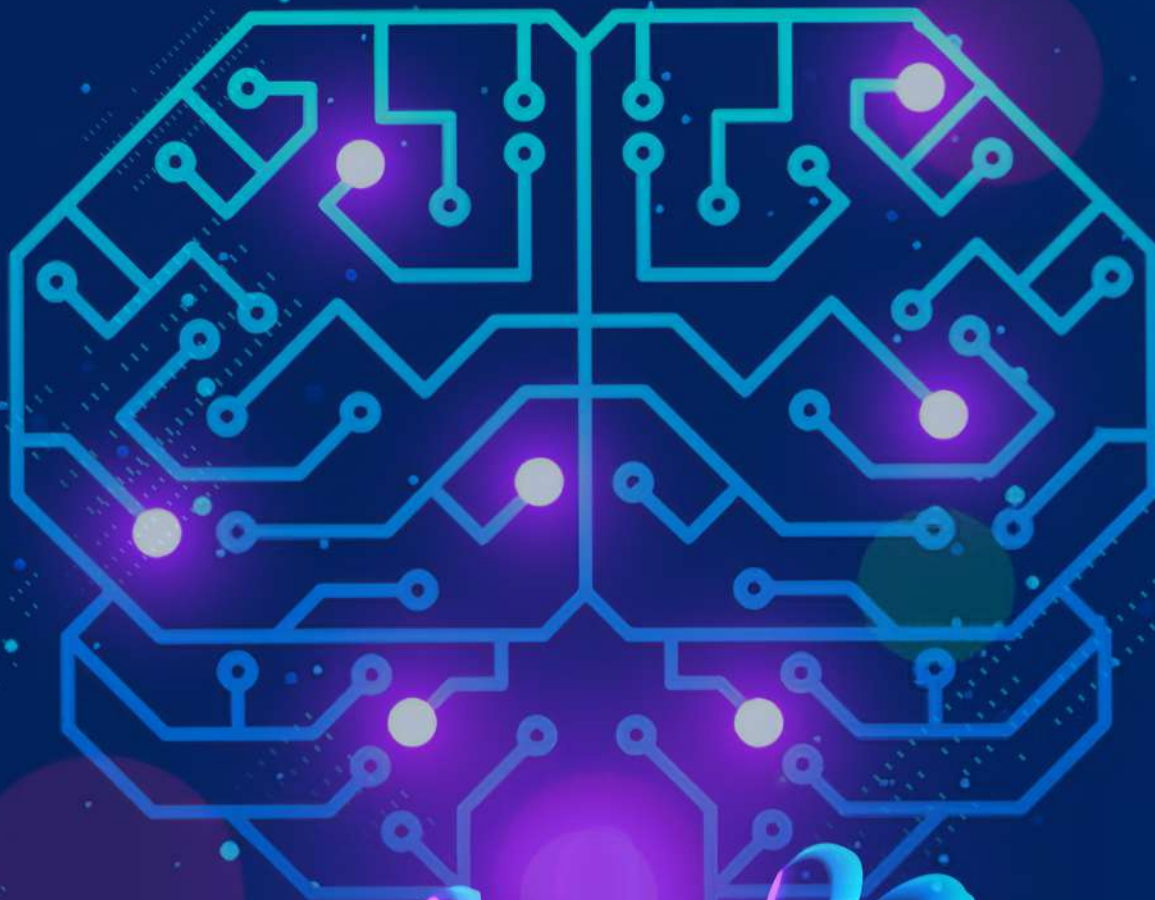


Informatics

An eGovernance Publication from National Informatics Centre



04 Himachal Pradesh

10 Karnataka

16 Darbhanga, Bihar

18 Palakkad, Kerala

20 Udaipur, Rajasthan

22 COMPOSE

25 e-Panchayat Sabha

28 NexGen Darpan

31 Online Policy-Based
Transfers System

34 TS-eMining

PATRON

AMIT AGRAWAL IAS

ADVISORY PANEL

Alka Misra

Ajay Singh Chahal

Seemantinee Sengupta

EDITOR-IN-CHIEF

Mohan Das Viswam

ZONAL EDITORS

Kavita Barkakoty

Rajeev Joshi

Sangeetha Manjunath

CONTENT SUPPORT

Archana Sharma

Hemendra Kumar Saini

DESIGN SUPPORT

Mukesh Bharti

Rohit Maurya

WEB & E-BOOK

Amit Kumar Lodhi

Mohd. Pintu

PRINT & CIRCULATION

UXDT Division

Publications Division

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CONTACT ADDRESS

INFORMATICS

379, A4B4, Floor-3, NIC

A-Block, CGO Complex, Lodhi Road

New Delhi-110003, INDIA

Phone: 011 -24305363/65

Email: editor.info@nic.in

Editorial

In an era where technology permeates every facet of our lives, from how we communicate to how we conduct business, its role in shaping democratic values is undeniable. The intersection of technology and democracy presents both opportunities and challenges, but if wielded thoughtfully, it can be a powerful force for progress and inclusivity.

Technology has the potential to enhance democratic principles such as transparency, accountability, and participation. Social media platforms, for instance, serve as conduits for citizen expression, facilitating real-time oversight. The digital age has democratized access to information, enabling citizens to make informed decisions and scrutinize the actions of their representatives like never before.

The advancements in technology have facilitated the creation of innovative tools for civic engagement and governance. From electronic voting systems to e-Governance platforms, digital solutions can streamline administrative processes, reduce corruption, and increase citizen participation in decision-making. These technologies have the potential to make governments more responsive to the needs and preferences of their constituents, ultimately strengthening the democratic process. However, the rapid pace of technological advancement also presents challenges to democratic values. Issues such as online misinformation, data privacy breaches, and digital divides threaten to undermine the integrity of democratic institutions and exacerbate existing inequalities. As technology continues to evolve, it is crucial that policymakers and technologists work together to address these challenges and safeguard democratic principles.

One of the key challenges in harnessing technology for democracy is ensuring that it is accessible and inclusive for all citizens. The digital divide, characterized by disparities in access to technology and internet connectivity, disproportionately exacerbates existing inequalities. Bridging this divide requires concerted efforts to expand access to affordable broadband infrastructure, digital literacy programs, and inclusive technology design.

Additionally, the rise of online misinformation and disinformation poses a significant threat to democratic values, undermining trust and distorting public discourse. Combatting misinformation requires a multi-faceted approach involving media literacy, fact-checking initiatives, and platform accountability measures. By promoting digital literacy and critical thinking skills, citizens can become more discerning consumers of information and better equipped to navigate the complexities of the digital landscape.

Furthermore, protecting data privacy and ensuring cybersecurity are paramount to upholding democratic values in the digital age. As governments and businesses collect vast amounts of personal data, there is a growing need for robust data protection laws and cybersecurity measures to safeguard against abuses and breaches of privacy. Citizens must have confidence that their personal information is being handled responsibly and transparently by those entrusted with it.

Despite these challenges, the potential of technology to advance democratic values remains immense. By harnessing the power of technology responsibly and inclusively, we can create more transparent, accountable, and participatory democracy.

Having said that there can be no democracy without the active involvement. Let's acknowledge the power of our vote. Let's embrace our role and cast our ballots. Let's make our mark and be the change we wish to see!



