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Digital Literacy and E-Commerce Adoption among Tribal Handicraft Artisans in Wayanad

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Abstract

This study examines the level of digital literacy and the adoption of e-commerce among tribal handicraft artisans in Wayanad, Kerala. The artisans, belonging to communities such as the Paniya, Kurichya, and Adiya, are traditionally engaged in crafts like bamboo weaving, pottery, and jewelry making. Despite the potential of digital platforms to improve market access, most artisans face challenges including limited digital skills, language barriers, low smartphone ownership, and inadequate infrastructure. Using a mixed methods approach across five tribal-inhabited panchayats, data were collected from 50 artisans through surveys, interviews, and case studies. The findings indicate that while awareness of digital tools is growing, actual engagement with e-commerce platforms remains minimal. Factors such as lack of training, fear of online transactions, and absence of localized support systems hinder adoption. The study suggests that targeted digital literacy programs, community-based support, and partnerships with relevant institutions are essential to enhance participation in digital markets. Strengthening digital inclusion may improve economic opportunities and contribute to the preservation of tribal crafts.

Keywords: Digital literacy, e-commerce, tribal artisans, handicrafts, Wayanad, rural development, digital inclusion, traditional skills

1. Introduction

1.1 Context and Importance of Digital Integration in Tribal Handicrafts

Traditional handicrafts form an essential part of the cultural and economic life of tribal communities in India. These crafts, which include bamboo weaving, clay pottery, wood carving, and beadwork, are often rooted in generations of indigenous knowledge and serve as primary or supplementary sources of livelihood. However, changes in consumer behavior, declining local demand, limited access to mainstream markets, and reduced tourism have adversely affected the sustainability of these practices. As a result, artisans in many rural and tribal regions face constraints in earning consistent income from their craft activities.

In the context of a rapidly evolving digital economy, the availability of online platforms presents opportunities for artisans to reach new consumer bases and reduce dependency on physical markets and intermediaries. E-commerce, social media marketing, and digital payment systems can support direct-to-consumer sales and enhance income potential. However, the adoption of these tools is contingent on the presence of basic digital literacy, infrastructure, and supportive ecosystems. For tribal artisans, these prerequisites are often lacking due to geographic isolation, limited exposure to technology, language-related challenges, and economic constraints.

1.2 Digital Literacy and E-Commerce in Rural India

Digital literacy encompasses the ability to use digital devices and platforms to access, understand, and communicate information. In the context of economic activities, it also involves the use of mobile applications, internet-based platforms, and digital payment systems. Despite national efforts such as the Digital India programme and BharatNet, disparities persist in digital access and literacy, particularly in rural and tribal areas. E-commerce platforms have expanded in urban India, but their reach in remote areas remains uneven, especially among small producers and artisans.

Existing studies have shown that while digital tools can improve visibility and earnings for rural entrepreneurs, access to training, affordable devices, localized support, and continued guidance are critical factors influencing adoption. Therefore, understanding local barriers and capacities is necessary before designing interventions for digital inclusion.

1.3 Focus on Wayanad, Kerala

Wayanad, located in the northeastern part of Kerala, is a district characterized by high tribal population density and ecological sensitivity. It is home to several Scheduled Tribe communities, including the Paniya, Kurichya, and Adiya. These communities engage in handicrafts as part of their cultural expression and livelihood practices. Despite the state's relatively high digital development indicators, the tribal regions of Wayanad continue to face infrastructure gaps, digital skill deficits, and limited engagement with digital markets.

This study focuses on the extent to which tribal artisans in Wayanad are prepared to engage with e-commerce platforms and the digital economy. It investigates their current level of digital literacy, explores their exposure to digital tools, identifies key barriers to adoption, and proposes strategies to support digital inclusion in a locally appropriate manner. The research draws from field data and case studies to offer insights that are relevant for policy formulation and community-level initiatives.

