respective regions and challenge traditional gender roles. Sociological research has focused on women's visibility in the labour market beyond domestic roles. Women's entrepreneurship contributes to diversification and job creation, yet barriers such as limited access to credit and legal protections continue to hinder their progress (Alom et al., 2025). Despite this potential, women entrepreneurs face challenges balancing business roles with domestic roles, accessing financial resources, and building networks and support systems. Lack of confidence in their entrepreneurial abilities also presents a barrier. A comprehensive career model was proposed to understand women's entrepreneurial behaviour, considering factors such as educational environment, individual personalities, childhood family environment, work history, adult development history, and current work and family situations (Bowen & Hisrich, 1986). Despite the rise in female employment, women entrepreneurs face obstacles in accessing economic resources, meeting societal expectations, and encountering workplace discrimination. A study in Bangladesh found that most women entrepreneurs suffer from a lack of starter capital, access to the capital market, collateral financing, theoretical knowledge, ICT-skilled manpower, and organisational support; therefore, these adversely impact their entrepreneurial success (Rahman et al., 2020). The lack of formal training hinders women's business growth and their low self-confidence, limited access to managerial training, persisting discriminatory legislation, structural glass ceiling, restricted access to credit, a lack of a supportive environment, and unsupportive societal values work as the underlying barriers (Birley, 1987; Buttner & Moore, 1997). The essentialist construction of the female entrepreneur argues that gender, occupation, and organisational structure affect female and male business owners differently (Mirchandani, 1999). Experts advocate incorporating gender issues and the competitive market environment while studying women's entrepreneurship (Fischer et al., 1993; Mirchandani, 1999). Literature often views male entrepreneurial behaviour as the norm, evaluates women's entrepreneurial success by male standards, which goes against the essentialist construction, signifying the need for a new research approach to comprehend women's entrepreneurial experiences properly (Ahl, 2006; Bird & Brush, 2002; Jennings & Brush, 2013). The constructionist approach is advocated to understand women's entrepreneurial intentions as those are socio-culturally shaped (Hughes et al., 2012). It is suggested that the psychological and sociological gender differences need to be integrated into a framework to perceive women's entrepreneurship in a holistic manner, which would explain the impact of family background and family responsibilities on opportunity recognition, the dynamics between self-efficacy and motivations, and traditional gender roles, in an effective manner (Brush & Hisrich, 1991; Jennings & Brush, 2013; Kalyani & Kumar, 2011).

The effectuation theory (Sarasvathy, 2001) views entrepreneurship as a process that ultimately leads to value creation, emphasising this over profitability. In contrast, another theory proposed by Mishra and Zachary (2015) perceives it as a process involving monetisation through venture formation. While both theories implicate the necessity of resources (inclining towards a resource-based perspective), they differ in terms of leveraging expertise in selecting opportunities (opportunity-based perspective); nevertheless, experts believe both are in a nascent or intermediary state (Perry et al., 2012). The resource-based perspective emphasizes the utilization of resources including physical strength, cognitive know-how, technical adeptness, and inimitable advantages to get financial leverage (Irwin et al., 1998) whereas, the entrepreneurial opportunity-based perspective emphasizes the exploitation of both push and pull factors to tap opportunities for e-business creation and growth (Parker & Castleman, 2009). It can be argued that utilising both resource-based and entrepreneurial opportunity-based theories would be further inclusive in assessing women's e-entrepreneurship. Moreover, while some experts believe that entrepreneurship is gendered, others claim no discernible difference between male and female entrepreneurs, though mostly in terms of their approaches to business (Elizabeth & Baines, 1998). Nonetheless, male and female entrepreneurs encounter internal and external pressures while transforming their brick-and-mortar businesses into pure-click or brick-and-click ones in the reality of continual technological disruptions. E-entrepreneurship can leverage digital technologies, and the Internet can facilitate and mitigate these challenges faced by women. Women e-entrepreneurs benefit from e-commerce platforms, which lower the barriers to entry by requiring less initial investment compared to brick-and-mortar businesses. Convenient access to online

resources, training, and market research empowers women with the knowledge and skills needed to succeed. Gender-sensitive financial reforms, microfinance initiatives, and digital banking solutions are being implemented to facilitate equitable participation (Gulvira et al., 2024). Women are increasingly harnessing digital ecosystems to scale enterprises, foster innovation, and participate in broader economic narratives (Hasan et al., 2024). Additionally, e-entrepreneurship offers flexibility, allowing women to balance business and family responsibilities more effectively. The global reach of online businesses expands market opportunities, overcoming local constraints, and facilitates fostering networking with other entrepreneurs, mentors, and investors, thus building supportive communities. E-entrepreneurship can also reduce the impact of gender bias, transforming entrepreneurial performance into a gender-independent phenomenon (Hasan et al., 2024; UNCTAD, 2022).

The following objectives of this study are set, reflecting on the above discussions and the respective underlying gaps.

1. To conceptualise an integrated model of women's e-entrepreneurship and to test it for validity and reliability.
2. To identify and examine the underlying resource-based and environmental opportunity-based factors that influence the performance of women e-entrepreneurs.

Conceptual Framework

E-entrepreneurship, due to its unique and idiosyncratic characteristics, is difficult to explain adequately with a single theory, even by its comprehensive application. Although integrating multiple models in a single study is a recognised approach, it is laborious to integrate different theories into a model to explain all expected outcomes (Al Amin et al., 2023). Nonetheless, resource-based views and opportunity-based theories are widely used for studying innovation or entrepreneurship idiosyncrasies (Akter et al., 2019; Parker & Castleman, 2009). Carayannis and Ferreira (2025) expanded resource-based views by showing how women entrepreneurs in emerging markets utilise intangible assets to navigate institutional voids. Opportunity creation gets shaped by entrepreneurial cognition and environmental factors that can explain how women entrepreneurs face constraints in finance, legal access, and institutional support (Khan et al., 2024). A synthesis of these related theories is conceptualised and presented in Figure 1 as an integrated model of women's entrepreneurship.

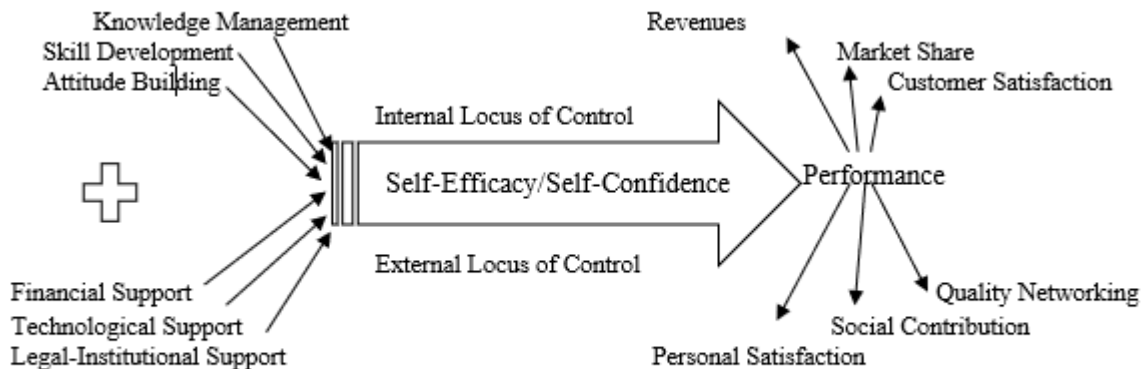


Figure 1: An Integrated Model of Women's E-Entrepreneurship

METHODOLOGY

Research should account for gender-specific factors (Ahl, 2006), and a gender-sensitive investigation can assist us in exploring the diverse and deep-seated challenges women encounter in entrepreneurship because using findings of research targeting male entrepreneurs leads to skewed results when applied to women. Women's engagement in business activities needs to be understood by their heterogeneity and respective socio-economic and socio-political realities (Gillis et al., 2004; Lewis et al., 2014). Methodological distinctiveness is advocated when female entrepreneurs are concerned, which also implies the necessity of a gender-sensitive approach to research that can enhance the scope for utilising the respective theories (Akter et al., 2019; Birley, 1987). Comparative studies focusing on gender differences and the unique

