An Indian Knowledge Systems Framework For Responsible Artificial Intelligence And Innovation

R. Elakiya[1]* and R. Swetha[1]

[1]*III BCom General, Department of Commerce, Arul Anandar College, Karumathur, Madurai, Tamil Nadu, India*

**Corresponding Author Email: 24bco170@aactni.edu.in*

Abstract

Artificial Intelligence (AI) is transforming business, education, governance, healthcare, and social life. Alongside its opportunities, AI creates significant ethical concerns involving privacy, bias, accountability, transparency, sustainability, cultural representation, and unequal access. Indian Knowledge Systems (IKS) provide a rich intellectual and cultural foundation for developing a responsible AI framework grounded in values such as dharma, ahimsa, loka-sangraha, interconnectedness, moderation, duty, and collective welfare. This paper proposes a conceptual framework that connects selected IKS principles with contemporary responsible AI requirements. The study adopts a qualitative, conceptual research design based on secondary literature, policy documents, scholarly discussions, and interpretive analysis. The proposed framework highlights six dimensions: ethical purpose, human dignity, fairness and inclusion, ecological responsibility, knowledge pluralism, and accountable innovation. It argues that IKS should not be treated merely as historical content or symbolic cultural decoration; rather, its principles can support critical reflection on the social purpose and consequences of emerging technologies. The framework also recognizes the need for contextual adaptation, interdisciplinary dialogue, empirical validation, and avoidance of cultural essentialism. The study contributes to discussions on responsible innovation by presenting an India-centred perspective that complements global AI ethics principles while emphasizing social harmony, long-term welfare, and responsible stewardship. Future research may operationalize the framework through indicators, stakeholder studies, and sector-specific applications.

Keywords: Indian Knowledge Systems; Responsible Artificial Intelligence; Ethical Innovation; AI Governance; Sustainability; Human-Centred Technology

1. Introduction

Artificial Intelligence has become a major driver of digital transformation and innovation. AI-based systems are increasingly used for prediction, automation, personalization, decision-making, and knowledge creation. Although these applications can improve efficiency and access, they may also intensify discrimination, surveillance, misinformation, job displacement, and social exclusion. Therefore, responsible AI requires more than technical accuracy; it requires ethical reflection, institutional accountability, social participation, and attention to long-term consequences.

Most contemporary AI ethics discussions emphasize principles such as fairness, transparency, explainability, accountability, privacy, safety, and human oversight. These principles are important, but their interpretation and implementation are influenced by cultural, historical, and institutional contexts. Indian Knowledge Systems offer philosophical, educational, ecological, medical, linguistic, and social perspectives that may enrich debates about technology and human welfare.

IKS includes diverse knowledge traditions rather than a single uniform doctrine. Concepts such as dharma, ahimsa, loka-sangraha, sarvodaya, interconnectedness, and responsible stewardship can stimulate discussion about the purpose and consequences of innovation. This study therefore develops a conceptual framework connecting IKS-inspired values with responsible AI and innovation.

2. Literature Review

Research on responsible AI commonly identifies fairness, transparency, accountability, privacy, robustness, safety, and human agency as central concerns. International policy frameworks emphasize trustworthy AI, risk management, human rights, and governance throughout the AI lifecycle.

Studies on ethical innovation argue that innovation should consider social value, stakeholder participation, environmental impact, and unintended consequences. Responsible innovation is frequently associated with anticipation, reflection, inclusion, and responsiveness.

Indian Knowledge Systems scholarship highlights the diversity of Indian intellectual traditions in areas such as logic, mathematics, medicine, linguistics, philosophy, ecology, and education. Several IKS perspectives emphasize the relationship between individual conduct, social responsibility, nature, and collective welfare.

However, a research gap remains in translating IKS principles into a structured framework for AI governance and innovation. Existing discussions may either focus on historical knowledge or mention Indian values in general terms without proposing operational dimensions. This paper addresses that gap through a conceptual framework linking value-based principles to practical responsible AI requirements.

3. Methodology

This study adopts a qualitative conceptual research design. It is based on secondary sources, including academic literature on AI ethics, responsible innovation, Indian Knowledge Systems, sustainability, technology governance, and human-centred design.

The study follows four stages. First, relevant concepts from responsible AI and innovation literature are identified. Second, selected IKS principles are interpreted in relation to ethical technology development. Third, thematic analysis is used to identify overlapping areas between the two knowledge domains. Fourth, the themes are organized into a conceptual framework.

The analysis is interpretive rather than statistical. The framework is intended as a foundation for future empirical research and does not claim that all Indian traditions share identical values or that philosophical principles automatically produce effective governance.

4. Results

The conceptual analysis produced six interconnected dimensions for an IKS-informed responsible AI framework:

1. Ethical Purpose and Social Welfare: AI innovation should serve meaningful human and social needs rather than efficiency or profit alone. The principle of loka-sangraha may encourage attention to collective welfare.

