FACTORS INFLUENCING THE INTENTION TO USE MOBILE APPLICATIONS FOR BUSINESS INFORMATION AMONG WOMEN-LED MICRO-ENTERPRISES IN KATHMANDU VALLEY

A Research dissertation submitted to

Kathmandu University School of Management

in partial fulfillment of the requirement for the

Degree of Master of Philosophy (MPhil) in Management

Srawan Kumar KC

KU Registration Number: 025683-19

Kathmandu, Nepal

November, 2024

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DECLARATION

I, hereby, declare this dissertation entitled "Factors Influencing the Intention to Use Mobile Applications for Business Information among Women-Led Micro-Enterprises in Kathmandu Valley" embodies the original research work that I carried out in partial fulfillment of the requirements for the degree of Master of Philosophy (MPhil) in Marketing of Kathmandu University School of Management and that this dissertation has not been submitted for candidature for any other degree.

Srawan Kumar KC

November, 2024

RECOMMENDATION

This is to certify that Mr. Srawan Kumar KC has completed his dissertation on "Factors Influencing the Intention to Use Mobile Applications for Business Information among Women-Led Micro-Enterprises in Kathmandu Valley" under my supervision and that his dissertation embodies the result of his investigation conducted during the period he worked as an MPhil candidate of KU School of Management. The dissertation is of the standard expected of a candidate for the partial fulfillment of the requirements for course of MPhil and has been prepared in the prescribed format of the School of Management.

Prof. Dr. Binod Krishna Shrestha

Research Supervisor

November, 2024

Kathmandu University
School of Management

RESEARCH COMMITTEE APPROVAL

We have conducted the viva-voce examination of the dissertation "*Factors Influencing the Intention to Use Mobile Applications for Business Information among Women-Led Micro-Enterprises in Kathmandu Valley*" submitted by *Srawan Kumar KC* and found the dissertation to be original work of the candidate and written according to the prescribed format of the School of Management. We approved the dissertation as the partial fulfilment of the requirements for the degree of Masters of Philosophy (MPhil) in Management.

Evaluation Committee

1. Prof. Dr. Bijay K.C.	Chair, Research Committee
2. Prof. Dr. Binod K. Shrestha	Member, Research Committee
3. Assoc. Prof. Dr. Khagendra Acharya	Member, Research Committee
4. Assoc. Prof. Dr. Purna Bahadur Nepali	Member, Research Committee
5. Prof. Dr. Arhan Sthapit	External Examiner

November, 2024

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Srawan Kumar KC November, 2024

ABSTRACT

This study investigates the factors influencing the intention to use mobile applications for business information among women-led micro-enterprises (WMEs) in the Kathmandu Valley, employing the Unified Theory of Acceptance and Use of Technology (UTAUT) as a theoretical framework. Despite the rising ownership of enterprises among women in Nepal, significant gender disparities in digital technology adoption persist. This research addresses the existing gap by examining how Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions impact attitudes and behavioral intentions toward mobile application use. Utilizing a cross-sectional quantitative approach, data were collected from 391 women micro-enterprises through an enumerator-administered structured questionnaire. The findings reveal that performance expectancy and social influence are significant predictors of positive attitudes toward mobile application adoption. However, effort expectancy does not have a significant impact, suggesting the need for further exploration. Facilitating conditions, such as access to technology and digital literacy, play a crucial role in shaping attitudes and intentions. The study also demonstrates that attitude is a strong predictor of behavioral intention. These insights contribute to a deeper understanding of the socio-cultural and economic barriers women face in embracing digital technologies, highlighting the need for targeted interventions to enhance digital inclusion. The study ultimately advocates for policy initiatives aimed at empowering WMEs through improved access to technology and training, thereby fostering greater economic participation in the digital economy.

Keywords: attitude, behavioral intention, effort expectancy, facilitating conditions, performance expectancy, social influence, UTAUT, women-led micro-enterprises

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ABBREVIATIONS

ATT	Attitude
AVE	Average Variance Extracted
BE	Business Experience
BI	Behavioral Intention
CA	Cronbach's Alpha
CMB	Common Method Bias
CR	Composite Reliability
DT	Digital Technology
DIT	Diffusion of Innovation Theory
EDU	Education
EE	Effort Expectancy
FC	Facilitating Conditions
GDP	Gross Domestic Product
HR	Human Resource
HTMT	Heterotrait-Monotrait Ratio
ICT	Information Communication and Technology
LDCs	Least-Developed Countries
MM	Motivational Model
MPCU	Model of Personal Computer Utilization
NFI	Normed Fit Index
PAN	Permanent Account Number
PE	Performance Expectancy
PLS-SEM	Partial Least Square - Structural Equation Modeling
SCT	Social Cognitive Theory
SI	Social Influence
TAM	Technology Acceptance Model
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
UTAUT	Unified Theory of Acceptance and Use of Technology
VAT	Value-Added Tax
VIF	Variance Inflation Factor
WMEs	Women Micro-Enterprises

CHAPTER I

INTRODUCTION

The global digital economy has undergone substantial expansion recently, fundamentally transforming how businesses operate and how consumers interact. In the context of globalization, digital technology (DT) has seen substantial advancements, influencing individual lifestyles and reshaping work paradigms and development approaches (Lechman, 2021; Tripathi & Dungarwal, 2020). This transformation has led to increased internet penetration and mobile technology adoption, especially in developing regions.

As internet penetration grows, it creates a dynamic digital landscape that offers unique opportunities to leverage DT for enhancing productivity and income generation (Antonio & Tuffley, 2014). Digital transformation provides access to critical information for establishing micro-enterprises, strengthening market linkages, and capitalizing on networking opportunities.

However, despite these advancements, persistent gender disparities in the digital realm remain a significant challenge. Women often face limitations in educational attainment, healthcare access, technological proficiency, and participation in decision-making processes (Ghosh & Chopra, 2019). These barriers contribute to the digital inclusion gap for women. Moreover, the adoption of mobile applications among women-led micro-enterprises remains suboptimal (Dutta & Shivani, 2020; Sathye et al., 2018).

According to Mullally et al. (2022) underscores the empowering potential of mobile technology for women. Their study demonstrated that delivering veterinary training via mobile platforms to female community animal health workers yielded

positive results. These findings underscore the transformative power of mobile technology in narrowing the gender disparity and advancing women's economic capability. Despite this potential, women micro-enterprises often lag behind their male counterparts in adopting mobile applications (Mehta & Sinha, 2022).

The integration of mobile applications by female-led micro-enterprises, particularly in developing regions, is a critical area of study. Research suggests that determinants like social influence, effort expectancy, and perceived usefulness significantly affect the propensity of female enterprises to adopt mobile applications (Abed, 2021; Sathye et al., 2018). For instance, a study in Saudi Arabia identified social influence as the important factor of behavioral intention, followed by effort expectancy (Abed, 2021). Similarly, research conducted in Fiji emphasized the significance of social norms and perceived easiness to use for utilization of technology by women micro-entrepreneurs (Sathye et al., 2018). These results underscore the significance of socio-cultural and technological determinants in driving mobile application adoption, which can enhance business sustainability and empower women economically.

Comprehending the determinants affecting the propensity of women-led micro-enterprises to adopt mobile applications is crucial for addressing the digital disparity and empowering women. Yet, the under-representation of women in the digital sphere remains a global issue (Krchová & Höesová, 2021). Gender and rural-urban digital gaps are particularly evident in developing and least-developed countries (LDCs) (Gurung & Paudel, 2021; Hernandez & Roberts, 2018). These gaps not only limit women’s economic empowerment but also restrict their social and political participation. DT has immense potential to close this divide and empower women entrepreneurs across various sectors. Research indicates that women’s adoption of DT

can improve their quality of life and contribute to economic growth. Despite growing research on female entrepreneurship, the role of DT in transforming women-led businesses remains underexplored. There exists a substantial deficiency in comprehending the mechanisms by which digital technologies facilitate innovation and growth within female entrepreneurship (Ughetto et al., 2020).

Recent research has mentioned different determinants that impact the propensity to utilize mobile applications within the entrepreneurial sphere. The Technology Acceptance Model (TAM) fundamentally revolves around the constructs of perceived easiness to use and perceived usefulness (Davis, 1989). Moreover, psychological and behavioral determinants including self-efficacy and personal innovativeness, have been found as significant predictors to adopt technology among micro-enterprises (Bandura, 1997). Social influence as well as facilitating conditions, as described in the Unified Theory of Acceptance and Use of Technology (UTAUT), also play critical roles in influencing user intentions (Venkatesh et al., 2003).

This study seeks to investigate the determinants, thereby enhancing the growing body of literature on technology utilization in the micro-enterprise sector. The theoretical foundation for this study is based on the UTAUT model, as it is well-established in technology adoption studies. UTAUT identifies key parameters that affect users propensity to embrace a technology (Venkatesh et al., 2012). This research explores how UTAUT constructs, such as performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC), impact women-led micro-enterprises' aspire to use mobile apps for business information.

Statement of the Problem

A significant disparity exists worldwide between the involvement of men and women in the digital economy. This has drawn the interest of researchers and policymakers due to the potential of digital technologies (DT) to enable women's advancement in economic, social, and political spheres. Despite the potential benefits of digital technologies, a gender gap persists in access and adoption, with women lagging behind men (Mehta & Sinha, 2022). This disparity has garnered attention from development organizations in developed nations, who advocate for solutions to address the challenges women enterprises face. The core argument suggests that women's adoption of DT can improve their quality of life.

Data from Nepal's 2018 National Economic Census reveals that women hold a significant ownership stake in the country's enterprises, controlling roughly 29.8% of them (Central Bureau of Statistics, 2018). However, this ownership is not evenly distributed across sectors. The agricultural sector, encompassing forestry and fishing, stands out as having a particularly low representation of women enterprises, with a mere 0.80% of enterprises classified as women-owned. Despite this sectoral disparity, and ownership levels remaining below women's population share (50.4%), a positive trend is evident – a growing number of women in Nepal are taking ownership positions within the business landscape (Bhandari & Amponstira, 2020).

Aggravating these ownership disparities are socio-cultural norms that can constrain women's entrepreneurial mobility and decision-making authority (Bhandari & Amponstira, 2020). Furthermore, women enterprises encounter obstacles including limited access to relevant skills, persistent gender biases, and exclusion from digital platforms crucial for business success (Mariscal et al., 2019; Orkoh & Viviers, 2021;

Ojo & Segone, 2022). Micro-enterprises, a common business structure for women enterprises, often need both financial resources and personnel with the technological expertise to navigate the digital landscape (Hassan et al., 2011). In contrast, businesses that strategically leverage digital technologies within their operations experience many benefits. These advantages include increased efficiency and effectiveness in core processes, enhanced customer experiences, improved productivity and revenue generation, and a fortified competitive edge within their market (Bellakhal & Mouelhi, 2023; Ciurea et al., 2021; Opute et al., 2020; Pfister & Lehmann, 2021).

Despite the aforementioned challenges, research indicates that women-owned firms demonstrate greater resilience and sustainability, potentially acting as key drivers of economic growth (Bhandari & Amponstira, 2020). However, a critical gap exists in the current research – a lack of studies specifically exploring women enterprises' orientation towards digital technologies (Mehta & Sinha, 2022). While research on technology adoption within Nepal exists (Aryal, 2021; Maharjan et al., 2024; Nepal & Nepal, 2023; Tamrakar & Shrestha, 2022; Teo et al., 2019), these studies focus on general consumer behavior or specific technologies like HR information systems. Remarkably absent is research investigating mobile application adoption among women micro-enterprises in least-developed countries, particularly through the view of the UTAUT model (Venkatesh et al., 2012). Therefore, a compelling need exists to explore the reasons behind the slow and low adoption rate of digital technology among women enterprises.

Scholars have investigated female entrepreneurship in developed economies, but there remains a dearth of literature examining the intention to use digital technology within emerging and developing contexts (Correa et al., 2024). While

existing research addresses the challenges of adopting digital technologies, further exploration is needed to identify strategies for reducing the disparity between genders in the utilization of mobile internet and mobile money services. Closing this gap could unlock substantial commercial opportunities for the mobile industry and deliver socio-economic benefits for women. While prior research offers general recommendations, it often overlooks the heterogeneity of WMEs' operational environments, encompassing factors like rural versus urban locations, industry variations, and cultural norms. This research gap necessitates a deeper exploration of how digital adoption for strategic marketing can be tailored to the specific contexts of WMEs to optimize market access and business information.

Several studies, including Slinger et al. (2024) indicate that certain constructs from the UTAUT2 model do not solely determine behavioral intention. Although UTAUT2 has been extensively adopted in various contexts to study technology utilizations, its application specifically among women micro-entrepreneurs in Least Developed Countries (LDCs) remains limited (Díaz-Arancibia et al., 2024; Shrestha et al., 2022; Venkatesh et al., 2012). Therefore, it’s essential to test the UTAUT2 theory within the context of Least Developed Countries (LDCs) like Nepal.

Building upon the identified knowledge gaps, this research examines the effect of Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions - key components of UTAUT - on Attitude and its subsequent effect on Behavioral Intention to adopt mobile applications for business information. The research explores the following inquiries:

1. Do Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions influence individuals' Attitudes and, subsequently, their Behavior Intention to use mobile applications for business information?

2. Do Age, Business Experience, and Education moderate the relationship (a) Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions with (b) individuals' Attitudes?

Objectives of the Study

This study will explores how UTAUT constructs (Venkatesh et al., 2003; Venkatesh et al., 2012) affect the propensity of women-led micro-enterprises to adopt mobile applications for their business operations. The main objective of the research is mentioned below:

1. To examine how Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions influence individuals' Attitudes and, in turn, their Behavioral Intention to use mobile applications for business information.

The specific objective of the study is mentioned below:

2. To examine how Age, Business Experience, and Education Level moderate the relationship of (a) Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions with (b) individuals' Attitudes towards using mobile applications for business information.

Significance of the Study

This research holds significant importance for multiple stakeholders, contributing to the literature and offering practical insights for business and policy development. First, the results will enrich to the existing body of literature by offering detailed insights of the determinants affecting mobile application adoption among women-led micro-enterprises in Nepal. By addressing gaps in the technology adoption studies, this research provides an extensive comprehension of the motivations and barriers that women face when adopting mobile applications, thus paving the way for subsequent research endeavors in this domain.

Second, the findings of this research are also beneficial for business applications. By providing insights into the determinants that drive or impede the uptake of mobile applications, the study can assist businesses in making well-informed decisions regarding mobile application development and enhance customer engagement and satisfaction.

Moreover, the insights generated from this research can act as an essential reference for policymakers. Understanding the concerns and behaviors of women micro-entrepreneurs regarding mobile application usage enables policymakers to develop informed and effective policies that promote safe and efficient adoption. These policies can foster an inclusive digital economy that empowers female entrepreneurs, ultimately fostering economic development and gender equity in the region.

In summary, this research not only enhances theoretical insight but also offers actionable insights for businesses and policymakers, facilitating the advancement of

mobile technology adoption among women micro-enterprises and enhancing their role in the digital economy.

Organization of the Report

This report is structured into five distinct chapters as outlined below:

Chapter One - Introduction: This chapter presents the research background, articulates statement of the problem, and outlines the research inquiry, objectives, significance, and overall structure of the dissertation.

Chapter Two - Literature Review: This chapter presents a synthesis of key findings from prior research, categorized under various topics and studies. It also develops the conceptual framework, identifying the relationships among the dependent and independent constructs.

Chapter Three - Research Methodology: This chapter elaborates on the research methodology utilized in the study, encompassing the research design, unit of analysis, sampling strategies, methods for data collection, instrumentation, and techniques for data analysis.

Chapter Four - Results: This chapter presents and interprets the findings derived from the analysis of data, including descriptive statistics, the measurement models, structural models, and key results.

Chapter Five - Summary, Discussion, and Implications: This chapter synthesizes the research findings along with the implications, and offers a critique of the research, along with recommendations.

CHAPTER II

LITERATURE REVIEW

This chapter undertakes a comprehensive analysis of extant articles to investigate the influence of the UTAUT constructs on behavioral intention. The chapter incorporates relevant theories associated with both the UTAUT model (Venkatesh et al., 2003) and its subsequent iteration, UTAUT2 (Venkatesh et al., 2012). By synthesizing these theoretical foundations with a critical examination of prior research, a conceptual framework is proposed.

Women Enterprises and Adoption of Mobile Applications

Women possess immense entrepreneurial and leadership potential, particularly in the largely untapped technology sector. Digital tools enable them to start businesses from home and design flexible work schedules (Scuotto et al., 2019). Women enterprises can serve as role models, serve a benchmark and offer essential guidance, imparting insights to aspiring enterprises (Shukla et al., 2020). The invention of new technology has led to a significant transformation in the field of women's entrepreneurship (Shukla et al., 2020).

Adopting mobile applications allows female enterprises to boost their revenue, enhance customer loyalty, expand business networks, enhance visibility, and promote products to a wider groups (Abed, 2021). These applications enable women to research, market, and develop their brands, reaching different audiences (Sathye et al., 2014). They offer a simple and economical option for female enterprises to develop

extensive business networks, reach prospective customers, gather market data, establish consumer trust, and collect customer feedback (Lingyan et al., 2021).

A research carried out by Suseno and Abbott (2021) found that the adoption of technology generates opportunities for female entrepreneurs, enabling them to prevail over various business challenges. However, enterprises sometimes encounter difficult challenges include limited availability of financial resources and a shortage of technologically proficient employees. (Hassan et al., 2011). In addition, female enterprises face barriers encompass insufficient skills, prevailing gender stereotypes, exclusion in digital space, and other related challenges (Mariscal et al., 2019; Orkoh & Viviers, 2021; Ojo & Sejone, 2022).

While technology provides numerous opportunities and advantages, it also presents challenges that need to be addressed. Understanding and mitigating these challenges is crucial for enabling more women to successfully adopt digital technologies. Therefore, it becomes essential to explore the factors that enable mobile application adoption among women micro-enterprises. Businesses that successfully integrate digital technologies gain advantages such as improved customer experiences, heightened operational efficiency, reduced costs, accelerated growth, and strengthened competitive positioning (Bellakhal & Mouelhi, 2020; Ciurea et al., 2021; Opute et al., 2020; Pfister & Lehman, 2021).

Micro-Enterprises

Micro-enterprises hold a crucial position, globally, as they provide vital income-earning opportunities and generate employment in economies around the world (Endris & Kassegn, 2022; Guci & Ghazali, 2019; Tumiwa & Nagy, 2021).

