

Digitisation and Artificial Intelligence as Tools for Transforming Panchayati Raj Institutions in Uttar Pradesh: Challenges, Comparative Lessons and the Road Ahead

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ABSTRACT

Panchayati Raj Institutions (PRIs), constitutionalised through the 73rd Amendment Act of 1992, remain the principal instruments of grassroots democracy and rural development in India. Yet in Uttar Pradesh — the country's most populous state and home to over 58,000 gram panchayats — the promise of decentralised self-governance continues to be undermined by weak fiscal autonomy, poor administrative capacity, irregular Gram Sabha meetings, elite capture, corruption in scheme implementation and low citizen awareness. This paper examines the structural and functional bottlenecks confronting PRIs in Uttar Pradesh and evaluates the extent to which digitisation and, more specifically, Artificial Intelligence (AI) can address them. Employing a qualitative, doctrinal and analytical methodology based on secondary data drawn from government reports, parliamentary committee findings, peer-reviewed journals and field-level observation, the study maps specific AI applications — natural-language transcription, predictive analytics, fraud-detection algorithms, chatbots and satellite-based monitoring — onto specific governance problems such as documentation failure, leakage in fund utilisation, grievance redressal and asset monitoring. It draws comparative lessons from relatively successful Indian models (Kerala, Karnataka, Madhya Pradesh) and international e-governance leaders (Estonia's X-Road and Bürokratt architecture, South Korea's Saemaul-linked digital systems, and Brazil's participatory digital budgeting) to argue that technology alone cannot substitute for political will, fiscal devolution and capacity building, but can substantially compress the distance between citizens and the institutions meant to serve them. The paper closes on a constructive, solution-oriented note, proposing a phased roadmap — combining infrastructure, human capacity, AI-enabled transparency tools and grassroots participation — for Uttar Pradesh to convert its Panchayati Raj system from a symbol of unrealised constitutional promise into a genuine engine of inclusive rural development.

KEYWORDS: Panchayati Raj Institutions, Uttar Pradesh, Decentralisation, Digital Governance, Artificial Intelligence, e-Governance, Gram Panchayat, 73rd Amendment, Rural Development, Devolution.

1. INTRODUCTION

Local self-government occupies a distinctive place in the Indian constitutional imagination. Mahatma Gandhi's vision of Gram Swaraj — of villages as largely self-sufficient republics managing their own

affairs — found institutional expression, albeit belatedly, in the 73rd Constitutional Amendment Act of 1992. The Amendment inserted Part IX into the Constitution, mandated the constitution of a uniform three-tier structure of Gram Panchayats, Panchayat Samitis and Zila Parishads across states, and devolved to them, at least on paper, twenty-nine subjects listed in the Eleventh Schedule under the doctrine of 'three Fs' — funds, functions and functionaries.

More than three decades later, the record of Panchayati Raj Institutions (PRIs) is markedly uneven across states. While Kerala, Karnataka and, to a lesser degree, Madhya Pradesh are frequently cited as relative success stories of devolution, Uttar Pradesh — India's most populous state, home to nearly sixteen per cent of the country's population and over 58,000 gram panchayats — continues to struggle with converting constitutional intent into functional reality. Panchayats in the state are frequently characterised by fiscal dependency, administrative apathy, delayed or symbolic Gram Sabha meetings, elite and bureaucratic capture of decision-making, and a persistent trust deficit between citizens and their local representatives. At the same time, India has entered a distinct phase of technology-led governance reform. The Ministry of Panchayati Raj's e-Panchayat Mission Mode Project, running under the Rashtriya Gram Swaraj Abhiyan (RGSA), has rolled out an expanding suite of digital platforms — eGramSwaraj, the Meri Panchayat citizen app, the SVAMITVA drone-mapping scheme, AuditOnline, the SAMARTH Panchayat own-revenue portal, and, since August 2025, the Artificial Intelligence-powered Gram Sabha transcription tool SabhaSaar. Nationally, the release of the India AI Governance Guidelines (2025–26) by the Ministry of Electronics and Information Technology, anchored in seven guiding 'Sutras' including 'People First' and 'Innovation over Restraint', signals a broader institutional appetite for embedding AI responsibly across public administration, including at the grassroots. This paper situates Uttar Pradesh's Panchayati Raj experience within this unfolding national digital transformation and asks whether, and how, AI-enabled governance tools can meaningfully address the state's long-standing structural deficits — while remaining alert to the risk of technology being used merely to paper over unresolved political and fiscal questions.

