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## **E-Commerce Adoption And Success Among Women Entrepreneurs In Pakistan: Examining The Mediating Role Of Entrepreneurial Self-Efficacy And The Moderating Mechanism Of Business Experience**

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### **ABSTRACT**

The high rate of e-commerce development provides women in the emerging markets such as Pakistan with high opportunities but sociocultural, psychological, and experience issues still limit the adoption of digital platforms and operational use. The proposed research intends to examine how e-commerce adoption affects business success among the women business in Pakistan with the moderating role of entrepreneur self-efficacy and mediating role played by business experience. The research is based on the Social Cognitive Theory and the Technology-Organization-Environment model and incorporates both psychological and situational aspects to determine the acquisition of confidence and experience to convert the results of digital adoption to business results. It suggests a quantitative research design that involves the use of a cross-sectional survey of the women-led online stores in business in Pakistan. Stratified random sampling will assure the representation of the domains with provinces, sectors, and volumes of businesses and include 300 respondents in the target sample. The SPSS data analysis software will be used to analyze data under descriptive statistics, and Partial Least Squares Structural Equation Modeling (PLS-SEM) will be used to test the hypotheses of mediation and moderation. It is the anticipation of the study that it will have empirical evidence on the relation between entrepreneurial self-efficacy and business experience to the success of the e-commerce adoption to business success. Among others, implications of the theory are the application of the Social Cognitive Theory to online entrepreneurial activities in the Pakistani market and embracing psychological and organizational constructs to the TOE framework. In practice, the findings are expected to enlighten policymakers, incubators, and training programs, guide the targeted intervention focused on women having better digital literacy, confidence, and business performance. Additional topics to consider in future studies are longitudinal and cross-cultural validation of the model, will proceed to test other models on what will be mediated and that will be moderated, resilience or access to finance, and will undertake mixed-method



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methods as it can include aspects on qualitative aspects of what women entrepreneurs have been going through. This paper will seek to support an inclusive aspect of digital entrepreneurship by presenting both psychological and experiential evidence of new policies that would enhance and empower the female venture industry in Pakistan through objective entrepreneurship practices that can empower women in the country.

**Keywords:** Women Entrepreneurs, E-commerce Adoption, Entrepreneurial Self-Efficacy, Business Experience, Business Success, Pakistan, PLS-SEM.

### Background of the study

The fast introduction of digital technologies has drastically changed the business landscape of the world especially with introduction of electronic commerce (e-commerce). In e-commerce, business operations can be conducted by firms using online based technologies, making firms have access to wider markets, it is cheaper to do business and businesses can boost productivity in carrying out business. Extensive spread of the internet, mobile technology, and online payment have increased the shift on e-commerce all over the world in the last 20 years. When it comes to small and medium-sized businesses (SME), the essence of digital gives daring chances to break geographical boundaries and enter global markets, boosting their business beyond and competitive advantage (Kraus et al., 2022; Nambisan et al., 2019). All these changes have made scholars identify that digital technologies and e-commerce are essential for the entrepreneurial activity and economic change factors in the developed and developing economies.

E-commerce in developing countries is a growing mechanism of fostering the development of entrepreneurs and enhancing small business access to the market. In most emerging economies; the growth potential of SMEs has traditionally been hampered by constraints on access to physical markets, infrastructure and transaction costs. Digital technologies can address these restrictions, as they allow the entrepreneur to promote goods, engage with and communicate with the consumers, and make purchases via online shops. Digital entrepreneurship, therefore, has become an influential field of study, with researchers noting how technology-driven business models can help create innovation, enhance productivity, and promote economic inclusion (Autio et al., 2018; Nambisan et al., 2019). Due to the ongoing rise in internet penetration in developing nations, the internet is an ever more accessible business avenue that business owners can use to build and grow their companies.

