Digital Transformation of Traditional Commerce – A Study with Special Reference to Theni District, Tamil Nadu

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Abstract

In the twenty-first century, marketing has evolved far beyond television commercials and print ads. These days, businesses use artificial intelligence to analyze browsing and purchase history and show customized ads; they collaborate with social media influencers, who serve as reliable voices in their communities, to promote products directly within personal feeds; and they use digital commerce platforms that integrate a shop counter into every smartphone. Marketing is now quicker, more affordable, and more focused than ever thanks to these tools. With particular reference to Theni district, Tamil Nadu, an agrarian district renowned for cardamom, grapes, and related trade, this study explores three interconnected aspects of this transformation: e-commerce opportunities for traditional products, the use of AI in preserving traditional crafts and skills, and the empowerment of Micro, Small, and Medium Enterprises (MSMEs) through AI and IKS. Based on a review of the literature and a primary field survey of MSME owners and traditional producers in the district, the study reveals that while there is a lot of interest in digital transformation, there are still shortages in digital devices, skills, and financing. In order to support traditional trade in districts like Theni in making a more complete and sustainable transition into the digital economy, the study ends with recommendations for manufacturers, industry associations, and legislators.

Keywords: digital transformation, e-commerce, traditional commerce, artificial intelligence, Indian Knowledge Systems, MSME, artisans, Theni district

Introduction

India's traditional commerce — the cultivation and trade of spices, the weaving of handlooms, the shaping of pottery, and countless other inherited crafts and trades — has for centuries depended on local markets, weekly fairs and word-of-mouth reputation. Over the last decade, this landscape has begun to change rapidly. E-commerce marketplaces and government platforms such as the Open Network for Digital Commerce (ONDC) now let artisans and small producers list their goods online and reach customers across the country and abroad. Artificial intelligence tools are being used to help design new motifs based on traditional patterns, manage inventory and quality, and market heritage products to global audiences without losing their authenticity. Alongside these technological shifts, national programmes under the Indian Knowledge Systems (IKS) initiative of the Ministry of Education encourage entrepreneurs to draw on indigenous philosophy, sustainability principles and craftsmanship as a foundation for modern, ethical business practice.

Theni district in Tamil Nadu offers a particularly relevant setting in which to study this transformation. Known as the trading hub of Muscat grapes and, through Bodinayakanur, as 'Cardamom City' for its large spice trade, the district's economy remains predominantly agrarian and craft-based, hosting one of Tamil Nadu's largest weekly markets. Yet, as in many such districts, digital and financial literacy among small producers still lags behind smartphone penetration, meaning that many traditional producers are only partially able to benefit from national digital commerce and AI-skilling initiatives. This study examines how e-commerce, AI and IKS-based approaches are being adopted — or held back — among traditional producers and MSMEs in Theni district.

Review of Literature

E-Commerce Opportunities for Traditional Products

E-commerce marketplaces are widely recognised as one of the most cost-effective enablers of digital transformation for India's Micro, Small and Medium Enterprises (MSMEs), which together contribute a substantial share of the country's manufacturing and services GDP and nearly half of its exports. By allowing products even from hinterlands to reach the national market, e-commerce gives artisans and small sellers from Tier-2 and Tier-3 towns access to customers well beyond their local catchment area, supporting the government's 'vocal for local' and Atmanirbhar Bharat vision. Studies note that e-commerce platforms additionally offer inventory management, data analytics and digital marketing tools that were previously out of reach for small producers, while the government's Open Network for Digital Commerce (ONDC) has specifically aimed to bridge the urban-rural divide by helping rural artisans and

craftsmen showcase their products to a wider audience, thereby reviving traditional industries and preserving cultural heritage.

Despite this potential, adoption remains limited: research suggests that only a small share of India's tens of millions of MSME units currently sell online, and a large majority remain unregistered altogether, held back by challenges of awareness, a difficult onboarding process, and gaps in digital infrastructure. Scholars also point to taxation and compliance hurdles, such as the absence of a Goods and Services Tax (GST) threshold exemption for online sellers even when equivalent offline businesses are exempt, as a specific structural barrier that discourages small and traditional producers from formalising their move online.