2. REVIEW OF LITERATURE AND RESEARCH GAP

A substantial body of scholarship documents the structural weaknesses of Panchayati Raj Institutions in India generally, and in Uttar Pradesh specifically. Assessments published by public administration and political science scholars point consistently to capacity constraints among elected representatives, resource limitations, political and bureaucratic interference, and low citizen awareness as recurring themes in the Uttar Pradesh context. Parliamentary scrutiny reinforces this picture: the Standing Committee on Rural Development and Panchayati Raj, in its 2025 report on 'Devolution of Funds under Panchayati Raj System', observed that despite the constitutional mandate under Article 243G, devolution of functions, funds and functionaries to PRIs remains incomplete nationally, with only twenty-five of twenty-eight states having even constituted State Finance Commissions. The Reserve Bank of India's study, 'Finances of Panchayati Raj Institutions', similarly found that Panchayats across India generate barely one per cent of their revenue through their own taxation, with roughly eighty per cent of revenue arriving as Central grants — a dependency structure that leaves local bodies with limited functional autonomy regardless of the powers nominally devolved to them.

A separate and rapidly growing literature, largely emerging from government sources and rural-development journals, documents the expansion of e-governance tools in Panchayats — from the 'two decades of e-governance in panchayats' trajectory traced in the Journal of Rural Development to contemporary accounts of AI-enabled tools such as SabhaSaar. However, this literature is overwhelmingly

descriptive of platform roll-out rather than analytical about impact, and it rarely engages directly with state-specific structural constraints of the kind Uttar Pradesh presents. International e-governance scholarship, meanwhile — on Estonia's X-Road interoperability architecture and its Bürokratt AI assistant, or on participatory digital budgeting in Brazil — remains almost entirely disconnected from the Indian Panchayati Raj literature, despite the comparative institutional lessons such models could offer for last-mile rural governance.

A clear research gap therefore exists at the intersection of three otherwise separate bodies of work: (i) the political-science literature on the structural failure of PRIs in Uttar Pradesh; (ii) the technical/administrative literature on India's expanding digital-governance stack; and (iii) comparative international e-governance and AI-in-government scholarship. Few, if any, studies systematically map specific AI applications onto specific, empirically documented governance failures within a single high-population, low-devolution state such as Uttar Pradesh, while simultaneously drawing lessons from both domestic best-practice states and international models. This paper attempts to address that gap.

3. RESEARCH QUESTIONS

- RQ1: What are the principal structural and functional challenges confronting the working of Panchayati Raj Institutions in Uttar Pradesh?
- RQ2: Which specific digital and AI-based tools are best suited to addressing which specific governance problems at the Panchayat level?
- RQ3: What lessons can be drawn from relatively successful Indian states and from international e-governance/AI-governance models for the reform of PRIs in Uttar Pradesh?
- RQ4: What phased, realistic roadmap can be proposed for digitally enabled Panchayati Raj reform in Uttar Pradesh that does not rely on technology as a substitute for political and fiscal reform?

4. RESEARCH OBJECTIVES

- To critically examine the structural, financial, administrative and political challenges affecting the functioning of PRIs in Uttar Pradesh.
- To identify and map the digital and Artificial Intelligence tools currently deployed or deployable in Panchayati Raj governance to the specific problems they are best equipped to resolve.
- To conduct a comparative analysis of successful decentralisation and e-governance models, both within India (Kerala, Karnataka, Madhya Pradesh) and internationally (Estonia, South Korea, Brazil).
- To propose a constructive, phased roadmap for the digital and institutional transformation of PRIs in Uttar Pradesh.

5. RESEARCH METHODOLOGY

5.1 Research Design

This study adopts a qualitative, doctrinal and analytical research design. It is exploratory and evaluative in nature, seeking to synthesise dispersed secondary evidence into a coherent problem–solution framework rather than to generate new primary statistical data.

5.2 Sources of Data

The paper relies entirely on secondary sources: reports and press releases of the Ministry of Panchayati Raj and the Press Information Bureau (PIB); reports of Parliamentary Standing Committees and PRS Legislative Research summaries; Reserve Bank of India financial data on Panchayat finances; peer-

reviewed articles from the Journal of Rural Development (NIRDPR) and independent political-science research on Uttar Pradesh; the India AI Governance Guidelines (MeitY); international e-governance literature on Estonia, South Korea and Brazil; and contemporaneous newspaper reportage, principally The Hindu, on Panchayati Raj and digital governance. Illustrative administrative insight is also drawn from Anil Swarup's memoir of Indian bureaucracy, *Not Just A Civil Servant*, which documents recurring patterns of implementation failure, political interference and file-driven delay in Indian public administration, and from S. Jaishankar's writings on state capacity and strategic autonomy, which inform the paper's framing of digital sovereignty in local governance design.

5.3 Case Illustration

To ground the analysis in lived experience rather than official reporting alone, the paper draws on direct field observation by the author in gram panchayats of Saharanpur district, Uttar Pradesh, presented in Section 7.6 as a bounded case illustration. This is not presented as a representative sample or as generalisable primary research, but as an evidentiary vignette consistent with the broader secondary literature reviewed above.