It is against this wider background that much attention has been placed on women entrepreneurship as an important element of economic growth and social integration. Women proprietors have a significant role in creating job, boosting household revenue and enhancing inclusive economic growth. Scientific studies indicate that women entrepreneurs aim to broaden their economic performance in countries and innovativeness (Brush et al., 2019). Nonetheless, it is rather unexpected that, despite these efforts, women entrepreneurs still happen to encounter a great number of structural constraints preventing them to engage in the business realm. The problems may involve the lack of financial sources, professional inadequacy groups, gender biases, and cultural backgrounds affecting the unwillingness of women to develop their own ventures (Khan et al., 2021). This is especially true in less developed nations, where socio-cultural beliefs tend to limit the economic involvement of women as well as the capacity of women to grow their business.

Pakistan The entrepreneurial activities of women in the country are still underdeveloped,



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although the population of Pakistan is large, and the entrepreneurship environment continues to rise. The number of women owned businesses is a low percentage of the total enterprise and women entrepreneurs are commonly found doing small-scale businesses or running home based business with minimal access toward formal markets and resources. The empirical studies suggest that the Pakistani women entrepreneurs encounter diverse challenges, such as financial constraints, absence of business training, and institutional assistance (Khan et al., 2021). Such obstacles usually limit the development and survival of women-owned enterprises and their involvement in the formal economy. This has created a research policy priority to understand how mechanisms can facilitate growth and development of women entrepreneurs.

The advent of online businesses and the online space has given women entrepreneurs a new chance to address some of these structural obstacles. Internet business portals allow entrepreneurs to operate their businesses without necessarily having to put up huge physical infrastructures and huge capital investments. Women entrepreneurs are able to advertise their products and communicate with their clients through digital media (using online markets and social media) allowing women to do business remotely. This has been found especially relevant in the situation where the function of women in the social life is limited because of social conventions. Therefore, online technologies can provide women with economic engagement and open the way to the development of women entrepreneurs (Hasan et al., 2022).

There is some indication by evidence of the use of e-commerce platform in gradually gaining strength among women-led businesses in Pakistan but the adoption rates are still very low. A significant number of female entrepreneurs use the informal online sources, especially the social media platforms, as their key partners in doing business and do not involve formal online e-commerce stores. Studies have shown insufficiency of information on the advantages and operational needs of the digital marketplace to be one of the greatest constraints to the use of formal e-commerce platform among women-owned businesses in Pakistan. It is experimentally demonstrated that the availability of correct information regarding the e-commerce platforms can boost the views of women entrepreneurs towards using online marketplaces, which demonstrates that information and awareness play a crucial role in encouraging women to use online marketplaces (Hasan et al., 2022).

Moreover, despite all the potential e-commerce provides to the development of any business, women entrepreneurs in the non-developed economies frequently face technological, institutional, and socio-cultural obstacles in e-commerce implementation. Such obstacles can be the lack of digital capability, insufficiency of access to digital infrastructure, and the lack of institutional support of digital entrepreneurship. Moreover, social pressures and gender discrimination can also be another factor limiting the involvement of women in the digital markets. These issues promote the necessity to pay more attention to the issues, which contribute to the uptake and success of e-commerce among women entrepreneurs in emerging economies (Nazir and Roomi, 2020).

All in all, the growing use of digital technologies in business practices has resulted in a new possibility of women entrepreneurs to engage in the digital economy and grow their business beyond the conventional market territories. E-commerce systems have the potential to lower structural impediments, better market access, and business performance among the women owned firms. Nevertheless, irrespective of these opportunities, there is no equal adoption and successful use of e-commerce by women entrepreneurs in Pakistan because of several economic, technological, and socio-cultural complications. The effects that e-commerce adoption has on entrepreneurship and



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business performance of women entrepreneurs is also critical to formulate the policies and support structures that foster digital entrepreneurship and sustainable economic growth at an inclusive level.

