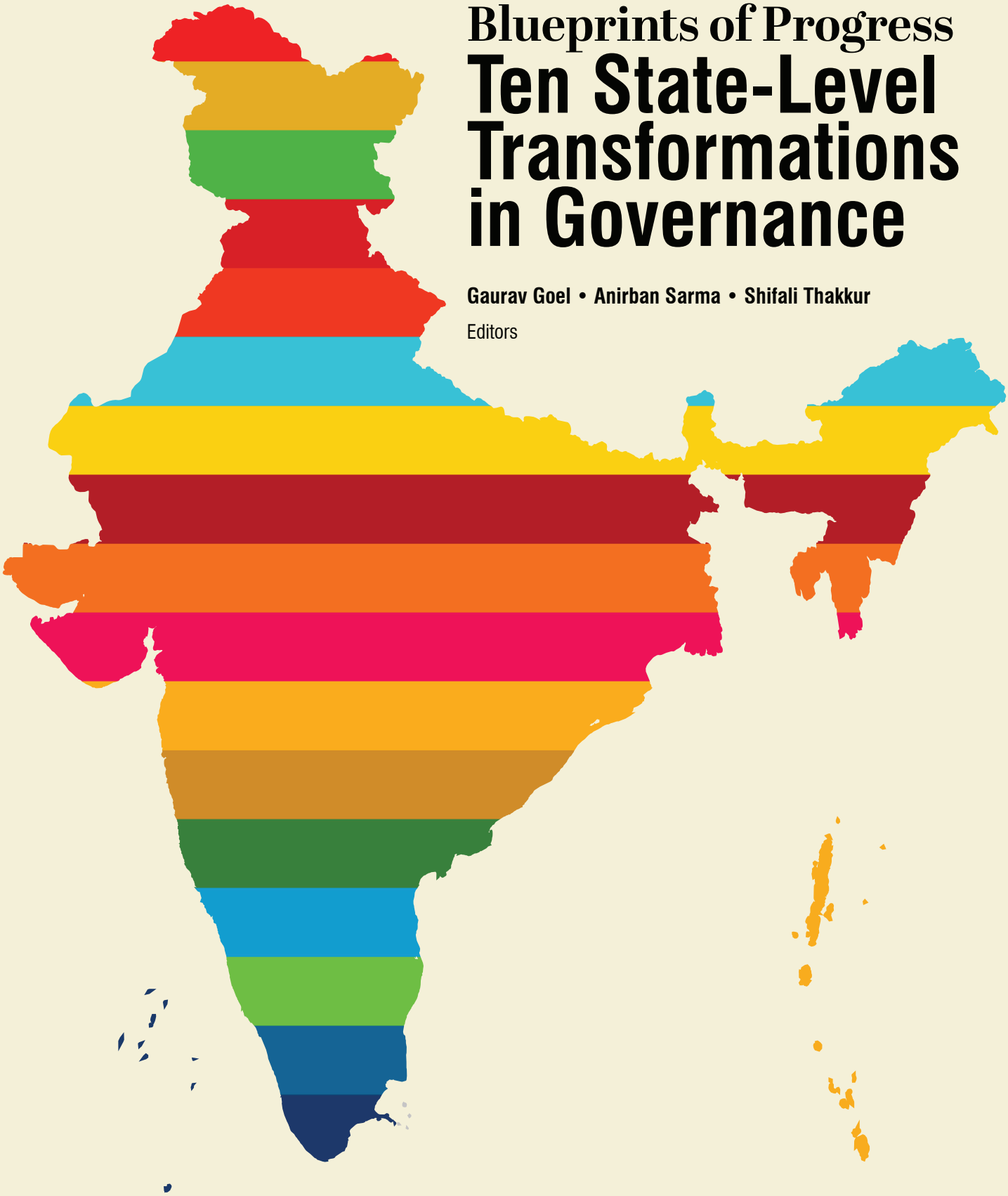
ORF OBSERVER RESEARCH FOUNDATION

Samagra Transforming Governance

Blueprints of Progress
Ten State-Level Transformations in Governance

Gaurav Goel • Anirban Sarma • Shifali Thakkur

Editors



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Contents

Introduction

Anirban Sarma, Gaurav Goel, and Shifali Thakkur

Towards Viksit Bharat

AS WE CROSS THE QUARTER-WAY MARK of the present century, India's journey towards its vision of Viksit Bharat, i.e., of transforming itself into a developed nation by 2047, has begun in earnest. "This is the period in the history of India when the country is going to take a quantum leap," declared Prime Minister Narendra Modi in January 2025, emphasising how progress on such a scale would require *"sabka prayas* (everyone's hard work)" and "daily targets and consistent efforts."[1]

The collective drive of governments, businesses, and civil society is leading to expanded investments and improved results across sectors. Despite challenges, India's real GDP grew steadily from one quarter to the next in 2025.[2] Industrial and logistics intensity are at a record high;[3] and connectivity is powering ahead, with India constructing over 5,600 km of national highways by early 2025, beating its own annual target of 5,150 km.[4]

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1 "PM Participates in the Viksit Bharat Young Leaders Dialogue 2025," PMIndia, January 12, 2025, https://www.pmindia.gov.in/en/news_updates/pm-participates-in-the-viksit-bharat-young-leaders-dialogue-2025/

2 "Q3 FY 2025 GDP Grows at 6.2%; India Sees 'Highest Growth in 12 Years' in FY 2024 – 10 Data Points to Know," *Times of India,* February 28, 2025, https://timesofindia.indiatimes.com/business/india-business/q3-fy25-gdp-grows-at-6-2-india-sees-highest-growth-in-12-years-in-fy24-top-10-data-points-to-know/articleshow/118631760.cms

3 Twesh Mishra, "Railways Record 4.2% Higher Freight Loading in November 2025," December 1, 2025, *Economic Times,* https://economictimes.indiatimes.com/industry/transportation/railways/railways-records-4-2-higher-freight-loading-in-november-2025/articleshow/125697288.cms

4 Press Information Bureau, Government of India, https://www.pib.gov.in/PressReleseDetailm.aspx?PRID=2117781

Virtually every social and development sector is demonstrating growth, bringing benefits to millions of citizens. Indian healthcare has grown at a CAGR of 22 percent since 2016[5] and the healthcare market was projected to reach US$638 billion by the end of 2025.[6] That year, India also recorded its highest-ever foodgrain production of 357.73 million tons—a result of its strides in agriculture.[7] Education too, has witnessed extraordinary advances. The country boasts one of the world's largest higher education systems, with over 62,000 institutions serving 42.5 million students, and an education market that could reach US$313 billion by 2030.[8]

At the same time, India has established itself as a digital powerhouse, and technological innovation is underpinning much of its growth. The smartphone revolution is changing lives, the country's pioneering Digital Public Infrastructure (DPI) model has transformed service delivery to citizens, and India leads the world in the digital payments space. Its leadership extends beyond IT-enabled services and legacy tech to frontier technologies as well, and today, India ranks third globally in AI competitiveness.[9]

Localising Development

The central government's programmes and policies provide direction and a foundation for development. But it is India's states that execute the ground-level actions that make effective governance, social advancement, and economic prosperity a reality. States are where a substantial part of development- and growth-related work is concentrated. The prime minister underscored this dynamic when he announced that the "vision of Viksit Bharat can be realised through Viksit States," and that "each state, district and village should resolve to work towards a developed India."[10] This approach is not new, and the localisation of development by states for a wider cause has been strongly in evidence since India, along with the rest of the world, adopted the Sustainable Development Goals (SDGs) in 2015.

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5 *Investment Opportunities in India's Healthcare Sector,* NITI Aayog, 2021, https://www.niti.gov.in/sites/default/files/2023-02/InvestmentOpportunities_HealthcareSector.pdf

6 "Indian Healthcare Market Projected to Reach $638 Billion by 2025," Bajaj Finserv, November 27, 2024, https://www.bajajamc.com/sites/default/files/amcfiles/Press%20report_Indian_Healthcare_Market_projected_to_reach_%24638_billion_by_2025.pdf

7 Neeraj Kumar, "Year-Ender 2025: India's Agricultural Sector, Growth Governance and Ground-Level Impact," *DDNews,* December 26, 2025, https://ddnews.gov.in/en/year-ender-2025-indias-agricultural-sector-growth-governance-and-ground-level-impact/

8 "Education: Sector Overview," Invest India, https://www.investindia.gov.in/sector/education

9 "Which Countries Are Leading in AI?", Stanford University Human-Centred Artificial Intelligence, https://hai.stanford.edu/ai-index/global-vibrancy-tool

10 Press Information Bureau, Government of India, https://www.pib.gov.in/PressReleasePage.aspx?PRID=2130983&reg=3&lang=2

Blueprints of Progress: Ten State-Level Transformations in Governance showcases ten pioneering initiatives from various regions of India that illustrate how state governments are working to streamline governance, galvanise socio-economic growth, and boost sectoral outcomes. Each of these high-performance projects was co-designed and co-managed by a state government and one or more private actors. Six case studies were contributed by Samagra | Transforming Governance, a social enterprise that works with state governments in India on systemic transformations. Three were contributed by the Udhyam Learning Foundation; Educational Initiatives (Ei), an edtech company; and Piramal Swasthya, a subsidiary of the Piramal Foundation. One was an independent study conducted by Observer Research Foundation (ORF). Together, these case studies represent a convergence of three trends.

1. Localising the SDGs

India's impressive performance on the SDGs[11] has been a pathway to Viksit Bharat, and the mobilisation of state governments has been key to its whole-of-government, whole-of-society approach to SDG implementation. The fusion of national policy reforms with disaggregated state-level impact narratives has been widely lauded.[12] Indeed, in a global context, the Indian approach is distinctive for its emphasis on sub-national ownership and development localisation. States and districts have been placed at the centre of SDG interventions, with states being encouraged to craft their own visions and targets in alignment with global goals.[13] The SDG India Index, launched in 2018, was an additional tool for promoting state accountability and competitive federalism by tracking state-wise progress on the SDGs.[14] The cases collected in this volume exemplify state-level agency and creativity, and the process of localising development.

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11 "India Making Progress towards SDGs: Report Shows," United Nations, July 18, 2024, https://india.un.org/en/274382-india-making-progress-towards-sdgs-report-shows?

12 Press Information Bureau, Government of India, https://www.pib.gov.in/PressReleasePage.aspx?PRID=2149181&reg=3&lang=2

13 Anirban Sarma, Sunaina Kumar, Vanita Sharma, eds, *Global Goals, Indian Vision: The Last Mile to 2030,* Reliance Foundation and Observer Research Foundation, https://www.orfonline.org/public/uploads/posts/pdf/20250924161407.pdf

14 "SDG India: Index and Dashboard", United Nations, NITI Aayog, and UNDP, https://sdgindiaindex.niti.gov.in/#/

2. Localising public-private partnerships

These cases also represent the importance of public-private partnerships (PPPs) in states. The combination of public leadership, direction, and resources with private funds and expertise has been a key to the success of Indian development projects. As the World Bank points out, India has built one of the world's largest PPP programmes with more than 2,000 such partnerships at different stages. Most are in the areas of social, developmental, and commercial infrastructure, and operate at the state level.[15] In parallel, India is actively involving philanthropists and corporate donors in the development financing process, and this is having a demonstrable impact across states. Private philanthropy touched US$15 billion in 2023, up by 10 percent from the year before; and family philanthropy is expected to grow at an annual rate of 16 percent between 2024 and 2028.[16]

3. Localising tech prowess

States are also contributing to the mission of a 'Digital India', and the smart use of tech is a feature of each case in this compendium. Today, nearly every state is implementing progressive information technology (IT) policies, and some have begun to lead the country's next growth wave of IT-enabled services.[17] Autonomous state-level efforts to strengthen e-services and digital infrastructure, along with initiatives focused on digital skilling, entrepreneurship, and innovation, have become widespread.

Several other models have also evolved for states to adapt and roll out central technology programmes. For instance, the Centre might build a digital backbone which states leverage to build their own portals, services, and workflows.[18] At the same time, some central schemes are developed explicitly to let states choose their preferred operating model, based on capacity and administrative preference;[19] or are premised on the ability of states to upgrade hardware at the frontline, and to ensure that local databases are reliable and interoperable.[20]

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15 "About Private Investment Unit (PIU)," Department of Economic Affairs, Government of India, https://www.pppinindia.gov.in/overview#:~:text=As%20per%20the%20World%20Bank,in%20various%20stages%20of%20implementation

16 *India Philanthropy Report 2024,* Bain and Company, 2024, p.12, https://www.bain.com/globalassets/noindex/2024/bain_report_india_philanthropy_report_2024.pdf

17 "Six Indian States Leading the Next Wave of IT and ITES Growth," Invest India, December 6, 2025, https://www.investindia.gov.in/team-india-blogs/six-indian-states-leading-next-wave-it-and-ites-growth

18 Press Information Bureau, Government of India, https://www.pib.gov.in/PressReleasePage.aspx?PRID=2162403&utm_source=chatgpt.com&reg=3&lang=2

19 "Now Making an Aayushman Card Has Become Even Easier," National Health Authority, https://beneficiary.nha.gov.in/

20 "One Nation One Ration Card," MyScheme, Government of India, https://www.myscheme.gov.in/schemes/onorc

A Framework of Principles

The cases in this volume traverse the expanse of India, from the hills of Himachal Pradesh in the north to the courts of Kerala in the south; and from Assam's tribal districts in the northeast, across the heartland of Madhya Pradesh, to the schools of Rajasthan in the west. As these stories crisscross the country, eight principles emerge for managing transformations in governance.

1. Involve communities from the outset to build trust.

Local communities must be engaged from the very inception of project planning. Their insights are crucial for designing development initiatives, and their participation builds trust, secures buy-in, and helps drive adoption. For example, in Odisha, over 4,000 farmers provided feedback and contributed to the content, design, and format of agricultural advisories meant for them—this increased their usefulness, and greatly strengthened the uptake of the state's Krushi Samruddhi Advisory System. The widespread use of these advisories has led to improved yields and farming practices in many cases. Similarly, in Assam, the creation of a cohort of 20 local tribal women to act as a bridge between their communities and public health systems has resulted in local institutions that mainstream health priorities into their activities, and marked improvements in maternal, child, and adolescent health outcomes.

2. Build multistakeholder partnerships and leverage core competencies.

At an institutional level, multistakeholder partnerships are the engine that drives the success of governance projects. Partners must be enlisted on the basis of their core competencies and the *complementarity* of these competencies. Broadly, state governments set the direction and ensure compliance. The private sector brings in management heft and technical and operational expertise. Civil society organisations contribute an understanding of local nuances and networks, as well as context-specific technical expertise. For instance, the creation and deployment of the Kumbh Sah'AI'yak chatbot for the Mahakumbh 2025 in Uttar Pradesh involved a partnership between two state government entities—the Prayagraj Mela Authority and the Uttar Pradesh Development Systems Corporation (UPDESCO)—and Samagra, the Bhashini platform, EkStep Foundation, the AI venture Krutrim, Amazon Web Services, and two other tech firms that provided messaging and translation services.

3. Adopt a data-driven and evidence-based approach.

Project design and execution should at all times be grounded in data and evidence. India has vigorously championed the use of data for development (D4D) in recent years, and the promotion of D4D became a rallying point of the country's G20 presidency in 2023.[21] Every case in this volume illustrates how rigorous data collection processes shaped projects and outcomes. In Madhya Pradesh, the Udhyam Shiksha programme that seeks to instil an entrepreneurial mindset in school students routinely collects a broad spectrum of data points from students, teachers, teams, schools, and districts. This is supplemented with data of a more qualitative and evaluatory nature from teachers and programme staff. These streams combine with further data from an AI chatbot and a portal for the initiative, and all of it flows to a central dashboard to monitor various facets of implementation.

4. Monitor progress continually, drawing on dashboards to determine action points.

The monitoring and evaluation of workflows within projects should be ongoing rather than occasional. The transparent presentation of metrics and activity status allows for immediate responses and corrective action. The use of online dashboards enables this process. 'Dashboarding' has helped transform outcomes for several projects featured in this publication. In Himachal Pradesh, efforts to deliver textbooks to state-run schools in time for the year's academic cycles have benefited from an online dashboard showing the real-time status of textbook collection. Stakeholders can track the movement of books from depots to blocks, to village clusters, culminating with an IVRS call confirming that the books have reached the target school. Similarly, under the rollout of the NIPUN Bharat Mission in Uttar Pradesh, a live dashboard consolidates data across 30 key performance indicators, which is then used to engineer improvements to students' learning outcomes.

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21 Anirban Sarma and Debosmita Sarkar, *Using Data to Advance the 2030 Agenda: Recommendations for the G20,* Think20 India, 2023, https://www.global-solutions-initiative.org/wp-content/uploads/2025/03/T20_PB_TF2_32_Using_Data_to_advance_the_2030_agenda.pdf

5. Ensure capacity building throughout a project's lifecycle.

Human capital and skills are the foundation for development. Capacity building and upskilling must therefore be an ongoing endeavour, and should be built into a project's design and budgets. Responding to this need, Haryana's Antyodaya Saral initiative—which has made over 1,000 public schemes and services accessible through a common digital platform—has foregrounded capacity building through repeated training cycles for operators and officials. And Kerala's ON Courts—India's first "digitally native court"—has continued to run training programmes for all user groups, including judges, court staff, advocates, and advocate clerks.

6. Mainstream gender considerations and promote women-led development.

Women-led development has been a pillar of India's progress over the last decade;[22] and there is evidence to show a strong correlation between empowered women and better development outcomes.[23] State projects should thus look to build-in women's leadership, empowerment, and inclusion wherever possible. The Karuna Fellowship programme in Assam squarely places a group of women community leaders at the centre of efforts to strengthen public health across districts. In the south, in Andhra Pradesh, the state's Family Benefit Management System (FBMS) is supporting and empowering expectant women, among other beneficiaries. The FBMS is helping nearly 50,000 pregnant women avail of maternal health services to which they are entitled but whose benefits they had not received earlier. Its success has encouraged other expectant women to enrol on the platform.

7. Offer multilingual and multi-channel access to services and content.

For public services to be accessible and inclusive, they ought to be made available through a range of channels or platforms, and in the languages best understood by target audiences. Multilingual and multi-channel access has been an important feature of a number of cases studied by the authors. Part of the reason for the popularity of the Kumbh Sah'AI'yak chatbot was that it offered text and voice interaction in ten Indian languages and in English, and could be used via WhatsApp, a dedicated web app, the

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22 Rajesh Kumar Thakur, "'Women-Led Development' Paving Way for New India: PM Modi at Mann Ki Baat," *New Indian Express,* June 30, 2025, https://www.newindianexpress.com/nation/2025/Jun/30/women-led-development-paving-way-for-new-india-pm-modi-at-mann-ki-baat

23 Press Information Bureau, Government of India, https://www.pib.gov.in/PressNoteDetails.aspx?NoteId=154585&ModuleId=3&reg=3&lang=1

Mahakumbh mobile app, and the Kumbh Mela's official website. In a similar vein, citizens of Haryana can apply for government schemes and services through the Antyodaya Saral online portal, at 117 state-of-the-art Saral Kendras, or through any of the more than 6,000 Common Service Centres (CSCs) across the state.

8. Aim to achieve quantitative and qualitative impacts.

Real-world impact is the ultimate indicator of a project's success. Often, however, impact tends to be assessed in terms of numbers, such as beneficiaries reached or the quantum of schemes utilised. But numbers alone offer only a partial understanding—they indicate scale, but not necessarily depth. Thus, the qualitative changes wrought by an initiative, including behavioural and policy changes, are equally important.

Every case in *Blueprints of Progress* has achieved remarkable quantitative and qualitative gains. For example, the use of Mindspark, a tech-enabled Personalised Adaptive Learning (PAL) platform, began in 2017 as a pilot across government schools in four districts of Rajasthan. By 2024–25, Mindspark had been adopted in more than 3,700 government schools across 17 states, reaching nearly 3.2 lakh students. It had led to a 50–66-percent increase in the productivity of instructional time, compared to regular classroom time. And Mindspark users typically scored higher in Maths and Hindi (the subjects on which the platform focused) than non-users. The qualitative gains were as notable, with clearer conceptual learning among students; teachers' increased comfort integrating lab sessions with classroom teaching; school administrators' use of real-time data to provide more focused support; and school-level policy decisions to shift to an integrated learning model.

Finally, a common strand that runs across the following chapters is the use of technology to support governance. As Prime Minister Modi said in a recent speech, "When science is scaled, innovation becomes inclusive, and technology drives transformation."[24] Indeed, *Blueprints* shows that tech deployment is never an end in itself; rather, it is the identification of the problem statement that is key. Tech is simply an *enabler* as states proceed to address specific challenges. This approach is foundational, and is shaping India's progress on the SDGs and its transition to Viksit Bharat.

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24 "PM Addresses the Emerging Science, Technology and Innovation Conclave 2025," PMIndia, November 3, 2025, https://www.pmindia.gov.in/en/news_updates/pm-addresses-the-emerging-science-technology-and-innovation-conclave-2025/

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Achieving FLN Outcomes at Scale: NIPUN Bharat, Uttar Pradesh

Madhura Sen

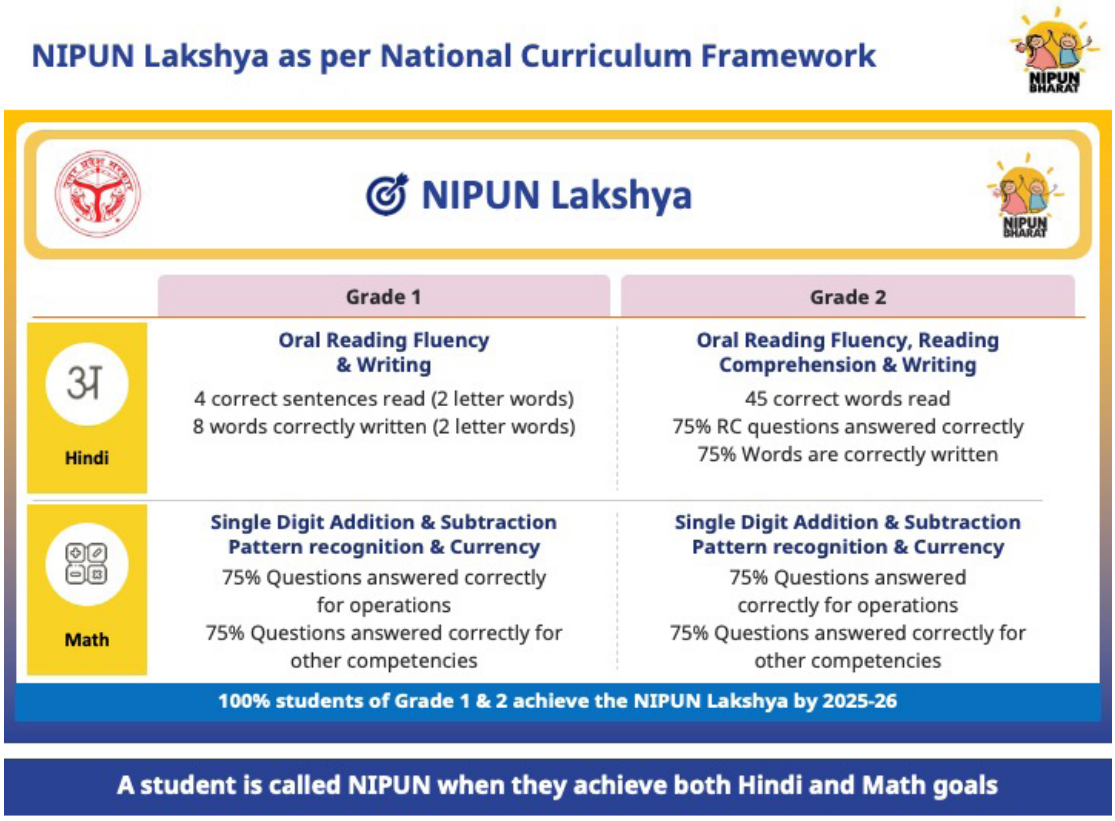
Introduction

IN FEBRUARY 2020, THE UTTAR PRADESH government launched Mission Prerna to improve primary school level literacy and numeracy across the state. After the Union Ministry of Education launched the nationwide National Initiative for Proficiency in reading with Understanding and Numeracy (NIPUN) Bharat Mission in July 2021 with similar objectives, Mission Prerna was subsumed into NIPUN.[1]

The Chief Minister of Uttar Pradesh, Yogi Adityanath, launches NIPUN.

1 Ministry of Education, National Education Policy 2020, Government of India, 2020.

The programme works across the state's government schools with the aim that every child acquires FLN skills by the end of Grade 2. These skills, defined as NIPUN Lakshya, set specific benchmarks in reading, writing, and numeracy. In contrast to earlier initiatives that primarily emphasised inputs such as infrastructure or teacher training, NIPUN UP introduced a measurable target on learning outcomes—i.e., at least 80 percent of students are expected to attain grade-level competencies by March 2027.



NIPUN Lakshya, according to the National Curriculum Framework.

In UP, the progress of the programme so far has been commendable. The share of state schools to have achieved the overall landmark has risen from just 4 percent in 2022–23 to 43 percent in 2024–25. In March 2023, 4,449 schools were recognised as 'NIPUN Vidyalayas' ('nipun' in English means 'proficient', Vidyalaya is 'school'), rising to 16,169 by 2023-34. The National Assessment Survey's (NAS) 2024 analysis showed that nationally, UP ranked 4th in Grade 3 Hindi and Mathematics learning outcomes—up from 19th and 18th in the two subjects, respectively, in 2021.[2] The Annual Status of Education Report

2 NCERT, *National Assessment Survey (NAS) Report*, National Council of Educational Research and Training, 2024.

(ASER) 2024 data similarly reveals that, among students promoted to Grade 3 since 2018, UP recorded gains of 20.4 percentage points in Arithmetic and 15.6 in Reading proficiency, and that it ranked 9th nationally in both subjects, making it the state with the most improved outcomes in the country.[3]

Behind these results lie systemic reforms that combine mentoring support with technology-enabled monitoring. The programme has empowered teachers through improved learning materials and annual training sessions. Teachers are guided through structured mentoring, with mentors adhering to a two-hour visit protocol that integrates observation, feedback, and demonstration.

