Chapter II

Review of Literature

The review of literature is the state-of-the-art method of understanding research. The literature review decisively synthesises earlier studies related to the selected problem, establishing a strong foundation for the research conducted. The literature relevant to the topic "Acquisition and Adoption of Digital Competency among Women in the Informal Sector" has been discussed and presented under the following headings.

2.1 Theoretical background of the study

2.2 Research studies pertaining to the problem selected

2.1 Theoretical background of the study

The study is grounded on the Unified Theory of Acceptance and Use of Technology (UTAUT) (Figure 1), propounded by Venkatesh et al. (2003), which seeks to expound behaviour intention to accept and use information systems (IS) and information technology (IT). The effective use of an information system is directly tied to users' intention to utilise it, and continued usage is determined by two critical factors: user acceptance and satisfaction. Successful behaviour unequivocally requires not only a favourable intention but also strong behavioural control.

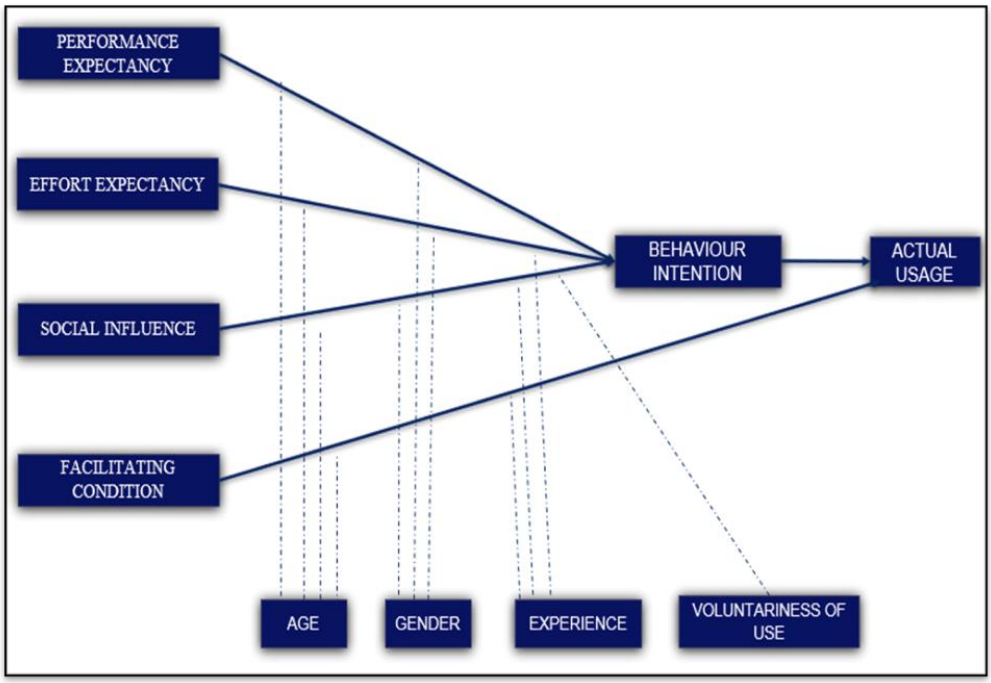

Figure 1. Model of Unified Theory of Acceptance and Use of Technology

Source: Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003)

The UTAUT model focuses on performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC) play a significant role as direct determinants of user acceptance and usage behaviour. These four constructs have been redefined based on the existing competing models. Specifically, PE refers to the degree to which an individual believes that using the system will help them attain gains in job performance. EE denotes the degree of ease associated with the use of the system. SI refers to the degree to which an individual perceives that important others believe they should use the new system. FC reflects the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system. Moreover, key moderators such as gender, age, voluntariness, and experience have been incorporated into the UTAUT model (Venkatesh et al. 2003).

Hence, extending beyond technology, the UTAUT model has facilitated the examination of human behaviour concerning the acceptance and utilisation of various products and services across diverse contexts. For instance, it has been employed to analyse behaviours related to crowdfunding and time banking in the tourism industry (Kim & Hall, 2020; Li et al. 2023), customer behaviour within the FinTech sector (Bajunaied et al. 2023; Mulyana et al. 2020), and the digital transformation within the construction industry (Hewavitharana et al. 2021).

Several literature reviews and meta-analyses have explored its use across different application fields. These studies cover a wide range of topics, such as e-government adoption (Amrouni et al. 2019), acceptance of remote healthcare technology (Rouidi et al. 2022), e-banking (Malik, 2021), smartphone technology (Ahmed et al. 2023), mobile applications (Kamal & Subriadi, 2021), mobile payments (Al-Saedi & Al-Emran, 2021), information systems (Alghatrifi & Khalid, 2019), m-commerce (Imtiaz, 2018), and other areas.

Furthermore, the UTAUT model has found application in entrepreneurship, focusing on how entrepreneurs and firms embrace and leverage technology (Abed, 2021; Alshebami, 2022; Gunawan et al., 2019; Islam & Khan, 2019; Moghavvemi et al., 2012; Moghavvemi et al., 2016; Oppong et al., 2020; Peralta et al., 2019; Puriwat & Tripopsakul, 2021).

This model is constantly evolving due to the addition of new factors or new inter-relationships (Kundu et al. 2021). The addition of the “IT Capability” factor (Shah et al.

2021) or the "Perceived self-efficacy" factors (Agyei & Razi, 2022), gives a better explanation of the acceptance and use of innovative technologies and methodologies.

Therefore, the present study intended to analyse the UTAUT model as the theoretical framework has been utilised while adding the digital competency of Informal women entrepreneurs.

2.2 Empirical Review

The research studies concerned with the selected problem are reviewed and organised under various research constructs.

2.2.1 Digital Competency

Digital competency is the ability to effectively use digital technologies to access, evaluate, create, and communicate information. It encompasses technical proficiency, critical thinking, and ethical awareness in digital environments (Oberlander et al. 2020).

For entrepreneurs, digital competency is essential for leveraging technology to enhance business operations, customer engagement, and market expansion. Research indicates that improving digital skills through business app training fosters innovation and enables firms to adapt to competitive markets (Drydakis, 2022). Entrepreneurs with strong digital competencies can optimise communication, networking, financial management, and customer relationship strategies (Ferrari et al. 2013)

Embracing E-Commerce Among Family Support Women Entrepreneurs in MSMEs: Utilising the UTAUT Model, investigated by Bala et al. (2025), employed the Unified Theory of Acceptance and Use of Technology (UTAUT) to examine the e-commerce adoption behaviour of women entrepreneurs in MSMEs. Using Structural Equation Modelling (SEM), the researchers established that digital competency significantly enhances both performance expectancy and effort expectancy, which subsequently affect behavioural intention. The analysis emphasised that digital literacy enables women to perceive digital tools as both beneficial and less complex, thereby increasing actual usage. The validation of the UTAUT model within the MSME context underscores the centrality of behavioural intention in bridging digital readiness and technology adoption.

Factors Influencing Behavioural Intention in Digital Adoption Among Women Entrepreneurs, explored by Chen & Wang (2025) explored the mediating role of behavioural intention in the digital adoption process among women entrepreneurs. Findings

revealed that digital competency directly influences performance expectancy and positively shapes entrepreneurs' motivation to integrate digital tools into business operations. Structured digital training emerged as a key intervention that significantly bolstered adoption rates, demonstrating that when women are equipped with digital skills, they exhibit heightened technological confidence and readiness.

Handbook of Digital Innovation, Transformation, and Sustainable Development in a Post-Pandemic Era, analysed by Gupta et al. (2025), through a comparative case study approach, this work investigated the role of effort expectancy in digital transformation. The study identified that entrepreneurs with higher digital proficiency are more likely to perceive digital platforms as user-friendly, leading to increased usage. The simplification of digital tools was deemed critical for enhancing effort expectancy and thus actual technology adoption. These findings underscore the necessity for intuitive design and context-sensitive training for MSME adoption strategies.

Analysis and Comparison of International Digital Competence Frameworks for Education, synthesised by Sharma & Rao (2025) meta-analytical study compared international digital competence frameworks and identified strong interconnections between digital training, performance expectancy, and behavioural intention. It highlighted that structured training programs grounded in global frameworks like DigComp substantially enhance entrepreneurs' digital readiness, facilitating greater adoption and integration of technologies across sectors.

United Nations' Sustainable Development Goals: Empowerment of Marginalised Communities, studied by Mukherjee et al. (2024), analysed the linkage between digital skills training and empowerment outcomes among marginalised women. The study emphasised the moderating effect of perceived value from training and the mediating effect of actual digital skills usage on employment. Economic empowerment was positively impacted through increased entrepreneurship-seeking behaviour, while psychological empowerment was enhanced via post-training digital engagement. The study reinforces the argument that the perceived usefulness of training is as vital as the training content itself.

Analysis of Performance Expectancy and Effort Expectancy in Digital Adoption investigated by Rizkallaa et al. (2024) explored the interplay between digital competency and UTAUT constructs in technology adoption. Results demonstrated that both effort expectancy and performance expectancy are significantly enhanced by digital literacy.