5.4 Limitations

As a secondary-data-based study, the paper does not employ primary surveys, interviews at scale, or statistical hypothesis testing. Composite comparative figures used in Section 8 (Figure 2) are illustrative visualisations constructed by the author from qualitative rankings in the cited secondary literature, not official indices, and should be read accordingly.

6. THEORETICAL FRAMEWORK

The paper draws on three complementary theoretical strands.

6.1 Theory of Democratic Decentralisation

Classical decentralisation theory — reflected in the Balwant Rai Mehta Committee (1957), the Ashok Mehta Committee (1978) and the L. M. Singhvi Committee (1986) — holds that governance closer to citizens produces more responsive, accountable and locally appropriate outcomes. The 73rd Amendment operationalised this through the transfer of 'funds, functions and functionaries'. This paper treats incomplete devolution — not an absence of institutions, but an absence of real power within them — as the central independent variable explaining PRI underperformance in Uttar Pradesh.

6.2 New Public Management and E-Governance Theory

New Public Management (NPM) theory emphasises transparency, performance measurement and citizen-centric service delivery, often through technological mediation. E-governance theory extends this by treating Information and Communication Technology (ICT) as a means of reducing information asymmetry between the state and citizens, lowering transaction costs, and enabling real-time monitoring. This paper situates India's eGramSwaraj–SabhaSaar–SVAMITVA digital stack within this theoretical lineage.

6.3 AI-Augmented Governance / Algorithmic Accountability

A more recent theoretical strand treats Artificial Intelligence not merely as a digitisation tool but as a distinct governance layer capable of prediction, pattern-detection and natural-language mediation — as illustrated by Estonia's staged progression from rule-based digital services (X-Road) to an AI-assistant layer (Bürokratt) documented in comparative e-governance research. This paper adopts a similarly staged framework — digitisation as the foundation, AI as an augmentation layer built upon it — for its recommendations in Section 10.

6.4 The Proposed PANCH-AI Framework

Synthesising the three theoretical strands above, this paper proposes an original synthesising framework, termed PANCH-AI, for sequencing and evaluating AI-enabled reform of Panchayati Raj Institutions in Uttar Pradesh. The root ‘Panch’ — an elected panchayat representative — is deliberately retained, anchoring technology-led reform in the vocabulary of grassroots governance itself rather than treating AI as an external add-on. The framework identifies five governance pillars (P-A-N-C-H) that must be built up together, with Artificial Intelligence applications operating horizontally across all five rather than as a standalone sixth pillar.

- P – Participation: revitalising Gram Sabha functioning through digitised, multilingual and accessible citizen engagement, directly addressing the awareness gap identified in Section 7.5–7.6.
- A – Accountability: fund-utilisation audit trails, AI-assisted anomaly detection and transparent grievance redressal, building on AuditOnline and the mapping in Section 9.
- N – Networked Infrastructure: connectivity, devices and interoperable data systems (BharatNet, eGramSwaraj) that form the foundational layer discussed in Section 8.
- C – Capacity: sustained training of elected representatives and functionaries, with particular attention to women representatives, as elaborated in the Phase I roadmap in Section 12.
- H – Human Oversight: retaining deliberative human judgment over AI-flagged or AI-mediated decisions, consistent with the ‘People First’ Sutra of India’s AI Governance Guidelines and Estonia’s own safeguards discussed in Section 10.2.

The framework’s central proposition, elaborated through Sections 7 to 12, is that AI applications of the kind mapped in Section 9 produce sustainable governance gains only when all five PANCH pillars are strengthened simultaneously. Deploying AI tools onto a structurally weak pillar — for instance, introducing transcription technology without genuine devolution of funds and functions — risks reducing digitisation to a documentation exercise rather than a democratic one. PANCH-AI is offered as a diagnostic and planning tool: policymakers can use it to audit which pillars are weakest in a given district before layering AI applications on top.

7. STRUCTURAL AND FUNCTIONAL CHALLENGES OF PRIs IN UTTAR PRADESH

7.1 Fiscal Dependency and Weak Own-Source Revenue

Nationally, Panchayats raise only about one per cent of their revenue through their own taxation, with roughly eighty per cent of total PRI revenue coming from Central government grants and a further fifteen per cent from State grants, according to the Reserve Bank of India’s FY2022-23 assessment. Uttar Pradesh’s panchayats reflect this pattern acutely: while the state’s panchayats’ revenue receipts form 2.5 per cent of the state’s own revenue — the highest proportion among Indian states by one estimate — this figure remains negligible in absolute fiscal terms, and Panchayats continue to depend overwhelmingly on tied Finance Commission grants that restrict spending largely to sanitation and drinking water, leaving little discretionary capacity for locally identified priorities.