Technology also plays a central role in sustaining the practices instilled by mentors: the NIPUN Bharat Monitoring Centre (NBMC) consolidates over 30 key performance indicators on a live dashboard; the NIPUN Lakshya app facilitates classroom assessments and tracks student progress; the Vidya Samiksha Kendra (VSK) manages more than 90,000 monthly calls to ensure compliance and feedback. With nearly 30 lakh students in Grades 1–2 and over 4 lakh teachers engaged, NIPUN UP is embedding technology-driven systems and mentoring protocols that promise sustainable improvements in foundational learning outcomes.

Rationale and Objectives

Enrolment in government schools in UP has historically been high; however, the quality of learning outcomes has not kept pace with enrolment. The ASER 2018 report had documented deficits in foundational learning in UP: only 28.9 percent of Grade 3 students in the state were able to read a Grade 1-level text, and fewer than half could perform basic subtraction.[4] The shortfall in FLN represented not merely a classroom issue but a systemic challenge with long-term implications for human capital formation and socio-economic development. Students who do not acquire these basic skills early in their schooling often struggle to engage with more advanced curriculum, leading to cumulative deficits that are difficult to reverse.

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3 ASER Centre, *Annual Status of Education Report (ASER) 2018: National Findings,* ASER Centre, 2019.

4 "Annual Status of Education Report (ASER) 2018: National Findings, 2019".

For NIPUN UP, the scale of the challenge was considerable. Earlier initiatives such as Operation Kayakalp, launched in 2018, had focused on improving school infrastructure and introducing teacher training programmes designed to strengthen pedagogy. They were important, but largely input-oriented;[5] they did not embed accountability for learning outcomes, due to which progress remained uneven. By introducing NIPUN Lakshya, which has clear, grade-wise benchmarks for reading, writing, and arithmetic, along with monitoring by NBMC, NIPUN UP established a measurable definition of success.

The rationale for NIPUN rests on three pillars. First, foundational skills are essential building blocks for all future learning. Without them, children cannot progress meaningfully through school, leading to cumulative and often irreversible learning deficits. Second, equity considerations demand urgent action—weak FLN disproportionately affects children from socio-economically disadvantaged backgrounds. Addressing this gap is a matter of social justice, ensuring that all children have equitable opportunities for mobility and productive futures. Third, the economic implications are also substantial. The state's long-term human capital development is directly linked to the success of this mission, as an underskilled young population constrains productivity, innovation, and competitiveness.

NIPUN UP also aligns with the national and global priorities. It reflects the vision of the National Education Policy (NEP) 2020, which placed FLN at the centre of early schooling. At the global level, it resonates with the United Nations Sustainable Development Goal (SDG) 4, particularly Target 4.1, which calls for all children to complete free, equitable, and quality primary education leading to relevant learning outcomes.[6]

Sustained improvements in foundational learning are thus not only an educational priority but also an economic imperative, shaping the quality of the future workforce and the state's capacity to participate effectively in national and global growth trajectories. NIPUN UP aims to close the learning gap and transform UP's educational system into one that is outcome-driven, equitable, and future-ready.

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5 Basic Education, Uttar Pradesh, "Operation Kayakalp," Department of Basic Education, Uttar Pradesh, https://basiceducation.up.gov.in/en/page/operation-kayakalp.

6 United Nations, "Take Action for the Sustainable Development Goals," United Nations, https://sdgs.un.org/goals.

Implementation, Innovation, and Impact

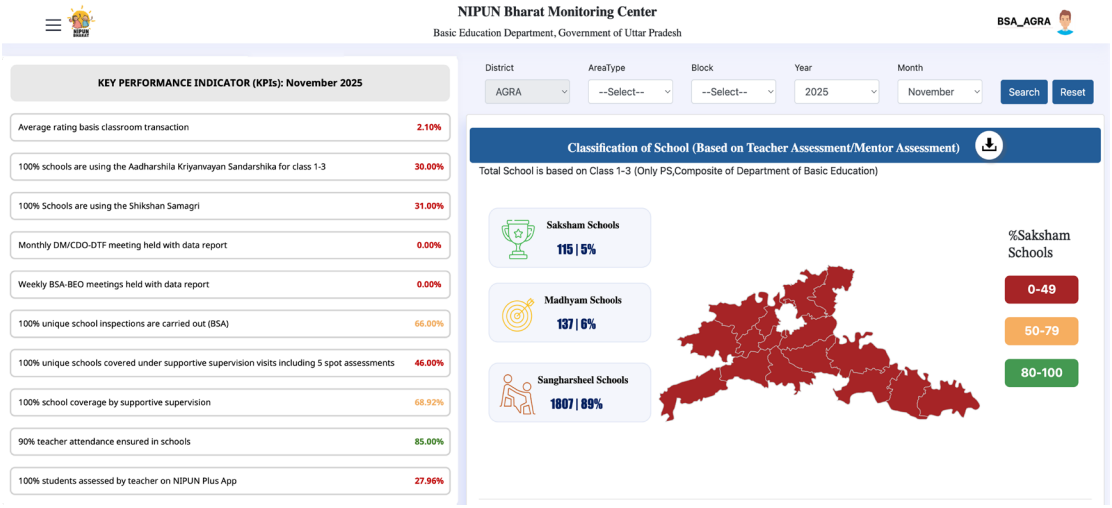
From Data to Insights

A central feature of NIPUN UP is the systematic collection of outcome and administrative data through a suite of technology-enabled applications. Outcome data on FLN is gathered through the NIPUN Lakshya app, which is used by both teachers and external assessors, such as mentors and supervisors. This dual-use design enables independent verification of student performance against the defined NIPUN Lakshya benchmarks, thereby strengthening the reliability of assessment data.

NIPUN Lakshya establishes clear learning goals for Balvatika (foundational or pre-school), Grade 1, and Grade 2 students in Hindi and Mathematics. At the foundational level, children must be made capable of identifying basic words and numbers, and arranging numbers and objects in sequence. In Grade 1 they must progress to basic sentence reading, word writing, and single-digit operations. By Grade 2, they should be well-equipped in reading comprehension, extended word writing, and double-digit operations alongside number, currency, and pattern recognition. A student is considered 'NIPUN' when they achieve the learning outcomes in both Hindi and Mathematics.

A teacher delivers instructions to students using the NIPUN Lakshya app through a mobile device.

The NBMC is a customised portal designed to support field-centric visualisation of data on a single interface, enabling data-based decision-making in review meetings and daily functioning. The VSK engages directly with schools and districts, nudging underperforming ones to improve, thereby embedding accountability within the education system.



The NIPUN Bharat Monitoring Centre (NBMC) dashboard.

From Insights to Action

Data Collection and Consolidation

There are complementary applications to support collection of administrative and process-related information. The Gunvatta app, for example, is used by mentors during school visits to record classroom transactions and pedagogical practices. The Nirikshan app is used by the administrative personnel during school inspections, providing structured inputs on compliance and school functioning. The Prerna portal serves as a broader platform for enrolment and administrative data, with teachers and administrators directly entering information on the ground. Together, these tools create a targeted and role-specific data ecosystem that captures both learning outcomes and institutional processes, with the data streams converging at the NBMC.

Translating Insights into Pedagogical Action

Insights generated by the NBMC inform the structured mentor-support protocol. Mentors use dashboard data to identify schools and teachers where student performance is weak. They then implement a two-hour cycle comprising classroom observation, feedback, and demonstration. This process supports teachers in adopting effective FLN teaching methods, linking data to pedagogical practice in a systematic manner. By standardising diverse

datasets into a unified format, the NBMC provides a transparent and comprehensive view of progress across schools, blocks, and districts. It aggregates data and transforms it into actionable insights.

Feedback

The VSK has institutionalised a real-time feedback loop, making over 90,000 calls every month to teachers, parents, and officials. This multi-channel system formalises communication across levels, enabling rapid identification of challenges and suggesting corrective measures. By incorporating community voices, the feedback loop strengthens accountability and reinforces collective ownership of learning outcomes.

Innovation in Governance

The core innovation has been the integration of smart technology. The NIPUN Lakshya app enables quick student assessments; the NBMC provides centralised, data-driven decision-making; and the VSK operationalises insights through direct engagement. Together, these mechanisms transform governance from compliance-driven reporting to outcome-oriented decision-making. Administrators rely on real-time dashboards; teachers receive targeted mentoring; and communities participate actively in monitoring progress.

The integration of technology-enabled applications for data collection, the translation of insights into structured pedagogical support, the institutionalisation of real-time feedback loops, and the embedding of innovation in governance collectively represent a systemic reform model. This comprehensive approach supports the strengthening of foundational learning and provides a replicable framework for large-scale education programmes seeking to combine technology, governance, and pedagogy in a sustainable manner.

From Challenges to Solutions

Ensuring Unbiased Data and Accountability

One of the earliest challenges NIPUN UP faced was reliance on school-reported data, which introduced risks of bias and inconsistency. This was addressed through the NIPUN Lakshya app. The app enhanced reliability and reinforced accountability across the system by generating real-time, independent data.

Building Teacher Capacity

Ensuring adequate teacher capacity was another hurdle. The state recruited additional teachers and invested in their professional development. The new entrants were given innovative teaching-learning materials (TLM), and have to attend week-long, in-person training sessions annually to enhance classroom engagement. A pool of mentors observes teachers in practice and provides feedback.

Sustaining Teacher Motivation

Even with resources and training, it was found that teacher motivation to engage in outcome-based teaching remained limited. An incentive was then introduced— 'NIPUN Vidyalayas'. Teachers could nominate their schools for this distinction, if they felt that more than 80 percent of their students had achieved FLN competencies. External assessors validate these claims, and schools meeting the benchmark are formally given this recognition. Teachers from these schools are feted at district-level events and acknowledged at the state level, fostering pride, and enhancing motivation.

From Action to Impact

Quantitative Impact

As mentioned earlier, the proportion of NIPUN Vidyalayas has increased dramatically between 2022-23 and 2024-25. The NAS 2024 report too, records UP's remarkable progress.

Qualitative Impact

Governance processes have undergone a transformation, with the NBMC becoming the 'single source of truth' for foundational education in the state, institutionalising transparency and accountability.

Behavioural Change

NIPUN UP has entrenched new practices and an outcome-oriented culture in education. Teachers use structured guides to deliver lessons and student workbooks to reinforce practice. Regular assessments against year-end outcomes, with remediation strategies devised to support learners who fall behind, have been introduced. Teachers have been demonstrating increased motivation to achieve the mission's goals.

An instructor conducts a teacher training session under NIPUN.

Conclusion

NIPUN UP has established itself as a notable initiative in India's education sector. The trajectory of the initiative has been one of rapid improvements in learning outcomes at scale, positioning the programme as a reference point for other large educational systems. Its success rests on its innovative, data-driven governance model, embedded with transparent and evidence-based decision-making. It has institutionalised behavioural change, offering a scalable framework for sustainable education reform.

However, the initiative has also highlighted areas requiring further attention. Schools with low teacher availability have been merged with larger institutions to optimise resources. The need to enhance incentives for mentors has been recognised. Addressing these gaps is important for strengthening impact.

Looking ahead, the initiative offers a replicable framework for other states and large-scale educational programmes. By embedding smart technology, transparent governance, and behavioural change, NIPUN UP has created a model that may inform broader policy directions. Addressing gaps is essential to sustain its progress and reinforce its role as a lighthouse initiative for advancing foundational learning.

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Putting Textbooks in the Hands of Every Child: Samarth, Himachal Pradesh

Swati Prabhu

Introduction

QUALITY EDUCATION FORMS the linchpin of the global development agenda. Ensuring timely and seamless access to textbooks and learning materials is a critical component of this goal, helping reduce learning loss, thus driving socio-economic progress.[1] One state in India has successfully accomplished this: Himachal Pradesh.

Historically, rough weather and hilly terrain compounded the operational challenges to delivering textbooks on time in the state, resulting in a loss of teaching and learning time. Moreover, with two academic cycles—winter and summer—both the schools and distributors struggled to manage and prioritise delivery channels. A textbook delivery project, under the Samarth program, was thus launched in 2015 to address this challenge. Its goal was to deliver textbooks for Grades 1–8 of state-run schools before the beginning of the academic cycle.

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1 UNESCO, "Every Child Should Have a Textbook," Global Education Monitoring Report, *Policy Paper 23,* January 2016, https://rtei.okfn.org/documents/Every_child_should_have_a_textbook_Global_Education_Monitoring_Report.pdf

By introducing high-impact and low-cost tech solutions to overhaul the traditional textbook delivery system, printing processes and supply chains were streamlined to cater to more than 15,000 government schools across Himachal Pradesh. The initiative met with success. In 2017-18, instead of an average delay of two and a half months, the project delivered around 55 lakh free textbooks, catering to about 6 lakh students, a month before the start of the academic session.[2] The following year, in 2018, the government of Himachal Pradesh institutionalised the project's successful design and implementation under the Directorate of Education, ensuring that timely textbook delivery would continue without any external intervention.

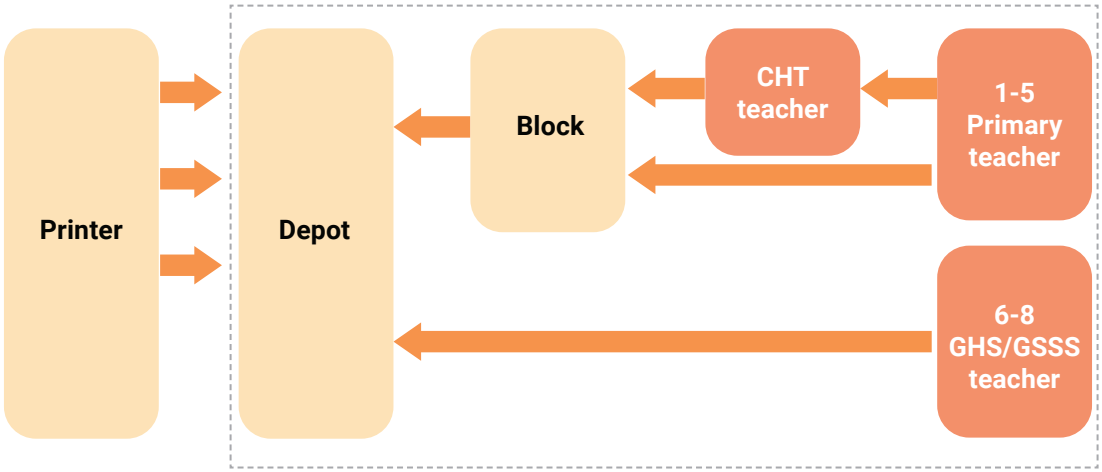
Students and teachers pose with textbooks distributed by Samagra. (Source: Samagra.)

2 Samagra, "Deliver Textbooks to all Government School Students Before the Next Academic Session," Timely Textbook Delivery, https://samagragovernance.in/amritseries/ttd/

Challenges to Textbook Delivery in Himachal Pradesh

Conventionally, textbook delivery in Himachal Pradesh was staggered, with a delay of 2 to 137 days in delivering learning material to students.[3] With no focused approach to speed up the textbook delivery process, significant losses were suffered in terms of both learning and teaching. Teachers, for instance, struggled to complete a 10-month syllabus in eight months to meet the examination timeline.[4]

Figure 1: Changes in the Supply Chain for Faster Delivery of Textbooks



Source: Samagra

Multiple factors contributed as chokepoints in the supply chain: lack of centralised tech systems for integrating demand receipts, resulting in excess paperwork; absence of streamlined communication channels from state and district/block offices; and overdependence on teachers for last-mile delivery. Problems emanated primarily from an outdated supply chain for textbook delivery, where processes were repeated multiple times (Figure 1). Teachers were burdened with the dual tasks of fulfilling lengthy manual processes to submit demands for textbooks to the government and at the same time collecting books from the delivery depot. Frequent travels across districts to collect order

3 Government of Himachal Pradesh, "Samarth: Statewide Systemic Reforms to Improve the Quality of Education", Samagra Shiksha Himachal Pradesh, http://samagrashiksha.hp.gov.in/content/8/83

4 Samagra, "Deliver Textbooks to all Government School Students Before the Next Academic Session," Timely Textbook Delivery.

indents from the deputy director of elementary education added to their woes. Moreover, owing to the lack of a centralised monitoring system, government officials themselves encountered operational difficulties in managing physical indents submitted by multiple schools.

Implementation, Innovation, and Impact

The textbook delivery project was rolled out after consultation with government authorities to set the vision of the initiative. Extensive stakeholder sessions and workshops were also held to generate momentum and a sense of possibility, and align on new processes and timelines.

Stakeholder consultations organised to redesign the textbook supply chain. (Source: Samagra.)

The project introduced a slew of best practices across all stages of the supply chain to save time and achieve timely text book delivery:

E-Indents

Previously, roughly 15,000 schools across the state sent their annual textbook demands manually to block officers. These orders, called indents, were then manually collected by the teachers from the district office. This meant long, time-consuming travels that could be devoted to lesson planning and teaching instead. Teachers then populated the

indents on the basis of enrolments. This was subsequently shared with the block office. The block officers then collated the demands and forwarded them to the deputy director of elementary education, who after verification dispatched them to the state authority responsible for printing, i.e., the Himachal Pradesh Board of School Education (HPBOSE). All of this was done manually on paper, making the process prone to data errors and leaks, resulting in a demand and supply mismatch.

Digital mechanisms for demand collection and verification were introduced in 2015 to ease the value chain and expedite processing. Schools submitted their requirements by filling an online form hosted on Himachal Pradesh's Department of Education website while adhering to strict deadlines. Block officers verified these demand notices digitally, thus eliminating extensive paperwork and saving time. These demands were then consolidated and redirected digitally by the block officers through another online form to the HPBOSE.[5] Strict deadlines were maintained at all levels to ensure transparency and accountability. Thus, what earlier took five months to process, the digitally enabled system achieved in 20 days.

Refurbished Tender Processes for Printing

The printing of textbooks was a constraint faced by the authorities and schools. Delays in the tendering process resulted in huge losses, both in terms of learning and finances. Under the new system, the tender process was prioritised and preponed to roughly two months before the start of an academic year. This allowed for the early printing of textbooks and their timely availability at depots. It also meant giving ample time to the tendering process, to accommodate any inadvertent delays caused by administrative bottlenecks. Penalties of up to 10 percent were also imposed on printers for delays, to ensure adherence to deadlines.[6]

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5 Samagra, "Deliver Textbooks to all Government School Students Before the Next Academic Session," Timely Textbook Delivery.

6 Samagra, "Amrit Series #9: Ensuring Learning for All: Himachal Pradesh's Timely Textbook Delivery Transformation".

Reduced Turnaround Time at Book Depots

Under the old system, printed books were first sent to depots. Across Himachal Pradesh, a mere 24 such depots were responsible for dispatching books to 15,000 schools across 125 blocks. Moreover, depot management techniques were inefficient to meet the demand. As per the existing process, for instance, senior school teachers and principals were supposed to travel long distances, in some cases 300 kilometres, and physically collect the books directly from the depot. This translated into no teaching for weeks until the entire process was finished.

Books were not pre-packaged either, which meant that the teachers and principals had to spend time searching for their particular set of books at the depot. Due to this, several teachers and principals often left without collecting all the books in one go, reflecting the lack of accountability in the depot management process.

Under the new system, the government introduced electronic indents or e-indents, which could be downloaded directly from the HPBOSE website by block officers. Aimed at streamlining the book distribution process, e-indents directed the depots to pre-package bundles of books for each block as per the requirement. This approach helped reduce the turnaround time by 30 percent and also minimised oversights.[7] Tailored bundles of textbooks were kept ready at the depot as per the demands received from the blocks.

For any successful distribution of a commodities supply chain, warehouses form a crucial component,[8] ensuring efficient and successful handling, distribution, and storage of commodities. Thus, as part of the new process, best warehousing practices were also disseminated amongst the 24 depots to cut room for errors and maintain timely deliveries.

Last-mile Delivery

The last-mile delivery process was transformed completely from many-to-one to one-to-many, improving efficiency by 40 percent.[9] To streamline the physical supply chain, the textbook collection responsibility was shifted from 15,000 teachers to 500 block officials.

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7 Samagra, "Amrit Series #9: Ensuring Learning for All: Himachal Pradesh's Timely Textbook Delivery Transformation

8 Rajashree Dange et al., "A Review on Good Warehousing Practices," *International Journal of Pharmaceutical Sciences,* April 25, 2025, https://www.ijpsjournal.com/article/A+Review+on+Good+Warehousing+Practices+

9 Samagra, "Amrit Series #9: Ensuring Learning for All: Himachal Pradesh's Timely Textbook Delivery Transformation".

The block officers collected the books and delivered them to the cluster head schools, from where the teachers could easily procure them. Each cluster housed 10–15 schools within close proximity, thus cutting down on physical travel time and multiple trips for the teachers. This also relieved the teachers of the logistical burden, enhancing the overall efficiency of the delivery process.

Enhanced Accountability

Under the existing process, an absence of data collection meant no monitoring was ever undertaken, making it difficult to hold the officers accountable. To address this, data-driven interventions led by the smart usage of digital technologies were introduced in the new system.

Clear roles and responsibilities were demarcated for teachers, district and block officers to enhance accountability at every stage. Delivery statuses were updated and shared at every step, based on the data collected. Frequent SMS reminders were also sent to stakeholders to adhere to timelines. This enhanced accountability and subsequently relevant stakeholders were held responsible for any sort of delays.

Further, instead of using popular yet complicated platforms like Google Forms or Sheets, the project collected and analysed data via micro tech-based support. Thus, online demand collection was initiated; indents were issued electronically; a multiple-channel helpline facilitated by telephone, email and WhatsApp was set up; and an online schedule was maintained and updated regularly. Such measures created an enabling environment for key stakeholders to adopt digital innovations seamlessly. This also ensured faster processing, allowing book distribution to commence on short timelines. WhatsApp groups allowed for daily book collection schedules and pictures of sealed book packages collected from depots to be posted by the block officers. Special tele-helpdesks were set up to offer real-time tracking for textbook delivery from the 24 depots to the 125 blocks. These helplines also acted as grievance redressal systems, instantly addressing any delivery-related queries. An online dashboard providing end-to-end visibility was established for tracking textbook collection status. Further, confirmation of textbook delivery was obtained using IVRS calls, ensuring 100 percent coverage.

Finally, the initiative employed data-driven analytics and redistribution to forecast textbook requirements and redistribute surplus stock.[10] This ensured that every school received the exact number of textbooks required, minimising wastage and shortages (Figure 2).

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10 Samagra, "Amrit Series #9: Ensuring Learning for All: Himachal Pradesh's Timely Textbook Delivery Transformation".

Figure 2: Actions Taken for Speedy Delivery of Textbooks

Stage	Action Taken	Time Saved
Printing of books	• Elimination of bottlenecks in printing (e.g. tender process) • Earlier issuance of tender with strict deadlines	2 months
Demand Collection	• Digital mechanism for demand collection & verification • Issuance of e-indents to remove authorization bottlenecks	2-3 weeks
Depot Management	• Pre-packaging of textbooks as per block demand • Disseminated of best practice for warehousing	1 week
Last mile distribution	• Changed last mile delivery from many-to-1 to 1-to-many • Established clear accountability of officials at each level	3-4 weeks
Monitoring & follow-up	• Special tele-helpdesk for textbooks • Scheduled and tracked (in real time) depot to block ovement of textbooks	1-2 weeks

Source: Samagra

Another strategic dimension to build accountability revolved around public commitment and media coverage. For instance, the Department of Elementary Education, Himachal Pradesh, had announced that textbooks would be delivered before the beginning of the academic session in both winter and summer schools. This generated a sense of civic accountability amongst officers involved at different levels. This was followed by public appreciation for and recognition of the efforts of officers who achieved their targets without any delay. On the other hand, disciplinary action and penalties were levied against officers for non-performance and non-compliance. Additionally, at present, in cases of delayed delivery of textbooks, parents can call up the helpline for support.

Conclusion

The 2030 agenda for sustainable development underlines the importance of giving all children "complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes."[11] The timely delivery of learning material forms a key aspect of ensuring its goal of quality education. Yet, a majority of states in India still struggle to provide textbooks to students on time—in Haryana, for instance, the Department of Education drew public ire in early 2025 when students in government primary schools failed to receive textbooks two months into the new academic session. Such delays in textbook delivery cause learning loss that impacts learning levels and educational equity.

Himachal Pradesh is thus a trailblazer, being the first state to deliver learning material to schools before the start of the academic session. By institutionalising timely textbook delivery in the state, the Samarth-led initiative has enhanced the quality, consistency, and reliability of the public education system in Himachal Pradesh.

The Samarth initiative sets benchmarks for both quality education and good governance in India. It demonstrates that when teachers are freed of the burden of logistical responsibilities of acquiring, collecting and distributing books, their efficiency improves significantly, allowing them to complete the curriculum on time and enabling uninterrupted education.

Notably, this also enriches the students' learning experience and boosts learning outcomes holistically. It also shows that bolstering accountability and transparency amongst stakeholders, coupled with rigorous, continuous monitoring, nurtures a culture of ownership amongst the community as a whole. This sets the stage for new reforms in the education sector, laying down the path for good governance.

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11 UNESCO, "Target 4.1 | By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes", SDG 4 Knowledge Hub, https://www.unesco.org/sdg4education2030/en/knowledge-hub/target-41-2030-ensure-all-girls-and-boys-complete-free-equitable-and-quality-primary-and-secondary

Though Samarth's intervention to ensure timely textbook delivery serves as a template for other Indian states to replicate,[12] challenges remain. The delivery of additional learning material, which is shared by Sarva Shiksha Abhiyan and other ancillary education projects, still remains to be addressed. Ushering reforms throughout the education landscape in the country necessitates a whole-of-society approach to foster sustainable development in the long run.

12 Geetanjali Gayatri, "Simply Haryana: Textbook Delivery Fast-Tracked After Public Outcry," *The Tribune,* April 15, 2025, https://www.tribuneindia.com/news/haryana/textbook-delivery-fast-tracked-after-public-outcry/

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Transforming Government-to-Citizen Services: Antyodaya Saral, Haryana

Arya Roy Bardhan

Introduction

ANTYODAYA SARAL IS A HARYANA STATE flagship initiative aimed at simplifying and standardising citizen access to government schemes and services by overhauling both online and offline channels for 2.7 crore residents. Launched in 2017 and anchored in the Chief Minister's Office (CMO), its primary focus was to streamline citizen experience in availing government services or schemes by improving accessibility, convenience, and speed.