2. Scope of the Study

This study focuses on assessing the level of digital literacy and the extent of e-commerce adoption among tribal handicraft artisans in Wayanad District, Kerala. It includes artisans from key tribal communities such as the Paniya, Kurichya, and Adiya, residing in five selected panchayats: Thirunelli, Meppadi, Pozhuthana, Muttil, and Mananthavady. The research explores how artisans access and utilize digital tools, their familiarity with e-commerce platforms, and the challenges they encounter in adopting digital technologies for promoting and selling traditional crafts. It considers factors such as infrastructure, education, language, economic background, and trust in digital transactions. The study does not evaluate the technical design of e-commerce platforms but rather focuses on the artisans' readiness and capacity to engage with them. While geographically limited to Wayanad, the findings may offer insights relevant to similar tribal and rural contexts elsewhere in India.

3. Objectives of the Study

The primary aim of this study is to explore the digital readiness of tribal handicraft artisans in Wayanad for e-commerce participation. The specific objectives are as follows:

1. To assess the level of digital literacy among tribal artisans engaged in traditional handicrafts in Wayanad.
2. To evaluate the awareness, access, and usage of e-commerce platforms among these artisans.

3. To identify the key barriers—technological, socio-economic, linguistic, and cultural—that affect the adoption of digital tools.

4. To analyze the role of digital access in enhancing market reach and income generation for tribal artisans.

5. To propose context-specific strategies and policy suggestions to promote digital inclusion and e-commerce adoption among tribal communities.

4. Relevance of E-Commerce and Digital Skills in Kerala

Kerala has made notable progress in digital infrastructure, literacy, and mobile connectivity, positioning itself as one of the leading Indian states in digital readiness. Government initiatives such as Akshaya Centres, Kerala Fibre Optic Network (KFON), and the Digital Literacy Mission have contributed to increased access to basic digital services. Despite these developments, disparities remain in rural and tribal areas, particularly among economically and socially marginalized groups.

E-commerce presents an important opportunity for individuals engaged in small-scale production and artisanal work to access wider markets. For tribal artisans in Kerala, who often operate in informal and isolated settings, digital platforms can help bypass traditional intermediaries and connect directly with consumers. However, participation in such platforms requires more than just access to the internet; it demands familiarity with digital tools, the ability to communicate product information, handle digital transactions, and maintain regular online engagement.

In tribal regions like Wayanad, the gap between available infrastructure and actual usage remains significant. While some artisans may possess smartphones, many lack the training or confidence to use them effectively for commercial purposes. Therefore, digital literacy and the ability to navigate e-commerce systems are essential for enabling tribal communities to benefit from digital markets. Enhancing these skills is not only relevant for improving individual livelihoods but also for preserving traditional knowledge systems by integrating them into modern supply chains.

The relevance of digital empowerment among tribal artisans in Kerala lies in its potential to contribute to broader goals such as inclusive development, sustainable livelihoods, and cultural preservation. It also aligns with the state's focus on rural entrepreneurship, women's empowerment, and the promotion of local industries through digital means.

5. Digital Literacy as a Catalyst for Tribal Empowerment

Digital literacy refers to the ability to access, understand, and effectively use digital technologies for communication, information, and economic activities. For tribal communities, particularly those engaged in traditional handicrafts, digital literacy extends beyond basic device usage. It includes the capability to navigate mobile applications, use digital payment systems, communicate with customers through online platforms, and understand basic online safety practices.

In the context of tribal artisans, digital literacy can serve as a tool for social and economic empowerment. By gaining access to digital knowledge, artisans can improve their visibility in the marketplace, promote their products directly to consumers, and reduce dependency on middlemen. This shift has the potential to improve income stability and foster entrepreneurship within the community.

Moreover, digital literacy can facilitate participation in government schemes, training programs, and networking opportunities, thereby enhancing access to support systems. For women artisans, in particular, the ability to engage with digital tools can lead to greater autonomy, participation in self-help group initiatives, and access to financial services.

However, the path to digital empowerment is shaped by several factors, including educational background, language proficiency, affordability of devices, and access to reliable internet. In tribal areas, where literacy levels and exposure to formal education may be limited, digital training must be adapted to local languages and delivered through practical, community-based methods.

Overall, digital literacy plays a foundational role in enabling tribal artisans to participate meaningfully in the digital economy. When combined with training, infrastructural support, and culturally relevant approaches, it can contribute significantly to livelihood enhancement and inclusive development.