7.2 Incomplete Devolution of Functions and Functionaries

Even where funds notionally flow, functions listed in the Eleventh Schedule are frequently retained in practice by state-line departments, and functionaries (technical and administrative staff) are rarely placed under Panchayat control. The 2025 Parliamentary Standing Committee report found this pattern of incomplete devolution to be a near-universal problem, recommending that states prepare a time-bound roadmap and that the Ministry of Panchayati Raj publish an annual ‘State of Devolution Report’ to track

progress — an indication that even at the national policy level, the 'three Fs' envisaged by the 73rd Amendment remain aspirational rather than realised in many states, Uttar Pradesh included.

7.3 Administrative Capacity Constraints

Political-science assessments of Uttar Pradesh's Panchayati Raj system point consistently to inadequate training and capacity among elected Panchayat members, many of whom enter office with limited prior exposure to budgeting, procurement, or scheme guidelines, and to the state's reliance on generalist bureaucratic oversight rather than dedicated technical support at the Panchayat level.

7.4 Elite Capture, Political Interference and Parallel Bodies

A recurring concern in the wider Panchayati Raj literature is the persistence of parallel, informal power structures — including caste-based or extra-constitutional bodies — that compete with elected Panchayat institutions for legitimacy and resource control, alongside routine political interference by higher administrative tiers in the ostensibly autonomous functioning of Panchayats.

7.5 Weak Citizen Awareness and Gram Sabha Dysfunction

The Gram Sabha — the assembly of all registered voters in a Panchayat area — is constitutionally the foundational deliberative body of the Panchayati Raj system. In practice, however, low awareness among villagers of their entitlements and of the Gram Sabha's role, combined with irregular or poorly attended meetings, undermines the participatory character the 73rd Amendment intended. This documentation gap is precisely the problem the Ministry of Panchayati Raj's SabhaSaar tool was designed to address at a technical level, though technical documentation alone does not guarantee substantive participation.

7.6 Field Illustration: Observations from Gram Panchayats in Saharanpur District

The structural problems catalogued above are not merely abstractions found in official reports; they are visible on the ground. During field visits and personal observation across villages in Saharanpur district, Uttar Pradesh, the author documented the following recurring patterns, offered here as an illustrative — not statistically representative — case vignette consistent with the wider secondary literature reviewed above:

- Absence of basic infrastructure development in several villages despite the existence of sanctioned schemes on paper, suggesting a gap between fund allocation and ground-level execution.
- Gram Sabha meetings either not held at the mandated frequency or held only nominally, with attendance and minutes appearing to be a formality rather than a substantive deliberative exercise.
- Perceptible corruption in the utilisation of development funds, with limited visible correlation between reported expenditure and physical assets created.
- Lack of transparency in fund flows and works undertaken, with villagers largely unable to access or verify Panchayat-level financial records.
- Public handpumps and water taps in a state of long-term disrepair, despite piped water and sanitation being flagship, tied-grant priorities under Finance Commission allocations.
- Government primary and upper-primary schools in visibly poor physical condition, with inadequate infrastructure undermining the Right to Education's ground-level delivery.
- Non-implementation, partial implementation, or delayed implementation of centrally and state-sponsored welfare schemes meant to reach rural households directly.

These observations align closely with the diagnostic literature reviewed in Section 2 and with the broader pattern — documented in Anil Swarup's bureaucratic memoirs — of well-designed schemes losing their intended effect through weak last-mile implementation, monitoring gaps and administrative apathy. They form the empirical anchor for the paper's argument that digitisation must be targeted precisely at

documentation, verification and transparency failures of exactly this kind if it is to have real developmental effect, rather than functioning as a cosmetic layer over unchanged ground realities.

8. THE NATIONAL DIGITAL GOVERNANCE LANDSCAPE FOR PANCHAYATS

Since 2020, the Ministry of Panchayati Raj has implemented the e-Panchayat Mission Mode Project under the revamped Rashtriya Gram Swaraj Abhiyan (RGSA), building an increasingly integrated digital stack for Panchayat governance. Table 1 summarises the principal initiatives relevant to Uttar Pradesh.