From 2017–2020, more than 600 schemes and services from over 35 departments were integrated onto a unified platform, providing a common front door for government-to-citizen (G2C) delivery in the state. By 2025, coverage had expanded to around 1,015 schemes and services, with the platform processing over 1.7 crore applications annually, each captured digitally from submission to closure.

At the launch of the Saral portal by Haryana Chief Minister Manohar Lal Khattar, 15 September 2017. (Source: Samagra)

Citizens can now apply online through the Saral portal, or at 117 state-of-the-art Saral Kendras across the district, subdivision, and tehsil levels, or via more than 6,000 Common Service Centres (CSCs) distributed across the state. Every application leaves a 100 percent digital trail and is bound by the notified Right to Service (RTS) timelines.[1] Moreover, it can be tracked end-to-end using a unique ID through SMS alerts, the Saral portal, and the public RTS dashboard.

Saral beneficiaries at Saral Kendra. (Source: Samagra.)

Haryana's push for Saral is part of a wider wave of digital service-delivery reforms across the state, which is building a broader digital stack. Initiatives like the Parivar Pehchan Patra (Family ID) create an authenticated family database that allows schemes to be targeted and verified in real time,[2] while state IT (Information Technology) systems, such as 'Cashless Haryana' monitor digital payments and aim to reduce cash-based leakages in service delivery.[3]

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1 The Haryana Right to Service (HRTS) Act, 2014 ensures time-bound delivery of services. It mandates that government departments deliver services within specific, gazetted (RTS) timelines.

2 Deepak Bansal and Deepak Sawant, "Empowering Haryana Through Digital Innovation," National Informatics Centre, October 2024, https://informatics.nic.in/files/websites/october-2024/haryana.php

3 "Major IT Initiatives," Department of Information Technology Electronics & Communication, Haryana, https://haryanait.gov.in/major-it-initiatives/

Digital India has shifted the baseline for what citizens can expect from the state by investing in digital infrastructure, online service portals, and digital public platforms.[4] The Common Services Centre (CSC) network has expanded to nearly 5.9 lakh CSCs (around 4.7 lakh in rural areas), giving village-level access points for a growing bundle of G2C services.[5] Mobile platforms such as UMANG now aggregate over 2,300 services, with over 8 crore registered users and nearly 600 crore transactions, signalling both scale and regular use.[6] The National e-Governance Service Delivery Assessment (NeSDA) finds that States and Union Territories are delivering 69 percent of all mandatory e-services online, up from 48 percent in 2019, indicating the rapid diffusion of digital portals and single-window systems across India.[7] Against this backdrop, Antyodaya Saral can be seen as Haryana's approach to translating the broader Digital India shift into a concrete, state-level architecture.

Rationale and Objectives

Before Saral, Haryana's service delivery reflected the broader pattern across India of hundreds of citizen-facing schemes and services scattered across 30–40 departments, each with its own forms, offices, and norms. Citizens encountered three layers of friction: discovery (limited awareness of existing schemes, eligibility rules, documents, and fees), application (multiple visits to offices for signatures, verifications, and approvals), and tracking (little visibility into the movement of a file once it has entered the system).

For low-income households, these frictions translated into high economic costs in the form of the wages lost from repeated visits, discretionary payments to touts or 'agents', and foregone benefits when deadlines or documentation were unclear. Government officials faced parallel constraints. Applications came through multiple channels and formats; there was low visibility on pendency and RTS compliance, and officers spent a disproportionate amount of time handling routine grievances and status enquiries.

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4 "About us," Digital India, https://www.digitalindia.gov.in/about-us/

5 "Digital India: Revolutionising the Tech Landscape," Invest India, February 15, 2024, https://www.investindia.gov.in/blogs/digital-india-revolutionising-tech-landscape

6 "India's e-Governance turns 11: over 1.07 crore officials onboarded on Karmayogi Bharat," *DD India*, June 12, 2025, https://ddnews.gov.in/en/umang-crosses-8-crore-users-offers-2300-government-services-in-23-languages/

7 "NeSDA Way Forward Annual Report 2023," Department of Administrative Reforms and Public Grievances, https://it.delhi.gov.in/sites/default/files/IT/generic_multiple_files/nwf_annual_report.pdf

Nationally, the policy environment was shifting towards Digital India, state-level RTS laws, and mission-mode e-governance, creating a window for state-level reform anchored in digital public infrastructure. Haryana had notified RTS timelines but lacked an integrated platform that could operationalise them at scale across departments and geographies. The economic rationale for Antyodaya Saral was therefore clear. The State needed to build a single, citizen-centred architecture that lowers access costs, creates credible commitment to time-bound delivery, and sharply reduces discretion by replacing paper files with digital trails.

Antyodaya Saral was also aligned with multiple state priorities and Sustainable Development Goals (SDGs), including SDG 16 on effective, accountable institutions and reduced corruption, as well as SDGs 1 and 10 on poverty and inequality through improved access to entitlements, and SDG 9 on digital infrastructure. The project's core objectives are fivefold:

1. To unify service delivery by hosting all G2C schemes and services on a single interoperable portal with standardised processes.
2. To enforce time-bound delivery through RTS-linked workflows, auto-escalations, and digital audit trails that enable monitoring at scheme, office, officer, and district levels.
3. To reduce citizen transaction costs via multi-channel access (online, Saral Kendras, CSCs) and provide clear information on eligibility and documents, and helpline-based support.
4. To curb corruption and middleman interference by minimising direct public dealing at departmental offices and increasing transparency through digital trails, dashboards, and auto-appeal systems.
5. To build in-house technical and analytical capacity within the state so that Antyodaya Saral remains vendor-independent and institutionally embedded in Haryana's governance architecture.

Implementation, Innovation, and Impact

From Data to Insights

Saral began with a systematic diagnostic of the entire citizen-facing service delivery ecosystem. The state first mapped more than 550 schemes and services across 35+ departments, placing each on a four-level technology maturity scale from completely offline (L0) to a "Saral-ready" fully citizen-centric (L3).[8] This exercise revealed that a majority of services were either fully offline or only partially online, with considerable variation in process design and citizen experience. The diagnostic showed that citizens faced more than 250 completely offline schemes/services requiring full physical interaction, while only a small fraction could be accessed in a genuinely citizen-centric manner.

This mapping not only quantified the challenge but also provided a sequencing strategy for onboarding. It helped identify which services could be quickly configured on the platform, which required deeper re-engineering, and where early wins were possible. On the supply side, the state collaborated with the National Informatics Centre (NIC), Haryana and the NIC, Government of India, to understand existing databases and applications that could be integrated into the ServicePlus architecture. A dedicated team of 100+ IT personnel across 35+ departments was trained to configure workflows, business rules, payment gateways, and reports on this shared platform.

Simultaneously, the state began building the analytics backbone that would later power accountability, ensuring that each application had a unique ID and each processing step was time-stamped. Compliance with RTS timelines was recorded at the scheme, office, officer, and district levels, allowing granular visibility into where delays occur. Dashboards then aggregated these data into a composite Saral Score for each district and department, combining RTS compliance, grievance redress timelines, and citizen feedback.

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8 The four layers are: L0 – completely offline; L1 – Backend Database; L2 – Partially Online; L3 – Saral ready.

A preview of the Saral dashboard. (Source: Samagra.)

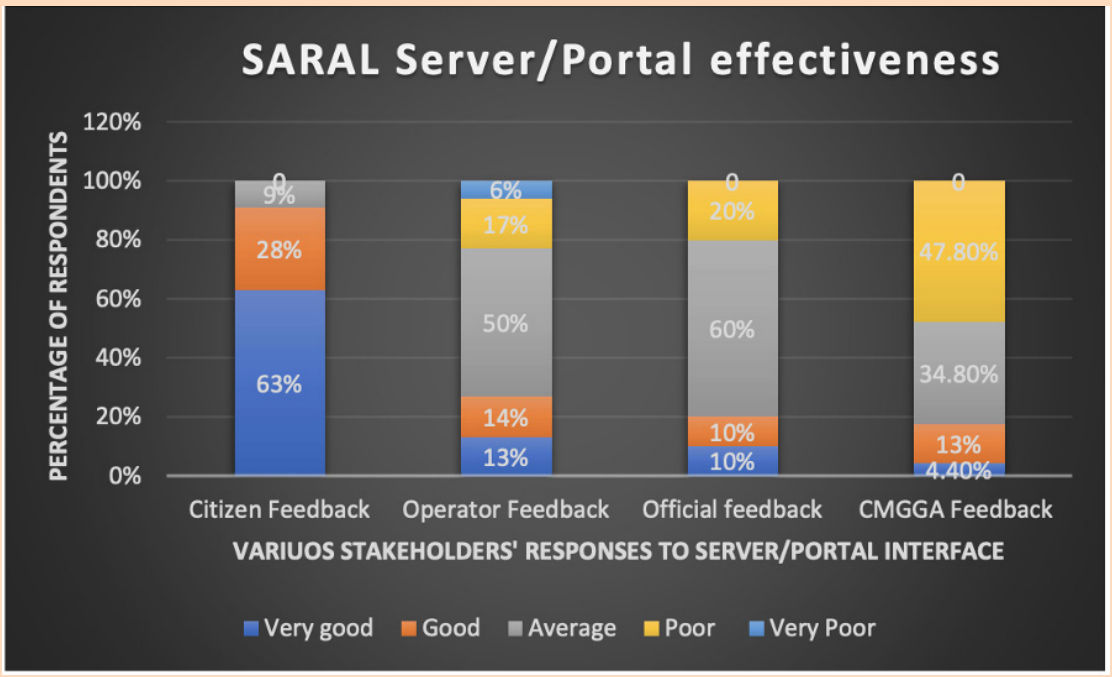
Citizen perception was also treated as data from the outset. An early independent study (by a Rohtak Assistant Commissioner) in Rohtak district surveyed 164 citizens, 30 operators, and multiple officials to assess awareness, satisfaction, and implementation challenges.

Key Findings from the Rohtak Survey

The survey found that:

- While 80 percent of citizens had heard of Saral, the overall awareness of the RTS Act and grievance procedures was low.
- 41 percent strongly agreed that the RTS timelines were complied with upon implementation of the initiative.
- 52 percent were highly satisfied with grievance redressal mechanisms.
- Overall satisfaction was high, with 86 percent of citizens rating their experience with Antyodaya Saral Kendras or the portal as ‘very good’.
- 81 percent rated the staff as courteous and professional, while 71 percent rated operators as helpful and responsive.
- There was lower satisfaction rate with the quality of Kendra infrastructure – only about one-third of citizens applied online themselves, underscoring the importance of assisted channels.

Figure 1. Saral Server and Portal Effectiveness Survey Findings



Source: Independent Case Study by a Rohtak Assistant Commissioner. Provided by Samagra.

Taken together, the administrative data and survey evidence generated a clear insight: digitisation had to be universal and end-to-end. This data-first approach created the institutional foundations needed to realign incentives, monitor performance, and reduce the information asymmetries between citizens and the state.

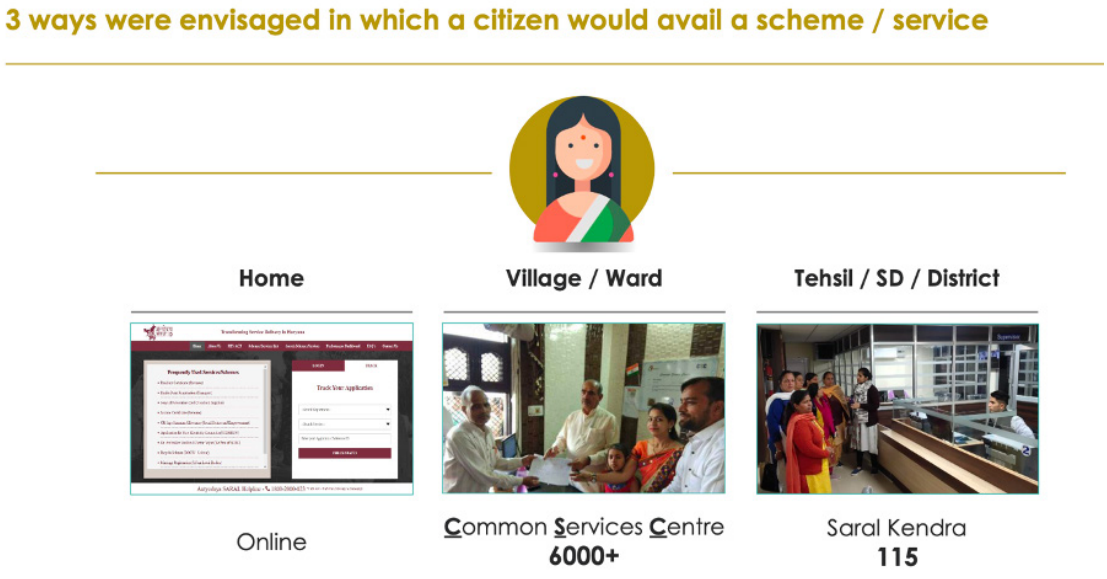
From Insights to Action

Building the Unified Digital Spine

Given the fragmented starting point, Haryana chose the NIC ServicePlus platform as the backbone because it could integrate legacy systems while allowing configurable workflows and forms. The state consciously avoided an external vendor-led build and relied instead on the NIC Haryana State Unit, supported by a core team of in-house scientists, to ensure long-term ownership and sustainability. The Antyodaya Saral online platform was designed with three core citizen-facing features: online application, online status tracking, and proactive status SMSs at each stage. Every approval, rejection, or query is recorded in the system, eliminating the opacity of paper files and creating a full digital audit trail for all the onboarded schemes and services.

Redesigning Citizen Touchpoints

To translate the digital mainstay into real access, the state re-engineered physical touchpoints both structurally and from an amenities point of view. A network of 117 Saral Kendras at district, subdivision, and tehsil levels was established or revamped, each with a standardised citizen-centric layout including a helpdesk, token system, counters, AC waiting area, clean washrooms, and clear signage. These Kendras act as single-window centres where citizens can apply for any Saral scheme or service, irrespective of the department.



Source: Samagra

In parallel, more than 6,000 CSCs were trained and enabled on the Saral platform, expanding their portfolio from about 50–60 schemes pre-Saral to over 600 schemes/services initially and later to over 1,000. Once the touchpoints were activated, direct walk-ins to local departmental offices were largely restricted, with citizens being channelled through standardised Saral touchpoints.

Creating Enabling Systems and Teams

Recognising that technology alone would not suffice, Haryana built a suite of enablers around the platform. A single statewide Saral Helpline staffed with over 80 operators was established to answer scheme queries and log grievances, reducing the routine footfall in government offices. A Knowledge Management System was developed to maintain up-to-date information on eligibility, benefits, documents, and fees, accessible both to citizens and helpline staff. An IVRS (Interactive Voice Response System)-based feedback

system calls citizens after the submission of the application and ticket closure to record satisfaction scores, generating more than one crore feedback calls with an average rating of 4.3 out of 5. An e-token system helps manage crowds inside the 117 Saral Kendras, improving the quality of the citizen experience and standardising queue management.

Implementation was driven in mission mode by a 140+ member cross-government team comprising NIC (GoI), NIC Haryana, state departments, and Samagra, coordinated through daily WhatsApp groups, weekly technical reviews, and fortnightly CMO-chaired meetings. This intensive coordination enabled the rapid onboarding of 526 schemes and services and the full operationalisation of Saral by Good Governance Day in 2018.

Embedding Accountability and Anti-Corruption Features

The programme's design embeds anti-corruption logic by minimising direct interaction between citizens and departmental offices. Most walk-ins are channelled through Saral Kendras or CSCs, and for over 300 schemes and services, no interface with departmental officials is needed at all. Each application is logged with clear timestamps, making delays and deviations visible, and allowing automatic escalation through the auto-appeal system when RTS timelines are breached. Dashboards with Saral Scores are reviewed at multiple levels, from the CMO to department heads and district collectors, turning data into performance pressure.

Over time, the architecture has been deepened by integrating Saral with the Parivar Pehchan Patra database, enabling pre-filled forms, reduced documentation, and, in some cases, proactive service delivery. An auto-appeal system now automatically files an appeal when an application breaches its RTS timeline, and penalties have been imposed on multiple officials responsible for delays, signalling credible enforcement. From an economic governance standpoint, these features shrink the space for arbitrary discretion and rent-seeking by establishing that delays and non-compliance will be detected and penalised.

From Challenges to Solutions

The Rohtak study also provides a candid view of implementation bottlenecks and citizen experience. Operators rated internet connectivity poorly, with only about 27 percent deeming it 'very good' or 'good' and a majority citing slow speeds and frequent disruptions. Officials and CMGGAs (Chief Minister's Good Governance Associates) similarly flagged server performance, portal interface, and inter-departmental coordination as 'average' or 'poor', highlighting back-end infrastructural and organisational constraints.

Soft skills emerged as another weak link – while 87 percent of operators reported receiving technical training on the Saral portal, a substantial share reported limited exposure to communication and customer-handling training. More than 90 percent of officials and CMGGAs expressed that front-line staff needed behavioural and soft-skills training to fully meet citizen expectations.

Awareness gaps were equally evident. Although 80 percent of the surveyed citizens in Rohtak were aware of Saral, only 41 percent strongly agreed that RTS timelines were complied with, and only around half were highly satisfied with grievance redress mechanisms. Only about one-third of the citizens had ever applied independently online, with many preferring assisted access through Kendras or CSCs. Satisfaction with Saral infrastructure was lower than overall service satisfaction, with 69 percent rating Kendra infrastructure as 'very good' and 22 percent as 'good', indicating room for improvement in amenities.

These findings prompted both operational and policy responses. On the supply side, the state invested in strengthening IT infrastructure, server performance, and District Informatics Officer support, working closely with NIC to resolve technical bottlenecks. The steady rise in RTS compliance — from about 85 percent of applications closed within timelines initially to around 92 percent in 2024 — suggests that these backend improvements have paid off. On the human-capital front, the initiative emphasised capacity-building through repeated training cycles for operators and officials, as well as the technical and soft-skills training recommendations emerging from the Rohtak study.

The helpline and IVRS feedback systems provided live signals on staff responsiveness and citizen satisfaction, enabling targeted improvements at the front line. Policymakers also recognised the structural risk of over-reliance on contractual operators and began exploring greater involvement of permanent staff using their own logins and taking ownership of last-mile service delivery, as recommended in the Rohtak study. On the demand side, the state undertook extensive IEC campaigns via television, radio, and outdoor hoardings to improve awareness of Saral, RTS timelines, and grievance mechanisms. Together, these measures have gradually broadened adoption beyond early urban users to a wider base of rural and low-income households accessing services through CSCs and Saral Kendras.

From Action to Impact

The combined effect of these measures is visible across both quantitative indicators and behavioural shifts in the citizen–state relationship. Between 2017 and 2020, Antyodaya Saral contributed to a 31-percent reduction in average processing time for applications, a 40-percent increase in scheme and service adoption, and a 20-percent expansion in

population coverage. A composite 'Saral Score' combines RTS compliance, grievance redressal performance, and citizen feedback to rank departments and districts, and is reviewed regularly from the CMO down to departmental and district leadership.

Early results show a 92-percent RTS compliance rate in 2024, a 40-percent increase in adoption and a 20-percent increase in population coverage. The initiative was awarded with national recognition through a first ranking in the Citizen-Centric Governance Index (2021), the Digital India Award, and a Gold Award at the National Conference on e-Governance. From an economic lens, Antyodaya Saral has reduced the price of accessing the state by lowering the transaction, search, and uncertainty costs for citizens seeking legally-guaranteed services.

On the citizen side, Saral has made service delivery resemble e-commerce tracking: more than 5 lakh applications are received every month, over 15 lakh status-update SMSs are sent, and more than 1 lakh queries are resolved monthly through the helpline. Citizen satisfaction, measured via IVRS, averages 4.3 out of 5 from more than one crore calls made to date. Evidence on corruption reduction is indirect but promising. In Rohtak, 56 percent of citizens strongly agreed, and another 24 percent agreed that Saral had reduced corruption and middlemen, and 71 percent reinforced that middlemen had reduced; 80 percent of the officers strongly believed that Saral could reduce lower-level corruption.

Saral beneficiaries at Saral Kendra. (Source: Samagra.)

The Rohtak study also notes that in the absence of rigorous counterfactuals, definitive causal claims on corruption are difficult. However, the direction of change and design features are consistent with economic theory on how reducing discretion and increasing transparency can diminish rent-seeking opportunities.[9] Within government, Saral has reshaped incentives and capacities: officials process applications fully online, receive weekly SMS summaries of pendency, and face regular reviews where Saral Scores are scrutinised. The RTS Commission, previously under-utilised, has become a proactive enforcement body, using the auto-appeal system to penalise delayed applications and strengthen timely delivery and accountability.

National recognition has validated the model and spurred interest from states such as Karnataka, Maharashtra, West Bengal, Kerala, Assam, and Uttarakhand, some of which have already adopted elements of the approach. From an economic perspective, these impacts amount to a large-scale reduction in the effective cost of accessing public services and a shift towards rule-based, data-driven governance.

Conclusion

Antyodaya Saral demonstrates how a state can move from fragmented, paper-heavy service delivery to a unified, digital, and rule-bound architecture in a relatively short period. By tightening rules and shrinking discretion, Saral has shifted the expected returns from corruption versus compliance in favour of honest delivery.

Several features make Saral a lighthouse initiative. First, it treats technology as infrastructure rather than a cosmetic front-end, using a common platform, integrated databases, and a Saral-Parivar Pehchan Patra system to re-engineer back-end processes. Second, it embeds accountability by design through Saral Scores, performance dashboards, auto-appeals, and the active involvement of the RTS Commission and CMO in regular reviews. Third, it invests in both supply-side capacity (technical teams, DIO support, trained operators) and demand-side voice (helplines, feedback loops, public dashboards, and IEC campaigns).

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9 Elisabeth Paul and Dabla-Norris Era, “What Transparency Can Do When Incentives Fail: An Analysis of Rent Capture,” IMF Working Papers, 2006, https://www.elibrary.imf.org/view/journals/001/2006/146/article-A001-en.xml

For Haryana, Saral advances core state priorities like ease of living for citizens, better utilisation of welfare spending, improved revenue through stronger compliance, and enhanced trust in government. It directly contributes to SDG 16 on effective, accountable institutions and indirectly supports SDGs on poverty reduction, inequality, and innovation by improving access to state services. At the same time, the journey has brought up important policy gaps. For instance, awareness and digital literacy remain uneven, especially among rural and marginalised communities; backend connectivity and grievance redressal require continued upgrading. Moreover, long-term sustainability will require reducing dependence on contract operators and deepening ownership among permanent staff.

Looking ahead, proactive, data-driven service delivery using the Saral-Parivar Pehchan Patra stack to pre-identify eligible households, reduce repetitive documentation, and design "life-cycle bundles" of services should be the next frontier. Rigorous third-party evaluations, including counterfactual designs, could further strengthen the evidence base on corruption reduction, welfare gains, and long-run institutional change. If these next steps are taken, Antyodaya Saral can evolve from a successful state reform into a national reference model for citizen-centric, corruption-resistant, and economically efficient service delivery.

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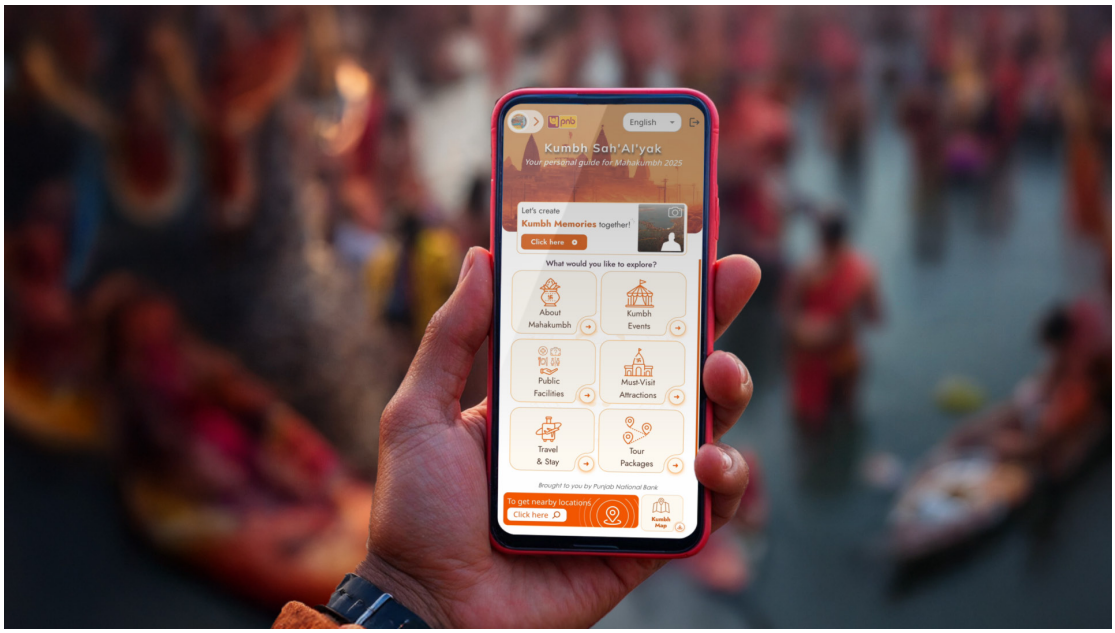
Leveraging AI for the Common Citizen: The Kumbh Sah‘AI’yak Chatbot

Debajyoti Chakravarty

Introduction

KUMBH SAH'AI'YAK (KS) WAS A POPULATION-SCALE, multilingual AI (Artificial Intelligence) chatbot created to meet the extraordinary governance and service-delivery needs of Mahakumbh 2025—a landmark congregation at Triveni Sangam, Prayagraj that brought together an estimated 60 crore pilgrims over 45 days.