experiences of women entrepreneurs can help identify specific challenges and opportunities facing women e-entrepreneurs (Hughes *et al.*, 2012). This quantitative research used an extensive literature review utilising sources such as Google Scholar, JSTOR, Emerald Insight, Science Direct, SpringerLink, and ResearchGate. The quantitative approach can be justified by the fact that women's e-entrepreneurship in Bangladesh is not a new phenomenon, and the nature of the research queries does not involve how or why type questions that require a qualitative or mixed method approach (Yin, 2017). Quantitative approach is useful in identifying statistically significant relationships among factors that are critical to understanding the entrepreneurial ecosystem in a developing economy like Bangladesh, and that also aligns with the research objective of this study (Amin, Rai, & Topa, 2003). Primary data was collected through interviews. Self-reported performance indicators such as quality improvement, profitability earned, customer satisfaction gained, personal satisfaction gained, and social contribution were used for economic and non-economic performance evaluation purposes. A 5-point Likert rating scale was used to measure respective values. Statistical package SmartPLS 4.0 has been used to exploit the non-parametric PLS-SEM method, to establish inter-relationships among latent variables, hypothesis testing, and model analysis (Elshaer & Sobaih, 2023). The dependent variable in this study was e-business performance; the independent variables include social, technological, legal, and financial factors, and the acquired knowledge, skills, and attitudes toward performing e-business activities.

A structured questionnaire was used to collect primary data. Initially, women e-entrepreneurs were identified and recruited using contact information from directories, brochures, and publications of the Small and Medium Enterprises Foundation (SMEF), MIDAS, and Joyeeta Foundation. Later, snowball sampling was used to identify the other respondents. They were selected based on their educational background, size, location, and duration of their online businesses; the category of business clusters (Table 1); and the availability of contact information. All respondents have at least one year of business operation experience in the three categories: trading, manufacturing, and services. Five clusters were purposively selected considering their high growth (SMEF, 2015). Among the 88 respondents, 21 were interviewed face-to-face, and the rest were interviewed online and using mobile phone calls at the convenience of the respondents.

Table 1. Cluster Associations of the Respondents

Cluster	n	%
Cosmetics and Toiletries	15	17
Fashion and Aesthetics	38	43
Clothing and Ready Garments	45	51
Food and Cooking	30	34
Agro and Agro-Based	10	11
Others	12	14

Source: Created by the Authors

Note: Respondents belong to more than one cluster

HYPOTHESES DEVELOPMENT

Developing and operating an e-business has been considered a knowledge-based endeavour. Knowledge Management shapes strategy formulation for business processes and supports the decision-making processes (Lin and Lee, 2005). The knowledge-based strategy incorporates data, information, and a set of knowledge assets such as a business model and plan (Alhawamdeh, 2007). Efficient knowledge management facilitates the development of technological capabilities while adopting e-business (Lin & Lee, 2005). E-business knowledge management includes knowledge acquisition, application, and sharing of knowledge regarding product promotion, customers' value proposition, customer satisfaction, and sustainable revenue generation (Dubosson-Torbay *et al.*, 2002). Therefore, the following hypothesis can be developed.

H₁: Knowledge acquisition and management positively affect women's e-business performance.

In e-businesses, skills are needed to utilise the unique qualities of the Internet to retrieve, store, and process information (Taylor & Murphy, 2004). Women e-entrepreneurs' web security measures and trustworthiness need to effectively meet customers' demand regarding the protection of their privacy. Technical expertise and skills shape the degree of adoption of web services technology to support or automate business processes (Chen *et al.*, 2006).

Women entrepreneurs can ensure effective resource utilisation using entrepreneurialism, networking ability, and pre-requisite technical skills (Horner-Long & Schoenberg, 2002).

H2: Skills learned by women entrepreneurs positively affect business performance.

Attitude toward the internet helps entrepreneurs explore potential opportunities and focus on global reach (Zhao *et al.*, 2008). Entrepreneurial orientation significantly impacts entrepreneurs' attitude-building and related intentions using their autonomy, innovativeness, risk-taking behaviour, pro-activeness, and competitive aggressiveness (Lim and Envik, 2013). Attitudes are positively related to e-business, referring to a greater intention for technology adoption and its applications in business (Lesjak, 2005).

H3: Attitudes have a positive impact on women entrepreneurs' e-business performance.

Financing in women entrepreneurship is significantly meager, and there are gender discrimination issues in the investor criteria and the nature of the investor-investee relationship (Greene *et al.*, 2001). Gender differences are also found at the early growing stage of entrepreneurship, where women obtain significantly less financial capital to develop their new businesses compared to their male counterparts (Alsos *et al.*, 2006). It is argued that women business angels prioritise homophile social networking when it comes to financial decision-making (Harrison and Mason, 2007).

H4: Financial supports have a positive impact on women e-entrepreneurs' business performance.

A technological construct for e-entrepreneurship business includes accessibility and usability of the internet and digital devices with hardware, software, and logistics support. E-business involves both the restructuring of supply chains and the reconfiguration of the business-customer interface to construct a seamless website between customers and suppliers, along with the supply chain (Windrum and de Berranger, 2002). Extension of technological support depends on the entrepreneurship size, scope, IT needs, infrastructure, and Internet skills, drivers' availability for e-business adoption and operations (Chatzoglou and Chatzoudes, 2016). In business activities, IT serves two distinct roles—as a catalyst for innovative ideas and as an engine for delivering (McAfee and Brynjolfsson, 2008).

H5: Technological support has a positive effect on women entrepreneurs' e-business performance.

The legal and institutional pressure approach emphasises normative entrepreneurial practices and behaviours aimed at specific economic endeavours. Various institutional elements, such as legal and financial policies, influence venture arrangements and entrepreneurs' decisions to create a venture (Lim *et al.*, 2010). Because they must align with and conform to the rules, laws, and social norms to gain social legitimacy (Lang *et al.*, 2014). Scholars have found that social legitimacy leads to increased entrepreneurial self-efficacy and that institutional forces can foster entrepreneurial behaviour (Kazumi and Kawai, 2017). Moreover, higher levels of government digitalisation enhance the positive relationship between an innovative culture and e-entrepreneurship.

H6: Legal-institutional support has a positive effect on women entrepreneurs' e-business performance.

FINDINGS

Demographic characteristics of women e-entrepreneurs (Table 2) show that among 88 participants (N=88), 36% were aged 21 to 30, 48% were aged 31 to 40, and 16% were over 40. Regarding educational background, 2% held a Secondary School Certificate (SSC), 27% completed a Higher Secondary Certificate (HSC), and the majority (71%) had a bachelor's degree or higher. In terms of business experience, 5% had 1-2 years of experience, 57% had 2-3 years, and 38% had more than 3 years. 80% of participants were married, while 20% were unmarried.

Table 2: Demographic Information

Category	Items	n	%
Age	<20	0	0
	21-30	32	36
	31-40	42	48
	>40	14	16
Education	S.S.C	2	2
	H.S.C	24	27
	Bachelor and above	62	71
Experience	1-2 years	4	5
	2-3 years	50	57
	>3 years	34	38
Marital Status	Married	70	80
	Unmarried	18	2

Source: Authors' Construction

Different aspects of e-entrepreneurship are presented in Table 3. It reveals that 93% operated as solopreneurs or self-employed, running their businesses individually, 6% formed partnerships, and only 1% engaged in joint ventures. In the business sector, 64% are found in trading, 22% in manufacturing, and 14% in services. In e-business operating platforms, 61% operated on Facebook, while 35% used multiple platforms. A small percentage used YouTube (3%) or their websites (1%) for online business. Primarily, women entrepreneurs were found to be motivated in e-businesses by social/friends' networks (35%), family/personal reasons (34%), and workplaces (31%).