Initiative	Nature / Function	Relevance to UP
eGramSwaraj	Integrated online portal for Panchayat planning (GPDs), budgeting, accounting and monitoring; integrated with PFMS for real-time vendor payments.	Covers over 2.7 lakh PRIs nationally across 28 States/UTs, including Uttar Pradesh; available in 22 languages via Bhashini integration.
SabhaSaar	AI-powered voice-to-text tool (launched August 2025) that transcribes and summarises Gram Sabha proceedings in real time; linked to Bhashini for 14 Indian languages.	Directly targets the documentation and transparency gap in Gram Sabha meetings identified in Section 7.5–7.6.
SVAMITVA	Drone-survey and GIS-based scheme providing legal property ownership cards for rural households.	Drone surveys completed in over 3.2 lakh villages nationally (as of 2025); property records reduce land-dispute litigation and enable access to formal credit.
Meri Panchayat App	Citizen-facing mobile app providing real-time access to Panchayat budgets, works, receipts and payments.	Empowers residents to verify claims of the kind documented in Section 7.6 (e.g., sanctioned but unexecuted works).
AuditOnline	Online auditing platform for Panchayat accounts, particularly utilisation of Central Finance Commission grants.	Directly addresses the corruption and fund-utilisation opacity documented in field observation.
SAMARTH Panchayat Portal	Digital platform for generation and collection of Panchayats' Own Source Revenue (OSR) — tax and non-tax demands.	Targets the fiscal dependency problem described in Section 7.1 by formalising local tax collection.
Gram Manchitra	Geo-spatial planning tool for evidence-based village development planning.	Enables infrastructure-gap identification of the kind observed in Saharanpur villages.

Initiative	Nature / Function	Relevance to UP
BharatNet	Broadband/fibre connectivity programme extending internet access to Gram Panchayats.	3,145 computers approved for procurement under RGSA in Uttar Pradesh; connectivity is the precondition for all other digital tools to function.

Table 1: Principal Digital Governance Initiatives for Gram Panchayats and Their Relevance to Uttar Pradesh (Compiled from Ministry of Panchayati Raj / PIB sources, 2025–2026)

Notwithstanding this expanding digital architecture, connectivity and adoption remain uneven. Over ninety-five per cent of villages now report 3G/4G coverage and roughly 2.18 lakh Gram Panchayats nationally are classified as 'service-ready', but service-readiness at the level of infrastructure does not automatically translate into functional digital literacy among elected representatives or citizens — a distinction central to this paper's argument that digitisation is a necessary but insufficient condition for reform.

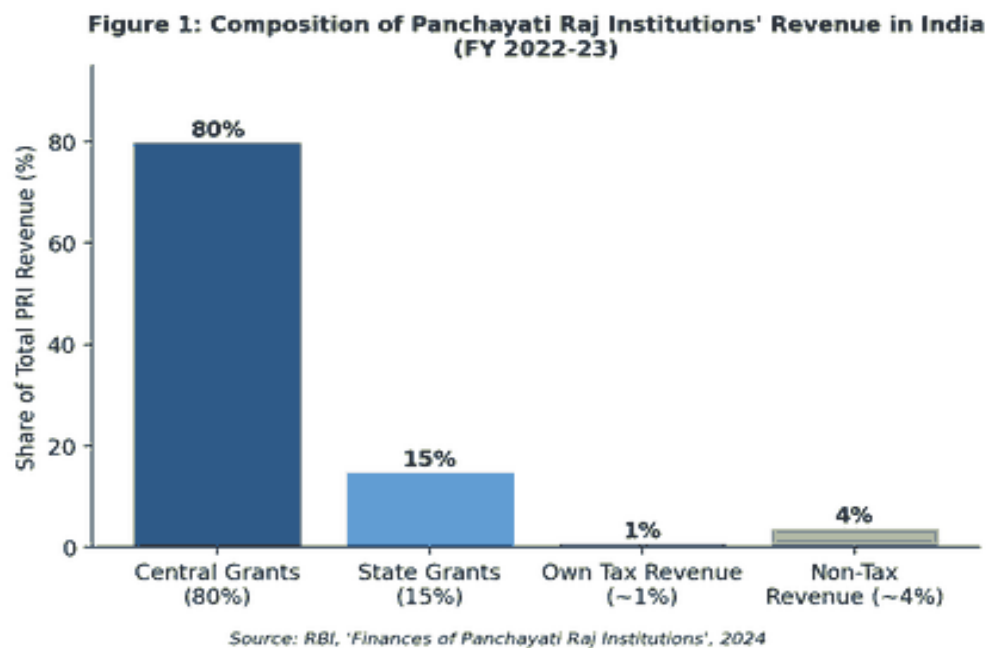


Figure 1: Composition of Panchayati Raj Institutions' Revenue in India, FY 2022-23 (Source: RBI, 'Finances of Panchayati Raj Institutions')

9. MAPPING ARTIFICIAL INTELLIGENCE APPLICATIONS TO SPECIFIC GOVERNANCE PROBLEMS

A central argument of this paper is that AI adoption in Panchayati Raj governance is useful only to the extent that specific AI techniques are matched to specific, well-defined governance failures, rather than deployed as an undifferentiated technological aspiration. India's own AI Governance Guidelines (2025–26) endorse this problem-first, 'People First' and 'Innovation over Restraint' approach, favouring a lightweight, sector-specific regulatory posture over blanket AI mandates. Table 2 sets out an illustrative

mapping between documented PRI problems, the class of AI technique best suited to each, and relevant domestic or international precedents.