Launched by the Prime Minister on 13 December 2024, KS operated seamlessly across WhatsApp, a web app, the Mahakumbh mobile app, and the official website, enabling text and voice interactions in English and 10 Indian languages. Developed by the Prayagraj Mela Authority and the Uttar Pradesh Development Systems Corporation Ltd. (UPDESCO), with Samagra as anchor partner, the chatbot aimed to provide accurate, real-time, inclusive, and easily accessible information to every pilgrim, regardless of their linguistic background or familiarity with the event.



A snapshot of the interface of Kumbh Sah'AI'yak app/chatbot. (Source: Samagra)

The app helped users plan their travel, locate facilities, navigate ghats, understand the significance of Kumbh, and access on-ground support. In doing so, it effectively addressed one of the most pressing governance challenges of large-scale gatherings: delivering reliable last-mile information and assistance when human resources are stretched beyond their limits.

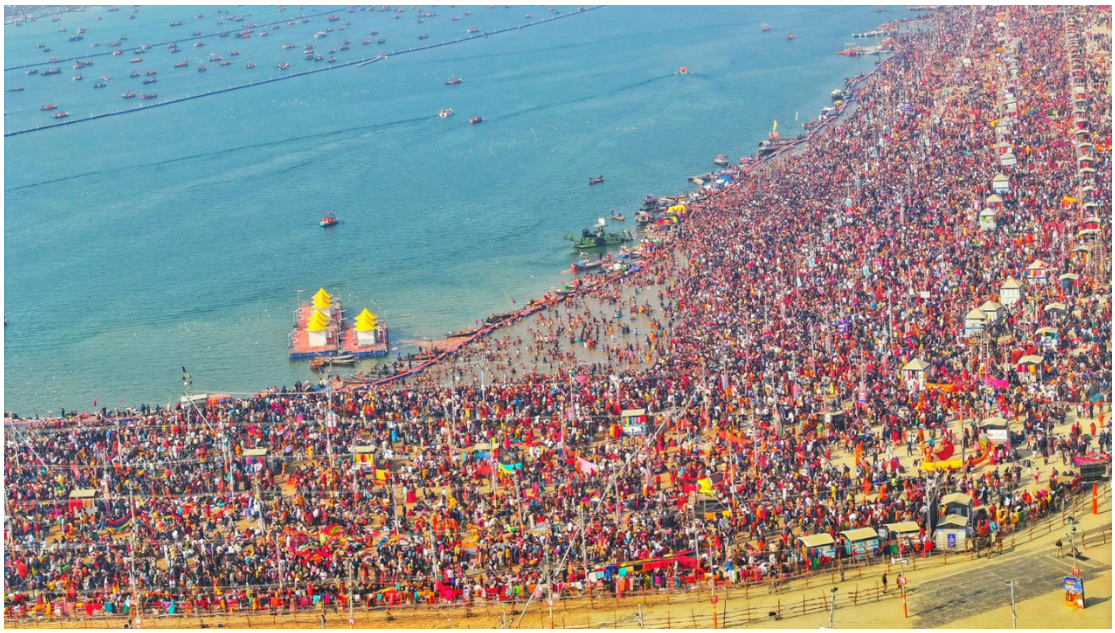
The emergence of KS was also timely within a broader national context. Building on India's comprehensive drive to develop inclusive, responsible, and high-impact AI solutions under the aegis of its IndiaAI Mission, the country is set to host the AI Impact Summit 2026, which will foreground the use of AI for development and the social good. The KS initiative exemplified these principles in action. It demonstrated how sovereign, public-purpose AI applications could promote inclusion by eliminating language and accessibility barriers, how safe and trusted AI could be deployed at scale in sensitive religious and cultural environments, and how innovation could boost state capacity especially in relatively low-resource settings.

Throughout its operational phase,[1] KS crossed a number of adoption milestones. It served over 3,00,000 unique users, facilitated more than 5,00,000 sessions, and handled 1,32,000 text and voice queries with an average latency of just 10 seconds. With a 70 percent

1 The chatbot was launched on 13 December 2024 with pre-Mahakumbh planning features. Full functionality went live on 13 January 2025 as the Mahakumbh began, and was operational until the end of February, after the event concluded.

successful answer rate, 40 percent repeat usage, 82 percent positive feedback, and users from 102 countries, KS demonstrated not only technical reliability but remarkable behavioural adoption. Pilgrims embraced digital 'self-service' for navigation, information, and support that complemented on-ground, in-person support. Its multilingual design, including English, Hindi, and nine other Indian languages, showed how AI can bridge socio-linguistic divides and deliver inclusion at scale.

In essence, Kumbh Sah'AI'yak was more than a tool for one mega-event. It was a blueprint for how AI can strengthen governance, enhance administrative capacity, and deliver prompt, user-centric public services. As India prepares to lead global conversations on AI, KS presents a glimpse of what citizen-first AI can achieve.



An aerial view of the Kumbh Mela. (Source: Samagra.)

Rationale and Objectives

KS, the AI chatbot, was born from a simple idea: when millions of people from different states, languages, and digital familiarity levels converge on a site of religious and cultural significance, information becomes a critical public good that must be made available to everyone in a form they can use.

What made this possible was a deliberate choice to build on homegrown AI building blocks and trusted partnerships: Bhashini, India's indigenously developed AI-powered language translation platform, provided live speech-to-text, text-to-speech, and translation pipelines

(along with a customised Kumbh-specific glossary of words with profanity checks) to bridge language and accessibility gaps, while Krutrim, India's first AI unicorn, hosted an open-source Llama 8B model on Indian servers to deliver managed LLM services, making the application sovereign and locally governed.

The KS chatbot was designed with a clear set of objectives to streamline the operation of Mahakumbh 2025:

- **Ensure inclusive, multilingual access:** Enable every pilgrim, regardless of language or digital familiarity, to obtain round-the-clock, accurate, and timely information through both text and voice interactions available in 10 Indian languages.
- **Enable human-like, accessible conversations:** Provide a free-flowing, intuitive conversational experience that complements real human assistance, ensuring ease of use for even digitally-inexperienced users.
- **Maintain religious sensitivity and cultural accuracy:** Ensure that all responses are accurate and without hallucination, reflecting the spiritual and cultural significance of the Mahakumbh. Maintaining respect, authenticity, and contextual correctness at all times is critical.
- **Promote safety-first information delivery:** Strictly avoid any guidance that could disrupt on-ground operations or jeopardise crowd management, prioritising the safety and security of all pilgrims.
- **Provide personalised and equitable assistance:** Bridge language and knowledge gaps through personalised responses and accessible formats, ensuring equitable access to facilities, services, and essential event information for all attendees.

Together, these objectives positioned KS as a responsible, citizen-centric AI system tailored for large-scale and potentially complex public gatherings.

The homepage/dashboard of the KS app. (Source: Samagra.)

Implementation, Innovation, and Impact

From Data to Insights

The Mahakumbh project followed a clear and purposive approach to data collection, combining focused fieldwork (primary research) around Prayagraj with structured secondary research to quickly understand what users actually needed. This also enabled them to create the appropriate 'use cases' accordingly.

Starting in August 2024, teams spoke with the people most involved in or affected by the Kumbh: pilgrims, mela authority officials, police and volunteers managing the crowds, medical teams, tour operators, civil defence volunteers, the Integrated Control and Command Center Helpline, and UP State Tourism Department personnel, among others. These discussions helped identify the challenges that people were likely to face in planning and executing the pilgrimage, the types of information they looked for, and the situations in which prompt information could be of help. Secondary research from institutional reports like the Indian Institute of Management-Bengaluru (IIM-B), Motilal

Nehru Institute of Research and Business Administration (MONIRBA), IIIT Allahabad, as well as government tenders and the official Kumbh website/apps, were used to validate these findings and fill knowledge gaps.

The creation of a Mahakumbh-specific knowledge repository was a key innovation. This involved compiling nearly 1,000 question/answer pairs—about six lakh words with a Hindi-first approach—ensuring cultural and linguistic accuracy. Given the many unique linguistic sensitivities and religious references around the Kumbh, the project developed a specialised glossary so that the chatbot could correctly understand terms like "Lete Hue Hanuman Ji" (Reclining Hanumanji) from user queries. The repository was then translated into 10 Indian languages, refined for pronunciation, and supported by an expanded profanity and sensitivity filter specifically curated for the Mahakumbh.

All this analysed data then informed the chatbot's three broad categories of user-tailored applications: providing reliable information, helping users navigate inside the Kumbh, and offering memory-based features like photo backdrops. Furthermore, after the chatbot went live post December 2024, user behaviour, ground feedback, and learnings from user queries were then used to further refine features and enhance its interface.

In this way, purposeful data collection was continuously transformed into practical actions that improved user experience and accessibility during the Mahakumbh.

From Insights to Action

As the time drew near for the launch of the chatbot, the team moved into its phase-wise development. From August to December 2024, activities such as scoping, content curation, RFP (Request for Proposal) procurement, partnership building and product development were covered. The chatbot was officially launched on 13 December 2024.

Prime Minister Modi at the launch of Mahakumbh 2025. (Source: Samagra.)

Reflecting this vision, Bhavish Agarwal, founder of Krutrim, noted: "This chatbot for #MahaKumbh2025 will redefine the experience of all the devotees in Prayagraj, marking a milestone in uniquely Indian cultural-tech convergence."[2] It was in this spirit that the chatbot was further improved through a series of thoughtful design and implementation choices aimed at ensuring reliability, inclusivity, and accuracy.

- **Enhancing multilingual support:** Practical insights also played a role in shaping certain precautionary steps. To reduce hallucinations and ensure content accuracy and outreach, a Hindi-first approach for the creation of religious content was taken up. This was complemented by multilingual support across 11 languages to boost user accessibility among the language-diverse pilgrims.

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1 Bhavish Aggarwal (@bhash), "@Krutrim will provide LLM services for Kumbh Sah'AI'yak app - AI chatbot launched by Hon. PM @narendramodi ji today. This chatbot for #MahaKumbh2025 will redefine the experience of all the devotees in Prayagraj, marking a milestone in uniquely Indian cultural-tech 🇮🇳💪🙏" X tweet, December 13, 2024,

https://x.com/bhash/status/1867510209985253650?refsrc=twsrc%5Etfw%7Ctwcamp%5Etweetembed%7Ctwterm%5E1867510209985253650%7Ctwgr%5E692a54a71319f4b0e49f1528ac000ce47e3c77f8%7Ctwcon% 5Es1_&ref_url=https%3A%2F%2Fwww.cnbctv18.com%2Ftravel%2Fculture%2Fmaha-kumbh-2025-pm-modi-launches-kumbh-sahaiyak-chatbot-bhavish-aggarwal-krutrim-ai-to-assist-19523935.htm

- **Mitigating hallucination:** A prompt and menu-driven hybrid interface that first funnelled users through a two-to-three layers of button-based guided queries before opening up to a free-flowing chat (unguided queries) reduced the strain on the bot regarding open-ended queries and cut down the risk of hallucination. In cases where the bot could not answer a user query, it reported so.
- **Building on core competencies:** A project of this scale required close coordination between several partners and technologies. Work was therefore allocated among project partners to optimise output.

Table 1: Partners and the Distribution of Roles

Partner	Competency, Role, and Function
Samagra	It anchored the entire multi-stakeholder partnership while directly owning the product design, product development, including the RAG (Retrieve Augment Generate) model, and the content curation/creation (the Prayagraj Mela Authority officials greenlit the effort through an advisory committee consisting of the University of Allahabad, Central Sanskrit University, MNNIT Allahabad).
Bhashini	Through a pro-bono partnership, the initiative supported dynamic speech-to-text, text-to-speech, and text-to-text translation services with profanity checks, in addition to creating a Kumbh-specific glossary of words with Samagra.
Krutrim	Through a pro-bono partnership, it hosted the Llama 8B model on Indian servers and provided those to the chatbot as “managed services”.
EkStep	It provided pro-bono advisory service for critical decisions related to the bot.
Gupshup	It is one of Meta's Indian service providers for WhatsApp services and was onboarded via government RFP.
AWS	It was onboarded via government RFP to provide servers for Kumbh Sah‘AI’yak.
Reverie	It was onboarded via government RFP for the static translation of the content repository.

The AI chatbot, with its prompt and accurate last-mile delivery of relevant information, helped strengthen governance and community outcomes. It enabled quicker navigation to health and safety services via multilingual engagement options, thereby ensuring a safer Mahakumbh. Samagra’s Kumbh Sah‘ai’yak proved to be a successful case of public-private tech partnership where targeted research shaped a phased, ‘tech-smart’ deployment that not only improved pilgrim experience but demonstrated how AI could be embedded into the governance of civic events, humanely complementing human governance.

The result of this close collaboration was more than just a functional chatbot. It was a population-scale AI application that helped actualise the Prime Minister's vision of a Divya Bhavya Digital Kumbh.

From Challenges to Solutions

- Upholding religious sensitivity and accuracy: The project ran into several challenges at various stages, and the Samagra team responded with pragmatic and clever fixes to keep things on track. The biggest issue was religious sensitivity and accuracy: the MahaKumbh, as a religious and cultural phenomenon, was historically sensitive as a subject, and posited deep emotional stakes around certain subjects and terminologies. Samagra worked with Bhashini to add over 500 Kumbh-specific glossary entries, fixed over 250 pronunciations, and expanded filters to catch sensitive religious and political phrases. When authorities disagreed on historical claims, the team defaulted to Ministry of Culture-certified texts to avoid bias.

- Preventing AI hallucinations: Samagra tackled this challenge in two ways: first, by designing a guided, menu/ button-driven interface so that many queries never reached the open-ended conversational stage and second, by implementing a strict RAG (Retrieval-Augmented Generation) setup that limited the chatbot's response to a curated FAQ corpus, effectively guiding answers and reducing the model's tendency to hallucinate.

- Building an exhaustive information base: While initial research produced nearly 1,000 questions, Samagra ran further mass testing with local colleges and kept the database live-updated (twice during operations) using real query logs. Content moderation and profanity checks also proved necessary, keeping in mind the sensitivities related to the religious nature of the event. A three-layer guardrail (Bhashini filters + Amazon Bedrock guardrails + Llama checks) plus a dynamic test suite for sensitive prompts provided additional protection.

There was a range of operational constraints that developers negotiated, with Kumbh Sahaiyak ultimately adopting an 'India-first' partnership strategy in its RFPs and partnerships to prioritise safety over novelty. Overall, creative fixes like the Kumbh glossary, multi-layered moderation, mass local testing and RAG 'ring-fencing' turned potentially problematic, real-world complexity into a manageable, respectful service that worked reliably under pressure.

From Action to Impact

KS, with its success, has measurably demonstrated a clear shift in mass-scale public event governance. Hosting nearly 3 lakh users over 5.12 lakh sessions within both WhatsApp and Webapp interfaces; having answered nearly 1.3 lakh typed/voice queries of which 70 percent were successfully answered, with a 40 percent repeat-use rate and an 82 percent positive-feedback score—all reinforce a stronger degree of adoption among masses during short periods of interaction. Its service reached users across 102 countries, with top questions revolving around 'Travel and Stay', the Mahakumbh, and its key attractions. Most importantly, it executed its operations with zero responses to profane queries, exhibiting the profound success of its in-built filter enforcement. With live updates being incorporated into the chatbot content twice during operations, the sheer operational commitment to hosting an accurate and responsive-in-real-time AI chatbot has proved to be a success.

Beyond quantifiable figures, the chatbot actively contributed to streamlining governance and reducing the load on in-person help desk assistants. It permanently changed pilgrim expectations and institutional practices by facilitating vernacular access to accurate user-specific guidance and making ex-situ pilgrimage planning based on real-time Kumbh information a reality for many. It has consciously set the template for future mass-scale religious and cultural governance and citizen engagement. It boosted Digital India's push for a truly 'Digital Kumbh': where tradition blends with modern digital tech in a confluence of safe, guided, and enhanced sacred user experience.[3]

A curated Kumbh-specific glossary, coupled with a conscious strategy of subjecting user queries first to a button interface and a free-flowing conversation, not only helped curb bot hallucination but also culminated in a potential anti-misinformation mechanism at a major religious and cultural event. Furthermore, this project establishes a replicable template: an India-first, multi-stakeholder model that combines local LLM hosting, Bhashini language services and a RAG-backed knowledge base for further reuse in other similar contexts. KS moves beyond its immediate context to signal a scalable future for AI-enabled public services: one where cultural nuance, operational discipline, and citizen trust are built in from the start. It now stands as a proven blueprint for large-scale, tech-augmented governance that other states and public institutions can adapt and build upon.

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3 Ministry of Electronics and Information Technology, "Digital India," Ministry of Electronics and Information Technology, https://www.digitalindia.gov.in/

Conclusion

Kumbh Sah'AI'yak is a lighthouse initiative as it demonstrated, in a very sensitive and high-stakes environment, that AI can be used responsibly, safely, and meaningfully for public service delivery. What makes it stand out is not just the technological collaboration but the way it blended cultural sensitivity, operational discipline, and user-based design.

In doing so, it directly advanced key Uttar Pradesh state priorities under Viksit Bharat:[4] it showcased how sovereign, India-first AI infrastructure can make governance more transparent and accessible, how AI innovation can improve service delivery at scale, and how multilingual access can reduce information gaps for millions. These outcomes also align strongly with the SDGs: supporting decent work and technological self-reliance under 'Atmanirbhar Bharat' (SDG 8), building modern digital public infrastructure in governance and public service (SDG 9), and reducing inequalities by serving users in their own languages (SDG 10).

The success of KS has naturally opened up new possibilities. At the same time, the project revealed certain policy gaps: India could deploy more indigenous AI models that truly understand its languages and cultural contexts. The public availability of high-quality, diverse datasets is a critical requirement, along with wider digital and AI literacy among all, so that such solutions see greater utility by an increasing number of citizens.

In many ways, the project is both a proof of concept and a call to action, showcasing what is possible today and what India could build next to make AI-enabled governance more reliable, equitable, and future-ready.

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4 Arpit Gupta, "ET Vision Conclave: UP Charts $6-Trn Vision With Focus On Skills, Industry Linkages and Inclusive Growth," *ET Government,* December 3, 2025, https://government.economictimes.indiatimes.com/news/economy/uttar-pradeshs-vision-for-a-6-trillion-economy-by-2047-focuses-on-skills-and-inclusive-growth/125739051#:~:text=Lucknow:%20The%20valedictory%20session%20of,employable%20skills%2C%E2%80%9D%20he%20said.

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Karuna Fellowship: Shifting Women Empowerment Paradigms Towards Health in Assam

Lakshmy Ramakrishnan

Introduction

THE KARUNA FELLOWSHIP, under the Inclusive Bharat Collaborative,[1] was launched in 2024 in the Udalguri and Dima Hasao districts of Assam under the Comprehensive Primary Health Care (CPHC) Project, in collaboration with Shriram Finance[2] and Piramal Foundation.[3] The initiative aims to strengthen access to community-based healthcare for tribal and indigenous communities by ensuring their participation in community-based institutions that focus on health agendas.

At the core of the initiative is a cohort of 20 local tribal women, positioned as Karuna Fellows, who work as a bridge between communities and the public health system. Through their engagement, the Fellows support initiatives to improve maternal, child, and adolescent health, and prevent and manage communicable and non-communicable diseases. The primary goal of the fellowship is to strengthen community-based institutions such as Village Health, Sanitation, and Nutrition Committees (VHSNCs),[4] self-help groups

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1 An initiative of Piramal Foundation that focuses on transforming health and education ecosystems of tribal communities.

2 An NBFC (non-banking financial company), part of Shriram Group.

3 The philanthropic arm of Piramal Group.

4 VHSNCs form an element of the National Rural Health Mission that supports taking collective action on issues pertaining to health at the village level. See: https://nhm.gov.in/index1.php?lang=1&level=1&sublinkid=149&lid=225

(SHGs),[5] and Panchayati Raj Institutions (PRIs)[6]—grassroots organisations that foster community participation for development—to collectively identify, plan for, and manage local health priorities in a self-sustainable manner.

At the time of writing this article, the Karuna Fellows were actively working in 800 villages across six health blocks in the two tribal districts of Udalguri and Dima Hasao in Assam, supporting communities through regular engagement, facilitation, and capacity-building activities.

One year since intensive field operations were started, the initiative has established itself as a resilient model of community-led health governance. A milestone was the fellowship's contribution to Poshan Pakhwada in April 2025, a key initiative under the Government of India's flagship Poshan Abhiyaan. During this period, Karuna Fellows facilitated community awareness sessions and supported health screenings focused on maternal and child nutrition.

The project has so far reached a wide section of the community through structured trainings and engagements. Over 1,90,807 community members have been trained through sessions addressing a range of health concerns, and over 1,512 volunteers from groups of women, men, youth, and mothers have been trained to serve as health advocates at the community level. As part of preventive health efforts, 13,576 referrals were made, 11,900 people were screened for hypertension and 12,900 for diabetes. The project has enabled the formalisation of community-led health priorities through the development and submission of 232 Village Health Action Plans (VHAPs) to public health authorities.

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5 SHGs are informal collectives of people, primarily women, that gather to address shared challenges. See: https://nhsrcindia.org/sites/default/files/2023-02/Self-Help%20Groups%20in%20Community%20Action%20on%20Health%20Participant%20Manual.pdf

6 PRIs are a form of local self-government in India formed as a result of the 73rd and 74th constitutional amendments. See: https://panchayat.gov.in/en/

A Karuna Fellow meeting with community members to develop a VHAP. (Source: Piramal Foundation.)

The fellowship has also supported initiatives beyond direct health service delivery. A functional community-owned library was established in Nazareth village, by providing resources to improve health literacy and narrow the digital divide. To promote the consumption of locally sourced vegetables by mothers and children, 40 nutri-gardens[7] were established in Anganwadi centres and schools.[8]

7 Nutri-gardens or Poshan Vatikas is a part of Poshan Abhiyaan and involves setting up of gardens near Anganwadi centres to ensure a regular supply of fresh and nutritious fruits and vegetables to women and children.

8 Press Information Bureau, Government of India, https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1912577&reg=3&lang=2

A nutri-garden near an Anganwadi centre ensuring sustained production of fresh fruits and vegetables for women and children. (Source: Piramal Foundation.)

The project offers tremendous potential in altering health-seeking behaviours and in embedding health as a priority for communities as evidenced by its widespread participation and adoption. For instance, more than 500 community-based institutions including Jan Arogya Samitis (JAS),[9] VHSNCs, and PRIs now hold regular meetings placing health as a priority, demonstrating the integration of healthcare into existing institutional frameworks.

Changes in knowledge and practices, while still emerging, indicate meaningful progress. Knowledge and awareness of government health schemes improved for 20 Karuna Fellows and 155 community volunteers, enabling them to guide others in accessing public entitlements. Sustainable dietary practices were promoted by training 38 SHG and Anganwadi workers and 167 mothers and youth volunteers on locally available nutritious foods. Additionally, more than 430 adolescents participated in sessions on menstrual health and sexual and reproductive health.

9 Jan Arogya Samitis serve as institutional platforms to enable community-level participation in national health programmes. See: https://nhmmizoram.org/upload/Jan_Aarogya_Samiti.pdf

A Karuna Fellow shows villagers an array of locally sourced fruits and vegetables to promote nutritious diets. (Source: Piramal Foundation.)

The project also contributed to improved maternal health practices, with some 1,056 pregnant women registering for antenatal care during their first trimester and 771 institutional deliveries supported through birth preparedness planning. Most importantly, the project's effectiveness is also reflected in the expansive relay of information: 3,271 volunteers trained on understanding the functional aspects of immunisation by Karuna Fellows subsequently reached 8,298 community members, thereby creating a self-sustaining cycle of knowledge sharing.

Rationale and Objectives

The rationale behind the project is to address the persistent barriers faced by tribal communities in Assam in accessing primary healthcare owing to geographical isolation, limited transportation, and seasonal inaccessibility. Across tribal belts, maternal and child health indicators remain poor. Despite overall reductions in these indicators globally, its decline amongst tribal communities lags behind national figures. For instance, vaccination coverage among tribal children stands at 55.8 percent, while the national average is 62 percent. This indicates that lowered vaccine update contributes to higher infant mortality rates observed amongst tribal populations.[10]

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10 Minal Madankar et al., "Exploring Maternal and Child Health Among Tribal Communities in India: A Life Course Perspective," *Glob J Health Sci*, 2024, https://pmc.ncbi.nlm.nih.gov/articles/PMC10793648/#ABS1

District-level data from the National Family Health Survey (NFHS-5) highlights health and nutrition vulnerabilities in Udalguri and Dima Hasao districts. In Udalguri district, 77.6 percent of children (6-59 months) are anaemic, while anaemia prevalence among non-pregnant women is 82.2 percent and 63.9 percent for pregnant women.[11] In Dima Hasao, only 46.9 percent of mothers received at least four antenatal check-ups, and 73.1 percent of children are anaemic, indicating low pregnancy monitoring and poor child nutrition outcomes.[12] In both districts, the iron and folic acid (IFA) consumption remains low: 17.6 percent in Dima Hasao and 25.7 percent in Udalguri.

Frontline health workers—accredited social health activists (ASHAs), auxiliary nurse midwives (ANMs), and community health officers (CHOs)—are often overburdened, affecting mobilisation and follow-up care, and weakening last-mile service delivery, particularly in remote tribal hamlets. Consequently, trust in health systems remains low in hard-to-reach pockets of tribal communities, where interactions with formal healthcare providers are infrequent, if at all.

While several flagship government initiatives seek to address these gaps (see Table 1), awareness and uptake remain limited in tribal districts due to implementation challenges and the absence of trusted community-level intermediaries. These structural, cultural, and geographic constraints collectively contribute to persistent health inequities in Assam's tribal regions, making districts such as Udalguri and Dima Hasao high-priority geographies for intensified public health interventions.