Table 3: Different Aspects of the Businesses

Category	Items	n	%
Ownership Types	Solopreneurs	82	93
	Partnership	5	6
	Joint Venture	1	1
Types of Business	Trading	57	64
	Services	12	14
	Manufacturing	19	22
Online Platforms	Facebook	53	61
	YouTube	3	3
	Websites	1	1
	Mixed Platforms	31	35
Sources of Motivation	Family and/or Self	30	34
	Friends and/or Relatives	31	35
	Society and/or Workplace	27	31

Source: Authors' Construction

Business clusters owned by women e-entrepreneurs (Table 1) reveal that clothing and ready-made garments form the largest cluster (51%). Other clusters include fashion and aesthetics (43%), food and cooking (34%), cosmetics and toiletries (17%), health/education/software/others (14%), and agro and agro-based (11%). It should be noted that some respondents belong to more than one cluster. Among the respondents, 75% of women entrepreneurs received formal training or education, while 25% had informal training. Among them, 36% thought the training and education of e-business was effective, while 64% did not. While 71% of them believed they needed more training, 22% disagreed, and 7% were indifferent.

We used Partial Least Square (PLS) method and did not employ goodness of fit or model fit measures as they do not represent appropriate fit measures in PLS (Hair and Alamer, 2022; Hair Jr. *et al.*, 2021; Henseler & Sarstedt, 2013). However, the goodness of fit might be useful for PLS-Multi Group Analysis (PLS-MGA) when researchers compare PLS-SEM results across different data groups using the same PLS path model, which is not applicable for this study (Henseler & Sarstedt, 2013). After data cleaning, 88 samples were found valid for statistical calculation (Appendix A). Since the maximum number of arrows pointing at a latent variable is 6 (Figure 1), the minimum sample size required is 75, which satisfies our sample size of 88 (Marcoulides & Saunders, 2006). Ideally, the number of path directions in the model should also be 10 times the sample size (Hair *et al.*, 2019). Our Sample size thus satisfies both the criteria. The value of Cronbach's alpha ranges from 0.70 to 0.79, which is an acceptable measure for internal consistency (Table 4).

In this study, the value of Average Variance Extracted (AVE) was set at least 0.5 for each construct at 90%, confirming the good convergent validity (Hulland, 1999).

Table 4. Construct Reliability and Convergent Validity

Constructs	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Knowledge	0.753	0.838	0.567
Skills	0.765	0.843	0.520
Attitudes	0.718	0.842	0.641
Financial	0.737	0.883	0.791
Technical	0.747	0.830	0.623
Legal	0.742	0.852	0.660
Performance	0.706	0.837	0.632

Source: Authors' Construction

Table 5. Fornell-Larcker Criterion for Discriminant Validity

Constructs	Attitude	Financial	Knowledge	Legal	Performance	Skill	Technology
Attitude	0.801						
Financial	0.304	0.889					
Knowledge	0.097	-0.055	0.753				
Legal	0.264	0.241	0.253	0.812			
Performance	0.373	0.159	0.485	0.148	0.795		
Skills	0.217	0.067	0.387	0.219	0.560	0.721	
Technical	0.249	0.096	0.008	-0.120	0.214	0.054	0.789

Source: Authors' Construction

Since there is scholarly reservation for the Fornell-Larcker Criterion and proposed threshold value of 0.90 or conservatively 0.85 for discriminant validity of each construct (Henseler *et al.*, 2015) in the model, as depicted in Table 6, we further conducted the Heterotrait-Monotrait Ratio (HTMT) test to confirm the discriminant validity. All the HTMT values are less than 0.85 (Table 6), which implies that there is a strong discriminant validity.

Table 6. HTMT Ratio for Discriminant Validity

Constructs	Attitudes	Financial	Knowledge	Legal	Performance	Skills
Financial	0.425					
Knowledge	0.210	0.125				
Legal	0.366	0.324	0.361			
Performance	0.514	0.221	0.619	0.205		
Skills	0.335	0.102	0.489	0.302	0.752	
Technical	0.308	0.136	0.199	0.222	0.274	0.253

Source: Authors' Construction

The Variance Inflation Factor (VIF) values of the variables - attitude, financial, knowledge, legal, skill, and technological – are presented in Table 7. As the values are slightly over 1.00, it implies that the variables have a low level of multicollinearity.

Table 7. Inner VIF

Constructs	VIF	Constructs	VIF
Attitude	1.287	Legal	1.249
Skill	1.247	Financial	1.164
Knowledge	1.249	Technological	1.129

Source: Authors' Construction

The items under attitude (AT29), knowledge (KN20), and skill (SK23) with VIFs of 1.754, 1.229, and 3.466, respectively (Table 8), mean that these items have low to moderate multi-collinearity with the other items in the model. The variable SK23 (attitude towards internet research using high-tech) in our model stands out with a relatively higher VIF of 3.466, but it does not imply any problematic multi-collinearity as the value is not above 5.

Table 8. Outer VIF

Items	VIF	Items	VIF	Items	VIF	Items	VIF	Items	VIF
AT29	1.754	KN18	1.372	SK25	1.407	LEG46	1.852	PRF55	1.156
AT30	1.429	KN20	1.229	SK26	1.302	LEG47	1.277	PRF56	1.828
AT32	1.364	SK22	2.974	FIN40	1.517	TEC50	1.597	PRF57	1.873
KN16	1.909	SK23	3.466	FIN41	1.517	TEC51	1.703		
KN17	2.094	SK24	1.500	LEG45	1.721	TEC52	1.345		

Source: Authors' Construction

Note: AT=Attitude, KN=Knowledge, SK=Skill, FIN=Finance, LEG=Legal, TEC=Technology, PRF=Performance

After confirming the validity, reliability, and collinearity of measurement scales, a bootstrapping method was conducted using SmartPLS 4.0 to determine the path coefficient and t values (Table 6 and Figure 2). The study proposed and tested six hypotheses, and three of those were found statistically correlated (having significant relationships with the dependent variable). Estimates from SmartPLS 4.0 show the effect sizes that are denoted by f^2 . In this study, the relationship between dependent and independent variables is found to be moderate.