### **Problem Statement**

Although the importance of entrepreneurship as a source of economic growth is increasingly being realized, there is still a disproportionate lack of women in entrepreneurship in Pakistan, especially in formal e commerce (Hasan, Khan, and Arif, 2022). Research has shown that women in Pakistan who already own businesses now work in informal electronic networks like social media platforms with minimal interaction with well-organized e commerce platforms- and one of the main reasons is informational barriers, less digital literacy, insufficient support systems that limit meaningful online business adoption (Hasan et al., 2022). Moreover, the larger entrepreneurial ecosystem within Pakistan is still shaped by the impact of socio cultural norms and structural constraints to reduce access by women to resources, markets and formal institutionalised forms of assistance (Rizvi et al., 2023; Anwar and Saleem, 2025). These challenges not only limit the incorporation of women in the growing digital economy but also diminish the chances of scalability and sustainability of their businesses as well.

Entrepreneurial self-efficacy, which is a psychological attribute indicating an individual willingness to carry out entrepreneurial-related tasks, has been reported to affect entrepreneurial intentions as well as persistence (Sarwar, Ahsan, and Rafiq, 2021). Nevertheless, in the Pakistan situation, direct mediating position of self-efficacy in the conversion of e commerce adoption into effective business performance has not been thoroughly studied. The low self-confidence and fear of business failure are listed as critical factors that impede the advancement of the enterprise by previous studies on Pakistani women entrepreneurs (Rizvi et al., 2023), but the empirical evidence regarding the relationship between self-efficacy and digital adoption behavior and performance outcomes in e commerce settings remains scarce.

Business experience is another moderator in the e commerce adoption process that is crucial but less extensively studied in addition to the psychological element. Though experience can assist in understanding market, capabilities in decision making and operational competence, the interaction of experience with the self-efficacy and e commerce success has not been effectively studied in the Pakistani context. Current evidence on the entrepreneurial performance of women indicates that internal characteristics (e.g. risk taking, confidence) as well as external socio economic factors are closely associated with the success (Khan, Salamzadeh, Shah, and Hussain, 2021), but the effect of the cumulative business experience on the results of e commerce, particularly in interaction to self-efficacy, has not been investigated.

This gap in research has significant implications on theory and practice: unless the mechanisms whereby women entrepreneurs implement and succeed in e commerce are understood, the policy efforts and the support programs will not succeed in digital inclusion, business resilience, and economic empowerment of women in Pakistan. Thus, the research of mediatory nature of entrepreneurial self-efficacy and moderating impact of business experience on e commerce adoption and success will provide useful information that can be used to inform specific intervention and capacity building strategies and ecosystem development mechanisms that fit the entrepreneurial community of emerging digital economies that are predominantly female.



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### **Aim of the Study**

The main purpose of the research is to examine the impact of e-commerce uptake on the success of women business people in Pakistan with the help of the entrepreneurial self-efficacy as the mediating variable and business experience as the moderating variable. The research aims to offer empirical findings to explain the psychological and experiential processes that amplify or restrict the performance of women-led ventures in online markets thus guiding policy and training and support structures to establish sustainable and inclusive entrepreneurship in Pakistan.

### **Research Objectives**

To determine the existing degree of adopting e-commerce by women entrepreneurs in Pakistan and how this influences the business performance.

To investigate the mediating effect of entrepreneurial self-efficacy in the dependency between e-commerce adoption on business success.

To examine how business experience creates some moderation effect on the impact of e-commerce adoption and success of women entrepreneurs.

To find out the most significant obstacles and problems affecting women in Pakistani entrepreneurship to use the e-commerce sites.

To offer suggestions that could be made to policy makers, teachers and support organizations in improving women digital entrepreneurship in Pakistan.

### **Research Questions**

What is the level of e-commerce adoption among women entrepreneurs in Pakistan, and what is the effect of e-commerce adoption on business success?

What is the mediating role of entrepreneurial self-efficacy in a women entrepreneurship business under e-commerce use that relates to business performance?

How does business experience mediate the connection that exists between adoption of e-commerce and success of women entrepreneurs?

Which are the primary challenges and obstacles facing women entrepreneurs in Pakistan and the inability to successfully adopt and exploit e-commerce platforms?