6. Challenges and Opportunities in Tribal E-Commerce

6.1 Challenges

Tribal artisans face several interrelated challenges that limit their ability to engage with e-commerce platforms and digital marketplaces. These challenges include:

- **Limited Digital Literacy**: Many artisans lack the technical knowledge to operate smartphones, access websites, use digital wallets, or upload product information to e-commerce platforms.
- **Language Barriers**: Most e-commerce platforms and training materials are available in English or Hindi, which may not be accessible to artisans who are only familiar with local languages or tribal dialects.
- **Infrastructure Deficiencies**: Inadequate internet connectivity, poor mobile network coverage, and unreliable electricity in remote areas hinder the consistent use of digital devices.
- **Economic Constraints**: The cost of smartphones, mobile data, and participation in online marketplaces can be prohibitive for economically vulnerable artisans.
- **Trust and Awareness Issues**: A lack of trust in online payments, fear of fraud, and limited understanding of digital transactions deter many artisans from using online systems.
- **Social and Cultural Factors**: In some communities, women's access to mobile phones may be restricted, and older artisans may be hesitant to adopt unfamiliar technologies.

6.2 Opportunities

Despite these constraints, several opportunities exist for enhancing tribal artisans' participation in e-commerce:

- **Government Initiatives**: Programs such as Digital India, Common Service Centres (CSCs), and Kudumbashree have introduced training and digital access points that can be extended to tribal areas.
- **NGO and SHG Support**: Non-governmental organizations and women's self-help groups have been instrumental in organizing digital literacy camps and helping artisans access markets through social media and online catalogs.
- **Social Media as a Bridge**: Platforms like WhatsApp and Facebook are more accessible to artisans than formal e-commerce sites and are already being used informally for promotion and sales.
- **Growing Market for Handicrafts**: There is an increasing demand for handmade, eco-friendly, and culturally rooted products, which positions tribal crafts well in niche markets.

- **Youth Engagement**: Younger members of tribal communities, who have greater exposure to mobile technology, can act as facilitators or digital intermediaries for older artisans.

- **Potential for Digital Hubs**: Community-level digital resource centers could provide shared access to internet services, training, and logistical support for e-commerce engagement.

7. Global and Local Perspectives

7.1 Global Perspective

Globally, the integration of traditional artisans into the digital economy has gained attention as part of broader efforts toward inclusive development. In various countries, digital literacy and access to online platforms have been recognized as key enablers of market expansion for rural and indigenous artisans. International development programs have supported mobile-based marketplaces, e-commerce training, and digital infrastructure in underrepresented regions to promote cultural preservation alongside economic inclusion.

Examples from countries such as Indonesia, Peru, and Kenya show that when rural artisans receive adequate digital training and support, they are able to participate effectively in global craft markets. However, success in these contexts is often contingent upon continuous mentoring, reliable infrastructure, and language-accessible platforms. These cases highlight that technological access alone is insufficient without broader social and institutional support.

Furthermore, global discourse emphasizes the ethical consumption of handmade and eco-friendly products. This growing consumer awareness presents opportunities for traditional artisans, including those from tribal communities, to access niche markets through storytelling, sustainable branding, and direct-to-consumer platforms.

7.2 Local Perspective

In India, various government and non-government initiatives have attempted to bridge the rural digital divide. Programs like Digital India, Skill India, and Deendayal Antyodaya Yojana include components aimed at improving digital skills among disadvantaged populations. However, the implementation of such programs in tribal regions often faces logistical, linguistic, and cultural barriers.

In Kerala, the state's relatively strong digital infrastructure provides a foundation for promoting digital inclusion among tribal artisans. Initiatives like Akshaya Centres, Kudumbashree units, and the Kerala State IT Mission have created entry points for digital access and training. Yet, the specific needs of tribal artisans in districts like Wayanad require targeted efforts that go beyond general digital literacy programs.

Local case studies reveal that some tribal artisans have begun using WhatsApp, Facebook, and community-driven marketing networks to promote their crafts. NGO-led initiatives and cooperative efforts have supported a few artisans in creating digital catalogs and participating in online exhibitions. However, full-scale adoption of e-commerce platforms remains limited due to barriers in digital navigation, content creation, online transaction handling, and logistical management.