These findings underscore the necessity of developing competency-based digital interventions that mitigate psychological and operational barriers to adoption.

Digital Competency Among the Aged Entrepreneurs in Thailand, explored by Intraratat (2024) examined digital competencies among elderly entrepreneurs using a mixed-methods approach. Despite limited formal education, participants showcased competence in digital communication and content creation. The findings highlight that practical exposure and social engagement significantly contribute to digital empowerment, especially among age-diverse entrepreneurial populations.

Digital Competency and Performance Expectancy Among Women Entrepreneurs evaluated by Singh and Verma (2023). In this longitudinal study involving 500 women entrepreneurs, digital competency was found to significantly elevate performance expectancy, which in turn led to increased digital tool adoption. The study further illustrated that as women entrepreneurs become more adept digitally, they demonstrate a stronger appreciation of the economic benefits offered by digital platforms, resulting in greater integration of technology into their businesses.

The Effect of Digital Literacy on Technology Acceptance: An Evaluation on Administrative Staff in Higher Education examined by Kabakus et al. (2023) assessed how digital literacy influences effort expectancy and technology acceptance among administrative professionals. While performance expectancy was not directly impacted, effort expectancy served as a significant mediator. The study concluded that digital literacy acts as a foundational enabler for confidence and sustained technology engagement.

Opportunities and Challenges of Digital Competencies for Women Tourism Entrepreneurs in Latin America analysed by Khoo et al. (2023) investigated digital adoption challenges faced by women tourism entrepreneurs. It found that structural inequalities such as limited access to training, devices, and supportive networks constrain digital engagement. Nonetheless, women with stronger digital competencies re more resilient and adaptive, indicating a pressing need for targeted interventions.

A Pragmatic Approach for Evaluating and Accrediting Digital Competence, explored by Bartolome et al. (2021) utilised the DigComp framework to assess entrepreneurial digital competencies. Findings revealed that structured, need-based assessment tools provided more accurate representations of digital capability and promoted personalised training paths, improving relevance and adoption.

Digital Transformation in Businesses Owned by Women Authors, assessed by Saranya & Chandrasekar (2020) examined the influence of digital transformation on business efficiency and growth among women-led enterprises. The findings indicate that digital competency enhances entrepreneurial agility, leading to improved customer engagement and operational performance. Digital adoption was further linked to an increase in business sustainability, particularly when coupled with structured support mechanisms.

Digital Literacy Among Women Entrepreneurs in Rural Areas, studied by Hamid et al. (2020) found that rural women entrepreneurs primarily relied on basic digital tools like WhatsApp and Facebook for business. While digital competency levels are modest, participants expressed a willingness to learn. The research emphasised the need for localized and application-driven digital training programs.

Digital Literacy, Business Uncertainty & Economic Performance in Sri Lanka, investigated by Ranatunga et al. (2020), found that digital literacy reduces business uncertainty and positively influences economic performance. The mediation analysis confirmed that digital skills enhance stability and growth in small businesses, especially when uncertainty is effectively managed through digital interventions.

Technology Adoption and Gender-Inclusive Entrepreneurship Education and Training Studied by Orser et al. (2019) focused on the role of gender-inclusive entrepreneurship education in fostering technology adoption. Findings indicated that tailored training significantly reduced effort expectancy and encouraged women to integrate digital tools into their enterprises. The study highlighted that inclusive design in education boosts both access and effectiveness of digital competency development.

Empowering Through Digital Skills Training: An Empirical Study of Poor Unemployed Working-Age Women in India researched by Mukherjee et al. (2019) investigated the role of perceived training value and ICT competence in shaping opportunity-seeking behaviour. Results indicated that the actual usage of digital skills after training acted as a porful driver for both psychological and economic emporment. The authors argued that digital literacy training programs must integrate value creation mechanisms to ensure long-term impact.

E-commerce Adoption Among Women Entrepreneurs in India Using the UTAUT Model explored by Goswami & Dutta (2017) validated the UTAUT model in the Indian

entrepreneurial context by assessing the roles of performance expectancy, effort expectancy, and social influence. Digital competency was found to significantly influence perceived usefulness and ease of use, ultimately shaping behavioural intention and actual adoption. The role of community and peer support was particularly emphasised as an external motivator for digital engagement.

Understanding the Effect of E-learning on Individual Performance: The Role of Digital Literacy, examined by Mohammadyari & Singh (2015) assessed how digital literacy affects e-learning adoption and user performance. Digital literacy positively influenced both performance and effort expectations. The findings suggested that individualised digital training has a greater impact than generalised institutional support in sustaining long-term technology use.

2.2.2 Performance expectancy

Performance expectancy refers to an individual's belief that using technology will enhance efficiency, productivity, and overall success. It significantly influences behavioural intention, as users are more likely to adopt technology when they anticipate tangible benefits (Mohamad et al. 2024). Key factors include perceived usefulness, where individuals assess whether a digital tool improves work processes, decision-making, or financial outcomes (Kyambadde et al. 2024). Additionally, task efficiency and productivity drive adoption, with users favoring technologies that streamline operations and reduce manual effort (Almagrashi et al. 2023). Entrepreneurs, particularly women, adopt technology when they foresee economic advantages such as cost savings and market expansion (Mohamad et al. 2024). Research consistently supports the notion that higher performance expectancy strengthens behavioural intention, reinforcing the need for digital literacy programs and accessible technological resources (Kyambadde et al. 2024).

Towards a Framework for the Adoption and Use of Information and Communication Technology for Empowering Women Entrepreneurs: Case of Egypt explained by Azab and Elsheriff (2025), this study applied the UTAUT model to examine ICT adoption among women entrepreneurs in Egypt. The study revealed that performance expectancy significantly influenced behavioural intention, particularly for urban women with infrastructure access. The research emphasized that confidence and perceived benefit re enhanced through ICT adoption, contributing to self-efficacy and social mobility. Women

perceived digital tools as empowering re more willing to challenge traditional norms and male-dominated business environments.

Embracing E-commerce Among Family Support Women Entrepreneurs in MSMEs: Utilizing the UTAUT Model assessed by Harini et al. (2025), this research investigated the role of UTAUT constructs in e-commerce adoption among MSME women entrepreneurs. Performance expectancy was the most significant predictor of behavioural intention. Digital tools re vied as enhancing profitability, efficiency, and customer service. Family involvement and digital literacy re also shown to moderate the relationship between performance expectancy and intention, especially among women managing household and business responsibilities simultaneously.

Digital Competency in Rural Schools of Jammu and Kashmir: A Case Study of Paddar Sub-division evaluated by Mohammad et al. (2025), examined digital readiness among teachers in a rural setting. It shod that performance expectancy was a motivating factor for teachers despite limited infrastructure. The belief that technology could improve student learning outcomes drove teachers to engage in digital training. Hover, systemic challenges such as irregular electricity and internet access tempered actual adoption levels.

X-Gen Women Entrepreneur Competence Behaviour with Tech investigated by Bedaduri et al. (2024), studied Gen-X women entrepreneurs' digital competency. It was found that performance expectancy strongly influenced their willingness to integrate technology, particularly due to anticipated benefits like improved decision-making, wider market access, and enhanced branding. The study highlighted that this demographic seeks tangible value from digital platforms before committing to their use.

A Study of E-Recruitment Technology Adoption in India explored by Gouda (2024), this study analysed job seekers' intentions to use e-recruitment platforms. Performance expectancy was the dominant factor influencing intention, as users believed digital platforms would enhance employment prospects and reduce job search time. Trust in system efficiency also mediated this relationship.

Exploring Technology Adoption Among South Indian Academicians, assessed by Doddanavar et al. (2024), employed UTAUT and Task-Technology Fit models to understand academic technology adoption. Performance expectancy showed the highest influence on

behavioural intention ($\beta = 0.52$), indicating that academicians valued research tools that simplified data analysis, collaboration, and publishing. Institutional encouragement and peer use further strengthened this relationship.

Developing Competencies for Technology Pedagogy Integration Among In-service Teachers: Reflections explained by Rathnabai (2024), found that teachers expected digital tools to streamline instruction and improve engagement. This expectancy led to proactive participation in training and increased experimentation with ICT tools in classrooms.

Mapping of School Teachers' Digital Competency in the Context of Digital Infrastructure Investigated by Rawal (2024), this study concluded that performance expectancy aligned with available infrastructure significantly boosted digital adoption. Teachers with better access to devices and internet had higher expectations from ICT, resulting in greater initiative and integration of digital methods.

Modified UTAUT2 to Determine Intention and Use of E-Commerce Technology Among Micro and Small Women Entrepreneurs in Jharkhand, India investigated by Dutta et al. (2023), the study applied UTAUT2 to e-commerce among micro-entrepreneurs. Performance expectancy, particularly in the context of increasing visibility and streamlining operations, significantly influenced adoption. Structured training helped translate this expectancy into actionable behaviour.

