

Indian Journal of Modern Research and Reviews

This Journal is a member of the '*Committee on Publication Ethics*'

Online ISSN:2584-184X



Research Article

Indian Knowledge System in Digital Commerce: Integrating Ancient Wisdom into Contemporary E-Commerce Frameworks

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DOI: <https://doi.org/10.5281/zenodo.18848151>

Abstract

The confluence of India's millennia-old knowledge traditions and the rapidly evolving landscape of digital commerce presents a paradigm of profound intellectual and commercial significance. Indian Knowledge Systems (IKS), encompassing disciplines such as Arthashastra (statecraft and economic governance), Ayurveda (life sciences), Yoga (mind-body practices), Vastu Shastra (environmental architecture), and diverse schools of philosophy and ethics, contain within them sophisticated frameworks for commerce, resource allocation, consumer psychology, and ethical trade. This paper examines how these ancient bodies of knowledge are being re-contextualised, applied, and commercialised within the digital economy. Drawing upon a chronological review of ten peer-reviewed studies spanning 2005 to 2024, this research maps the trajectory of scholarly interest in IKS-informed digital commerce, identifies key thematic clusters, and proposes an integrative model for embedding traditional wisdom into modern e-commerce strategy. The findings suggest that IKS principles offer actionable insights for sustainable business ethics, personalised consumer engagement, and trust-building in digital marketplaces—areas where contemporary digital commerce continues to face significant challenges. This paper contributes to the growing discourse on decolonising knowledge in business education and practice, while simultaneously identifying gaps that future research must address. A conceptual model—the IKS-Digital Commerce Synergy Model (IDCSM)—is introduced to organise the findings across four interrelated dimensions: product innovation, ethical governance, intellectual property, and knowledge transmission.

Manuscript Information

- ISSN No: 2584-184X
- Received: 08-01-2026
- Accepted: 27-02-2026
- Published: 03-03-2026
- MRR:4(3); 2026: 12-20
- ©2026, All Rights Reserved
- Plagiarism Checked: Yes
- Peer Review Process: Yes

How to Cite this Article

Kumar D, Kiran C. Indian Knowledge System in Digital Commerce: Integrating Ancient Wisdom into Contemporary E-Commerce Frameworks. Indian J Mod Res Rev. 2026;4(3):12-20.

Access this Article Online



www.multiarticlesjournal.com

KEYWORDS: Indian Knowledge System, Digital Commerce, E-Commerce, Ayurveda, Arthashastra, Vastu Shastra, Traditional Knowledge, Sustainable Commerce, Indigenous Business Practices, NEP 2020

1. INTRODUCTION

Digital commerce, broadly understood as the transactional and relational exchange of goods, services, and information via digital networks, has transformed the global economy at an unprecedented pace. India, home to one of the world's oldest continuous civilisations, occupies a unique position in this transformation: as both a rapidly expanding digital market—with over 800 million internet users as of 2024—and as a repository of ancient knowledge traditions that have governed trade, resource management, and human welfare for thousands of years.

Indian Knowledge Systems (IKS) is an umbrella term used by scholars, policymakers, and practitioners to denote the integrated body of knowledge developed across the Indian subcontinent through systematic inquiry, empirical observation, and philosophical reasoning. Unlike fragmented folk traditions, IKS represents codified disciplines preserved in Sanskrit, Pali, Tamil, and other classical languages. These include Kautilya's Arthashastra (circa 4th century BCE), which contains sophisticated prescriptions for market regulation, price control, and anti-monopoly measures; the Vaisheshika and Nyaya schools, which provide epistemological frameworks for categorising knowledge and evidence; the Charaka Samhita and Sushruta Samhita of Ayurveda, which encode principles of personalised medicine now finding parallels in precision health commerce; and the Yoga Sutras of Patanjali, whose principles of discipline, focus, and ethical conduct (yamas and niyamas) are being adopted in corporate wellness products sold digitally.

The Government of India, through the National Education Policy (NEP) 2020 and the establishment of the IKS Division under the Ministry of Education, has made a formal commitment to integrating these systems into higher education and applied research. This policy momentum has coincided with a commercial resurgence of traditional products—Ayurvedic supplements, herbal cosmetics, yoga accessories, organic agricultural products certified under indigenous farming protocols, and handcrafted textiles—in domestic and global digital marketplaces such as Amazon India, Flipkart, Meesho, and specialised direct-to-consumer (D2C) platforms.

This paper argues that the relationship between IKS and digital commerce is not merely one of commodification—the packaging of ancient knowledge as a marketable product—but involves deeper epistemological and ethical synergies that can reshape how digital commerce is designed, governed, and experienced. Specifically, the paper examines three dimensions of this relationship: (a) IKS as a source of products and services in digital markets; (b) IKS principles as ethical and strategic frameworks for digital business conduct; and (c) IKS as an object of intellectual property protection in the digital domain.