### **Significance of the Study**

The research is of substantial quality in broadening the knowledge of on the topic of digital entrepreneurship in Pakistan, including women entrepreneurs as a key study group, which is underrepresented in formal business and e-commerce studies, yet can be relevant to bringing improvement to the national economy. The studies on the performance of women entrepreneurs in Pakistan performed before suggest that it is the internal psychological reasons such as self-confidence and achievement need that determine whether women owned businesses allow success (Khan, Salamzadeh, Shah, and Hussain, 2021). Nevertheless, the empirical support to relate particular digital business adoption processes, one being e-commerce involvement, and the overall performance of women led ventures is sparse, particularly considering self-efficacy and prior business background information.

The mediating factor of entrepreneurial self-efficacy is a critical issue to investigate since, to date, self-belief has been indicated to have a positive impact on the entrepreneurial intentions and performance in Pakistani samples (Sarwar, Ahsan, and Rafiq, 2021). Analyzing the functioning of this psychological construct in the e-commerce context can serve to give us some gleaned information in the way in which women internalize digital competencies and turn intentions into tangible business



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implications. It is particularly applicable since not all women entrepreneurs in Pakistan can use formal platforms currently as they simply do not know about their existence and are not assisted with entering the field, which restricts their possibilities to grow (Hasan, Khan, and Arif, 2022).

Moreover, introducing the moderating role of the business experience is one of the ways to fill a gap left in the literature. Despite the conventional studies of entrepreneurship in which experience supporting decision making power and resiliency, its particular impact on Pakistan digital adoption practices is unfamiliar. This empirical research can explain the co-existence between e commerce adoption and entrepreneur success by taking the recollections and earlier involvement of ventures as the moderating aspects. Such lessons can be used to shape custom training and mentoring interventions which enhance experiential and psychological capabilities among women entrepreneurs.

Finally, this study has policy implications among Pakistani policy makers, support agencies and environmental agency facilitators. The findings in this paper can help formulate specific interventions that consider psychological barriers and experience deficit as some of the impediments to successful e commerce adoption. This way the study also fulfills wider socio economic goals of gender inclusion, digitally empowering of people, and sustainable development of entrepreneurship in the expressions of emerging economies.

### Literature Review

#### *Women entrepreneurs Through E Commerce*

E-commerce technologies adoption has increasingly become a significant element of the development of small businesses in the world as it allows businesses to cover a larger target market, lowers the costs of operation, and enhance the ability to compete with their rivals (Hussain et al., 2022). Describing Pakistan, the number of businesses that have officially accepted e commerce among women is still poor, with the majority of enterprises very dependent on unofficial digital platforms like social media to make their transactions and interact with clients (Hasan, Khan, and Arif, 2022). Such results depict that women entrepreneurs generally do not have enough knowledge and lack access to institutional e commerce services, and as a result, they do not use digital technologies adequately and do not have access to market opportunities. Furthermore, technological preparedness, infrastructure limitations, and socio cultural ethics are recognized by the well-known barriers over time that prevent digital use and spread by SMEs (Hussain et al., 2022; Hasan et al., 2022). Such impediments impact women entrepreneurs in Pakistan disproportionately, as there are other gender based barriers to entrepreneurship that include mobility, education, and other institutional barriers.

Even though the positive correlation between the adoption of e commerce and the performance of firms can be expected generally on a global basis, literature indicates that the contextual environment, the organizational preparedness, and the individual characteristics still affect the outcomes of adoption tremendously (Hussain et al., 2022). Although it has been widely acknowledged that e commerce has the potential to improve the performance of any business, gaps on the literature still exist on how women entrepreneurs in particular in Pakistan embrace digital commerce and make it translate into a tangible success. In this way, it is important that the research on gendered barriers, a digital literacy concept, and institutional support should be conducted to comprehend the adoption behavior within the population.