Investigating Internet Adoption Among Indian Seniors explained by Mukerjee et al. (2023), this research explored digital inclusion among senior citizens. Performance expectancy related to benefits such as health access, communication, and entertainment predicted adoption. Seniors demonstrated high intent when convinced of usefulness, but barriers like fear and lack of training limited usage.

The Effect of Culture on Performance Expectancy, Intention, and Trust in Mobile Payment Adoption analysed by Nguyen et al. (2022), emphasized cultural contexts in mobile payment adoption. In collectivist cultures, performance expectancy not only influenced behavioural intention but also built trust. People re more willing to use mobile payments when they perceived clear social and practical benefits, including safety and convenience.

Performance Expectancy and Behavioural Intention in Digital Health Adoption: A Meta-analysis assessed by Singh and Ravi (2022), this meta-analysis revied studies on digital health tools. A consistent moderate-to-strong correlation ($r \approx 0.28–0.50$) beten performance expectancy and behavioural intention was observed. Users expected tangible health benefitslike better self-monitoring and virtual consultations more likely to adopt health technologies.

Digital Teaching Competence: A Systematic Review explained by Revuelta Domínguez et al. (2022), this review of global studies found that performance expectancy drove teachers to acquire digital skills. Teachers believed in improved classroom interaction, learner engagement, and assessment capabilities through digital tools re more motivated to participate in training.

Effectiveness of Digital Pedagogy on Teaching Competency in Physical Science Among B.Ed. Students studied by Nandhakumar and Govindarajan (2022), demonstrated that performance expectancy boosted student-teachers' confidence in using technology. The expectation of clearer teaching methods and student understanding led to increased training engagement and improved teaching competence.

SHG-led Digital Literacy and the Influence of Facilitating Conditions on Tech Adoption Intention investigated by Naidu & Raj (2021), showed that digital adoption among women in SHGs increased when tools re introduced in peer-based formats. Performance expectancy was heightened by real-life demonstrations and repeated exposure, enhancing behavioural intention and retention.

Technology Adoption by Indian Women Entrepreneurs: An Enabler or Differentiator? assessed by Kaur et al. (2021), this study found that digital tools played dual roles: enabling operations and creating competitive advantage. Performance expectancy emerged as a key driver of digital adoption, especially when aligned with government schemes and mentorship support. Entrepreneurs valued automation, wider reach, and data management capabilities.

Facilitating Conditions and Digital Readiness Among Street Vendors in Urban Tamil Nadu explained by Mohanraj & Kaur (2020),reported that performance expectancy rose when vendors experienced increased customer satisfaction through digital payment systems.

Simplified onboarding processes, peer-led demonstrations, and translated app guides helped bridge the gap between expectancy and actual use.

Consumer Adoption of Smartphone Fitness Apps: An Extended UTAUT2 Perspective explored by Dhiman et al. (2020), found that users expected health improvements through app usage re more likely to engage with them. Fitness goals, progress tracking, and personalised content contributed to elevated performance expectancy.

Digital Competency and Entrepreneurship Among Women in Rural Areas, studied by Hamid et al. (2020), emphasized that even basic tools like WhatsApp and Facebook enhanced entrepreneurial activity. Performance expectancy was strongly linked to willingness to adopt more sophisticated tools, particularly when perceived as reducing workload and increasing reach.

What Determines Tourist Adoption of Smartphone Apps? UTAUT 2 Analysis assessed by Gupta et al. (2018), confirmed that tourists adopted mobile apps mainly for convenience. Performance expectancy related to trip planning, bookings, and local navigation was the most influential factor for behavioural intention.

2.2.3 Effort Expectancy

Effort Expectancy refers to the degree to which an individual believes that using a particular technology will be easy and free from effort. It is a core component of the Unified Theory of Acceptance and Use of Technology (UTAUT) and plays a significant role in shaping a person's behavioural intention to adopt technology. When users perceive a technology as simple, user-friendly, and easy to learn, they are more likely to intend to use it. This influence is especially strong in the early stages of adoption, when unfamiliarity or low digital literacy may create hesitation (Venkatesh et al.,2012). Effort Expectancy becomes particularly important among user groups such as informal women entrepreneurs, senior citizens, and teachers, where confidence and ease of use are critical for technology acceptance (Naidu & Raj, 2021). Even when users recognize the usefulness of a technology (performance expectancy), they may still resist adoption if it appears too difficult to operate. Training, technical support, and ll-designed interfaces can lor perceived effort and enhance the likelihood of adoption. Therefore, making technologies more accessible and reducing the effort required to use them significantly strengthens the behavioural intention to adopt digital solutions ((Kyambadde et al., 2024)

Towards a Framework for the Adoption and Use of Information and Communication Technology for Empowering Women Entrepreneurs: Case of Egypt, investigated by Azab and Elsherif (2025) examined that Effort Expectancy played a substantial role in influencing Behavioural Intention, especially among women with low digital literacy. The findings emphasised the importance of localized ICT training, culturally sensitive interface design, and personalized support as crucial in reducing the perceived difficulty of using technology.

Digital Competency and Technology Adoption among Indian Entrepreneurs Studied by Gupta and Agarwal (2023) highlighted that Effort Expectancy strongly influenced Behavioural Intention only when digital competency was built through ICT training. Without structured training or exposure, entrepreneurs perceived technologies as difficult even if tools re objectively easy to use. The study emphasised that skill-building programs, demo-based learning, and practice sessions are essential to actualise perceived ease and translate it into usage. Entrepreneurs also benefitted from peer learning models and follow-up support, further reducing their perceived effort.

Digital Tool Adoption among Informal Women Entrepreneurs in Kerala: An Application of UTAUT Model, examined by Thomas and Mathew (2023) explained that Effort Expectancy was a significant factor influencing Behavioural Intention, particularly after participants undertook digital skill training. The results demonstrated that when women retrained to use business apps or online platforms, their perception of ease increased, making them more open to digital adoption. The study underscores the importance of capacity-building programs and contextualized training modules in reducing perceived difficulty and increasing digital participation among informal entrepreneurs.

Mobile App Adoption for Agri-Business in Rural Odisha: A UTAUT Approach Explored by Roy and Kar (2022) elucidated that Effort Expectancy was a key factor for mobile app adoption among rural farmers, particularly in agricultural applications. Apps that incorporated local languages, audio instructions, and pictorial interfaces re seen as easier to use and more trustworthy. The research emphasized the role of vernacular content, offline accessibility, and guided demos in overcoming literacy barriers and enhancing EE. Community-based digital literacy programs also strengthened farmers' confidence and intention to adopt such platforms.

Examining Factors Influencing E-Learning Adoption in Rural India Using UTAUT2 studied by Kumar et al. (2022) demonstrated that Effort Expectancy was a strong predictor of Behavioural Intention among rural learners. Technologies that re intuitive, used local languages, and offered simple navigation re more readily accepted. The study highlighted that literacy levels and prior exposure to technology play a vital role in shaping effort expectancy. Hence, interventions in rural areas must prioritize user-friendly design and local customization to enhance perceived ease of use and drive technology adoption in educational settings.

Effort Expectancy and Behavioural Intention towards Mobile Wallets: Evidence from Gujarat. Explored by Patel and Sharma (2021) explained that Effort Expectancy significantly influenced users' intention to adopt when technical support and user tutorials re readily available. The availability of structured onboarding processes, including demo sessions, FAQs, and user-friendly guidance, played a crucial role in minimizing perceived effort and enhancing confidence in technology usage. The research concluded that for digital finance tools to be widely accepted, first-use experiences must be smooth and supportive, especially for less tech-savvy users.

Adoption of Cloud Accounting by Micro-Enterprises Using UTAUT Investigated by Mistry and Agarwal (2021) deciphered that EE was crucial, as users with limited resources require platforms that are straightforward and time-efficient. They also noted that hands-on training and peer guidance significantly explored EE, making cloud accounting more accessible.

Women Entrepreneurs' Adoption of Mobile Applications for Business Sustainability Studied by Abed (2021) delineated that social influence, followed by effort expectancy, has the most significant influence on the behavioural intention to use mobile applications. On the other hand, facilitating conditions re found to be an insignificant predictor of the behavioural intention of women entrepreneurs in Saudi Arabia to use mobile applications.

Digital Platform Adoption in SMEs: A UTAUT2 Perspective Explored by Yuen et al. (2021) explained that Effort Expectancy had the strongest influence during the early planning and implementation stages. As SMEs gained familiarity, EE's effect diminished, indicating its time-sensitive nature. The study emphasized that introductory workshops, onboarding support, and live demonstration sessions significantly enhanced perceptions of

ease, especially for first-time adopters. Moreover, when technical assistance was accessible, adoption rates increased, particularly among SMEs with limited internal IT capacity.