Editor-In-Chief



Contents

Editorial	02
Contents	03

From the States

Himachal Pradesh	04
Karnataka	10

District Informatics

Darbhanga, Bihar	16
Palakkad, Kerala	18
Udaipur, Rajasthan	20

e-Gov Products & Services

COMPOSE	22
e-Panchayat Sabha	25
NexGen Darpan	28
Online Policy-Based Transfers System	31
TS-eMining	34

Technology Update

User and Entity Behavior Analytics (UEBA)	37
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In the News	39
Appscape	46
International eGov	48

Disclaimer

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Himachal Pradesh

Quality Software and Mobile Solutions for the Nation

Himachal Pradesh, often referred to as Dev Bhoomi or “the land of Gods and Goddesses,” is not just renowned for its natural beauty but also for its forward-looking approach towards technology integration. Nestled in the northern part of India, the state shares its borders with several regions, including the Union Territories of Jammu & Kashmir and Ladakh, and Punjab, Haryana, and Uttarakhand. It also shares international boundaries with the Tibetan region.

Despite its hilly terrain, Himachal Pradesh has been quick to embrace digital governance. Recognizing the challenges faced by its citizens, particularly in remote rural areas, the State Government has leveraged technology to bridge the gap. Through initiatives like eHimBhoomi, eDistrict, and eKalyan, citizens can access a range of government services online, saving time and effort in the process.



Ajay Singh Chahal

Dy. Director General & SIO
ajay.chahal@nic.in



Sandeep Sood

Senior Technical Director
sood.sandeep@nic.in



Sarvjeet Kumar

Scientist - C
sarvjeet.kumar@nic.in



NIC Himachal Pradesh has been entrusted with National level projects for quick development and roll out in the country in case of emergencies. During COVID-19 pandemic lockdown, the dedicated team of NIC HP officers rose to the occasion and developed the RT-PCR mobile app and COVID-19 Sample Collection Management System. Subsequently, OxyCare-Oxygen Monitoring System was also developed and rolled out, during tough times, in a short time-frame during lockdown.



At the forefront of this technological transformation is the National Informatics Centre (NIC) Himachal Pradesh State Centre. Established in 1988, NIC HP has been pivotal in driving ICT activities in the state. Since its inception, it has served as the backbone of various digital governance endeavors, supporting the government in implementing and operating online platforms such as Vahan and Sarathi.

With the assistance of NIC, HP has made significant strides in enhancing digital infrastructure and services. From providing online permissions and applications for services to ensuring

the operation of all district centres, NIC HP has been instrumental in catalyzing the state's digital transformation journey.

In essence, Himachal Pradesh's embrace of technology, coupled with the relentless efforts of NIC HP, has not only made government services more accessible but has also laid the groundwork for a more connected and empowered society.

Key Initiatives in the State

Land Records and Registration Computerisation

NIC HP has developed sophisticated software for the digitization of legacy Land Records attribute data, facilitating efficient management and accessibility of vital land records information. With the implementation of the eHimBhoomi application, records are maintained in real-time, ensuring accuracy and reliability. The ongoing digitization of cadastral maps during settlement operations further enhances accessibility, with over 75% of villages already digitized and available for public viewing online. Additionally, the mobile app mHimBhoomi provides convenient access to informatory copies of Records of Rights (RoR). The state has adopted the NGDRS application for deed registration, streamlining the registration process across the state. Furthermore, integrations with various software platforms such as SAVAMITVA, DigiLocker, CSC, and others enhance the functionality and utility of the land records database, facilitating seamless operations in areas such as agriculture procurement, crop insurance, and farmer database management.

Integrated Financial Management System

The IFMS (Integrated Financial Management System) developed for Himachal Pradesh encompasses comprehensive financial management functionalities, including budget processing, online bill processing, examination, and

integrations with eKuber, GST, PFMS, Departments, and the Accountant General office. It facilitates online Challans for receipts and final payments to vendors and employees.

Supported by multiple user-friendly mobile applications for citizens, vendors, employees, and government officials, the IFMS ensures convenient access to information and efficient monitoring. This project has significantly benefited the government by enhancing financial management capabilities, facilitating timely actions when necessary.

Featuring role-based dashboards for Finance and Accountant General (AG) office officers, the workflow-based solution enhances operational efficiency. Recognized through multiple awards, the IFMS stands as a testament to its success and effectiveness over the years.

Manav Sampada

The Manav Sampada software, also referred to as the Electronic Human Resource Management System (eHRMS), is a comprehensive product developed for efficient management of human resources. It has been successfully replicated in 19 states across the country, covering approximately 25 lakh service books. Many states have integrated it with their local systems, incorpo-

rating features such as local hosting, audit, and ongoing enhancements.

In Himachal Pradesh, the eHRMS is fully implemented, encompassing all aspects of an employee's service record from recruitment to pension processing. It manages various records including Annual Confidential Reports (ACRs), Annual Property Returns, leaves, and transfer orders, among others. Integrated with applications for departmental examinations, tours, and training institutes, the system promotes paperless functioning and is complemented by mobile apps for employees to access their service records and apply for leave and tours conveniently. Recognized for its excellence, the project was honoured at the prestigious CSI SIG e-Governance Award (Gold) in 2022.

Works MIS

The Works MIS software has been meticulously developed and successfully implemented across 59 Jal Shakti Vibhag Division, setting a benchmark nationwide. Integrated with eBudget, it manages irrigation and public health works seamlessly through online transactions. With nearly 6 lakh water connections monitored, users can conveniently access and pay bills via mobile apps and web platforms. Field engineers

NIC Himachal Pradesh has proactively provided ICT solutions, using latest technologies, to the State Government Departments. I have personally observed the dedication and efforts put in by NIC HP officers at State and District level throughout my career. The work done by NIC in Land Records, Finance Management for the state and at National level projects during Covid19 is commendable.



Prabodh Saxena, IAS
Chief Secretary
Himachal Pradesh

utilize the software for efficient project progress documentation. Additionally, automated report and bill generation enhances transparency and accountability in financial transactions, with prompt sharing to Treasuries and the AG office.

Employment Exchange MIS

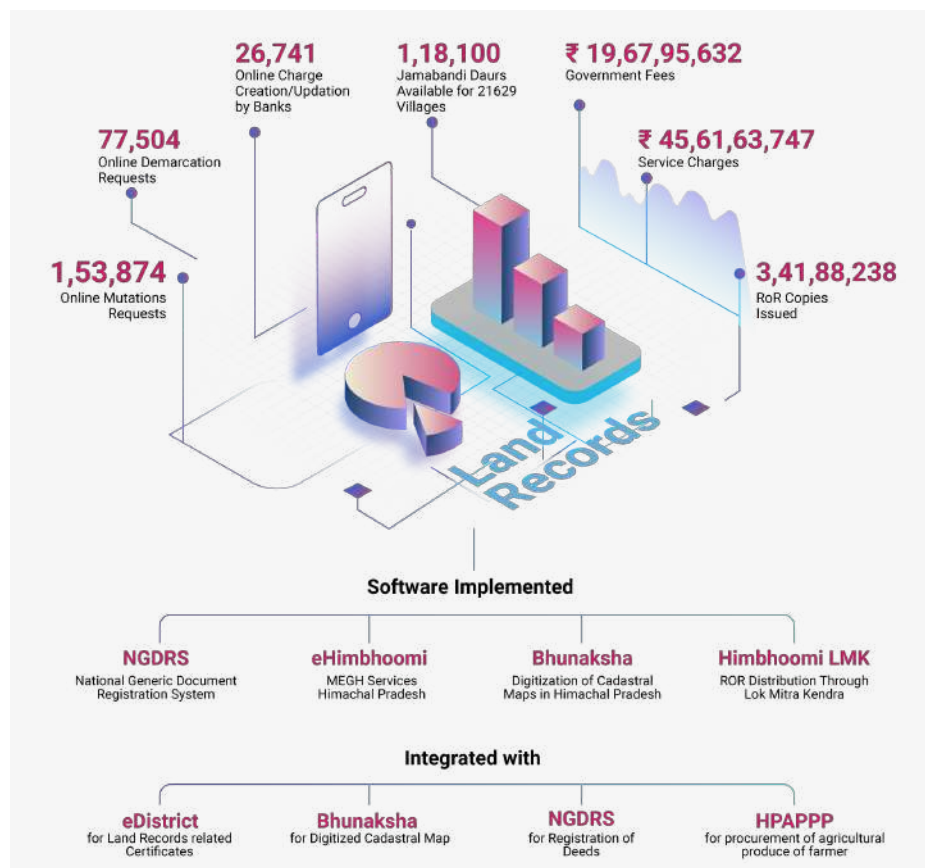
The Employment Exchange MIS (EEMIS) software revolutionizes the youth employment process in the state. It offers online registration, document submission, and real-time vacancy notifications for both Government and Private sectors. Notably, private employers can register, access the candidate database, conduct interviews, and issue appointment letters through the software. Integration with the Ex-Servicemen Department streamlines nominations for government posts. Candidate renewals are facilitated online, and applicants can easily apply for skill development and unemployment allowances. The mobile app X10 enhances accessibility, allowing candidates to apply, renew, and track payments on their smartphones. Additionally, the software facilitates Job Fairs, enabling direct interaction between private employers and registered candidates, leading to same-day selections.

