
Chapter V

Summary and Conclusion

Digital competency is essential for effective technology adoption, driving business, innovation, efficiency, and growth. It enables entrepreneurs to stay competitive and adapt in a rapidly evolving digital landscape. The study sifts the influence of antecedents of technology adoption, namely Digital Competency, Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, and Behaviour Intention towards actual use behaviour of technology. Further, it explores the state of digital infrastructure and the key barriers to technology adoption. The targeted Digital Competency intervention enabled women in the informal sector to integrate technology into their business operations. Hence, the study was conducted on the Acquisition and Adoption of Digital Competency among Women in the Informal Sector.

❖ **Socio-Economic Profile of Women Entrepreneurs in the Informal sector**

- The age-wise distribution of participants shows that a significant majority (74.16%) of the informal women entrepreneurs are aged 30 years or below, while only 25.84 percent are above 30 years. As a result of this, it came to light that the majority of individuals who have attended digital competency training belong to the age group below 30 years.
- The educational attainment of participants indicates that a significant portion (70%) have completed higher secondary education, followed by 22.50% being graduates and remaining 7.50 percent with senior secondary education.
- The respondents are fairly distributed across residential areas, with 53.33 percent from Urban and 46.66 percent from rural settings.
- With regard to marital status, a large proportion of respondents (82.08%) are married, while 17.92 percent are single.
- Regarding family structure, 60 percent belong to joint families and 40 percent live in nuclear families.

❖ **Business Profile of Women Entrepreneurs in the Informal Sector**

- About the nature of business, 62.50 percent are engaged in manufacturing. In comparison, 23 percent operate in trade and 14.50 percent are engaged in service sectors, reflecting a strong focus on production-based informal enterprises.

- Ownership Structure includes Proprietorship as the dominant form with 87.50 percent, followed by partnerships (6.67%) and Self Help Groups with 5.83 percent, indicating that the majority of businesses are individually owned.
- Regarding business activities of entrepreneurs, most of them are engaged in the Food and Beverage sector (46.66%), followed by Small Retail Stores accounting for 22.50 percent, Beauty and Personal Care (21.25%), and the remaining (9.59%) are involved in handicrafts/artisan works.
- Most of the entrepreneurs (47.91%) conduct their business activities from home, while 32.51 percent use street-side stalls, 17.92 percent work from kiosks, and only 1.66 percent have permanent structures, indicating a highly informal setup with limited physical infrastructure.
- A majority of operate their business within panchayat limits (57.50%), while 42.50 percent are situated in municipal areas, signifying participation from both rural and semi-urban areas.
- A predominant majority (90%) of respondents manage their business units by self, while 6.25 percent employ 2–3 workers, followed by 3.75 percent have 4–5 workers, signifying low employment generation.
- The majority of entrepreneurs (88.75%) have only one year of experience, while 5.41 percent have 2–5 years of experience, followed by 4.16 percent with 6 – 10 years of experience, and only 1.66 percent have 11 -15 years of experience. reflecting a very early-stage entrepreneurial ecosystem.
- Initial Capital Investment in business shows that most of them (40%) invested between ₹ 5,000–10,000 initially, while 26.25 percent started with less than ₹5,000, followed by 25 percent between ₹10001 – 20000 and the remaining 33.75 percent invested in business over ₹10,000, showing low to moderate initial financial inputs.
- In terms of Monthly Income from business, most of the respondents (40%) earns ₹10,001–20,000 per month, while, 38.75 percent earn below ₹10,000 per month, and only 21.25 percent report earnings above ₹20,000 per month, indicating modest income levels typical of micro-enterprises.
- Majority (87.08%) of entrepreneurs have not registered under the e-Shram Portal, while 12.92 percent have registered under the e-Shram Portal, reflecting low formal integration.

- Majority (97.09%) of the women entrepreneurs in informal sector have not attended prior digital skill training, whereas 2.91 percent have attended digital skill training, suggesting a critical gap in digital preparedness among the select women entrepreneurs in the Informal sector.
- Current State of Business describes that most(46.66%), businesses are in the survival stage while, 31.26 percent of entrepreneurs are facing shutdown, while only 14.16 percent report growth, and the remaining 7.92 percent are thriving, underlining the vulnerability and challenges in sustaining informal enterprises.
- Business Outlook of the informal women entrepreneurs reveals that predominant (88.75%) express the intent to expand, 9.58 percent aim to modernise, and only 1.67 percent wish to formalise their business, indicating strong entrepreneurial aspiration but have limited formalisation goals.