They are essential to the economic development of least-developed countries like Nepal, where they drive job creation, enhance the growth of GDP, and boost exports, playing a key part in overall economic progress (Khatri et al., 2023; UN, 2020). Micro-enterprises are key to addressing some of the fundamental challenges in LDCs, including unemployment, poverty, and underdevelopment, while driving inclusive and sustainable economic growth. Micro enterprises' adoption of digital technologies is shaped by determinants like alignment with existing systems, company size, financial capital, and governmental assistance, perceived ease of use, ICT infrastructure, security concerns, and perceived usefulness, highlighting the need for assistance customized to their level of digital maturity, along with access to essential resources such as financial capital and skilled labor (Mametja et al., 2023). Women-owned microenterprises are under pressure to adopt digital technologies to stay competitive but face challenges such as insufficient skills, gender biases, and barriers to digital inclusion (Ojo & Segone, 2022; Orkoh & Viviers, 2021).

According to the Nepalese Industrial Enterprise Act 2076 (2020) a micro-enterprise is defined as a business in which the entrepreneur is actively engaged in its operation and management. Cottage enterprises, which fall under the category of micro-enterprises, are distinguished by having a workforce that includes no more than nine individuals, including the owner. The invested capital investment, excluding land and buildings, is capped at two million rupees in capital, and the yearly revenue does not exceed ten million rupees. These businesses typically depend on conventional capabilities and technologies, focusing on specialized expertise, locally sourced materials, craftsmanship, and cultural elements, and are typically characterized by high labor requirements. Nepalese micro-entrepreneurs operate businesses across

various sectors, including agriculture, forestry, skilled trades, manufacturing, services, trade, tourism, and other types of enterprises (Karki, 2017).

Business Information

Mobile applications have emerged as essential tools for women entrepreneurs, offering convenient and cost-effective access to crucial business information. These applications enable women to build extensive business networks, reach potential customers, and gather valuable market intelligence. In addition to facilitating access to market research and industry trends, mobile apps assist in managing business reputation and fostering customer trust, both of which are vital for long-term business sustainability.

The study has shown that social influence as well as effort expectancy plays a crucial part in shaping the behavioral intention of women entrepreneurs to use mobile applications (Abed, 2021). The adoption of these technologies enhances business operations by improving decision-making capabilities, expanding professional networks, and fostering long-term growth and competitiveness (Kapinga et al., 2016). Consequently, mobile applications have become indispensable in providing women entrepreneurs with an accessible platform to strengthen their businesses and navigate the competitive market environment effectively.

Theoretical Review

Unified Theory of Acceptance and Use of Technology (UTAUT)

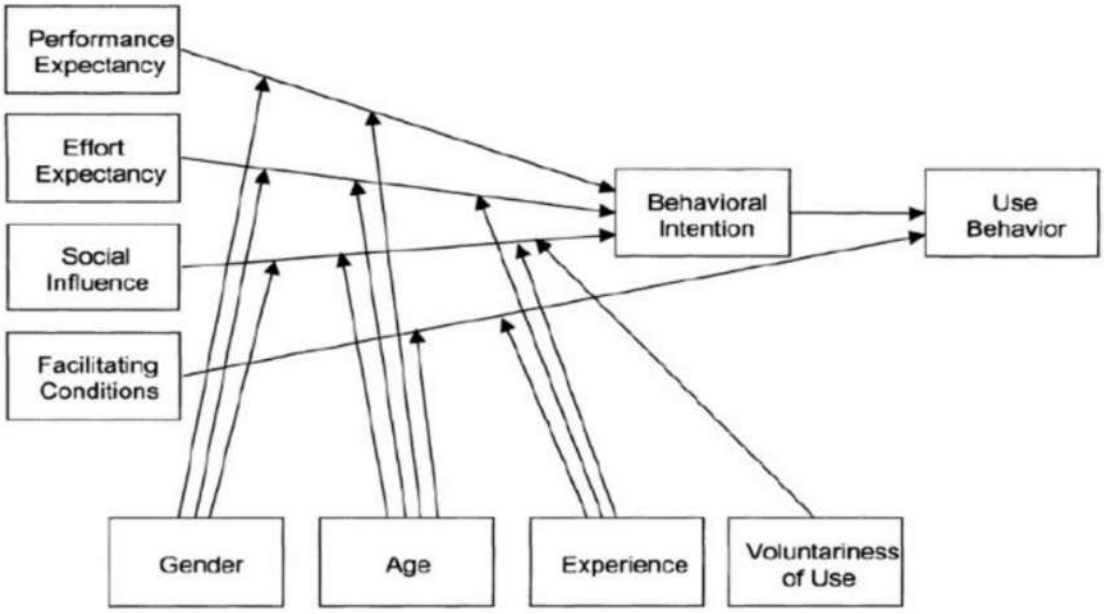
The Unified Theory of Acceptance and Use of Technology (UTAUT), devised by Venkatesh et al. (2003) is a widely recognized theory for understanding technology utilization. It synthesizes eight significant technology adoption theories: the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), the Motivational Model (MM), the Technology Acceptance Model (TAM), the TAM-TPB Integration Model, the Model of Personal Computer Utilization (MPCU), the Social Cognitive Theory (SCT), and the Diffusion of Innovation Theory (DIT). By incorporating key elements from these theories, UTAUT provides a comprehensive framework that identifies four primary factors of behavioral intention to adopt the technology. Performance Expectancy refers to the belief that utilizing a particular technology will improve individual's performance. Effort Expectancy refers to the ease of use, learning and using the technology. Social Influence refers to the belief that highlights one's expectations to utilize the technology. Facilitating Conditions, refers to the belief that sufficient resources and support are accessible to utilize the technology efficiently.

The UTAUT model asserts that four major variables directly affect behavioral intention, influencing technology usage. Additionally, Venkatesh et al. (2003) examined the importance of Anxiety, originating from Social Cognitive Theory (SCT), a fundamental framework underpinning UTAUT. The model also accounts the influencing power of age, experience, gender, and voluntariness for the moderating relationships among these constructs (Venkatesh et al., 2003).

UTAUT serves as a robust theoretical model for empirical research to investigate behavioral intention and technology utilization. UTAUT has proven to be a valuable tool in examining user behavioral intentions towards technology adoption (Dutta & Shivani, 2022). Numerous studies have successfully used the UTAUT model to investigate mobile payment adoption, demonstrating its efficacy (Chen & Chang, 2013; Shin, 2009, 2010; Wang & Yi, 2012).

Figure 1

Unified Theory of Acceptance and Use of Technology (UTAUT)



Note. Adapted from (Venkatesh et al., 2003).

Unified Theory of Acceptance and Use of Technology (UTAUT2)

UTAUT2 is an abbreviation for the expanded framework of the Unified Theory of Acceptance and Use of Technology. Based on the results of Venkatesh et

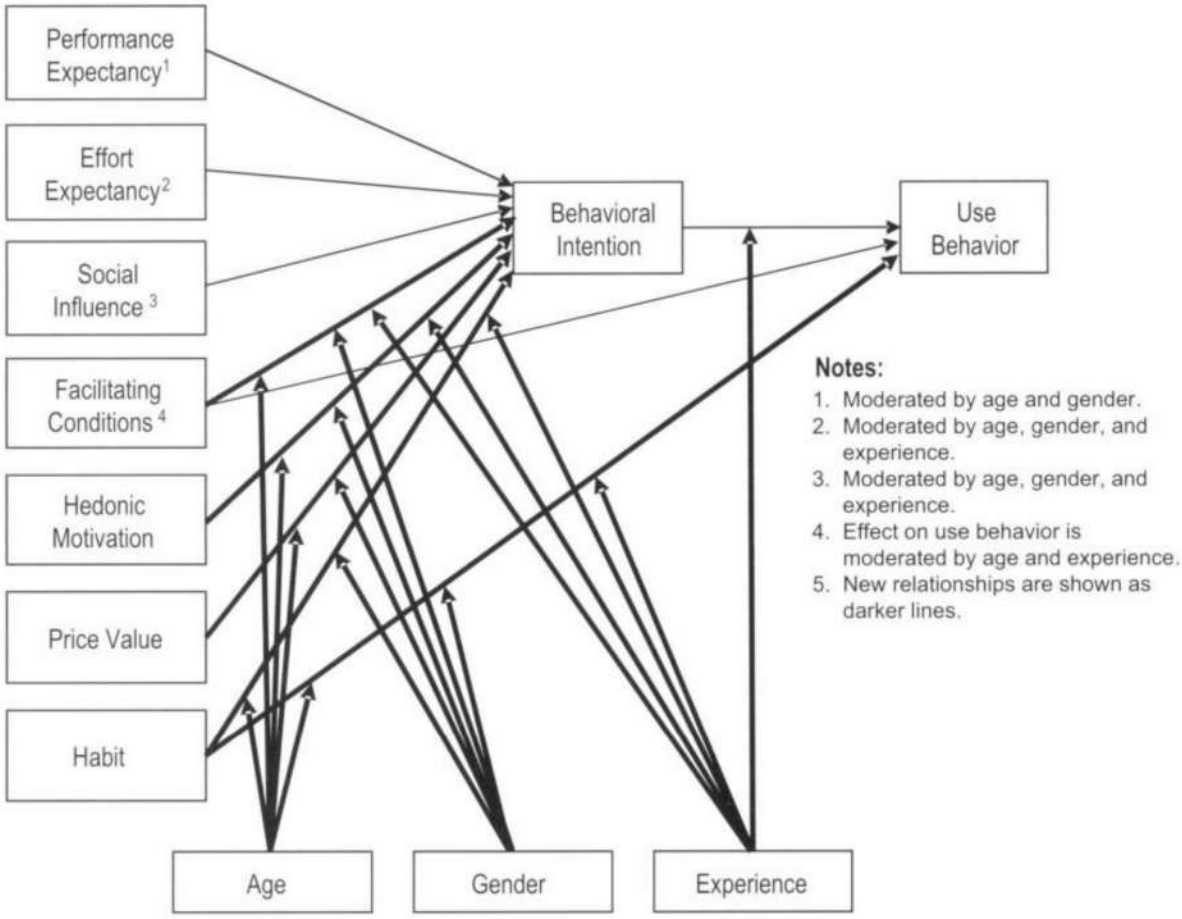
al. (2012) the UTAUT2 identifies four principal determinants - performance expectancy, effort expectancy, social influence, and facilitating conditions - that are crucial in forecasting both behavioral intentions to utilize technology as well as actual technology usage in organizational settings (Mehta & Sinha, 2022).

The UTAUT was expanded into UTAUT2 to extend its applicability beyond organizational settings, adding three new fundamental variables: Hedonic Motivation (a primary determinant in consumer behavior studies), Price Value (a primary determinant in economic theories), and Habit (a primary determinant in sociological studies). In this revised model, the theorists eliminated the voluntariness of use from the moderating factor while retaining performance expectancy, effort expectancy, facilitating conditions, and social influence.

The UTAUT model integrates the advantages of other technology utilization theories and explains 70 percentage of the variation in intention, significantly surpassing the explanatory power of other general technology utilization theories (Venkatesh et al., 2016). A significant advantage of the UTAUT model is its integration of all important variables from various technology acceptance models. Given that research on mobile application adoption is still developing, utilizing a comprehensive and universal model like UTAUT is valuable for pinpointing the critical determinants that affect mobile application adoption among the women-led micro-enterprises of Nepal. It also contributes to the development of a comprehensive, foundational framework for research on mobile application adoption.

Figure 2

Unified Theory of Acceptance and Use of Technology (UTAUT2)



Note. Adapted from (Venkatesh et al., 2012).

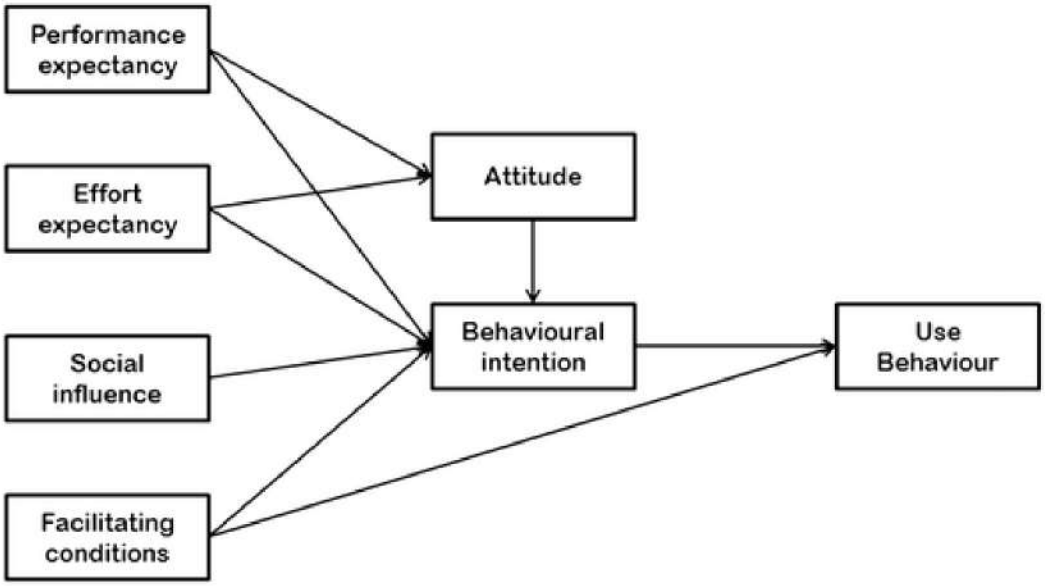
Unified Theory of Acceptance and Use of Technology (UTAUT2) & Attitude

Dwivedi et al. (2019) and Rana et al. (2017) extended the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) by integrating the construct of Attitude to offer a more elucidation for user accepting technology and behavior towards it. Their studies emphasized the critical role of Attitude in forming user behavioral intentions and real utilization of the technology. Specifically, Attitude was

found to partially mediate the effect of key independent constructs of UTAUT model on Behavioral Intention.

Figure 3

Re-examining the Unified Theory of Acceptance and Use of Technology (UTAUT)



Note. Adapted from (Dwivedi et al., 2019).

By incorporating Attitude, the explanatory capacity of UTAUT2 is enhanced, recognizing that users' positive or negative perceptions of technology substantially affect their propensity to utilize and eventually utilize the technology (Dwivedi et al., 2019; Rana et al., 2017).

The UTAUT and its expanded model, UTAUT2, provide a robust theoretical framework for comprehending technology utilization by synthesizing key elements from various user acceptance theories. The integration of attitude as a mediating factor in UTAUT2 underscores its significance in shaping user acceptance and behavior towards technology. Utilizing extended UTAUT2 in research on mobile application adoption among women-led micro-enterprises in Nepal can provide

important insights into the key determinants of their technology utilization, thereby establishing a foundational model for future studies.

Table 1

Development of UTAUT Theory

Theory	Authors	Independent Constructs	Dependent Constructs	Moderating Variables
UTAUT	(Venkatesh et al., 2003)	Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions	Behavioral Intention, Use Behavior	Gender, Age, Experience, Voluntariness of Use
UTAUT2	(Venkatesh et al., 2012)	Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value, Habit	Behavioral Intention, Use Behavior	Gender, Age, Experience
Extended UTAUT	(Dwivedi et al., 2019; Rana et al., 2017)	Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Perceived Risk, Anxiety	Attitude, Behavioral Intention	

Note. Adapted from (Dwivedi et al., 2019; Rana et al., 2017; Venkatesh et al., 2003; Venkatesh et al., 2012).

Hypothesis Development and Theoretical Framework

Performance Expectancy

Performance expectancy represents the initial variable of the study, defined as "the degree to which technology benefits consumers in performing certain activities" (Venkatesh et al., 2003). It signifies the perceived utility correlated with the given technology and denotes the extent to which user perceives for utilizing a specific technology improves performance. Perceived usefulness as conceptualized by TAM and other constructs related to usefulness in other models constitute the performance expectancy variable in the UTAUT model.

Performance expectancy has been shown the most significant determinant of intention in both the UTAUT and UTAUT2 models (Venkatesh, 2003; Venkatesh et al., 2012). It significantly influences users' decisions to adopt the researched technology. Performance expectancy is closely related with the perceived usefulness construct in TAM that is widely recognized as a leading construct for predicting technology usage due to its robustness, power, and simplicity (Venkatesh et al., 2000).

As stated by to Al-Saedi et al. (2020) investigating mobile payment adoption found that users exhibit a higher propensity to use mobile payment services when they find them useful. Performance expectancy has been shown to have a substantial positive influence to the have intention towards adoption mobile applications (Hew et al., 2015; Sanchez et al., 2019; Venkatesh et al., 2012). It is deemed a primary determinant of the intention to adopt technology (Venkatesh et al., 2003; Wang et al., 2003).

Previous studies have examined this relationship and yielded favorable outcomes across diverse settings, including mobile applications (Abed, 2021; Malik et al., 2017), e-commerce technology (Dutta & Shivani, 2022), improving business performance (Mehta & Sinha, 2022), and mobile learning (Nassuora, 2012). These findings provide a compelling reason to include performance expectancy in this study's research model. Mobile apps offer valuable features and benefits, such as convenience (Wang & Malthouse, 2015) and benefit-seeking (Oghuma et al., 2015). If users find that a mobile app is useful, their attitude regarding intention to use it (Dwivedi et al., 2019).

The review of literature underscores the important role of performance expectancy in predicting technology utilization, highlighting its strong influence on users' behavioral intentions. Therefore, performance expectancy a key factor in the research model for mobile application adoption among women-led micro-enterprises in Nepal. Drawing upon the above arguments, this research hypothesizes that:

H1: Performance Expectancy positively influences attitude towards the use of mobile applications.

Effort Expectancy

Effort expectancy is characterized as "the degree of ease associated with consumers' use of technology" (Venkatesh et al., 2003). It refers to the extent of easiness to connect with the use of a system. This construct was initially developed in the UTAUT model, drawing from earlier technology acceptance models. These earlier models demonstrated that easiness to use and its complexity (Davis, 1989; Davis et

al., 1989; Moore & Benbasat, 1991; Thompson et al., 1991) significantly affect behavioral intention.

The significance of the effort expectancy variable has been demonstrated in various other technology adoption studies. For instance, Davis et al. (1989) utilized the construct regarding easiness to use helping to elucidate the information system adoption. Replications of TAM, as well as models derived from TAM and UTAUT, offer extensive evidence confirming the significance of effort expectancy as well as easiness to use in shaping their intention to utilize applications.