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11 Ministry of Health and Family Welfare, *National Family Health Survey-5*, 2019-20, Government of India, https://nhm.assam.gov.in/sites/default/files/swf_utility_folder/departments/nhm_lipl_in_oid_6/menu/document/udalguri_1.pdf

12 Ministry of Health and Family Welfare, *National Family Health Survey-5*, 2019-20, Government of India, https://nhm.assam.gov.in/sites/default/files/swf_utility_folder/departments/nhm_lipl_in_oid_6/menu/document/dima_hasao_0.pdf

Table 1: Key Government Programmes in Assam

Government Scheme	Purpose
Janani Suraksha Yojana (JSY)[13]	Safe motherhood initiative; promotes institutional deliveries
Janani Shishu Suraksha Karyakram (JSSK)[14]	Elimination of out-of-pocket expenses for pregnant women and sick infants; provides free drugs, diagnostics, and diet for pregnant women and sick infants
Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA)[15]	Offers free, comprehensive antenatal check-ups
Pradhan Mantri Matru Vandana Yojana (PMMVY)[16]	Centrally sponsored maternity benefit programme
Poshan Abhiyaan[17]	To improve nutritional outcomes of adolescent girls, pregnant women, lactating mothers, and children (0-6 years)
National TB Elimination Programme[18]	Goal to eliminate TB by 2025

The Karuna Fellows initiative is designed to address these challenges by strengthening the interface between communities and the public health system. The project acts as a bridge between existing government schemes and the community instead of functioning as a parallel system. The initiative goes the extra mile, beyond merely raising awareness, by actively building the capacity of community institutions to plan, monitor, and demand health services, ensuring sustainability.

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13 National Health Mission, "Janani Suraksha Yojana," Government of India, https://nhm.gov.in/index1.php?lang=1&level=3&lid=309&sublinkid=841

14 National Health Mission, "Janani Shishu Suraksha Karyakram," Government of India, https://nhm.gov.in/index1.php?lang=1&level=3&sublinkid=842&lid=308

15 National Health Mission, "Pradhan Mantri Surakshit Matritva Abhiyaan," Government of India, https://nhm.gov.in/index1.php?lang=1&level=3&sublinkid=1308&lid=689

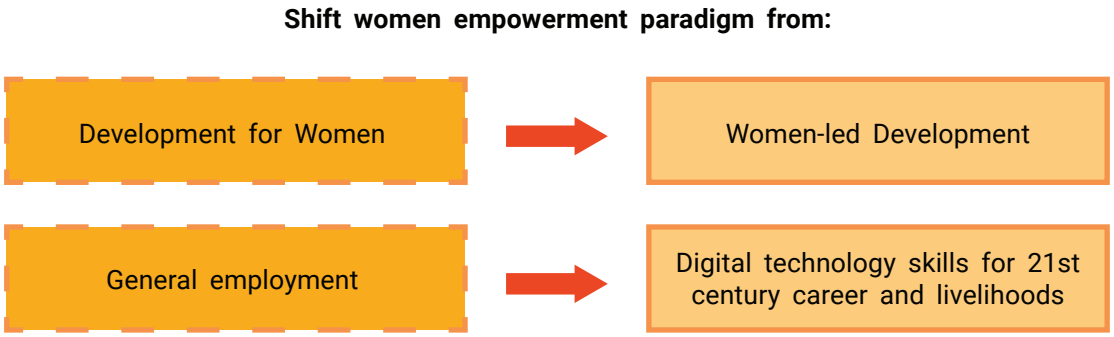
16 Umang, "Pradhan Mantri Matru Vandana Yojana," Government of India, https://web.umang.gov.in/landing/scheme/detail/pradhan-mantri-matru-vandana-yojana_pmmvy.html

17 Women and Child Development Department, "Poshan Abhiyaan," Government of India, https://wcdhry.gov.in/schemes-for-children/poshan-abhiyan/

18 Directorate General of Health Services, "National Tuberculosis Elimination Programme," Government of India, https://dghs.mohfw.gov.in/national-tuberculosis-elimination-programme.php

A defining feature of the programme is the recruitment and training of Karuna Fellows—local women from tribal communities who bring cultural understanding, language familiarity, and social trust. The fellowship shifts women empowerment paradigms from development for women to women-led development that integrates health service delivery support with women's leadership, digital literacy, and livelihood development (see Figure 1). Thus, the fellowship also seeks to equip tribal women with leadership and digital skills, preparing them for local and sustainable livelihoods.

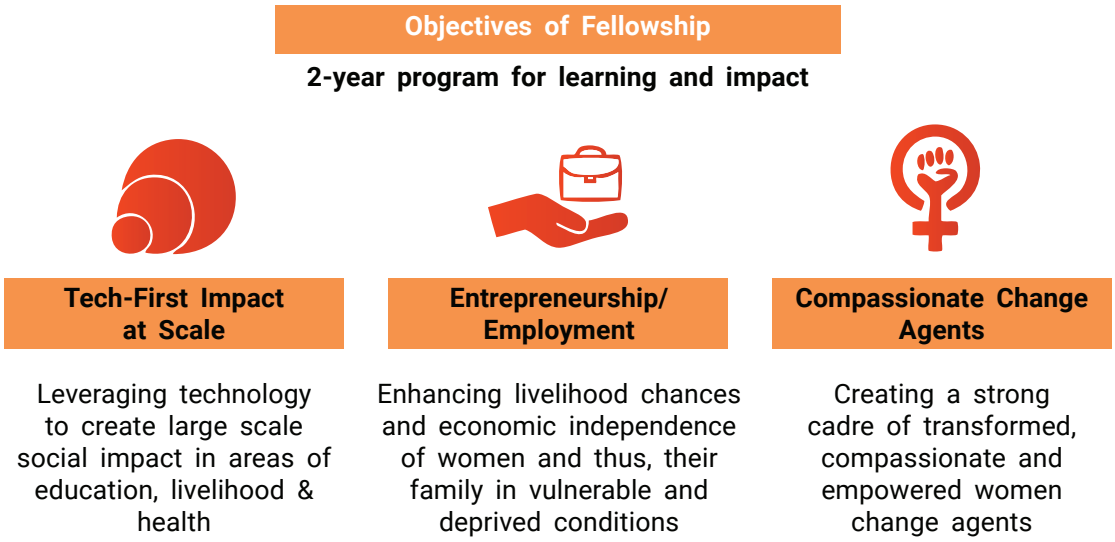
Figure 1. The Karuna Fellowship



The Karuna Fellowship project contributes directly to SDG3 (good health and well-being) by reducing maternal mortality rates, ending preventable deaths of newborns and children, and by addressing communicable and non-communicable diseases. It also advances SDG5 (gender equality) by strengthening women's leadership and participation in community health governance. This project also aligns with Assam's priorities under the National Health Mission, and Mission Poshan 2.0,[19] particularly in improving health outcomes for tribal populations. The objectives of the fellowship are depicted in Figure 2.

19 Mission Poshan 2.0 is the overarching scheme for addressing nutritional outcomes in women and children and Poshan Abhiyaan forms a pillar. See: https://www.pib.gov.in/PressReleasePage.aspx?PRID=1910097&reg=3&lang=2

Figure 2. The Objectives of the Karuna Fellowship



From Data to Insights

Karuna Fellows used simple, accessible digital tools such as Kobo and MS Forms to map households, identify the pregnant women, and screen community members for conditions like anaemia, hypertension, and diabetes.[20] These were complemented by the use of basic diagnostic tools including haemoglobin meters, BP apparatus, and glucometers.

A Karuna Fellow uses a glucometer to screen for diabetes. (Source: Piramal Foundation.)

20 Screening is done in collaboration with frontline workers.

Importantly, data collection was not treated as an end in itself, but as a means to inform timely action. For instance, the identification of 5,711 anaemia cases demonstrated the urgent need for targeted nutrition campaigns, while data on presumptive TB symptoms (1,907 cases identified) were directly linked to referral actions through NTEP pathways for the nutritional management of TB. Further, data on low first-trimester registration enabled the design of focused sessions for eligible couples, while information on weak or non-functional VHSNCs led to targeted capacity-building efforts. Thus, the transformative aspect of the project rests with the ability of the Karuna Fellows to convert raw data into actionable community-level insights. This continuous data-to-action loop enabled real-time course correction, accurate targeting, and purposeful allocation of efforts at the block and village levels.

From Insights to Action

The Karuna Fellows began household-level counselling on nutrition, pregnancy care, warning signs, and advantages of institutional delivery by using clear, contextual language aligned with tribal norms. In coordination with CHOs, they supported the early identification of high-risk pregnancies and enabled timely home visits and follow-up consultations. They facilitated mothers' group meetings to strengthen linkages between communities and frontline health workers, address misinformation, and build trust.

A Karuna Fellow meets with frontline workers at a health sub centre to build trust and address misinformation. (Source: Piramal Foundation.)

During VHSNDs, fellows supported ASHAs in mobilising women, ensuring timely participation and reducing drop-outs while assisting ANMs by arranging queues, listing beneficiaries, and facilitating smooth check-ups. For tuberculosis care, their door-to-door awareness drives, referrals for diagnostic services, and follow-up support helped reduce refusal and loss-to-follow-up, particularly in remote hamlets.

The project employed a four-phase implementation approach. The first phase involved rapport building, mapping of households, and identification of vulnerable beneficiaries, while phase 2 focused on mobilisation for routine visits and digital reporting through structured WhatsApp updates. Phase 3 involved strengthening coordination with ASHAs, CHOs, and district managers for collaborative action. Phase 4 included a hands-on method of facilitating community gatherings, conducting visits to address specific problems, and accompanying cases that require emergent support.

The project is innovative in its design as a pioneering, women-led fellowship embedded deep inside tribal health systems. It employs unique compassion-driven communication efforts at the household level, improving trust and service uptake. Integration with digital technologies enabled real-time follow-ups and rapid decision-making. Additionally, the integration of life skills such as empathy, confidence, and negotiation into daily field practice enhanced leadership skills and problem-solving abilities of the fellows to solve complex challenges in the communities.

From Challenges to Solutions

A number of challenges were encountered during the course of the project, and these were overcome using specific, contextual, and innovative solutions.

Table 2: Primary Challenges

	Challenge	Solution
1	Low community trust in health facilities	Repeated household follow-ups were conducted by fellows; male family members were included in counselling to foster collective trust and confidence in public health services.
2	Difficult terrain and inaccessible villages (especially in Dima Hasao)	Safe routes were mapped by Fellows and followed by coordination with ASHAs to conduct joint visits to ensure consistent outreach activities.
3	Cultural hesitation around institutional delivery	The Fellows applied a positive deviance approach by sharing stories about local women who had benefited from hospital deliveries to shift perceptions and reduce hesitancy.
4	Low digital literacy among some Fellows	Confidence in digital literacy amongst the Fellows was instilled through hands-on practice, refresher sessions, and simple template-based reporting.
5	Inconsistent VHSND attendance	To ensure better turn-out, Fellows introduced pre-VHSND reminder visits and door-to-door mobilisation.
6	'Refusal pockets' for TB sputum testing[21]	Contextualised storytelling was applied to encourage testing; Symptomatic individuals were accompanied to CHCs for testing.
7	Deep-rooted cultural beliefs and mistrust in formal health systems	Including local tribal women as Fellows helped bridge this gap as their shared identity, language, and cultural understanding enabled better translation of health messages.
8	Inactive or demotivated community institutions (e.g., mothers' groups, youth groups, VHSNCs)	Fellows facilitated hands-on, community-led activities such as helping create a village library in Nazareth, which fostered goodwill and renewed collective action. This later prompted community participation in health initiatives.
9	Low awareness and high burden of NCDs like hypertension and diabetes	Screening for NCDs was integrated into everyday community activities like SHG meetings, youth clubs, and festival initiatives such as 'Balance the Binge', making screening habitual and accessible.

21 Sputum testing is essential for TB testing. Refusal to provide sputum for TB testing has been observed under specific demographic and geographic groups, and communities.

Based on observations to date, it was observed that there was a need for course correction as Karuna Fellows were spread thin across too many villages. This was later addressed by adopting a cluster-based approach to facilitate deeper engagement and robust results before expanding to wider geographies.

From Action to Impact

The impact of the project can be portrayed both quantitatively and qualitatively. Some 14,267 individuals were screened for anaemia, 13,582 for hypertension, and 12,901 for diabetes, with identified cases referred for appropriate care. In the case of maternal and child health services, 1,056 pregnant women registered in the first trimester while 771 institutional deliveries were supported through birth preparedness planning. Capacity building was carried out by training over 77,000 community volunteers across multiple health domains for health promotion.

Health system strengthening was demonstrated by developing 232 VHAPs and with more than 500 community institutions regularly meeting on health. The project has improved governance of healthcare with community institutions actively analysing health status and planning actionable strategies, shifting from passive to active participation. It has facilitated behavioural modifications with increased discourse on menstruation, nutrition, and NCDs, diminishing stigma and promoting the use of local nutritious food. Finally, the community library model from Nazareth is being considered as a replicable mode for other villages, highlighting the project's broader impact on community development.

Conclusion

The project is a lighthouse initiative as it is cemented in female leadership, community ownership, and systems integration, representing a scalable and sustainable model for healthcare among the country's tribal populations. It demonstrates that investing in local women as change agents can be transformative not only in terms of health metrics but also in improving governance and fostering community empowerment.

Key performance indicators for the National Health Mission and Poshan Abhiyaan at the grassroots level have improved, boosting Assam's primary healthcare objectives for tribal communities. By developing a unique and practical link between community and the public health system, the project operationalises the policy goal of decentralised, participatory health planning. It also provides an actionable implementation framework for achieving SDG3 and SDG5 in remote districts and among marginalised populations.

Building on the project's execution, plans are underway to integrate digital health tools for improving monitoring and data management. Ideas to deepen engagement with youth volunteers and forge more formal partnerships with tribal healers' networks are also being considered. The project underscored the need for formally recognising and funding a 'Community Health Facilitator' role, similar to a Karuna Fellow, within the public health system of tribal areas. It has also highlighted the need for adaptable funding guidelines that can support innovative, community-driven actions like the Nazareth library, which despite not being a direct health intervention, bolstered the social fabric necessary for promoting health.

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Customised Advisory to Farmers: Krushi Samruddhi, Odisha

Sauradeep Bag

Introduction

DIGITAL TECHNOLOGY IS RESHAPING agriculture in India in ways that are profound and yet often overlooked. As connectivity, data, and advisory systems reach the farm gate, the sector is gradually adopting the precision, efficiency, and scale of a modern industry. The transition is not simply a technological upgrade; it represents the emergence of a digitally enabled agricultural economy capable of transforming rural incomes and strengthening resilience across India's food system.

Odisha's Krushi Samruddhi[1] Advisory System reflects this shift. Launched in 2018 and jointly implemented by the state's agriculture and livestock departments, it provides personalised advisories through IVRS and SMS to farmers across crops, horticulture, livestock, and fisheries. At the time of writing this article, more than 69 lakh farmers had benefited from around three crore monthly advisories, which record a 44-percent pick-up rate and an average satisfaction score of 4.2 out of 5. Evidence of real-world impact is emerging: a Harvard University and Precision Development (PxD) randomised trial from 2018-2022 observed an 8.2-percent rise in farm profits and a 27-percent decline in crop loss, while over 90 percent of surveyed users reported improvements in practice and outcomes, often sharing insights within their communities.[2]

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1 Krushi Samruddhi was launched in 2018 as a partnership between the Government of Odisha and the Gates Foundation, with Precision Development (PxD) brought on to conduct experimental pilots and Samagra providing advisory support. PxD is a global nonprofit organisation working on the agriculture sector.

2 PxD, "Customized digital advice can help farmers reduce crop loss and manage weather shocks: Evidence from PxD's work in Odisha," Precision Development Initiative, 2025, https://precisiondev.org/customized-digital-advice-can-help-farmers-reduce-crop-loss-and-manage-weather-shocks-a-summary-or-as-much-as-we-can-summarize/

India's agricultural sector remains the backbone of livelihoods, yet productivity challenges persist. Thoughtfully deployed digital solutions like Krushi Samruddhi can enhance decision-making, reduce vulnerability to shocks, and support more inclusive and sustainable growth.

Rationale and Objectives

To understand the true contribution of digital interventions to agricultural transformation, it is essential to examine both the design of the technology and the realities of the context in which it is being deployed. The primary challenge in Odisha, as in most agrarian settings in India, is a persistent information asymmetry. Small and marginal farmers often lack timely access to the advice they need to manage weather risks, pest outbreaks, and shifting market conditions. This gap has material consequences for productivity, household incomes, and long-term resilience.

Odisha is a state where nearly 90 percent of farmers operate on less than two hectares of land. Their reliance on agriculture as a primary source of income makes crop loss and delayed decision-making particularly costly. Historically, agricultural extension relied on Village Agriculture Workers, but one worker may be required to serve more than 2,500 farmers. This limited reach, combined with the logistical challenges of in-person visits, meant that many communities, especially women and those in remote regions, remained underserved. Efforts such as Krishi Vigyan Kendras, Kisan Call Centres, and scheme-linked ICT pilots provided partial support, though they often lacked personalisation, real-time responsiveness, or effective integration with farmer data.

The Krushi Samruddhi Advisory System emerged as a structural response to these challenges. By grounding its services in the state's unified farmer registry, Krushak Odisha, which includes more than 90 lakh farmers, enables a data-driven approach to tailoring advice. The system triangulates farmer-reported inputs with historical cropping trends, weather forecasts, and administrative records. This ensures that each advisory is both context-specific and aligned with evolving agronomic conditions. Content is created and validated by agricultural universities and departmental specialists and covers more than 100 commodities across agriculture, horticulture, livestock, and fisheries.

Crucially, the system is embedded within the broader KONNECT digital backbone.[3] This allows seamless integration with Krushi Samiksha Kendra for real-time emergency alerts, disaster response messaging, and prompts related to government schemes. As farmers

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3 Samagra Governance's KONNECT programme focuses on enabling interoperability among agriculture-related digital systems.

are not passive recipients of information, continuous feedback loops allow the advisory ecosystem to adjust and improve over time, contributing to stronger adoption and behavioural change. Early evidence already points to productivity gains, reduced losses, and more confident uptake of scientific practices.

(Source: Samagra.)

By improving access to personalised guidance at scale, Krushi Samruddhi directly strengthens income security, food system resilience, and climate preparedness. It aligns with Odisha's vision of Viksit Odisha, which seeks to enhance farmer livelihoods through digital public infrastructure and scientific farming. In doing so, it advances the objectives of SDG 1 on poverty reduction, SDG 2 on food security, and SDG 13 on climate action. What is unfolding in Odisha is a model for how thoughtful digital architecture can empower smallholders and support more equitable agricultural growth.

Implementation, Innovation, and Impact

From Data to Insights

The steady diffusion of digital technology into agriculture marks one of the most consequential and yet often understated shifts in India's economic trajectory. As data, connectivity, and technological outreach quietly permeate the fields, India's oldest sector is beginning to acquire hallmarks of a modern industry: precision, relative predictability, and scale. What is emerging is not simply an upgrade to traditional farming methods

but the early architecture of a digitally enabled agricultural economy, one capable of reshaping rural livelihoods and redefining how value is created and distributed across India's food system.

The use of IVRS (Interactive Voice Response Systems) as a medium for delivering context-specific advisories has long occupied a niche in India's evolving digital extension ecosystem. In the pre-digital model, advisory services depended heavily on field-based extension officers, including Krishi Vigyan Kendras and Village Agriculture Workers. However, these traditional channels bore inherent limitations as extension workers were spread thin, geographic reach was uneven, and quality and consistency varied widely. Consequently, many farmers, especially women, smallholders, and those in remote geographies, had limited access to timely guidance about weather, pests, market trends, or government schemes.

Over time, India's early ICT-driven initiatives attempted to plug parts of this gap. Systems like SMS-based advisories, national-level call centres under PM-KISAN,[4] and toll-free helplines under Kisan Call Centres[5] expanded information access to more farmers. Nonetheless, these efforts often operated in silos. Such systems are often designed and driven at the national level, which can result in the loss of state-specific nuances and contextual sensitivity. Without a verified unified farmer registry, advisories remained generic and poorly targeted. Decision pathways were not tailored to individual needs and continuity was fragile. Digital gaps, data fragmentation, and lack of feedback loops meant many of these initiatives struggled to achieve meaningful and sustained impact.

From Insights to Action

Recognising these structural constraints, Odisha pioneered a more integrated and data-driven model of agricultural extension through the Krushi Samruddhi Advisory System. At the heart of this transformation lies Krushak Odisha, among India's first Aadhaar-linked, state-level farmer databases. The registry captures detailed profiles of over 90 lakh farmers logging more than 90 parameters per household, including landholding size, crops cultivated, livestock holdings, and past cropping history.

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4 National Informatics Centre, "PM-KISAN Project," https://www.nic.gov.in/project/pm-kisan/

5 Department of Agriculture and Farmers' Welfare, Government of India, Kisan Call Centre (KKMS) KKMS Portal, https://dackkms.gov.in/account/login.aspx

What differentiates Krushi Samruddhi from earlier ICT interventions is its commitment to data-driven customisation. Farmer data are automatically synchronised through secure APIs when new registrations or updates become available from field offices; this automation means onboarding is real-time and manual profiling, once a bottleneck, has now become redundant. On top of this robust data layer, the system employs segmentation logic. Advisories are tailored according to crops, agro-climatic zone, seasonality, and local conditions. A unified digital backbone drives the system, integrating advisory delivery with real-time monitoring, analytics, and feedback loops.

(Source: Samagra.)

Through the Krushi Samiksha Kendra (KSK), usage metrics such as call pickup rate, listen-through rate, content feedback, and seasonal adoption trends are analysed systematically. This information feeds into a continuous content refinement process overseen by a multi-stakeholder Content Recommendation Committee comprising departmental officers, agricultural university experts, and implementing partners. The committee meets regularly to evaluate advisory relevance, revise content, and prioritise new alerts including weather, pest outbreaks, and scheme-related nudge messages.

This re-architected advisory ecosystem moved from pilot to scale in a phased approach. The initial pilot phase from 2018 to 2021 reached roughly ten lakh farmers across 20 crops. While the pilot demonstrated promise, it also revealed critical constraints:

reliance on manual farmer profiling via long phone questionnaires, limited crop coverage, inadequate content diversity, and poor feedback mechanisms. These problems restricted the pilot's reach and limited its long-term sustainability.

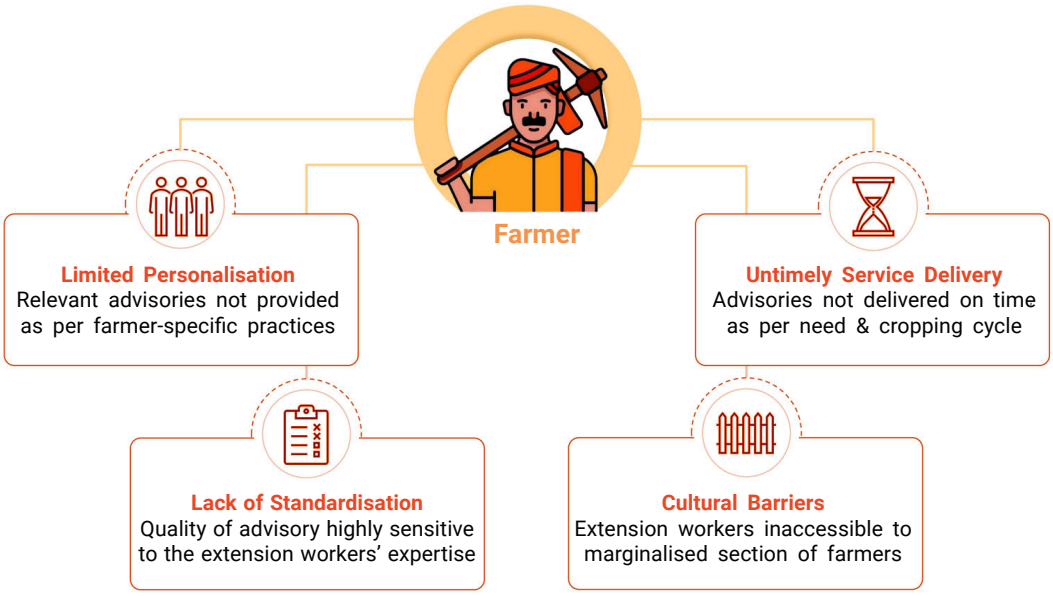
Lessons from the pilot fed directly into the design of phase two between 2022 and 2024. The transition involved full integration with Krushak Odisha's registry, daily synchronisation of cropping and livestock data, and algorithmic personalisation of advisories based on agro-climatic zones. Concurrently, the Content Recommendation Committee initiated a content expansion drive, growing the advisory repository fivefold from 250 to more than 1,800 advisories. These advisories spanned over 100 commodities including agriculture, horticulture, livestock, and fisheries.

From Challenges to Solutions

Farmer-centric redesign of content was another breakthrough. More than 4,000 farmers provided feedback on the pilot phase; their suggestions led to simplified advisory scripts, use of colloquial Odia and English, shorter voice advisories reduced from around 90 seconds to 60, and improved audio quality. This attention to user experience yielded real gains: call pickup rates climbed to 44 percent, and average farmer satisfaction ratings reached 4.2 out of 5.

Beyond these immediate benefits, Krushi Samruddhi represents a broader transformation in governance. What was once a reactive, manual, fragmented extension mechanism has evolved into a predictive, data-driven public service, one that aligns with Odisha's vision under "Krushi Samruddhi 2030" to double farmers' incomes through scientific farming and digital infrastructure. The system aligns with global development objectives contributing directly to Sustainable Development Goals: SDG 1 on poverty reduction, SDG 2 on food security, and SDG 13 on climate action.

Figure 1. The Karuna Fellowship



Source: Samagra

Moreover, the programme's design offers a viable blueprint for replication. Its architecture, a unified farmer registry, algorithmic segmentation, multi-channel advisory delivery, real-time emergency alerting, content feedback loops, and institutional oversight can be adapted by other states. Early interest has emerged from states such as Maharashtra and Uttar Pradesh which are considering adapting Krushi Samruddhi's approach to build their own digital extension systems.

Importantly, advisory content was no longer generic. Scheme-specific advisories now guide beneficiaries or potential beneficiaries through application processes for major programmes like the Kisan Credit Card, crop insurance, and Seed DBT. These advisories clarify eligibility, help farmers prepare documentation, and provide step-by-step guidance on enrolment thereby boosting uptake and ensuring that beneficial schemes reach intended recipients in a timely manner.

