

## SPECIMEN FORMAT FOR THESES OF MONTH

**Faculty** : School of Commerce and Management

**Department** : Commerce

**Branch/ Area:** : Marketing

**Sub Subject Heading:** : Entrepreneurship Development

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**Title of the thesis** : Acquisition and Adoption of Digital Competency among Women in the Informal Sector

(i) In Roman Script =

(ii) In roman Script =

**Nomenclature of Degree:** : Ph.D

**Month & Year of Enrolment:** : July 2019

**Month & Year of Registration:** : July, 2019

**Month & Year of Submission:** : July, 2025

**Month & Year of Award** : February, 2026

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**Designation of Supervisor** : Professor and Dean, School of Commerce and Management

**Centre/department/school in** : Commerce/Commerce and Management

**Which research was conducted**

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### **Abstract within 300 words:**

Digital competency is essential for business development, as it enhances efficiency, market reach, customer engagement, and management practices, while enabling entrepreneurs to remain competitive and adapt to technological change. Digital skills therefore serve as an important indicator of an individual's ability to remain competitive, adapt to technological advancements, and leverage innovation for sustainable business outcomes. The present study examines the influence of key antecedents' performance expectancy, effort expectancy, social influence, and facilitating conditions on behavioural intention and their subsequent impact on the actual use of technology in business operations.

This study analyzed 240 informal women entrepreneurs in Palakkad, Kerala, selected via multistage sampling to evaluate a targeted digital competency intervention. Using a structured questionnaire, the research employed Rank Analysis to identify adoption barriers and the Wilcoxon Signed-Rank Test to measure skill improvements post-intervention. To understand demographic influences, Kruskal-Wallis and Mann-Whitney U tests were applied across various socio-demographic and business profiles. Finally, Structural Equation Modelling (SEM) was used to map the relationships between digital competency, behavioral intention, and actual technology usage

The results revealed that digital competency was significantly influenced by performance expectancy, indicating that improved digital skills enhance perceptions of technology usefulness in business. Performance expectancy and social influence had a strong positive effect on behavioural intention. Digital competency and behavioural intention significantly contributed to the actual use of technology, with behavioural intention mediating the relationship between social influence and actual usage. Digital competency did not influence effort expectancy, and effort expectancy and facilitating conditions had no effect on behavioural intention. All indirect paths were insignificant, highlighting the dominant role of digital competency and perceived performance benefits in technology adoption

#### **i) Major objectives :**

- ❖ To assess the digital infrastructural facilities and business applications used in business operations by select Women Entrepreneurs in the Informal Sector
- ❖ To analyse the challenges faced in using digital technology in business operations by select Women Entrepreneurs

- ❖ To assess the impact of Digital Competency training intervention on select Women Entrepreneurs
- ❖ To examine the effect of Digital Competency on Performance Expectancy, Effort Expectancy and Actual Usage of technology by select Women Entrepreneurs and
- ❖ To assess the influence of Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Condition on Behaviour Intention and the effect of Behaviour Intention on Actual Usage

**ii) Hypotheses:**

**H<sub>1</sub>:** There is no significant mean difference between the digital competency of select Women Entrepreneurs in the Informal Sector before and after training

**H<sub>2</sub>:** There is no significant difference between components of digital competency across the socio-demographic profile of Informal women entrepreneurs

**H<sub>3</sub>:** There is no significant difference between components of digital competency across the Business profile of Informal women entrepreneurs

**H<sub>4</sub>:** Digital Competency positively influences the Performance Expectancy of select Women Entrepreneurs in the Informal Sector towards technology adoption

**H<sub>5</sub>:** Digital Competency positively influences Effort Expectancy of select Women Entrepreneurs in Informal Sector toward technology adoption

**H<sub>6</sub>:** Performance Expectancy positively influences Behaviour Intention of select Women Entrepreneurs in Informal Sector toward technology adoption

**H<sub>7</sub>:** Effort Expectancy positively influences Behaviour Intention of select Women Entrepreneurs in Informal Sector toward technology adoption

**H<sub>8</sub>:** Social Influence positively influences Behaviour Intention of select Women Entrepreneurs in Informal Sector toward technology adoption