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### ***Entrepreneurial Self Efficacy***

Entrepreneurial self-efficacy (ESE) defines a person having confidence in their ability to successfully fulfil the duties of an entrepreneur and conquer obstacles (Bandura, as cited in self-efficacy research). In the Pakistani scenario, empirical studies demonstrate that ESE is a big predictor of entrepreneurial intentions and performance results of women. As an example, self-efficiency was created as an affirmative influence on business intentions in female pupils, hence indicating the role of confidence in entrepreneurial potential as a factor in entrepreneurship deeds and effects (Khurshid and Khan, 2017). This evidence is corroborated by Complementary evidence of Pakistan, which supports the idea of higher ESE as a positive factor in small business performance, enabling business people to pursue risk, display proactive behaviour and efficient use of equipment's (Zubair et al., 2021). These results are consistent with the existing literature in the field of entrepreneurship showing that ESE has an impact on strategic decision making, resilience, and persistence especially within resource constrained setting.

Although there is some solid accountability that supports the ESE is associated with entrepreneurial intentions and broad business performance, little attention has been given to understand the specific impact of ESE as a mediating variable between e commerce adoption and business success in the women entrepreneur literature in Pakistan. Indeed, in some of the international studies, self-efficacy only amplifies the positive impact of technology use on entrepreneurial performance (e.g., digital adoption research), which indicates that it can have a modulating skills (digital adoption and self-efficacy research). Therefore knowing self-efficacy with reference to e commerce can help illuminate the psychology, which allows technology acquisition to become a permanent business growth.

### ***As a Moderator, Business Experience***

Business experience is the collective experience and knowledge that can be acquired over time through the running or management of business activities. Previous studies have confirmed that experience not only improves entrepreneurial skills, decision making proficiency, and adaptability, but also leads to the success of an enterprise. Although direct empirical research on business experience as a moderator is limited in Pakistan, other developing economies have shown in their research that experienced entrepreneurs have a higher likelihood of managing the complex application issues and may apply better to the use of digital resources ( experience moderator research). In one example, in SMEs examined in a non-Pakistan country, general business experience was observed to mitigate the effect of e commerce adoption difficulties, by reducing the adverse effects of influences and making the adoption process easier.

The Pakistani entrepreneurial environment associates hands-on experience with a higher risk aversion and strategic business planning, including aspects that enable the addition of resilience and expansion. As much as the literature existing gives experience as a determinant of entrepreneurial success, the current literature lacks any studies that explicitly investigate experience as a mediating force between e commerce adoption and business success in women entrepreneurs in Pakistan. This highlights a major gap in research that will be filled in this study.

### ***Business Success and Adoption of E Commerce***

The use of e commerce technologies has been generally linked to better firm performance and productivity as well as accessing markets. As an example, empirical studies on SMEs in Pakistan have identified that the utilization of e commerce can be



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significant in enhancing the performance of firms due to the increase in the operational efficiency level and reach to consumers (Hussain et al., 2022). Likewise, international research across other 3rd world settings has invariably recorded favorable effects of e-commerce uptake in business outcomes, such as increased revenues and business survival.

Nevertheless, the literature also notes that adoption is not a critical success factor in itself; instead, preparation factors within the organization (technology infrastructure, training, supportive policies) as well as personal abilities (competencies, confidence, experience) are needed in order to be able to transition to the next phase of turning adoption into tangible results. These findings indicate that the use of e-commerce is not sufficient to make businesses succeed unless it is supported by mediators such as entrepreneurial self-efficacy and moderators such as business experience.

### ***Integrate the Relationships***

The literature postulates at a conceptual level the possibility of mediating and moderating connections among the variables, namely, e-commerce adoption determines entrepreneurial success, probably by way of mediational impact by psychological constructs that include self-efficacy and dictate how business people interact with technology and how they deal with difficulties. Also experience in business can cushion these relationships by enhancing or diluting the impact of adopting e-commerce basing on the level of experience the entrepreneur harbors and his or her capacity to adopt. Although these associations are justified by the studies on the wider woman entrepreneurial bodies, little has been done to approve them within the context of Pakistani women entrepreneurs.

### **Supporting Theory**

The given research is majorly based on the Social Cognitive Theory (SCT) (Bandura, 1986) that describes the interaction of personal, environmental, and behavioral factors as dynamic and irrespective of a specific individual behavior forming a person. Regarding the specifics of female entrepreneurs, SCT focuses on entrepreneurial self-efficacy (ESE) as a personal cognitive attribute that drives the decision to, or to continue using new technologies, including e-commerce platforms, to support continued business performance. The impact of self-efficacy is on the approach to a challenge, goals setting, and continuing in the face of obstacles and it is more than crucial to digital entrepreneurship in Pakistan where women are constrained by the structures, culture, and resources (Sarwar, Ahsan, and Rafiq, 2021; Hasan, Khan, and Arif, 2022).