❖ **Access to Digital Infrastructural facilities for business operations.**

Among the respondents, all have access to smartphones, but only 51 percent reported owning and using them for business purposes, while 49 percent owned smartphones but are not utilising them for business activities. In the case of Computers and laptops, the majority did not own them (76%) , while 15 percent used them in their business, and nine percent owned but did not use them in business operations. Regarding scanners, only 11 percent of respondents use scanners, whereas 89 percent do not own them. Similarly, 85 percent of the respondents do not possess a printer, while 25 percent own and use it in business.

❖ **Access to Internet Connectivity**

Majority of the women respondents (94.58%) access the internet through mobile phones, followed by 70 percent who have Wi-Fi connectivity, whereas 30.41 percent used public internet cafes, while only 2.91 percent have access to the internet via telephone lines, and the remaining 2.08 percent through cable internet

❖ **Ranking of Challenges in the adoption of technology in business operations among women entrepreneurs in informal sector**

The sample women entrepreneurs lack digital skills, with a mean score of 4.25 and ranked highest, followed by a lack of user-friendly tools, with a mean score of 4.24 and ranked second. Security and Privacy Concerns ranked third with a mean of 3.92, while underutilisation of business applications stood fourth with a mean score of 3.85. The high

cost of technology adoption ranked fifth with a mean score of 3.47, followed by language barriers with a mean score of 3.35 in sixth place. Unreliable internet connectivity and Societal norms were ranked seventh and eighth with mean values of 3.28 and 3.19, respectively. Lack of awareness about digital opportunities was ninth with a mean score of 2.86, the least reported challenge was inconsistent power supply with a mean score of 1.79, and ranked tenth.

❖ **Awareness and use of Business applications before Digital Competency Training.**

In the domain of business applications,

- For Financial Management, all respondents were unaware of QuickBooks, My Bill Book, and Expensify, while 88 percent were unaware of Vyapar, with 3.33 percent using it and 8.33 percent are aware but not using it in business operations.
- Regarding Marketing and Communication tools, 100 percent of the entrepreneurs were aware of Instagram, Facebook, YouTube, Google Meet, and Zoom, but they don't use them for business. 18 percent used WhatsApp, while 82.08 percent were aware but not using it in business.
- In e-commerce applications, 100 percent of respondents were aware but not using Amazon. Flipkart and Meesho.
- For storage tools, 88.33 percent used Google Drive and Digi Locker, 3.33 percent were aware but not using them for business, and regarding Proof Hub and Dropbox box 8.33 percent were aware but were not using them in business.
- About Digital Payments applications, Google Pay was used by 51.6 percent and while 48.33 percent were aware and but were not using it in business; 51.25 percent were unaware of BHIM, whereas 23.1 percent used it in business and remaining 25.41percent were aware and not using; 85 percent of respondents used PayTm, whereas 8.75 percent were unaware and rest 6.25 percent were aware but not using; 94.16 percent were aware of PhonePe, but were not using it in business.
- Regarding Security and Privacy applications, 87.5 percent of respondents were unaware of Kaspersky, 3.33 percent used it, and 9.16 were aware but not using; 91.66 percent were unaware of Avast antivirus, with 3.33 percent using it; McAfee was unknown to 93.33 percent, 4.16 percent used it, and 2.5 percent were aware but not using; AVG antivirus had 100 percent unawareness.

- For aggregator platforms like Swiggy, Zomato, and other local aggregators, 100 percent of respondents were aware but not using them for business operations.

❖ **Effectiveness of Digital competency intervention among select Women Entrepreneurs in the Informal Sector**

Based on the results of hypothesis testing, the outcomes show that a higher mean score difference shows a better improvement in the specific digital skills.

➤ **Impact of Digital Proficiency training on select women entrepreneurs in the informal sector**

The Digital Proficiency training was provided under two sub-themes, namely ICT Proficiency and ICT Productivity.

- The ICT proficiency training resulted in statistically significant improvements among women entrepreneurs, with the highest effect of training in their ability to handle ICT-related problems and failures, where the mean score increased from 1.17 to 2.56, and with the greatest mean difference of 1.40. This was followed by confidence in using digital devices improved from 1.77 to 3.08, willingness to adopt new technologies rose from 1.26 to 2.63, and the ability to stay updated with evolving ICT increased from 1.21 to 2.58. The mean scores reflect enhanced digital readiness among the participants.
- ICT productivity training showed a significant positive impact on the digital skills of women entrepreneurs. The highest influence of training was observed in both the ability to perform difficult tasks and to understand how digital technology transformed business practices, increasing their mean score from 1.33 to 2.70, respectively, and each showing a high mean difference of 1.38. Improvement in using ICT tools for efficient task execution improved with the mean score from 2.39 to 3.64. The ability to select appropriate digital tools for specific tasks rose from 1.83 to 3.14, and decision-making in evaluating digital tools improved from 1.50 to 2.86.