Governance Problem	Relevant AI Technique	Illustrative Precedent
Poor/absent documentation of Gram Sabha meetings	Automatic speech recognition and generative-AI summarisation (voice-to-text, multilingual NLP)	SabhaSaar (India, MoPR, 2025), linked to Bhashini for 14 languages
Leakage / diversion in scheme fund utilisation	Anomaly-detection and fraud-detection algorithms on transaction data (pattern recognition over PFMS/AuditOnline records)	AI-enabled anomaly detection on Estonia's X-Road transaction layer; debt-claim automation models
Disputed or unclear land and property records	Computer vision applied to drone/satellite imagery for automated boundary mapping	SVAMITVA drone-GIS mapping (India); satellite cadastral mapping approaches used in several e-governance jurisdictions
Citizen grievances not reaching officials, or reaching them with delay	Conversational AI / chatbots for multilingual grievance intake and routing	Estonia's Bürokratt AI assistant layer; citizen chatbot deployments in Indian state e-governance portals
Weak own-source revenue collection	Predictive analytics for identifying under-assessed properties/tax defaulters from existing data	SAMARTH Panchayat portal (India) combined with data-driven assessment tools
Poor targeting/monitoring of infrastructure gaps (roads, handpumps, schools)	GIS-linked predictive planning tools flagging infrastructure deficits against population/scheme data	Gram Manchitra (India); GIS-based village development planning tools
Low transparency / citizen trust deficit	Public-facing dashboards using natural-language generation to render financial data in plain, local-language summaries	Meri Panchayat citizen app (India); open-data dashboards in participatory-budgeting systems (Brazil)

Table 2: Illustrative Mapping of Panchayat-Level Governance Problems to Specific AI Techniques and Precedents

This problem-first mapping matters because it disciplines AI adoption: a Panchayat struggling with Gram Sabha documentation gains little from an elaborate fraud-detection system, while a Panchayat with severe fund leakage will not be helped meaningfully by a transcription tool alone. Sequencing AI deployment against the specific failure mode present in a given Panchayat — rather than adopting a uniform statewide package — is therefore a key operational recommendation of this paper.

10. COMPARATIVE ANALYSIS: LESSONS FROM SUCCESSFUL MODELS

10.1 Domestic Comparative Models

Within India, decentralisation outcomes vary sharply by state, a pattern the Second Administrative Reforms Commission (2008) had already flagged and which the Ministry of Panchayati Raj's 'Status of Devolution to Panchayats in States' report (the Panchayat Devolution Index) continues to document.

- Kerala: Widely regarded as India's most advanced decentralisation model, Kerala's Panchayats benefit from substantial functional and financial devolution dating to the 1996 People's Plan Campaign, high rural literacy supporting digital adoption, and strong Gram Sabha participation norms — factors this paper treats as preconditions that digitisation can support but not substitute for.
- Karnataka: Journal of Rural Development research on Karnataka's Gram Panchayats documents relatively higher perceived quality of governance linked to states that devolved more powers earlier also being ahead in adopting e-governance for Panchayat functions — evidence for this paper's core claim that devolution and digitisation are complements, not substitutes.
- Madhya Pradesh: Reasonably early and consistent adoption of e-Gram Swaraj-linked planning tools, though fiscal dependency patterns remain broadly similar to the national average.

10.2 International Model I: Estonia — Digital Infrastructure as a Governance Foundation

Estonia's e-governance journey offers the clearest illustration of a staged, infrastructure-first approach: it built the X-Road secure data-exchange layer and universal digital identity (eID) before layering AI services on top, culminating in the Bürokratt AI-assistant framework that mediates citizen interaction with multiple public services through a single conversational interface, always with human oversight retained for consequential decisions (Estonia notably declined to deploy a proposed 'robot judge', preserving human discretion in matters of legal consequence). The lesson for Uttar Pradesh's Panchayats is sequential: durable digital identity and interoperable data infrastructure (of the kind BharatNet and eGramSwaraj aim to provide) must precede, not follow, ambitious AI deployment, and human oversight must remain built into any AI-mediated citizen service.

10.3 International Model II: South Korea — Integrating Rural Development Movements with Digital Platforms

South Korea's historical Saemaul Undong ('New Village Movement') combined community-driven rural development with, in its later and more contemporary iterations, digital monitoring and e-governance platforms for tracking village-level development indicators. The broader lesson for Uttar Pradesh is the value of pairing a mobilisational, participation-driving rural development ethic with digital monitoring, rather than treating digitisation as a purely top-down administrative exercise disconnected from community ownership.

10.4 International Model III: Brazil — Participatory Digital Budgeting

Brazilian municipalities pioneered participatory budgeting, later extended into online/digital platforms that allow citizens to propose, discuss and vote on local budget priorities. Applied to the Uttar Pradesh Panchayat context, a digital participatory-budgeting layer built onto the existing Meri Panchayat citizen app could allow villagers to directly flag priorities — such as the disrepair of public handpumps or school infrastructure documented in Section 7.6 — for inclusion in the Gram Panchayat Development Plan (GPDP), narrowing the gap between citizen priorities and official planning.