Several studies have reported a favorable effect of minimal effort expectancy towards behavioral intention to utilize the mobile applications (Dwivedi et al., 2019; Hew et al., 2015; Puriwat & Tripopsakul, 2021; Sanchez et al., 2019). These findings provide a favorable impact to this study to anticipate that effort expectancy positively influences attitude to have behavioral intention for mobile application adoption among women micro-enterprises. Additionally, it is reasonable to infer that when individuals perceive mobile applications as user-friendly, their intention to utilize them is significantly heightened. Based on this, the study hypothesizes:

H2: Effort Expectancy positively influences attitude towards the use of mobile applications.

Social Influence

Social influence is characterized to "the degree to which consumers perceive that important others (e.g., family and friends) believe they should use a particular technology" (Venkatesh et al., 2003). It is a widely recognized factor that influences user's intention to utilize any technology. Social influence construct was initially

presented at the UTAUT model (Venkatesh et al., 2003) which was derived from the TRA model, where referred to Subjective Norms. Social influence involves a behavior change to align with the norms of specific group.

Previous theoretical research has demonstrated that social influences affects the purpose for technology adoption. Venkatesh and Davis (2000) extended the TAM model and used social influence being a key factor of TAM's perceived usefulness. Mehta and Sinha (2022) found that women enterprises adopted ICT both to leverage its advantages observed in competitors and to gain acceptance by adhering to social norms within their groups.

A study conducted by Abed (2021) reported that social influence becomes an important factor of the intention to utilize mobile applications. Similarly, according to Rana et al. (2017) indicates that the social influence holds an equally significant position in shaping attitudes toward the electronic government systems adoption. Drawing from the findings of these previous studies, this study posits that social influence exerts a substantial positive impact on attitude. Thus, the study hypothesizes:

H3: Social Influence positively influences attitude towards the use of mobile applications.

Facilitating Conditions

Facilitating Conditions (FC) pertain to individuals perceptions regarding the availability of resources and necessary support to execute a behavior (Venkatesh et al., 2003). This variable was initially originated in the PC Utilization model (Thompson et al., 1991) and subsequently formulated by (Venkatesh et al., 2003) in

the model termed as UTAUT. FC is termed as "the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system" (Venkatesh et al., 2003). FC also implies that users' possess to have the necessary resources along with knowledge that enable them to utilize technology (Alwahaishi & Snásel, 2013).

In the initial UTAUT model, FC was proposed and demonstrated to have a significant positive effect only towards use behavior, not on behavioral intention. However, some studies have reported different findings. Dutta and Shivani (2022) found that FC was a strong driver for behavioral intention (BI). Women enterprises felt encouraged to use technology when they possessed the necessary knowledge and resources. FC has been found to affect women's ability and willingness to adopt and utilize new technologies (Malik et al., 2017). Lai (2013) posited a substantial positive influence of FC on BI in a study on application-based mobile tour guides.

Although FC had a positive effect on BI, it's noted that, in terms of significance, FC was the least impactful factor influencing BI. Abed (2021) found that FC did not exert a significant impact on BI for the utilization of mobile applications by women enterprises. Similarly, Okumus et al. (2018) found no significant impact of FC on BI in their study on the adoption of smartphone diet apps among restaurant customers.

This study argues that in a least-developed country like Nepal, which suffers from a lack of digital infrastructure and low levels of digital skills and knowledge among women enterprises in rural areas, FC may positively impact attitude towards their plan to utilize mobile applications. Hence, this study hypothesizes:

H4: Facilitating Conditions positively influences attitude towards the use of mobile applications.

Attitude

Attitude is refers to user's evaluative response, whether positive or negative, while engaging in a specific behavior (Ajzen & Fishbein, 1980). Ajzen (1991) elaborates on this by defining attitude as a learned tendency to respond consistently in suitable or unsuitable manner towards a particular event. Within the framework of attitude theory, a client's utilization of a products or services is substantially affected by their overall positive or negative perceptions. Davis (1989) argues the successful integration of technology is predominantly influenced by consumer attitudes, which are shaped by the perceived simplicity or complexity of using the technology. Furthermore, Mort and Drennan (2005) highlight that the adoption of technology-related products, such as the internet and mobile phones, is heavily influenced by consumer attitudes.

Recent study has extensively investigated the relationship between attitude and the intention to utilize mobile applications. Zhang and Zhou (2024) employed an approach called mixed-method to explore the acceptance of mobile applications within university students' designed for intercultural competence development. This study revealed that the perception of ease of use and usefulness were associated with attitudes of students along with their behavioral intentions to use these apps. Prior studies have suggested that the correlation among behavioral intentions along actual use behavior may not always be robust or consistent. (Weerakkody et al., 2013), underscoring the pivotal role of attitude in influencing usage behavior. Moreover, findings from Dwivedi et al. (2019) demonstrated that the inclusion of attitude significantly improves the ability of theoretical models to explain phenomena to explain usage behavior. Within the domain of public sector and electronic

governance, mobile user adoptions, several studies (Hung et al., 2013; Lu et al., 2010; Rana et al., 2015) have found a strong association among attitude and behavioral intention, highlighting attitude as a key determinant in predicting and understanding behavioral intentions. Drawing from the findings of prior research, this study posits that attitude exerts a positive influence on behavior. Thus, the study hypothesizes:

H5: Attitude positively influences the intention to use mobile applications.

Behavioral Intention

Behavioral intention signifies an individual's attitude or the perceived likelihood that they engage in a particular action (Venkatesh et al., 2003; Venkatesh et al., 20012). In the UTAUT model, it is considered a key determinant of technology usage. Factors like performance expectancy, effort expectancy, social influence), and facilitating conditions influence behavioral intention.

Moderating Effect of Age, Business Experience and Education Level

Previous studies have indicated that age as well as gender are the key demographic constructs influencing the relationship within individual's perceptions towards technology and intention to use (Tarhini et al., 2014; Venkatesh et al., 2003). Additionally, effort expectancy may vary, with younger users finding it easier to navigate new technologies than older ones, who might face more significant learning curves (Venkatesh, Thong, & Xu, 2012). Social influence could also be more impactful among younger women in micro-enterprises, who are generally more

influenced by their peers compared to older women who might rely more on traditional business practices (Magsamen-Conrad et al., 2015).

Those with extensive business experience may have a well-established way of operating and could perceive the facilitating conditions provided by mobile applications differently compared to less experienced entrepreneurs (Thong et al., 2002). Experienced business owners might also experience higher technology anxiety due to the potential disruptions that new technologies can bring to their established routines, whereas less experienced entrepreneurs might embrace new technologies more readily as they are still in the process of developing their business practices.

Education level is another critical factor influencing technology adoption. Higher educational attainment can lead to better comprehension and quicker adaptation to new technologies, thereby affecting performance and effort expectancy (Rai, Lang, & Welker, 2002). Educated women micro-enterprises may find it easier to understand and integrate mobile applications into their business operations, reducing effort expectancy and possibly technology anxiety. Moreover, education can enhance the ability to leverage social networks, thus amplifying the impact of social influence on technology adoption. Therefore, the study hypothesizes:

H6: Age, business experience, and education level moderates the relationship of performance expectancy, effort expectancy, social influence, and facilitating conditions with attitude towards use of mobile applications.

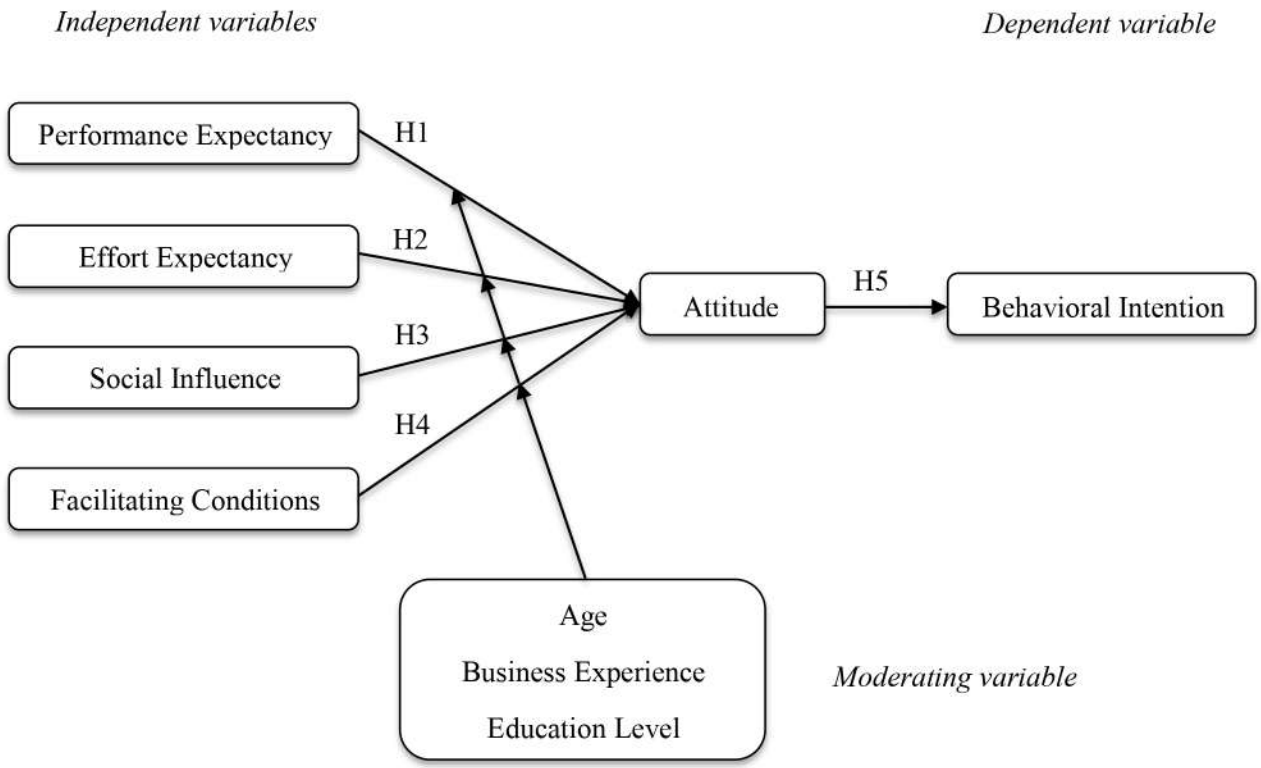
Conceptual Framework

Drawing from the theoretical background established by the above literature conceptual framework has been developed. Expanding upon the Unified Theory of

Acceptance and Use of Technology, the proposed framework investigates the determinants affecting women-led micro-enterprises' intentions to utilize mobile applications for business activities. It integrates the fundamental UTAUT elements such as performance expectancy along with effort expectancy stemming from perceived usefulness and ease of use, while also incorporating social influences along with facilitating conditions. Additionally, constructs such as age, business experience, and educational level are considered as moderating factors that influence the relationships between these constructs.

Figure 4

Proposed Conceptual Framework



Note. Source Venkatesh et al., (2003) further modified by Rana et al., (2017) and Dwivedi et al., (2019).

CHAPTER III

RESEARCH METHODOLOGY

This chapter highlights the study design and specifies the instruments used in the study. Additionally, it offers a comprehensive explanation of the research process applied to examine the factors affecting the intention to utilize mobile applications among women-led micro-enterprises for business information. This includes the questionnaire administration, the procedure for collecting data and analysis strategy.

Research Design

The objective of this study was both descriptive and inferential, aiming to perceive the general characteristics of the sample. A quantitative approach was adopted, which provided an approximate indication of the constructs and their interrelationships (Bell et al., 2022). The research employed a cross-sectional design, with data collected at a specific point in time. Responses were gathered using an enumerator-administered questionnaire technique. The study was carried out in a natural setting, meaning no field or laboratory experiments were involved, and the researcher's interference was minimal (Bougie & Sekaran, 2019). The study's unit of analysis was individual female who leads micro-enterprises and uses mobile applications.

Population and Sampling

The intended population for this research comprised individual female who leads micro-enterprises and utilizes various forms of digital technology for their business activities. Due to the lack of an available sampling frame for women-led micro-enterprises, a non-probability sampling technique was employed. Respondents were required to fulfill specific criteria, such as being already familiar with mobile technologies and related applications, to consider in the research (Bougie & Sekaran, 2019).

The population for the research comprised women who leads micro-enterprises in the Kathmandu Valley engaged in diverse types of micro-enterprises. This study targeted female micro-enterprises operating in various sectors across the valley, including Trade (Buy & Sell), Manufacturing/Production (Goods & Sell), Service (In-kind Service and Sell), and others. Given the emphasis on mobile application usage, the population was defined as women who had access to mobile technology, either through ownership or regular use, also based on their knowledge.

The women-led micro-entrepreneurs represented a diverse range of educational levels, business experiences, and ages, which were critical for investigating the moderating effect of these determinants in the research. This population was ideal for exploring how mobile applications influenced business practices and provided critical information that could enhance their economic success.

A purposive sampling method was used to select sample under the non-probability sampling approach to ensure that the women-led micro-entrepreneurs included met predefined criteria pertinent to the study's objectives. The following criteria guided the selection: Gender – only women micro-entrepreneurs were

selected. Micro-Enterprise Type – the sample included women from the four types of micro-enterprises mentioned: Trade, Manufacturing/Production, Service, and Others. Entrepreneurs from different areas within the Kathmandu Valley were included to capture a variety of socioeconomic conditions and business environments. All participants had access to and experience with mobile phones or devices capable of using business-related applications. However, purposive sampling does limit the use of certain inferential statistical tools because it does not rely on random selection. In contrast, purposive sampling allows to targeting of specific enterprises that are most relevant to the study, ensuring that the data collected is highly specific and relevant to the research question. By selecting respondents with specific knowledge or experience, the study gains deeper insights and more detailed information that might not be available through random sampling.

Given the unknown population size, the required sample size was calculated using the formula outlined by Cochran (1977):

$$n = Z^2 \times p(1-p)/e^2$$

This formula incorporated several parameters: n denoted the sample size, p represented the expected proportion of the study variable (estimated at 50% based on previous research and pilot studies, with data collected via an app administered by an enumerator), e was the error margin (set at 5%), and Z was the Z-score corresponding to a standard normal distribution for a given significance level $\alpha/2$. For a 5% significance level, the Z-score was 1.96. Using these values, the calculated sample size was 385. However, as posited by Hair et al. (2017, 2021) the required sample size should exceed ten times the number of items utilized to capture the latent variable. Since the questionnaire in this study includes 22 items, the sample should be 220.

Given the emphasis on mobile application usage, access to mobile technology - either through ownership or regular use, and the capability to use business-related applications, women leading micro-enterprises were approached for data collection. The primary data for this research were gathered from 409 women who leads micro-enterprises within the Kathmandu Valley, and met above specific criteria for purposive sampling. Questionnaires were administered by using a data collection app with the assistance of enumerators. The questionnaires were administered to the women who lead these micro-enterprises, with one respondent per enterprise.

After cleaning the data and removing incomplete or missing information from 18 samples, a final sample of 391 was used for the analysis. Of these 391 sampled enterprises, 67.5% (i.e., 264 enterprises) are registered, while 32.5% (i.e., 127 enterprises) are not registered. Even though they are not registered, these women were exposed to mobile applications for business information.

Table 2 highlights the demographic analysis of the sample population, focusing on age, educational level, and business experience. The information reveals a balanced age distribution, predominantly in the 31-35 and above 40 age categories, each comprising 25.6% of the participants, followed closely by the age group of 36-40 at 24.8%. Educationally, the majority of participants hold secondary (SEE/SLC) or lower qualifications (37.6%), with a significant portion also having intermediate (+2 or equivalent) (34.3%) and bachelor's degrees (24.0%). This diverse demographic composition provides a robust foundation for analyzing the study's outcomes. In terms of business experience, the majority (62.4%) had five or fewer years of experience, indicating a relatively young entrepreneurial community, while a smaller fraction had an experiences of 10 years and more, and only 0.5% possessed an experiences of 25 years and more. The average duration of operation for these enterprises was 5.97

years. The number of employees in these enterprises spanning from 1 to 8, with an average of 2.28 employees. These findings suggest that this cohort of enterprises is generally young or middle-aged, moderately educated, and relatively new to the business field.

Table 2

Demographic Characteristics of the Respondents (N=391)

Characteristics	Factors	Frequency	Percent
Age	Below 20 Years	4	1.0
	21-25 Years	25	6.4
	26-30 Years	65	16.6
	31-35 Years	100	25.6
	36-40 Years	97	24.8
	Above 40 Years	100	25.6
Educational Level	Secondary (SEE / SLC) or Lower	147	37.6
	Intermediate (+2 or Equivalent)	134	34.3
	Bachelor	94	24.0
	Master	13	3.3
	Above Master	3	0.8
Business Experiences	Up to 5 Years	244	62.4
	6-10 Years	89	22.8
	11-15 Years	30	7.7
	16-20 Years	16	4.1
	21-25 Years	10	2.6
	Above 25 Years	2	0.5

Note. Based on author's calculations from the collected primary data.

Measures

Data collection was conducted using questionnaires administered by enumerators. The study employed instruments that had been previously developed, tested, and validated to measure various constructs. These instruments had been utilized in multiple studies and demonstrated both validity and reliability. The 5-point Likert scale (ranges from 5 to 1; strongly agree to strongly disagree) was used to record the responses from the participants.

Performance Expectancy

Performance expectancy, a behavioral variable from the UTAUT model, was a key factor in comprehending user's behavior in this study. As stated by Venkatesh et al. (2003) performance expectancy denotes the degree to which individual perceives that utilizing a system improves their performance. This variable was adopted by numerous research (Abbad, 2021; Abed, 2021; Al-Qeisi et al., 2015; Al-Saedi et al., 2020; Al-Shahrani, 2016; Venkatesh et al., 2012). Reliability analyses of this construct in previous research have yielded Cronbach's alpha coefficients was varied between 0.639 and 0.901. As proposed by Venkatesh et al. (2012) this study utilized a modified 3-item scale representing performance expectancy.

Effort Expectancy

Effort expectancy referred to the noted simplicity and easy on utilizing a system. This concept was encapsulated by constructs from existing models, specifically the Technology Acceptance Model (TAM) with its extension, TAM2. As

outlined by Venkatesh et al. (2003) the variables included perceived easiness while using the system and its complexity, This construct had been incorporated in numerous studies (Abbad, 2021; Abed, 2021; Al-Qeisi et al., 2015; Al-Saedi et al., 2020; Al-Shahrani, 2016; Venkatesh et al., 2012). Reliability analyses in prior research has indicated Cronbach's alpha values ranged from 0.776 to 0.894. Consequently, a modified 4-item scale derived from Venkatesh et al. (2012) was employed to assess effort expectancy in this study.