➤ **Impact of Information, Data, and Media Literacy training of Select Women Entrepreneurs in Informal Sector**

The Information, Data, and Media Literacy training was provided under three sub-themes namely Information Literacy, Data Literacy, and Media Literacy

- Information literacy training reported a substantial positive effect on women entrepreneurs. The maximum influence in training was observed in both the ability to review, analyse, and represent digital information and the understanding copyright rules, with mean scores increasing from 1.18 to 2.57 and 1.58 to 2.96, respectively with each showing a mean difference of 1.38. Ability to explicate digital information for entrepreneurial opportunities improved from a mean score of 1.54 to 2.88, while the ability to evaluate, manage, curate, organise, and share digital information improved from a mean score of 2.38 to 3.63.
 - Data literacy training led to a statistically significant advancement in women entrepreneurs skills. Data literacy training recorded the highest improvement in comprehension of legal and ethical guidelines in data collection and usage, with a mean score increasing from a mean score of 1.63 to 3.02, and recorded the highest effect of training, with a mean difference of 1.39. This was followed by the ability to interpret data through analysis and report generation, which rose from a mean score of 1.84 to 3.20. Awareness and understanding of personal data security increased from 2.26 to 3.58, while ability to collate, manage, and utilise digital data in spreadsheets, charts, and databases improved from a mean score of 2.17 to 3.47.
 - Media literacy training significantly boosted the skills of women entrepreneurs. The evaluation of media messages based on origin and purpose, with the mean score rising from 1.63 to 3.03, reflecting a high mean difference of 1.40 , followed with an improvement in the ability to critically analyse and respond to messages, which improved from 1.75 to 3.13. Understanding to re-edit, curate, and repurpose media with attribution improved, with the mean score increasing from 1.63 to 3.02.
- **Impact of Digital Content Creation and Problem Solving among select women entrepreneurs in the informal sector**

The training on Digital Content Creation and Problem Solving was provided under two sub-themes namely Digital Content Creation and Digital Problem Solving

- The training on digital content creation showed the greatest improvement among women entrepreneurs. Their digital skills on the digital production process and basics of editing showed a great improvement from a mean score of 2.20 to 3.53,

with a mean difference of 1.33 indicating the most significant effect of training. This was followed by the capability to design and create artefacts with a mean score that rose from 2.20 to 3.49.

- Digital Problem-Solving training brought improvement in all measured areas among select women entrepreneurs. It has been noted that their comprehension on digital research methods and data analysis techniques for business solving improved with a mean score from 2.10 to 3.45, reflecting high mean difference of 1.35. This was followed by an improvement in awareness of analysis of digital tools and research techniques , which rose from 2.09 to 3.43. The understanding of sharing digital evidence and findings improved with the score increasing from 2.10 to 3.43. Skills to evaluate the quality and value of evidence improved from 2.04 to 3.37 and understanding of data analysis tools and digital research strategies increased from 1.87 to 3.22.

➤ **Impact of Digital communication, Collaboration, and Participation among select women entrepreneurs in the informal sector**

The training on Digital communication, Collaboration, and Participation is provided in fewer than three sub-themes, namely Digital communication, Collaboration, and Participation

- Digital communication training indicated the highest improvement in features of different digital media, has an increase in mean score from 3.18 to 4.33, showing the strongest effect of the training, as shown by a mean difference of 1.36, followed by skills to communicate in digital spaces, from 3.18 to 4.32. Collaborating shared digital tools improved from 2.60 to 3.85, while awareness of communication norms for varied purposes improved from 2.09 to 3.45. Both understanding communication privacy and identifying and dealing with false or unclear digital communication rose from 2.05 to 3.40 and from 2.04 to 3.40, respectively. Lastly, designing communications for different purposes increased from 2.04 to 3.39.
- Digital collaboration training showed the highest improvement in the ability to participate in digital teams and working groups, with a mean score from 2.00 to 3.25, and the greatest mean difference of 1.25, indicating the strongest impact of the training. Subsequently improvement in the ability to work across cultural,

social, and linguistic boundaries rose from 2.02 to 3.22. Understanding digital technologies and working norms increased from 1.90 to 3.13, while skills to collaborate using shared digital tools and productivity applications improved from 1.09 to 1.75.

- Digital participation training shows the greatest improvement in behaving safely and ethically in digital spaces, with a mean score advancing from 2.89 to 4.29, reflecting the strongest mean difference of 1.40. Subsequently, the ability to build and facilitate digital networks rose from 2.23 to 3.52. Further, the skill to create and amplify messages across networks improved from 2.96 to 4.31. Participation in social and cultural life increased from 3.02 to 4.39, and the understanding influence of digital media and social networks advanced from 3.26 to 4.63.