Smagr eSamadhan

Smagr eSamadhan is an essential tool for efficiently managing public grievances online. Integrated with the CPGRAMS system of the Government of India, it ensures swift redressal of complaints forwarded to the State Government. Moreover, integration with CMRefNIC facilitates seamless electronic transfer of references to relevant offices or departments, with timely action taken reports. The system is further enhanced by its integration with eHRMS, incorporating organizational hierarchy and employee details for streamlined authentication.

▼ Fig 1.1

Empowering Land Governance: Insights into Statistics, Technology Integration, and Software Solutions in the Land Records and Registration Computerisation System



Working closely with NIC Himachal Pradesh, the State Disaster Management Authority has developed innovative web and mobile applications for Large Dams Safety and School Disaster Management Plans for all Schools of the State for management and relief during such times. Their commitment to quality and timelines is highly appreciable.



D.C. Rana, IAS

Director-cum-Special Secretary
Disaster Management, Dept. of Revenue
Govt. of Himachal Pradesh

Miscellaneous Software Applications Developed / Maintained

Here is a concise summary of the miscellaneous software applications developed and maintained by NIC HP:

- **Cooperation MIS:** Management Information System for cooperation-related activities.
- **HP Agriculture Produce Procurement Portal:** Online portal for procurement of agricultural produce in Himachal Pradesh.
- **Him Atithi:** Online booking system for government circuit houses, rest houses, and bhawans.
- **Real Estate Regulatory Authority MIS:** Management Information System for the Real Estate Regulatory Authority.
- **Online Factory Registration System:** Digital system for factory registration.
- **Pong Dam Oustees Relief Management System:** Software for managing relief for displaced individuals due to the Pong Dam.
- **eVidhan System:** Digital system for legislative proceedings.
- **Large Dams Safety MIS:** Management Information System for monitoring the safety of large dams.
- **Common Inspection System:** System for conducting inspections across various sectors.
- **Telephone Directory, Civil List:** Digital directory of government employees and officials.
- **Workflow-based State Election Commission Software and Mobile Apps:** Software for managing electoral processes.
- **House Allotment MIS:** Management Information System for allotting government houses.
- **Schemes MIS:** System for monitoring and managing government schemes.
- **Online Hotels Reservation System for Tourism Department:** Digital platform for hotel reservations.
- **eGazette:** Digital publication of the state gazette.
- **Generalized CMS-based Website Development software:** Software for developing websites.
- **CMRefNIC:** Software for the Chief Minister's Office.
- **HimPragati:** Platform for facilitating investors and monitoring budget assurances.

Central Projects

Competency Centre for Mobile Applications Development

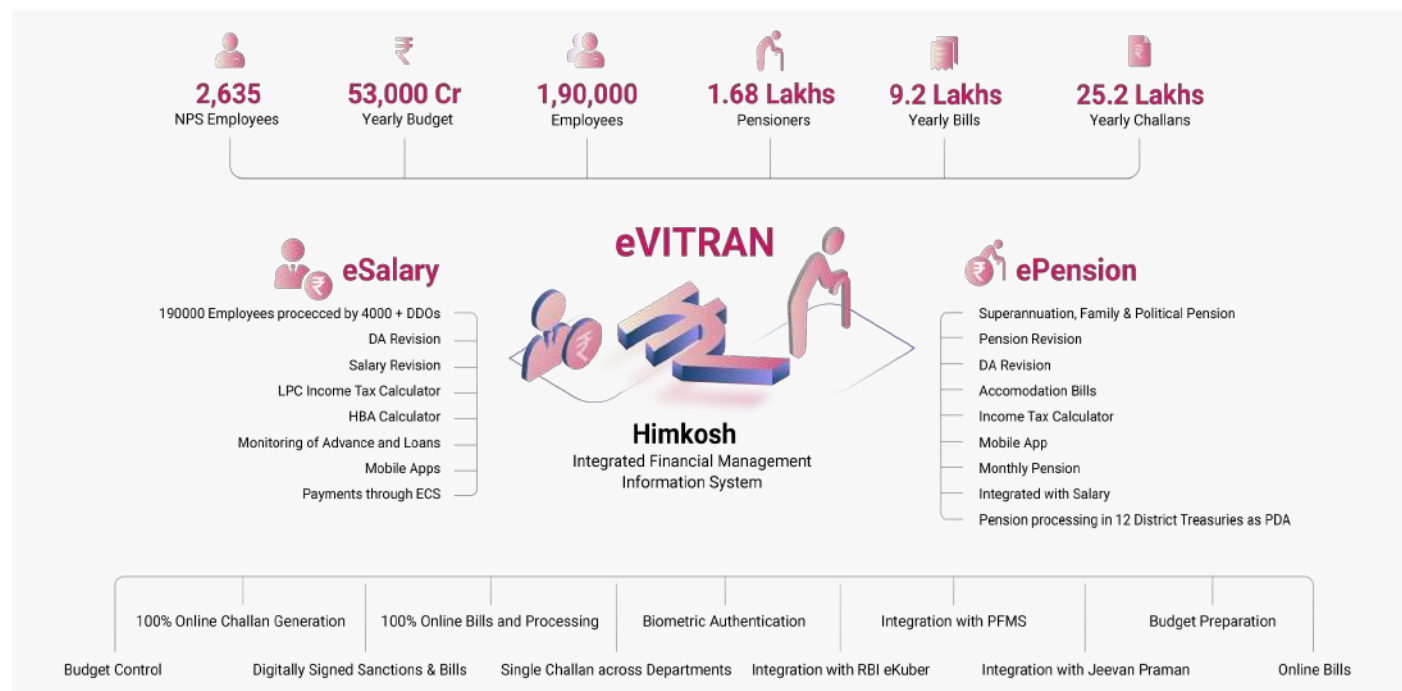
The Competency Centre for Mobile Applications Development, managed by NIC HP, stands as one of the four Mobile Competency Centres nationwide. With expertise in cross-platform development tools like Xamarin and Flutter, it has successfully crafted over 100 mobile apps on iOS and Android platforms. Noteworthy national-level apps include RT-PCR, Janmanrega, MDM/PM-POSHAN, and MyCGHS, alongside others for State and District-level use.