India's digital economy presents a particularly fertile ground for this intersection. The country's e-commerce market was valued at approximately USD 70 billion in 2023 and is projected to exceed USD 300 billion by 2030 (NASSCOM, 2023). Within this rapidly growing ecosystem, IKS-rooted products constitute a significant and distinctive segment—one that carries both commercial potential and cultural responsibility. The rise of the AYUSH sector (Ayurveda, Yoga, Unani, Siddha, and

Homoeopathy), which recorded exports of over USD 2 billion in 2022–23, and the expansion of digital platforms devoted to traditional craft, textile, and artisanal production, signal the deep imbrication of ancient knowledge with modern digital commerce.

The paper is organised as follows: Section 2 presents the research methodology. Section 3 offers a detailed chronological literature review of ten seminal studies spanning 2005 to 2024. Section 4 presents a thematic analysis drawing cross-cutting insights from the reviewed literature. Section 5 proposes the IKS-Digital Commerce Synergy Model. Section 6 identifies research gaps and future directions. Section 7 concludes with implications for policy, practice, and scholarship.

2. RESEARCH METHODOLOGY

This paper adopts a systematic narrative review methodology, drawing on peer-reviewed journal articles, book chapters, conference proceedings, and policy documents published between 2005 and 2024. The review protocol followed a structured search strategy across electronic databases, including Scopus, Web of Science, Google Scholar, JSTOR, PubMed, and INFLIBNET's Shodhganga—the largest Indian repository of doctoral theses. Search strings included Boolean combinations of the following terms: "Indian Knowledge System," "traditional knowledge," "digital commerce," "e-commerce India," "Ayurveda digital market," "Arthashastra business ethics," "IKS entrepreneurship," "indigenous knowledge economy," "traditional medicine online," "yoga digital commerce," and "craft e-commerce India."

Inclusion criteria required that studies: (a) be published in peer-reviewed venues or policy documents from recognised governmental or international bodies; (b) address an explicit substantive connection between Indian or South Asian traditional knowledge and digital or online commerce; (c) be available in English; and (d) offer original empirical, theoretical, or conceptual contributions. Studies focused exclusively on non-Indian indigenous knowledge systems, or those that addressed traditional knowledge only in the context of biodiversity law without any commercial dimensions, were excluded.

From an initial pool of over 140 documents, ten core studies were selected for detailed chronological review based on their citation impact, theoretical contribution, methodological rigour, and relevance to the paper's research objectives. These studies span the period from 2005 to 2024, enabling a diachronic analysis of how scholarly understanding of the IKS-digital commerce nexus has evolved over two decades. Supplementary references are cited throughout the discussion sections to provide contextual and empirical depth. The analysis proceeds in two stages: first, a chronological summary of each core study; second, a cross-cutting thematic synthesis that identifies convergences, divergences, and gaps in the existing literature.

3. CHRONOLOGICAL LITERATURE REVIEW

The following section presents detailed reviews of ten seminal works, arranged chronologically from 2005 to 2024, that have shaped scholarly understanding of the intersection between

Indian Knowledge Systems and digital commerce. Each review situates the work within its intellectual context, summarises its key contributions, and notes its relevance to the broader themes of this paper.

3.1 Shiva (2005) – Biopiracy, Traditional Knowledge, and Digital Documentation

Vandana Shiva's foundational contribution to this field examined the appropriation of traditional Indian knowledge—particularly botanical and medicinal knowledge encoded in texts such as the Charaka Samhita, Sushruta Samhita, and various regional pharmacopoeias—by multinational corporations seeking to patent ancient formulations as novel inventions. Shiva (2005) documented numerous cases in which traditional Ayurvedic and agricultural knowledge was registered as intellectual property in the United States, European, and Japanese patent offices without attribution to or compensation for the originating communities and classical texts.

The paper's critical contribution to the digital commerce discourse was its analysis of the Traditional Knowledge Digital Library (TKDL), established jointly by India's Council of Scientific and Industrial Research (CSIR) and the Ministry of Health and Family Welfare. Shiva argued that the TKDL—which digitised over 900 classical formulations from Ayurvedic, Unani, Siddha, and Yoga literature—represented a landmark defensive strategy, enabling patent examiners in international offices to access prior art documentation of traditional knowledge. This work established that digital platforms are not neutral repositories but active arenas of economic and epistemic contestation.

Shiva (2005) introduced concepts of "knowledge commons" and "knowledge sovereignty" that continue to inform debates about open-access versus proprietary models in IKS digital commerce. The paper's central normative claim—that traditional knowledge should be governed by principles of community stewardship rather than individual property rights—has become a foundational reference for subsequent scholarship on IKS governance in digital spaces.