➤ **Impact of Digital learning and development on select women entrepreneurs in Informal Sector**

The training on Digital learning and development is provided under a sub-theme, namely Digital learning and Development

Training on Digital Learning revealed the highest confidence in participating in digital learning opportunities, with a mean score increased from 3.34 to 4.46, reflecting the highest mean difference of 1.12, indicating the maximum effect of the training. Ability to identify and use digital learning resources improved from a mean score of 3.98 to 4.80. Skills to monitor progress, participate in digital assessments, and receive feedback increased from a mean score of 3.97 to 4.78, and the Capacity to organise and reflect on learning using digital tools improved from 3.93 to 4.77. Challenges in digital learning ranged from mean score of 3.95 to 4.76, while the ability to manage time and tasks in digital learning settings surged from a mean score of 4.11 to 4.83.

➤ **Impact of Digital Identity and Wellbeing training on select Women entrepreneurs In the Informal Sector**

The training on Digital Identity and Wellbeing is provided under two sub-themes, namely Digital Identity and Digital Wellbeing

- Training on digital identity showed the highest improvement in understanding the reputational benefits and risks associated with digital identity initiatives, with

the mean score increasing from 2.99 to 4.37, marking a mean difference of 1.38, indicating the strongest effectiveness of the training. Next, the skill to build and maintain digital profiles and digital identity assets rose from 2.86 to 4.18. The ability to develop and project a positive digital identity across various platforms also improved, with the mean score increasing from 2.33 to 3.62

- Training on Digital well-being showcased the highest improvement in use of digital media to foster personal relationships and community actions, with mean scores rising from 3.92 to 4.76, demonstrating the highest effect of training. Followed by gains in concern for human and environmental impacts, improved from a mean score of 4.28 to 4.90, Digital participation risks and benefits increased from a mean score of 4.35 to 4.91, and managing digital stress and distractions increased from a mean score of 4.38 to 4.92. The ability to act safely and resolve digital conflicts improved from a mean score of 4.35 to 4.92, while participation in social and community activities rose from a mean score of 4.64 to 5.00.

❖ **Awareness and use of Business applications after Digital competency training among women in the Informal sector**

Major findings organized under each functional area, with the relevant percentages included:

- In the domain of financial management, high adoption was observed for My Bill Book with ninety-two percent of users and Vyapar with fifty-five percent adoption, whereas low adoption was reported for QuickBooks at five percent and Expensify at just three percent.
- For marketing and communication tools, WhatsApp and Google Meet both demonstrated high adoption with one hundred percent usage, followed by Instagram with moderate to high adoption at fifty-one percent. In contrast, Facebook showed low adoption at only seven point five percent, and YouTube reflected a moderate but not high adoption rate at forty-two point five percent.
- In the category of e-commerce platforms, Meesho stood out with high adoption among all users at one hundred percent. However, both Amazon and Flipkart recorded zero percent usage, indicating low adoption.

- Regarding storage solutions, high adoption was evident for both Google Drive and DigiLocker, each with one hundred percent usage. On the other hand, Dropbox had only fifty percent usage, while ProofHub was significantly lower with just five percent adoption, reflecting low adoption rates for these platforms.
- For digital payment applications, all listed platforms—Google Pay, PhonePe, Paytm, and BHIM—achieved high adoption, each used by one hundred percent of the participants.
- In the area of security and privacy tools, Avast and McAfee had relatively high adoption rates at forty-seven percent and forty-six percent respectively. Conversely, Kaspersky showed low adoption at twenty percent, and AVG was used by only five percent of respondents.
- Finally, within aggregator platforms, Swiggy, Zomato, and local aggregators all showed high adoption with one hundred percent usage across the user base.

❖ **Registration under the e-Shram Portal after Digital Competency Training among women in the Informal sector**

All the selected women entrepreneurs (100%) registered under the e-Shram portal after undergoing Digital Competency Training

❖ **Perception of antecedents of technology adoption among the Women Entrepreneurs in the Informal Sector**

▪ **Performance Expectancy**

All participants agreed that digital technology enhances business growth potential, while 98.75 percent felt it improves efficiency in business operations. Additionally, 96.25 percent believed that it enhances the quality of work, and 94.75 percent agreed that it enables them to accomplish tasks more quickly

▪ **Effort Expectancy**

The majority of respondents expressed confidence in using digital technology within their businesses. About 97.5 percent agreed that it is easy to integrate new digital tools into their operations, and 89.25 percent felt that these technologies help simplify business-related tasks. Additionally, 85.75 percent reported being comfortable troubleshooting minor digital issues on their own. Notably, 91.75 percent disagreed with the notion that learning digital

tools is complicated, indicating a generally positive attitude and adaptability toward adopting new technology

- **Social Influence**

Majority, (98.25%) felt that societal expectations motivate them to adopt digital technology, while 96.25 percent acknowledged the role of trainers and support staff in encouraging its use. Furthermore, 92.25percent reported that their entrepreneurial peers influence their decision to embrace technology, and 90.25 percent stated that friends and family also play a motivating role. These results highlight the importance of social and professional networks in shaping technology adoption behaviour.