Aligning global best practices with local realities can help inform policies and interventions tailored to tribal contexts. Leveraging existing strengths such as community networks, cooperative models, and local youth involvement may serve as effective strategies to enhance the digital participation of tribal artisans.

8. Government and Institutional Support

Government and institutional support is essential for enhancing digital inclusion among tribal artisans. National programs such as Digital India and PMGDISHA aim to promote digital literacy, but their reach in tribal regions remains limited due to infrastructural and socio-cultural barriers. In Kerala, initiatives like Akshaya Centres, KFON, and Kudumbashree have improved digital access and skills, yet targeted support for tribal communities is still needed.

Local governments, NGOs, and educational institutions can play a key role by offering training in local languages, setting up digital hubs, and facilitating access to online markets. Collaborations with e-commerce platforms and financial service providers can help address onboarding and payment challenges faced by artisans.

To be effective, institutional support must be context-specific, continuous, and embedded within community structures. A coordinated approach involving training, infrastructure, and mentorship is necessary to ensure that tribal artisans can fully participate in the digital economy.

9. Future Outlook

As digital technologies continue to influence economic and social systems, the participation of tribal artisans in digital marketplaces is expected to become increasingly relevant. The integration of traditional crafts with e-commerce has the potential to enhance income opportunities, promote cultural preservation, and contribute to rural development.

Future efforts should focus on expanding localized digital training, improving infrastructure in remote tribal areas, and creating simplified, language-accessible e-commerce platforms. There is also scope for developing youth-led digital initiatives within tribal communities to support older artisans in adopting technology.

Long-term success will depend on sustained collaboration between government bodies, NGOs, academic institutions, and private platforms. Future research can explore scalable models of digital inclusion, assess the impact of digital literacy interventions, and examine the role of cooperative structures in enabling broader market access for tribal artisans.

10. Literature Review

10.1 Digital Literacy and Inclusion

Digital literacy has been widely recognized as a prerequisite for meaningful participation in the digital economy. According to Warschauer (2003), digital inclusion involves not just access to technology but also the skills and support systems required to use it effectively. In the rural and tribal context, several studies (Mehta & Mitra, 2018; Kumar & Das, 2020) have pointed out that limited digital exposure, language barriers, and low confidence are key challenges that hinder engagement with digital tools. These barriers are compounded by infrastructural limitations and economic constraints, which are more pronounced in geographically isolated tribal regions.

10.2 E-Commerce and Rural Artisans

E-commerce offers opportunities for artisans to expand their market reach and reduce dependency on intermediaries. Studies by Chatterjee and Yadav (2019) and Jain (2021) highlight that online platforms can support rural entrepreneurship, provided artisans receive adequate training and logistical support. However, the readiness to participate in e-commerce is often low among artisans from marginalized backgrounds due to unfamiliarity with digital platforms and concerns related to payments, fraud, and product delivery.

10.3 Tribal Artisans and Technology Adoption

In the context of tribal artisans, literature remains limited but growing. Rani and Joseph (2021) observed that while tribal communities possess valuable traditional knowledge, their participation in modern economic systems, including digital markets, is minimal. Lack of targeted digital training, absence of localized content, and socio-cultural factors further limit adoption. However, case studies (Sharma, 2020; Thomas & Nair, 2022) show that when culturally sensitive interventions are introduced—such as using local language training and peer-to-peer learning—adoption of digital tools increases.

10.4 Gaps in Existing Literature

While existing literature addresses general digital literacy and e-commerce adoption, there is a gap in research focusing specifically on tribal artisans and their experiences with digital platforms. Most studies are concentrated on urban and semi-urban entrepreneurs, leaving tribal contexts underexplored. There is also limited empirical work combining both quantitative and qualitative methods to understand the lived realities of tribal artisans engaging with digital tools.

This study aims to address these gaps by offering a focused investigation into the digital readiness of tribal artisans in Wayanad, Kerala, using both survey data and case studies to generate context-specific insights.