Adoption of Digital Payment Systems among Women Entrepreneurs: A UTAUT Approach Studied by Sujatha et al. (2020) explained that Effort Expectancy significantly influenced Behavioural Intention, indicating that women entrepreneurs re more likely to adopt digital payment tools if they perceived them as easy to use and simple to navigate. The study emphasized that clarity in interface design and ease of operation are crucial in enhancing adoption. Moreover, it highlighted that digital literacy plays a supportive role in reducing perceived effort, while technical support tools such as help menus, chat support, or video tutorials can effectively mitigate effort-related barriers.

Social Media Usage by Indian Women Entrepreneurs Examined by Chatterjee et al. (2020) shod that peer encouragement, combined with the simplicity of widely used apps like WhatsApp, amplified EE's influence on BI more than complex social media platforms did. Personal recommendations and community-based support re key factors for increasing usability perceptions.

Factors Affecting Mobile Commerce Adoption in SMEs: A UTAUT2 Perspective Studied by Choi and Chung (2020) described that Effort Expectancy significantly influenced Behavioural Intention, but the effect was moderated by users' smartphone literacy and age. Younger SME owners with high digital familiarity reported greater ease and higher intention, while older or less tech-savvy entrepreneurs required additional support, such as tutorials or simplified versions of the application. The study recommended mobile commerce platforms consider customized UX/UI features that match user demographics and digital skills.

E-Business Adoption in SMEs: An Extended UTAUT Model Explored by Eze et al. (2019) studied that systems perceived as easy to configure, with minimal installation and setup steps, led to higher behavioural intention to adopt e-business solutions. Overly complex digital platforms increased user anxiety, thereby reducing adoption likelihood. The study also found that training, clear onboarding, and local language support re crucial in overcoming barriers created by high effort expectancy. Simplified design and self-service help centres re suggested as solutions to reduce perceived effort.

A Study on Mobile Banking Adoption: Empirical Analysis Using UTAUT in Tamil Nadu Explored by Ravichandran and Venkatesh (2019) studied that Effort Expectancy directly influenced Behavioural Intention, especially among women and small-scale traders often have limited digital exposure. The study emphasized that interfaces with fer steps, simple commands, and low dependency on English literacy helped reduce perceived complexity. As a result, mobile banking services that are streamlined and visually guided increased user acceptance and encouraged wider adoption in financially underserved communities.

Investigating the Factors Affecting Learners' Acceptance of E-learning in Saudi Arabia Studied by Alghamdi and Beloff (2016) threw light on the fact that Effort Expectancy was a significant predictor of intention, especially among students new to digital platforms. Hover, the authors found that EE could be compensated through structured learning aids, including video tutorials, step-by-step walkthroughs, and instructor-led sessions. In institutional or mandatory settings, these support mechanisms often had a stronger influence than ease-of-use perceptions alone. Thus, EE can be mitigated through appropriate design and support in educational technology contexts.

Mobile Banking Adoption in Jordan: Exploring UTAUT2 Explored by Alalwan (2016) studied that a moderate yet significant effect of EE on BI was found, notably stronger during early adopter phases compared to later ones. Researchers stressed that if users struggle with mobile banking, adoption stalls early on. Language localization and simplified registration processes re recommended to enhance usability in emerging markets.

Understanding Mobile Banking: UTAUT with Cultural Moderators Studied by Baptista and Oliveira (2015) described that EE strongly influenced BI among older Portuguese users, especially through intuitive, icon-driven interfaces and tutorials. Authors concluded that cultural norms and digital confidence moderated this effect older adults in non-tech-savvy cultures benefit more from user-friendly designs.

2.2.3 Social influence

Social influence is a critical construct in the technology adoption literature, referring to the extent to which individuals perceive that important others such as family members, peers, social groups, or community leaders believe they should adopt and use a particular technology (Venkatesh et al., 2003). It encompasses several interrelated social constructs,

including subjective norms, social capital, and social norms, which collectively shape user behaviour. Subjective norms reflect perceived social pressure to perform or not perform a behaviour (Ajzen, 1991), while social norms refer to the shared expectations within a group about appropriate conduct (Cialdini & Trost, 1998). Social capital defined as the network of relationships characterized by trust, reciprocity, and mutual support plays a crucial role by enabling information flow, peer learning, and technology diffusion (Putnam, 2000; Lin, 2001). In the Unified Theory of Acceptance and Use of Technology (UTAUT), social influence significantly affects behavioural intention, particularly in mandatory or socially visible contexts where conformity and group endorsement matter (Venkatesh et al., 2003). More recent studies emphasize the role of social influence in collectivist cultures and low-digital-literacy environments, where decisions are often guided by trusted networks or local leaders (Dwivedi et al., 2019). Among women entrepreneurs and small business owners, strong social capital and supportive norms foster confidence and trust in digital tools, leading to increased technology adoption (Akmal et al., 2024). Similarly, social identity and peer approval influence individual motivation, particularly in online or mobile environments where usage behaviour is shaped by group belongingness (Bagozzi & Dholakia, 2002; Zhou, 2011). Overall, social influence through its various dimensions facilitates digital inclusion by enhancing the legitimacy, trust, and perceived value of technology, making it a cornerstone of adoption frameworks in both developed and developing contexts.

Social networks and digital technology adoption among women entrepreneurs in emerging economies, studied by Nambisan and Nambisan (2025), highlighted that women entrepreneurs in emerging economies often depend heavily on informal social networks such as family, friends, and local peer groups for advice, demonstrations, and validation before adopting digital tools. These networks reduced perceived complexity and served as trusted sources of information. The study revealed that women embedded in stronger peer networks re more likely to adopt a wider range of technologies, including mobile payment platforms and social media tools for marketing.

Gender, Culture, and Social Media: Exploring Women's Adoption of Social Media Entrepreneurship in Qatari Society studied by Al-Zaman et al. (2024). This study examined how social and cultural dynamics shape women's adoption of social media for

entrepreneurship in Qatari society. The authors found that family influence, kinship responsibilities, and the need for reputation preservation significantly and positively affected women entrepreneurs' attitudes and behavioural intentions toward using social media platforms for business. These social elements re more influential than the perceived ease of use, indicating that social influencethrough norms, social capital, and familial rolesplayed a stronger role than technological factors in technology adoption. The study emphasizes that in collectivist societies, women adopt technology not just for business utility but to align with cultural expectations and maintain social respectability.

Impact of Technology Adoption and Business Outcome on Small Scale Industries A Study on Women Entrepreneurs explored by Sumathi and Sunitha (2024) The findings revealed that challenges such as digital illiteracy, lack of peer support, and cyber-security fearsmany of which are embedded in the social environments, significantly influenced the effectiveness of technology use. ANOVA results confirmed that these socially rooted barriers hindered business efficiency. The authors concluded that enhancing digital literacy, strengthening social support networks, and addressing security concerns are critical to improving technology adoption and achieving better outcomes among women entrepreneurs.

Examining The Effects of Technology Adoption, Cultural Values, Social Capital, and Government Policies on Entrepreneurial Success and Social Impact in Indonesia, researched by Akmal et al. (2024) examined that government regulations, social capital, cultural norms, and technological adoption all have a big impact on social impact and entrepreneurial success. This study applies partial least squares structural equation modelling. Because all components of Indonesia's entrepreneurial ecosystem are interrelated, this study emphasises practical lessons for entrepreneurs, politicians, and academics.

Role of social capital in digital platform adoption among informal women entrepreneurs in India studied by Kumar and Bansal (2024) emphasised that informal women entrepreneurs leveraged the trust and cohesion found in their social networks especially self-help groups, to learn about and adopt digital platforms. The study showed that group-based trust lowered the perceived risk of trying digital tools, while shared learning within peer circles boosted confidence. In many cases, social capital substituted for formal digital literacy programs by enabling informal learning and mentorship.

Opportunities and challenges of digital competencies for women tourism entrepreneurs in Latin America: a gendered perspective evaluated by Khoo et al. (2023) explored that while women tourism entrepreneurs in Latin America can be empowered by digital technologies, they face significant obstacles. Challenges include a lack of digital skills, limited access to devices and infrastructure, insufficient training, reliance on support from family or staff, and concerns about safety and work-life balance. This research contributes to entrepreneurship literature by highlighting the social and structural barriers that impede the growth of women's tourism businesses.

The Impact of Cultural Norms on Sustainable Entrepreneurship Practices in SMEs of Bangladesh studied by Emon et al. (2023) explored that cultural norms such as risk aversion, social networks, and family dynamics affect sustainable entrepreneurship in both positive and negative ways. The study highlights the crucial role of government policies and regulations in shaping these practices through semi-structured interviews with 40 stakeholders.

Peer and family influence on technology adoption among rural women entrepreneurs: A UTAUT2-based study explored by Patel and Sharma (2023) concluded that rural women entrepreneurs re highly influenced by their family, particularly male members such as husbands and fathers, in making decisions to adopt digital technologies. In addition, children played a key role in helping women understand and navigate technology. Peer learning from other women entrepreneurs in nearby villages often sparked the initial interest and confidence needed to begin using digital payment apps and social media for business.