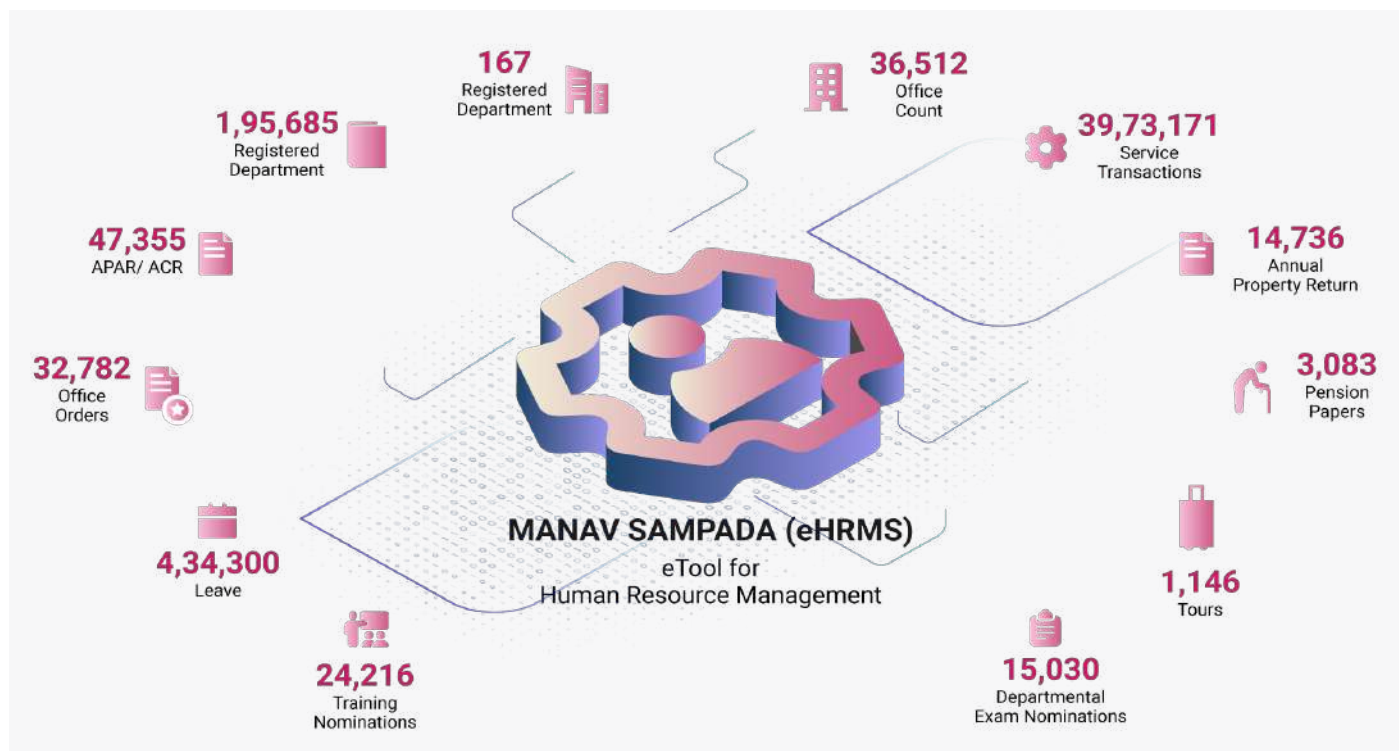
Key activities of the Centre include:

- Providing training to NIC officers from Districts and other States on mobile application development
- Offering guidelines for developing mobile apps
- Hosting Android mobile apps on NIC's Google Play Store account

▼ Fig 1.2

IFMS at a Glance: Unraveling the Core Features Pioneering Financial Management





▲ Fig 1.3

A Comprehensive Overview of Manav Sampada

- Conducting security audits of internally developed apps by CERT-In agencies
- Ensuring app updates in compliance with Apple and Google policies

Grievance Appellate Committee MIS

To safeguard the interests of users (Digital Nagriks) and facilitate resolution of their issues, Grievance Appellate Committees (GAC) have been established under the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 [IT Rules], as per the Information Technology Act, 2000. These rules and committees aim to ensure a Safe, Trusted, and Accountable Internet for Indian users.

The GAC handles appeals from Digital Nagriks who are aggrieved by decisions made by Grievance Officers of social media platforms and other digital channels regarding complaints of user or victim violations of the IT Rules. NIC HP has developed the software (<https://gac.gov.in>) for online processing, facilitating the entire appeal process from citizen filing to committee processing. It features three interfaces: one each for Citizens, Intermediaries, and the three GAC Committees.

RT-PCR and COVID-19 Sample Collection Management System

During the initial phase of the Covid19 pandemic, the Government of India faced the challenge of standardizing sample data collection for various tests nationwide. In response, ICMR de-

signed the Specimen Referral Form (SRF), while NIC HP developed the RT-PCR and RATI mobile apps for ICMR. These apps are utilized by over 1 lakh sample collectors across 31 States/UTs. Testing laboratories input results against the SRF

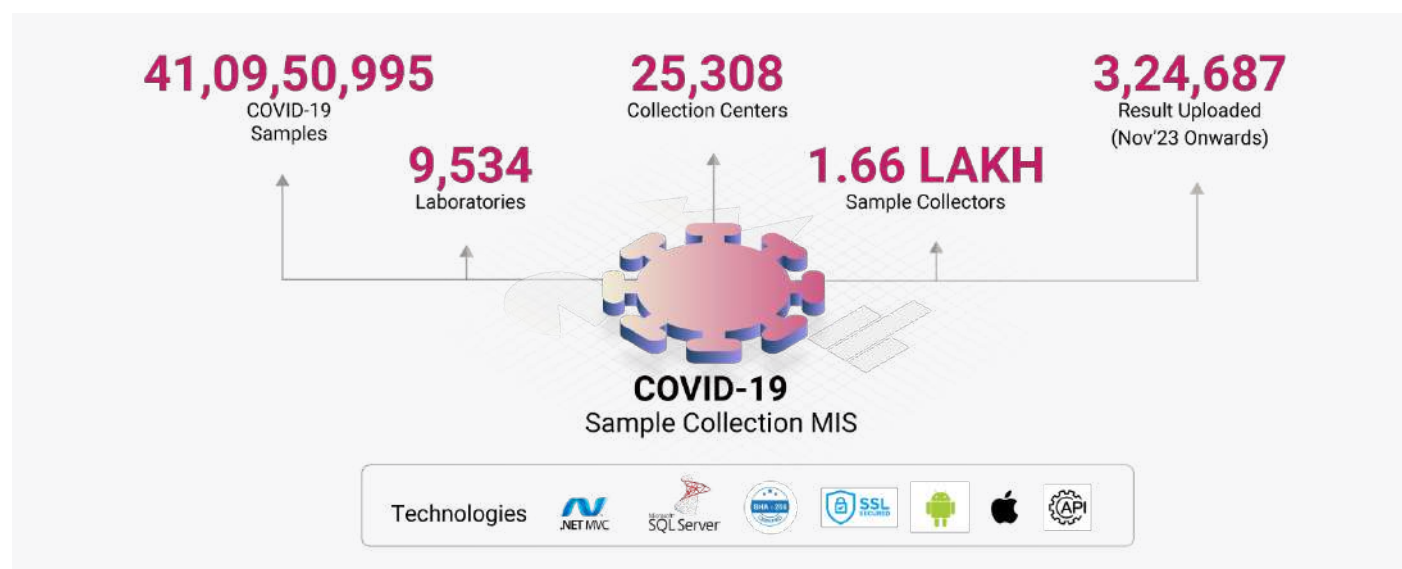
data, which is anonymized after 14 days.