Social Influence

As stated by Venkatesh et al. (2003) social influence is outlines as the extent to which user perceives that significant others think they should utilize the system. This concept was incorporated into numerous studies (Abbad, 2021; Abed, 2021; Al-Qeisi et al., 2015; Al-Saedi et al., 2020; Al-Shahrani, 2016; Part et al., 2019; Venkatesh et al., 2012). Previous research reported Cronbach's alpha coefficient for this variable ranged from 0.641 to 0.93, demonstrating its reliability. Consequently, a modified 3-item scale was derived from Venkatesh et al. (2012) to measure social influence in this research.

Facilitating Conditions

Venkatesh et al. (2003) conceptualized facilitating conditions refers to the extent to which an individual perceives the availability of resources and support for system utilization. This construct was utilized in several studies (Abbad, 2021; Abed, 2021; Al-Qeisi et al., 2015; Venkatesh et al., 2012). Reliability analyses in prior

studies reported Cronbach's alpha coefficient ranging from 0.697 to 0.741, indicating consistent reliability. Consequently, a modified 4-item scale according to Venkatesh et al. (2012) was employed to measure facilitating conditions.

Attitude

This construct was applied in various studies (Hung et al., 2009, 2013; Lu et al., 2010; Rana et al., 2015). Prior research (Dwivedi et al., 2017, 2019; Rana et al., 2017) demonstrated Cronbach's alpha value in among 0.793 and 0.891 for this construct, suggesting high reliability. Previous studies found that attitude was significant factor in shaping behavioral intentions to use apps and smartphones. Consequently, a slightly modified 4-item scale derived from Dwivedi et al. (2017) was utilized to assess attitude in this study.

Behavioral Intention

In alignment with the foundational theory behind intention models like TAM, TAM2, UTAUT, and UTAUT2, behavioral intention was defined as the extent to which individuals perceive the usefulness of technology for future use (Venkatesh et al., 2012). This variable has been widely utilized in previous studies (Abbad, 2021; Abed, 2021; Al-Qeisi et al., 2015; Al-Saedi et al., 2020; Al-Shahrani, 2016; Part et al., 2019; Venkatesh & Bala, 2008; Venkatesh et al., 2003, 2012). Previous research reported Cronbach's alpha value for this variable was in between 0.888 and 0.97, indicating high reliability. Thus, a slightly modified 3-item scale based on Venkatesh et al. (2012) was used to assess behavioral intention in this study.

Research Procedure

This section provides an overview of methodologies used in this study, includes the pilot test, the questionnaire administration process, data collection, data capture, and data analysis techniques.

Data Collection Procedure

The data collection procedure included pilot testing, administration of the questionnaire, and the data gathering process. The questionnaire was structured into three distinct sections: Section I covered Technology and Business Information, Section II focused on Technological Perception, and Section III gathered Demographic Information. To facilitate the process for both enumerators and respondents, the questionnaire was translated into Nepali. It was then converted into an application using Google Appsheet for ease of data collection.

Before full administration, a pilot test was performed with 34 respondents to assess the questionnaire's clarity and completion time. In response to the feedback gathered, the questionnaire was revised to accurately reflect the construct while preserving the essence of the original items, and subsequently updated in the application. Enumerators reached out to respondents who were utilizing mobile applications for their business activities.

This study rigorously followed ethical guidelines to maintain social and ethical integrity. Study participants were provided with informed regarding the study's objectives, procedures, benefits, and risks. They were also assured of their voluntary participation and ability to withdraw from the study at any time for any reason.

Assurances regarding the confidentiality of their data were provided. Participants were not compelled to disclose any information, and after getting informed consent, the data collection was commenced. The confidentiality of all participants was fully protected throughout the study.

Over 50% of the approached respondents who met the study's criteria consented to take part in the survey. The locations from where data was collected from various regions across the Kathmandu Valley is illustrated in Figure 5. Data were collected using the developed app, which also recorded the latitude and longitude of each data point. The data collection process was facilitated by enumerators through the mobile application.

Table 3

Data Collection

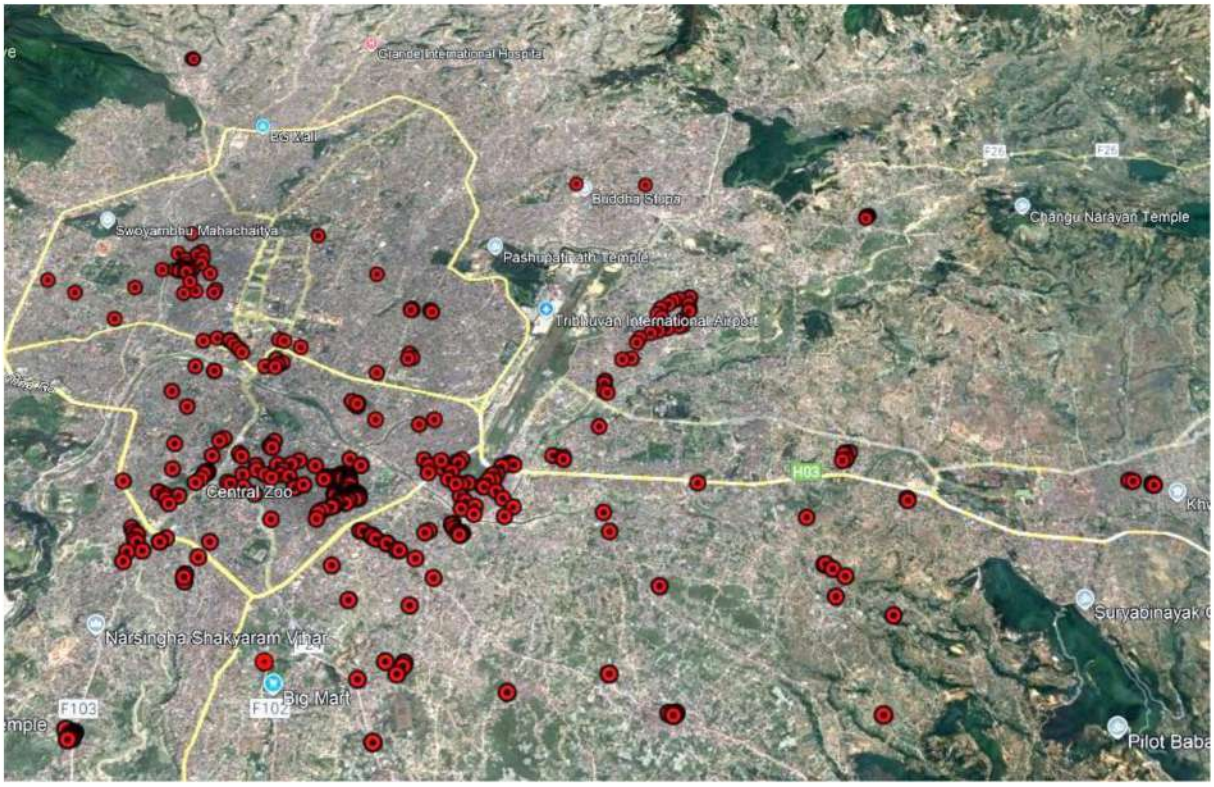
Description	Nos.
Pilot testing	34
Total completed questionnaires	409
Missing and inappropriate information	18
Total usable response	391

Note. Based on author's calculations from the collected primary data.

All responses received through the app were screened for missing data. After screening, the data from each individual response were imported into SPSS using appropriate coding.

Figure 5

Data Points on Google Map



Note. Interpolation of latitude and longitude from the collected primary data of the enterprises on the Google Maps.

Reliability and Validity

Ensuring the quality of measurements required establishing reliability and validity. Following Hair et al. (2021) the validity and reliability of the measurement model were assessed using PLS-SEM. As posited by Sarstedt et al. (2021) three key criteria were employed in this research: reliability analysis, convergent as well as discriminant validity. According to Pallant (2020) a Cronbach's alpha value should exceed 0.60. Furthermore, to confirm item reliability, the composite reliability for each variable was needed to be exceed 0.7 (Nunnally & Bernstein, 1994).

Convergent validity, as posited by Hair et al. (2014) refers to the extent to which indicators within a similar group align together. The factor loadings as well as the average variance extracted was considered while evaluating the convergent validity of the constructs. The validity of outer model was confirmed when factor loadings exceeded 0.7, and the AVE was greater than 0.50.

The two approaches was used to assess discriminant validity by applying the criteria established by Fornell and Larcker (1981) as well as the Heterotrait-Monotrait (HTMT) ratio. The validity was confirmed when the correlations between items of different values for the constructs were smaller than the square root of the average variance extracted within the same variable. Additionally, an HTMT ratio falling under 0.90 confirmed satisfactory discriminant validity (Henseler et al., 2015).

Further the structural model was analyzed using PLS-SEM in SmartPLS4 after evaluating the measurement model. This assessment was employed to test the proposed hypotheses.

Structural Model

The structural model depicted the associations among the latent variables using path coefficients, encompassing both lower-order as well as higher-order constructs. As suggested by Hair et al. (2019) the higher-order variables are more general and abstract, evaluated through multiple dimensions.

Before testing the direct effects, this study first examined variance inflation factor to assess the assumptions of multicollinearity. Direct hypotheses were then tested using a significance level of 5%. Subsequently, the results were evaluated with bias-corrected confidence intervals and bootstrapping (MacKinnon et al., 2004;

Preacher & Hayes, 2008). Finally, path analysis was conducted to determine the P-value.

Common Method Bias

This study employed enumerator-administered surveys and common measures, such as the Likert scale, for data collection, which could potentially introduce common method bias. To mitigate the issue, a full collinearity test was performed, recognized as one of the most reliable methods for detecting common method bias (Kock, 2015). Additionally, procedural remedies, including maintaining respondent anonymity, were applied during data collection to further reduce potential bias. These measures were essential for ensuring reliability and the validity of the results.

Table 4

Collinearity Statistics (VIF)

	VIF
PE - > ATT	1.5012
EE - > ATT	2.1443
SI - > ATT	1.1863
FC - > ATT	1.7281
ATT - > BI	1.0000

Note: Based on author's calculations from the collected primary data. PE - Performance Expectancy, EE - Effort Expectancy, SI - Social Influence, FC - Facilitating Conditions, ATT - Attitude, BI - Behavioral Intention,

Common method bias (CMB) in PLS-SEM refers to measurement error arising from the data collection method rather than the actual constructs being measured, which can distort relationships between latent variables and lead to inaccurate findings.

To detect and address CMB in this study, the full collinearity assessment approach was employed, involving the examination of variance inflation factors (VIFs). The VIF values for the inner model remained below the threshold of 3.33, suggesting that CMB is not present as depicted in Table 4. This confirms that the absence of common method bias in the model, which will enhance structural model and it's the validity as well as reliability of the by mitigating potential biases introduced by the measurement method (Kock, 2015, 2017).

CHAPTER IV

RESULTS

This chapter outlines the study's findings and interpretations, utilizing both descriptive and inferential analyses to evaluate the proposed hypotheses. The chapter first details the presentation of the descriptive analysis, then by a summary of the statistical data concerning the study variables. The internal consistency was observed by assessing the reliability of the instruments used. Followed by the reliability of the reliability assessment the measurement was performed where the model demonstrates the relationships with all latent variables and their respective items. Finally by using structural model the hypothesis testing was performed. The study employed SPSS 25.0 and SmartPLS 4 software for conducting data analysis.

Descriptive Analysis

Table 5 provides a detailed overview of internet sources and smartphone usage, indicating that the majority of respondents (54.0%) access the internet primarily from their homes, while a smaller proportion (13.6%) rely on mobile data. Smartphones are primarily used for facilitating payments (90.5%), ordering products (59.1%), and accessing market information (53.7%). Less frequent uses include obtaining enterprise-related information (19.4%) and communicating with other businesses (22.8%). The results highlight the critical importance of smartphones in facilitating business operations, particularly in payment facilitation, highlighting the growing importance of mobile technology in contemporary business practices.

Table 5

Technical Descriptions (N=391)

Characteristics	Factors	Frequency	Percent
Primary Source of	Own House	211	54.0
Internet	House Owners	84	21.5
	Neighbors House	53	13.6
	Using Data	43	11.0
Purpose of Using	Market Information	181	53.7
Smartphones	Order Products	231	59.1
	Facilitate Payments	354	90.5
	Information Related to Enterprise	76	19.4
	Communication with Other Business	89	22.8

Note. Based on author's calculations from the collected primary data.

The Table 6 provides a comprehensive overview of the registration status, legal forms, and ownership characteristics of enterprises. It reveals that 67.5% of enterprises are registered, with the majority registered at the Municipality (22.5%) and PAN and VAT (22.9%) offices and 32.5% of them are not registered. The predominant legal form is Sole Proprietorship (54.5%), followed by Partnership (5.4%) and Company Limited (3%). Ownership is primarily by the individual themselves (22.8%) or their husbands (22.8%). The most common types of enterprises are in the Trade (Buy and Sell) (60.4%) followed by the Service sector (23.5%), and Manufacturing/Production (13%). This data highlights the significant role of individual and family ownership in small enterprises and the diverse nature of business activities.

Table 6

Enterprise Information (N=391)

Characteristics	Factors	Frequency	Percent
Registration of	Yes	264	67.5
Enterprise	No	127	32.5
Registered at	Ward Office	87	22.3
	Municipality	66	16.9
	PAN and VAT	89	22.8
	Company Registrar's office	9	2.3
	Cottage and Small Industry Office	13	3.3
Legal Form of	Sole Proprietorship	368	94.1
Enterprise	Partnership	21	5.4
	Company Limited	2	0.5
Owner of the	Myself	129	33.0
Enterprise	Husband	89	22.8
	Son / Daughter	9	2.3
	Parents / In-laws	11	2.8
	Other Person	26	6.6
Enterprise Types	Trade (Buy and Sell)	236	60.4
	Manufacturing/Production (Goods and Sell)	51	13.0
	Service (In-kind Service and sell)	92	23.5
	Others	12	3.1

Note. Based on author's calculations from the collected primary data.

Summary Statistics of Study Variables

The Table 7 presents descriptive statistics for all variables: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Attitude, and Behavioral Intention, each with 391 observations.

Table 7

Descriptive Statistics of Study Variables

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Performance Expectancy	391	2	5.0	4.026	0.653
Effort Expectancy	391	1	5.0	3.825	0.612
Social Influence	391	2	5.0	3.905	0.624
Facilitating Condition	391	2	5.0	3.893	0.507
Attitude	391	1	5.0	3.966	0.541
Behavioral Intention	391	2	5.0	4.247	0.569

Note. Based on author's calculations from the collected primary data.

The mean values, between 3.825 and 4.247, reflect overall favorable responses within measured variables. Standard deviations vary between 0.507 and 0.653, suggesting moderate variability in participants' responses. The minimum and maximum values for all variables span from 1 to 5, reflecting the full usage of the scale used in the research.

Measurement Model

The measurement model's quality was assessed by examining its reliability and validity. As posited by Ringle et al. (2015) the study applied three key criteria: reliability analysis, convergent and discriminant validity. Convergent and discriminant validity were assessed to evaluate the measurement model's validity. Reliability was assessed through composite reliability. Following Hair et al. (2019) PLS-SEM data analysis begins with evaluating the latent constructs (outer model) using item reliability, discriminant validity (evaluated through HTMT, Fornell-Larcker criterion), internal consistency as well as convergent validity (Average Variance Extracted). Once the outer model is validated, inner model analysis was performed.

Construct Reliability and Validity

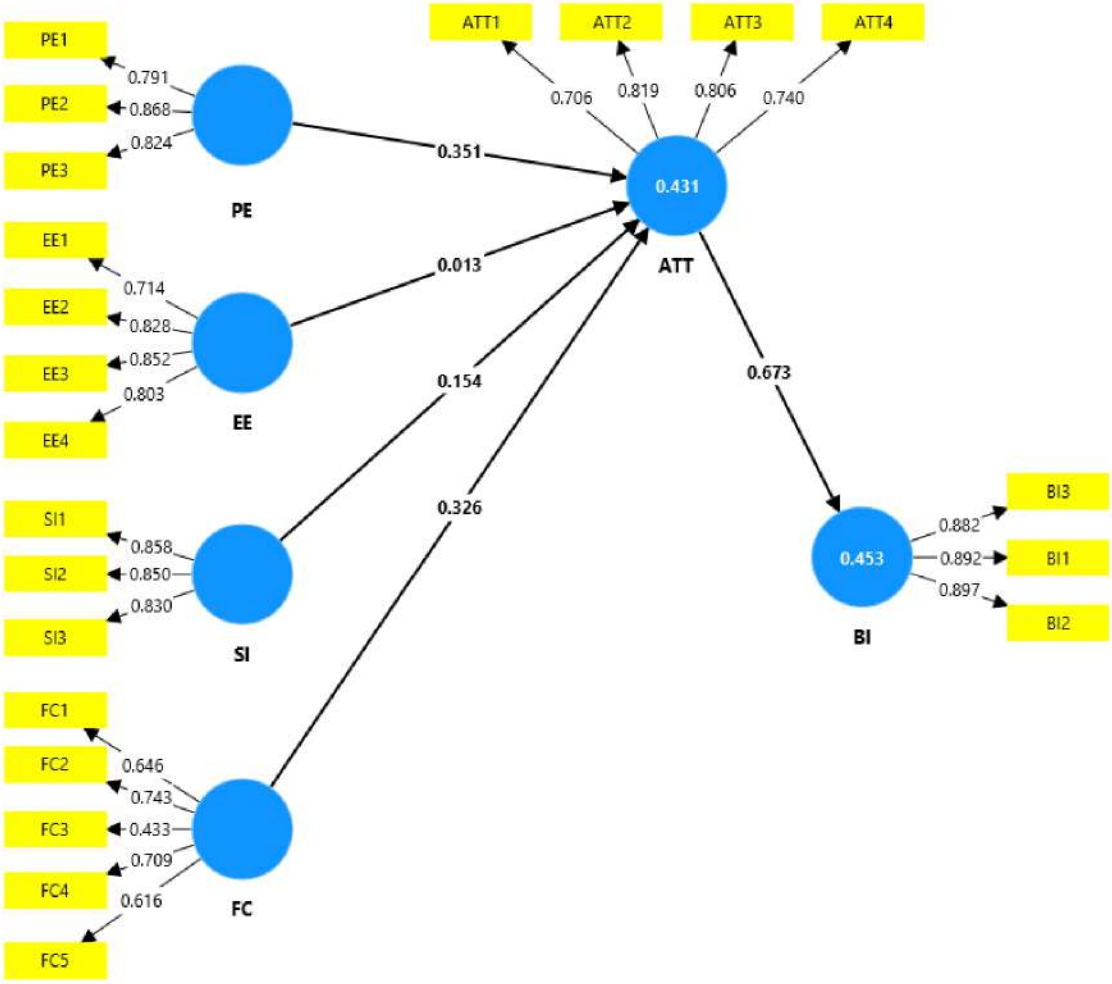
Items reliability was assessed through outer loadings. In reflective measurement models, outer loadings represent the power of the relationship among an individual indicator and its associated latent variables. Hair et al. (2017) suggest that indicators should generally exhibit outer loading greater than of 0.70. However, values ranging from 0.40 to 0.70 may be deemed acceptable, provided the construct demonstrates satisfactory composite reliability as well as average variance extracted.