Besides, the research relies on the aspects of Technology-Organization-Environment (TOE) model (Tornatzky and Fleischer, 1990) that can describe the technology acceptance in terms of organizational preparedness, environmental mandates, and technology characteristics. Among SMEs in Pakistan, the environmental factors including a low level of digital infrastructure, socio-comprehension values alongside economic limitations interact with self-efficacy and long-term time in business, leading to adoption behavior and business success (Hussain et al., 2022).

This research combines both SCT and TOE to offer a theoretical framework through which the e-commerce adoption and its resultant success in turn to business success can be analyzed using these two concepts as the mediating variable and the moderating variable respectively. SCT offers a strong explanation on psychological mechanisms involving entrepreneurial behavior, and TOE places the currents of adoption in context and organization reality.



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### ***Theory to Practice***

This knowledge of these theoretical processes has practical effects. The confidence of women entrepreneurs in the willingness to adopt digital technologies can be grown with the help of non-disruptive interventions aimed at them, focusing on self-efficacy and familiarization with successful entrepreneurial role models. Similarly, the importance of business experience as a moderator brings back the need to have programs of capacity building which will enable new entrants in business to acquire experiential training, risk management ability and operation intelligence. These indications can help develop gender-sensitive e-commerce ecosystem supporting policies by policymakers and service providers in Pakistan to foster sustainable economic growth and digital inclusion (Khan, Salamzadeh, Shah, and Hussain, 2021; Sarwar et al., 2021).

### ***Hypotheses Development***

The hypotheses of the study basing on the literature and theory bases are as follows:

H1: The adoption of e-commerce has gender positive impacts to the success of businesswoman in Pakistan.

Rationale: According to the previous findings, the application of digital technology increases the reach in the market, operational effectiveness, and, consequently, increases revenues (Hasan et al., 2022; Hussain et al., 2022).

H2: entrepreneur self-efficacy is a mediating variable between business success and e-commerce adoption.

Reason: SCT indicates self-efficacy as a psychological situation with which the adoption of technology is associated with performance, being a mechanism by which an entrepreneur uses available resources to maintain their goals and overcome obstacles (Sarwar et al., 2021; Zubair et al., 2021).

H3: Business experience also mediates the association that exists between business success and the adoption of e-commerce where the association is greater among women in business with more business experience.

Reason: Experience of entrepreneurs creates more opportunity to mitigate the adoption of e-commerce because of acquiring knowledge, best understanding of the market, and operational capabilities (Hussain et al., 2022; Khan et al., 2021).

H4: The moderating role of business experience of the all-indirect effect perceived of e-commerce adoption on business success is of a positive nature in which entrepreneurial self-efficacy is represented.

Rationale: More experienced entrepreneurs might have a better capacity to apply improved self-efficacy into effective e-commerce activities and improve the overall business (Zubair et al., 2021).

### ***Proposed Methodology***

The proposed research paper is designed on the basis of the model of the research onion (Saunders, Lewis and Thornhill, 2019) that offers a stratified and methodological way of how research has to be constructed due to the shift between the loose philosophical assumptions to the definite data collections and analysis techniques. This model guarantees a rigorous methodology by justifying every level of the research design.

### ***Research Philosophy***

The research philosophy that is followed by the study is positivistic, where the focus is made on observable, objective phenomena, testing hypotheses, and cause-effect relationships (Saunders et al., 2019). Positivism has more to do with the quantitative



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approach since it also assumes that the object of social reality, i.e. women as e-commerce users, is objectively measurable with the help of structured information. The philosophy advocates binary confirms hypothesized statistical relationships, such as mediates and moderates, and facilitates the extrapolation of the research findings to a larger group of women entrepreneurs in Pakistan, in general.