- **Facilitating Conditions**

The results highlight the strong presence of support systems facilitating digital adoption among the respondents. An overwhelming 99.50 percent reported having access to assistance when facing digital challenges, and 97.25 percent agreed that digital competency training encouraged them to use technology. Additionally, 96.25 percent considered access to digital infrastructure and financial resources as key motivating factors. Furthermore, 92.50 percent acknowledged the support provided by Jan Shikshan Sansthan (JSS) in helping them integrate digital tools into their business practices.

- **Behavioural Intention**

The responses indicate a strong intention among participants to adopt digital technology in their business activities. About 96.25 percent expressed plans to integrate business applications into their operations, while 89.75 percent intend to adopt new digital technologies to enhance efficiency. Additionally, 78.25 percent reported that they plan to use digital technology more frequently in the near future, reflecting a growing commitment toward sustained digital engagement.

- **Actual Usage**

The findings reveal a high level of actual digital technology usage among the respondents. All participants (100 percent) reported routinely using digital tools for essential business tasks and actively exploring and applying advanced features of digital platforms. Additionally, 96.25 percent stated that they incorporate digital skills into their daily business operations. Furthermore, 78.25 percent actively engage with online systems for

communication and feedback, indicating a broad and practical integration of digital tools in their entrepreneurial activities.

❖ **Digital Competency across Socio–demographic and Business profile of Women in Informal Sector**

- The significant difference in Digital Learning between younger and older entrepreneurs highlights the need for customized learning interventions. Younger entrepreneurs benefit from advanced or specialized learning resources, while older entrepreneurs require foundational training to overcome the digital divide. Digital literacy programs should cater to the specific needs of different age groups. This approach ensures digital inclusion and enhances the overall digital competency of informal women entrepreneurs across all generations.
- Digital competencies are more influenced by practical experience and access to digital tools than by formal education. However, significant differences were found in Digital Productivity ($p = 0.056$), Information Literacy ($p = 0.005$), and Media Literacy ($p = 0.054$), highlighting the role of formal education in enhancing competencies in these areas. Graduates showed stronger skills in these dimensions due to targeted exposure to productivity tools and media management in educational settings. These findings emphasize that while formal education is not a significant determinant for most digital competencies, it is critical for specific areas like digital productivity, information, and media literacy. Digital skill development programs should focus on providing hands-on experience and practical exposure to tools, while formal education systems should continue fostering digital skills through structured training in areas that require specialized knowledge.
- No significant differences in digital competency scores between rural and urban informal women entrepreneurs, with high p -values (e.g., Digital Proficiency $p=0.913$, Digital Productivity $p=0.953$), indicating that residential location does not affect digital skill acquisition. This suggests that structured digital competency training effectively bridges the digital divide between rural and urban areas. Government initiatives like Digital Kerala, K-WiFi, and Digital India have significantly enhanced digital access and skills in rural areas.
- The findings highlight the importance of structured digital competency training programs in ensuring equal digital skill development regardless of geographic location. The success of initiatives like Digital Kerala and Digital India underscores

the need for continued investment in digital infrastructure to support skill development in rural areas, reducing the digital divide between rural and urban populations.

- The study reveals no significant difference between marital status and digital competency components, with p-values for all components exceeding the 0.05 threshold (e.g., Digital Proficiency $p=0.143$, Digital Productivity $p=0.182$). This indicates that marital status does not influence the acquisition of digital skills among women entrepreneurs. Access to quality training and resources, rather than marital or family roles, plays a more significant role in developing digital competencies.
- The findings suggest that marital status does not impact the ability of women entrepreneurs to enhance their digital skills. Access to training, technology, and resources is the primary factor in digital competency development. This highlights the importance of providing all women entrepreneurs, regardless of marital status, with equal opportunities for digital skill development through accessible training and support
- The results reveal no statistically significant differences in digital competency dimensions across the location of the unit, indicating that digital competency training programs provided equal access and content to all participants, regardless of their location in Panchayats or Municipalities. Entrepreneurs from both areas achieved similar levels of digital competency after the training.
- The findings show that location is no longer a critical factor in digital competency. Equitable access to training and hands-on experience with digital tools effectively overcomes geographic divides. This underscores the importance of practical training in ensuring uniform skill development, regardless of geographic location.
- There are no significant differences in digital competency components based on the nature of the business. Digital competency, including digital proficiency, productivity, information literacy, data literacy, and other components, shows no variation across different business types. This suggests that the demand for foundational digital skills is universal, essential for businesses to operate efficiently and stay competitive, regardless of their industry.
- The findings highlight that digital competency is a critical requirement across all business sectors. The training provided covered essential digital tools and competencies relevant to business functions, ensuring that entrepreneurs gained

necessary skills to enhance efficiency, innovation, and competitiveness. Regardless of the business type, foundational digital skills such as proficiency in digital tools, information literacy, and data management are essential for adapting to digital transformation and maintaining a competitive edge.