Social influence and technology acceptance among micro-entrepreneurs: Evidence from a developing country studied by Alalwan et al. (2023) found that perceived social influence from peers and close social contacts had a significant impact on micro-entrepreneurs' intentions to use mobile applications and digital financial tools. Particularly among women entrepreneurs, the endorsement and use of technology by other community members served as powerful cues, reducing uncertainty and increasing technology acceptance.

Family support and business performance of South African female technology entrepreneurs explored by Nenah and lsh (2022) identified combinations of family support that enhance business performance most effectively. Using fuzzy-set qualitative

comparative analysis, the results suggest that high levels of emotional and instrumental support are necessary for female technology entrepreneurs to achieve high firm performance, especially when instrumental support at home is lacking.

ocial capital and digital engagement among informal sector women entrepreneurs in Vietnam, conducted by Nguyen et al. (2022) concluded that both bonding and bridging forms of social capital significantly affected technology adoption. Bonding capital in the form of emotional support from family and friends encouraged early experimentation, while bridging capital helped sustain and expand digital engagement.

Impact of family control on information technology investment and information technology adoption in India investigated by Mand et al. (2022) found that family ownership, family member firm management, and CEO duality all positively influence IT investment and adoption in Indian MSMEs. CEO duality had a higher impact than other family control variables.

Social influences on mobile app use for business among women in informal sectors of Tamil Nadu studied by Sundararajan and Thomas (2022) found that women re more likely to adopt mobile applications for business when they saw their peers and community leaders doing the same. Women's associations and community-based leaders played a pivotal role through observation and verbal recommendation.

Exploring peer and family influence in mobile money adoption among informal Nigerian women traders studied by Obi and Okonkwo (2021) found that mobile money adoption was largely influenced by peer demonstrations and family endorsements, especially from male family members. These social dynamics eliminated fear and mistrust of digital finance.

Social and Cognitive Aspects of Women Entrepreneurs: Evidence from India, analysed by Arafat et al. (2021) explored that while opportunity perception does not significantly affect entrepreneurship, risk perception is a deterrent, and perceived capabilities empower women. Social networks and informal investments serve as key motivators for entrepreneurial activity.

Social support and ICT use among informal women entrepreneurs in North Africa, examined by Hattab (2019) found that emotional encouragement and practical help from

family, including spouses and children, significantly influenced ICT adoption. Those receiving continuous support re more likely to adopt digital marketing tools and online marketplaces.

Combinations of bonding, bridging, and linking social capital for farm innovation: How farmers configure different support networks studied by Cofre-Bravo et al. (2019) examined how Chilean fruit farmers use different configurations of social capital to achieve innovation. The study identified five configurations and found that both open and closed networks contribute to similar innovation outcomes.

Family influence and technology adoption among informal women entrepreneurs in Telangana studied by Naidu and Raj (2019) found that family members, particularly male ones, played a gatekeeping role in technology adoption. Emotional support, financial help, and joint decision-making increased sustained digital tool usage.

Examining the role of anxiety and social influence in multi-benefits of mobile payment service evaluated by Park et al. (2019) found that social influence and technology anxiety impacted user attitudes toward mobile payments. Convenience, enjoyment, and economic benefits had a positive impact, while experiential benefit had a negative impact.

Women entrepreneurs and business venture growth: an examination of the influence of human and social capital resources in an Indian context studied by Prasad et al. (2013) found that industry and entrepreneurial experience, as ll as business networks and family support, re significant contributors to venture growth among Indian women entrepreneurs.

Nations of entrepreneurs: A social capital perspective studied by Kwon and Arenius (2010) found that national levels of generalised trust and organisational membership increase opportunity perception and investment ties. This emphasises the macro-level role of social capital.

The social influence model of technology adoption examined by Vannoy et al. (2010) proposed a cross-disciplinary model identifying social computing actions, consensus, cooperation, and authority as precursors to social influence, which enhances perceived usefulness and ease of use. Group membership legitimises behaviours and drives technology adoption.

2.2.4 Facilitating Condition

Facilitating conditions refer to the perceived availability of the necessary infrastructure, resources, knowledge, and technical support that enable individuals to adopt and effectively use technology (Venkatesh et al., 2003). Within the Unified Theory of Acceptance and Use of Technology (UTAUT), facilitating conditions are considered a direct predictor of actual technology use, highlighting the critical role of external support in bridging the gap between intention and behaviour. The presence of adequate facilitating conditions such as internet connectivity, digital devices, training, and ongoing technical assistance empowers users to confidently engage with digital tools. This factor becomes especially important in contexts with limited digital exposure, where users may lack the skills or infrastructure to adopt technology independently. Research has shown that facilitating conditions significantly influence technology adoption among diverse user groups, including women entrepreneurs and rural populations (Dwivedi et al., 2019; Naidu & Raj, 2021). In such contexts, institutional support and community-led intervention can strengthen users' digital confidence and overcome barriers related to infrastructure or technical challenges. Thus, facilitating conditions not only enable technology adoption but also ensure its sustainability by providing users with the foundational support required for long-term use.

Prosthetics of the Indian State: The e-Shram Portal for Unorganized Workers in India, studied by Hasin (2025) explored the rollout of the e-Shram portal a digital registry for informal workers and identified barriers such as limited digital infrastructure and lack of help desks. The study concluded that insufficient facilitating conditions impeded portal adoption, and recommended enhanced user support and localized interfaces as remedies.

Informality, Innovation, and Firm Performance: Evidence from World Bank Enterprise Survey in India examined by Chandra Shekar (2025) found that informal firms with better access to digital infrastructure and institutional support were more likely to innovate and adopt new technologies. Among female-led informal enterprises, those with stronger external support (e.g., community centers, policy linkages) showed higher innovation rates a direct effect of facilitating conditions on technology uptake.

Identification of Roles and Factors Influencing the Adoption of ICTs in the SMEs of Pakistan by Using an Extended Technology Acceptance Model (TAM) investigated by Nazir and Khan et al. (2024) aimed to first investigate the various roles that ICTs can play

in enhancing SME efficiency, by adopting and extending the Technology Acceptance Model, and then identifying several factors to achieve their adoption. Thematic analysis has revealed four key themes for qualitative research methodology: The roles and benefits of ICTs, Factors influencing the adoption of ICTs, Entrepreneurial (Individual) characteristics of owner-managers, and role of governments and national (local) institutional support. Though the study suggests that ICT plays an important role in the development of SMEs, with an extended model, the role of entrepreneurial (individual) characteristics of owner-managers is the most important determinant in the adoption of ICTs by SMEs. In addition, factors such as cultural and social effects, government and national (local) institutional support functions also influence the decision of SMEs to adopt ICT.

Technology Adoption by Indian Women Entrepreneurs: An Enabler or Differentiator? studied by Kaur, Mahindru, Bagchi, Srinivasan, Sahoo, Devi, & Kaikini (2023) found that facilitating conditions including access to infrastructure, training, and support significantly predicted actual technology usage among women-led SMEs in India. They reported that when devices, internet, and digital literacy support were readily available, usage behaviour increased, confirming UTAUT's assertion of facilitating conditions as a determinant of use.

Qualitative Exploration of Enabler, Purpose, and Benefits of Digitalisation in the Informal Sector, examined by Singh, Alok, & Banerjee (2023) discovered that women entrepreneurs in India leveraged bricolage making do with limited resources while emphasising the importance of external infrastructure and peer networks. They reported that supportive networks and access to communal digital assets significantly enabled participants to adopt basic digital tools for business, underscoring the social and infrastructural enactment of facilitating conditions.

The Moderating Effect of Gender on Adopting Digital Government Innovations in Ethiopia analysed by Senshaw & Twinomurinzi (2021) found that for female government employees, facilitating conditions (e.g., training, technical support, and peer help) significantly influenced usage behaviour even when perceived ease of use was low highlighting that external support may override usability concerns in technology uptake.

SHG-led Digital Literacy and the Influence of Facilitating Conditions on Tech Adoption Intention, studied by Naidu and Raj (2021) found that shared device access,

rotational learning groups, and on-site NGO facilitators contributed significantly to behavioural intention. Women expressed a higher BI when digital tools were introduced in SHG meetings and backed by repeat sessions for reinforcement. Facilitating conditions were found to be most effective when culturally sensitive and socially reinforced.

Technology Adoption Intention as a Driver of Success of Women Architect Entrepreneurs, evaluated by Mittal and Bhandari (2021) indicated a positive relationship between facilitating conditions and performance expectancy. The study used a modified UTAUT model with constructs including mental access toward technology, technical skills, and social influence to examine success factors among women architects.

Facilitating Conditions and Digital Readiness among Street Vendors in Urban Tamil Nadu studied by Mohanraj and Kaur (2020) found that street vendors' intention to adopt digital tools like payment apps was strongly linked to the presence of peer demonstrations, municipal Wi-Fi, and printed guides in local languages. Vendors showed increased behavioural intention when customer pressure for digital payment was combined with access to free onboarding services and error-free apps.