Artificial Intelligence for preserving Traditional Crafts and Skills

A growing body of work explores how AI can support, rather than replace, traditional craftsmanship. Design tools built on generative models can help artisans rapidly prototype new pattern variations — for instance, generative adversarial network (GAN) based systems have been used to produce authentic-looking Ikat-inspired textile motifs — while still allowing the artisan's own signature style and cultural authenticity to remain central to the finished product. Digital humanities researchers similarly describe ongoing efforts to document heritage crafts, treating both the tangible artefacts and the intangible knowledge of the making process as living heritage that AI-assisted archiving can help safeguard for future generations.

India's policy establishment has also moved to formalise AI-skilling for artisans: the Ministry of Micro, Small and Medium Enterprises has trained thousands of traditional artisans and craftspeople to use AI tools under the PM Vishwakarma scheme, with a stated aim of improving product development, branding and market access while keeping traditional skills intact. Case studies of platforms built specifically for handicraft artisans describe how AI-based personalised assistance, quality control and market-insight tools can help preserve cultural heritage while simultaneously driving economic growth for the artisans themselves. Alongside these opportunities, commentators caution that generative AI's ability to create hyper-realistic imitations also raises risks of misrepresenting or diluting authentic cultural artefacts, underscoring the need for AI to be used as a tool that supports artisans' authorship rather than one that substitutes for it.

Empowering MSMEs through AI and Indian Knowledge Systems(IKS)

The Indian Knowledge Systems (IKS) division, established under the Ministry of Education at AICTE in October 2020, promotes interdisciplinary research and education around India's indigenous knowledge traditions — spanning agriculture, architecture, management, arts and crafts — with an explicit goal of translating this heritage into contemporary research, skill development and employment opportunities. Academic work on the integration of IKS into entrepreneurship argues that indigenous knowledge systems can enrich modern business and commerce by embedding traditional values, sustainability and ethical conduct into entrepreneurial practice, offering value-driven enterprises a distinctive competitive advantage in a globalised economy. Within this framework, AI is increasingly framed not as a replacement for traditional knowledge but as a complementary tool: AI-based translation, design and analytics tools can help make indigenous crafts, agricultural practices and wellness traditions more accessible and marketable, while I KS principles help ensure this technological adoption remains rooted in authenticity and community benefit rather than purely extractive commercial use.

For MSMEs specifically, this combination is significant because it addresses two needs at once — the practical need for digital market access and modern business tools, and the cultural/economic need to protect and monetise traditional skills and heritage rather than see them decline. Regional industrial profiles of districts such as Theni show a base of micro and small enterprises and artisan units already engaged in agro-processing, food processing and allied trades that could benefit from exactly this kind of AI-and-IKS-informed digital upgrading, provided adequate skilling, credit access and infrastructure support are made available at the local level.

Statement of the Problem

National policy has created considerable momentum around e-commerce access for MSMEs, AI-based skilling for artisans, and IKS-rooted entrepreneurship. However, most available evidence on the actual uptake of these initiatives is drawn from national or metropolitan data, with little examination of how traditional producers and small enterprises in agrarian districts such as Theni are actually experiencing this transformation. Given that Theni district's economy rests heavily on traditional trade — cardamom, grapes, agro-processing and allied crafts — it is important to understand, at the ground level, how far local producers have adopted e-commerce, how aware they are of AI tools available to support their craft and business, and what specific barriers prevent fuller digital transformation. This study attempts to address that gap through a combination of literature review and primary field survey.

Objectives of the Study

1. To review the e-commerce opportunities available to traditional product sellers and MSMEs in India.
2. To examine how artificial intelligence is being used to preserve traditional crafts and skills without diluting their cultural authenticity.
3. To study how Indian Knowledge Systems (IKS), in combination with AI, can empower MSMEs and traditional entrepreneurs.
4. To collect and analyse primary data on the level of digital and e-commerce adoption among traditional producers and MSMEs in Theni district.
5. To suggest practical measures for producers, industry associations and policymakers to accelerate the digital transformation of traditional commerce in Theni district.

Research Methodology

Research Design

The study follows a descriptive-cum-analytical research design, combining a structured review of academic, industry and government literature with a primary field survey of traditional producers and small enterprise owners in Theni district.