11. Methodology

11.1 Research Design

This study adopts a mixed methods research design, combining both descriptive and exploratory approaches to understand the digital literacy levels and e-commerce adoption among tribal handicraft artisans in Wayanad. The design allows for a quantitative assessment of access and usage patterns, along with qualitative insights into individual experiences, challenges, and attitudes.

11.2 Study Area

The research was conducted in Wayanad District, Kerala, which is home to a significant tribal population. Five panchayats—Thirunelli, Meppadi, Pozhuthana, Muttil, and Mananthavady—were selected based on their high concentration of artisans from tribal communities engaged in traditional handicrafts such as bamboo weaving, pottery, wood carving, and beadwork.

11.3 Sampling Method

A purposive sampling technique was used to identify 50 tribal artisans from different communities, including Paniya, Kurichya, and Adiya. Selection criteria included active involvement in handicrafts, residence in one of the selected panchayats, and willingness to participate in the study.

11.4 Data Collection Methods

Data were collected using multiple tools to ensure depth and accuracy:

- **Structured Questionnaires**: Used to collect quantitative data on digital access, device ownership, internet usage, and awareness of e-commerce platforms.
- **Semi-Structured Interviews**: Conducted in local dialects to gather qualitative insights on challenges, perceptions, and informal digital practices.

- **Field Observations**: Documented artisans' working environments, available infrastructure, and their interaction with digital tools.

- **Case Studies**: Developed for selected artisans to illustrate varying degrees of digital engagement and the contextual factors influencing their practices.

13. Case Studies

This section presents selected case studies of tribal artisans from Wayanad District, offering qualitative insights into their digital exposure, challenges, and attitudes toward e-commerce adoption. The profiles represent different tribal communities, craft practices, and levels of digital readiness.

13.1 Ammini – Bamboo Basket Weaver (Paniya Tribe)

Age: 45
Craft: Bamboo basket weaving
Monthly Income: ₹2,800

Ammini is a skilled artisan from the Paniya tribe residing in Pozhuthana. She uses traditional weaving techniques passed down through generations. She owns a basic mobile phone and has no exposure to digital platforms. Her sales depend entirely on middlemen who purchase her products at low prices and resell them in local markets. Ammini is unaware of e-commerce platforms and lacks digital literacy. She expressed concern about the complexity of digital tools and has never attended a training program. This case reflects the digital exclusion of older artisans with no access to technology or structured support.

13.2 Narayanan – Tribal Wood Carver (Kurichya Tribe)

Age: 51
Craft: Wood carving
Monthly Income: ₹4,200

Narayanan, from Muttil, owns a second-hand smartphone and occasionally uses YouTube to explore new carving patterns. Although he is familiar with basic smartphone functions, he has not used his device for business purposes. He has reservations about digital transactions and online sales due to concerns about fraud and language difficulties. Despite his creativity and market potential, his reluctance to engage with digital tools limits his outreach. His case illustrates partial digital exposure but a lack of trust and confidence in e-commerce.

13.3 Latha – Tribal Jewelry Maker (Adiya Tribe)

Age: 33
Craft: Tribal jewelry
Monthly Income: ₹3,500

Latha lives in Meppadi and has completed education up to Class 10. She uses WhatsApp Business to share images of her jewelry with customers and accepts UPI payments. Her exposure to digital tools came through a Kudumbashree training program. While she has not yet listed products on e-commerce websites, she is interested in expanding her digital presence. She expressed a need for hands-on guidance to improve her online visibility. Latha's case highlights the potential of structured digital training to foster initial engagement with technology.

13.4 Rajeev – Potter (Paniya Tribe)

Age: 42
Craft: Clay pot making
Monthly Income: ₹2,500

Rajeev, based in Thirunelli, creates earthen pots using traditional techniques. He does not own a smartphone and has only attended a single government-organized awareness session on digital tools. He continues to rely on local weekly markets and intermediaries for sales. With no formal education, he finds it difficult to understand mobile applications. His case underscores the need for simplified and locally delivered digital training to support artisans with limited literacy.