The Promotion of Technology Acceptance and Work Engagement in Industry 4.0: From Personal Resources to Information and Training researched by Molino et al. (2020) indicated a positive relationship between resilience, training opportunities, and technology acceptance, which were linked to higher work engagement. This research highlighted the motivational dynamics of introducing new technologies, especially for blue-collar workers, and stressed the need for information and training to support Industry 4.0 transformations without harming employee motivation. Training and resources on technology adoption are crucial.

Factors Affecting the Adoption of Information Technologies by Small Woman-Managed Enterprises in Cameroon studied by Kamdmoug et al. (2020) revealed that the innovativeness of managers primarily drives IT adoption, while no TOE variables were significant. Many small firms in Sub-Saharan Africa view themselves as too small for costly IT investments, and factors like relative advantage and perceived costs were not significant. As these firms often rely on subsidies for technology, they focus less on cost-benefit considerations. The study emphasizes the need for training programs and enhanced networking to support technology adoption.

Role of Business Incubators as a Tool for Entrepreneurship Development: The Mediating and Moderating Role of Business Start-Up and Government Regulations, investigated by Li et al. (2020) found that business incubators effectively mediate the provision of services crucial for entrepreneurial growth. Additionally, business startups positively mediate the relationship between these services and entrepreneurship development. Government regulations directly impact entrepreneurship and positively moderate the relationship between business startups and entrepreneurial success.

The Role of Facilitating Conditions in Career Success of Malaysian Female Entrepreneurs, highlighted by Hassan et al. (2020) found that facilitating conditions, including access to financial resources, business networks, and institutional support, enhance entrepreneurial outcomes by reducing barriers to business growth. The findings indicate that women entrepreneurs who perceive strong external support are more likely to sustain and expand their ventures, reinforcing the importance of structured assistance programs. While individual factors such as competence and goal-setting are crucial, the study emphasised that facilitating conditions serve as an enabler, allowing entrepreneurs to leverage their skills effectively in competitive markets.

2.2.5 Behaviour intention

In technology adoption literature, behavioural intention refers to an individual's conscious plan or motivation to use a specific technology and is considered a key predictor of actual usage behaviour (Venkatesh et al., 2003). It plays a central role in models like the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), serving as a bridge between users' perceptions (e.g., usefulness, ease of use, social norms) and their real-world behaviour. The importance of behavioural intention lies in its ability to forecast technology adoption outcomes, particularly in early stages, helping stakeholders design interventions that target users' willingness to engage with technology. Research has shown that behavioural intention is significantly influenced by performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2012), and is critical in predicting actual use across diverse populations, including women in the informal sector. Moreover, behavioural intention often serves a mediating role between independent variables (such as digital training or institutional support) and actual usage, meaning that improvements in infrastructure or knowledge must

first positively affect intention before resulting in usage (Dwivedi et al., 2019). For instance, in SHG-led digital literacy programs, intention to adopt technology increased only when support mechanisms and reinforcement strategies were in place, indicating that behavioural intention acts as a psychological gateway to actual adoption (Naidu & Raj, 2021). Thus, understanding and enhancing behavioural intention is crucial for ensuring the success of any digital intervention, especially among women entrepreneurs and marginalised users who may face structural or socio-cultural barriers to technology use.

Behavioural Intention to Use Government Portals Among Women Micro Entrepreneurs, explored by Thomas and George (2025) found that behavioural intention was shaped by perceived simplicity, institutional trust, and exposure to success stories within the community. Women who had a clear intention to use government portals were more likely to complete registration and maintain digital compliance.

Adoption of AI Based Tools by Women in Tech Startups examined by Brown and Carter (2025) suggested that behavioural intention was influenced by workplace culture, perceived relevance, and confidence in using smart technologies. Women who expressed a strong intention often led adoption initiatives within their startups and encouraged peers to explore AI applications.

Acceptance of E Learning Platforms in Entrepreneurship Training, explored by Abbas (2024) found that behavioural intention was encouraged by accessible design, relatable content, and affirmation from instructors. Women who perceived digital training as aligned with their learning needs showed higher intention to use e-learning platforms and followed through with consistent engagement.

Influence of Social Capital on Women's Digital BI in Self Help Groups, investigated by Latha and Pillai (2023) noted that behavioural intention was amplified when women were part of peer groups that openly shared digital experiences. Through these support structures, women gained confidence and the intention to adopt mobile apps, leading to experimentation with digital marketing and finance tools.

Digital Tools for Business Among Refugee Women Entrepreneurs, explored by Ali and Abdi (2023), revealed that behavioural intention emerged from social inclusion, training provided by NGOs, and visibility of online marketplaces. Women who developed intention

through these supports were more likely to test mobile business tools and sustain their use even under challenging conditions.

Technology Adoption Among Female Entrepreneurs in Southeast Asia, examined by Gunawan et al. (2022) showed that behavioural intention was shaped by perceptions of technology as a growth enabler, community-led adoption, and availability of support. Women who viewed digital tools as transformative for their business had stronger intentions to adopt and were more active in seeking digital literacy resources.

Entrepreneurial Training Platforms and BI Among Women, evaluated by Babie et al. (2021) described that behavioural intention stemmed from a combination of positive attitudes, peer feedback, and confidence in one's ability to navigate digital platforms. Women with stronger intentions completed more modules and demonstrated higher digital confidence over time.

Smartphone Use for Agribusiness by Women in Africa, analysed by Ncube and Kachere (2021) revealed that behavioural intention grew from success stories within farming networks, practical utility of the tools, and ongoing technical support. Women who showed strong intention took proactive steps to access applications, attended community tech sessions, and integrated mobile tools into daily agribusiness activities.

Micro Entrepreneurs' Use of ICT in Rural Rajasthan, studied by Kapoor and Joshi (2020) emphasized that behavioural intention was rooted in trust, familiarity, and support from community networks. Women entrepreneurs who believed that ICT tools could simplify their operations were more likely to form strong intentions, and those intentions led them to adopt communication apps and inventory systems.

E Government Services Among Women in Eastern Europe, studied by Camilleri (2020) found that behavioural intention was driven by transparency in online systems, ease of use, and institutional encouragement. When women felt empowered and informed, they developed stronger intentions to adopt e-governance platforms and actively participated in digital governance.

Digital Literacy and Behavioural Intention Among Rural Women, analysed by Verma and Kumar (2019) highlighted that behavioural intention increased significantly when digital training was context-specific and delivered in the local language. Women

showed stronger intention to use business applications when they could relate digital tools to actual tasks such as accounting, marketing, or scheduling.

Digital Marketing Tool Adoption by Women in SMEs, investigated by Kamaruddin and Nasir (2019) described that behavioural intention emerged from exposure to digital strategies, positive peer experiences, and the desire to expand customer base. Women with strong intentions adapted to new tools with greater speed and used them more regularly in promotions and engagement.

Behavioural Intention to Use Digital Financial Tools, investigated by Patel and Singh (2018) revealed that behavioural intention was formed when women perceived digital payments as time-saving, secure, and socially encouraged. This intention was reinforced through local training and exposure to digital transactions within self-help groups, which gradually led to confident adoption.

Women Entrepreneurs' Attitudes Toward CRM Platforms, explored by Martinez and Lopez (2018) highlighted that behavioural intention was a result of mentorship, awareness of competitive advantages, and positive trial experiences. Women with strong intention showed higher levels of experimentation with CRM platforms and integrated these into their daily operations.

Role of self-efficacy in Mobile Learning for Women Entrepreneurs, reviewed by Mehta and Rao (2017), suggested that behavioural intention was significantly influenced by internal confidence and prior exposure to mobile technology. Women with strong self-efficacy developed clear intentions to use mobile learning platforms and proactively explored their features for business-related learning.

Women and Smart Device Adoption in Latin America, investigated by Ruiz and Sanchez (2017) described that behavioural intention was primarily influenced by aspirations to grow business, peer recommendations, and increased customer interaction. When women internalised the relevance of digital tools, their intention to adopt them turned into tangible actions, including app downloads and usage.

Telehealth Adoption Among Older Women in Europe, reviewed by Cimperman et al. (2016) found that behavioural intention was nurtured by intuitive design, ease of consultation, and motivation from caregivers. Women with a strong intention were willing

to adapt to new telehealth systems even with minimal prior exposure to digital tools, demonstrating that intention can drive learning and comfort.

E-commerce adoption by Women Entrepreneurs in India, studied by Goswami and Dutta (2016) highlighted that behavioural intention was positively shaped by perceptions of business utility, ease of access to platforms, and peer influence. Women who associated e-commerce with improved sales and visibility expressed a stronger intention to adopt it, and this intention translated into higher exploration and eventual integration of digital platforms in their business processes.

Perceptions of Female Students Toward E Learning Systems, studied by Kibelloh and Bao (2014), indicated that behavioural intention was positively influenced by perceived value of online education, cultural familiarity with technology, and emotional comfort. Women with strong intentions were more consistent in their participation and more likely to adopt digital systems long-term.