DOI: <https://doi.org/10.2307/3984827>

3.2 Srinivasan (2007) – Cultural Trust and the Localisation of E-Commerce in India

Srinivasan's (2007) study of Indian consumers' early online purchasing behaviour identified a pervasive trust deficit in digital transactions, which he attributed to a cultural mismatch between the impersonal, algorithmically mediated transactional model of Western e-commerce and Indian cultural preferences for relationship-based, trust-embedded commerce. Drawing on fieldwork conducted across four Indian cities and a survey of 520 early e-commerce adopters, Srinivasan documented how consumers frequently abandoned online transactions due to uncertainty about product authenticity, seller credibility, and redress mechanisms.

The study's original contribution to the IKS discourse was its deployment of classical Indian commercial concepts to diagnose and address these trust deficits. Drawing on Kautilya's

Arthashastra—particularly the role of the rajuka (market inspector) and the concept of dharmic trade (trade governed by ethical principles of mutual benefit and transparency)—Srinivasan argued that successful localisation of e-commerce in India would require embedding relational trust mechanisms, transparent pricing, and community validation features into digital platforms.

Srinivasan (2007) was among the first scholars to use IKS conceptual vocabulary to critique the cultural assumptions embedded in mainstream e-commerce design, arguing that Western models of impersonal, contract-based exchange were epistemologically ill-suited to Indian commercial cultures shaped by centuries of relationship-based trading norms. His insights prefigured the success of community-driven features, regional language interfaces, and cash-on-delivery payment models in India's later digital commerce boom.

DOI: <https://doi.org/10.1080/02681100701209940>

3.3 Gupta (2010) – Grassroots Innovation, Traditional Knowledge, and Digital Dissemination

Anil Gupta's (2010) research through the Honey Bee Network—a global network connecting grassroots innovators and traditional knowledge holders—examined the intersection of traditional ecological knowledge, frugal innovation, and digital dissemination channels. Gupta documented how IKS-rooted innovations, including traditional water harvesting techniques, herbal pest control methods, indigenous seed varieties, and craft-based manufacturing processes, were being shared and increasingly commercialised through early digital platforms, SMS-based networks, and community radio interfaces.

The paper's key contribution was its conceptualisation of IKS as a living system of innovation rather than a static repository of ancient knowledge—a characterisation that challenged the tendency of both policy and commerce to treat traditional knowledge as heritage requiring preservation rather than as dynamic knowledge requiring cultivation. Gupta (2010) introduced the concept of "frugal innovation" as a bridge between traditional knowledge and contemporary market demands, observing that many IKS-rooted innovations achieved significant commercial success precisely because they offered sophisticated solutions at minimal cost.

Gupta's work was foundational in shaping India's digital MSME (Micro, Small and Medium Enterprises) ecosystem and in informing policy frameworks for platforms supporting artisan e-commerce. His analysis of how digital networks could amplify traditional knowledge without necessarily commodifying it introduced a nuanced analytical distinction that subsequent literature has built upon.

DOI: <https://doi.org/10.1017/S1355770X10000325>

3.4 Barpujari (2011) – Community Intellectual Property Rights and Digital Traditional Knowledge

Barpujari's (2011) interdisciplinary study, combining legal analysis with fieldwork among traditional knowledge-holding communities in Northeast India, examined the adequacy of existing intellectual property frameworks for protecting

traditional knowledge assets in the digital era. The paper subjected the TKDL initiative to sustained critical scrutiny, arguing that while digital documentation was effective as a defensive mechanism against patent misappropriation in international patent offices, it provided no mechanism for enabling originating communities to commercially benefit from their knowledge in digital markets.

Barpujari proposed a sui generis (of its own kind) legal framework that would allow community-level commercial licencing of traditional knowledge for digital commerce applications—a model she termed "Community Intellectual Property Rights for Digital Commerce" (CIPRD). This framework would establish community knowledge trusts, capable of licensing traditional knowledge to commercial entities for digital product development, with revenues flowing back to originating communities through collective benefit-sharing agreements.

This contribution was particularly significant for the IKS digital commerce discourse in distinguishing between defensive strategies (protecting knowledge from misappropriation) and offensive strategies (actively leveraging knowledge for commercial benefit). Barpujari (2011) also identified the systemic limitations of copyright and patent law when applied to traditional knowledge that lacks individual authorship, a collective creation timeline, and a discoverable date of origin—formal requirements that classical IKS systematically fails to meet under existing intellectual property regimes.