Figure 6 illustrates the outer loadings of individual items and the beta values of the constructs. The outer loadings for items FC1, FC3, and FC5 were found to be relatively low, at 0.646, 0.433, and 0.616, respectively, which caused Cronbach's

alpha values along with the Average Variance Extracted values to fall below the acceptable thresholds, with values of 0.648 and 0.408, respectively.

Figure 6

Beta Value and Outer Loadings



Note. Based on the output generated by SmartPLS 4 (Ringle et al., 2024) on measurement model from the collected primary data.

Consequently, after removing items FC3 and FC5, the outer loadings of the remaining items of the variable Facilitating Conditions (FC) improved, exceeding the required thresholds. This adjustment also increased the composite reliability as well as AVE, as depicted in Table 8.

Reliability indicates a scale's capacity to generate consistent results. This study reliability was evaluated through the use of composite reliability (CR) and Cronbach's alpha (CA), both with a cut-off value of 0.7. As shown in Table 7, the coefficients for Composite Reliability as well as Cronbach's Alpha were under the permissible limit of 0.70, confirming the model's reliability (Ringle et al., 2018). Therefore, the results indicate strong internal consistency (Hair Jr et al., 2021).

Table 8

Reliability and Validity of Constructs

Constructs	Indicators	Outer loadings	CA	CR	AVE
Performance Expectancy	PE1	0.791	0.772	0.867	0.686
	PE2	0.868			
	PE3	0.824			
Effort Expectancy	EE1	0.714	0.812	0.877	0.641
	EE2	0.828			
	EE3	0.852			
	EE4	0.803			
Social Influence	SI1	0.858	0.803	0.883	0.716
	SI2	0.850			
	SI3	0.830			
Facilitating Conditions	FC1	0.712	0.634	0.802	0.577
	FC2	0.838			
	FC4	0.722			
Attitude	ATT1	0.705	0.768	0.852	0.591
	ATT2	0.817			
	ATT3	0.809			
	ATT4	0.739			
Behavioral Intention	BI1	0.892	0.869	0.920	0.792
	BI2	0.897			
	BI3	0.882			

Note. Based on author’s calculations from the collected primary data.

Discriminant Validity

Discriminant validity measures how well a construct and its indicators differ from those of other constructs (Bagozzi et al., 1991). It is tested using methods such as the Fornell-Larcker criterion, Heterotrait-Monotrait Ratio (HTMT), and Cross Loading Techniques. Fornell and Larcker's (1981) states that the square root of a variable's Average Variance Extracted must be higher than its correlation with other variables. HTMT ensures that correlations between constructs are below 0.85 (Henseler et al., 2015), and the loading of an item on its respective construct should be greater than 0.70 (Chin, 1998). As all these criteria were met, the model confirms discriminant validity.

Table 9

Discriminant Validity (Fornell-Larcker Criterion)

Constructs	AVE	ATT	BI	EE	FC	PE	SI
ATT	0.591	**0.769**					
BI	0.792	0.674	**0.890**				
EE	0.641	0.470	0.399	**0.801**			
FC	0.577	0.473	0.402	0.645	**0.759**		
PE	0.686	0.553	0.416	0.558	0.412	**0.828**	
SI	0.716	0.368	0.427	0.364	0.272	0.330	**0.846**

Note: Based on author's calculations from the collected primary data. ATT - Attitude, BI - Behavioral Intention, EE - Effort Expectancy, FC - Facilitating Conditions, PE - Performance Expectancy, SI - Social Influence

Table 9 displays the diagonal values representing the square root of the AVE for the all variables of the study. These diagonal values are more than the correlations with the items within each variable, indicating that the variables are distinct from one another and confirming their discriminant validity.

The Heterotrait-Monotrait Ratio (HTMT) is a critical measure for assessing discriminant validity in structural equation modeling. It ensures that theoretically distinct constructs are not excessively correlated, thereby validating the measurement model. By confirming discriminant validity through HTMT analysis, it enhances the credibility and reliability of the study.

Table 10

Heterotrait-monotrait Ratio (HTMT)

Constructs	ATT	BI	EE	FC	PE	SI
ATT						
BI	0.819					
EE	0.597	0.472				
FC	0.667	0.518	0.867			
PE	0.714	0.507	0.703	0.572		
SI	0.462	0.510	0.441	0.356	0.407	

Note: Based on author's calculations from the collected primary data.

The HTMT ratio, which estimates the correlation between constructs, should below the threshold of 0.90 to achieve discriminant validity (Hair et al., 2019). Similarly, Henseler et al. (2015) recommend a cut-off value of 0.90 for conceptually similar variables and 0.85 for distinct variables. With the highest HTMT value at

0.867, the results confirm assessment of the measurement model's validity presented at Table 10. In this analysis, the constructs were compared with one another to assess their distinctiveness. The highest HTMT value for all constructs was found to be below the threshold, indicating good discriminant validity.

Structural Model

The research utilized Structural Equation Modeling (SEM) as the analytical technique using SmartPLS, a powerful statistical method designed to analyze intricate association among observed as well as latent variables. Specifically, PLS-SEM was utilized to test the proposed research framework (Hair et al., 2021). Following the assessment of the measurement model, the structural model was then analyzed, including Collinearity Analysis, the Coefficient of Determination with corresponding p-values, and overall model fitness. Finally, the hypotheses were tested based on these analyses.

The Variance Inflation Factor is used to test collinearity between the predictor construct within the inner model. The VIF quantifies the extent of collinearity among the independent variables in this research. Hair et al. (2021) suggest that a VIF value greater than 5 suggest a significant risk of collinearity, values ranging from 3 to 5 imply a moderate risk, and the values below 3 are considered ideal, indicating minimal collinearity concerns. Consequently, as the values presented in the Table 6, the data exhibits no multi-collinearity issues, as evidenced by the VIF values.

In PLS-SEM, the R Square (R^2) coefficient is a key metric that demonstrates the degree to which the variation in the endogenous variables are accounted by the exogenous variables. Higher R^2 values signify a greater explanatory power of the

model. Hair et al. (2011) suggest that R^2 values of 0.75, 0.50, and 0.25 indicating strong, moderate, and weak explanatory power, sequentially. This measure is essential for evaluating the model's ability to accurately forecast outcomes and overall fit, guiding researchers in evaluating the robustness of their structural models (Hair et al., 2021; Hair et al., 2011). In this research, the R^2 value for predicting Attitude was 0.404, while for Behavioral Intention it was 0.454, as illustrated in Figure 7. These values indicate that the model demonstrates moderate predictive power.

Hypotheses H1 postulated that Performance Expectancy positively influences attitude towards the utilization of mobile applications. The results of the structural model are outlined in Table 11, reveal statistically significant relationships between PE and ATT (β=-0.374, t=7.744, p<0.05). Therefore, hypotheses H1 was confirmed.

Hypotheses H2 posited that Effort Expectancy positively influences attitude towards the use of mobile applications. However, the results of the structural model, as presented in Table 11, reveal statistically insignificant positive relationships between EE and ATT (β=0.044, t=0.685, p>0.05). Thus, hypotheses H2 was not validated.

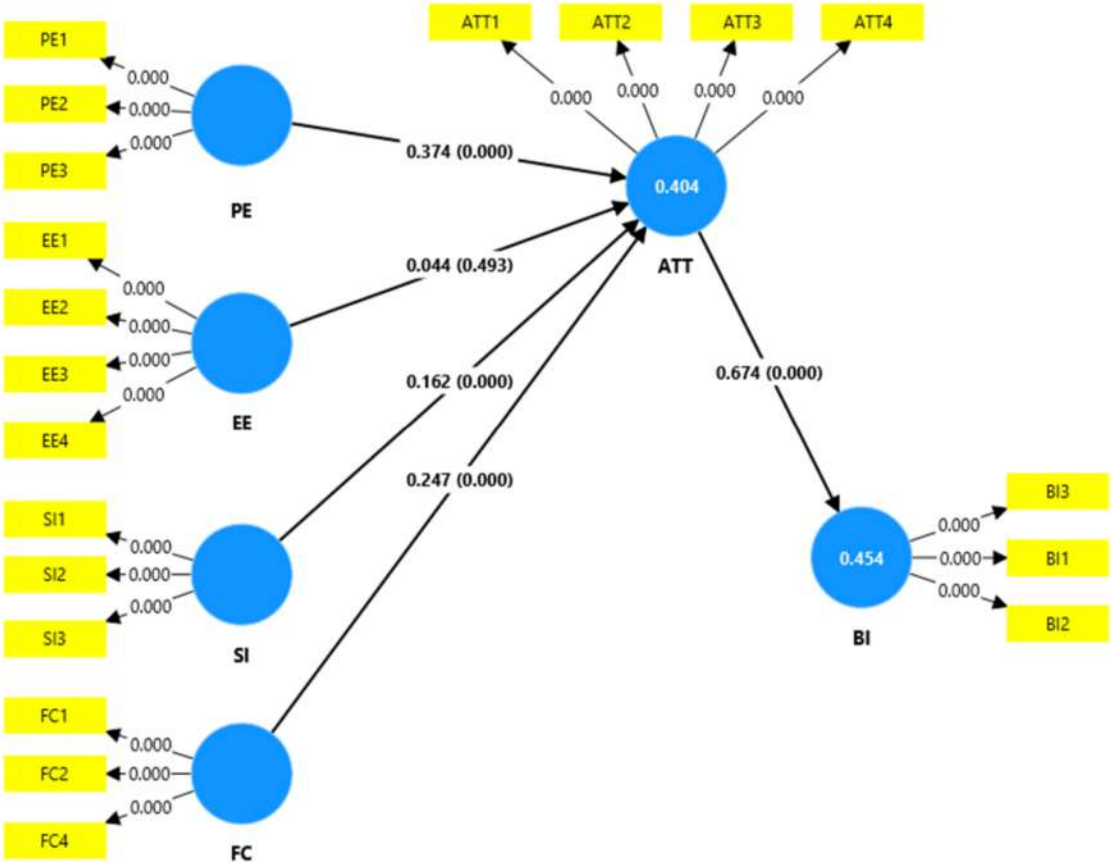
Hypotheses H3 postulated that Social Influence positively influences attitude towards the use of mobile applications. The structural model results (refer to Table 11) reveal statistically significant relationships between SI to ATT (β=0.162, t=3.634, p<0.05). Hence, hypotheses H3 was validated.

Hypotheses H4 posited that Facilitating Conditions positively influences attitude towards the use of mobile applications. The structural model results (refer to Table 11) reveal a statistically notable positive association between FC to ATT (β=0.247, t=4.270, p<0.05), Thus, hypotheses H4, was supported.

Hypotheses H5 postulated that Attitude positively influences the intention to use mobile applications. The structural model findings as depicted in Table 11, demonstrated statistically significant relationship between ATT to BI (β=0.674, t=19.329, p<0.05). Hence, hypotheses H5 was supported.

Figure 7

Structural Model with Path Coefficient, R^2 and p-value



Note. Based on the output generated by SmartPLS 4 (Ringle et al., 2024) on structural model from the collected primary data.

Table 11

Results of Structural Path Model

Hypothesis	Standardized Beta (β)	T statistics (t)	P values (p)	Significance
H1: PE - > ATT	0.374	7.744	0.000	Significant
H2: EE - > ATT	0.044	0.685	0.493	Not Significant
H3: SI - > ATT	0.162	3.634	0.000	Significant
H4: FC - > ATT	0.247	4.270	0.000	Significant
H5: ATT - > BI	0.674	19.329	0.000	Significant

Note. Based on author's calculations from the collected primary data.

Model Fitness Summary

In PLS-SEM, the Model Fit Summary is used to evaluate the adequacy of the model fit in representing the data. Commonly used measures include the Standardized Root Mean Square Residual (SRMR), which evaluates the discrepancy among the observed and predicted correlations, where smaller SRMR values signify a superior model fit. Additionally, the Normed Fit Index (NFI) is employed to evaluate the model's fit relative to a baseline model. As shown in Table 12, the SRMR coefficient of the saturated model (0.074) and the estimated model (0.081) fall below the generally accepted threshold of 0.08, as posited by Ringle et al. (2024), indicating an acceptable model fit. However, the NFI values for both the saturated model (0.749) and estimated model (0.742) fall below the generally recognized limit of 0.90 for a good assessment, indicating potential areas for further model refinement, as noted by Ringle et al. (2024).

Table 12

Model Fitness Summary

	Saturated model	Estimated model
SRMR	0.074	0.081
d_ULS	1.163	1.395
d_G	0.398	0.412
Chi-square	926.185	951.560
NFI	0.749	0.742

Note. Based on author's calculations from the collected primary data.

To enhance this study or for future research, several steps can be taken to improve the model fit indices. Increasing the sample size can enhance the reliability of the fit indices. Examining modification indices suggest adding or removing paths to improve model fit. Ensuring that the measurement model is well-specified and that the indicators are reliable and valid is crucial. For instance, only items with higher factor loadings should be retained, while those with loadings in the range of 0.60 to 0.70 should be omitted.

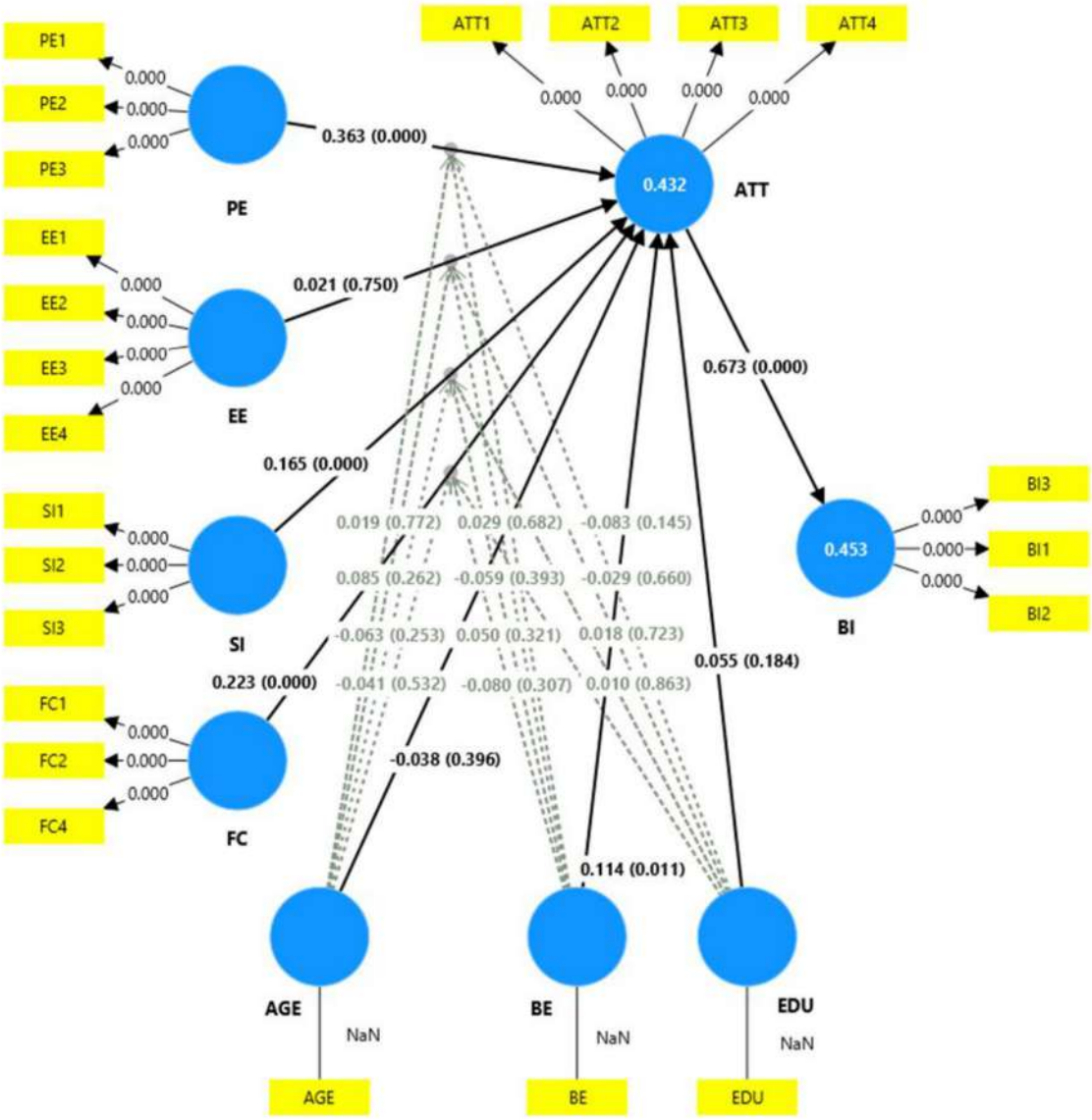
Moderation Analysis

The study hypothesizes that age, business experience, and education level moderates the association of performance expectancy, effort expectancy, social influence, and facilitating conditions with attitude towards utilization of mobile applications.

Consequently, a moderation analysis was performed. However, the results, as depicted in Figure 8, indicate that the interaction effects, represented by the beta coefficients and p-values, do not demonstrate any significant moderation by age, business experience, or education in predicting attitudes based on the UTAUT2 constructs.

