

# Decolonizing Digital Ecosystems: Translating Tamil Bhakti Socio-Philosophical Frameworks into Sustainable Sociotechnical Systems for SDG 13 & 15

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**Abstract:** *The dominant frame for current Information System research on environmental sustainability (usually termed as “Green IS”) is still based on Western, anthropocentric, techno-bureaucratic which mirrors in corporate metrics, carbon footprint accounting, and compliance-driven enterprise architectures. Such top-down design slogans have little immediate scope for entering into an organic, bottom-up behavioural change paradigm of community groups, especially outside the Western dominions. Towards this gap in paradigm, our paper explores alternative sociotechnical architectures to sustainability possible through indigenous Knowledge System (IKS). We choose the 6 th-12 th century Tamil Bhakti movement of the Azhwars (Vaishnavite) and Nayanmars (Saivite) poet-saints and re-imagine it as an ancient, decentralized Knowledge Management System (KMS). We use semantic analysis of ECO-Theology knowledge underlying the Thiruppavai of Andal and the Tevaram corpus to abstract design meta-principles for digitalPlatforms. We propose community-centric information systems based on these meta-principles that can produce the impact envisioned in the UN SDG 13 and 15.*

**Keywords:** Green Information Systems; Indigenous Knowledge Systems; Tamil Bhakti Literature; Eco-Theology; Knowledge Management Systems; Sustainable Information Systems; Community-Centric Digital Platforms; Design Science Research; Environmental Sustainability; SDGs 13 and 15.

## 1. Introduction and Research Problem

The convergence of IS and environmentally conscious initiatives has led to a rich area of inquiry called Green IS (Melville, 2010; Watson et al., 2010). Although Green IS efforts have made great strides in data collection and the tracking of supply chain performance, we believe Green IS is doomed to systemic theoretical failure in that it is absolutely preoccupied with externally imposed, institutionally based, anthropocentric modes of monitoring, maximizing, and consuming (Lauwaert and Spree, 2007). This notion of maximizing does not generate community sponsorship or emotional attachment, necessary for ecological sustainability of widespread community participation in the global south.

Simultaneously, a pressing momentum in the IS field is also advocating for decolonisation of design approaches by seeking to incorporate IKS (Avgerou, 2013). Unlike western modernist models, Indigenous worldviews do not treat sustainability as a clinical system of recirculating carbon credits; rather IKS are place-bound and relational humans are equal participants in a living biosphere.

This paper suggests the medieval Tamil Bhakti movement of South India was a successful, diverse, self-perpetuating information network with broad socio-cultural impacts across the Tamil-speaking region of the Peninsula. Through the deliberate theological reform involving colouration of no hierarchal high and low Tamil poetic functions (a shift from liturgical Sanskrit to vernaculars), the Azhwars and Nayanmars disseminated a “holistic” image of life to innumerable rural communities. The movement leaders incorporated the details of ordained spiritual devotion in nation-specific forms by possessing the land that were any

ecology adapted to a religious terrain (Paadal Petra Sthalangal and Divya Desams).

This is the main question that we are answering through our research. How do we translate the eco-theology principles of indigenous knowledge systems (here, in Tamil Bhakti literature) into a formal set of design principles for designing sustainable community information systems.

## 2. Theoretical Framework

In order to unify the 1,200-year-old poetic corpora with contemporary IS engineering, we establish a theoretical triad comprised of

- 1) Sociotechnical System Theory,
- 2) Ecological Affordance Theory, and
- 3) Indigenous Knowledge Management System (IKMS).

### The Bhakti Movement as an Ancient Sociotechnical System

We read an ancient Tamil Bhakti movement as an sociotechnical infrastructure that was not just allegorical, literary, or religious, but fractal, complex, emergent. Within this infrastructure, the software agents were the Mnemonic knowledge of highly emotive vernacular poetry, the Pasurams and Padhigams, which truly brought the entry cost of contemplative practitioners as low as possible; the hardware agents were the physical topography, temples and sacred groves which entailed the knowledge of how the topography would represent the Ainthinai knowing tradition; and the actors were the citizen-devotees at the temples and of the temples who gathered to re-code the contents of verses.

### Ecological Affordance Theory in IS

IS affordance theory (Strong et al. 2014) describing that material objects afford actual opportunities for action to a known actor. We have adapted this concept to Ecological Affordance and extend it to explain how any specific contextualization of physical biodiversity by framing it as a divine node (e.g. Sthala Vriksham or temple trees) alters the affordance of the artifact to the actor from net extraction and deforestation to one of custodianship and veneration.