2.2.6 Actual Usage

In technology adoption literature, actual usage refers to the observable, real-world application of digital tools, platforms, or systems by individuals after they have expressed an intention to adopt them. It represents the final and most tangible outcome in widely used models such as The Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), where it helps to verify whether earlier constructs like performance expectancy, effort expectancy, and behavioural intention lead to sustained engagement with technology (Venkatesh et al., 2003). For women entrepreneurs, especially those in informal or rural sectors, actual usage is vital in evaluating true digital empowerment and business transformation. While many women may show willingness to adopt technology, barriers such as limited digital skills, socio-cultural norms, infrastructural gaps, and lack of support networks often hinder them from turning that intention into daily practice (Sharma & Mishra, 2022). Measuring actual usage through indicators like frequency of app use, number of transactions, time spent on digital platforms, or regularity of system access enables researchers and policymakers to identify the intention-usage gap and develop more inclusive, needs-based interventions (Dwivedi et al., 2020). It also assists in assessing whether technology genuinely improves business operations, such as increasing sales, record-keeping, customer communication, or access to new markets (Alshehri et al.,

2019). In the context of women entrepreneurs, particularly in developing countries, actual usage reflects not only access to digital tools but active participation in the digital economy, making it a crucial metric for policy effectiveness, empowerment results, and sustainable digital inclusion (Azab & Elsherif, 2025). Therefore, understanding and measuring actual usage is essential for advancing both theoretical understanding and practical outcomes in the field of technology adoption among women-led enterprises.

Digital Capabilities and Actual Use of Technology among Women Entrepreneurs in Smart Cities, studied by Bose and Narayanan (2025), found that women entrepreneurs in smart cities exhibited frequent use of digital platforms such as WhatsApp Business, Instagram, and Google Workspace for marketing, finance tracking, and client engagement. Actual usage increased with contextual digital training and peer mentoring. The study revealed that entrepreneurs who customized their digital tools to suit product niches saw higher client retention and profitability.

Digital Integration and Business Innovation among Tribal Women Entrepreneurs in Central India, explored by Choudhury and Soren (2025), revealed that tribal women with access to localized digital training programs were actively using UPI apps, voice search features, and vernacular YouTube tutorials to promote handicrafts. Digital literacy, especially visual and audio-based formats, played a crucial role in sustaining their technology use. The study showed strong ties between digital confidence and frequent engagement with e-marketplaces.

Actual Use of ICT Platforms among Female Micro-Entrepreneurs in Morocco, investigated by El Ghazali and Boumediane (2024), found that consistent usage of Facebook Pages, WhatsApp catalogues, and digital accounting tools contributed to sales and customer acquisition. The study emphasized that entrepreneurial experience and self-initiated digital learning strongly influenced the intensity of ICT usage in small-scale enterprises.

Digital Participation and Platform Usage among Women-led Home-Based Businesses in Tamil Nadu, studied by Ilangovan and Menaka (2024), described that home-based women entrepreneurs actively used e-commerce platforms like Meesho and Craftsvilla. Actual usage was guided by informal social networks, children's digital help,

and low-cost smartphone availability. Entrepreneurs preferred apps with visual-based navigation due to low textual literacy.

Technology in Practice: Actual Digital Usage Patterns among Female Street Vendors in Kenya, explored by Njeri and Kimani (2024), reported that even low-income women were actively engaging with M-Pesa, social media, and SMS-based customer communication. Actual usage was rooted in necessity and reinforced by community-level digital support networks. Regular use was linked to perceived business safety and control over finances.

Actual Usage of Digital Tools for Market Expansion among Craft-based Women Entrepreneurs in West Bengal studied by Saha and Ghosh (2023) found that actual usage of digital tools such as Facebook Live sales, WhatsApp broadcasts, and Pinterest boards correlated with improved market access and customer interaction. The study highlighted that digital storytelling skills improved repeat usage behaviour and platform trust.

Role of ICT Skills in Technology Use among Women Entrepreneurs in Northern Nigeria, investigated by Ibrahim and Gambo (2023), concluded that ICT training directly influenced actual usage of inventory apps, order-tracking tools, and mobile payments. Entrepreneurs who received structured digital skills programs showed greater confidence and independence in using technology for daily operations.

Digital Adoption Trajectories among Women Entrepreneurs in Remote Mountain Regions of Nepal, explored by Thapa and Shrestha (2022), found that actual usage of digital technology was primarily driven by voice-enabled tools, social media marketplaces, and mobile-based banking. Peer encouragement and mobile-first digital modules enabled continued engagement and repeat technology usage even among older women.

Digital Tools and Everyday Entrepreneurship among Fisherwomen in Coastal Kerala, studied by Lekshmi and Varghese (2022) revealed that women engaged in seafood trading were using real-time market price apps, weather alert platforms, and digital payment tools. Actual usage was sustained by community training programs and support from NGO-led digital inclusion projects.

Understanding Actual Technology Use by Women Entrepreneurs in Low-Connectivity Zones in the Philippines, investigated by Dizon and Villanueva (2021), found

that consistent offline-first app usage, such as Google Keep for inventories and mobile money for transactions, were central to business functioning. Digital competency was largely self-developed but highly effective in maintaining business autonomy.

Women Entrepreneurs and the Everyday Use of Digital Platforms in Urban Pakistan, studied by Bano and Hussain (2021), highlighted that women using Instagram and WhatsApp Business for beauty and clothing businesses relied heavily on visual content creation and frequent client chats. Actual usage patterns reflected a strong correlation with informal digital upskilling and support from female entrepreneur networks.

Digital Usage Behaviour of Women Entrepreneurs in Rural Maharashtra, explored by Patil and Kadam (2020), found that rural women engaged actively with voice-assist tools, digital videos in Marathi, and simple interface apps for billing. The presence of local telecentres played a significant role in translating digital literacy into actual technology use.

From Literacy to Usage: Bridging Digital Gaps in Ethiopian Women Entrepreneurs, studied by Tadesse and Mulugeta (2020), reported that digital literacy training that included mobile photography, e-wallet navigation, and storytelling via social media led to sustained and frequent platform usage. The study underlined the importance of culturally-relevant content in shaping long-term use behaviour.

Actual Use of Mobile-Based Platforms among Female Weavers in Assam, examined by Borah and Neog (2019), found that mobile platforms such as Flipkart Seller Hub and local Facebook craft groups were used actively for selling woven goods. Women preferred tools that enabled direct client communication and bilingual app interfaces.

Digital Readiness and Usage among Women-Led Agro-enterprises in Vietnam, explored by Pham and Doan (2019), concluded that women who received support from agricultural extension programs were regularly using inventory apps, digital farm calendars, and payment platforms. Actual usage was directly tied to perceived business advantage and ease of repeated transactions.

Technology Use in Practice among Muslim Women Entrepreneurs in Rajasthan, studied by Siddiqua and Ahmed (2018), observed that despite initial reluctance, consistent use of WhatsApp, mobile banking, and photo-based marketing was reported. Actual usage was driven by internal motivation, youth mentoring within the household, and gradual confidence building.

Actual Usage of E-Commerce by Rural Women Entrepreneurs in Nigeria, investigated by Okon and Essien (2018), found that regular use of digital commerce platforms like Jumia and WhatsApp orders was enabled by family support and peer learning. Women used video reviews and customer feedback via messaging to retain clients and boost business.

Impact of Self-Learning on Technology Usage among Indian Women Entrepreneurs, explored by Chitra and Selvan (2018), described that self-learning through YouTube tutorials, trial-and-error usage of Google apps, and informal mentoring played a major role in technology adoption and actual usage in tailoring, catering, and home-based crafts.

Digital Inclusion and Tech Usage among Women Entrepreneurs in Bangladesh, studied by Alam and Kabir (2017), found that those involved in NGO digital inclusion programs exhibited regular use of SMS-based market updates, mobile wallets, and business call centers. Digital usage behaviour improved with each year of digital exposure and device ownership.

Patterns of ICT Usage among First-Generation Women Entrepreneurs in Odisha, explored by Panda and Mohanty (2017), revealed that ICT usage was frequent among those operating in SHG clusters. Regular engagement with mobile calculators, SMS alerts, and YouTube craft tutorials showed how basic literacy could be converted into daily tech behaviour with continuous encouragement.

Research gap

Despite extensive research on digital competency and its impact on technology adoption among women entrepreneurs, several gaps remain that require further exploration. Existing studies primarily focus on performance expectancy, effort expectancy, and behavioural intention as mediating factors influencing actual usage. However, a deeper investigation into contextual barriers, such as socio-cultural constraints, policy-driven digital literacy initiatives, and industry-specific adoption challenges, is needed.

While national studies establish foundational links between digital competency and technology adoption, they lack longitudinal assessments that track digital skill progression over time (Goswami and Dutta, 2017; Patel et al., 2019) The absence of cross-sectoral comparisons prevents a deeper understanding of how digital competency varies across different entrepreneurial domains, such as manufacturing versus services. Similarly, studies

do not adequately address rural-urban disparities, limiting insights into how access to technology influences digital adoption.