The COVID-19 Sample Collection Centre web portal (<https://covid19cc.nic.in>) facilitates user whitelisting for Apps/Portal access and offers detailed analytics for District/State/National

▼ Fig 1.4

NIC HP Mobile App Centre: Empowering National & Local Solutions





▲ Fig 1.5 COVID-19 Sample Collection MIS

level administrative and health officials. Additionally, it generates necessary raw and processed data for laboratories, collection centers, and sample collectors. This software solution is successfully implemented in 31 States/UTs.

OxyCare

In response to the urgent need for Medical Oxygen in healthcare facilities, OxyCare, an IT-enabled Management Information System (<https://oxycare.gov.in>), has been developed. It meticulously tracks oxygen devices such as concentrators, cylinders, ventilators, and PSA Plants, utilizing secure QR codes for identification. Oxy-Care Management Information System (OC-MIS) facilitates allocation, distribution, installation, and maintenance, including online monitoring of purity, flow, and pressure for PSA Plants. Maintenance

is further supported by the OxyCare-Engineer mobile app. This comprehensive solution is operational across all 36 States / UTs.

PM POSHAN-ARMS

The objective of the PM POSHAN-ARMS software is the instant reporting of meals served in various schools of the State / Country, primarily through SMS from the mobile phones of registered teachers on the Nation-wide Toll-free Number 15544. This toll-free number is available across all mobile service providers for the country and no charges are levied to the registered teachers for sending the mid-day meal data through SMS on this number.

The software has been designed and developed by NIC Himachal Pradesh for online data transfer to National portal. The backend soft-

ware comprising of configurable master tables for storing location, school, teachers, reason for non-serving, student / teacher attendance, alerts, monitoring tools, direct entry of meals data, graphical reports, interfacing with the mobile app, GIS reports etc. The application provides generalised solution for easy on-boarding for other States, Data collection through different modes of SMS, Mobile App, Web (<https://mdmhp.nic.in>) and is multi-lingual.

Several major national-level projects have been successfully implemented in the state to enhance governance and public service. These include initiatives like PRAGATI (Pro-Active Governance and Timely Implementation) and eSamiksha for real-time project monitoring, eOffice for paperless office operations, SPARROW for employee performance appraisal, and IVFRT for

▼ Fig 1.6 : Hindi Rajbhasha Inspection by Hindi Rajbhasha Samiti at Dharamshala on 6th October 2023





▲ Fig 1.7 : NIC NITI Ayog and NIC HP Teams coordinating the support activities during the Three-day National Conference of Chief Secretaries at Dharamshala, HP

foreigner registration. Additionally, systems like the Integrated Criminal Justice System (ICJS), PM Kisan Samman Nidhi, and the National Generic Document Registration System have been introduced for various administrative and welfare purposes. Other projects such as ePRI Suite of Applications, eGranthalaya for library management, MGNREGS for rural employment, and Aadhaar Enabled Biometric Attendance System (AE-BAS) for attendance tracking further contribute to improving governance efficiency and public service delivery.

Network, Video Conferencing, Email Services

NIC HP provides comprehensive network, video conferencing, and email services to facilitate efficient communication and collaboration across various government departments and

institutes. With a robust network infrastructure connecting institutes to the NKN network and providing NICNET connectivity to key government offices, including the State Secretariat and Data Centre, NIC HP ensures seamless access to essential resources. Additionally, the provision of email accounts for state government personnel and the setup of video conferencing facilities in strategic locations further enhance communication capabilities, fostering effective decision-making and coordination among stakeholders. Following is the summary of Network, Video Conferencing, and Email Services Provided by NIC HP:

- Connection of 25 Institutes to NKN Network
- Provision of NICNET Connectivity to State Wide Area Network, HP Secretariat, Vidhan Sabha, State Data Centre, Deputy Commissioner Offices, and Central Government Offices complex

- Management of 28,000 email accounts for the State Government
- Establishment of 2000 nodes connected on LAN and WiFi networks in Secretariat and Deputy Commissioner offices
- Video Conference setups installed in Governor's House, Chief Minister's and Chief Secretary's offices, HP Assembly, HP Secretariat, and District Headquarters

Important Events Organised

NIC HP provided technical support for various successful events, including the Chief Secretaries Conference and National Conference of Chief Secretaries held at Dharamshala. Additionally, NIC facilitated Hon'ble Prime Minister Narendra Modi's visits to Himachal Pradesh, organizing interactions via NIC VC with beneficiaries from 6 different states during one visit, earning high praise for the event arrangements.

Accolades

NIC HP's major projects have garnered national recognition across various prestigious awards. With a total of 12 National e-Governance, 7 Digital India, 3 Gems of Digital India, and 15 CSI e-Governance Awards, among others, NIC HP has consistently demonstrated excellence in project development and management.

Notably, in March 2023, five projects received CSI e-Governance Awards during the 20th Conference, including Works MIS, Large Dams Safety MIS, HP Agriculture Produce Procurement Portal, Public Service Commission Software for Transformation, and HP Real Estate Regulatory Commission Management System.

Additionally, the RT-PCR Solution was honored with the Digital India Award (Gold) by the Hon'ble President of India at the Digital India Awards 2020 for its remarkable contribution during the COVID-19 pandemic.

Way Forward

NIC Himachal Pradesh is now focusing on adopting Artificial Intelligence, Analytics and Blockchain technologies with improved UI / UX to further increase the usability of its various software. Necessary training and handholding have been provided to the concerned officers and Land Records, PSCSoFT and Finance sector projects have been taken up in first phase. The UI / UX interface of many services has been enriched as per UX4G to provide better experience to users. The objective is to develop quality products to enrich digital interaction between Government and citizens.

Contact for more details

State Informatics Officer

NIC Himachal Pradesh State Centre
HP Secretariat, Shimla, Himachal Pradesh - 171002
Email: sio-hp@nic.in, Phone: 0177- 2624045

▼ Fig 1.8 : CSI SIG e-Governance Awards 2022 being conferred to 5 NIC HP Projects during the 20th CSI SIG e-Governance Conference organised by the DAPRG in Madhya Pradesh



Karnataka

Taking the governance to the doorsteps of Citizens

Since 1980, Karnataka has emerged as a prominent IT hub in India, with major players establishing their development centres in Bangalore, laying the foundation for what would become the 'Silicon Valley of India'. Supported by top-tier science and engineering institutions, public sector backing, advanced research facilities, and proactive state governance, Karnataka's software industry flourished, benefitting from Bangalore's favourable climate.

In the early 1990s, the Government of Karnataka, collaborating with the National Informatics Centre (NIC), initiated efforts to integrate IT systems across various governance domains. By the late 1990s, Karnataka had implemented IT solutions for crucial sectors like land records, registration, transportation, professional college counselling, and commercial taxes. These systems have since evolved with cutting-edge technologies, seamlessly integrating with other platforms for efficient data exchange. This forward-thinking approach has transformed citizen services, enabling online application submissions and prompt service delivery. Through streamlined processes, these endeavours have bolstered transparency, accountability, and efficiency in governance, ultimately bringing services closer to citizens' fingertips.



P. V. Bhat

Dy. Director General & SIO
bhat.pv@nic.in



S. Jayanthi

Dy. Director General & ASIO
s.jayanthi@nic.in



NIC Karnataka has spearheaded digital innovation with initiatives like Seva Sindhu and e-Janma, offering seamless citizen services and digital-signed certificates. Other achievements include streamlining revenue court processes and educational management systems. Additionally, NIC Karnataka has facilitated online property tax payments and introduced e-waybills under the GST regime, contributing to enhanced efficiency and transparency in governance.