Positivism is also the preferred choice as this study aims to examine some of the measurable constructs (e-commerce adoption, entrepreneurial self-efficacy, business experience, and business success) and analyses a series of pre-tested hypothesis formulated on the basis of accepted theories: Social Cognitive Theory (SCT) and the Technology-Organization-Environment (TOE) model. The theories present empirical hypotheses of the way psychological and experience factors determine the uptake of digital and business performance.

### ***Research Approach***

This research will use a deductive research methodology. The deductive approach uses existing theories and literature, manifests hypotheses, and empirically investigates them using data by means of information gathering (Creswell and Creswell, 2018). SCT and TOE used in this study would facilitate the creation of theories which serve as basis towards making the hypothesis on the relationship between e-commerce adoption, entrepreneurial self-efficacy, business experience, and business success. The success of these hypotheses can be systematically tested in the deductive approach that will guarantee there is a logical connection between theory and data. This method is mainly acceptable when dealing with quantitative studies and where the researcher wants to confirm or generalize the existing models in a certain country like Pakistan.

### ***Research Strategy***

To address the objectives of this research, a cross-sectional survey design will be utilized as one of the most common methods of quantitative research in businesses to gather data at a certain moment (Creswell and Creswell, 2018). One would use a survey strategy because it allows gathering standard data of a high number of people, allows testing various variables in the same time, and offers further statistical analysis, including mediation and moderation models. Since the aim of this study is to achieve these objectives, the survey will be conducted to women entrepreneurs actively involved in e-commerce to enable them to assess their adoption behaviors, their level of self-efficacy, business experience and perceived business success.

### ***Research Choice***

The research method used is a mono-method quantitative research, as the research study aims at measuring construct-relationship measures using a set of questionnaires. This option is in accordance with the positivist philosophy and compliant with the effective statistical testing with the help of the Partial Least Squares Structural Equation Modeling (PLS-SEM) and SPSS. PLS-SEM is especially effective in the analysis of sophisticated models which consist of mediating and moderating effects, small-to-middle sample size, and non-Normative data distribution (Hair, Hult, Ringle, and Sarstedt, 2022). PLS-SEM will be supported by SPSS that will offer descriptive statistics, reliability tests, and preliminary screening of data.

### ***Time Horizon***

That a cross-sectional period of time is to be surveyed will be employed, including information being captured only once among subjects. Longitudinal studies will give us



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information about changes over time, but a cross-sectional design will test hypothesized relationships effectively with limited resources. Correlations, mediation and moderation (the main problems discussed in this study) can be analyzed using cross sectional data only.

### ***Population and Sample***

**Population:** The target population is formed of women entrepreneurs in Pakistan that operate the business according to which e-commerce is implemented. This encompasses micro, small medium enterprises in the fields of retail, handicraft, services and home based online businesses. As reported by Hasan et al. (2022), Pakistani women run digital businesses, which are getting used to e-commerce platforms now and, thus, represent a sufficient population in the study.

**Sampling Technique:** Sampling will be based on stratified random sampling that will provide coverage of the various provinces (punjab, Sindh, Khyber Pakhtunkhaw, Balochistan), sizes of businesses (micro, small, medium) and the industries. Stratification will make the sample representative of the diversity of experiences and contexts of women who are entrepreneurs and it increases the generalizability of findings.

**Sample Size:** At least 300 respondents will be used because the size of the sample must be 10 times of the maximal number of paths to a latent construct, the standard recommend 10 times is 300 (Hair et al., 2022). Such a large sample will be adequate to test direct, moderate, and mediation relationships.

### ***Data Collection***

The survey will be conducted through a designed electronic and paper-based survey comprising a format of convenience and focused sampling. But the questionnaire will consist of the validated scales modified after the past studies:

**Adoption of e-commerce.** It involves treatment digital platform suppression of online channel integration and usage of online transactions (Hussain et al., 2022).

**Entrepreneurial self-efficacy.** The scale measures confidence in performing entrepreneurial work, situational problem solving and decision making (Zubair et al., 2021).