From Action to Impact

To sustain such a large operation, the state upgraded its civil and technological infrastructure. A dedicated workspace was set up equipped with 100 high-tech desktop systems, secure servers located in the state data centre and a hierarchy of nodal officers at the Deputy Director level to ensure administrative oversight and system resilience.

Combined with strengthened telecom lines and server redundancy the system now reliably delivers roughly three crore IVRS advisories every month across more than 100 commodities.

(Source: Samagra.)

What is most striking today is the scale and uptake: as of October 2025, over 69 lakh farmers, nearly 85 percent of the state's agrarian population, are registered and actively receiving personalised advisories. Early evidence from farmer surveys of 4,189 respondents indicates high adoption.[6] Ninety-four percent report implementing advisory recommendations, 96 percent observe improved yields or better farming practices, and 97 percent wish to continue receiving advisories. Many also share the information within their communities; peer influence is robust, with 65 percent reporting they discuss and disseminate advisory messages to fellow farmers, suggesting organic diffusion and community level acceptance.

Perhaps the most compelling evidence of impact comes from a randomised control trial conducted by scholars in partnership with PxD and J-PAL. The study found an 8.2-percent increase in farm profits, a 27-percent reduction in pest-related crop loss, and a 26-percent decrease in weather-induced crop damage among farmers receiving timely advisories, results that point toward real gains in resilience, income stability, and resource efficiency.

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6 Information provided by Samagra Governance.

Conclusion

IVRS-based agricultural advisory systems in India offer notable promise but continue to encounter structural and operational challenges that limit their overall impact. Rural infrastructure remains uneven. Farmers in many regions still struggle with poor network connectivity, uneven electricity supply, and irregular mobile access, all of which reduce their ability to consistently receive and act on advisory messages.[7,8] Barriers in digital and functional literacy further influence how well farmers understand and apply the guidance they receive. When advisories are not tailored to specific crops, climate zones, or landholding conditions, farmers often find the information too general to trust, let alone adopt. Limited options for follow-up or interaction mean that doubts are left unresolved, and complex recommendations may not translate into real changes on the ground.

Institutional and administrative bottlenecks also persist. Databases of farmer records are sometimes incomplete or outdated. Coordination among relevant agencies can be slow, and frontline extension staff may not have access to the training needed to support digital advisory systems. As a result, benefits often flow more easily to households that already have better connectivity, more land, or greater financial stability. Women farmers, tenant cultivators, and those in remote districts frequently face obstacles in accessing these services, widening existing inequalities rather than narrowing them. In addition, long-term evidence on behaviour change and productivity gains is still mixed in many settings. Usage rates tend to drop once the novelty fades and external support reduces. Despite these issues, IVRS-based advisory systems hold potential when embedded within a wider digital ecosystem for agricultural transformation. Ongoing enhancements aim to shift from general guidance toward predictive and highly localised insights. Artificial intelligence, machine learning, and satellite-based monitoring are expected to help anticipate risks such as pest attacks, crop disease, or extreme weather, allowing farmers to prepare rather than merely react.

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7 Taruna Devi et al., "Role of ICT in Bridging the Knowledge Gap in Rural Agriculture," *Int J Agric Extension Social Dev 8, no. 1S (2025): 20-24,* doi: 10.33545/26180723.2025.v8.i1Sa.1503

8 Rashmi Arora and Nikhil Sapre, "Rural–Urban Digital Divide: Evidence From Indian States," *International Journal of Finance & Economics,* 2025. doi: 10.1002/ijfe.70045. Available at: https://doi.org/10.1002/ijfe.70045

At the same time, integrating multiple communication channels such as mobile applications, WhatsApp-based services, and dedicated interfaces for farmer-producer organisations may foster more active participation by enabling farmers to share observations, seek clarifications, and contribute feedback in real-time. If strengthened and made more inclusive, these reforms can contribute meaningfully to resilience, productivity, and income security within Indian agriculture, especially as climate and market volatility continue to rise.

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Building a National Benchmark in Welfare Delivery: Family Benefit Management System (FBMS), Andhra Pradesh

Soumya Bhowmick

Introduction: An Experiment in Proactive Welfare

INDIA'S SOCIAL WELFARE ARCHITECTURE has expanded at an unprecedented scale in the past decade, with the number of citizens covered under social security schemes rising from 250 million to nearly 940 million.[1] As welfare systems deepen, the primary challenge has shifted from launching schemes to ensuring that every eligible person is reached, at the right time, with minimal leakage and delay.

Andhra Pradesh's Family Benefit Management System (FBMS), outlined in 2025, embodies a new generation of welfare reforms aimed at resolving this delivery problem through data-led, proactive governance.[2] FBMS is designed as a next-layer integration and automation engine that builds on Andhra Pradesh's already-strong last-mile institutions and digital delivery systems, and is intended to set a benchmark for welfare administration nationally.

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1 News On AIR, "India Moving Confidently Towards Growth Amid Global Uncertainty: PM Narendra Modi," *News On AIR,* November 18, 2025, https://www.newsonair.gov.in/india-moving-confidently-towards-growth-amid-global-uncertainty-pm-narendra-modi/

2 Press Trust of India, "Andhra Pradesh to Launch Family Card to Track, Monitor Welfare Schemes," *Business Standard,* August 28, 2025, https://www.business-standard.com/india-news/andhra-pradesh-to-launch-family-card-to-track-monitor-welfare-schemes-125082801576_1.html?

Andhra Pradesh Chief Minister reviews the FBMS. (Source: Samagra.)

FBMS operates across all 26 districts of Andhra Pradesh and aims to deliver full benefit saturation by 2027. It introduces a unified, reliable family database that consolidates data for the state's population of approximately 54 million citizens (17.1 million families) and uses analytics to automatically determine who needs what benefit, when, and for how long. This marks a shift from traditional systems where citizens had to apply for benefits, to one where benefits "find" citizens through event-triggered eligibility checks and automated enrolments.[3]

As implementation has scaled, FBMS is already producing measurable delivery corrections and proactive actions across crucial lifecycle events of every individual. In maternal health services, for example, the state has begun clearing a backlog of roughly 50,000 pregnant women who have not received the benefits they are entitled to, with early responses indicating that while about 10 percent of cases are fresh enrolments, all the remaining are anomaly corrections for existing beneficiaries. FBMS has also started tightening scheme hygiene by using event-linked de-duplication to flag cases for correction, rather than treating deletions as automatic removals. In this process, the FBMS has identified over 200,000 records of deceased citizens who still appear as active beneficiaries in one or more schemes/services, and this information has been shared with the Food & Civil

3 "Family Benefit Management System (FBMS) – Goal & Theory of Change," Concept Note (Andhra Pradesh, n.d.).

Supplies department that administers key entitlements such as rice cards and Deepam. The department is conducting on-ground verification and undertaking course-correction based on field findings: in some cases, the beneficiary is removed from the scheme rolls (for example, with rice cards), while in others, the benefit is transferred in the name of an eligible family member (for example, with Deepam). Targeted backlog drives are now being used to operationalise these corrections at scale, including the planned verification and resolution of an estimated additional 1.1 lakh deceased records from rice card lists and around 21,000 from Deepam beneficiary lists.

Technology integration is also underway—post alignment—to cover the backlog in pregnant women entitled to nutritional supplements but who have not yet received them. Children are entitled to rice cards from age six; data has been shared to enable the automatic inclusion of those turning six—some 196,000 of them. Complementing these rule- and event-based triggers, FBMS is now being extended through a Family Score—an artificial intelligence/machine learning (AI/ML)-driven assessment of household vulnerability and economic well-being that is being developed with leading academic partners. This will enable Andhra Pradesh to move beyond uniform eligibility towards personalised benefit bundles, including potential co-delivery with the private sector through initiatives such as Zero Poverty-Public-Private-People-Partnership (or P4), while creating a clearer metric backbone to track poverty alleviation outcomes over time.

Rationale and Objectives: From Welfare Dependence to Smarter Targeting

Andhra Pradesh needs to re-engineer its welfare delivery model, given the depth of welfare dependence in the state and the scale at which minor errors can have consequences.[4] It has a vast welfare footprint, with subsidised rations, pensions, cash transfers, and health insurance collectively supporting a large share of households. Even modest inclusion or exclusion errors affect hundreds of thousands and involve substantial amounts of public expenditure. Traditional, application-based systems create high transaction costs and allow information gaps, leading to both missed entitlements and leakage to ineligible households—a classic principal–agent problem in welfare implementation.

4 In addition to official Government of Andhra Pradesh documentation and material provided by the Samagra Foundation on the Family Benefit Management System (FBMS), this section draws extensively on insights shared by Vijeeth Srinivas (Samagra Foundation) in interviews with the author.

Over the past decade, Andhra has attempted to close these gaps through institutional and digital reforms. The grama/ward Sachivalayam system, launched in 2019, created more than 15,000 village and ward secretariats as last-mile service centres.[5] Statewide household surveys (in 2016, and again before the launch of the FBMS) generated a baseline family database, while national reforms such as Aadhaar-linked authentication and the Direct Benefit Transfer (DBT) platform digitised payments and beneficiary verification. An official assessment estimates that India's DBT system has generated about INR3.48 trillion in cumulative savings by plugging leakages and rationalising subsidies.[6] Yet, these advances largely remain scheme-specific and reactive: citizens still have to apply scheme by scheme, and data remains scattered across departmental silos.

Residents queue at a GSWS centre as staff verify documents and update family benefit records. (Source: Samagra.)

5 Government of Andhra Pradesh, "Grama–Ward Sachivalayam *(VSWS Online Portal),*" VSWS Online Portal, accessed November 19, 2025, https://vswsonline.ap.gov.in/#/home

6 Ministry of Finance, Government of India, "India's DBT: Boosting Welfare Efficiency—Report Reveals ₹3.48 Lakh Crore in Savings and 16-Fold Increase in Beneficiaries," *Press Information Bureau,* April 21, 2025, https://www.pib.gov.in/PressReleasePage.aspx?PRID=2123192

By 2023–24, internal diagnostics in Andhra Pradesh had highlighted three persistent delivery problems. First, fragmented and incomplete data: the household database stored only a limited set of attributes per family; many records were outdated or not linked to Aadhaar; and departments maintained separate sources, resulting in mismatches. Second, fiscal inefficiencies: as welfare commitments expanded, some better-off households continued receiving subsidised benefits for years, while some poorer households remained uncovered. Third, high citizen transaction costs: repeated applications and document submissions led to exclusion more often due to administrative friction than to ineligibility. Experience from other cities points to an alternative model: integrated social registries and proactive entitlement systems. Brazil's Cadastro Único, for instance, connects over 90 million people to more than 40 social programmes, serving as a backbone for targeted social assistance. South Africa's National Integrated Social Information System (NISIS) was designed precisely to overcome fragmented beneficiary databases by creating a single, authoritative source of social protection information.

Indeed, comparative work on social protection information systems globally shows a broader shift over the past two decades towards integrated data and information management as good practice. Against this backdrop, the FBMS in Andhra Pradesh was conceptualised as a unified, analytics-driven welfare architecture. Its objectives were fivefold:[7]

I. **Universal coverage:** Automatically identify and enrol every eligible family, ensuring no household is left out of core welfare schemes.
II. **Minimal misdirection of benefits:** Apply objective exclusion indicators (such as income tax payment, landholding size, and electricity consumption) and, over time, a data-driven family vulnerability index, to ensure that only genuinely eligible households receive support.
III. **Data-driven policy design:** Use the integrated family database as a decision-support tool for redesigning schemes, reallocating budgets, and identifying underserved groups.
IV. **Family as the unit of welfare:** Assign a unique FBMS family identifier linked to Aadhaar and provide a digital family e-Passbook that consolidates all benefits for transparency and citizen empowerment.
V. **Analytics and innovation:** Build an engine that uses automation and AI for lifecycle monitoring, anomaly detection, and automated inclusion/exclusion decisions.

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7 "FBMS – Goal & Theory of Change."

Together, these objectives give FBMS its core rationale: to move Andhra Pradesh's welfare delivery from fragmented, reactive processes to a unified, proactive, and data-led system aligned with the state's *Swarna Andhra 2047* vision and the United Nations Sustainable Development Goals (SDGs)

Implementation, Innovation, and Impact: How FBMS Turns Data into Delivery

From Data to Insights: Building a Reliable Family Database

At the core of the FBMS is a reliable single-family database that unifies citizen-level information relevant to welfare delivery.[8,9] Andhra Pradesh has built it based on earlier grama/ward Sachivalayam household surveys (2016 and 2023), expanding the architecture by defining 26 core attributes that determine eligibility for most schemes. These span 16 fields—age, gender, religion (personal details), caste category, occupation, education (socio-economic indicators), key household identifiers, such as ration card numbers, and nine additional exclusion categories—such as income tax payments, land and vehicle ownership, electricity consumption, and similar proxies. Each family's welfare transaction history is also recorded, creating a 360-degree view of pensions, scholarships, housing assistance, and other benefits.

To ensure data quality, FBMS uses field-data saturation protocols that assign a "golden source" to each attribute (for example, birth registration for age or the caste certificate database for caste). An integrated data architecture connects about 20 departmental databases via Application Programming Interfaces (APIs), feeding a central analytics engine that continuously ingests updates, recalculates eligibility, flags anomalies, and identifies eligible but unenrolled citizens.

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8 In addition to official Government of Andhra Pradesh documentation and material provided by the Samagra Foundation on the Family Benefit Management System (FBMS), this section draws extensively on insights shared by Vijeeth Srinivas (Samagra Foundation) in interviews with the author.

9 "FBMS – Goal & Theory of Change."

ANM workers verify household details during a doorstep survey to update beneficiary records. (Source: Samagra.)

From Insights to Action: Automating Eligibility and Service Delivery

Translating analytical insights into on-ground delivery is where the FBMS most sharply departs from traditional welfare models.[10] Instead of treating analytics as a back-office diagnostic tool, FBMS is built so that data directly drives day-to-day delivery, operating on four core mechanisms:

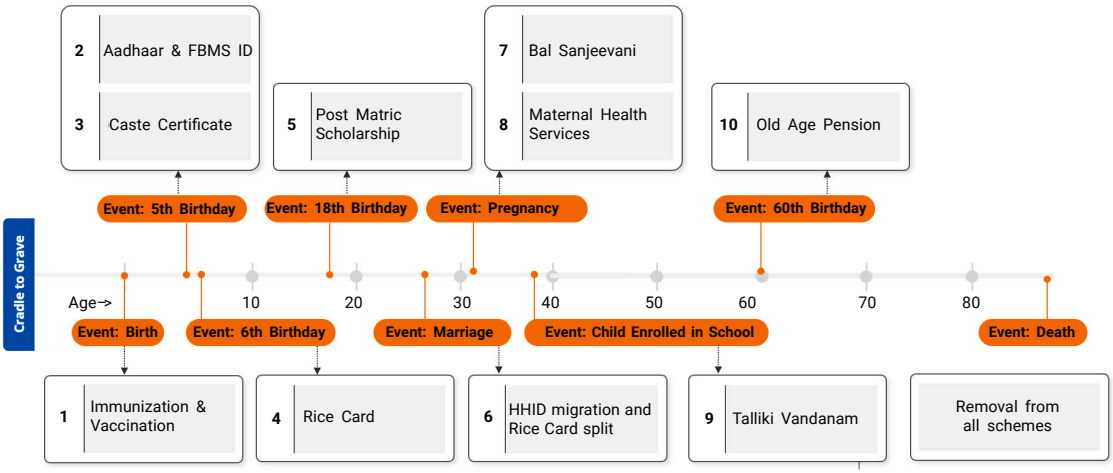
Event-Triggered Service Delivery

FBMS continuously watches out for key life events and data changes across connected government databases—births, deaths, milestone ages (such as 5, 6, 18, and 60 years, at each of which citizens become eligible for different benefits), new disability certifications, marriages, and school enrolments. Each event automatically prompts the analytics engine to recompute eligibility for all relevant schemes. When a person newly qualifies, the

10 "FBMS – Goal & Theory of Change."

system initiates enrolment; if one no longer qualifies, it starts de-registration. Once a newborn's birth is registered and an Aadhaar number is issued, for instance, FBMS adds the child to the family's ration card—once he/she turns six—and public health insurance. Similarly, at 18, they may undergo auto-screening for scholarships on entering higher education. In an illustrative scenario developed by the FBMS team, a tribal woman's single act of registering her pregnancy at an Anganwadi unlocks a sequence of linked benefits—maternal health support, child nutrition and immunisation, identity documents, school admissions and stipends, and eventually an old-age pension—without separate applications. Each recorded event becomes a one-time input that cascades into multi-departmental action, sharply reducing the frequency with which citizens must approach the state.

Event-Triggered Delivery of Schemes & Services



The Family Benefit Management System (FBMS) workflow maps life event triggers from birth to milestone ages and death, linking citizens to eligible welfare benefits. (Source: Samagra.)

Periodic Bulk Inclusion/Exclusion Drives

Alongside real-time triggers, FBMS also runs monthly or quarterly analytics sweeps to detect eligibility changes and compliance issues that are not tied to a single life event. These batch-runs scan the integrated database to look for anomalies and missed cases—for example, mismatches between a household's caste status as recorded on its caste certificate and benefits intended for specific categories, such as the Jagjeevan Jyoti Yojana (which provides free electricity for SC/ST families only). A typical anomaly would be a family classified as OBC in its caste certificate records but receiving Jagjeevan Jyoti support, which FBMS can flag for correction. The result is a continuous pipeline of "to enrol" and "to verify for exclusion" cases. A confidence-based workflow then applies:

where the data clearly meets or fails eligibility criteria, inclusion or exclusion is executed automatically with a notification to the citizen; where ambiguity remains, cases are routed first to a call centre for tele-verification and, if needed, to grama/ward Secretariat staff for field checks.

API-Based Integration with Departmental Systems

To operationalise these decisions without rebuilding every departmental system, FBMS uses a "plug-and-play" integration model anchored in three core APIs. The Eligibility API allows departments to submit a family or person identifier and instantly receive that individual's current eligibility status for a given scheme. The Inclusion API enables scheme portals to ingest pre-validated beneficiary lists pushed by FBMS—for example, thousands of prospective pensioners with complete demographic and bank details, pending only final approval.

The Exclusion API similarly flags beneficiaries who, based on updated data, should be reviewed or removed. Together, these APIs enable FBMS to function as a real-time decision engine layered on top of existing legacy systems rather than replacing them outright. An administrative dashboard then aggregates scheme-wise additions, removals, and the associated monetary value of benefits, making it easier for senior officials to monitor performance, spot anomalies, and intervene where implementation is lagging.

Streamlined Citizen-Facing Processes

FBMS also applies its "data once, use many times" principle to processes that still require documents or direct interaction. Certificates for caste, income, and domicile are a prime example, as they underpin access to scholarships, reservations, and other benefits. Previously, each family member had to apply and be verified separately, even where the information was identical. Under FBMS, once one member's caste or income certificate is verified and recorded in the family database, other eligible members can auto-generate their certificates from that record, subject to basic checks such as age and relationship. This saves multiple trips and fees and ensures consistency across documents. The Family e-Passbook is intended to extend this "data once, use many times" logic to the household level, but it is still in ideation and has not yet been implemented. The plan is for a digital family ledger—accessible online and via grama/ward Secretariats—that shows all benefits received and flags potential gaps. Once rolled out, this visibility is expected to improve transparency and act as a practical nudge for inclusion, encouraging families to ask about additional schemes and enabling staff to guide them more efficiently.

Taken together, these mechanisms shift the operational burden of welfare delivery from citizens to the state's systems. FBMS uses data not only to understand who needs what, but to act on it—turning insights into automated, auditable decisions that cut transaction costs, limit discretion and leakages, and bring practice closer to the promise of a genuinely citizen-centric welfare state.

A GSWS official conducts a household survey, recording beneficiary details on a tablet during a community visit. (Source: Samagra.)

From Challenges to Solutions: Fixing Data, Design, and Trust Gaps

Rolling out the FBMS statewide meant confronting data, design, institutional, and technology constraints—all at once.[11] The FBMS implemented a layered data-strengthening strategy: upgrading and integrating source databases through formal sharing arrangements, launching a Unified Family Survey (about 60 minutes per household) to verify and fill missing attributes, and undertaking large-scale Aadhaar seeding to remove duplicates and inconsistencies. To avoid fatigue, survey tablets were pre-loaded with existing data so enumerators focused only on gaps and anomalies.

A second challenge was defining, with precision and legitimacy, who should remain eligible as the welfare system matures. Rather than rely on blunt exclusion filters, the state has designed a more calibrated set of eligibility rules using data simulations, poverty research, and field validation to reduce both wrongful inclusion and exclusion. These refinements have not yet been implemented—they will be taken up only after a political decision and formal approval, given the distributional and political sensitivities

11 "FBMS – Goal & Theory of Change."

involved. In parallel, citizen trust, coordination, and privacy concerns are being addressed through transparency tools such as the e-Passbook, staff training, Chief Minister's Office–led mandates for data sharing, a clear nodal role for the Real Time Governance Society, modular APIs, detailed audit logs, and tight access controls.

From Action to Impact: Early Gains in Inclusion and Fiscal Efficiency

Though it is still early years, FBMS has begun to show tangible social, fiscal, and administrative value—most clearly through its ability to reveal potential exclusions and delivery gaps that conventional, application-led systems tend to miss.[t] At the same time, several of the largest "inclusion at scale" outcomes remain forward-looking: the intent is that, once fully scaled and backed by policy decisions, FBMS will enable routine, automated identification of eligible households which are not currently receiving benefits, and support more timely enrolment across core schemes. If executed as designed, this would strengthen safety nets by reducing missed entitlements and improve welfare efficiency, with knock-on gains for poverty alleviation- and nutrition-related development objectives.

Workers hold a district-level consultation. (Source: Samagra.)

12 "FBMS – Goal & Theory of Change."

On the expenditure side, FBMS is tightening targeting and generating savings. Data cleansing has uncovered roughly 1.1 million ineligible or ghost ration cards and multiple instances of duplicate housing benefits being availed, allowing the state to phase out support to better-off or non-existent beneficiaries and redirect funds toward vulnerable families, echoing the national Direct Benefit Transfer pattern of reduced leakages and expanded coverage. At the same time, shifting from application-based to proactive delivery has cut citizen transaction costs, with field feedback indicating high satisfaction and few grievances of wrongful exclusion. Institutionally, a data-driven culture is taking root: frontline staff see their verification work feeding a statewide system, while leaders track coverage gaps and anomalies through dashboards—signalling a broader re-architecture of welfare toward a proactive, rules-based, citizen-centric model.

Conclusion: Toward Digitised Citizen-Centric Welfare States

Andhra Pradesh's FBMS marks a decisive shift from a reactive, application-driven welfare regime to a rules-based and data-led welfare state. By grounding delivery in a unified family database and embedding analytics inside routine administration, FBMS directly addresses long-standing problems of leakage, exclusion, and bureaucratic friction. Early results validate the system's core hypothesis that reducing information asymmetry and using transparent, algorithmic rules can more closely align frontline practice with policy intent.

Viewed more broadly, FBMS is a lighthouse initiative because it translates abstract state priorities into concrete operational systems. It hard-wires the Swarna Andhra 2047 vision of "no family left behind" into everyday workflows, supports fiscal prudence by tightening targeting without cutting core entitlements, and advances multiple SDGs on poverty, hunger, health, education, and effective institutions.

Looking ahead, the state is exploring refining the ML-based vulnerability index for more granular prioritisation, extending proactive delivery beyond subsidies to livelihoods, skilling, and shock-responsive support, and strengthening grievance redress and appeals to guard against data- or rules-based errors. In doing so, FBMS not only deepens its presence in Andhra Pradesh but also offers a reference model for other Indian states and developing countries seeking to build modern, digital, citizen-centric welfare systems.

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Transforming Dispute Resolution: The ON Courts Initiative in Kerala

Ambar Kumar Ghosh

Introduction

INDIA'S COURTS HAVE A CASE BACKLOG of over 5 crore, with 4.3 crore of them pending in the lower courts alone.[1] At current disposal rates, clearing such backlog would take over 300 years.[2] Among these, cases under Section 138 of the Negotiable Instruments Act (cheque dishonour) represent 16 percent of the case backlog. This massive backlog not only affects the individual litigants but also constrains economic activity by trapping capital and deterring investment. With litigants spending an estimated INR80,000 crore annually, this makes 0.8 percent of India's Gross Domestic Product.[3]

Among the causes of the severe case backlog is the inefficiencies that arise from the processes that a case must follow. For cheque dishonour cases, for example—the focus of the online court that is the subject of this article—independent research indicates that the average case takes approximately 600 days to reach judgment.[4] During this period, cases move through multiple stages: filing and registration, issuance of notice to the accused, recording of evidence, and final judgement. As court procedures in India were designed long before the advent of digital technology, it is now essential that these processes be reimagined to integrate technology.

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1 ORF has independently authored this case study drawing exclusively from publicly available information and resources regarding the initiative.

2 Jayant Mundhra, "Why 5 Crore Pending Cases Paralyse Justice in India?," *Bharat Nama*, June 11, 2025, https://bharatnama.substack.com/p/13-the-judiciary-jam-why-50-million.

3 Pradeep Thakur, "Lost Wages, Legal Fees Cost Litigants Over Rs 80,000 Crore, Finds Study," *Times of India,* April 21, 2016, https://timesofindia.indiatimes.com/india/lost-wages-legal-fees-cost-litigants-over-rs-80000-crore-a-year-finds-study/articleshow/51920596.cms.

4 Siddharth Raman, "Establishing the Baseline for the Kollam District Court Reform," *The Leap Blog,* November 21, 2025, https://blog.theleapjournal.org/2025/11/establishing-baseline-for-kollam.html#gsc.tab=0.

Current Digitisation Efforts and Their Limitations

Recognising these challenges, the judiciary has undertaken digitisation through the e-Courts initiative. Initiated in phases beginning in 2010, e-Courts introduced the Court Information System, e-filing of cases, and online payment options.[5]

However, the e-Courts approach has focused primarily on digitising existing workflows rather than fundamentally reimagining them. The systems largely replicate physical processes in digital form without process re-engineering—or the attempt to address the underlying procedural challenges that result in inaccessibility and inefficiencies.[6,7] Furthermore, given the decentralised nature of the judicial system, each state has their own rules of procedure, presenting challenges for implementing standardised solutions centrally.