ICT Initiatives in the State Central Projects

Centre of Excellence in Blockchain Technology

<https://blockchain.gov.in>

Under the MeitY funded project, the Centre of Excellence (CoE) team has established distributed infrastructure across NIC data centres in Bhubaneswar, Hyderabad, and Pune. They have deployed Hyperledger Fabric and Sawtooth Blockchain Networks. Additionally, application

platforms like Document Chain, Certificate Chain, and Property Chain have been developed and deployed in these locations. These platforms are designed to be versatile, allowing various e-Governance systems to harness the benefits of blockchain technology. Their easy onboarding process and loosely coupled integration with Line-of-Business applications facilitate the seamless onboarding of any department across India.

Blockchain Platform	Projects	No. of Documents
Drug logistics	• Karnataka	25 Lakhs
Certificate Chain	• CHHATTISGARH - Indira Gandhi Krishi Vishwavidyalaya, Raipur • MANIPUR - Council of Higher Secondary Education Manipur • Central Board of Secondary Education • Karnataka Secondary & Sr. Secondary	300 Lakhs
Document Chain	• ANDHRA PRADESH - Water Resource Department • DELHI - Revenue Department • KARNATAKA - Revenue Department • KARNATAKA - Directorate of economics and statistics • Ministry of Consumer Affairs - Department of Consumer Affairs • PUDUCHERRY - UT - Revenue Department • PUDUCHERRY - UT - Department of Civil Supplies and Consumer Affairs	280 Lakhs
Property Chain	• KARNATAKA - Revenue Department • KARNATAKA - Town Municipal Council • KARNATAKA - City Corporation • PUDUCHERRY - UT - Revenue Department	194 Lakhs
Judiciary Chain	• Ministry of Justice - Supreme Court	

These platforms store and retrieve documents such as birth certificates, death certificates, caste certificates, income certificates, licences, records of rights, and marks sheets for verification purposes. Furthermore, a Drug Logistics platform has been implemented, enabling the tracking and tracing of drugs procured and distributed to hospitals.

Proof-of-Concepts for remote voting and financial transactions, specifically e-invoicing, have been developed and have garnered interest from several states for potential implementation.

GST e-Waybill System

<https://ewaybillgst.gov.in>

The implementation of the “E-waybill” system under the Goods and Services Tax (GST) regime represents a pivotal transition from traditional paper-based permits to a digitally streamlined approach in indirect taxation.

Launched on April 1, 2018, this system revolutionizes the way taxpayers manage the movement of goods by enabling them to generate electronic waybills online. These e-waybills, accompanied by unique reference numbers, are easily verifiable by officials through a dedicated mobile application. Accessible round the clock and adaptable to various platforms including web, APIs, offline tools, mobile apps, and SMS, the system boasts a user-friendly interface catering to the diverse requirements of businesses across sectors. Its integration with Fastag and Vahan further amplifies operational efficiency. Notably, the elimination of check posts and reduction in transit time by approximately 30% have significantly streamlined logistics operations.

Beyond operational enhancements, the e-waybill system serves as a potent tool in combating GST fraud, ensuring tax compliance, and bolstering revenue collection efforts. Leveraging e-Waybill Analytics, officials can tap into a wealth of data on vehicle movements and key risk indicators to detect and deter fraudulent activities effectively. With a staggering daily generation of over 25 lakh e-Waybills, this digital platform is reshaping the landscape of indirect taxation, facilitating smoother trade,

and fostering greater transparency in the GST ecosystem.

GST e-Invoice System

e-Invoicing under GST is a game-changer system and has placed the country in the e-invoicing League of nations and ahead of other developed nations in the world.

The system involves reporting the B2B and Export invoices issued by the taxpayers to their customers, on the government portal and obtaining a unique Invoice Reference Number (IRN) along with the Signed QR code and Signed invoice. It's a faceless system with a major thrust on API integration so that the ecosystem can exchange the data electronically. The standardised e-invoice format, based on international standards (UBL/PEPPOL), has led to machine readability, enhanced interoperability, and uniform interpretation in the entire ecosystem. The system caters to the multiple modes of generation like Web, APIs, offline tools, mobile apps and GST Suvidha Providers.

It was rolled out on 1st October 2020 and covered all the taxpayers in a phased manner. More than 22 crores e-invoices are generated on monthly basis by around 10 Lakh big taxpayers. This system is helping in settling the Input tax claims of the purchasers and preparation of the return statements. It is assisted in improving tax compliance and collection. e-Invoice Analytics aids in market trend understanding and tax collection prediction.

GST Prime

GST Prime is a GST analytical product to help the tax administrators of state/centre to analyse and monitor the tax collection and compliance in their jurisdiction. This system caters to the requirements of the field level offices and enforcement/intelligence offices to identify the defaulters and tax evaders. The system acts as an interface between GST Common Portal and e-Waybill Systems and tax administrators. It provides analysed and actionable reports and helps in enforcing GST in a more efficient and effective manner.

It has a number of reports on ABC Analysis,

NIC Karnataka has been a key technology partner of Government of Karnataka in development and implementation of many innovative and successful digital systems, since 1988. NIC team is very closely collaborating with the state government departments in building and integrating the various systems for smooth and quick exchange of information. NIC-Karnataka has also developed and implemented the Blockchain based solutions for the digital systems in Karnataka.

I am happy to note that Informatics April 2024 issue is specially showcasing the e governance initiatives of NIC-Karnataka. I congratulate and wish success to the entire team and look forward to many more digital innovative initiatives by NIC-Karnataka for the citizens of state and nation.



Dr. Shalini Rajneesh, IAS

Addl. Chief Secretary
& Development Commissioner
Government of Karnataka

Risk based Analysis and Circular Trading & Taxpayer profile with 360 View. It also has integrated with a couple of external databases for cross verification of data. It has assisted the GST officers in Improvement of tax compliance and collection & in detection of tax frauds. It is being rolled out for all the states and zones of the GST department.

AgriStack

AgriStack stands as a pivotal digital public infrastructure initiative within the agricultural ecosystem, currently under development for the Department of Agriculture & Farmers Welfare (DAFW) of the Government of India. The NIC Karnataka State unit is deeply involved in an advisory and consulting capacity, providing expertise in the domain knowledge, technical architecture, design, development, and implementation phases of the AgriStack project.

Comprising a diverse array of components, including databases, registries, directories, frameworks, standards, data schema, APIs, and IT systems, AgriStack facilitates the accessibility of agricultural data through interoperable systems. This infrastructure is meticulously crafted on open standards, featuring a federated architecture within the framework of InDEA. Moreover, integration with UIDAI and a

▼ Fig 2.1 : e-Certified copy inaugurated by Hon'ble Chief Justice of Guwahati High Court, Shri Sandeep Mehta



GST PRIME: An Interface between GST Common Portal, E-way Bill Systems & Tax Administrators.



▲ Fig 2.2 An overview of GST Prime

consent framework ensures robust security and authorized data access.

As part of the AgriStack initiative, three reference applications have been developed to cater to the needs of implementing states. These include the Farmer Registry, Crop Sown Registry, and AgriStack Consent Manager, each serving to enhance data management and accessibility for agricultural stakeholders across the nation.

e-SAM

e-SAM (electronic System for Asset Management) is a comprehensive asset management system that encompasses the planning, control, and maintenance of organizational assets throughout their lifecycle. By effectively managing the acquisition, operation, maintenance, renewal, and disposal of assets, e-SAM enhances delivery potential while reducing costs and risks. Proper maintenance and deployment of assets ensure positive capital

enhancement over time. This workflow-based system includes processes for Asset Management Contracts (AMC), vendor management, obsolete declaration, and more. User departments utilizing e-SAM include NIC, Supreme Court, UIDAI, and Ladakh.