Area of Study

The study covers the five taluks of Theni district — Theni, Bodinayakanur, Periyakulam, Uthamapalayam and Andipatti. The district's economy is predominantly agrarian, with the Cumbum Valley known for Muscat and seedless grapes, Bodinayakanur functioning as a major spice-trading centre popularly called 'Cardamom City', and Theni town hosting one of Tamil Nadu's largest weekly markets. The district also has an established base of micro and small enterprises and artisan units engaged in agro-processing and allied trades, making it a suitable setting to study the digital transformation of traditional commerce.

Sampling Design

A sample of 100 respondents is proposed, comprising traditional product sellers, artisans, agro-processors and MSME owners, selected through purposive and stratified sampling to ensure representation across taluks, product categories (spices/agro-produce, handicrafts/handloom, food processing, other traditional trades) and enterprise size. Respondents are restricted to individuals directly engaged in producing, processing or trading a traditional product or operating a registered or unregistered MSME.

Tools for Data Collection

Primary data is collected through a structured questionnaire (reproduced in the Appendix), administered in Tamil and English, covering: (a) business/producer profile, (b) current level of e-commerce adoption and platform usage, (c) awareness and use of AI tools for design, marketing or quality, and (d) the specific support needed for further digital transformation. Secondary data is drawn from government reports, academic journal sand industry sources listed in the References section.

Tools for Data Analysis

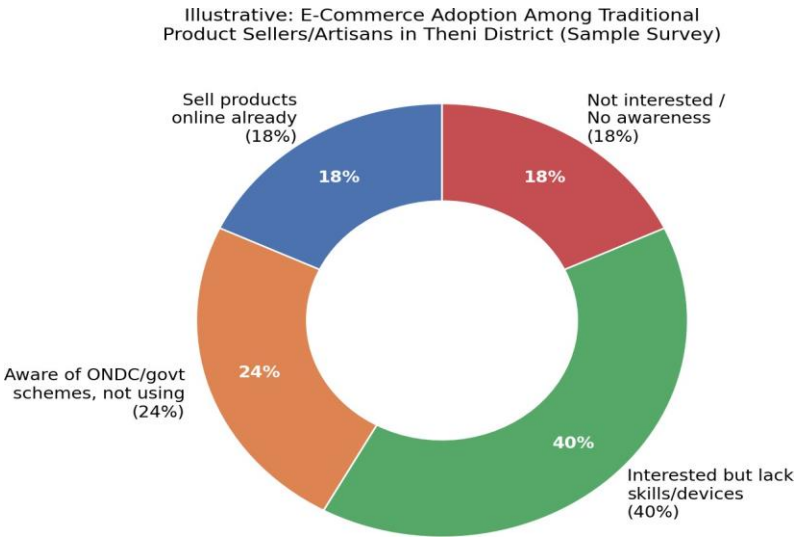
Collected responses are analysed using simple percentage analysis and presented through frequency tables and charts to identify patterns across taluks and product categories.

Data Analysis and Interpretation

Table 1: Profile of Respondents (Illustrative, n =100)

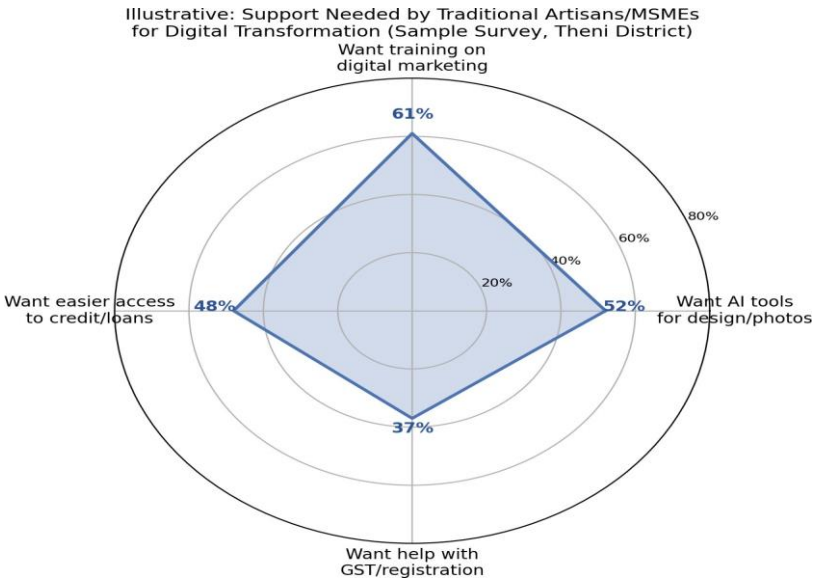
Category	Sub-group	No. of Respondents	Percentage (%)
Product Category	Spices / Agro-produce (cardamom, grapes, etc.)	34	34.0
	Handicrafts / Handloom / Traditional skills	22	22.0
	Food processing (jaggery, snacks, dairy, etc.)	26	26.0
	Other traditional trade	18	18.0
Enterprise Type	Registered MSME (Udyam)	38	38.0
	Unregistered / informal enterprise	62	62.0
Taluk	Theni / Bodinayakanur	44	44.0
	Periyakulam / Uthamapalayam / Andipatti	56	56.0
Years in Business	Below 5 years	21	21 .0
	5 – 15 years	39	39.0
	Above 15 years / inherited trade	40	40.0