2. Human Dignity and Non-Harm: AI systems should protect human dignity, reduce avoidable harm, and preserve meaningful human agency. Ahimsa provides a useful ethical lens for assessing harmful outcomes.
3. Fairness and Inclusion: AI development should consider marginalized communities, linguistic diversity, accessibility, and unequal technological opportunities.
4. Ecological Responsibility: Innovation should account for energy use, resource consumption, electronic waste, and environmental consequences. Interconnectedness supports a broader view of human–nature relationships.
5. Knowledge Pluralism and Cultural Context: AI systems should recognize diverse knowledge traditions, languages, local practices, and community perspectives while avoiding cultural stereotyping.
6. Accountability and Responsible Stewardship: Developers, organizations, educators, and policymakers should accept responsibility for AI impacts through oversight, documentation, transparency, and continuous review.

These dimensions are mutually reinforcing. Ethical purpose guides innovation; dignity and inclusion shape design; ecological responsibility broadens impact assessment; knowledge pluralism improves contextual relevance; and accountability supports implementation.

5. Discussion

The proposed framework demonstrates that IKS can contribute to responsible AI discourse when interpreted critically and contextually. It does not replace technical standards or human-rights-based governance. Instead, it adds a culturally situated perspective concerning duty, restraint, collective welfare, and long-term responsibility.

The framework may be useful in education, public administration, business, healthcare, agriculture, and digital commerce. For example, organizations can assess whether AI applications improve social welfare, respect user autonomy, include local languages, and minimize environmental harm.

Nevertheless, philosophical concepts require careful translation into measurable practices. Dharma, ahimsa, and interconnectedness are broad concepts with multiple

interpretations. Their application must involve interdisciplinary scholarship, stakeholder consultation, and sensitivity to constitutional values, pluralism, and individual rights. IKS should be approached as a diverse field of inquiry rather than a source of unquestionable answers.

The framework also encourages a shift from a purely risk-based approach to a purpose-oriented approach. Responsible AI should not only prevent harm; it should actively support justice, inclusion, sustainability, and human flourishing.

6. Conclusion

Artificial Intelligence and innovation require ethical frameworks that are technically sound, socially relevant, culturally sensitive, and environmentally responsible. This paper proposed an Indian Knowledge Systems Framework for Responsible AI and Innovation based on six dimensions: ethical purpose, human dignity, fairness and inclusion, ecological responsibility, knowledge pluralism, and accountable stewardship.

The framework suggests that IKS can enrich global responsible AI debates by introducing perspectives related to collective welfare, non-harm, interconnectedness, duty, and moderation. Its value lies not in replacing existing governance systems but in broadening ethical reflection and supporting context-sensitive innovation.

Future research should test the framework through empirical studies involving developers, businesses, educators, policymakers, and communities. Such work can help transform philosophical principles into practical indicators, organizational policies, educational curricula, and AI assessment tools.

7. Recommendations

1. Integrate responsible AI and selected IKS concepts into higher education and professional training.
2. Develop AI impact assessment tools that include social welfare, cultural inclusion, ecological effects, and human dignity.

3. Encourage interdisciplinary collaboration among computer scientists, commerce scholars, philosophers, social scientists, legal experts, and community representatives.
4. Promote multilingual and culturally responsive AI systems that reflect India's linguistic and social diversity.
5. Establish organizational ethics committees and accountability mechanisms for high-impact AI applications.
6. Include environmental sustainability indicators in AI procurement, deployment, and evaluation.
7. Conduct community consultations before implementing AI systems in sensitive sectors.
8. Avoid cultural tokenism, stereotyping, or the uncritical appropriation of IKS concepts.
9. Support empirical research to validate and refine the proposed framework.
10. Align IKS-informed AI governance with constitutional rights, democratic values, and internationally recognized ethical safeguards.

8. Limitations

This study is conceptual and relies primarily on secondary literature. It does not include primary surveys, interviews, experiments, or sector-specific case studies. The interpretation of IKS concepts is selective and cannot represent the full diversity of Indian philosophical and knowledge traditions. The proposed dimensions have not yet been statistically validated or converted into standardized measurement scales. Further research is required to assess applicability across industries, regions, languages, and organizational contexts.

9. References

UNESCO. (2021). Recommendation on the Ethics of Artificial Intelligence. UNESCO.

OECD. (2019). OECD Recommendation of the Council on Artificial Intelligence. OECD.

NIST. (2023). Artificial Intelligence Risk Management Framework (AI RMF 1.0). National Institute of Standards and Technology.

European Commission High-Level Expert Group on Artificial Intelligence. (2019). Ethics Guidelines for Trustworthy AI. European Commission.

Stilgoe, J., Owen, R., & Macnaghten, P. (2013). Developing a framework for responsible innovation. Research Policy, 42(9), 1568–1580.

Floridi, L., et al. (2018). AI4People—An ethical framework for a good AI society. Minds and Machines, 28, 689–707.

Indian Knowledge Systems Division. (Various publications). Resources on Indian Knowledge Systems and knowledge traditions. Ministry of Education, Government of India.

Ministry of Education, Government of India. (2020). National Education Policy 2020.

Sen, A. (1999). Development as Freedom. Oxford University Press.

Selected scholarly works on dharma, ahimsa, sustainability, Indian philosophy, and responsible innovation may be added according to the target journal's citation requirements.



Open Access & Licensing

Dr. BGR Publications supports Open Access scholarly communication, enabling published works to be freely accessible online.

License: Creative Commons Attribution 4.0 International License CC BY 4.0

Copyright: © Author(s)

Published by Dr. BGR Publications | India