13.5 Valsala – Beadwork Artisan (Kurichya Tribe)

Age: 38
Craft: Beadwork and ornaments
Monthly Income: ₹5,200

Valsala is relatively well-educated (Class 12) and actively promotes her products through WhatsApp and Facebook. With support from an NGO, she briefly listed her items on an artisan-focused online platform but required assistance with order management and shipping. She expressed anxiety about making errors online and feared transaction failures. Her case illustrates that while some artisans have access and interest, sustained mentorship is essential for independent digital participation.

These case studies demonstrate that tribal artisans in Wayanad exhibit diverse levels of digital exposure, influenced by age, education, gender, training access, and community support. While interest in digital participation exists, consistent guidance and localized training are essential to build capacity and confidence.

14. Data Analysis

The data analysis aims to interpret and summarize the findings obtained through structured questionnaires, interviews, and field observations conducted among 50 tribal artisans across five panchayats in Wayanad District. The analysis focuses on key variables such as digital device ownership, internet access, awareness of digital platforms, usage behavior, and barriers to e-commerce adoption. Both quantitative and qualitative data were evaluated to provide a comprehensive understanding of the artisans' current level of digital readiness and the socio-economic and infrastructural challenges they face. The following tables and summaries illustrate the major patterns observed during the study and provide a basis for drawing conclusions and policy recommendations.

Table 1: Ownership of Digital Devices

Type of Device Owned	Number of Respondents	Percentage
Smartphone	17	34%
Basic Mobile Phone (Non-smart)	24	48%
No Personal Device	9	18%
Total	**50**	**100%**

Interpretation: Only one-third of respondents own smartphones, indicating limited access to devices that support e-commerce activity.

Table 2: Internet Access and Connectivity

Internet Access Type	Number of Respondents	Percentage
Regular Mobile Data Access	14	28%
Occasional Access (Shared Device)	9	18%
No Internet Access	27	54%
Total	**50**	**100%**

Interpretation: Over half of the artisans lack personal internet access, limiting their ability to consistently engage with digital tools.

Table 3: Awareness and Use of Digital Platforms

Digital Engagement Type	Number of Respondents	Percentage
Heard of Digital Platforms	31	62%
Used WhatsApp for Product Sharing	6	12%
Used Facebook for Promotion	4	8%
Listed Products on E-Commerce Platform	3	6%
No Digital Engagement	37	74%

Interpretation: Informal digital engagement is more common than formal e-commerce usage. A large majority remain digitally inactive.

Table 4: Digital Literacy and Training Exposure

Digital Literacy/Training Indicator	Number of Respondents	Percentage
Attended Any Digital Training	10	20%
Comfortable Using Digital Payment Tools	7	14%
Need Ongoing Guidance for Digital Usage	38	76%

Digital Literacy/Training Indicator	Number of Respondents	Percentage
Use Applications Independently	5	10%

Interpretation: Although some artisans have undergone training, most require consistent support to build digital confidence.

15. Findings

Based on the primary data collected and analyzed, the following key findings have emerged:

- **Low Smartphone Penetration**: Only 34% of artisans owned smartphones, and most shared them within households, which limited regular access for business purposes.
- **Limited Internet Usage**: Just 28% of respondents reported regular internet access. Network issues and the cost of mobile data were common barriers in tribal areas.
- **Minimal Engagement with E-Commerce Platforms**: While 62% had heard of digital tools, only 6% had attempted to use formal e-commerce platforms, such as Tribes India or Amazon Karigar.
- **Informal Use of Social Media**: A small percentage of artisans used WhatsApp (12%) and Facebook (8%) informally to promote or share craft items. These platforms were viewed as more user-friendly than formal e-commerce portals.
- **Low Digital Literacy**: The majority of artisans lacked the skills and confidence to use digital tools. Many were unfamiliar with digital payment systems, application interfaces, and online transaction procedures.
- **Language and Interface Challenges**: Most artisans preferred Malayalam or tribal dialects, but e-commerce and training resources were primarily in English or Hindi, limiting accessibility.
- **Training Exposure is Inadequate**: Only 20% of the sample had received any digital literacy training, mostly through Kudumbashree or NGO-led programs. Follow-up support was generally lacking.
- **Fear and Mistrust of Online Systems**: A significant number of artisans expressed concern about digital fraud, fear of making mistakes, and confusion around transaction verification and refunds.
- **Gender and Cultural Barriers**: Women artisans faced more restrictions in mobile usage, and older artisans were generally more resistant to adopting new technologies.
- **Interest in Digital Engagement Exists**: Despite the challenges, younger artisans and those with basic education showed interest in using digital platforms if given proper guidance and training.