- The findings suggest that digital competency training is equally beneficial across diverse organization types, highlighting the effectiveness of structured programs in equipping women entrepreneurs with essential digital skills. Regardless of their organizational structure, entrepreneurs can develop crucial competencies such as communication, collaboration, and information management. However, the study also indicates the need for more targeted support for self-help groups (SHGs) and home-based units, as these groups may face challenges like limited access to advanced digital tools and infrastructure. Tailored interventions addressing these barriers will be vital for ensuring equitable digital skill development across all groups.
 - The analysis shows no statistically significant differences between different types of entrepreneurial skills (Experience, Special Training, Entrepreneurial Spirit) and the components of digital competency, as all p-values were greater than 0.05. This indicates that entrepreneurial skills, including prior experience, specialized training, and entrepreneurial spirit, do not significantly influence the acquisition of digital competencies among informal women entrepreneurs.
 - This highlights the need for targeted, structured digital training programs to equip entrepreneurs with the necessary digital skills for their businesses. Additionally, the study emphasizes that entrepreneurial spirit can foster adaptability but does not replace the need for specific digital competency development, pointing to the critical role of formal digital training in enhancing digital skills among informal women entrepreneurs
- ❖ **Influence of Antecedents of Behaviour Intention on Actual Use Behaviour of Technology**
- Digital Competency significantly influences Performance Expectancy ($\beta = 0.146$, $P = 0.031$), indicating that higher digital skills enhance performance in business operations. H_4 is Accepted
 - Digital Competency did not significantly influence Effort Expectancy to adopt technology ($\beta = 0.030$, $P = 0.636$), suggesting that despite improved digital skills,

perceived new technologies require cognitive effort to learn and use them frequently.

H₅ is Rejected

- Performance Expectancy significantly influences Behaviour Intention to adopt technology ($\beta = 0.731$, $P = 0.019$), confirming that its critical role in technology adoption. H₆ is Accepted
- Effort Expectancy did not significantly influence Behavioural Intention to adopt technology ($\beta = 0.121$, $P = 0.082$), implying ease of use is less impactful in this context. H₇ is Rejected
- Social Influence significantly influences Behavioural Intention ($\beta = 0.259$, $P = 0.000$), highlighting the role of peer and community influence. H₈ is Accepted
- Facilitating Conditions did not significantly influence Behavioural Intention ($\beta = 0.088$, $P = 0.131$), suggesting external support systems were less decisive. H₉ is Rejected
- Behavioural Intention significantly predicted Actual Use of technology ($\beta = 0.182$, $P = 0.000$), validating intention as a strong determinant of technology usage. H₁₀ is Accepted
- Digital Competency significantly influences Actual Use behaviour of technology ($\beta = 0.731$, $P = 0.001$), with a large effect size ($f^2 = 0.468$), underlining its pivotal role in technology adoption. H₁₁ is Accepted

❖ **Specific Indirect Effects of DC, PE, EE, SI , FC on Behavioural Intention and Actual Usage of Technology**

- The indirect effect of digital competency on behavioural intention through performance expectancy (DC → PE → BI) was not significant ($\beta = 0.021$, $P = 0.145$), indicating that performance expectancy does not mediate this relationship effectively as the contextual factors like peer influence, sector- specific needs and past exposure pays a decisive role in technology adoption.
- The indirect effect of digital competency on actual use via performance expectancy and behavioural intention (DC → PE → BI → AU) was also not significant ($\beta = 0.004$, $P = 0.208$), suggesting that improved skills shifted their focus from whether technology improves performance to whether they feel capable of using it.
- The indirect path from performance expectancy to actual use through behavioural intention (PE → BI → AU) was moderately significant ($\beta = 0.027$, $P = 0.056$), indicating that entrepreneurs who perceive technology can improve performance

have a strong intention, this intention does not always lead to actual usage due to intervening factors like digital infrastructure, inconsistent follow up and an external constrains such as cost, time or technical support.