RTI Online

RTI Online is a citizen-centric system based on workflow, seamlessly integrated with payment gateways, SMS alerts, and email alerts. It has been implemented across various departments of the Government of Karnataka, adhering to the guidelines outlined in the RTI Act of 2005. This system ensures a clear distinction between citizen and officer modules, facilitating effective e-Governance implementation within departments. By bridging the gap between information providers and seekers, RTI Online significantly reduces communication barriers. Citizens can conveniently pay online, track

application status, and authenticate using OTP-based verification. Its user departments include the Government of Karnataka, Government of Ladakh, and Government of Jammu & Kashmir.

CIS

The Case Information System (CIS) is a versatile application designed to automate judicial activities across various tribunals, authorities, and commissions. Serving as a workflow application, CIS offers an end-to-end solution for managing cases, from initial filing to disposal.

Key features of CIS include modules for Case Registration, Scrutiny, Case Allocation, Customized Cause List generation, Notice Generation, storage of Court Documents/ Judgments, and recording details of dispatch of LCR/Court Orders. Additionally, it facilitates Certified Copy Application Registration/ Status Updation and provides dashboards for comprehensive monitoring. An online interface is available for Advocates/Litigants to e-File cases with e-Payment options, along with services to view case status, cause lists, judgments, and more.

User departments benefiting from CIS include the Karnataka Appellate Tribunal, Karnataka State Administrative Tribunal, and Karnataka Electricity Regulatory Commission.

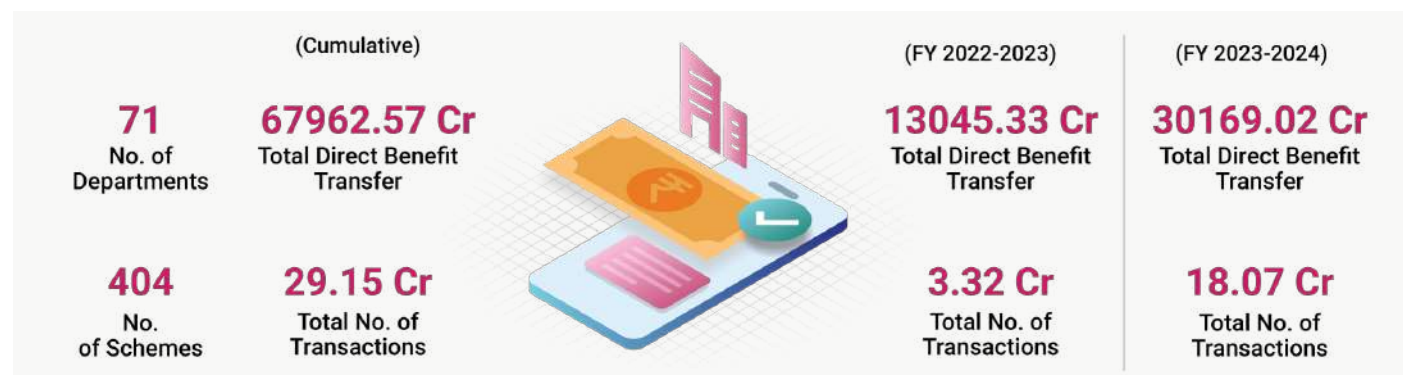
e-Aushada

e-Aushada serves as a centralized portal for managing the drug supply chain across all hospitals. This comprehensive system organizes, supervises, and facilitates the distribution of medicines, thereby reducing expenses and optimizing procurement processes while ensuring timely medication supply for patients.

The Supply Management System automates supply chain operations, streamlining the process of maintaining various medications in hospitals. By doing so, it enables hospitals to effectively plan their resources. The primary objective is to provide management with an efficient, transparent, reliable, and cost-effective solution for managing the organization's medication supply chain.

User departments utilizing e-Aushada include the Department of Health and Family Welfare

▼ Fig 2.3 An Overview of Karnataka State DBT Platform



(DHFV) Karnataka, the Employees' State Insurance Corporation (ESIC) under the Government of India, and the Department of Animal Husbandry.

AIS

AIS (AI Tool for text transcription, summarization & translation) is a user-friendly web-based solution designed to assist Courts, Government departments, Commissions, and Tribunals in converting spoken content into text, translating documents into local languages, and generating quick summaries of lengthy content. Developed with the support of the 'Centre of Excellence AI team' of NIC, this tool streamlines various tasks related to text processing.

Key functionalities of the AIS tool include translating content into local languages, bulk uploading of recordings for transcription, and obtaining the transcribed text in Word/PDF formats. Additionally, users can download translated and summarized text in Word/PDF formats for easy access and reference.

User departments benefiting from AIS include the High Courts of Karnataka, Jammu & Kashmir, West Bengal, Assam, and the Karnataka Electricity Regulatory Commission.

State Projects

DBT Platform

The Direct Benefit Transfers (DBT) Platform serves as a unified solution facilitating Direct Benefit Transfer from the Government to beneficiaries. Positioned between the Beneficiary Management software of various departments and the treasury/bank, it enables Aadhaar Enabled Payments directly into the beneficiary's bank account.

This comprehensive platform ensures accurate linking of Aadhaar to beneficiaries, maintains a common data vault, and adheres to UIDAI guidelines. It provides essential services such as Identity Validation and Financial Address Validation. Additionally, the e-Governance department, acting as the nodal agency for DBT, utilizes the platform to monitor and facilitate smooth implementation.

Since August 2023, the platform has successfully facilitated payments to approximately 3 crore beneficiaries each month.

FRUITS

<https://fruits.karnataka.gov.in/>

The Farmer Registration & Unified Beneficiary Information System, known as FRUITS, is an e-Governance initiative designed to manage and maintain a comprehensive registry of farmers. FRUITS serves as a centralized platform for all agriculture and allied departments to provide benefits to eligible farmers.

Functioning as a soft infrastructure project in the agriculture sector, FRUITS acts as an inventory of farmers, their land holdings, and the benefits they receive. By maintaining a well-organized and scrutinized farmer database, FRUITS eliminates the need for farmers to navigate through bureaucratic hurdles to access benefits.

Moreover, FRUITS aids developmental departments in addressing various challenges, including preventing multiple benefits to the same beneficiary, curbing impersonation, and detecting fraudulent benefit claims with fake documents. Currently, FRUITS boasts a total of 95 lakh registered farmers, with 7.6 crores beneficiaries receiving Direct Benefit Transfers.

Kutumba

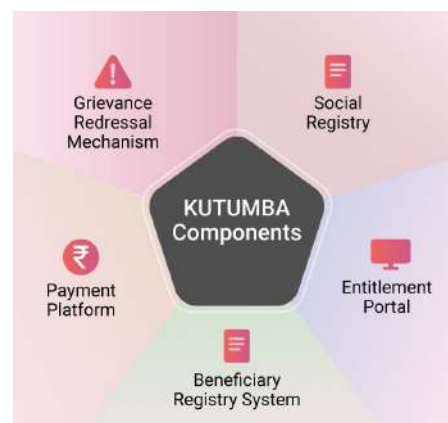
Kutumba is a comprehensive Entitlement Management System evolving into an Integrated Social Information System (SIIS). It encompasses a social registry, integrated beneficiary management systems, beneficiary registry, payment platform, and grievance redressal system. Serving as a platform for providing suo-moto services to citizens, Kutumba aims to achieve universal coverage of all residents in the State of Karnataka.

This system empowers residents to self-enroll/update their family details, streamlining the process of accessing benefits from various programs or subsidies automatically, without the need for application submissions. Notably, Kutumba is built using secondary data, eliminating the need for laborious surveys while ensuring efficient service delivery to citizens.