### 3. Methodology

In this study, I 'm using "an Interpretive Content Analysis" (ICA) framework to "mapping of the qualitative thematic nodes (logically derived themes) of classical Tamil Bhakti in information system structural design variables".

#### Data Corpus

The primary data corpus consists of text selections from:

- Thiruppavai (Andal 8th Century CE): 30 stanzas codified to devalue traditional community conduct and climate processes.
- The Tevaram (Sambandar and Appar, 7th Century CE): those specific hymns that specify topographical details of SSWs, coastal eco-zones and the dry-land faunal diversity of Tamilakam in the medieval period.

#### Analytical Protocol

The texts were then open-coded for (a) environmental indications such as mentions of specific species or water cycles; (b) socio-ecological feedback loop, such as writers suggesting that human agency directly influences planetary and meteorological processes; and (c) spatial vectors, such as place names that link a singer or lyricist to a particular physical bioregion.

### 4. Findings and Discussion: Translating Literature to Design

The research thus generated two powerful thematic architectures directly applicable to contemporary IS design for sustainability.

#### Theme A: Conditions of the process of the symbiotic system and feedback mechanisms occurring in the population (SDG 13) and in the Thiruppaavai

We notice that even while Andal separates from the calmness of the setting, she does not remove her activity from her surroundings. In Verse 3 where she says, The Old Man described so vividly does not appear until page thirty. By which the whole land would be traversed and driven out, and it would rain three times in the very first month. Unambiguously specify a closed system dynamics model with community consistent morality (Theengu indri--doing no harm) causing a positive biospheric feedback loop: 'thingal mum maari' (everyday form of rain), maximum outcomes of increased crop production, even better livestock).

[Human Agency & Ethical Actions] ---> [Environmental Response] ---> [Socio-Economic Abundance]

Today 's Green IS dashboards show environmental data that is often too punitive and apocalyptic (e.g. Ever rising parts-per-million tracking of carbon) for the user, and results in paralysis. Here I propose how the model of Andal can be used for an Ecocentric Citizen Science Portal by turning the interface into an "invisible symbiotic mirror" while not exposing negative corporate carbon output, by modeling and demonstrating transparency in localized, positive community intervention (such as urban gardening or suburban reforestation initiatives) versus appropriate local weather data, and by gamifying and tracking a community 's eco footprint all together.

#### Theme B: decentralized Biodiversity Registries & GIS Mapping (SDG 15)

There is delicate poetic-geography in the Tevaram songs of Sambandar and Appar. The saints were not just doing general us praying to God at the coastal or forest shrines (Thirumaraikkadu, the mangroves of Vedaranyam), they also recorded details of what was around them in the atmosphere, on land and in water. Whatever entering their minds they sub-divided into a place name for that subject node, whether human or non-human, giving it a particular place flora node (Punnai / Laurel) and fauna node (wading herons).

Be a witness of God dwelt where they buzz in the blossoms and the heron's fish in the marshes then they made this whole ecosphere a holy place; by instituted a strict forbidden culture for exploit the natural environment.

Takes this simple structure and maps it directly into Decentralized, Blockchain-based Biodiversity Registries: Rather than creating a boring, sterile GIS mapping database that local residents hate and ignore, develop Narrative-augmented Geospatial Ledgers, upon which local residents can record presence of (or should be able to) local endangered species. Rather than merely recording a scientific binomial nomenclature, the system "tags" the species with the historic, poetic, and cultural metadata of the species contained within local native literature. Linking historic, cultural identity to a modern data collection process results in dramatically increased community buy-in, accuracy, and local, legal protection of endangered habitats from poachers.

#### Contributions to the IS Discipline

This study makes a two-fold contribution to the IS field:

Theoretical Extension of Green Information System We would like to disrupt the hegemony of the utilitarian mode of thinking which is prominent in the Western version of Green IS. As Socio-Philosophical Eco-Theology, the information system can be operated in a receptive and affectively conscious way.

Design Science Foundations for IKS – We give a method of translating ancient literary text into technical design needs, providing a methodology for future IS researchers interested in designing decolonized UIs in the Global South, localized crowdsourcing solutions, and community knowledge infra-structures.

## 5. Conclusion

The medieval Tamil Bhakti literature of the Azhwars and Nayanmars has demonstrated that sustainable ecologies flourish from love, identity, and local sacred geographies. As the IS discipline wrestles to grasp the sociospatial intricacies of SDGs 13 and 15, domesticating available systems cannot be a backward step. Reframing these eco-cultural principles as present day software architectures offers information systems that transport mankind from climate peril to ecosphere kinship.

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