16. Suggestions

Based on the analysis and field observations, the following suggestions are proposed to enhance digital literacy and e-commerce adoption among tribal handicraft artisans in Wayanad:

1. **Localized Digital Literacy Programs**

Training modules should be developed in Malayalam and tribal dialects, focusing on practical usage of smartphones, social media, digital payments, and basic e-commerce navigation. Sessions should be conducted at the community level with hands-on support.

2. **Establishment of Community Digital Hubs**

Panchayat-based digital resource centers can offer shared access to internet, devices, and technical assistance. These hubs should be managed by trained local youth or volunteers from self-help groups.

3. **Partnerships with NGOs and Kudumbashree**

Existing grassroots organizations can serve as intermediaries to organize training, provide ongoing mentorship, and assist artisans in listing products on digital platforms.

4. **Multilingual, Simplified E-Commerce Interfaces**

E-commerce platforms should be encouraged to develop mobile-friendly versions with multilingual support, simplified onboarding processes, and visual instructions tailored to low-literacy users.

5. **Incentivizing Digital Participation**

Government schemes can offer subsidies or incentives for artisans who complete digital training and successfully participate in online marketplaces. Financial assistance for purchasing smartphones or data packages could also be considered.

6. **Logistics and Packaging Support**

Institutions should help develop shared logistics and packaging infrastructure at the local level, ensuring that artisans can fulfill online orders effectively.

7. **Youth-Led Digital Facilitation**

Digital-savvy tribal youth can be trained as local digital assistants to support older artisans in setting up profiles, uploading product details, and managing online transactions.

8. **Monitoring and Evaluation Mechanisms**

A system should be developed to periodically evaluate digital inclusion outcomes among tribal artisans to guide improvements in training and policy delivery.

17. Conclusion

This study examined the level of digital literacy and the extent of e-commerce adoption among tribal handicraft artisans in Wayanad, Kerala. Despite possessing valuable craft skills rooted in cultural heritage, most artisans remain disconnected from digital markets due to a combination of infrastructural, educational, and socio-cultural barriers. The findings reveal low smartphone ownership, limited internet access, and minimal engagement with formal e-commerce platforms. While a few artisans have begun using social media for informal promotion, the overall digital readiness of the community remains low.

However, the study also highlights emerging opportunities. Artisans who received basic training and support through programs like Kudumbashree or NGO initiatives showed greater interest in adopting digital tools. Younger and relatively more educated individuals demonstrated a willingness to learn and participate in online markets. These insights suggest that with targeted intervention—such as localized digital literacy training, simplified platform design, and institutional support—tribal artisans can gradually integrate into the digital economy.

Promoting digital inclusion in tribal areas is not merely a technological challenge but also a development priority. Ensuring that traditional artisans are not left behind in the digital transition is essential for preserving cultural identities, enhancing rural livelihoods, and promoting inclusive economic growth. The success of such efforts depends on sustained collaboration between government agencies, civil society organizations, and local communities.

18. Future Scope of the Study

This study provides a foundational understanding of the digital literacy levels and e-commerce adoption among tribal handicraft artisans in Wayanad. However, there remains considerable scope for further research. Future studies could adopt a comparative approach by examining digital inclusion among tribal artisans in other districts or states, allowing for regional benchmarking and policy alignment. In-depth longitudinal research can help assess the long-term impact of digital literacy interventions on artisan income, independence, and market expansion.

Moreover, there is potential to explore gender-specific barriers and opportunities in digital engagement, particularly among women artisans in tribal communities. Future research could also examine the effectiveness of cooperative digital marketing models, the role of youth as digital facilitators, and the integration of tribal products into sustainable and ethical e-commerce supply chains.

As digital platforms evolve, continuous research is necessary to ensure that interventions remain relevant, culturally appropriate, and inclusive of the most marginalized artisan groups.

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