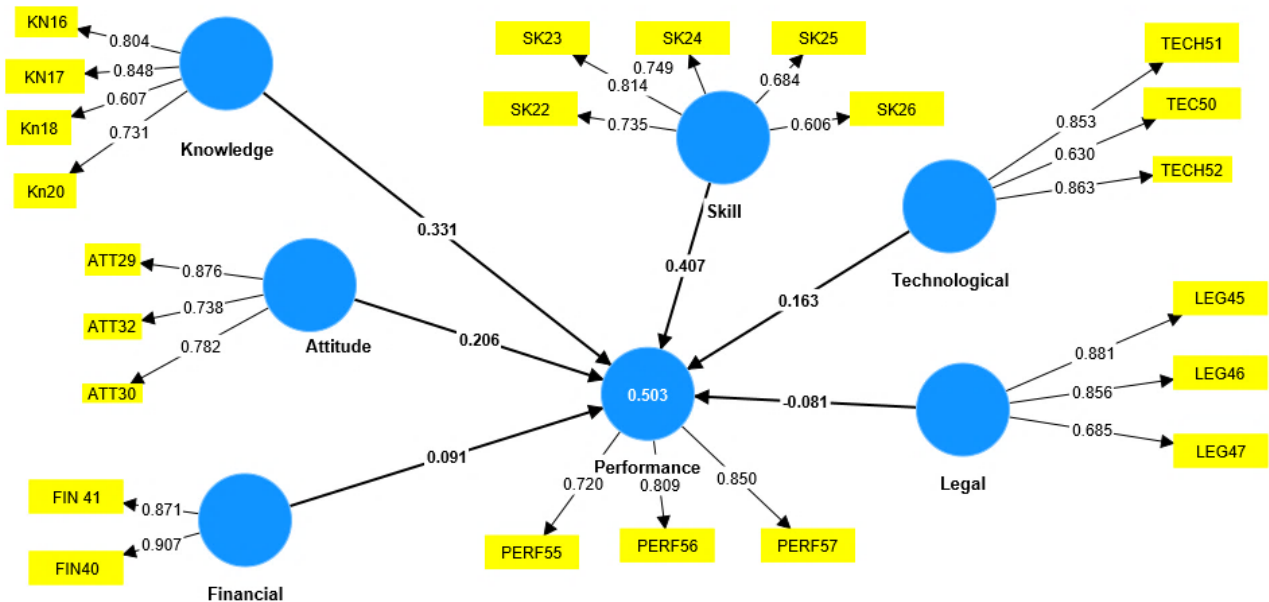


Figure 2: Statistical Model Estimation by Bootstrapping

Hypotheses Testing

Hypotheses one, two, and three are accepted while hypotheses four, five, and six are rejected based on the accept-reject criteria (t value > 1.96 and p -value < 0.05) (see Table 9). Path coefficients β denote the relationship between dependent and independent variables, and f^2 depicts the effect size (generally, f^2 values of 0.02, 0.15, and 0.35 suggest small, medium, and large effect sizes, respectively) (Henseler *et al.*, 2009).

Table 9. Hypothesis Testing on the Dependent Variable: Performance

Independent Variables	Path Coefficient (β)	R^2	f^2	t Statistics	p-Value	Comment
Attitude	0.206	0.503	0.066	2.292	0.022	Accepted
Financial	0.091		0.014	1.075	0.283	Rejected
Knowledge	0.331		0.177	3.775	0.000	Accepted
Legal	-0.081		0.01	0.68	0.496	Rejected
Skill	0.407		0.268	4.606	0.000	Accepted
Technological	0.163		0.048	1.664	0.096	Rejected

Source: Authors' Construction

In this study, variables like knowledge and skills have a medium effect, i.e., when removed from the model, there might not be a substantial effect on performance by other variables (i.e., effect size $f^2 < 0.15$) (Cohen, 2013). Yet again, two-tailed t values (1.96 and 2.57) indicate 95% and 99% significance levels of the path coefficient, respectively (Hair *et al.*, 2011). The value of R^2 (0.503) suggests that the model has moderate explanatory power of the effect of independent variables on dependent variables because R^2 values of 0.75, 0.50, and 0.25 can be considered substantial, moderate, and weak explanation power (Hair, *et al.*, 2011; Henseler, *et al.*, 2009).

Model Predictability

Q^2 Estimation

The value of Q^2 for this study is 0.364 (Table 10). Hence, the model has a medium predictive power because values higher than 0, 0.25, and 0.50 represent small, medium, and large predictive relevance of the PLS-path model. (Stone, 1974; Hair *et al.*, 2019).

Table 10. The Predictive Power of the Model			
Q^2 Predict	(Model)	Q^2 Predict	(Item Based)
Performance	0.364	PERF55	0.279
		PERF56	0.12
		PERF57	0.24

Source: Authors' Construction

Cross-Validated Predictive Ability Test (CVPAT)

CVPAT on indicator average evaluates the predictive ability of the model based on an average loss difference, p-value, and t-value of the outcome variables. The average loss difference of this study is - 0.084 (Table 11), which suggests that, on average, the model's predictions are 0.084 units better than the actual outcomes. The p-value of 2.592 indicates the statistical significance of the results. The lower values (closer to zero) of p imply stronger evidence against the null hypothesis. The t-value of 0.011 represents the test statistic. A higher t-value would indicate stronger evidence against the null hypothesis. The same values apply to the overall performance assessment.

Table 11. Cross-Validated Predictive Ability Test (CVPAT) (Indicator Average)			
Outcome Variables	Average Loss Difference	p-value	t-value
Performance	-0.084	2.592	0.011
Overall	-0.084	2.592	0.011

Source: Authors' Construction

CVPAT on the Linear Model for outcome variables depicted that the average loss difference was -0.122 (Table 12), suggesting an average improvement of 0.122 units on predictions compared to actual outcomes. However, the negative average loss difference indicates that the model's predictions are better than the actual outcomes. The low p-values and significant t-values suggest that these differences are statistically meaningful.

Table 12. Cross-Validated Predictive Ability Test (CVPAT) (Linear Model)			
Outcome Variables	Average Loss Difference	p-value	t-value
Performance	-0.122	4.221	0
Overall	-0.122	4.221	0

Source: Authors' Construction

RESULTS & DISCUSSIONS

Entrepreneurship has gained the attention of decision-makers and scholars in the last few decades due to the resulting positive economic and social consequences. E-business competencies allow entrepreneurs to take advantage of online mediums for longer-term profitability (Fillis *et al.*, 2004). However, the performance of e-businesses is often influenced

by key human capabilities such as knowledge acquisition, development and utilisation of skills, and development of favourable attitudes, along with external support for financial, legal, and technological issues. This study unveils the factors impacting the performance of women e-entrepreneurs in Bangladesh, based on the assumption that women's entrepreneurship is driven by human agency (knowledge, skills, attitudes) and can leverage environmental opportunities. A rich insight is developed through exploring the overall impact (Table 13) on the performance achievements (dependent variables) of women e-entrepreneurs, made by the independent variables - knowledge, attitude, skill (as human capabilities), and financial, legal, and technological support (as external opportunities).

Table 13. Summary of Sample Statistics

Constructs	Mean ($\bar{x}$) STD (σ)	Cronbach's Alpha (α) CR (ρ), AVE	Path Coefficient t-Value, p-Value	Hypotheses Accept/Reject
Knowledge	3.95, 0.10	0.753, 0.838, 0.567	0.331, 3.775, 0.000	Accepted
Skill	3.88, 0.09	0.765, 0.843, 0.520	0.407, 4.606, 0.000	Accepted
Attitude	3.84, 0.17	0.718, 0.842, 0.641	0.206, 2.292, 0.022	Accepted
Financial	3.84, 0.63	0.737, 0.883, 0.791	0.091, 1.075, 0.283	Rejected
Legal	3.21, 0.41	0.742, 0.852, 0.660	-0.081, 0.068, 0.496	Rejected
Technological	4.05, 0.04	0.747, 0.830, 0.623	0.163, 1.664, 0.096	Rejected

Source: Authors' Construction

Note: STD = Standard Deviation, AVE =Average Variable exElained, CR=Composite Reliability

Knowledge Acquisition

The study found a positive influence of knowledge acquisition on e-entrepreneurship performance, thus accepting the hypothesis ($t = 3.775$ and $p = 0.00$), H_1 . The estimates suggested that e-entrepreneurs who had a firm understanding of their industry, market, and business fundamentals tended to perform well. With a valid scale (AVE at least 50%), the knowledge construct of this study supported that knowledge about e-business models, e-business platforms (websites, pages, and channels), functions of virtual shops, and online marketing had a significant impact on e-business performance achievement. Findings of this study suggest that being knowledgeable about online business provides a competitive advantage at the embryonic stage, which resonates with existing research findings (Lee *et al.*, 2005). The result also evidences existing findings that the formal understanding of e-business model is mostly theoretical, but active knowledge acquisition from the field and customer feedback has a profound impact on e-entrepreneurship strategies and respective process development (Alhawamdeh, 2007; Dubosson *et al.*, 2002; Lim & Envick, 2013).