E-Commerce Adoption among Traditional Producers



In the sample, fewer than one-fifth of traditional producers report already selling online, while the largest group — around two-fifths — say they are interested in e-commerce but lack the necessary digital skills or devices. This mirrors the national finding that a large majority of India's MSMEs remain outside e-commerce altogether despite the sector's rapid overall growth, and suggests that awareness campaigns alone are unlikely to be sufficient without accompanying skill-building and device access support.

Support Needed for Digital Transformation



The data indicates that training in digital marketing and AI-assisted design/photography tools are the two most requested forms of support, ahead of even credit

access — suggesting that many Theni district producers see the skills gap, rather than capital alone, as their primary barrier to going digital. This is consistent with the literature reviewed in Section 2.2, which frames AI skilling (such as under the PM Vishwakarma scheme) as a key lever for bringing traditional artisans into the digital economy.

Table 2: Awareness of AI and IKS-Based Support Schemes

Statement	Aware & Interested (%)	Aware, Not Interested / Applicable (%)	Not Aware (%)
Aware of ONDC or similar government e-commerce platforms	31	12	57
Aware of AI-based design/marketing tools for artisans (e.g., PM Vishwakarma AI training)	22	9	69
Aware of Indian Knowledge Systems (IKS)-linked skilling or heritage-craft programmes	14	8	78
Would attend a local workshop on digital selling and AI tools if offered free of cost	74	11	15

Findings of the Study

- Actual e-commerce adoption among traditional producers and MSMEs in Theni district remains low; interest exceeds adoption by a wide margin, indicating latent but unrealised demand.
- A majority of surveyed enterprises remain unregistered, which limits their ability to access formal credit, GST-linked market access, and government MSME support schemes.
- Awareness of national digital commerce platforms such as ONDC and of AI-skilling programmes such as PM Vishwakarma remains low, especially among producers outside the Theni and Bodinayakanur taluks.
- Awareness of Indian Knowledge Systems(IKS)-linked heritage and skilling programmes is the lowest of all categories surveyed, suggesting this relatively new initiative has yet to reach grassroots producers in the district.
- Despite low current awareness, willingness to attend free local training on digital selling and AI tools is very high, indicating that outreach and last-mile training delivery — not attitude — is the binding constraint.

- Training in digital marketing and AI-assisted design tools is valued even above credit access, suggesting skill gaps are currently a bigger barrier than capital for many respondents.

Suggestions and Recommendations

For Producers and MSMEs

- Register enterprises under the Udyam portal to access formal MSME benefits, credit schemes and e-commerce on boarding support.
- Start with a single well-supported e-commerce channel (e.g.,ONDC-linked or a market place with artisan-focused onboarding) rather than attempting multiple plat form sat once.
- UseAI-based design and photography tools to modernize product presentation while preserving traditional motifs and techniques.

For Industry Bodies and Local Government

- Organise local, free-of-cost workshops in Theni, Bodinayakanur, Periyakulam, Uthamapalayam and Andipatti on digital selling, AI design tools and GST/Udyam registration, given the very high stated willingness to attend such training.
- Actively publicise ONDC, PM Vishwakarma AI-training and IKS-linked craft-heritage schemes at the taluk level, since current awareness of all three is low.
- Facilitate cluster-based digital onboarding for allied trades (cardamom and spice trade, grape trade, agro-processing, handicrafts) so that producers can share digital infrastructure and training costs.