Figure 8

Path Coefficient, R^2 and p-value for Moderation Analysis

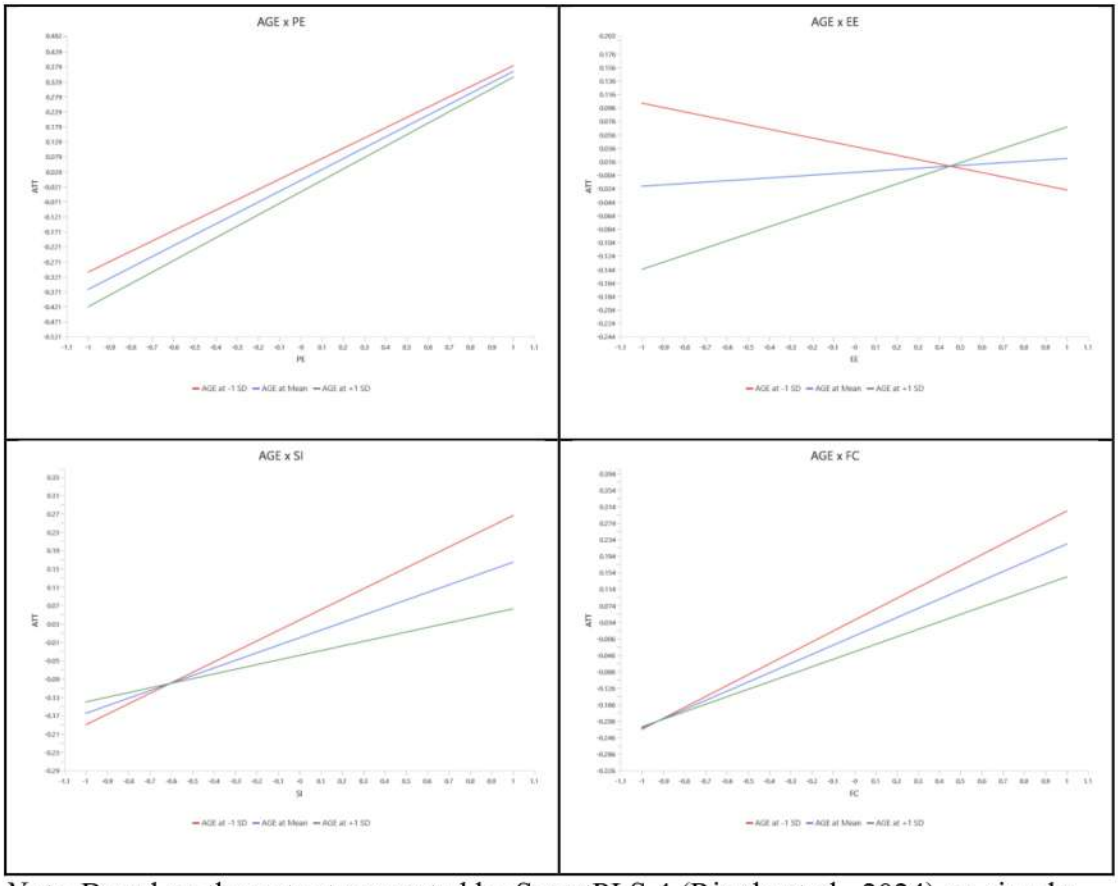


Note. Based on the output generated by SmartPLS 4 (Ringle et al., 2024) on moderation analysis from the collected primary data.

To further validate the moderation analysis, a simple slope analysis was performed. The interaction effects for AGE x PE, AGE x EE, AGE x SI, and AGE x FC, as depicted in Figure 9, reveal that the slope of interaction for AGE at +1 SD with PE, EE, SI, and FC is not significantly steeper compared to AGE at -1 SD. Additionally, in the cases of SI and FC, the slope was negative.

Figure 9

Simple Slope Analysis of AGE on PE, EE, SI, and FC



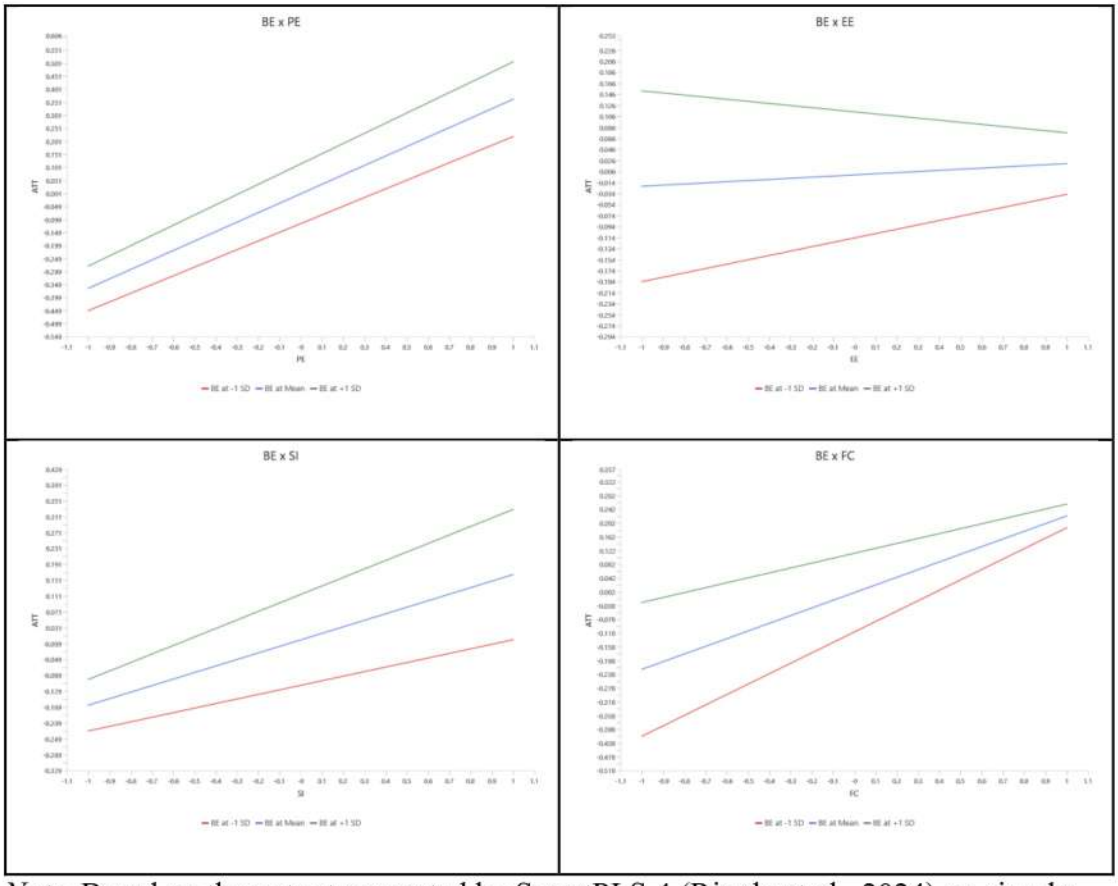
Note. Based on the output generated by SmartPLS 4 (Ringle et al., 2024) on simple slope analysis of AGE from the collected primary data.

These findings align with the path analysis results, further confirming that age does not moderate the relationship among PE, EE, SI, FC, and attitude.

Similarly, the interaction effects for BE x PE, BE x EE, BE x SI, and BE x FC, as shown in Figure 10, indicate that the slope of the interaction for business experience (BE) at +1 SD with PE, EE, SI, and FC is not substantially steeper compared to BE at -1 SD. Moreover, in the cases of EE and FC, the slope was negative.

Figure 10

Simple Slope Analysis of BE on PE, EE, SI, and FC



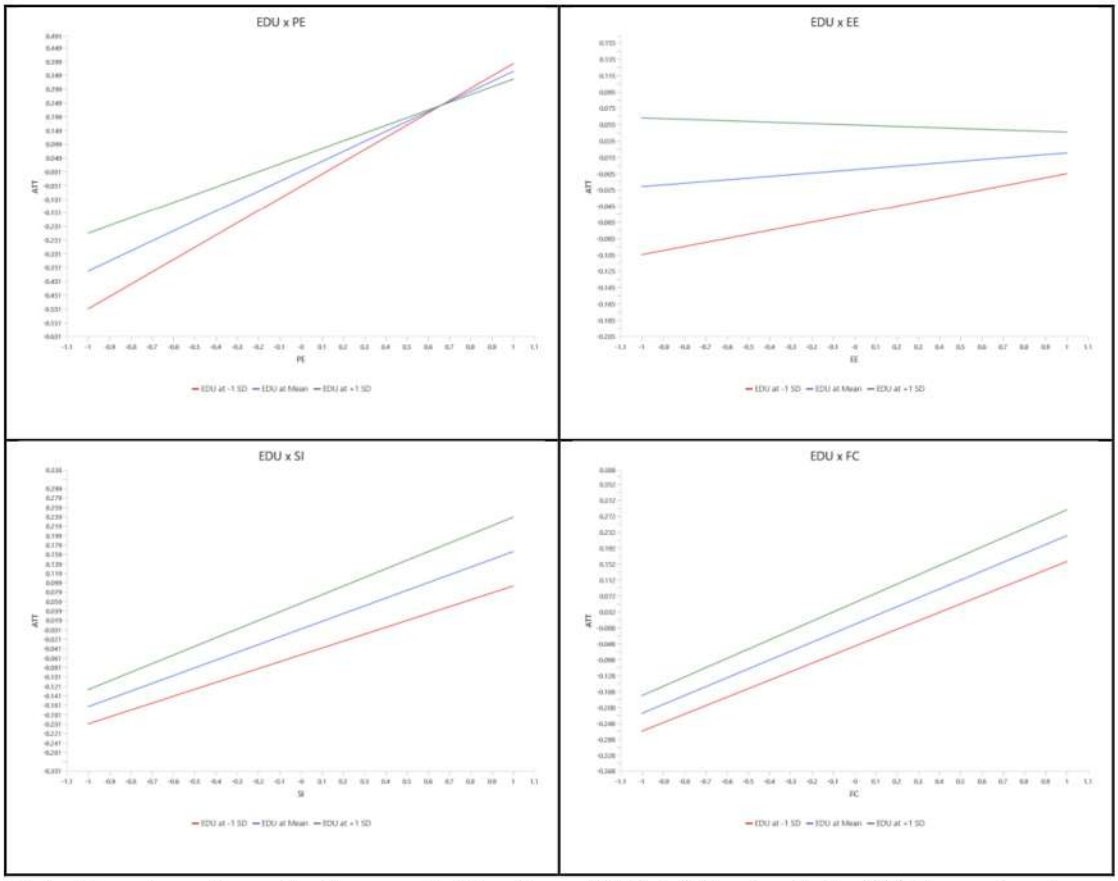
Note. Based on the output generated by SmartPLS 4 (Ringle et al., 2024) on simple slope analysis of BE from the collected primary data.

These results are consistent with the path analysis, confirming that business experience does not moderate the association among PE, EE, SI, FC, and attitude.

Similarly, the interaction effects for EDU x PE, EDU x EE, EDU x SI, and EDU x FC, as depicted in Figure 11, demonstrate that the slope of the interaction for education level (EDU) at +1 SD with PE, EE, SI, and FC is not significantly steeper than that at -1 SD. Additionally, in the case of effort expectancy (EE), the slope was negative. These findings align with the results of the path analysis, further validating that education level does not moderate the association among PE, EE, SI, FC, and attitude.

Figure 11

Simple Slope Analysis of EDU on PE, EE, SI, and FC

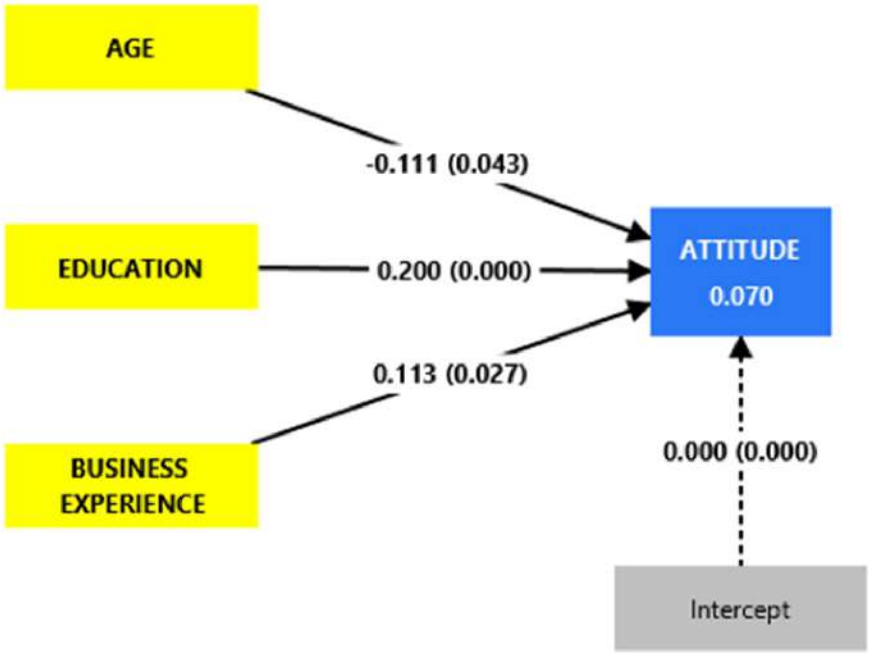


Note. Based on the output generated by SmartPLS 4 (Ringle et al., 2024) on simple slope analysis of EDU from the collected primary data.

In conclusion, hypothesis H6 was not supported, the moderating relationship of age, education level, and business experience on performance expectancy, effort expectancy, social influence, and facilitating conditions were not significant. To further explore these demographic variables' influence on attitude, a regression analysis was conducted. This approach enabled a detailed examination of the impact of multiple predictors on a single outcome, providing valuable insights into the relative importance of each predictor (Hair et al., 2018; Sarstedt & Mooi, 2019). As illustrated in Figure 12, age demonstrated a statistically significant negative relation with attitude, whereas education and business experience showed significant positive relationships. However, the model demonstrated limited predictive power, having R^2 value of 0.070.

Figure 12

Regression Analysis of Demographic Constructs on Attitude



Note. Based on the output generated by SmartPLS 4 (Ringle et al., 2024) on regression analysis from the collected primary data.

CHAPTER V

SUMMARY, DISCUSSIONS AND IMPLICATIONS

The main aim of this research was to investigate the determinants affecting the intention to utilize mobile applications for accessing business information. Additionally, the research focused to explore the moderating roles of Age, Business Experience, and Education level in the relationship with Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions on Attitudes. The study framework was grounded in the UTAUT2. The main research questions were: Do Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions influence individuals' Attitudes and, subsequently, their Behavior Intention to use mobile applications for business information? Furthermore, do Age, Business Experience, and Education moderate the relationship (a) Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions with (b) individuals' Attitudes? To address these questions, the research utilized PLS-SEM to empirically test the proposed association. Following the assessment of multivariate assumptions such as linearity and multicollinearity, the PLS-SEM was utilized rigorously test the hypotheses.

This chapter outlines a comprehensive overview of the research results, including a summary of the hypothesized results and an examination of the ways how these outcomes relate to prior research and existing theoretical frameworks. The empirical findings are critically analyzed in light of earlier studies, offering insights into both the consistencies and divergences from previous work. Furthermore, the chapter examines the practical implications of these outcomes for both researchers

and managers. It wraps up with a critique of the research, addressing its limitations along with offering suggestions for future research.

Summary of Main Findings

To accomplish the study's primary objectives, both descriptive along with inferential statistical techniques were utilized to test the hypotheses and derive meaningful conclusions.

The demographic analysis of the sample population reveals a balanced distribution across age groups, with the majority falling into the 31-35 and above 40 categories (25.6% each), followed by the 36-40 age group (24.8%). Most participants have secondary or lower educational qualifications (37.6%), while a substantial portion holds intermediate (34.3%) and bachelor's degrees (24.0%). In terms of business experience, 62.4% of respondents have five or fewer years of business experience, having an average business operation duration of 5.97 years. These enterprises typically employ 1-8 people, averaging 2.28 employees. Most respondents access the internet from home (54.0%), with smartphones being pivotal for payments (90.5%), ordering products (59.1%), and accessing market information (53.7%). Additionally, 67.5% of businesses are registered, predominantly as sole proprietorships (54.5%) and mainly in the service sector (23.5%), emphasizing individual or family ownership.

The descriptive statistics for six variables reveal generally positive responses, with mean values varied between 3.825 and 4.247 and standard deviations ranging from 0.507 to 0.653, indicating moderate variability. The full range of the Likert scale (1 to 5) was used in participant responses. The common method bias was assessed

using the full collinearity method, and the variance inflation factors remaining below the cutoff point of 3.33, confirming the absence of CMB. The measurement model showed strong reliability as well as validity, with coefficients for Cronbach's Alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE) within acceptable thresholds. Additionally, discriminant validity was confirmed through the Fornell-Larcker Criterion and the Heterotrait-Monotrait Ratio, further confirming the model's reliability and validity.

Table 13

Summary of Hypotheses Testing

SN.	Hypotheses	Hypothesized Relationship	Findings
H1	Performance Expectancy positively influences attitude towards the use of mobile applications.	Positive	Supported
H2	Effort Expectancy positively influences attitude towards the use of mobile applications.	Positive	Not Supported
H3	Social Influence positively influences attitude towards the use of mobile applications.	Positive	Supported
H4	Facilitating Conditions positively influences attitude towards the use of mobile applications.	Positive	Supported
H5	Attitude positively influences the intention to use mobile applications.	Positive	Supported
H6	Age, business experience, and education level moderates the relationship of performance expectancy, effort expectancy, social influence, and facilitating conditions with attitude towards use of mobile applications.	Positive	Not Supported

Note: Based on author's calculations from the collected primary data.

The research utilized Structural Equation Modeling with SmartPLS to analyze complexity of observed as well as latent variables. The structural model was analyzed following the assessment the measurement model, focusing on collinearity analysis, the coefficient of determination, and corresponding p-values. Model fitness was also examined. Based on these analyses, the hypotheses were evaluated to determine the relationships between variables, ensuring a robust and comprehensive evaluation of the proposed model. In addition, moderation analysis was conducted using SmartPLS, and the hypotheses related to moderation were tested and interpreted through path and simple slope analysis.

Table 13 presents a detailed summary of the hypotheses examined in this study, along with their respective outcomes. The table indicates the findings of hypothesis acceptance or rejection, grounded on the empirical findings of the analysis. This summary facilitates a clear comparison between the theoretical assumptions and the actual findings observed in the research context.

Discussions

The discussion section evaluates the results of this study with previous studies and contextualizes them within the Nepalese setting, focusing on women enterprises in the Kathmandu Valley. The results of all six hypotheses are discussed within this context.