Skills Development

Skills development was also found to have a significant positive impact on performance achievements (the hypothesis H_2 was accepted with a t-value = 4.606 and p-value = 0.00). The study found that gaining skills offered a significant impact on e-entrepreneurship performance achievement. These skills included running online pages/channels/apps, research using the Internet, customer feedback management, online product marketing, and networking. Findings of this study resonate with the existing findings in terms of the impacts of incorporating greater integrity and utilising customer feedback (Horner-Long & Schoenberg, 2002; Olsen & Eikebrokk, 2009).

Positive Attitudes

A significant impact of positive attitudes was also identified regarding women's e-entrepreneurial performance (the hypothesis H_3 was accepted as $t=2.292$ and $p=0.022$). A well-informed, committed woman entrepreneur, driven by the spirit of competition, could achieve significant e-entrepreneurial performance outcomes. However, this study did not find the early-stage preparation and risk-taking propensities of women e-entrepreneurs to be worth optimising e-entrepreneurial performance. Nonetheless, the findings match with those of existing studies, women in e-entrepreneurship are adventurous and enthusiastic, integrative, and customer-oriented, which eventually facilitates achieving better e-entrepreneurial performance (Horner-Long & Schoenberg, 2002). This study also conforms to what Lim and Envick (2013) identified women e-entrepreneurs' value autonomy was higher than their business autonomy due to their role expectancy and/or wide dependency on their friends or family.

Financial Support

In addition to human capabilities, external supports played an important role for women to perform e-entrepreneurial activities. These supports were along the financial, institutional, technological, and sociocultural dimensions that were not assessed earlier in this context. However, women e-entrepreneurs frequently face hurdles in managing externalities in this predominantly patriarchal society. In this study, a non-significant relationship was observed between e-entrepreneurial performance and financial support. The hypothesis H₄ was rejected because of the respective values of t and p ($t = 1.075$, $p = 0.283$, and $t = 0.068$, $p = 0.496$, respectively). Except for the impact of collateral, increased financial needs, and gender-related financing issues on e-entrepreneurial e-performance, the study found no discernible effects. Most women e-entrepreneurs relied on their funds rather than seeking external support, indicating that collateral was not a significant issue for their performance outcomes. Investments made by women e-entrepreneurs over the years are considerably small, though this trend is slowly changing, which is also evidenced by existing studies (Greene *et al.*, 2001). It is also identified that women e-entrepreneurs usually prioritise securing externally sourced capital at the later stages of their initiatives rather than in the beginning as seed or start-up capital (Carter *et al.*, 2003).

Impact of Technological Support

Regarding technological support, the hypothesis H₅ postulated a positive impact of technological support on women's e-entrepreneurial performance. However, the hypothesis was rejected because $t = 1.664$ and $p = 0.096$. The construct primarily included items such as the availability of internet technologies, digital equipment and tools, online shop maintenance support, and high-tech adaptability. The construct reliability showed that technological supports like the availability of Internet technologies, the affordability of digital equipment, and the maintenance of an e-entrepreneurship had an insignificant effect on women's e-entrepreneurial performance. The findings resonated with the inference that existing literature also identified: e-entrepreneurial infrastructure and incessant internet accessibility could have remarkably influenced women's e-entrepreneurship adoption or transformed the brick-and-mortar (Chatzoglou & Chatzoudes, 2016). This study approached to validate women e-entrepreneurs' performance with the variables of average product quality achievement, average profitability earned, customer satisfaction achieved, average market share increment, personal satisfaction, business activities involvement, and networking through social participation. It found three items statistically significant: product quality achievement, profitability earned, and customer satisfaction gained. The study confirms that women e-entrepreneurs are often seen as less focused on growth, more conservative in their pursuit of profits, and highly ambitious in delivering sophisticated customer experiences.

The Legal and Institutional Support

The hypothesis H₆ concerning legal and institutional support was rejected due to its statistically insignificant effect on e-entrepreneurial performance. A legal construct indicated that women entrepreneurs suffer from legitimacy issues related to business ownership documentation, securities, and safety against online fraud and forgeries. These findings support the previous claims that women's financial endeavours were considerably affected by legality and legitimacy, female entrepreneurs often lacked self-confidence in legal and institutional support, and high regulatory complexity sometimes negatively affected their entrepreneurial practices (Lim *et al.*, 2010; Kazumi & Kawai, 2017).

CONCLUSIONS

Women often try starting their businesses by capitalising only on their unique resources, like knowledge, skills, and distinctive attitudes. This study identifies a significant positive correlation between women's e-entrepreneurial capabilities (skills, knowledge, attitudes) and performance. The findings of this research bear relevance for entities that endorse entrepreneurship. By pinpointing the obstacles and prospects that influence e-entrepreneurial performance, government and non-government organisations can effectively allocate their resources and support, promoting the growth of women's entrepreneurship. Accordingly, women entrepreneurs should get necessary training, motivation, and access to incubation programs at the government and non-government levels. This research can contribute to advancing women's e-entrepreneurship development strategies and respective growth. Women entrepreneurs frequently encounter

difficulties securing financial resources, legal assistance, and technological support for e-entrepreneurial performance attainment. Hence, nurturing women's e-entrepreneurship with institutional aid regarding financial, technological, and legal support is vital for securing successful e-entrepreneurial behavioural outcomes. The study offers only a snapshot over a specific period. A longitudinal study approach could further enhance our understanding of women e-entrepreneurs' performance achievements and their hurdles to achieving them. Further research is recommended to comprehend the role of training, motivation, and support-building programs in generating human capabilities to discover and exploit various opportunities for e-entrepreneurship. Future research could be more comprehensive by including respondents from multi-level entrepreneurs, experts, and policymakers.

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References

- Ahl, H. (2006). Why Research on Women Entrepreneurs Needs New Directions. *Entrepreneurship Theory and Practice*, 30(5), 595-621. <https://doi.org/10.1111/j.1540-6520.2006.00138.x>
- Akter, M., Rahman, M., & Radicic, D. (2019). Women Entrepreneurship in International Trade: Bridging the Gap by Bringing Feminist Theories into Entrepreneurship and Internationalization Theories. *Sustainability*, 11(22). <https://doi.org/10.3390/su11226230>
- Al-Amin, M., Muzareba, A. M., Chowdhury, I. U., & Khondkar, M. (2023). Understanding e-satisfaction, Continuance Intention, and e-loyalty Toward Mobile Payment Application During COVID 19: An Investigation Using the Electronic Technology Continuance model. *Journal of Financial Services Marketing*, 29, 318-340, <https://doi.org/10.1057/s41264-022-00197-2>
- Alhawamdeh, M. A. (2007). The Role of Knowledge Management in Building e-business Strategy. Proceedings of the *World Congress on Engineering and Computer Science 2007*, October 24-26, 2007, San Francisco, USA.
- Alom, M. M., Hossain, M. S., & Rahman, F. (2025). Financial Barriers to Women-Led Microenterprises in Bangladesh. *Journal of Small Business Development*, 33(2), 87-101.
- Alsos, G. A., Isaksen, E. J., & Ljunggren, E. (2006). New Venture Financing and Subsequent Business Growth in Men- and Women-Led Businesses. *Entrepreneurship Theory and Practice*, 30(5), 667-686. <https://doi.org/10.1111/j.1540-6520.2006.00141.x>
- Amin, S., Rai, A. S., & Topa, G. (2003). Does Microcredit Reach the Poor and Vulnerable? Evidence from Northern Bangladesh. *Journal of Development Economics*, 70(1), 59-82.
- Ardichvili, A., Cardozo, R., & Ray, S. (2003). A Theory of Entrepreneurial Opportunity Identification and Development. *Journal of Business Venturing*, 18(1), 105-123. Elsevier. [https://doi.org/10.1016/S0883-9026\(01\)00068-4](https://doi.org/10.1016/S0883-9026(01)00068-4)
- Barrett, R. & Mayson, S. (Eds.). (2008). *International Handbook of Entrepreneurship and HRM*. Edward Elgar Publishing.