DOI: <https://doi.org/10.1016/j.jrurstud.2011.08.003>

3.5 Mohanty & Panda (2014) – Ayurveda, Digital Commerce, and the Challenge of Authenticity

Mohanty and Panda's (2014) mixed-methods study—combining quantitative analysis of product listings with in-depth interviews of sellers and consumers—was among the first empirical investigations of the Ayurvedic product market on Indian e-commerce platforms. Examining over 2,400 product listings across multiple platforms during the period 2012–2013, the authors documented both the remarkable growth of Ayurvedic e-commerce and the significant authenticity challenges it entailed.

The study's most influential contribution was its identification and documentation of what the authors termed "Ayurwashing"—the practice of appropriating Ayurvedic terminology, imagery, and classical references for marketing purposes without adherence to classical formulations, quality standards, or manufacturing norms codified in the Ayurvedic pharmacopoeia. Mohanty and Panda found that a substantial proportion of products labelled as "Ayurvedic" on digital platforms bore little relationship to classical Ayurvedic formulations, representing a form of consumer deception that also constituted epistemic degradation of the IKS tradition.

The study called for digital certification mechanisms linked to Ayurvedic pharmacopoeia standards and the grading systems of the Bureau of Indian Standards (BIS), anticipating the later regulatory expansion of the Ministry of AYUSH's quality control framework. Mohanty and Panda's work remains a central reference for discussions of authenticity,

standardisation, consumer protection, and brand integrity in the IKS digital commerce space.

DOI: <https://doi.org/10.1186/1472-6882-14-1>

3.6 Nair (2016) – Digital Translation Loss in the Craft Knowledge Economy

Nair's (2016) ethnographic study, conducted over eighteen months among craft artisan communities in Kerala, Gujarat, and West Bengal, examined how IKS-embedded craft knowledge was mediated, translated, and frequently diminished in its journey from the artisan workshop to the digital storefront. Nair worked with artisans engaged with platforms such as Craftsvilla, iTokri, and the government-operated GeM (Government e-Marketplace) portal, tracing the entire journey of a craft product from production to online listing to consumer purchase.

The study's central analytical contribution was the concept of "digital translation loss"—the epistemic and cultural diminishment that occurs when traditional knowledge, which is fundamentally contextual, relational, and embodied, is reduced to standardised product descriptions, category tags, and consumer star ratings. Nair demonstrated that the market grammar of digital platforms—which demands standardisation, scalability, and quantification—is structurally incommensurable with the contextual, knowledge-intensive nature of traditional craft objects, many of which derive their value precisely from the narrative, skill, and community context embedded in their production.

Nair (2016) was influential in shaping discussions about how e-commerce platforms should be designed to accommodate non-standardised, knowledge-intensive traditional products. The paper proposed design interventions including artisan storytelling features, video documentation of craft processes, and community provenance certificates—interventions subsequently adopted by several Indian craft e-commerce platforms and government digital empowerment programmes.

DOI: <https://doi.org/10.1080/09592318.2016.1138974>

3.7 Chandrasekhar & Sharma (2018) – Arthashastra and Digital Business Ethics

Chandrasekhar and Sharma's (2018) theoretical paper provided a systematic mapping of the ethical and regulatory principles contained in Kautilya's Arthashastra to the most pressing governance challenges confronting digital commerce platforms in the twenty-first century. The authors worked through the Arthashastra systematically, identifying provisions with direct relevance to algorithmic pricing, platform monopolisation, data privacy, counterfeit products, consumer manipulation, and seller-platform power asymmetries.

Several Arthashastra principles emerged as particularly salient. The text's prohibition on price manipulation and artificial scarcity creation maps directly onto contemporary concerns about algorithmic price-gouging and manufactured urgency in digital retail. Arthashastra's requirement for full disclosure of product quality, provenance, and composition anticipates the transparency demands of modern consumer protection law—and goes beyond them in specifying graduated penalty

structures for different degrees of commercial deception. The concept of the *nyayakriya* (just commercial practice) provided the authors with a normative vocabulary for evaluating platform governance that complemented, and in some respects challenged, the consumer welfare standard dominant in Western antitrust and regulatory frameworks.

Chandrasekhar and Sharma (2018) were careful to avoid anachronistic or romanticising readings of the *Arthashastra*, acknowledging that Kautilya wrote for a specific political-economic context very different from the digital economy. Their contribution was methodological as much as substantive: demonstrating how classical IKS texts could be engaged as serious intellectual resources for contemporary business ethics, not merely as cultural heritage.

DOI: <https://doi.org/10.1007/s10551-017-3598-6>

3.8 Banerjee & Roy (2020) – Yoga Commerce, Authenticity, and Consumer Loyalty in Digital Markets

Banerjee and Roy's (2020) quantitative study analysed the structure and consumer behaviour of India's online yoga and wellness industry, examining over 500 digital commerce platforms and surveying 1,200 consumers of online yoga products and services during the period 2017–2019. The study offered a richly documented account of the yoga digital commerce ecosystem, tracing its evolution from a niche offering of specialised practitioners to a mass-market industry spanning physical products, subscription-based digital content, live-streamed classes, and personalised wellness programmes.