- The path from digital competency to behavioural intention via effort expectancy (DC → EE → BI) was not significant ($\beta = 0.004$, $P = 0.727$), showing that effort expectancy does not act as a mediator, indicating that the process of familiarising and adapting to new technologies requires time and effort.
- The indirect effect of digital competency on actual use through effort expectancy and behavioural intention (DC → EE → BI → AU) was not significant ($\beta = 0.001$, $P = 0.730$), confirming the weak mediating role of effort expectancy and behavioural intention as the user becomes more experienced in using technology their usability concerns fade and their decisions are more driven by how beneficial the technology is for business.
- The path from effort expectancy to actual use through behavioural intention (EE → BI → AU) was not significant ($\beta = 0.022$, $P = 0.135$), indicating that ease of use initially influence users' perceptions in the early stage of adoption but ultimately, they base their decision to actual use on outcome-oriented factors such as time saving, improve business performance, customer preferences etc.
- The indirect effect of social influence on actual use through behavioural intention (SI → BI → AU) was significant ($\beta = 0.047$, $P = 0.010$), indicating that external encouragement, peer validation, and societal norms shapes the intention and which in turn leads to actual usage that behavioural intention effectively mediates the relationship between social influence and actual technology adoption.
- The indirect effect from facilitating conditions to actual use through behavioural intention (FC → BI → AU) was not statistically significant ($\beta = 0.016$, $P = 0.192$), suggesting that external resources or support lower entry barriers, but the sustained use depends more on digital competency, motivation, and providing hands-on training.

❖ Implication for the study

The implications are categorized into four key domains, namely informal women entrepreneurs, training institutions, app developers and tech companies, policy making, society, and academia

➤ **Implications for Informal Women Entrepreneurs**

- Digital literacy enhances confidence and autonomy in business operations by equipping women with the tools to independently manage finances, promote their products, communicate with customers, and analyse performance to foster business growth.
- Digital upskilling is necessary to get updated and refreshed with digital technologies
- Digital skills can unlock opportunities for market expansion, enabling women to transform their business from regional, national, and even global markets through e-commerce platforms and social media marketing.
- Familiarity with digital financial tools, mobile payment systems, and online banking increases women's ability to negotiate effectively, track income and expenses, and build a credible financial history.
- Enhanced participation on digital platforms allows women to connect with suppliers, customers, mentors, and collaborate with peers to access better market opportunities.
- The absence of significant variation in digital skills across business types before training underscores the universal need for foundational digital competencies, regardless of industry.
- While education broadly does not influence digital competency, it plays a key role in specific areas like digital productivity, media literacy, and information literacy; hence, education-aligned modules should be included.
- Entrepreneurs need step-by-step guides and localized workshops to engage with e-commerce platforms such as Amazon, Flipkart, Meesho, and to introduce global platforms like Shopify and Etsy.

❖ **Implications for Training Institutions (e.g., Jan Shikshan Sansthan, NGOs, Skill Development Centres)**

- Design training modules that cater to varying users, basic digital literacy for elder or less-educated, and advanced business/digital skills for younger or more experienced entrepreneurs.
- Emphasise on hands on, practical learning to significantly reduce their technophobia and digital distrust and to improve actual usage of technology
Training should include sector-relevant applications such as inventory apps for

manufacturing, promotional tools for beauty services, and payment platforms for retail.

- Location-based training programmes will increase the technology adoption among women in informal sector
- Capacity-building programs must include modules on using smartphones for business management, including communication, digital payments, online sales, and social media marketing.
- Incorporate a module on cybersecurity and digital wellbeing practices for their safety, privacy, and cyber hygiene to address low awareness and adoption of digital security tools.
Establish follow-up mechanisms, peer support systems, and mentorship opportunities to ensure continued digital engagement and prevent regression into non-digital business practices.
- Programs must expand beyond basic digital skills to include awareness and use of advanced business applications, such as accounting, inventory management, and e-commerce platforms.
- Training programs should incorporate desktop-based digital skills, such as financial tracking, document editing, inventory management, and data analytics, to fully utilize available computing power.

❖ **Implications for App Developers and Tech Companies**

- Design the applications with a digital novice focusing on simplicity, visual elements, intuitive interfaces and compatibility with low-end smartphones
- Incorporating regional language options, audio support, and culturally relevant features to maximize usability among diverse women entrepreneurs.
- Include in-app guidance like video explainers, business-specific templates (e.g., invoices, inventory forms), and chatbot assistance to aid first-time users.
- Development of user-friendly and locally adapted digital tools is essential to encourage adoption among women with low digital proficiency.
- Given high mobile data dependence, apps must function smoothly even with limited internet connectivity and should include offline modes where feasible.
- Co-create modules with institutions like Jan Shikshan Sansthan and other training institutes should be encouraged to create digital modules. to outreach grassroots women entrepreneurs.