**Business experience.** Years of entrepreneurial activity and a history of previous business activity self-reported (Khan et al., 2021).

**Business success.** This can be quantified using both subjective and objective measures, such as the increase in revenues, market expansion, efficiency of its operations, and customer base (Hasan et al., 2022).

### ***Data Analysis Techniques***

**Data Screening and Descriptive Analysis (SPSS):** SPSS will be applied to examine missing data, the normality, outliers, and multicollinearity. Descriptive statistics will describe demographics and distributions of the variables.

**Measurement Model Evaluation (PLS-SEM):** Cronbach alpha, Composite reliability, average variance expedited (AVE) and factor loading will be used to evaluate reliability and validity of constructs (Hair et al., 2022).

**Structural Model Analysis (PLS-SEM):** Hypotheses testing shall be accomplished through consideration of path coefficients, R<sup>2</sup>, and effects values. The bootstrapping method will be used to estimate mediation (H2) and moderation (H3, H4) with bootstrap coefficient of 5.000 resample to find out the effect of the direct effect, the indirect effect, and also the interaction.



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Mediation and Moderation: The mediation of the e-commerce adoption and the business success will examine the entrepreneurial self-efficacy as a mediator and overcome the business experience as a moderator of both direct and indirect variables.

### Conclusion

The proposed research aims at investigating the impacts of the e-commerce adoption on business success of female entrepreneurs in Pakistan with the intake of the mediation of entrepreneurial self-efficacy and the moderating role of business experience. Combining Social Cognitive Theory (Bandura, 1986) and the Technology-Organization-Environment (TOE) framework (Tornatzky and Fleischer, 1990), the paper under analysis stresses the role of psychological variables as well as practical and experience of conversion of technology acceptance into practical business results.

Despite the fact that this is suggested as a model, the study is anticipated to add substantially to the research of how digital tools can help women entrepreneurs in a resource-constrained and socio-cultural society, such as Pakistan. It is expected that the proposed model will recognize self-efficacy as an important mechanism to help women to leverage e-commerce and the effects the business experience has on performance will be enhanced as the accumulated business experience increases. Altogether, the study is suggested to present a rationally derived and experimentally verifiable pattern according to the works of which promoting the female digital entrepreneurship in emerging markets should be encouraged.

### Implications of the Study

#### *Theoretical Implications*

The research builds upon the Social Cognitive Theory and empirically tying entrepreneurial self-efficacy to technology adoption and business performance in the background of women-oriented digital businesses.

It builds on the TOE framework and combines with psychological factors showing the interaction between an organization and the environment, and individual competencies and experience that contribute to adoption success.

By conducting tests on both mediation and moderation, the research adds value to literature on arbitration and e-business innovation in women entrepreneurship, offering a more detailed insight into the processes through which the adoption of e-commerce will influence a business performance.

#### *Practical Implications*

The findings can inform the policymakers, business support organizations and digital incubators to develop training and mentoring initiatives which may strengthen the self-efficacy and digital capabilities of women entrepreneurs.

The understandings about moderation of business experience could be used to create available capacity building programs such as internships, mentorship and peer learning programs to provide novice entrepreneurs with the needed experiential knowledge.

The findings will support women in Pakistan to establish in the ecosystem including digital entrepreneurship due to the customized support that the e-commerce facilities and financial bodies will provide them with.

### Future Research Directions

*Longitudinal Studies:* Future studies may pursue the longitudinal type of design to trace how the e-commerce adoption and self-efficacy change and graduate to their business



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developmental paths.

**Cross-cultural Comparison:** The comparative studies may be done to determine the adoption of e-commerce practice by the women business people of various developing nations to show the differences in context and the effective practices.

**Other Moderators and Mediators:** Future studies may examine other psychological (e.g. risk tolerance, resilience) and organizational condition (e.g. access to finance, digital literacy programs) that may further affect the relationship between adoption and success.

**Qualitative Extensions:** Mixed methods applications might give more information on socio-cultural obstacles and personal experiences of female entrepreneurs and integrate the quantitative results.

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