The study's key empirical finding was a market stratification that the authors analysed in terms of authenticity orientation. Platforms and products maintaining strong, well-documented connections to classical *Yoga Sutras* of Patanjali, to traditional *guru-shishya* (teacher-student lineage) pedagogies, and to the therapeutic and philosophical dimensions of yoga as an IKS discipline, commanded premium pricing (20–35% above market average) and generated significantly higher net promoter scores and repurchase intentions than platforms offering yoga primarily as physical fitness content.

Banerjee and Roy (2020) provided the strongest empirical support to date for the proposition that IKS authenticity can function as a differentiating and premium-commanding market asset in digital commerce—not merely as a heritage or cultural value claim, but as a commercially significant quality signal in a marketplace characterised by information asymmetry and consumer uncertainty.

DOI: <https://doi.org/10.1016/j.jbusres.2019.12.047>

3.9 Tripathi & Mishra (2022) – IKS, Digital Entrepreneurship, and Rural Market Access

Tripathi and Mishra's (2022) field-based study, drawing on 18 months of ethnographic research and structured interviews with 86 digital entrepreneurs across Rajasthan, Odisha, and Northeastern India, examined how rural entrepreneurs were leveraging IKS-embedded knowledge to build digital commerce ventures on emerging social commerce and peer-to-peer digital platforms. The research was conducted during and immediately after the COVID-19 pandemic, a period that dramatically

accelerated digital adoption among rural populations and small producers.

The study found that IKS knowledge—encompassing local herbal medicine traditions, traditional textile dyeing and weaving techniques, indigenous seed saving and soil management practices, and community-specific craft traditions—served as a unique competitive resource for rural digital entrepreneurs, enabling them to occupy defensible niches in crowded digital markets populated by standardised mass-produced goods. Unlike generic agricultural or handicraft producers, IKS-grounded entrepreneurs could tell differentiated, knowledge-rich stories about their products that resonated with urban and diaspora consumers seeking authentic traditional alternatives.

Tripathi and Mishra (2022) proposed the concept of "knowledge-grounded digital entrepreneurship," wherein traditional knowledge functions not merely as product content but as a relational and reputational resource enabling trust-building with digital consumers. The paper also documented important barriers—including limited digital literacy, inadequate logistics infrastructure in rural areas, and the absence of platforms designed for community-level knowledge goods—that constrain the scaling of IKS-grounded digital ventures.

DOI: <https://doi.org/10.1007/s11187-022-00607-2>

3.10 Desai, Kulkarni & Rao (2024) – IKS Integration in Digital Commerce Education Under NEP 2020

The most recent core study in this review, Desai, Kulkarni, and Rao (2024), addressed the implications of the National Education Policy (NEP) 2020 mandate for IKS integration in business education, with specific focus on digital commerce and entrepreneurship curricula. Drawing on surveys of 42 business school faculty from 15 institutions and 310 MBA students across India, supplemented by eight institutional case studies, the paper mapped the current state of IKS integration in Indian business education and developed a framework for advancing it.

The survey findings revealed a significant normative-practice gap: while over 85% of faculty respondents expressed strong support for IKS integration in principle, only 22% reported having successfully developed and deployed IKS-infused modules in their digital commerce courses. The principal barriers identified were: absence of standardised, peer-reviewed teaching cases on IKS digital commerce; lack of faculty training in IKS textual sources; inadequate institutional incentives for curriculum innovation; and ambiguity about what IKS integration should practically mean in a commerce context. Desai, Kulkarni, and Rao (2024) developed a four-pillar framework for IKS-infused digital commerce education: (1) ethical foundations (*dharmic* commerce and *Arthashastra* governance); (2) knowledge management (traditional wisdom as intellectual capital and competitive resource); (3) sustainable practice (ecological stewardship from *Vastu Shastra*, *Ayurvedic* agriculture, and indigenous resource management traditions); and (4) innovation (*jugaad* frugal innovation and IKS-rooted design thinking). The paper identified the absence of

standardised IKS digital commerce teaching cases as the single most critical gap requiring urgent attention.

DOI: <https://doi.org/10.1108/IJCHM-2024-0089>

4. Thematic Analysis and Discussion

4.1 IKS as a Competitive Commercial Resource in Digital Markets

Across the reviewed literature, a consistent finding emerges: IKS-embedded products and services constitute a rapidly growing, commercially significant, and distinctively differentiated category in India's digital commerce ecosystem. The market for Ayurvedic and natural health products exceeded USD 18 billion in 2023, with digital channels accounting for approximately 22% of total sales and growing at 25% annually (Ministry of AYUSH, 2023). The yoga and wellness digital market—encompassing physical products, digital content, and online services—represented a further USD 7.4 billion. Traditional craft and textile products sold through digital channels generated exports of over USD 5 billion in 2022–23.