➤ **Implications for Policymaking**

- Policies should integrate structured digital competency training as a mandatory component in all women-focused entrepreneurship development programs.
- Ensure strong mobile networks, reliable broadband access, and affordable smart devices, particularly in rural areas, to support sustained usage.
- Incentivize digital adoption and formalisation through providing women entrepreneurs with financial incentives, market linkages, welfare benefits to encourage women entrepreneurs to adopt digital platforms and formally register on portals like e-shram.
- Building shared digital infrastructure, community-based digital hubs, and cooperative platforms to facilitate access to credit, welfare, and scalability.
- Investments in improving infrastructure by digitalisation by subsidizing devices and providing local technical support would help ensure that women entrepreneurs can effectively utilize digital tools.
 - Government initiatives like Digital India and Digital Kerala must be scaled to rural areas and even marginalised entrepreneurs and continuously support them to sustain inclusive digital ecosystems.
 - Broader digital engagement strategies must prioritize device affordability, internet affordability, and infrastructure equity to ensure that all women entrepreneurs, regardless of geography, can participate effectively in the digital economy
 - Initiatives should explore partnerships with service providers to offer custom Wi-Fi packages for women-led microenterprises, encouraging structured digital operations from home-based units.
 - Entrepreneurial support policies should advocate for network stability and 4G/5G expansion, particularly in areas dependent on mobile internet, to reduce downtime and enhance digital inclusion.

➤ **Implications to Society**

- Society stands to benefit from a more empowered group of women entrepreneurs who, through digital skills, can participate actively in local economies, drive job creation, and uplift community standards.

- The success of digitally trained women in business challenges traditional gender norms, promoting more equitable participation in the economic sphere, especially in rural and semi-urban areas.
 - Trained women become digital ambassadors, influencing peers and future generations, especially young girls, to adopt technology and entrepreneurship as viable life paths.
- **Implications for Academia**
- The study contributes to academic literature by integrating digital competency with the UTAUT model, enhancing understanding of technology adoption specifically among informal women entrepreneurs.
 - It provides empirical evidence linking digital skills with behavioural intention and actual technology use, reinforcing and contextualizing theoretical constructs in real-world informal sector settings.
 - A structured digital training module tailored for women in the informal sector offer a replicable model for future academic studies on intervention-based digital inclusion.

Conclusion

Digital competency was found to be a critical enabler, driving behavioural intention and actual use of technology, thereby bridging the gap between traditional business practices and modern digital solutions. This competency not only enhances operational efficiency but also equips women entrepreneurs to leverage technology for market expansion, customer engagement, and sustainable growth.

The study confirms that digital competency plays a pivotal role in shaping technology adoption and actual usage among informal women entrepreneurs. It positively influences performance expectancy, suggesting that women who develop digital skills are more likely to perceive technology as beneficial for their business operations. However, digital competency alone does not significantly impact effort expectancy, indicating that perceived ease of use may depend on other factors such as interface design or prior experience. Performance expectancy strongly influences behavioural intention, reinforcing the importance of perceived usefulness in motivating technology adoption. On the other hand, effort expectancy does not significantly drive behavioural intention, highlighting that users may prioritize benefits over ease of use once they gain basic digital skills. Social

influence significantly enhances behavioural intention, emphasizing the critical role of peer encouragement and community support. In contrast, facilitating conditions do not have a significant impact, pointing to possible limitations in external infrastructure or institutional aid available to these entrepreneurs. Behavioural intention leads to actual technology use, confirming its relevance in the adoption process. Notably, digital competency has the most substantial impact on actual usage, demonstrating that skill development directly translates into practical engagement with digital tools.

Hence, the findings validate the applicability of the Unified Theory of Acceptance and Use of Technology (UTAUT) model in measuring technology adoption among informal women entrepreneurs. The model effectively captures the interplay of individual, social, and behavioural factors that drive digital adoption in this context

Overall, the findings highlight that enhancing digital skills and strengthening social support systems are more effective strategies for promoting technology use among women entrepreneurs in the informal sector than focusing solely on improving ease of use or infrastructural conditions

By focusing on enhancing digital competencies, policymakers, training institutions, and development organizations can enable informal women entrepreneurs to overcome challenges such as resource constraints and technological apprehension. This, in turn, can empower them to participate actively in the digital economy, leading to enhanced economic opportunities, social mobility, and a more inclusive entrepreneurial ecosystem.

Scope for Future Research

- Study on enhancing Performance Expectancy among Informal Women Entrepreneurs"
- Analysis of Technology Adoption: The Role of Effort Expectancy in Digital Competency in the Informal Sector
- Examination of Social Influence for Digital Empowerment of Women Entrepreneurs
- Study on Bridging Resource Gaps: Strategies for Improved Technology Utilization among Informal Women Entrepreneurs
- Impact of Advanced Digital Competency Frameworks for Women Entrepreneurs