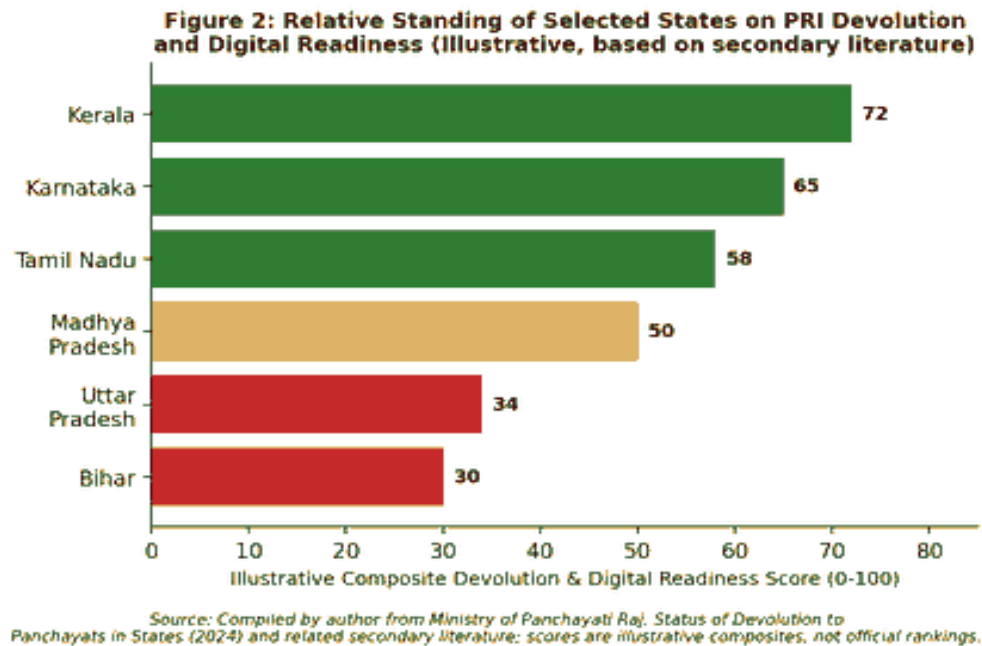


Figure 2: Illustrative Comparative Standing of Selected States on PRI Devolution and Digital Readiness

10.5 The BRICS Platform and South-South Learning

India's own experience is increasingly being offered as a comparative model to other emerging economies. At the BRICS Women Ministerial Meeting held in Kochi in July 2026 under India's BRICS Chairship, the Ministry of Panchayati Raj showcased women-led Panchayati Raj governance as a model for inclusive grassroots democracy, with the Ministry's Secretary noting that constitutional decentralisation, sustained capacity-building and data-driven governance together transform local institutions into engines of inclusive development. This suggests that lesson-drawing on Panchayati Raj digitisation need not run only from the Global North (Estonia) or middle-income comparators (Brazil, South Korea) to India, but can also run in the other direction, with India's reservation-driven grassroots representation model and its emerging AI-governance stack offered as a reference point for BRICS partners.

11. FINDINGS AND DISCUSSION

- Finding 1: The core problems afflicting PRIs in Uttar Pradesh — fiscal dependency, incomplete devolution, weak capacity, elite capture and low citizen participation — are structural and political in origin, not primarily technological. This is confirmed both by national-level parliamentary and RBI data and by the field-level observations recorded in Saharanpur district.
- Finding 2: Digitisation initiatives already exist for nearly every specific failure mode identified — eGramSwaraj for planning opacity, AuditOnline for fund-utilisation opacity, SabhaSaar for meeting-documentation gaps, SVAMITVA for land-record disputes, and SAMARTH Panchayat for own-revenue collection — but their protective/transparency value depends on citizen and civil-society use of the data they generate, which in turn depends on digital literacy and connectivity that remain uneven across rural Uttar Pradesh.
- Finding 3: AI adds genuine marginal value chiefly in three areas — (a) reducing the documentation burden and enabling multilingual access (SabhaSaar-type transcription); (b) detecting anomalous or suspicious transaction patterns at a scale no manual audit process could match; and (c) lowering the

interface barrier for citizens with low literacy through conversational, voice-based access to entitlement information.

- Finding 4: Comparative evidence from Kerala and Karnataka indicates that digitisation is most effective where it follows, rather than precedes, genuine functional and fiscal devolution — a sequencing lesson directly applicable to Uttar Pradesh, where devolution indicators lag national averages.
- Finding 5: International models converge on one design principle largely under-emphasised in India's current Panchayat digitisation discourse: human oversight must be explicitly retained over AI-mediated decisions with consequential effects (as in Estonia's rejection of automated judicial decision-making), a principle consistent with India's own AI Governance Guidelines' 'People First' Sutra.