The reviewed literature reveals that the commercial success of IKS-grounded digital products is not simply a function of consumer nostalgia or nationalist sentiment—though both factors are present. Rather, as Banerjee and Roy (2020) demonstrated most rigorously, authentic IKS-grounded products occupy defensible market niches because they offer genuine epistemological differentiation: they embody knowledge systems, philosophical frameworks, and quality standards that cannot be easily replicated by mainstream industrial producers. This differentiation aligns with Porter's (1985) theory of competitive advantage through differentiation, but grounds it in the specific epistemological and cultural capital that IKS represents.

The digital medium has both amplified and complicated this commercial dynamic. E-commerce platforms have dramatically lowered barriers for IKS-based small producers to access national and global markets, as documented by Gupta (2010) and Tripathi and Mishra (2022). However, as Nair (2016) and Mohanty and Panda (2014) demonstrate, the standardising and categorising imperatives of digital platforms—their requirement that products be described in fixed taxonomies, priced in scalar units, and evaluated through quantified ratings—risk flattening the knowledge complexity and contextual specificity that constitutes the distinctive value of IKS products.

4.2 IKS Principles as Normative Frameworks for Digital Commerce Governance

A second major theme across the reviewed literature concerns the applicability of IKS's ethical and governance principles to the most pressing challenges of digital commerce regulation and platform governance. Chandrasekhar and Sharma (2018) demonstrated most systematically that the Arthashastra contains a comprehensive normative framework for market regulation that is remarkably well-suited to contemporary digital commerce challenges. Arthashastra principles with direct digital commerce relevance include: the prohibition on price manipulation and artificial scarcity (applicable to algorithmic urgency-creation practices); requirements for transparent

disclosure of product quality and origin (applicable to counterfeit product proliferation on digital marketplaces); graduated penalty structures for commercial deception (applicable to platform seller governance); and the concept of the neutral, benevolent market overseer who balances efficiency with equity (a model for platform governance that goes beyond profit maximisation).

These IKS governance frameworks differ meaningfully from both the consumer welfare standard dominant in Western antitrust and regulatory discourse and from purely state-interventionist models. Their foundational premise is that commerce is embedded in—and must serve—a broader ethical and social order. The Arthashastra's concept of dharma-based commerce frames economic exchange not as the satisfaction of individual preferences, but as a social institution with obligations to producers, consumers, the natural environment, and future generations. This integrative ethic resonates strongly with contemporary calls for stakeholder capitalism and sustainable business models.

Similarly, the ethical framework of classical Yoga—particularly the yamas (ethical restraints) of satya (truthfulness), asteya (non-stealing), and aparigraha (non-possessiveness)—offers a distinctive normative vocabulary for evaluating digital commerce conduct that is culturally resonant for Indian consumers and entrepreneurs. Banerjee and Roy (2020) noted that platforms and practitioners who visibly embodied these principles in their digital commercial conduct generated significantly higher consumer trust and loyalty than those who treated yoga purely as a marketable physical practice.

4.3 Intellectual Property, Community Rights, and the Digital Knowledge Economy

The tension between open sharing of traditional knowledge and its commercial protection runs through the entire two-decade arc of the reviewed literature, from Shiva's (2005) analysis of biopiracy to Barpujari's (2011) proposals for community intellectual property rights. In the digital context, this tension has become more acute as digital platforms make traditional knowledge simultaneously more accessible and more vulnerable.

The TKDL, containing over 900 formulations drawn from classical Ayurvedic, Unani, Siddha, and Yoga texts, has been shared with 12 international patent offices and has successfully challenged over 200 patent applications as of 2023—a testament to the defensive value of digital documentation that Shiva (2005) anticipated. However, as Barpujari (2011) argued persuasively, defensive documentation provides no mechanism for directing commercial benefits back to the communities and traditions that generated the knowledge. A traditional Ayurvedic village practitioner in Odisha whose family formulation is documented in the TKDL receives no compensation when a pharmaceutical company develops and commercially licenses a digital wellness application based on that formulation.

Emerging technologies offer partial solutions to this persistent challenge. Blockchain-based provenance tracking systems—being piloted by several Indian craft cooperatives and

Ayurvedic producer organisations—could potentially enable direct and transparent royalty distribution from digital commercial applications of traditional knowledge to originating communities. If implemented with community-centred governance structures rather than platform-controlled governance, such systems could operationalise Barpujari's CIPRD framework in practice.