Outside the district court of Kollam. (Source: oncourts.kerala.gov.in)

5 E-Courts: About Us, https://ecourts.gov.in/ecourts_home/static/about-us.php.

6 Umang Poddar, "Justice On Hold: India Court Crippled By A Million-Case Backlog," *BBC*, September 29, 2025, https://www.bbc.com/news/articles/c4gz4y4p80po.

7 Damle et al, "Characterising Cheque Dishonour Cases in India: Causes for Delays and Policy Implications," *Daksh Lawtech,* 2022.

Lastly, integration with external agencies such as the police, postal services, and treasury departments remains limited. This means that even with digital case management systems, coordination for serving notices, executing warrants, or processing payments continue to require manual intervention. The result is that while some improvements have been achieved, the fundamental challenge of lengthy case lifecycles persists.

Introducing a Targeted Approach

To address the gaps, a collaborative effort emerged through the Public Collective for Avoidance and Resolution of Disputes (PUCAR). The collective brings together organisations with experience in public systems transformation: Samagra, Agami, xKDR Forum, and eGov Foundation.

The underlying principle is that different dispute types have distinct characteristics, workflows, and stakeholder needs. A cheque dishonour case, for instance, follows a relatively standardised fact pattern and legal framework compared to complex civil litigation. By focusing on a specific, high-volume case type, it becomes possible to redesign the entire case lifecycle—from the filing of a complaint to the delivery of judgement.

This focused approach also enables the development of modular, reusable components. A filing system designed for cheque bounce cases can, with appropriate modifications, be adapted for other case types, such as motor vehicle accident claims which constitute around 10 percent of the backlog in civil cases.[8] Similarly, processes for issuing and tracking summons can be standardised across different contexts. The goal is to create building blocks that can be deployed across jurisdictions while allowing for necessary customisation.

Broader Transformation Pillars

On 18 November 2024, the Kerala High Court sanctioned the establishment of a special digital court for Section 138 cases in the Kollam district.[9] This became the first operational site for what was named the "24x7 ON Court", with ON standing for "Open and Networked". Here, "open" means making information actionable for users through open technology

8 Mugdha Mohapatra, Siddarth Raman and Susan Thomas, "Get Them to the Court On Time: Bumps in the Road to Justice," *The Leap Blog,* June 12, 2025, https://blog.theleapjournal.org/2025/06/get-them-to-court-on-time-bumps-in-road.html#gsc.tab=0.

9 Notice by Government of Kerala, November 18, 2024, https://images.assettype.com/barandbench/2024-11-20/bziuclbd/Digital_Court_Notification.pdf.

and accessible data, and "networked" refers to integrating allied institutions for seamless, real-time communication and the provision of open application programming interfaces (APIs) to encourage ecosystem participation.

The ON Court initiative encompasses broader transformational elements across four dimensions: process, policy, technology, and people.

From a process perspective, the initiative involved mapping the entire case lifecycle and identifying opportunities for reengineering. This included eliminating redundant steps, enabling asynchronous workflows that allow parties to act without requiring all parties to be physically present in person at the same time, and creating feedback loops for continuous improvement based on data.[10] In the 24x7 ON Court model, advocates can e-file cases through a rule-based system, which are reviewed by Scrutiny Officers who flag defects for instant digital correction without the need for a formal hearing. Once cleared, judges use a dashboard to bulk-sign summons digitally, triggering immediate delivery to the accused via SMS and email, thereby eliminating physical court appearances for routine procedural steps.

On the policy front, certain procedural rules required updating to accommodate digital-first processes. For example, rules needed to explicitly permit digital filing and digital signatures in place of physical submissions. The court issued administrative directions clarifying expectations around online participation and electronic service of process. These policy changes provided the legal foundation for the new processes.[11]

The technology pillar centres on DRISTI, an open-source case management platform built specifically for the judiciary and developed by PUCAR in 2024.[12] DRISTI is designed to be modular and extensible. It includes registries for core entities like cases, parties, and hearings, and provides APIs that allow integration with external services. The platform prioritises data security and role-based access control to protect sensitive case information.

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10 24 x 7 ON Courts, Official Website, https://oncourts.kerala.gov.in/about.

11 Ancha, "Kerala HC's Digital Thrust: Esigning of Affidavits and Vakalaths," *Leegality*, January 28, 2026, https://www.leegality.com/blog/kerala-hc-digital-thrust.

12 A Lookback at 2024, https://egov.org.in/newsletter/2024-at-egov-the-year-of-possibilities/.

DRISTI's open-source nature means the code is publicly available, preventing vendor lock-in and allowing any High Court or lower court to deploy and customise the platform according to their needs. Its underlying technical architecture is designed for scale, with the ability to handle high transaction volumes across multiple courts simultaneously.

Integration with external systems represents a key technological achievement. The platform connects with Aadhaar for e-signatures, the State Treasury system for online court fee payments, SMS and email gateways for communication, and police systems for coordinating warrant execution. These integrations enable seamless, end-to-end workflows without manual handoffs between systems.

From a people and institutional capacity perspective, the initiative required significant change management. Court staff transitioned from maintaining physical files and manual registers to operating through a digital platform. Training programmes were conducted for all user groups, including judges, court staff, advocates, and advocate clerks. It included in-person training for all user cohorts, scenario-based trainings, trainings for the advocates by the Advocate Master Trainers who are trained by the High Court. Ongoing field support that includes constant engagement with the users, actively addressing the bugs that get reported on ground, providing support to new advocates, clerks and first-time filers through a dedicated team, helped users adapt to new processes and provided a channel for feedback and rapid problem resolution.

E-filing at 24x7 ON Court. (Source: Manorama News)

Importantly, the staffing model for the ON Court demonstrates that effective process design and technology support can enable case management with a leaner team. The court operates with a staff of three, rather than the typical 14, without compromising service quality.[13] This has become possible as many routine tasks are automated, data entry is eliminated through direct digital filing, and integration with external systems reduces coordination overhead.

Implementation in Kollam, Kerala

The transformation of the cheque dishonour case lifecycle can be understood through interventions at each stage of the process, as seen in the implementation in Kollam.
At the filing and scrutiny stage, the system guides complainants and their advocates through a rule-based filing process that prevents common errors and provides step-by-step guidance. Guided filing helps advocates and clerks understand the required information, supported by sample templates that simplify completion. Documents can be signed digitally using Aadhaar-based authentication, eliminating the need for physical signatures. The platform also performs automated checks for completeness and consistency, flagging potential issues before submission and reducing the back-and-forth typically required between advocates and the registry for defect correction.

Court staff using 24x7 ON Court portal. (Source: Manorama News)

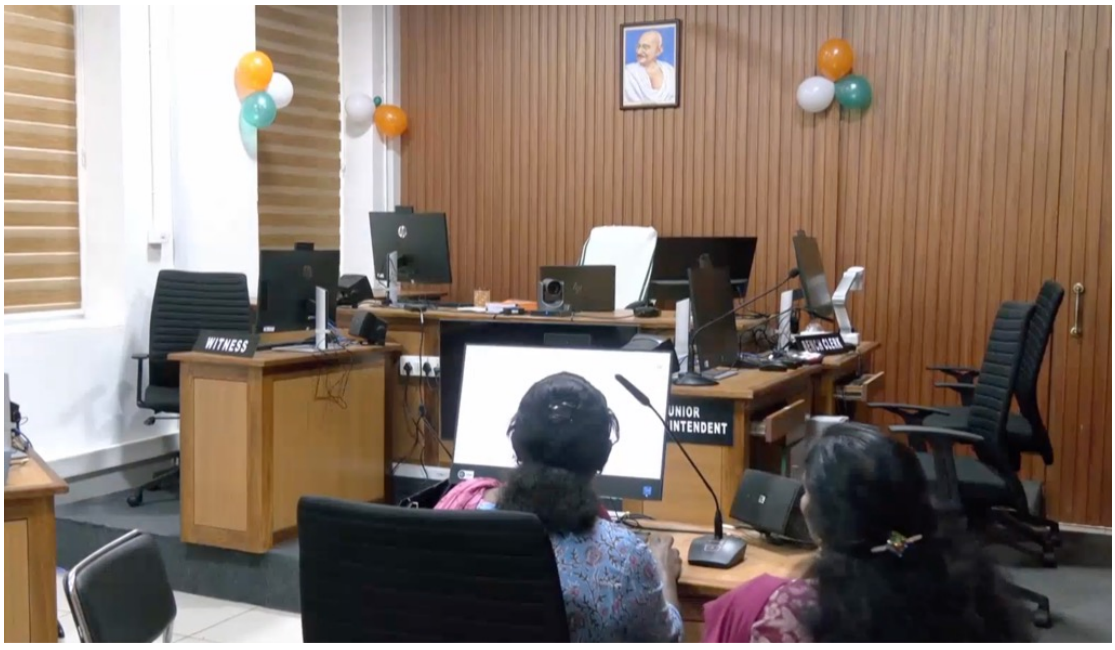
13 Ahsana Billadakath, "Justice Round the Clock: The Launch of Kollam's 24/7 Court and Its Impact On Expediting Trials," *Journal of Legal Research and Juridical Science* Vol. 4 Issue 2, ISSN (O): 2583-0066, 2025.

Once filed, the scrutiny process is assisted through the platform. Scrutiny Officers review complaints systematically, with the system highlighting any defects that need correction. Advocates receive automated notifications when scrutiny is completed or when defects are identified and can make corrections remotely without visiting the court. Upon successful scrutiny, the case is registered and assigned a case number, with all parties receiving SMS notifications.

The next critical stage involves taking cognisance of the complaint and issuing process to the accused. Traditionally, this required the preparation of summons or warrants by court staff, physical dispatch through postal or police channels, and manual tracking of service status. Under the ON Court system, summons are generated automatically using standard templates, which judges can review and digitally sign in bulk rather than individually.

Additionally, integration with police systems further enables electronic communication when personal service through the police is required. Service status is tracked within the system, with automated updates when service is confirmed or returned unserved.

During the trial stage, the platform supports hearing management through smart calendaring, which displays all cases listed for a given day—replacing the practice of manually calling out pending cases to confirm readiness. Judges have access to complete digital case files during hearings, eliminating the need for physical file management. Orders can be generated using templates and recorded immediately.



New courtroom setup in Kollam. (Source: Manorama News)

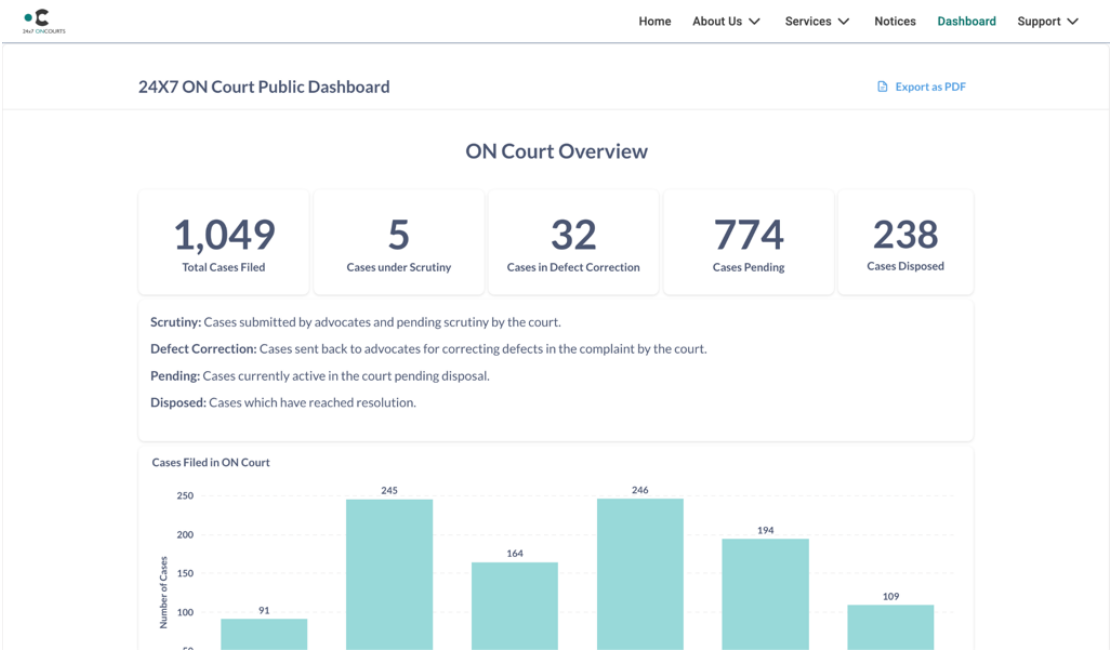
For litigants and advocates, the system provides transparency on upcoming hearings, the purpose of each hearing, and the required actions through proactive text alerts. They can access case files and track the progress using unique logins. If a case needs to be rescheduled, applications can be filed online and decisions communicated promptly. This reduces unproductive hearings where parties attend the court only to find matters adjourned due to unmet procedural requirements.

Once a judgement is delivered, parties receive a notification, and where enforcement is required, execution proceedings can be initiated through the same digital platform.

Impact and Early Results

The ON Court in Kollam accepted its first case in November 2024. As of January 2026, over 1,000 cases have been filed, more than 500 advocates are registered on the platform, and approximately 200 cases have been disposed of.

Measuring impact against the baseline of traditional Section 138 case handling reveals notable improvements. The baseline data, drawn from the analysis of historical cases in Kollam, showed an average of 10 days from filing to registration, 150 days from registration to cognisance, and approximately 300 days for issuance and service of summons, with the trial taking an additional 350 days. This came approximately to 600 days on average.[14]



ON Courts dashboard. (Source: oncourts.kerala.gov.in)

14 Raman, "Establishing the Baseline for the Kollam District Court Reform".

In the 24x7 ON Court, the registration stage involves scrutiny of the case file, with errors corrected immediately. Over the next 40 days, the court moves to cognisance, issuing notices once process fees are paid. The appearance stage follows around day 87, when the accused formally joins the proceedings, followed by bail and plea recording around day 49. Where parties opt for mediation, a 60-day window is provided for resolution. Finally, the trial phase—including depositions, evidence, and arguments—is completed in 51 days, totalling approximately 17 scheduled hearings across the entire lifecycle.

Beyond speed, the initiative has improved predictability. The time between consecutive hearings has reduced from an average of 60 days in traditional courts to 14 days in the ON Court, with 98 percent of scheduled hearings taking place as planned. The proportion of effective hearings has increased from a baseline of 19 percent to 25 percent.

User experience improvements are evident across stakeholder groups. Litigants now have direct visibility into their cases through unique logins, receive proactive SMS alerts on case status and upcoming actions, and can sign documents remotely. Advocates benefit from fully digital filing that eliminates duplicate physical submissions, enables remote defect correction, and allows real-time case tracking. Judges have access to comprehensive dashboards showing their court's performance metrics, assisted order generation through templates, and bulk-signing capabilities that reduce administrative burden.

The Path Forward

The success of the 24x7 ON Court demonstrates the value of open and modular design. DRISTI's architecture as an open-source platform with well-defined APIs enables innovations developed in Kerala to be adapted and deployed by other High Courts or applied to other case types. The building blocks created for cheque dishonour cases—such as the e-filing system, scrutiny workflow, scheduling system, and integrations with allied institutions—can serve as templates for other dispute types with appropriate customisation.

The experience in Kollam provides a foundation for broader applications of the ON Court model. An official associated with the IT division of the High Court, who requested anonymity, confirmed that there is a plan underway to set up a similar court to deal with cheque dishonour cases in Thrissur district.[15]

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15 Vishnu Varma, "24x7 Kerala Court Sets Template for Clearing Judicial Backlog," *Hindustan Times,* November 26, 2025, https://www.hindustantimes.com/india-news/24x7-kerala-court-sets-template-for-clearing-judicial-backlog-101764100000456.html.

Conclusion

The 24x7 ON Court in Kerala represents a targeted approach to narrowing case backlogs through a combination of process reengineering, policy adaptation, technology deployment, and capacity-building. By focusing on a specific, high-volume case type and redesigning its complete lifecycle, the initiative has achieved measurable improvements in case disposal times, hearing effectiveness, and user experience.

Results from the first year of operation provide empirical evidence that meaningful transformation is achievable when digitisation is coupled with process reengineering. As the model matures and expands, it offers a potential pathway for addressing India's broader pendency challenge through systematic, case-type-specific reform rather than a one-size-fits-all approach.

ON Court's emphasis on open-source technology, modular design, and process documentation positions it as a public good that can be adopted and adapted by courts across the country. With continued refinement based on operational learning and sustained commitment, the ON Court model contributes to the larger objective of making justice delivery more efficient, accessible, and user-centred.

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‘Tejasvi’ Classrooms: Seeding Entrepreneurial Mindsets in Madhya Pradesh

K. S. Uplabdh Gopal

Introduction

UDHYAM SHIKSHA BEGAN in 2017 with a simple idea: treat entrepreneurship as a subject that deserves a regular slot on the school timetable.[1] Guided by their mission, "To Make *Bharat* Entrepreneurial", it has since grown into a multi-state public programme working across 12 states and Union Territories, with a direct presence in 10 of them currently.[2] Today, each year, more than 2 million students in over 9,000 government schools are introduced to their curriculum, supported by at least 35,000 trained educators. Till date, around 1 million students have received a seed grant of about US$25 (approximately INR 2,200) each, amounting to over US$25 million (more than INR 223.86 crore) in state government funds unlocked for entrepreneurial education.[3]

Built through partnerships with state governments and SCERTs (State Council of Educational Research and Training),[4] Udhyam Shiksha is integrated into the curriculum of public-school systems rather than running as a standalone project. The focus is not

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1 "Udhyam Shiksha | Student Entrepreneurship Program," Udhyam Learning Foundation, https://udhyam.org/shiksha/.

2 Udhyam Learning Foundation, "Making Bharat Entrepreneurial: Annual Report 2023-24," 2024, https://udhyam.org/wp-content/uploads/2024/10/ULF_Annual-Report24-2.pdf.

3 Udhyam Learning Foundation, "Making Bharat Entrepreneurial: Annual Report 2023-24"

4 SCERTs or State Councils of Educational Research and Training, are state-level academic bodies that design curricula, develop textbooks, and lead teacher training and educational research for government schools.

on producing teenage 'start-up founders', but on building the habits of experimentation, grit, self-awareness, and independent thinking, alongside the set of 21st-century skills identified by educators—communication, collaboration, critical thinking, and creativity—for students in Grades 9 to 12.

Over time, Udhyam Shiksha's model has settled into a clear arc of curriculum, real-world projects, and structured reflection sessions where students analyse what worked, what failed, and what they learned. Students spend an average of 12 hours a year on hands-on entrepreneurial learning, generating over 2.5 million business ideas so far. Nearly half of them have translated into real projects through seed money provided by state governments, which have collectively unlocked about INR 250 crore for prototyping and small ventures.

A student team, with their teacher-mentor, presents their entrepreneurial stall of handcrafted décor products at a Tejasvi Madhya Pradesh school mela. (Source: Udhyam Shiksha.)

Independent evaluations—including a World Bank randomised trial[5,6] and a decade-long longitudinal study with McGill University[7]—point to early gains in communication, clearer articulation of ideas, stronger critical thinking, problem-solving, and increased confidence. In November 2025, Udhyam Shiksha was featured in the HundrED Global Collection 2026[8] for the second consecutive year, signalling its consolidation as a globally recognised public education innovation.

Rationale and Objectives

The school system in Madhya Pradesh (MP) enters the National Education Policy (NEP) 2020 decade under considerable strain. Classrooms are full, but learning levels are uneven; elementary enrolment is high, yet roughly 450,000 children remain out of school[9] and the dropout rate by Grade 8 (upper primary) is about 6.3 percent, compared to a national average of 3.5 percent.[10] For adolescent girls, the slope is steeper still, with many leaving before they acquire skills that they can use for work or further studies.[11]

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5 Udhyam, "From Mindset to Momentum. A $0.50 Breakthrough in Entrepreneurial Education – Especially for Girls," June 2025, https://udhyam.org/2025/06/05/from-mindset-to-momentum-a-0-50-breakthrough-in-entrepreneurial-education-especially-for-girls/.

6 World Bank, "South Asia Gender Innovation Lab," https://www.worldbank.org/en/programs/world-bank-south-asia-region-gender-innovation-lab/impact-evaluations#4.

7 Syeda Asia, Ashwin Mohan, and Payal Agrawal, "Participatory Methodologies in Education for Policy Impact," Oxford Research Encyclopedia of Education, October 2025, https://doi.org/10.1093/acrefore/9780190264093.013.2040.

8 HundrED, "Udhyam Shiksha," April 2025, https://hundred.org/en/innovations/1-udhyam-shiksha.

9 UNICEF, "Children in Madhya Pradesh," https://www.unicef.org/india/children-madhya-pradesh.

10 Department of School Education and Literacy, Ministry of Education, Government of India, "Report on Unified District Information System for Education Plus (UDISE+) 2024-2025," https://www.education.gov.in/sites/upload_files/mhrd/files/statistics-new/UDISE%2BReport%202024-25%20-%20NEP%20Structure.pdf.

11 Synergy SANSTHAN, "Assessing the Implementation Status of Youth Policies in India & Way Forward for Madhya Pradesh State Youth Policy 2023," https://www.synergysansthan.org/wp-content/uploads/2025/11/Assesing-Implemenation-Status-of-Youth-Policies-in-India.pdf.

MP acknowledges this gap. Over the past decade, it has piloted life-skills and well-being programmes such as Umang (launched in 2017),[12] and, more recently, Anand Sabha (piloted in 2023 and being expanded statewide from 2025-26),[13] which reserve time for emotional resilience, values, and reflection. Nationally, NEP 2020[14] and the new curriculum frameworks direct schools to move in the same direction: more project-based and experiential learning, stronger vocational exposure, and a serious place for entrepreneurial thinking.

Tejasvi Madhya Pradesh was designed to sit squarely in this missing space. Launched through a multilateral memorandum of understanding (MoU) in 2023,[15,16] it combines an Entrepreneurial Mindset Curriculum (EMC) for Grade 9 with the Societal and Business Innovation Challenge (SBIC) for Grade 11. Its architecture is deliberate, where every student is not just a competitive minority, but works on curriculum-integrated projects. Teachers act as facilitators, schools hold seed money, and community members show up at *melas*.[17]

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12 UNFPA in India, "Youth and Adolescents," https://india.unfpa.org/en/topics/youth-and-adolescents.

13 *Times Of India,* "Anand Sabha to Be Introduced in Govt Schools for Classes 9 and 10," May 2025, https://timesofindia.indiatimes.com/city/indore/anand-sabha-to-be-introduced-in-govt-schools-for-classes-9-and-10/articleshow/120909561.cms.

14 Ministry of Human Resource Development, Government of India, "National Education Policy 2020," https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf. 12

15 Department of Public Relations, Government of Madhya Pradesh, "छात्रों में उद्यमी विश्वास और कौशल विकसित करने के लिए प्रारंभ होगा तेजस्वी कार्यक्रम," April 2023, https://www.mpinfo.org/Home/TodaysNews?newsid=20230420N245.

16 Madhya Pradesh State Open School Education Board, "Quadripartite MoU on Entrepreneurship Education," https://mpsos.nic.in/Skill%20Mou%20-%20Udhyam%20learning%20foundation.pdf.

17 In this context, a mela is a school-level fair or exhibition where student teams set up stalls to present their projects and interact with teachers, peers, parents and community members.

Students in a government school in Bhopal, Madhya Pradesh attend an orientation session on the Societal and Business Innovation Challenge under Tejasvi. (Source: Udhyam Shiksha.)

Each selected student from Grade 11 is given seed money of INR 2,000 for making a prototype of their idea, and schools organise melas where all teams showcase their work. The number of melas held across four districts and PM SHRI schools[18] exceeded 1,300 by 2024-25, with the government providing financial support amounting to INR 1.3 crore. Local entrepreneurs and innovators, parents, and community leaders are invited to these events, turning them into neighbourhood forums. Behind the scenes, the state has developed 5,000 teacher manuals and 1,84,904 student workbooks, produced by the state education department with Samagra and the Department of Public Instruction (DPI), so that classrooms have concrete tools at their disposal.

Tejasvi is thus aligned with the state's priorities on youth empowerment and job creation and with Sustainable Development Goal (SDG) 4 on quality education[19] Its underlying claim is that entrepreneurial mindset development should be a basic entitlement in government secondary schools. The programme's objectives are to help students notice and tackle local problems, to build confidence and collaboration through real projects, and to equip the public system to deliver NEP-aligned, experiential education at scale.

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18 PM SHRI or Pradhan Mantri Schools for Rising India is a central government scheme that supports selected existing government schools to become model schools with improved infrastructure, teaching–learning quality, and holistic, NEP-aligned education.

19 United Nations, "Goal 4: Quality Education," United Nations Sustainable Development Goals, 2025, https://www.un.org/sustainabledevelopment/education/.

A student team showcases their entrepreneurial projects developed under the Tejasvi Madhya Pradesh programme at a school mela. (Source: Udhyam Shiksha.)

Implementation, Innovation, and Impact

Tejasvi MP may look like a set of curriculum units, melas, and seed money orders. In practice, it behaves more like a living experiment that the state is learning to run at scale. Behind each school-level project is a steady stream of information about who is participating, which ideas are moving forward, and where classrooms are getting stalled. The rest of this article will trace how the programme was built on this backbone of data and feedback: from the way information is collected, to how it shapes day-to-day action, how course corrections are made, and what is starting to change as a result.

From Data to Insights

Since its inception, Tejasvi MP was designed as much around information flows as around classroom tools. Data is gathered purposively at several layers: from individual students and teams, from teachers and schools, and from districts. Quantitative records capture the visible milestones of the programme year: how many teams were formed, whether they completed prototyping, whether they reached the mela stage, and whether seed money was actually disbursed and used. Alongside this, teachers and programme staff document more qualitative signals, such as how students chose their problems, how teams worked together, and which projects drew community attention.

Technology holds these threads together. A 24×7 Artificial Intelligence (AI) chatbot gives teachers and students a single, low-friction channel to ask questions, receive updates,

and submit basic information. The Tejasvi portal[20] functions as the programme's digital noticeboard and archive: teachers use it to form teams, access guide videos and content, and browse an idea bank when students struggle with the first step of ideation. Data from these interactions flows into a central dashboard that allows officials and Udhyam's team to see, almost in real time, where implementation is on track and where it is lagging.