- BBS (2025) *Quarterly Report on ICT Access and Use Survey 2024-25 (1st Quarter: July – September 2024)*. Government of Bangladesh.
- BBS. (2023). *Survey on ICT Use and Access by Individuals and Households in 2022*, Government of Bangladesh.
- Bird, B., & Brush, C. (2002). A Gendered Perspective on Organizational Creation. *Entrepreneurship Theory and Practice*, 26(3), 41-65. Sage Journals. <https://doi.org/10.1177/104225870202600303>
- Birley, S. (1987). Female Entrepreneurs: Are They Really Any Different? School Working Paper 5/87, Cranfield Institute of Technology, The United Kingdom.
- Bowen, D. D. & Hisrich, R. D. (1986). The Female Entrepreneur: A Career Development Perspective, *The Academy of Management Review*, 11(2), 393-407. <https://doi.org/10.2307/258468>
- Brush, C. G. (1992). Research on Women Business Owners: Past Trends, a New Perspective and Future Directions. *Entrepreneurship Theory and Practice*, 16(4), 5-30. <https://doi.org/10.1177/104225879201600401>
- Brush, C. G., & Hisrich, R. D. (1991). Antecedent Influences on Women-owned Businesses. *Journal of Managerial Psychology*, 6(2), 9-16. <https://doi.org/10.1108/02683949110144846>
- BTRC (2025) Mobile Subscriber, Bangladesh Telecommunication Regulatory Commission. <https://btrc.gov.bd/site/page/0ae188ae-146e-465c-8ed8-d76b7947b5dd/->
- Buttner, E. H., & Moore, D. P. (1997). Women's Organizational Exodus to Entrepreneurship: Self-reported Motivations and Correlates with Success. *Journal of Small Business Management*, 35(1), 34-46.
- Carayannis, E. G., & Ferreira, J. (2025). *Entrepreneurship Ecosystems and Digital Transformation: The Female Perspective*. Emerald Publishing.
- Cardella, G. M., Hernández-Sánchez, B. R., & Sánchez-García, J. C. (2020). Women Entrepreneurship: A Systematic Review to Outline the Boundaries of Scientific Literature. *Frontiers in Psychology*, 11, 1557. <https://doi.org/10.3389/fpsyg.2020.01557>
- Carter, N., Brush, C., Greene, P., Gatewood, E., & Hart, M. (2003). Women Entrepreneurs Who Break Through to Equity Financing: The Influence of Human, Social and Financial Capital. *Venture Capital: An International Journal of Entrepreneurial Finance*, 5(1), 1-28. <https://doi.org/10.1080/1369106032000082586>
- Chatzoglou, P., & Chatzoudes, D. (2016). Factors Affecting e-business Adoption in SMEs: An Empirical Research. *Journal of Enterprise Information Management*, 29(3), 327-358. <https://doi.org/10.1108/JEIM-03-2014-0033>
- Chen, A. N., Sen, S., & Shao, B. B. (2006). Strategies for Effective Web Services Adoption for Dynamic e-businesses. *Decision Support Systems*, 42(2), 789-809. Elsevier. <https://doi.org/10.1016/j.dss.2005.05.011>
- Chen, C. C., Greene, P. G., & Crick, A. (1998). Does Entrepreneurial Self-efficacy Distinguish Entrepreneurs from Managers?. *Journal of Business Venturing*, 13(4), 295-316. Elsevier. [https://doi.org/10.1016/S0883-9026\(97\)00029-3](https://doi.org/10.1016/S0883-9026(97)00029-3)
- Cohen, J. (2013). *Statistical Power Analysis for the Behavioral Sciences*. Routledge.
- Dimick, V., Richard, T., Muldoon, J., & Lee, Y. (2025). Women's Entrepreneurial Identity: Insights from Agriculturally Intensive Small Island Economy. *International Entrepreneurship and Management Journal*, 21(1), 1-25. <https://link.springer.com/article/10.1007/s11365-024-01021-0>
- Dubosson-Torbay, M., Osterwalder, A., & Pigneur, Y. (2002). E-business Model Design, Classification, and Measurements. *Thunderbird International Business Review*, 44(1), 5-23. <https://doi.org/10.1002/tie.1036>
- Elam, A. B., Brush, C. G., Greene, P. G., Baumer, B., Dean, M., Heavlow, R., & Global Entrepreneurship Research Association. (2019). *Women's Entrepreneurship Report 2018/2019*, Smith College. https://scholarworks.smith.edu/conway_research/4

- Elizabeth, C., & Baines, S. (1998). Does Gender Affect Business ‘Performance’? A Study of Microbusinesses in Business Services in the UK. *Entrepreneurship and Regional Development*, 10(2), 117-135. <https://doi.org/10.1080/08985629800000007>
- Elshaer, I. A., & Sobaih, A. E. E. (2023). The Impact of Gender on the Link between Personality Traits and Entrepreneurial Intention: Implications for Sustainable Agriculture. *Agriculture*, 13(2), <https://doi.org/10.3390/agriculture13020454>
- Emon, M. H., & Nipa, M. N. (2024). Exploring the Gender Dimension in Entrepreneurship Development: A Systematic Literature Review in the Context of Bangladesh. *Westcliff International Journal of Applied Research*, 8(1), 34-49. <https://doi.org/10.47670/wuwijar202481mhemnn>
- Fairlie, R. W., & Robb, A. M. (2009). Gender Differences in Business Performance: Evidence from the Characteristics of Business Owners Survey. *Small Business Economics*, 33, 375-395. <https://link.springer.com/article/10.1007/S11187-009-9207-5>
- Fillis, I., Johansson, U., & Wagner, B. (2004). Factors Impacting on e-business Adoption and Development in the Smaller Firm. *International Journal of Entrepreneurial Behavior & Research*, 10(3), 178–191. <https://doi.org/10.1108/13552550410536762>
- Fischer, E. M., Reuber, A. R., & Dyke, L. S. (1993). A Theoretical Overview and Extension of Research on Sex, Gender, and Entrepreneurship. *Journal of Business Venturing*, 8(2), 151-168. [https://doi.org/10.1016/0883-9026\(93\)90017-Y](https://doi.org/10.1016/0883-9026(93)90017-Y)
- García-Moreno, M. B., García-Moreno, S., Nájera-Sánchez, J. J. & De Pablos-Heredero, C. (2016). An Explanatory Model of the Organizational Factors that Explain the Adoption of E-Business. *Journal of Industrial Engineering and Management*, 9(2), 547-581.
- GEM (2021) *Women’s Entrepreneurship 2020/21 - Thriving Through Crisis*, Global Entrepreneurship Monitor, Global Entrepreneurship Research Association, London Business School, UK. <https://www.gemconsortium.org/report/gem-202021-womens-entrepreneurship-report-thriving-through-crisis>
- Ghag, N., Sonar, H., Chaubey, A., & Singh, R. K. (2025). Unpacking the Factors that Support Women’s Entrepreneurship: A Critique and Exploration of New Avenues Using a fsQCA Approach. *Benchmarking: An International Journal*. <https://doi.org/10.1108/BIJ-01-2025-0004>
- Gillis, S., Howie, G., & Munford, R. (2004). *Third Wave Feminism: A Critical Exploration*. Springer.
- Greene, P. G., Brush, C. G., Hart, M. M., & Saporito, P. (2001). Patterns of Venture Capital Funding: Is Gender a Factor?. *Venture Capital: An International Journal of Entrepreneurial Finance*, 3(1), 63-83. <https://doi.org/10.1080/13691060118175>
- Gulvira, K., Nurgul, A., & Yerbol, B. (2024). Inclusive Finance and Digital Banking for Female Entrepreneurs: Evidence from Central Asia. *Development Economics Review*, 40(2), 99–118.
- Hair Jr, J. F., Hult, G. T., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R: A Workbook* (p. 197). Springer Nature.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice*, 19(2), 139-152. <https://doi.org/10.2753/MTP1069-6679190202>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to Use and How to Report the Results of PLS-SEM. *European Business Review*, 31(1), 2-24.
- Hair, J., & Alamer, A. (2022). Partial Least Squares Structural Equation Modeling (PLS-SEM) in Second Language and Education Research: Guidelines Using an Applied Example. *Research Methods in Applied Linguistics*, 1(3), 100027.