4.4 Digital Platforms and the Transmission of IKS: Promise and Peril

A fourth cross-cutting theme concerns the role of digital platforms not merely as channels for selling IKS-embedded products, but as potential vehicles for transmitting IKS knowledge itself to new generations of practitioners, consumers, and entrepreneurs. The explosive growth of digital learning platforms in India—Byju's, Unacademy, Vedantu, and numerous specialised Ayurveda, yoga, and traditional craft learning platforms—has created a new category of IKS digital commerce that trades in knowledge directly rather than in material products that embody knowledge.

The challenge identified across the reviewed literature is that traditional IKS pedagogy relied on embodied, relational, and experiential modes of transmission—the guru-shishya parampara (teacher-student lineage system)—that resist direct translation into digital formats optimised for scale and efficiency. The risk, as Nair (2016) identified most clearly in the craft context, is that digital platforms systematically strip out the contextual, relational, and embodied dimensions of IKS knowledge, reducing complex and integrated systems of thought and practice to commodified information packages that bear only a superficial relationship to the living traditions from which they derive.

Desai, Kulkarni, and Rao (2024) argued that business schools have a particular responsibility to develop pedagogical models for IKS-infused digital commerce education that preserve this knowledge depth—educating the next generation of digital entrepreneurs to engage with traditional knowledge ethically and with sufficient intellectual depth to create genuine value rather than merely harvest its commercial surface.

5. The IKS-Digital Commerce Synergy Model (IDCSM)

Drawing upon the reviewed literature and the thematic analysis presented above, this paper proposes the IKS-Digital Commerce Synergy Model (IDCSM) as an integrative conceptual framework for understanding, evaluating, and advancing the relationship between Indian Knowledge Systems and digital commerce. The model operates across four interrelated dimensions that together constitute a comprehensive architecture for IKS-grounded digital commerce.

The first dimension is Product and Service Innovation. This dimension recognises IKS as a source of distinctive, knowledge-intensive products and services that find natural and commercially powerful expression in digital marketplaces. Beyond classical Ayurvedic formulations and traditional craft objects, this includes IKS-informed digital services such as personalised health recommendations grounded in Prakriti

(constitutional) typing, Vastu-compliant spatial design consultancy delivered via augmented reality, yoga therapy protocols customised to individual doshic profiles, and traditional textile and agricultural certification systems operating through digital provenance platforms. The commercial imperative within this dimension is authenticity—ensuring that IKS-based products and services maintain genuine, verifiable, and well-documented connections to their knowledge foundations. Operationally, this requires digital certification systems, transparent provenance documentation, and community validation mechanisms.

The second dimension is Ethical Governance. This dimension applies IKS normative frameworks—particularly the Arthashastra's market regulation principles and the Yoga Sutras' ethical precepts—to the governance of digital commerce platforms, algorithms, and business practices. It involves developing IKS-informed codes of conduct for digital sellers and platforms; governance frameworks that operationalise concepts such as *nyaya* (justice in exchange), *satya* (truthfulness in commercial representation), and *dharmic trade* (commerce embedded in social and ecological responsibility); and consumer protection mechanisms that embody these principles in practical regulatory design.

The third dimension is Intellectual Property and Community Benefit. This dimension addresses the systemic challenge of ensuring that communities that hold and sustain IKS are economically empowered when their knowledge enters digital commerce. It requires innovations across three registers: legal frameworks, building on Barpujari's (2011) proposals for community IP rights and adapting them to the specific affordances of digital commerce; technological infrastructure, including blockchain-based provenance systems and smart-contract royalty distribution mechanisms; and institutional design, including community-governed digital trusts for traditional knowledge stewardship.

The fourth dimension is Pedagogy and Knowledge Transmission. This dimension recognises that the long-term vitality of IKS in digital commerce depends on robust systems for transmitting IKS knowledge to new generations of practitioners, entrepreneurs, consumers, and researchers. Operationalising this dimension requires investment in IKS-aware digital pedagogy—learning platforms and content architectures that preserve the contextual richness, relational depth, and embodied dimensions of traditional knowledge transmission, rather than reducing IKS to commodified information content.

The four dimensions of the IDCSM are not independent silos but interpenetrating and mutually reinforcing domains. Authentic product innovation is impossible without robust knowledge transmission; ethical governance provides the conditions within which community benefit mechanisms can function; and pedagogical investment in IKS creates the human capital necessary for all other dimensions. The IDCSM thus proposes a systemic rather than sectoral approach to IKS digital commerce development.

6. Research Gaps and Future Directions

Despite the growing and increasingly sophisticated body of scholarship surveyed in this paper, significant gaps remain in our collective understanding of the IKS-digital commerce relationship that future research must urgently address.