In international studies (Jou et al. 2023; Singh and Verma, 2023), while findings confirm the indirect effect of digital competency via effort expectancy and performance expectancy, they rarely explore behavioural adaptation over time. Most rely on self-reported data, which does not fully capture actual technology usage behaviour. Additionally, global digital competency frameworks lack cultural sensitivity, as adoption determinants vary across regions, calling for localized adaptations of existing models.

Another major research gap involves digital training programs, while prior studies emphasize their importance, no standardized framework exists for measuring the effectiveness of training interventions. Similarly, research lacks insights into entrepreneurial ecosystem support, including mentorship networks, funding accessibility, and policy mechanisms that facilitate digital adoption.

Among the various literature gaps identified, the present study chooses to delve into the digital competencies of women entrepreneurs, which are critical determinants for scaling up their business operations and bringing them into the formal entrepreneurial ecosystem

Existing literature has acknowledged the importance of digital competency in enhancing business performance, but, substantial gap persists in understanding its integration into the operational dynamics of informal women entrepreneurs. The past research studies focused primarily on theoretical frameworks or self-reported behavioural metrics rather than conducting action-oriented research. As a result, the actual adoption and integration of digital technologies into business functions are quantified. Further, the prevailing training programs emphasize general entrepreneurial competencies without addressing the specific application of business tools, digital innovations, and platforms in the core business areas. This results in a critical gap within training initiatives designed to cater to the distinctive needs of informal women entrepreneurs, thereby hindering the ability to fully leverage the potential of digital technologies within business operations.

Furthermore, digital competency frameworks such as the European Union's Digi Comp 2.0 furnish a structured mechanism for assessing and enhancing digital skills. But limited academic inquiry has investigated the practical integration of frameworks into

training programs aimed at informal women entrepreneurs. Although the UTAUT model has been widely applied to analyse technology adoption behaviours, the integration of digital competency as a variable derived from the Digi Comp framework remains inadequately explored. Additionally, empirical evidence regarding the effects of digital competency on fundamental constructs within the UTAUT model, such as performance and effort expectancy, continues to be sparse, particularly in the context of informal women entrepreneurs in India.

Finally, there is a lack of research investigating the influence of socio-demographic factors and business profiles on the acquisition and application of digital competency. Understanding how these factors intersect with digital competency adoption could provide deeper insights into the barriers faced by women entrepreneurs in different contexts and help develop more targeted interventions to bridge the digital divide.

In the Indian context, although existing studies acknowledge that performance expectancy, defined as the belief that technology use will improve business outcomes, significantly influences behavioural intention, there remains a critical gap in understanding this relationship among women in the informal sector. Most Indian research has focused on women entrepreneurs engaged in formal MSMEs, SHGs, or government-supported programs (e.g., Harini et al., 2025; Dutta et al., 2023), while women in unorganized trades such as tailoring, food processing, local crafts, or home-based services remain largely understudied. These women often acquire digital competencies informally or through peer networks, yet the extent to which this informal learning translates into performance expectations and actual adoption behaviour is unclear. Moreover, performance expectancy is frequently analysed as a static factor, without considering how it evolves as digital competency is gradually acquired.

In the international context, while performance expectancy has been widely examined as a determinant of technology adoption, the focus has primarily been on formal entrepreneurship or structured interventions in sectors like education, health, and commerce. Studies from Egypt, Nigeria, and Nepal have acknowledged the role of digital tools in improving productivity and market access, yet there is limited research that centers on women in the informal economy. Furthermore, the literature has not adequately addressed how non-traditional learning methods (e.g., mobile-based tutorials, voice

navigation, social media peer learning) shape women's belief in the usefulness of technology. Therefore, a substantial gap remains in understanding how performance expectancy interacts with the informal acquisition of digital competency to influence sustained technology adoption among women.

In India, while numerous studies confirm that Effort Expectancy significantly influences behavioural z among women in the informal sector. Studies such as Azab and Elsherif (2025) and Abed (2021) illustrate that women with low digital literacy benefit from localized training and user-friendly platforms, which enhance perceived ease of use. However, these studies typically address structured entrepreneurial ecosystems or urban settings and overlook women who engage in informal or home-based enterprises without institutional support. Furthermore, most existing literature measures behavioural intention in early stages, without examining how digital competency, once acquired informally, leads to reduced perceived effort and stable technology use in long-term business practice. Therefore, there is a crucial need for research that investigates how women outside formal enterprise structures acquire digital competency informally and how these shapes their perception of ease, confidence, and sustained adoption of technology.

While several Indian studies have acknowledged the critical role of social influence in shaping women's decisions to adopt digital technologies, a significant gap exists in understanding how social influence interacts with the acquisition and adoption of digital competency, specifically among women in the informal sector. Studies by Naidu and Raj (2019), Patel and Sharma (2023), and Kumar and Bansal (2024) emphasize that peer networks, family members, especially male relatives, and community support play a pivotal role in reducing hesitation and building trust toward digital tools. However, these works often stop short of analysing how such social encouragement leads to the actual acquisition of digital competencies over time, beyond initial adoption decisions. There is limited exploration of how different types of social influence emotional support, observational learning, or verbal reinforcement translate into skill-building behaviour and sustained usage. Moreover, the dynamics of community-based learning, mentorship within self-help groups, and the influence of women's associations on long-term digital engagement remain underexplored.

Globally, research in developing and emerging economies affirms that social and cultural norms significantly impact women's adoption of digital technologies, yet the lens of

digital competency acquisition among informal women entrepreneurs remains underdeveloped. Studies by Nambisan and Nambisan (2025), Al-Zaman et al. (2024), and Nguyen et al. (2022) highlight that informal social networks comprised of family, friends, and community members are vital sources of emotional support and experiential learning, often replacing formal digital education. However, the mechanisms through which these social influences lead to incremental acquisition of digital skills have not been adequately theorized or empirically mapped.

Indian studies emphasize the critical role of facilitating conditions such as infrastructure access, peer networks, and institutional aid in promoting technology adoption among women entrepreneurs. However, there remains a substantial gap in understanding how these conditions support the gradual acquisition and sustained adoption of digital competency, particularly among informal women entrepreneurs. While studies like Hasin (2025), Chandra Shekar (2025), and Naidu & Raj (2021) highlight improved behavioural intention and usage through SHG-based training and shared device models, they primarily focus on initial access rather than long-term skill development.

Internationally, while research supports the relevance of facilitating conditions in technology adoption, most studies (e.g., Senshaw & Twinomurinzi, 2021; Hassan et al., 2020) are confined to formal entrepreneurial contexts, offering limited insight into how these conditions operate in low-resource, informal settings. Studies by Kamdmoug et al. (2020) and Molino et al. (2020) recognize the enabling role of training and infrastructure but often overlook dynamic, context-sensitive adaptations required in informal economies. There is also a lack of research connecting facilitating conditions with the actual progression from basic digital literacy to strategic digital application. Thus, a significant research gap exists in understanding how both formal and informal facilitating environments can be effectively structured to enable informal women entrepreneurs.

Despite the growing number of studies highlighting behavioural intention (BI) as a precursor to digital adoption among women entrepreneurs, gaps remain in understanding how BI translates into actual skill acquisition and sustained digital engagement, especially within informal sector women. Research such as Thomas and George (2025), Latha and Pillai (2023), and Abbas (2024) underline the role of peer influence, social capital, and contextual relevance in building digital intentions. However, most of these studies focus on short-term intention formation, not on how BI matures or weakens over time when informal

women entrepreneurs face barriers such as limited device access, lack of time, or household gatekeeping. Moreover, behavioural intention is often assessed in isolation from enabling factors such as digital literacy levels, cultural constraints, and relevance to business needs. Few studies comprehensively address how women in low-resource informal settings develop intention after initial exposure to digital tools, or how self-efficacy, perceived business value, and social validation interact over time to strengthen or erode BI.

While actual usage is recognized as the ultimate indicator of successful technology adoption, studies such as Bose and Narayanan (2025), Ilangovan and Menaka (2024), and Choudhury and Soren (2025) have primarily reported usage patterns without adequately exploring the process of digital competency acquisition among women in the informal sector. Much of the existing literature measures actual usage in terms of frequency or functionality (e.g., WhatsApp Business use, mobile payments, social media marketing) but rarely examines the depth of skills, decision-making independence, or capacity to adapt technology beyond initial functions. Moreover, actual usage is often treated as a static endpoint, without examining how it evolves with support systems, informal learning pathways, or changing business contexts. Especially among informal women entrepreneurs, usage is highly influenced by external constraints, device sharing, unstable internet, and gendered norms, but these dynamics are underexplored in current research. There is also insufficient attention to the feedback loop between usage and learning, how repeated interaction with digital tools leads to confidence, skill development, and innovation.