In discussing the findings related to the first hypothesis, which posits that performance expectancy positively influences attitudes toward using mobile applications, the findings of this research emphasize the pivotal importance of performance expectancy in shaping the attitudes of women entrepreneurs in the

Kathmandu Valley toward adopting mobile applications for business purposes. Given the unique challenges faced by women-owned enterprises in the region, such as limited access to traditional business resources and support networks (Acharya & Pandey, 2018), the perceived usefulness of mobile applications plays a particularly important role. The favorable impact of performance expectancy on attitudes toward the plan to adopt mobile applications aligns with the results of prior research (Dwivedi et al., 2019; Rana et al., 2017), which indicate that individuals are more likely to adopt and sustain the use of a technology when they perceive it as advantageous (Abed, 2021; Malik et al., 2017). In conclusion, the strong association between performance expectancy and the attitude toward adopting mobile applications among women-led micro-enterprises in Kathmandu indicates that enhancing the perceived value of these technologies can significantly increase adoption rates. This could, in turn, foster the sustainability and growth of women-owned businesses in the region by providing them with the essential resources to remain competitive in the market (Mehta & Sinha, 2022).

While discussing the findings related to the hypothesis (H2), which hypothesized that "Effort Expectancy positively influences attitudes toward the use of mobile applications," this study reveals that effort expectancy did not exhibit a significant impact on the attitudes of women-led micro-enterprises in the Kathmandu Valley regarding the utilization of mobile applications for business purposes, contradict previous research. Previous research (Dwivedi et al., 2019; Hew et al., 2015; Puriwat & Tripopsakul, 2021; Sanchez et al., 2019) have consistently exhibited a strong association with effort expectancy and attitude as well as with behavioral intention to utilize mobile applications. However, this divergence may be attributed to the distinct socio-cultural and economic challenges faced by women micro-enterprises

in Kathmandu Valley. Factors such as limited access to technology, lower levels of digital literacy, and socio-cultural barriers may diminish the effect of perceived simplicity of utilization on attitudes toward adoption of mobile applications. These barriers may prevent adoption even when applications are seen as easy to use. In line with Slinger et al. (2024) effort expectancy was not the sole determinant of behavioral intention, which suggests that broader factors like performance expectancy and facilitating conditions must also be considered. To encourage mobile application adoption among women micro-entrepreneurs in Kathmandu Valley, it is crucial to go beyond improving usability by addressing socio-economic and cultural barriers through comprehensive digital literacy programs, enhanced access to technology, and supportive community networks.

Regarding the third hypothesis, "Social Influence positively influences attitudes toward the use of mobile applications," this study's results align with those of prior studies. They underscore the critical influence of social factors plays in forming the attitudes of women enterprises in the Kathmandu Valley toward adopting mobile applications for business purposes. Consistent with studies by Mehta and Sinha (2022), Abed (2021), and Rana et al. (2017), social influence has a substantial effect in shaping behavioral intentions and attitudes toward technology utilization. In this baclground, social influence operates through peer networks, community norms, and visible examples of entrepreneurial success, fostering an environment where mobile application adoption is both advantageous and socially endorsed. Positive reinforcement from peers and the community encourages women entrepreneurs to integrate mobile applications into their business operations, enhancing performance and sustainability. These findings reinforce the notion that social influence plays a

crucial role in shaping the behavioral intention towards the utilization of mobile applications for business purposes, as supported by recent studies (Abed, 2021).

In discussing the fourth hypothesis, the research emphasizes the pivotal important of facilitating conditions (FC) in affecting attitudes toward the plan to utilize mobile technologies for business among women enterprises in the Kathmandu Valley. The findings align with prior research, suggesting that when female enterprises have availability to essential resources, knowledge, and support, their likelihood of adopting and utilizing new technologies increases significantly. For example, Dutta and Shivani (2022) noted that FC strongly influences behavioral intention, particularly when women receives technological knowledge as well as resources. Similarly, Malik et al. (2017) emphasized the positive effect of FC on women's ability and willingness to adopt new technologies. However, the influence of FC can vary by context. While Lai (2013) found a significant favorable influence of FC on BI within the area mobile tour guides, other studies, such as Abed (2021) and Okumus et al. (2018) reported no significant effect in different settings. This variation underscores the need to consider the specific context of Nepal, where digital infrastructure and literacy levels, particularly among rural women entrepreneurs, remain relatively low. In this study, the hypothesis that FC would positively influence attitudes toward mobile application use was supported. This suggests that improving facilitating conditions - such as enhancing access to digital infrastructure, increasing digital literacy, and providing targeted support—can significantly boost the attitudes of women entrepreneurs toward adopting mobile applications for business purposes. These findings hold important implications for policymakers and stakeholders seeking to promote digital inclusion and empower women entrepreneurs in the Kathmandu Valley.

In relation to the fifth hypothesis, "Attitude positively influences the intention to use mobile applications," the research findings underscores the crucial impact of attitude in shaping the behavioral intention to utilize mobile technologies among women entrepreneurs in the Kathmandu Valley. Aligning with prior research, such as Zhang and Zhou (2024) which emphasized the positive association among perceived usefulness, perceived ease of use with behavioral intentions, this research confirms that favorable attitude toward mobile applications significantly enhances the probability of their adoption for business purposes. This finding is particularly pertinent for women-owned enterprises, where the integration of mobile technology can enhance business growth and operational efficiency. The significant effect of attitude towards behavioral intention is further validated by studies in similar contexts (Dwivedi et al., 2019) which reflects that including attitude in theoretical models significantly enhances their explanatory power regarding usage behavior. Moreover, studies on mobile user adoption in public administration and e-government, mobile user adoption by Hung et al. (2013), Lu et al. (2010), and Rana et al. (2015) have repeatedly shown that attitude is a key predictor of behavioral intention. Therefore, promoting a positive attitude towards mobile applications through targeted interventions and training programs could be a strategic approach to boost to utilize the mobile technologies among women-led micro-entrepreneurs in Kathmandu, ultimately contributing to their business success and empowerment.

The results pertaining to the sixth hypothesis, which indicated that age, business experience, and education level do not serve as a moderating factor in relationship with UTAUT2 constructs and attitudes toward mobile application usage, offer noteworthy insights into women-owned enterprises in the Kathmandu Valley. These results suggest that the utilization of mobile technologies by these women

enterprises is driven more via other intrinsic qualities of the technology and the immediate business environment rather than demographic factors. Women entrepreneurs in the Kathmandu Valley face unique challenges, including limited access to advanced ICT infrastructure, socio-cultural restrictions, and bureaucratic obstacles (Acharya & Pandey, 2018; Shrestha, 2022). Elements such as the entrepreneurial ecosystem, infrastructure support networks, and government policies are crucial in influencing mobile application adoption (Díaz-Arancibia et al., 2024). These challenges may diminish the moderating influence of age, business experience, as well as education level. For example, the strong influence of social networks and peer support in the local entrepreneurial ecosystem may play a more critical role in technology adoption than previously expected (Acharya & Pandey, 2018). Furthermore, the rapid pace of technological advancement and the pressing need for digital transformation in business operations may encourage entrepreneurs to adopt new technologies, irrespective of their demographic background (Shrestha, 2022). The lack of significant moderating effects could also be attributed to the relatively homogenous nature of the sample in terms of their exposure to and familiarity with mobile technologies. Women entrepreneurs in the Kathmandu Valley may share similar levels of technology anxiety and effort expectancy due to the common socio-economic conditions they face (Acharya & Pandey, 2018). These findings highlight the necessity of targeted interventions that address the specific barriers faced by women entrepreneurs in the region, such as improving digital literacy, enhancing access to reliable ICT infrastructure, and fostering supportive policy frameworks (Shrestha, 2022). Overall, the findings underscore the role of considering broader contextual elements influencing technology adoption among women entrepreneurs in the Kathmandu Valley, rather than focusing solely on demographic variables.

Conclusion

This research offers valuable insights into the determinants affecting the utilization of mobile applications by women entrepreneurs within Kathmandu Valley. The finding suggest that performance expectancy and social influence are substantial factors of positive attitudes toward mobile application use. However, effort expectancy, while a common factor in previous studies, does not have a significant impact in this context. Facilitating conditions, such as technology access and digital knowledge, are pivotal in building attitudes and intentions. The research also demonstrates that attitude is a strong factor of behavioral intention, highlighting the importance of fostering positive perceptions of mobile applications. Importantly, demographic factors like age, business experience as well as education level do not have moderation effect with the UTAUT2 constructs and attitudes, suggesting that the utilization of mobile applications is derived more by contextual factors than individual characteristics. These results focuses in the implementations of the targeted interventions to highlights specific hurdles faced by female entrepreneurs in the region, like improving digital literacy, enhancing access to technology, and fostering supportive policy frameworks. By addressing these factors, policymakers and stakeholders can create an enabling environment that empowers women entrepreneurs to leverage mobile applications for their business growth and success.

Implication of the Study

This study provides critical views for researchers, academicians, and managers aiming to increase the likelihood of intention to adopt mobile technologies among

women micro-enterprises for business information within the Nepalese context. The study makes substantial contributions to both practical applications and academic literature. The subsequent section outlines the implications of this study.

Theoretical Implications

The UTAUT2 has been widely utilized to comprehend technology adoption across various contexts. However, its applicability within the unique socio-cultural and economic landscape of women-led micro-entrepreneurs in developing countries remains underexplored. This research focuses to bridge the theoretical gap by examining the UTAUT2 framework in the context of the Kathmandu Valley, Nepal. By focusing on this specific demographic, the study provides valuable insights into how local conditions, such as limited digital literacy and technological infrastructure, influence the adoption of technology. The findings challenge some of the established constructs of UTAUT2, highlighting the need for more contextualized frameworks to better understand technology adoption in underdeveloped regions. Here are the theoretical implications of the research:

1. Extension of UTAUT2: The research expanded the UTAUT2 by providing nuanced insights into its applicability in the area of women-led micro-entrepreneurs in a country like Nepal, particularly the Kathmandu Valley.

2. Diminished Role of Effort Expectancy: Contrary to prior research (Venkatesh et al., 2012) that focused the role of effort expectancy in technology utilization, this study highlights its diminished role in contexts where socio-cultural and economic barriers dominate, such as limited digital literacy and technological infrastructure.

3. Contextual Behavior of UTAUT2 Constructs: The findings suggest that UTAUT2 constructs may behave differently based on local conditions, particularly in underdeveloped regions, calling for more contextualized frameworks (Dwivedi et al., 2019).

4. Challenges to Generalizability: The absence of significant moderating influence of demographic variables challenges the generalizability of these constructs across different cultural and economic contexts (Abed, 2021; Mehta & Sinha, 2022).

5. Critical Role of Performance Expectancy as well as Social Influence: The study reinforces the critical importance of performance expectancy as well as social influence in forming attitudes toward technology adoption, emphasizing that community and peer dynamics play an essential role in influencing behavior among women-led micro-entrepreneurs (Rana et al., 2017).

Managerial Implications

The adoption of mobile applications among women-led micro-entrepreneurs in the Kathmandu Valley has the potential to significantly enhance their business operations and economic empowerment. However, various factors influence the adoption rates of these technologies. Understanding these factors and addressing the barriers can help stakeholders develop effective strategies to promote mobile application usage. The following managerial implications are derived from recent findings and offer actionable insights for stakeholders aiming to support women-led micro-entrepreneurs in this region.

1. Enhance Performance Expectancy: Implement targeted training programs that clearly demonstrate the business benefits of mobile applications to increase adoption rates (Mehta & Sinha, 2022).

2. Address Structural Barriers: Focus on improving digital literacy and access to technological infrastructure rather than solely enhancing the usability of mobile apps (Puriwat & Tripopsakul, 2021).

3. Leverage Social Influence: Create community-based peer support networks or utilize successful women entrepreneurs as role models to enhance technology adoption (Rana et al., 2017).

4. Improve Facilitating Conditions: Invest in ICT infrastructure to provide consistent connections and mobile devices, which are crucial for empowering women-owned businesses (Dutta & Shivani, 2022).

Critique of the Study and Future Research Directions

While this research provides significant understanding of the determinants that impact mobile application utilization among women micro-enterprises in Nepal, it has certain constraints and possible directions for further investigation. Firstly, the cross-sectional design of the research confines the capability to ascertain relation among the constructs. The research spanning over a time could offer a deeper comprehensive insights on the adoption process over time. Secondly, the research focused solely on the Kathmandu Valley, and the results can't be generalizable to different regions or countries with variety of socio-economic and cultural environments. Future study could explore the usability of the UTAUT theories and models in diverse context. Thirdly, the study did not focused the moderating effects of other variables, like

cultural norms, digital literacy, entrepreneurial self-efficacy, or access to financial resources. Future study could investigate how these variables interact with the UTAUT constructs to influence mobile application adoption. Finally, the study only considered the plan to utilize mobile technologies instead of empirical usage behavior. Future research could explore the factors that influence the actual utilization of mobile applications within women micro-enterprises.

In summary, this study makes a substantial contribution to the understanding of mobile application adoption among women micro-enterprises in Nepal. However, further studies is required to overcome the restrictions of this study and explore the broader implications of these findings for policymakers, organizations, and entrepreneurs seeking to empower women through digital technologies.

REFERENCES

Abbad, M. M. (2021). Using the UTAUT model to understand students' usage of e-learning systems in developing countries. *Education and information technologies*, *26*(6), 7205-7224. https://doi.org/10.1007/s10639-021-10573-5

Abed, S. S. (2021). Women entrepreneurs' adoption of mobile applications for business sustainability. *Sustainability, 13*(21), 11627. https://doi.org/10.3390/su132111627

Acharya, U., & Pandey, C. (2018). Women's Entrepreneurial Ecosystem in Nepal: A Study Based on Kathmandu Valley. *Westcliff University*.

Ajzen, I. (1991). The theory of planned behavior, *Organizational Behavior and Human Decision Processes*, 50, 179–211.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.

Al-Qeisi, K., Dennis, C., Hegazy, A., & Abbad, M. (2015). How viable is the UTAUT model in a non-Western context? *International Business Research*, 8(2), 204. http://dx.doi.org/10.5539/ibr.v8n2p204

Al-Saedi, K., Al-Emran, M., Ramayah, T., & Abusham, E. (2020). Developing a general extended UTAUT model for M-payment adoption. *Technology in society*, *62*, 101293. https://doi.org/10.1016/j.techsoc.2020.101293

Al-Shahrani, H. (2016). *Investigating the determinants of mobile learning acceptance in higher education in Saudi Arabia*. Northern Illinois University.

Antonio, A., & Tuffley, D. (2014). The gender digital divide in developing countries. *Future Internet, 6*(4), 673-687. https://doi.org/10.3390/fi6040673

Aryal, R. (2021). *Factors Influencing the Usage of Digital Mobile Wallet in Nepal* (Doctoral dissertation, Open University).

Bandura, A. (1997). *Self-efficacy: The exercise of control*. Macmillan.

Bagozzi, R.P., Yi, Y., & Phillips, L.W. (1991). Assessing construct validity in organization research. *Administrative Science Quarterly*, 421-458.

Bell, E., Bryman, A., & Harley, B. (2022). *Business research methods*. Oxford university press.

Bellakhal, R., & Mouelhi, R. (2023). Digitalisation and firm performance: Evidence from Tunisian SMEs. *International Journal of Productivity and Quality Management, 39*(1), 42-65.

Bhandari, P., & Amponstira, F. (2020). Effect of entrepreneurial orientation on profitability of women owned enterprises in Pokhara City, Nepal. *International Business Research, 13*(10), 1-66.

Bougie, R., & Sekaran, U. (2019). *Research methods for business: A skill building approach*. John Wiley & Sons.

Central Bureau of Statistics. (2018). *Government of Nepal National Economic Census 2018 National Profile*. National Planning Commission. Kathmandu. https://nepalindata.com/media/resources/items/12/b4_NEC2018_Final_Results_National_Report_No._1-1_190625.pdf

Charan, J., & Biswas, T. (2013). How to calculate sample size for different study designs in medical research?. *Indian journal of psychological medicine, 35*(2), 121-126. https://doi.org/10.4103/0253-7176.116232

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern methods for business research/Lawrence Erlbaum Associates*.

Citaristi, I. (2022). International Telecommunication Union - ITU. In *The Europa Directory of International Organizations 2022* (pp. 365-369). Routledge.

Ciurea, J., Dinu, L., & Dinu, G. (2021). The Influence of Digitalisation on SMEs. Ovidius University Annals, Economic Sciences Series, 21(1), 490-495.

Cochran, W. G. (1977). *Sampling techniques* (3rd ed.). John Wiley & Sons.

Crittenden, V. L., Crittenden, W. F., & Ajjan, H. (2019). Empowering women micro-entrepreneurs in emerging economies: The role of information communications technology. *Journal of Business Research*, *98*, 191–203. https://doi.org/10.1016/j.jbusres.2019.01.045

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340. https://doi.org/10.2307/249008

Díaz-Arancibia, J., Hochstetter-Diez, J., Bustamante-Mora, A., Sepúlveda-Cuevas, S., Albayay, I., & Arango-López, J. (2024). Navigating Digital Transformation and Technology Adoption: A Literature Review from Small and Medium-Sized Enterprises in Developing Countries. *Sustainability, 16*(14), 5946. https://doi.org/10.3390/su16145946

Dutta, S., & Shivani, S. (2020). Modified utaut2 to determine intention and use of e-commerce technology among micro & small women entrepreneurs in jharkhand, india. In *Re-imagining Diffusion and Adoption of Information Technology and Systems: A Continuing Conversation: IFIP WG 8.6 International Conference on Transfer and Diffusion of IT, TDIT 2020, Tiruchirappalli, India, December 18–19, 2020, Proceedings, Part II* (pp. 688-701). Springer International Publishing. https://inria.hal.science/hal-03744806

Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., & Williams, M. D. (2019). Re-examining the unified theory of acceptance and use of technology (UTAUT): Towards a revised theoretical model. *Information systems frontiers*, *21*, 719-734.

Economic, U. N. (2020). Social commission for asia and pacific (UNESCAP). 2008. *Statistical Year Book for Asia and the Pacific 2007*.

Endris, E. & Kassegn, A. (2022). The Role of Micro, Small and Medium Enterprises (Msmes) to the Sustainable Development of Sub-Saharan Africa and its Challenges: A Systematic Review of Evidence from Ethiopia. *Journal of innovation and Entrepreneurship, 11*(1), 1-18.

Ghosh, A., & Chopra, D. (2019). Paid work, unpaid care work and women's empowerment in Nepal. *Contemporary South Asia, 27*(4), 471-485. https://doi.org/10.1080/09584935.2019.1687646

Government of Nepal, Ministry of Finance. (2023). *Economic survey 2022/23*. Government of Nepal, Ministry of Finance. https://www.mof.gov.np/uploads/document/file/1710323031_Economic%20Survey%20Engslish%202022-23%20Eng%20Final%20for%20WEB.pdf

Guci, D.A. & Ghazali, P.L. (2019). Woman Micro-enterprise in Batam. *Penerbit: Yayasan Kita Menulis*

Gurung, L., & Paudel, P. K. (2021). Digital Divide in the COVID-19 Context: A Case of Nepal. *Journal of Education and Research, 11*(2), 1-5. https://doi.org/10.51474/jer.v11i2.554

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research, 18*(1), 39-50. https://doi.org/10.1177/002224378101800104

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.