Harrison, R. T., & Mason, C. M. (2007). Does Gender Matter? Women Business Angels and the Supply of Entrepreneurial Finance. *Entrepreneurship Theory and Practice*, 31(3), 445-472. <https://doi.org/10.1111/j.1540-6520.2007.00182.x>

Hasan, I., Khan, S. N. & Kamal, N., (2024). E-Entrepreneurship Prospects and Women Empowerment: A Case Presenting Women Entrepreneurs. *Journal of Propulsion Technology*. 45(3). <https://dx.doi.org/10.2139/ssrn.4919871>

Hasan, M. (2023, March 7). E-commerce Buoyant Riding on Women Entrepreneurs. *The Daily Star*. <https://www.thedailystar.net/business/economy/news/e-commerce-buoyant-riding-women-entrepreneurs-3265106>

Hasan, T., Rahman, S., & Akhter, N. (2024). Digital Entrepreneurship and Women Empowerment in South Asia. *Asian Journal of Entrepreneurship and Innovation*, 18(1), 13–29.

Henseler, J., & Sarstedt, M. (2013). Goodness-of-fit Indices for Partial Least Squares Path Modeling. *Computational Statistics*, 28, 565-580. <https://doi.org/10.1007/s00180-012-0317-1>

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A New Criterion for Assessing Discriminant Validity in Variance-Based Structural Equation Modeling. *Journal of the Academy of Marketing Science*. 43, 115-135. <https://doi.org/10.1007/s11747-014-0403-8>

Henseler, J., Ringle, C. M. & Sinkovics, R. R. (2009), The Use of Partial Least Squares Path Modeling in International Marketing, In Sinkovics, R.R. and Ghauri, P.N. (Eds.) *New Challenges to International Marketing*, Emerald Group Publishing Limited, Leeds, 277-319. [https://doi.org/10.1108/S1474-7979\(2009\)0000020014](https://doi.org/10.1108/S1474-7979(2009)0000020014)

Horner-Long, P., & Schoenberg, R. (2002). Does e-business Require Different Leadership Characteristics?: An Empirical Investigation. *European Management Journal*, 20(6), 611-619. [https://doi.org/10.1016/S0263-2373\(02\)00112-3](https://doi.org/10.1016/S0263-2373(02)00112-3)

Hughes, K. D., Jennings, J. E., Brush, C. G., Carter, S., & Welter, F. (2012). Extending Women's Entrepreneurship Research in New Directions. *Entrepreneurship Theory and Practice*, 36(3), 429-442. <https://doi.org/10.1111/j.1540-6520.2012.00504.x>

Hulland, J. (1999). Use of Partial Least Squares (PLS) in Strategic Management Research: A Review of Four Recent Studies. *Strategic Management Journal*, 20(2), 195-204. [https://doi.org/10.1002/\(SICI\)1097-0266\(199902\)20:2%3C195::AID-SMJ13%3E3.0.CO;2-7](https://doi.org/10.1002/(SICI)1097-0266(199902)20:2%3C195::AID-SMJ13%3E3.0.CO;2-7)

Irwin, J. G., Hoffman, J. J., & Lamont, B. T. (1998). The Effect of the Acquisition of Technological Innovations on Organizational Performance: A Resource-based View. *Journal of Engineering and Technology Management*, 15(1), 25-54. [https://doi.org/10.1016/S0923-4748\(97\)00028-3](https://doi.org/10.1016/S0923-4748(97)00028-3)

ITC (2017). *SME Competitiveness Outlook 2017 — The Region: A Door to Global Trade*. Geneva, Switzerland: International Trade Centre (ITC).

ITU (2024). *Measuring Digital Development - Facts and Figures 2024*. International Telecommunication Union. <https://www.itu.int/en/ITU-D/Statistics/Pages/facts/default.aspx>

Jennings, J. E., & Brush, C. G. (2013). Research on Women Entrepreneurs: Challenges to (and from) the Broader Entrepreneurship Literature?. *Academy of Management Annals*, 7(1), 663-715. <https://doi.org/10.5465/19416520.2013.782190>

Jiao, H., Wang, L. & Shi, Y. (2022). How does the Institutional Environment in the Digital Context Affect Technology Entrepreneurship? The Moderating Roles of Government Digitalization and Gender. *Journal of Organizational Change Management*, 35(7), 1089-1112.

Kalyani, B. & Kumar, D. (2011). Motivational Factors, Entrepreneurship and Education: Study with Reference to Women in SMEs. *Far East Journal of Psychology and Business*, 3(3), 14-35.

- Kazumi, T., & Kawai, N. (2017). Institutional Support and Women's Entrepreneurial Self-efficacy. *Asia Pacific Journal of Innovation and Entrepreneurship*, 11(3), 345-365. <https://doi.org/10.1108/APJIE-12-2017-041>
- Khan, M. S., Akhtaruzzaman, M., & Yasmin, R. (2021). Women Entrepreneurship in Developing Economies: Constraints and Innovations. *Journal of Developmental Studies*, 43(2), 145–162.
- Khan, M. S., Yasmin, R., & Nahar, K. (2024). Opportunity Creation in Resource-scarce Environments: Women Entrepreneurs in Digital Economies. *International Journal of Gender and Entrepreneurship*, 16(2), 132–150.
- Khondkar, M. (1998). *Women's Access to Credit and Gender Relations in Bangladesh*. The University of Manchester (United Kingdom).
- Kirzner, I. M. (1973). *Competition and Entrepreneurship*. University of Chicago Press.
- Kiyabo, K., & Isaga, N. (2020). Entrepreneurial Orientation, Competitive Advantage, and SMEs' Performance: Application of Firm Growth and Personal Wealth Measures. *Journal of Innovation and Entrepreneurship*, 9(1), 12. <https://link.springer.com/article/10.1186/s13731-020-00123-7>
- Koh, J., & Kim, Y. G. (2004). Knowledge Sharing in Virtual Communities: An e-business Perspective. *Expert Systems with Applications*, 26(2), 155-166. [https://doi.org/10.1016/S0957-4174\(03\)00116-7](https://doi.org/10.1016/S0957-4174(03)00116-7)
- Lang, R., Fink, M., & Kibler, E. (2014). Understanding Place-based Entrepreneurship in Rural Central Europe: A Comparative Institutional Analysis. *International Small Business Journal*, 32(2), 204-227. <https://doi.org/10.1177/0266242613488614>
- Lee, S. M., Chang, D., & Lim, S. B. (2005). Impact of Entrepreneurship Education: A Comparative Study of the US and Korea. *The International Entrepreneurship and Management Journal*, 1, 27-43. <https://doi.org/10.1007/s11365-005-6674-2>
- Lesjak, D. & Vehovar, V. (2005). Factors Affecting Evaluation of e-business Projects, *Industrial Management & Data Systems*, 105(4). 409-428. <https://doi.org/10.1108/02635570510592334>
- Lewis, K. V., Henry, C., Gatewood, E. J., & Watson, J. (Eds.). (2014). *Women's Entrepreneurship in the 21st Century: An International Multi-Level Research Analysis*. Edward Elgar Publishing.
- Lim, D. S., Morse, E. A., Mitchell, R. K. & Seawright, K. K. (2010). Institutional Environment and Entrepreneurial Cognitions: A Comparative Business Systems Perspective. *Entrepreneurship Theory and Practice*, 34(3), 491-516. <https://doi.org/10.1111/j.1540-6520.2010.00384.x>
- Lim, S., & Envick, B. R. (2013). Gender and Entrepreneurial Orientation: A Multi-country Study. *International Entrepreneurship and Management Journal*, 9, 465-482. <https://link.springer.com/article/10.1007/s11365-011-0183-2>
- Lin, H. F., & Lee, G. G. (2005). Impact of Organizational Learning and Knowledge Management Factors on e-business Adoption. *Management Decision*, 43(2), 171-188. <https://doi.org/10.1108/00251740510581902>
- Mand, H. S., Arti, M. & Gill, A. (2018). Influence of Unemployment and Education on Women's Intentions to Start e-entrepreneurship: Evidence from Indian Survey Data. *International Journal of Entrepreneurship and Small Business*. 35(2), 203-219.
- Marcoulides, G. A., & Saunders, C. (2006). Editor's Comments: PLS: A Silver Bullet?. *MIS Quarterly*, 30(2), iii-ix.
- Mari, M., Poggesi, S., & De Vita, L. (2016). Family Embeddedness and Business Performance: Evidences from Women-owned Firms. *Management Decision*, 54(2), 476-500. Emerald. <https://doi.org/10.1108/MD-07-2014-0453>
- McAfee, A., & Brynjolfsson, E. (2008). Investing in the IT that Makes a Competitive Difference. *Harvard Business Review*, 86(7/8), 98.
- Mirchandani, K. (1999). Feminist Insight on Gendered Work: New Directions in Research on Women and Entrepreneurship. *Gender, Work & Organization*, 6(4), 224-235. WILEY. <https://doi.org/10.1111/1468-0432.00085>