**H<sub>9</sub>:** Facilitating Conditions positively influence the Behaviour Intention of select Women Entrepreneurs in the Informal Sector toward technology adoption

**H<sub>10</sub>:** Behaviour intention positively influences the Actual use Behaviour of Informal Women Entrepreneurs towards technology adoption

**H<sub>11</sub>:** Digital Competency positively influences the Actual Usage of select Women Entrepreneurs in the Informal Sector towards technology adoption

**iii) Methodology :**

The present study is descriptive and analytical in nature. The study area selected was Palakkad District in Kerala, as it is a prominent entrepreneurial hub with a high concentration of informal women entrepreneurs engaged in non-agricultural activities. Jan Shikshan Sansthan (JSS) was purposively selected since it plays a vital role in providing entrepreneurial skill training to women in the informal sector.

Women entrepreneurs who had received entrepreneurial skill training from Jan Shikshan Sansthan during the years 2021 and 2022 were selected as the target population for the study. This group was chosen as they possessed basic entrepreneurial exposure, making them suitable for assessing the impact of digital competency training. A final sample of 240 women entrepreneurs was selected using a multistage sampling design.

Both primary and secondary data were utilized. Primary data were collected using a structured questionnaire. To evaluate the effectiveness of the intervention, the questionnaire was administered twice—before and after the digital competency training programme. The digital competency training intervention was conducted during the years 2022 and 2023. A training module was specifically designed for the study and developed with the support and validation of subject experts, ensuring content relevance, clarity, and contextual suitability for informal women entrepreneurs.

To minimize the effect of common method bias, appropriate procedural and statistical techniques were adopted. The questionnaire was framed based on an extensive review of literature and the Unified Theory of Acceptance and Usage of Technology (UTAUT) model. In the present study, digital competency, performance expectancy, effort expectancy, social influence, and facilitating conditions (resources) were treated as independent variables; behavioural intention as a mediating variable; and actual usage of technology as the dependent variable.

The reliability of all study constructs—Digital Competency, Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Behavioural Intention, and Actual Usage—was established, with Cronbach's alpha values

exceeding the acceptable threshold of 0.70, confirming satisfactory reliability and validity (Hair et al., 2022).

For analysis, descriptive statistics were used to profile respondents based on socio-demographic characteristics, business profile, awareness, and usage of business applications. Rank analysis was employed to identify the challenges faced by informal women entrepreneurs in technology adoption. The Wilcoxon signed-rank test was applied to assess the impact of the digital competency training intervention by comparing pre- and post-training responses. Further, the Mann–Whitney U test and Kruskal–Wallis test were used to examine whether significant differences existed in digital competency, performance expectancy, effort expectancy, social influence, facilitating conditions, behavioural intention, and actual usage of technology across different socio-demographic and business profile categories. Finally, Structural Equation Modelling (SEM) was employed to test the determinants of technology acceptance and actual usage among informal women entrepreneurs, as conceptualized under the UTAUT framework.

#### **iv) Findings:**

##### **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 shoes 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 of entrepreneurs (87.08%) have not registered under the e-Shram Portal, while 12.92 percent have registered under the e-Shram Portal, reflecting low formal integration.
- Majority of the women entrepreneurs in informal sector (97.09%) 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 businesses are in the survival stage (46.66%), 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 predominantly 88.75 percent 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 with 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**

### **Major Findings Based on Perceptual Dimensions of UTAUT Model**

#### **1. 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

#### **2. 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

#### **3. 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**

5. 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.

### **6. 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.

➤ **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.  $H_5$  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.  $H_6$  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.  $H_7$  is Rejected
- **Social Influence significantly influences Behavioural Intention** ( $\beta = 0.259$ ,  $P = 0.000$ ), highlighting the role of peer and community influence.  $H_8$  is Accepted
- **Facilitating Conditions did not significantly influence Behavioural Intention** ( $\beta = 0.088$ ,  $P = 0.131$ ), suggesting external support systems were less decisive.  $H_9$  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.  $H_{10}$  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.  $H_{11}$  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 external constraints 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.

➤ **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

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