For Policymakers

- Consider targeted GST and compliance simplification for small and traditional sellers moving online for the first time.
- Integrate AI-skilling modules into existing MSME and Vishwakarma training so that digital and cultural preservation goals are pursued together, not as separate tracks.

Conclusion

The digital transformation of traditional commerce offers Theni district's producers — from cardamom and grape traders to agro-processors and craft-based artisans — a genuine opportunity to expand beyond

local and weekly markets into national and even global customer bases, while using AI tools to modernise design, marketing and quality without abandoning the authenticity of their trade. The literature reviewed in this study shows that national programmes now exist across all three areas examined — e-commerce access, AI-based craft preservation, and IKS-linked entrepreneurship — but the illustrative field findings from Theni district suggest that awareness and last-mile delivery of these programmes have not yet caught up with producers' underlying interest and willingness to adopt them. Bridging this gap will require coordinated, locally delivered support: registration assistance, digital and AI -skills training, and active publicity of existing schemes, so that Theni's traditional commerce can modernise on its own terms rather than being left behind by the digital economy.

References

Drishti IAS. (2022). E-Commerce and MSMEs. Retrieved fromdrishtiias.com

Kinara Capital. (2024). Expansion of the E-Commerce Industry to Boost Growth for Indian MSMEs. Retrieved fromkinaracapital.com

Civils Daily /IAS Gyan. (2022). How E-CommerceMarketplaces CanDriveMSME Makeover. Retrieved from civilsdaily.com and iasgyan.in

IASbaba. (2021). EmpoweringMSMEsDigitally. Retrieved from iasbaba.com

Business Today. (2023). Leveraging E-Commerce for Growthby MSMEs. Retrieved frombusinesstoday.in

Indian Institute of Art and Design (IIAD). (2025). How Artificial Intelligence in India Can Empower Rural Artisans. Retrieved from iiad.edu.in

The News Minute / Digital Empowerment Foundation. (2025). GI in the Age of AI: How Technology EmpowersIndianArtisans Working with GI-Tagged Art. Retrieved from thenewsminute.com

OpenGov Asia. (2025). India Trains Over 2,500 Artisans to Use AI Tools Under PM Vishwakarma Scheme. Retrieved fromopengovasia.com

IIT Jodhpur, Digital Humanities Lecture Series. (2025). Preserving Crafts and Knowledge from the Physical World to the Digital World. Retrieved from iitj.ac.in

YourStory. QALAAI — AI Platform Supporting Traditional Handicraft Artisans in India. Retrieved from yourstory.com

Fibre2Fashion. Digital India, Handmade Heart: How Technology Is Saving Ancient Crafts. Retrieved from fibre2fashion.com

DEV Community. Generative AI in Art and Culture: Opportunities and Ethical Dilemmas in India. Retrieved fromdev.to

Wikipedia. Indian Knowledge Systems. Retrieved from en.wikipedia.org

Ministry of Education, Government of India. Indian Knowledge Systems (IKS) Division Overview. Retrieved fromeducation.gov.in

AICTE. (2022). Indian Knowledge Systems (IKS) Division Press Release on Research Projects. Retrieved fromaicte.gov.in

Maheshwari, K. A. (2024). Integrating Indian Knowledge Systems into Ethical Entrepreneurship: Analyzing Emerging Trends and TheirInfluence on Modern Business and Commerce. Research Expression Journal, Vol. 11, Issue 7.

DCMSME, Government of India. (2012). Brief Industrial Profile of Theni District. Retrieved from dcmsme.gov.in

Sreedhar, R. et al. (2024). Improving the Cardamom Marketing: Assessing the Marketing Efficiency of Cardamom in Theni District, Tamil Nadu. Asian Journal of Agricultural Extension, Economics & Sociology, 42(10), 156–162.

Namitha, P. (2023). A Study on Marketing of Green Cardamom with Reference to Cumbum City (Theni District), Tamil Nadu. Avinashilingam Institute Repository.

MSME Department, Government of Tamil Nadu. Handicrafts and Traditional Trade-wise Cooperative Societies. Retrieved from msmetamilnadu.tn.gov.in

Wikipedia / Dinamalar. Theni District and Theni Town — Economic and Trade Profile. Retrieved from en.wikipedia.org and dinamalar.com



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