Hair Junior, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM).*

Hair Jr, J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, *1*(2), 107-123.

Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2018). *Multivariate Data Analysis* (8th ed.). Cengage.

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. https://doi.org/10.1108/EBR-11-2018-0203

Hair Jr, J. F., Hult, G. T. M., 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 Jr, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of business research, 109*, 101-110. https://doi.org/10.1016/j.jbusres.2019.11.069

Hassan, M. K., Sanchez, B., & Yu, J. S. (2011). Financial development and economic growth: New evidence from panel data. *The Quarterly Review of economics and finance, 51*(1), 88-104. https://doi.org/10.1016/j.qref.2010.09.001

Heifer International Nepal. (2023). *Heifer annual report 2023*. Heifer International Nepal. Kathmandu. https://heifernepal.org/wp-content/uploads/2024/02/Small-Size-2023-Annual-Report-1-1.pdf

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

Hernandez, K., & Roberts, T. (2018). Leaving no one behind in a digital world. *K4D Emerging Issues Report. Brighton, UK: Institute of Development Studies*. https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/14147

Hung, S.-Y., Chang, C.-M., & Kuo, S.-R. (2013). User acceptance of mobile e-government services: an empirical study. *Government Information Quarterly, 30*(1), 33–44.

Karki, B. B. (2017). Practices of Micro Enterprises in Nepal. *Journal of Nepalese Business Studies, 10*(1), 20-27.

Khatri, B. B., Bista, R., & Acharya, K. R. (2023). The contribution of micro-enterprises in Nepalese economy. Contemporary Research: *An Interdisciplinary Academic Journal,* 6(2), 21-36.

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration (ijec), 11*(4), 1-10. https://doi.org/10.4018/ijec.2015100101

Kock, N. (2017). Common Method Bias: A Full Collinearity Assessment Method for PLS-SEM. In: Latan, H., Noonan, R. (eds) *Partial Least Squares Path Modeling. Springer*, Cham. https://doi.org/10.1007/978-3-319-64069-3_11

Krchová, H., & Höesová, K. Š. (2021). Selected determinants of digital transformation and their influence on the number of women in the ICT sector. *Entrepreneurship and Sustainability Issues, 8*(4), 524. https://doi.org/10.9770/jesi.2021.8.4(31)

Lai, I. K. W. (2013). Traveler Acceptance of an App-Based Mobile Tour Guide. *Journal of Hospitality & Tourism Research, 39*(3), 401-432. doi:10.1177/1096348013491596

Lechman, E. (Ed.). (2021). *Technology and women's empowerment*. Taylor & Francis. https://doi.org/10.4324/9781003045946

Leahy, K. B., & Yermish, I. (2002). Information and communication technology: Gender issues in developing nations. *Informing Sci. Int. J. an Emerg. Transdiscipl., 6,* 143-155.

Lingyan, M., Qamruzzaman, M., & Adow, A. H. E. (2021). Technological Adaption and Open Innovation in SMEs: An Strategic Assessment for Women-Owned SMEs Sustainability in Bangladesh. *Sustainability, 13*, 2942. https://doi.org/10.3390/su13052942

Lu, C.-T., Huang, S.-Y., & Lo, P.-Y. (2010). An empirical study of on-line tax filing acceptance model: integrating TAM and TPB. *African Journal of Business Management, 4*(5), 800–810.

MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate behavioral research, 39*(1), 99-128.

Maharjan, A., Danuwar, R. K., Kayestha, M., Maharjan, M., Baral, D. K., Koirala, A., & Timalsina, D. P. (2024). Analysing Customers' Perception on QR Payment in Kathmandu Valley: An Empirical Study using UTAUT and PLS-SEM. *Quest Journal of Management and Social Sciences, 6*(1), 57-73. https://doi.org/10.3126/qjmss.v6i1.67216

Malhotra, N. K. (2020). *Marketing research: an applied orientation*. Pearson.

Malik, A., Suresh, S., & Sharma, S. (2017). Factors influencing consumers' attitude towards adoption and continuous use of mobile applications: a conceptual model. *Procedia computer science, 122*, 106-113.

Mametja, T. R. S., Lebambo, M. M., & Tichaawa, T. M. (2023). *The adoption of digital technologies by women-owned tourism micro-enterprises* (Doctoral dissertation, University of Johannesburg).

Mariscal, J., Mayne, G., Aneja, U., & Sorgner, A. (2019). Bridging the gender digital gap. *Economics, 13*(1), 20190009. https://doi.org/10.5018/economics-ejournal.ja.2019-9

Mehta, M., & Sinha, R. (2022). Women Entrepreneurs and Information Communication Technology: The Journey from Intention to Usage. *Journal of Entrepreneurship and Innovation in Emerging Economies*, 239395752210891. https://doi.org/10.1177/23939575221089142

Meuter, M. L., Ostrom, A. L., Bitner, M. J., & Roundtree, R. (2003). The influence of technology anxiety on consumer use and experiences with self-service technologies. *Journal of business research, 56*(11), 899-906. https://doi.org/10.1016/S0148-2963(01)00276-4

Mort, G. S., & Drennan, J. (2005). Marketing m-services: Establishing a usage benefit typology related to mobile user characteristics. *Journal of Database Marketing & Customer Strategy Management*, *12*, 327-341.

Mullally, C., Janzen, S., Magnan, N., Sharma, S., & Shrestha, B. (2022). Can mobile technology improve female entrepreneurship? evidence from Nepal. *arXiv preprint arXiv:2206.03919*.

National Planning Commission. (2020). *Nepal Human Development Report 2020*. National Planning Commission. Kathmandu. https://npc.gov.np/images/category/NHDR_2020.pdf

Nepal, S., & Nepal, B. (2023). Adoption of Digital Banking: Insights from a UTAUT Model. *Journal of Business and Social Sciences Research, 8*(1), 17-34. https://doi.org/10.3126/jbssr.v8i1.56580

Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric theory McGraw-hill series. *Psychology, 3*.

Ojo, T. A., & Segone, K. (2022, March 7). *Women are being squeezed out of the digital economy*. Retrieved from Daily Maverick: https://www.dailymaverick.co.za/opinionista/2022-03-07-women-are-being-squeezed-out-of-the-digital-economy/ [Retrieved 15 November 2023].

Okumus, B., Ali, F., Bilgihan, A., & Ozturk, A. B. (2018). Psychological factors influencing customers' acceptance of smartphone diet apps when ordering food at restaurants. *International Journal of Hospitality Management*, *72*, 67-77.

Oly Ndubisi, N., & Kahraman, C. (2005). Malaysian women entrepreneurs: Understanding the ICT usage behaviors and drivers. *Journal of Enterprise Information Management*, *18*(6), 721–739. https://doi.org/10.1108/17410390510628418

Opute, A., Irene, B., & Iwu, G. (2020). Tourism service and digital technologies: A value creation perspective. *African Journal of Hospitality, Tourism and Leisure, 9*(2), 1-18. https://orcid.org/0000-0002-6290-9864

Orkoh, E., & Viviers, W. (2021). Gender composition of ownership and management of firms and the gender digital divide in Africa. *South African Journal of Business Management, 52*(1), 14. https://doi.org/10.4102/sajbm.v52i1.2227

Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. Routledge. https://doi.org/10.4324/9781003117452

Park, J., Ahn, J., Thavisay, T., & Ren, T. (2019). Examining the role of anxiety and social influence in multi-benefits of mobile payment service. *Journal of retailing and consumer services, 47*, 140-149.

Pfister, P., & Lehmann, C. (2021). Returns on digitisation in SMEs—a systematic literature review. *Journal of Small Business & Entrepreneurship, 35*(4), 574-598. https://doi.org/10.1080/08276331.2021.1980680

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of applied psychology, 88*(5), 879. https://doi.org/10.1037/0021-9010.88.5.879

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior research methods, 40*(3), 879-891. https://doi.org/10.3758/BRM.40.3.879

Rahman, S. A., Taghizadeh, S., Ramayah, T., & Alam, M. M. D. (2017). *Technology acceptance among micro-entrepreneurs in marginalized social strata: The case of social innovation in Bangladesh*. https://doi.org/10.1016/J.TECHFORE.2017.01.027

Rana, N. P., Dwivedi, Y. K., Williams, M. D., & Weerakkody, V. (2015). Investigating success of an e-government initiative: Validation of an integrated IS success model. *Information Systems Frontiers, 17*(1), 127–142.

Rana, N. P., Dwivedi, Y. K., Lal, B., Williams, M. D., & Clement, M. (2017). Citizens' adoption of an electronic government system: towards a unified view. *Information systems frontiers*, *19*, 549-568.

Ringle, C. M., Wende, S., & Becker, J. M. (2024). SmartPLS 4. *Bönningstedt: SmartPLS*. Retrieved from https://www.smartpls.com

Sarstedt, M., & Mooi, E. (2019). *A Concise Guide to Market Research: The Process, Data, and Methods Using IBM SPSS Statistics* (3rd ed.). Berlin: Springer-Verlag GmbH. https://doi.org/10.1007/978-3-662-56707-4

Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021). Partial least squares structural equation modeling. *In Handbook of market research* (pp. 587-632). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-57413-4_15

Sathye, S., Prasad, B., Sharma, D., Sharma, P., & Sathye, M. (2018). Factors influencing the intention to use of mobile value-added services by women-owned microenterprises in Fiji. *The Electronic Journal of Information Systems in Developing Countries, 84*(2), e12016. https://doi.org/10.1002/isd2.12016

Scuotto, V., Serravalle, F., Murray, A., & Viassone, M. (2019). The shift towards a digital business model: A strategic decision for the female entrepreneur. In *Women entrepreneurs and strategic decision making in the global economy* (pp. 120-143). IGI Global. https://doi.org/10.4018/978-1-5225-7479-8.ch007

Shrestha, R., Ransom, L. K., & Bhattarai, S. (2022). Technology Integration Within Women-Owned Enterprises in Nepal. In *Business and Management in Asia: Digital Innovation and Sustainability* (pp. 93-110). Singapore: Springer Nature Singapore. https://doi.org/10.1007/978-981-19-6418-3_6

Shukla, A., Kushwah, P., Jain, E., & Sharma, S. K. (2021). Role of ICT in emancipation of digital entrepreneurship among new generation women. *Journal of Enterprising Communities: People and Places in the Global Economy*, *15*(1), 137–154. https://doi.org/10.1108/JEC-04-2020-0071

Slinger, E. I., Pather, S., & du Plessis, M. (2024). Determinants of mobile application adoption among micro-entrepreneurs. *South African Journal of Information Management*, *26*(1), 1731.

Suseno, Y., & Abbott, L. (2021). Women entrepreneurs' digital social innovation: Linking gender, entrepreneurship, social innovation and information systems. *Information Systems Journal, 31*(5), 717-744. https://doi.org/10.1111/isj.12327

Tamrakar, B., & Shrestha, A. (2022). Factors influencing Use of Human Resource Information System in Nepali Organizations. *Journal of Business and Management Research, 4*(01), 1-16. https://doi.org/10.3126/jbmr.v4i01.46678

Teo, T., Doleck, T., Bazelais, P., & Lemay, D. J. (2019). Exploring the drivers of technology acceptance: a study of Nepali school students. *Educational Technology Research and Development, 67*, 495-517. https://doi.org/10.1007/s11423-019-09654-7

Tomos, F., & Thurairaj, S. (2019). *New Emerging Technologies and ICT and Their Impact on Women Entrepreneurs' Success* [Chapter]. Women Entrepreneurs and Strategic Decision Making in the Global Economy; IGI Global. https://doi.org/10.4018/978-1-5225-7479-8.ch008

Tumiwa, J. & Nagy, A. (2021). Micro, Small, and Medium Enterprises in Emerging Economies and Economic Transition: A Comparative Study between Indonesia and Hungary. *International Journal of Entrepreneurship and Small Business, 43*(1), 22-38.

Tripathi, M., & Dungarwal, M. (2020). Digital India: Role in development. *International Journal of Home Science, 6*, 388-92.

Ughetto, E., Rossi, M., Audretsch, D., & Lehmann, E. E. (2020). Female entrepreneurship in the digital era. *Small Business Economics*, *55*, 305-312.

United Nations Conference on Trade and Development (UNCTAD). (2018). *Trade and development report 2018*. New York and Geneva. https://unctad.org/system/files/official-document/tdr2018_en.pdf

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision sciences, 39*(2), 273-315. https://doi.org/10.1111/j.1540-5915.2008.00192.x

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly,* 425-478. https://doi.org/10.2307/30036540

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS quarterly*, 157-178. https://doi.org/10.2307/41410412

Weerakkody, V., El-Haddadeh, R., Al-Sobhi, F., Shareef, M. A., & Dwivedi, Y. K. (2013). Examining the influence of intermediaries in facilitating e-government adoption: An empirical investigation. *International Journal of Information Management, 33*(5), 716–725

World Bank. (2022). *South Asia's Digital Opportunity: Accelerating Growth, Transforming Lives*. World Bank. https://hdl.handle.net/10986/37230

WWF Nepal. (2021). *Final Technical Report of the Hariyo Ban Program, Phase II*. WWF Nepal, Hariyo Ban Program, Kathmandu, Nepal. https://pdf.usaid.gov/pdf_docs/PA00XWM4.pdf

Zhang, X., & Zhou, M. (2024). Factors affecting university students' intention to use mobile apps for intercultural competence development: A mixed-method approach. *Education and Information Technologies*, *29*(6), 6991-7026.

ANNEXES

Annexes 1: Questionnaire

Dear Respondents,

This questionnaire is a part of a study titled "Factors Influencing the Intention to Use Mobile Application for Business Information: A Study Among Micro-Enterprises". Your response will be anonymous and used for the stated purpose only. The submission of the completed questionnaire will indicate your consent to participate in the survey. Your honest response to this questionnaire is highly appreciated.

Thanking you for your kind cooperation.

Section I:

1. Technology Information:

1. Do you use the internet on your smartphone?
   1 = Yes
   0 = No
2. Have you ever used a smartphone for business information?
   1 = Yes
   0 = No
3. What are the common purposes of using smartphones for business information?
   1 = Market information
   2 = Order products
   3 = Facilitate payments
   4 = Information related to enterprise
   5 = Communication with other businesses
   6 = Any other information
4. Where is the enterprise's primary source of internet?
   1 = Own House
   2 = House owners
   3 = In Neighbors House
   4 = Public place
   5 = Use data

2. Business Information:

5. How long have you been involved in this enterprise? ☐

6. How many employees do you have? ☐

7. Is your enterprise registered?
   1 = Yes
   0 = No

8. If yes, where is it registered?
   1 = Ward
   2 = Palika
   3 = District, PAN, and VAT
   4 = Company Registrar's office
   5 = Cottage and Small Industry Office
   6 = Others
9. The legal form of the enterprise?
   1 = Sole proprietorship
   2 = Partnership
   3 = Company limited
10. Who is the owner of the enterprise?
   1 = Myself
   2 = Husband
   3 = Son / Daughter
   4 = Parents / In-laws
   5 = Other Person
11. What does your enterprise do? What best describe your business?
   1 = Trade (Buy and Sell)
   2 = Manufacturing/Production (Goods and Sell)
   3 = Service (In-kind Service and sell)
   4 = Others

Section II:

3. Technological Perception:

Please rate whether you **disagree or agree** with the following statements relating to doing business. (Mobile applications/Google/YouTube/Social Media/…….)

SN		Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
Performance Expectancy (Al-Saedi et al., 2020) – CA (0.901)						
1	Mobile applications are useful in my business.	1	2	3	4	5
2	Mobile applications help me to accomplish tasks more quickly in the business.	1	2	3	4	5
3	Mobile applications increase my productivity in my business.	1	2	3	4	5
Effort Expectancy (Abed, 2021) – CA (0.705)						
4	My interaction with Mobile applications would be clear and understandable in my business.	1	2	3	4	5

5	It would be easy for me to become skillful at using Mobile applications in my business.	1	2	3	4	5
6	I would find Mobile applications easy to use in my business.	1	2	3	4	5
7	Learning how to use Mobile applications is easy for me in my business.	1	2	3	4	5
Social Influence (Al-Saedi et al., 2020) – CA (0.848)						
8	People who are close to me (family) think that I should use Mobile applications in my business.	1	2	3	4	5
9	People who influence my behavior (neighbors/friends) think that I should use Mobile applications in my business.	1	2	3	4	5
10	People whose opinions I value prefer that I use Mobile applications in my business.	1	2	3	4	5

Facilitating Conditions (Abed, 2021) – CA (0.697)						
11	I have the resources necessary to use Mobile applications for my business.	1	2	3	4	5
12	I have the knowledge/skills necessary to use Mobile applications in my business.	1	2	3	4	5
13	I have the time necessary to use Mobile applications in my business.	1	2	3	4	5
14	Mobile applications are compatible with the mobile devices I use in my business.	1	2	3	4	5
15	I can get help from others when I have difficulties using Mobile applications for my business.	1	2	3	4	5

Attitude (Dwivedi et al., 2017) – CA (0.891)						
16	Using Mobile applications is a good idea for my business.	1	2	3	4	5
17	Mobile applications make work more interesting in my business.	1	2	3	4	5
18	I like the idea of using Mobile applications in my business.	1	2	3	4	5
19	Getting information from Mobile applications is fun for my business.	1	2	3	4	5
Behavioral Intention (Abed, 2021) – CA (0.908)						
20	I intend to use Mobile applications in the future for my business.	1	2	3	4	5
21	I predict I will use Mobile applications in the future for my business.	1	2	3	4	5
22	I plan to use Mobile applications frequently in my business	1	2	3	4	5

Section III:

4. Demographic Information:

- Age:
  - 1 = Below 21 years
  - 2 = 21-25 years
  - 3 = 26-30 years
  - 4 = 31-35 years
  - 5 = 36-40 years
  - 6 = Above 40 years
- Gender:
  - 1 = Female
- Educational Level:
  - 1 = Secondary (SEE/SLC) or lower
  - 2 = Intermediate (+2 or equivalent)
  - 3 = Bachelor
  - 4 = Master
  - 5 = Above Master
- Enterprise Location:
  - ▪ Latitude
  - ▪ Longitude