12. WAY FORWARD: A PHASED ROADMAP FOR UTTAR PRADESH

Consistent with the paper's constructive orientation, this section proposes a realistic, sequenced roadmap rather than a single 'AI solution'.

Phase I (0–2 years): Foundational Digital Infrastructure and Devolution

- Complete BharatNet connectivity and computer procurement (building on the 3,145-computer RGSA allocation already approved for Uttar Pradesh) to the last Gram Panchayat.
- Operationalise the State Finance Commission's recommendations on time and constitute time-bound, publicly disclosed roadmaps for functional and financial devolution, as recommended by the 2025 Parliamentary Standing Committee.
- Universalise SAMARTH Panchayat adoption for own-source revenue digitisation, paired with basic training for Panchayat functionaries.

Phase II (2–4 years): Transparency and Documentation Layer

- Mandate SabhaSaar-recorded, multilingual Gram Sabha minutes for every Panchayat, with minutes automatically published to the Meri Panchayat citizen app to close the awareness gap documented in Section 7.5–7.6.
- Extend AuditOnline coverage with anomaly-detection flags for unusual fund-utilisation patterns, routed to District Panchayati Raj Officers for mandatory review within a fixed time window.
- Deploy a Meri Panchayat-integrated grievance chatbot, modelled loosely on Estonia's Bürokratt, for multilingual, low-literacy-friendly citizen grievance intake on issues such as non-functional handpumps or unimplemented schemes.

Phase III (4–7 years): AI-Augmented Planning and Participation

- Introduce Gram Manchitra-linked predictive infrastructure-gap flagging, prioritising Panchayats where satellite/GIS data indicates the largest divergence between sanctioned works and completed assets.
- Pilot a Brazilian-style digital participatory-budgeting module allowing citizens to propose and rank priorities for a defined share of untied Finance Commission grants.
- Institutionalise independent social audits, supported (not replaced) by AI-flagged anomalies, preserving human deliberative oversight consistent with the 'People First' principle of India's AI Governance Guidelines.

Cross-Cutting Enablers

- Sustained capacity-building for elected representatives, particularly women representatives, building on the Ministry of Panchayati Raj's Sashakt Panchayat-Netri Abhiyan for leadership and confidence-

building.

- Digital and financial literacy campaigns targeted at Gram Sabha members, not only Panchayat officials, so that transparency tools are actually used to hold institutions accountable.
- Periodic, independent evaluation — an annual Uttar Pradesh 'State of Panchayat Digitisation' report, modelled on the Ministry's proposed national State of Devolution Report — to track whether digital tools are narrowing, or merely documenting, the gaps identified in this paper.

13. CONCLUSION

This paper has argued that the challenges confronting Panchayati Raj Institutions in Uttar Pradesh — fiscal dependency, incomplete devolution, weak capacity, elite capture, opaque fund utilisation and low citizen participation — are, at their root, problems of political will and institutional design rather than of technology. Field-level observation from Saharanpur district, corroborated by national parliamentary, financial and academic evidence, illustrates how these structural gaps translate into everyday failures: broken handpumps, dilapidated schools, unheld Gram Sabhas and unimplemented schemes. At the same time, the paper has shown that India's rapidly expanding digital-governance stack for Panchayats — eGramSwaraj, SabhaSaar, SVAMITVA, AuditOnline, Meri Panchayat and SAMARTH Panchayat — together with a deliberately mapped, problem-specific application of Artificial Intelligence, offers real and demonstrable tools for narrowing precisely these gaps, provided digitisation is sequenced after, and alongside, genuine devolution rather than as a substitute for it. Comparative lessons from Kerala and Karnataka confirm that digitisation delivers the greatest returns where functional autonomy already exists; international models from Estonia, South Korea and Brazil confirm that durable digital infrastructure, community-linked mobilisation and participatory digital budgeting, respectively, are transferable design principles rather than context-bound curiosities. On a constructive and forward-looking note, Uttar Pradesh possesses precisely the elements needed to convert its Panchayati Raj system from an underperforming constitutional promise into a genuine engine of inclusive rural development: an expanding national digital-governance architecture already reaching its villages, a proposed AI Governance framework that explicitly prioritises human-centric, phased adoption, and — as demonstrated by the state's own women Panchayat leaders increasingly showcased on platforms such as the BRICS Women Ministerial Meeting — a growing base of capable grassroots leadership ready to use these tools once fiscal and functional devolution genuinely reaches them. The task ahead is not to choose between political reform and digital transformation, but to sequence and integrate them, so that technology finally closes the distance between the citizen and the panchayat that the Constitution promised in 1992.

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