- Mishra, C. S., & Zachary, R. K. (2015). The Theory of Entrepreneurship. *Entrepreneurship Research Journal*, 5(4), 251-268. <https://doi.org/10.1515/erj-2015-0042>
- Mori, N. (2014). *Women's Entrepreneurship Development in Tanzania: Insights and Recommendations*. Institute of Management and Entrepreneurship Development. International Labour Organization. <https://www.ilo.org/publications/womens-entrepreneurship-development-tanzania-insights-and-recommendations-1>
- Nevi, G., Ancillai, C., Pascucci, F., & Palladino, R. (2025). Investigating Female Entrepreneurship: A Micro-perspective of Drivers and Barriers for Aspiring and Experienced Women Entrepreneurs. *International Entrepreneurship and Management Journal*, 21(1), 1-28. <https://link.springer.com/article/10.1007/s11365-024-01012-1>
- OECD (2013). *Entrepreneurship at a Glance 2013*, OECD Publishing.
- Olsen, D. H., & Eikebrokk, T. R. (2009). Training, Competence, and Business Performance: Evidence from E-business in European Small and Medium-sized Enterprises. *International Journal of E-Business Research (IJEER)*, 5(1), 92-116.
- Parker, C. M., & Castleman, T. (2009). Small Firm e-business Adoption: A Critical Analysis of Theory. *Journal of Enterprise Information Management*, 22(1/2), 167-182. <https://doi.org/10.1108/17410390910932812>
- Perry, J. T., Chandler, G. N., & Markova, G. (2012). Entrepreneurial Effectuation: A Review and Suggestions for Future Research. *Entrepreneurship Theory and Practice*, 36(4), 837-861. <https://doi.org/10.1111/j.1540-6520.2010.00435.x>
- Rahman, M. A., Chakma, P. B., Khondkar, M., & Muzareba, A. M. (2020). Performance of women entrepreneurs in small and medium enterprises (SMEs) of Bangladesh. *Journal of Business*, 4(1), 26-52.
- Rajput, K. (2021). Women Empowerment Through Digital Technology. *International Journal of Scientific and Research Publications*, 11(11), 447-448. <http://dx.doi.org/10.29322/IJSRP.11.11.2021.p11958>
- Rauch, A., & Frese, M. (2007). Let's Put the Person Back into Entrepreneurship Research: A Meta-Analysis on the Relationship between Business Owners' Personality Traits, Business Creation, and Success. *Journal of Work and Organizational Psychology*, 16(4), 353-385. Taylor & Francis. <https://doi.org/10.1080/13594320701595438>
- Rosa, P., Carter, S., & Hamilton, D. (1996). Gender as a Determinant of Small Business Performance: Insights from a British Study. *Small Business Economics*, 8, 463-478. <https://link.springer.com/article/10.1007/bf00390031>
- Sarasvathy, S. D. (2001). Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency. *Academy of Management Review*, 26(2), 243-263. <https://doi.org/10.5465/amr.2001.4378020>
- SMEF (2015). *SME Women Entrepreneurs Directory*, Small and Medium Enterprise Foundation, Bangladesh.
- Stone, M. (1974). Cross-validatory Choice and Assessment of Statistical Predictions. *Journal of the Royal Statistical Society: Series B (Methodological)*, 36(2), 111-133. <https://doi.org/10.1111/j.2517-6161.1974.tb00994.x>
- Tabassum, T. (2018). Facebook-based Women Entrepreneurship in Bangladesh: Opportunities and Challenges. *Bangladesh Journal of Public Administration (BJPA)*, 26(2), 79-96.
- Taylor, M., & Murphy, A. (2004). SMEs and e-business. *Journal of Small Business and Enterprise Development*, 11(3), 280-289. <https://doi.org/10.1108/14626000410551546>
- Thornton, P. H. (1999). The Sociology of Entrepreneurship. *Annual Review of Sociology*, 25(1), 19-46. <http://dx.doi.org/10.1146/annurev.soc.25.1.19>
- UNCTAD (2022). *Fostering Women Entrepreneurship in the Digital Economy: Insights from UNCTAD's eTrade for Women Advocates 2019-2021 Cohort*, United Nations.

Unger, J. M., Rauch, A., Frese, M., & Rosenbusch, N. (2011). Human Capital and Entrepreneurial Success: A Meta-analytical Review. *Journal of Business Venturing*, 26(3), 341-358. Elsevier. <https://doi.org/10.1016/j.jbusvent.2009.09.004>

Wennekers, S., & Thurik, R. (1999). Linking Entrepreneurship and Economic Growth. *Small Business Economics*, 13, 27-56. <https://link.springer.com/article/10.1023/a:1008063200484>

Windrum, P., & de Berranger, P. (2002). The Adoption of e-business Technology by SMEs. UNU-MERIT Research Memoranda. *Infonomics Research Memorandum Series*. University of Maastricht, The Netherlands.

World Bank (2023) *Closing Gender Gaps in Digital Development – A Practical Guide for Operational Teams*, Digital Development Partnership, World Bank.

Yin, R. K. (2017). *Case Study Research and Applications: Design and Methods* (Sixth edition): Sage Publications.

Yousafzai, S. Y., Saeed, S. & Muffatto, M. (2015). Institutional Theory and Contextual Embeddedness of Women's Entrepreneurial Leadership: Evidence From 92 Countries. *Journal of Small Business Management*, 53(3), 587-604. <https://doi.org/10.1111/jsbm.12179>

Zhao, J., Huang, W. V., & Zhu, Z. (2008). An Empirical Study of e-business Implementation Process in China. *IEEE Transactions on Engineering Management*, 55(1), 134-147. <https://doi.org/10.1109/TEM.2007.912930>