The programme also invests in a more deliberate measurement of change. An internal impact assessment used baseline and endline tools to track self-efficacy, grit, problem-solving, and the willingness to take calculated risks. The findings suggested a 45 percent rise in self-efficacy and a 40 percent increase in innovation and risk-taking indicators among participating students.[21] These numbers feed back into monthly review meetings at the state and district level, where officials and Udhyam staff read the dashboard together, identify gaps, refine training content, and adjust timelines. In this way, data is less about compliance and more about keeping a complex, multi-district experiment honest and responsive.

From Insights to Action

Once the dashboards and assessment tools were in place, the question shifted from "What is happening?" to "What do we do about it?". Patterns in the data quickly began to shape action on the ground. Where teachers reported that students were struggling to come up with ideas, the curriculum team rewrote sessions with more local examples and community-linked problems, turning abstract concepts into exercises drawn from nearby markets, farms, or neighbourhood services.

Schools with trained and supported teachers exhibited markedly better performance, leading to the creation of an additional layer of online mentoring. Monthly and quarterly calls, along with short WhatsApp-based micro-learning content, allowed teachers to share dilemmas, observe best practices from other districts, and receive just-in-time nudges instead of one-off workshops. Data also pointed to the role of school leadership. Where principals took the programme seriously, teams formed on time, seed money was disbursed properly, and melas were well attended. In response, a two-stage leadership orientation for principals was introduced to turn them into visible champions rather than passive approvers.

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20 Udhyam, "Tejasvi," https://tejasvi.udhyam.org/.

21 Internal impact assessment, Udhyam Shiksha (undated, internal document); findings shared with the author through programme inputs and interviews.

Government school teachers participate in a two-day Tejasvi training workshop in Indore, Madhya Pradesh, focused on facilitating entrepreneurial mindset activities in the classroom. (Source: Udhyam Shiksha.)

Seed money management was another early knot. Assessments from the field showed inconsistency in how funds were handled and documented. The programme responded by co-designing simple, standard guidelines and verification formats with district officials and school staff, so that every rupee could be traced from sanction to student project. A live programme dashboard and WhatsApp-based help channels gave officials and Udhyam teams a shared view of student participation and outcomes.

Phase-wise expansion followed this learning curve: pilot and validation in two districts, followed by the extension to additional districts and PM SHRI schools. Each phase added smarter technology such as AI-based chatbots for student and teacher support, a video library of Tejasvi guide content and, eventually, a progressive web portal for Grade 11 teachers and students that also uses AI to validate and evaluate student submissions and provide real-time feedback (see Table 1).

Table 1: Implementation of Tejasvi Madhya Pradesh, by Phase

Phase	Years	Geography	Key Design Features	Smart Technology and Tools
I	2023-24	Two districts: Indore and Bhopal	Pilot and validation of Tejasvi MP; rollout of EMC for Grade Nine and SBIC for Grade 11 in selected schools; initial teacher orientation and school-level melas	Introduction of an AI-based chatbot for students and teachers; basic use of the bot for enrolment, programme data collection, and the submission of milestone activities (ideas, samples, and video pitches)
II	2024-25	Indore, Bhopal and two new districts: Ujjain, Narsinghpur; extending to all PM SHRI schools in MP	Programme expansion to additional districts and PM SHRI schools; strengthening of seed money processes; more structured melas at the school and district level; deeper engagement with school principals	Streamlined chatbot usage for uniform data collection and communication; creation of a video-based *'Tejasvi Guide'* library; launch of an online idea bank to support student ideation
III	2025-26*	Four districts and all PM SHRI schools (continuing and consolidating)	Consolidation of Tejasvi MP across existing geographies; greater focus on quality of projects, mentoring, and community participation; tighter integration with district review mechanisms	Development of a 24×7 WhatsApp AI Help Bot for students and teachers; launch of the Tejasvi Portal (PWA) that integrated the idea bank, guide videos, student portfolios, and a leaderboard to enable cross-learning and innovation

**Planned/Ongoing Phase*

Source: Author's own, based on information shared by Udhyam Shiksha personnel.

As projects began to tackle issues like waste, water, or women's safety, school-level melas evolved into community events with parents, local entrepreneurs, and officials in attendance. Regular review meetings at the block and district level, anchored in the same data, have started to normalise evidence-based decision-making, turning Tejasvi into a part of the everyday grammar of governance and transforming programme delivery.

Students showcase their Tejasvi projects at a district-level mela in Ujjain, Madhya Pradesh, as part of the Societal and Business Innovation Challenge. (Source: Udhyam Shiksha.)

From Challenges to Solutions

The most visible knots sat inside the classroom. Teacher readiness and digital comfort varied widely, which meant that the same curriculum could feel energising in one school and intimidating in another. Timetables were already crowded, so the Tejasvi period was at risk of being squeezed out by 'core' subjects. Early rounds of seed money also saw delays and confusion in disbursal, and monitoring was patchy in remote districts. Outside the school walls, many parents and community members had little sense of why adolescents were being asked to do business projects at all, which limited early support. The response mixed small design tweaks with structural fixes. 'Train-the-trainer' digital capsules and hybrid mentoring helped teachers build confidence without long residential workshops. School timetables included a separate Tejasvi period dedicated to the programme, thus formally establishing the programme at school. Standard operating procedures (SOPs) for fund flow were created with district officials, thereby lessening uncertainty about the seed money. District resource groups began to visit schools,

combining monitoring with academic mentoring. Communication teams used state media and social platforms to share stories of student projects in local languages, raising the programme's profile.

The first year's evaluation prompted further course corrections: teacher manuals were simplified, principals were given clearer leadership roles, and problem-solving frameworks were localised. In each case, data from the field pushed the system towards more grounded and workable solutions.

From Action to Impact

In its first two years, Tejasvi MP has expanded its reach considerably from being just a small pilot in the state's secondary schools. The programme was running in 1,134 schools by 2024-25, and the number grew to 1,274 by 2025-26. Across these schools, more than 1.8 lakh students in Grades 9 and 11 participated in 2024-25, growing to around 2.2 lakh the following year.

Between 2023 and 2025, 6,028 teachers were trained to run the curriculum and guide projects. Seed money worth over INR 4.67 crore was distributed in the first two years alone, signalling that the state was willing to back student ideas with real resources. Accordingly, project activity also scaled up. In 2023-24, 571 teams involving 3,475 students developed prototypes; by 2024-25, this had grown to 3,754 teams and almost 19,900 student-led innovations, with more than 70 percent of enrolled students actively engaging in entrepreneurial activities.

State Education Department officials present a ceremonial seed grant cheque in Narsinghpur, Madhya Pradesh for Tejasvi student ventures, with participating students in attendance. (Source: Udhyam Shiksha.)

The numbers only tell part of the story. Classroom observations and assessment data point to students who are more willing to speak up, recover from setbacks, and attempt original solutions. Teachers report carrying activity-based methods into other subjects, using group work and discussions more frequently, even outside the Tejasvi period. The regular review of dashboards and mela preparation has given many schools a stronger monitoring rhythm, and district officials now have a concrete entry point to discuss quality beyond exam scores. Community exhibitions and solution showcases have begun to strengthen local linkages, with parents, local entrepreneurs, and officials encountering student work in a new light. Within MP's system, the programme is slowly shifting entrepreneurship from a peripheral club activity into something closer to a routine part of schooling.

Conclusion

Tejasvi MP stands out because it makes an abstract reform agenda look concrete. NEP 2020 speaks of experiential learning, problem-solving, and entrepreneurial mindsets; Tejasvi translates those phrases into a weekly period, a set of manuals and workbooks, seed money in school accounts, and melas where every team has to step up and explain its work. Policy alignment, curriculum design, implementation architecture, and measurement sit in one frame rather than in separate documents. The programme's phased roll-out, defined training and mentoring pathways, and shared dashboards have effectively become a working playbook for how a state system can operationalise NEP in government secondary schools.

For MP, this is not a side story as the initiative speaks directly to the state's concerns around youth empowerment and economic development by helping adolescents rehearse the skills they will need in any future pathway: noticing problems, working in teams, testing ideas, handling money, and communicating with adults beyond the classroom. It advances the spirit of SDG 4 by treating quality education as something that must include agency, adaptability, and lifelong learning skills, not only grade-level proficiency. At the same time, by familiarising students with enterprise, local problem-solving, and basic financial decision-making, it contributes to SDG 8 on decent work and economic growth and SDG 9 on industry, innovation, and infrastructure.

The governance side is shifting, too. Regular review meetings grounded in programme data, clearer roles for principals, and closer engagement with communities around school melas are small but real shifts in how the system talks about performance.

The trajectory so far has opened up new directions and exposed gaps. One planned strand is a Grade 10 career exploration curriculum that will sit between the Grade 9 mindset work and the Grade 11 SBIC, creating a more continuous 9-10-11 learning pathway. The programme's success also raises policy questions that lie just beyond its current ambit: how the most promising student ventures could access incubation support after school, whether completion of the entrepreneurial curriculum should carry formal credit or certification value, and how to recognise teachers and principals who consistently deliver high-quality experiential learning. As these questions are taken up, Tejasvi MP has the potential to serve not only as a flagship within Madhya Pradesh, but as a reference point for other states trying to turn ambitious education reforms into everyday classroom practice.

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The Mindspark Pilot: Scaling Personalised Adaptive Learning in Rajasthan Schools

Tanusha Tyagi

Introduction

TWO POWERFUL TRENDS ARE CONVERGING in India's education sector today. First, driven by widening access to smartphones and the internet, there is a rising demand for digital learning and a growing recognition that traditional textbook-based teaching alone may not cater to diverse learning needs. Second, the edtech industry, currently valued at US$7.5 billion, is booming and is expected to grow even more rapidly in the coming years.[1]

Despite these improvements, however, learning outcomes remain low. The National Achievement Survey of 2021 showed, for instance, declining performance in foundational literacy and numeracy skills across grades.[2] Against this backdrop, incorporating Personalised Adaptive Learning (PAL)[3] becomes important. PAL enables self-paced learning and tailors content based on individual needs, thereby improving learning outcomes for students whose abilities do not match their assigned grade level. The approach has a demonstrated history of improving learning in students who have varied learning levels and learning styles.[4]

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1 "India's Edtech Market Set to Reach $29 Billion by 2030: Report," *Economic Times*, https://economictimes.indiatimes.com/tech/technology/indias-edtech-market-set-to-reach-29-billion-by-2030-report/articleshow/117321708.cms?from=mdr.

2 National Achievement Survey, 2021 https://ncert.nic.in/pdf/NAS/NAS_2021_Technical-Report-2024.pdf; https://ncert.nic.in/pdf/NAS/NAS21_NRC.pdf.

3 PAL Works, "About," https://palworks.in

4 Global Innovation Fund, "MindSpark in Rajasthan," End of Project Report, 2017-2021, Educational Initiatives (EI).

Students use the Mindspark personalised learning platform on a shared tablet during an in-school session. (Source: Educational Initiatives.)

At the forefront of the use of such personalised, adaptive learning tools in India is the PAL platform Mindspark, designed and implemented by Educational Initiatives (Ei) in partnership with the Government of Rajasthan, which offers a model for integrating adaptive technology into government school systems at scale.[5] The pilot effort, introduced in 2017, brought adaptive digital learning directly into the school timetable across government schools in four districts of Rajasthan—Churu, Jhunjhunun, Udaipur, and Dungarpur. Some 6,500 students from Grades 1 to 8 participated across 40 treatment and 40 control schools.[6] The intervention replaced a portion of regular Maths and Hindi class time with guided sessions in a dedicated Mindspark lab, supported by laptops, a trained facilitator, and a teacher. The idea was straightforward: to use technology for providing real-time, level-appropriate learning paths that help students progress from their actual learning level, not the one prescribed by the textbook.

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5 Karthik Muralidharan and Abhijeet Singh, "Adapting for Scale: Experimental Evidence on Computer-Aided Instruction in India"

6 Muralidharan and Singh, "Adapting for Scale: Experimental Evidence on Computer-Aided Instruction in India"

The programme's most recent milestone reflects its transition from a successful pilot to a system-wide intervention. Building on randomised controlled trial (RCT) evidence from the pilot, the model has expanded beyond its initial 80 schools and is now operational in more than 280 schools across Rajasthan, reaching over 78,000 students as of 2025. Results from the programme have marked a clear link between time spent on the platform by students and their learning outcomes. Evidence from the Rajasthan Mindspark evaluation[7] indicates that per-student costs have declined over time.[8] Teachers and students have shown steady acceptance and engagement, reinforcing that the model is not only effective but also feasible to sustain within everyday school routines.

Rationale and Objectives

The rationale for introducing the Mindspark pilot emerged from a recognition that classroom learning in India consists of students with varying levels of learning, even within the same grade. Large national assessments such as the Annual Status of Education Report (ASER), 2024 by Pratham,[9] and the Government of India's National Achievement Survey (NAS), 2021,[10] have consistently shown that many children progress through grades without fully mastering earlier concepts. With a wide range of learning levels in the same classroom, teachers often face a room full of students who learn at very different speeds. Traditional grade-level teaching, which assumes that most students are ready for the same lesson, are unable to accommodate these differences.[11]

Other programmes have attempted to solve this learning gap. Remedial models like Pratham's Teaching at the Right Level method[12] have shown that teaching children at their level can generate gains. An after-school Mindspark efficacy trial in Delhi, too, offered evidence that personalised software, when used consistently, can unlock strong learning improvements.[13] Such programmes, however, often depend on intensive human-

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7 Muralidharan and Singh, "Adapting for Scale: Experimental Evidence on Computer-Aided Instruction in India"

8 Muralidharan and Singh, "Adapting for Scale: Experimental Evidence on Computer-Aided Instruction in India"

9 ASER, *Annual Status of Education Report (Rural) 2024*, New Delhi, ASER Centre, 2025, https://asercentre.org/wp-content/uploads/2022/12/ASER_2024_Final-Report_13_2_24.pdf.

10 Ministry of Education, Government of India, *National Achievement Survey,* 2021, https://ncert.nic.in/pdf/NAS/NAS_2021_Technical-Report-2024.pdf.

11 Maya Gunawardena et al., "Personalized Learning: The Simple, the Complicated, the Complex and the Chaotic," *Teaching and Teacher Education* 139, March 2024, 104429, https://www.sciencedirect.com/science/article/pii/S0742051X23004171.

12 "Teaching at the Right Level," Pratham, https://www.pratham.org/about/teaching-at-the-right-level/.

13 Alejandro Ganimian et al., "Disrupting Education? Evidence on Technology-Aided Instruction in India," J-PAL, https://www.povertyactionlab.org/evaluation/disrupting-education-evidence-technology-aided-instruction-india.

led instruction, making them difficult to sustain across thousands of schools. There is thus an urgent need for a scalable approach that supports children at their actual learning level.

Building on these lessons, the current Mindspark in-school PAL model introduces a version designed specifically for large public systems with the following aims and objectives:

- To integrate personalised learning into regular school hours by embedding Mindspark within the school timetable. This will ensure that all students, not just select groups, will receive level-appropriate academic support.
- To use existing government school infrastructure efficiently, especially computer labs, so that personalised learning can be delivered at low additional costs.
- To design a light-touch implementation model using a lab in-charge (LIC) and teacher accompaniment, so that schools can adopt the programme without heavy staffing burdens.
- To maximise student participation despite hardware limitations through planned device sharing, ensuring equitable access to personalised learning.
- To provide truly adaptive learning pathways, where the software continuously adjusts to each child's learning level.
- To enable real-time monitoring and accountability through usage data, allowing schools and administrators to track engagement and address implementation issues quickly.
- To strengthen foundational learning outcomes, particularly in Maths and Language.
- To promote equity in learning, with focused benefits for girls and students from disadvantaged backgrounds.
- To contribute to the Sustainable Development Goals (SDGs), especially those targets related to quality education, gender equality, and decent work and economic growth by building strong foundational skills for long-term educational and economic participation.

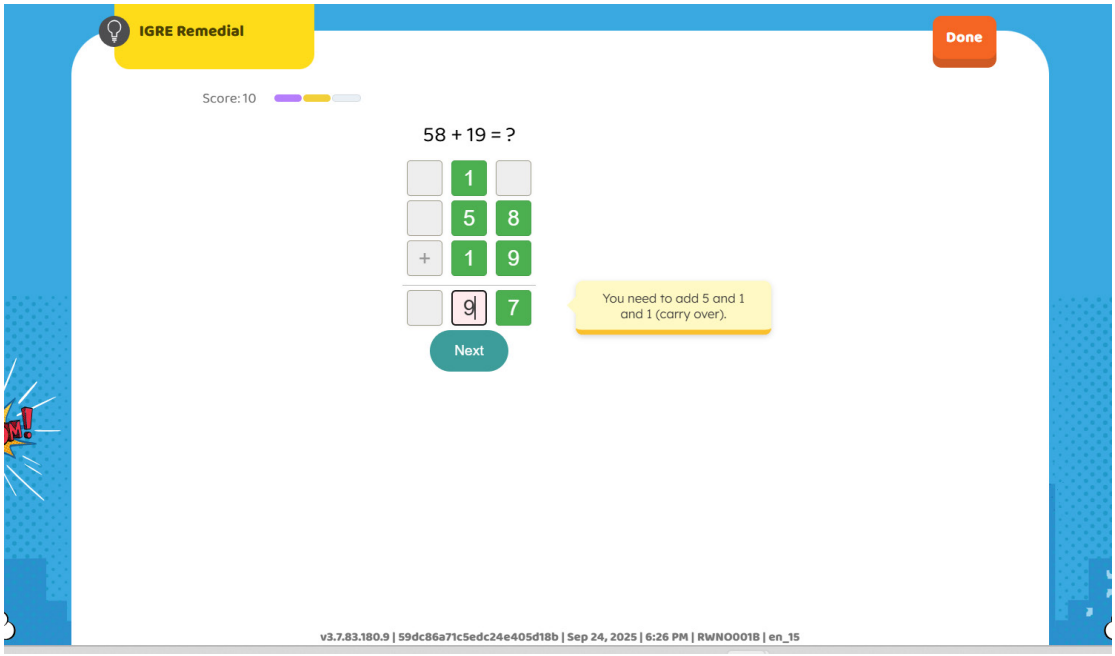
Implementation, Innovation, and Impact

From Data to Insights

The idea of developing a PAL platform like Mindspark was rooted in early empirical evidence on how children learn in Indian classrooms. At the classroom level, Ei conducted large-scale diagnostic assessments across thousands of schools, which revealed that

students within the same grade often spanned several learning levels.[14] This wide variation made a direct case for a personalised, adaptive solution like Mindspark.

The Rajasthan pilot continued this data-driven approach. Learning levels in Maths and Hindi were measured independently four times over the course of the study, including at the start of the programme and at the end of each academic year. At the same time, the Mindspark platform generated detailed digital data on student logins, time spent on the system, and questions attempted. Adaptive diagnostics placed all students on a common learning scale, allowing progress to be tracked across grades. These datasets were combined to link usage with learning gains and to detect implementation challenges early, making data a central tool for continuous improvement and monitoring.



Mindspark Math Interface (Source: Educational Initiatives.)

14 Educational Initiatives, "Blueprint for scaling personalised adaptive learning in low – income school of India" (Draft report prepared for industry review, not available in the public domain).

From Insights to Action

Once this data was effectively analysed to understand the scale of learning differences within classrooms and the potential of personalised learning to address them, the next step was to turn these insights into practical action. For this, Mindspark pursued a phase-wise redesign of the programme that could be effective in a government school setup rather than just in small after-school models.

Changing timetables: One key change brought about was the change in timetables. Since data showed that children in the same grade had different learning paces, schools were encouraged to replace part of their regular Maths and Hindi periods with Mindspark lab sessions. A simple weekly blueprint of six lab periods per grade was shared with schools, which head teachers could adjust based on their own needs. This flexibility helped schools adopt the programme without feeling burdened.

Engaging teachers: Teacher engagement became another pillar. Early classroom observations showed that teachers were worried that the programme might replace their teaching time. To address this, the model required teachers to accompany students to the lab so they remained central to the process. They were also given dashboards showing each student's progress, along with optional worksheets linked to lab content. This created clarity about roles, strengthened teacher ownership, and reassured them that Mindspark was a support tool and not a substitute.

A teacher guides a student in using the Mindspark software as part of a regular in-school learning session. (Source: Educational Initiatives)

Photo shows teacher-guided learning on the Mindspark platform. (Source: Educational Initiatives.)

Staffing and field monitoring: Proper staffing of the computer lab also turned out to be an essential factor for the programme to work. In the initial model, each school had a dedicated LIC to handle hardware and student logins. Later, to reduce costs, the project tested sharing one LIC across three to four schools. Field monitoring revealed how student engagement dipped when LIC presence reduced, but it also showed that with close monitoring and timely support, schools could recover. This insight helped the team determine the minimum level of staffing needed for the model to run smoothly.

Strategic buddy system: Since not all schools had enough computers for each child, the team developed a simple but effective pairing strategy to maximise the use of available devices. Students were not asked to pair themselves randomly with any other student; rather, with the help of diagnostic data, they were paired in a way that each duo consisted of students with similar starting levels, making it easier for them to work together at the same pace. Schools also preferred pairing children of the same gender to keep them comfortable. Headphones, short instructions from teachers, and encouragement to discuss answers helped students stay engaged even when they shared a screen. This approach turned a hardware limitation into a workable solution, allowing every child to participate without requiring costly new investments in computers.

Shared-device use by students using the Mindspark platform during an in-school learning session in a government school. (Source: Educational Initiatives)

Real-time digital logs became one of the most powerful tools for action as they flagged any change in usage. This created a more responsive and transparent governance system, shifting attention from inputs (like textbooks distributed) to actual student engagement. At the same time, integrating the programme into school hours and using existing computer labs reduced per-child costs compared to after-school models, making large-scale adoption financially viable. Clear communication with teachers, parents, and state stakeholders further built trust, reinforced the programme's supportive role in classrooms, and helped enable its confident expansion across Rajasthan.

From Challenges to Solutions

Four key challenges emerged in redesigning Mindspark to suit a full in-school model, for which the team set up creative solutions.

Limited hardware: One was that of a limited number of computers available in government school labs. Many schools did not have enough devices for each child, and lab space was often tight. Instead of treating this as a barrier, a diagnostic pairing strategy was implemented.

High costs to manage operating staff: Another challenge was to manage the operational staffing needed to run the labs effectively. An LIC was essential for smooth daily functioning, but having one per school made recurring costs high. To manage this, the project experimented with sharing one LIC across several schools. While this reduced costs, usage data showed an immediate dip in student engagement when LIC presence became less frequent, similar to the effect of voltage loss. Real-time digital logs helped pinpoint where the drop was most severe, allowing the team to step in with targeted guidance and support.

Managing stakeholder expectation: Stakeholders had great expectations in terms of improvement of marks of students when it came to exams. However, what Mindspark focused on was not exam learning, but rather targeted actual learning from the foundational level. This meant that progress on adaptive tests would take longer to translate into grade-level exam performance. This caused stakeholder confusion with regards to the efficacy of the programme. To address this, clear, repeated communication helped reset expectations and ensured stakeholders understood the difference between diagnostic growth and curricular exam scores.

Throughout the project, course corrections were continuous. Staffing models were adjusted, teacher support was strengthened, and communications refined. These iterative fixes allowed the model to remain affordable, teacher-friendly, and effective as it expanded across the state.

From Action to Impact

By 2024–25, Mindspark had been adopted in over 3,700 government schools, reaching nearly 3.2 lakh students across 14 states. The shift to an integrated in-school model produced a range of outcomes that went beyond simply improving test scores. Quantitatively, Mindspark led to a 50– 66 percent increase in the productivity of instructional time compared to regular classroom teaching, showing that school hours were being used far more effectively. This improvement was reflected in strong academic gains after 18 months, with students in treatment schools scoring +0.22 standard deviations higher in Maths and +0.20 in Hindi than their peers.[15] These gains demonstrated that adapting instruction to each learner's level can raise the value of time spent in school. Diagnostic data showed a consistent dose–response relationship too, confirming that more time on the platform translated into stronger learning gains. Costs also fell as the model matured, from INR 2,903 per child in the first year to about INR 1,718 by the third year,[16] making it more cost-effective than earlier after-school versions.

15 Muralidharan and Singh, "Adapting for Scale: Experimental Evidence on Computer-Aided Instruction in India"

16 Muralidharan and Singh, "Adapting for Scale: Experimental Evidence on Computer-Aided Instruction in India"

Qualitatively, too, the programme introduced important shifts. Teachers described clearer conceptual learning among students, and grew more comfortable integrating lab sessions with classroom work. School administrators benefited from transparent, real-time data, enabling faster problem-solving and more focused support. The project's protocols, once tested at pilot level, were shared publicly and informed similar efforts elsewhere, contributing to a broader shift towards evidence-driven personalised learning in government schools.

Conclusion

Mindspark provides a clear implementation protocol, easy for teachers and schools to follow with minimal disruption. By improving how students learn during regular hours, the programme supports SDG 4 (quality education), helping children build stronger abilities in Maths and Language, with clear benefits for those who start at lower learning levels. Over the years, the delivery model has become increasingly affordable, showing that personalised learning can expand without rising costs. The use of diagnostic data has been a key factor in enabling this, giving the programme a simple way to track engagement and identify schools that need extra support. At the same time, the programme has brought out important gaps in education delivery. It has revealed a misalignment between students' real learning progress and grade-level exam performance, presented procurement barriers for educational software compared to hardware, and highlighted the need for governance systems that respond to real-time usage data rather than periodic inspections.

Owing to the success of the pilot, several new directions are being explored. These include introducing Mindspark in lower primary grades to address learning difficulties at a preventive stage; reducing LIC costs through shared staffing or remote technical support; and integrating PAL outputs into teacher professional development and classroom planning.

The Rajasthan experience demonstrates how well-designed, evidence-based edtech interventions can strengthen learning outcomes in low-resource settings. A primary requirement is that these programmes are integrated thoughtfully into school systems and supported by rigorous monitoring.

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