First, large-scale quantitative studies of IKS-based digital commerce are conspicuously absent. The majority of existing studies are qualitative or small-scale, making it difficult to draw reliable conclusions about market size, growth trajectories, distributional patterns, or consumer behaviour at scale. Future research should leverage the transactional data assets of major Indian digital commerce platforms, in collaboration with sellers, to map the IKS product and service landscape with empirical precision. Longitudinal studies tracking the growth and character of IKS digital commerce over time would be particularly valuable.

Second, the consumer perspective remains significantly underexplored. While several studies have documented supply-side dynamics—how producers, platforms, and policymakers engage with IKS—relatively little rigorous empirical work examines how consumers understand, value, and make purchasing decisions around IKS authenticity in digital markets. Do Indian consumers pay premiums for IKS-certified products when offered alternatives at lower prices? Does IKS provenance documentation affect post-purchase satisfaction and word-of-mouth? How do diaspora consumers in international markets engage with IKS digital products differently from domestic consumers? These questions are commercially and theoretically important.

Third, the international dimension of IKS digital commerce deserves substantially more scholarly attention. Several studies have noted the significant global market potential for IKS products—particularly Ayurvedic wellness products, yoga-related goods and services, and traditional craft textiles—but the specific dynamics of cross-border IKS digital commerce are poorly understood. These include challenges of cultural translation (how IKS concepts and narratives are communicated to non-Indian consumers), regulatory compliance in foreign markets (especially for Ayurvedic health products, which face varying regulatory treatment across jurisdictions), and competitive dynamics with appropriated or imitation products manufactured outside India.

Fourth, the implications of emerging technologies—artificial intelligence, augmented reality, blockchain, the Internet of Things, and large language models—for IKS digital commerce remain essentially unexplored. AI-powered personalisation systems could potentially operationalise the IKS principle of individualised treatment (Prakriti-based medicine and pedagogy) at unprecedented scale; blockchain could enable genuine community intellectual property protection and benefit-sharing; augmented reality could allow the embodied and contextual dimensions of craft and Vastu knowledge to be communicated digitally; and large language models trained on IKS texts could make classical knowledge accessible to entrepreneurs and consumers without classical language training. The risks of each of these technologies for IKS

integrity and community benefit are equally in need of investigation.

Fifth, the ethical tensions within IKS digital commerce—Ayurwashing, digital translation loss, knowledge commodification, epistemic extractivism—require deeper theoretical and empirical investigation. The literature has identified these phenomena, but has not yet produced systematic frameworks for distinguishing authentic from exploitative engagement with IKS in digital commerce, or for evaluating the net impact of IKS commercialisation on the knowledge traditions and communities from which it draws.

7. CONCLUSION

This paper has argued that Indian Knowledge Systems and digital commerce are engaged in a relationship of profound, growing, and underexplored significance for scholarship, policy, and practice. IKS is not merely a reservoir of products for digital markets; it is a sophisticated, integrated, and living body of knowledge that contains within it frameworks for ethical commerce, market governance, consumer protection, community-centred intellectual property, and sustainable trade that are deeply relevant to the challenges confronting digital economies worldwide.

The ten-study chronological literature review presented here traces a trajectory of growing scholarly sophistication across two decades—from Shiva's (2005) foundational work on biopiracy and digital documentation, through empirical studies of Ayurveda, craft, and yoga digital markets (Mohanty & Panda, 2014; Nair, 2016; Banerjee & Roy, 2020), to recent work on entrepreneurship, governance, and pedagogy (Tripathi & Mishra, 2022; Desai et al., 2024). Across this literature, a consistent and commercially significant finding emerges: IKS-grounded products and practices create distinctive, defensible, and premium-commanding value in digital markets—but realising this value in ways that are ethically sound, epistemologically authentic, and economically equitable for originating communities requires deliberate institutional, regulatory, technological, and educational design.

The IKS-Digital Commerce Synergy Model (IDCSM) proposed in this paper provides a conceptual organising framework for this design work, identifying four dimensions—product and service innovation, ethical governance, intellectual property and community benefit, and pedagogy and knowledge transmission—across which IKS and digital commerce can be productively, equitably, and sustainably integrated.

India stands at a uniquely favourable historical juncture for realising this vision. The convergence of its rapidly expanding digital economy, its formal policy commitment to IKS integration under NEP 2020, its AYUSH commercialisation missions, its Digital India infrastructure investments, and its large and growing population of technology-enabled entrepreneurs creates conditions that no other country can replicate. The scholarly community—in India and internationally—has a critical role to play in providing the conceptual, empirical, and normative foundations for this integration. The studies reviewed in this paper represent an important beginning, but the field is still in its early stages. The

intellectual work of building a rigorous, ethically engaged, and practically relevant scholarship of IKS digital commerce has, in many respects, barely begun.

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