Seva Sindhu

Seva Sindhu, built on the 'ServicePlus' Platform of NIC, represents a landmark initiative of the Government of Karnataka. Developed with continuous support from the Service Plus teams of NIC-Hqrs and NIC-Karnataka, it has garnered recognition, including an award from the Hon'ble Prime Minister of India, for its seamless, end-to-end delivery of citizen services without human intervention.

As its name suggests, Seva Sindhu serves as a single platform offering a multitude of services to citizens in a cashless, contactless, and paperless manner. Launched in March 2018 with 35 services from 6 departments, it has since evolved into a comprehensive agency providing close to 820 services across 90 departments, boards, and corporations of the Government of Karnataka,



▲ Fig 2.4 : Components of Kutumba - A Social Registry and Entitle Management System

the highest in the country. These services encompass both Government-to-Citizen (G2C) and Government-to-Business (G2B) categories, significantly reducing the compliance burden for citizens and facilitating ease of doing business.

Running on the Service Plus platform of NIC, Seva Sindhu offers an end-to-end digital solution, encompassing application submission, documentation, fee payment, status tracking, and delivery of output documents and certificates. All services undergo digital processing through integrated workflows, ensuring efficiency and transparency. To date, Seva Sindhu has processed over 6 crore applications and collected ₹ 100 crores in department fees and service charges.

Integrated with various citizen service centres such as Grama One, Janasevaka, Karnataka One, and Bangalore One, Seva Sindhu aims to consolidate all departmental services onto a single platform. Its overarching objective is to provide government services in a cashless, faceless, and paperless manner, advancing accessibility, cost-effectiveness, accountability, and transparency in governance.

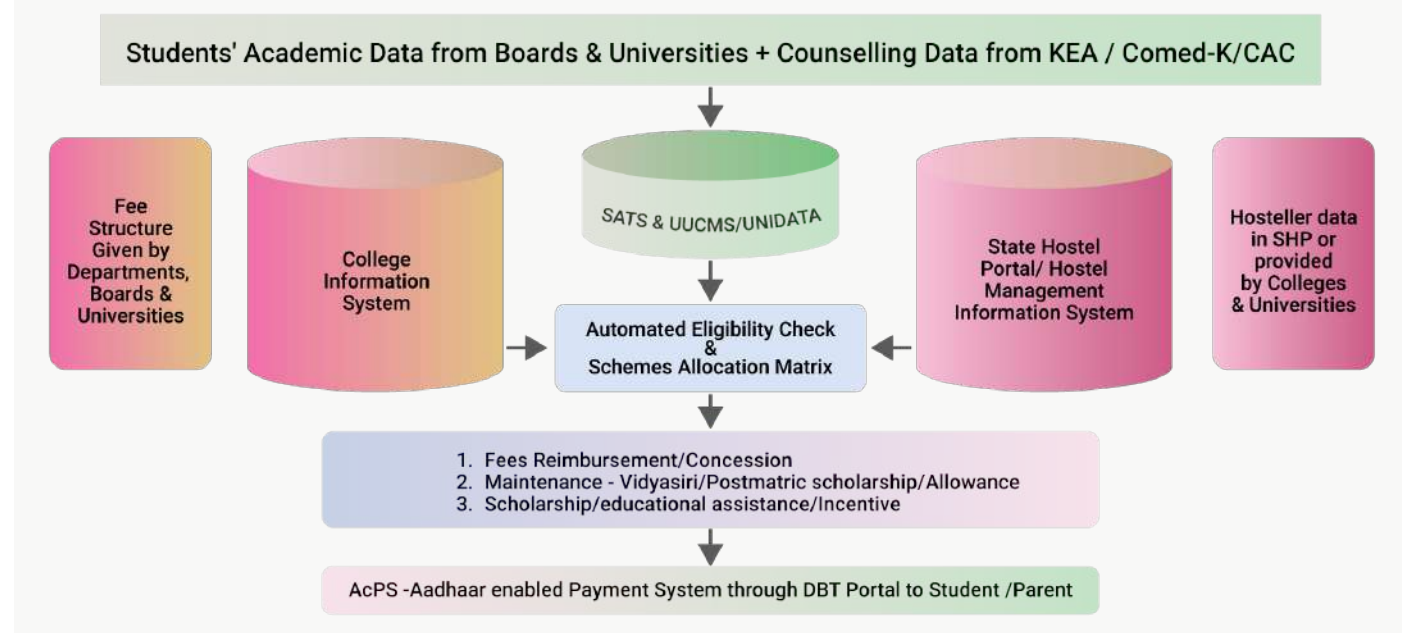
State Scholarship Portal

The State Scholarship Portal (SSP) serves as

▼ Fig 2.5 : Inauguration of National level Blockchain training at Administrative Training Institute Mysuru



STATE SCHOLARSHIP PORTAL PROCESSING ENGINE



▲ Fig 2.6

An Overview of State Scholarship Portal Processing Engine

a crucial platform for the disbursement of Pre-Matric & Post-Matric Scholarship schemes in Karnataka. Designed to ensure equitable access to scholarships for Scheduled Castes, Scheduled Tribes, Backward Classes, Minorities, Differently abled, Economically weaker sections, and other categories, the portal streamlines the process across various government departments.

Initiated under the direction of the then Chief Minister to standardize scholarship disbursal and ensure timely payments, the SSP provides a centralized platform for students to submit applications. It functions as a decision support system for application processing and scholarship disbursement through DBT using Aadhaar enabled Payment System (AePS) by departmental sanctioning authorities.

Developed by the National Informatics Centre, Karnataka State Unit, and implemented by the Centre for e-Governance, Government of Karnataka, SSP operates as a comprehensive paperless system. It digitally verifies students' academic details through integrations with various universities and boards.

In the academic year 2023-24, SSP facilitated the disbursal of approximately ₹ 1500 crores to around 45 lakh students, marking a significant milestone in its 100% digital journey since its inception in the academic year 2018-19.

FAPSS

The Farmer Agriculture Produce Support System (FAPSS) streamlines the registration, procurement, and payment processes for farmers and their commodities. This system ensures transparent implementation of Minimum Support

Price (MSP) schemes for various agricultural produce, covering the entire workflow from farmer registration to payment disbursement.

Integrated tightly with the FRUITS for registration purposes, FAPSS enables registered farmers to deliver their produce at designated Procurement Centres (PCs) authorized for MSP. The application offers modules for creating PCs, graders, storage points, and stacks, along with functionalities for grading and outwards produce from PCs to storage points.

Upon delivering their produce, farmers receive a grain voucher, and on completion of procurement operations, their payment data is prepared and transmitted to the State DBT portal for payment processing. Payments are made directly to the Aadhaar-linked bank accounts of farmers, ensuring efficiency and transparency in the payment process.

Ongoing Projects

AHARA

A comprehensive ration card management system implemented in Karnataka, serving approximately 1.5 crore families with over 5 crore beneficiaries.

BBMP PTAX

An online property tax payment system available for citizens of Bangalore. The total property tax collection for the fiscal year 2023-2024 amounted to ₹ 3800 crores.

Nadakacheri

An online, workflow-based system designed to process and issue 42 different types of certificates

by the revenue department. On average, over 1 crore certificates are generated annually through this system.

DSSP

This workflow-based system processes and distributes social security pensions for needy individuals. With over 80 lakh beneficiaries, the system disburses approximately ₹ 600 crores in payments each month.

SAJALA

An e-Governance application offering a comprehensive enterprise solution for water billing management for BWSSB. It handles monthly collections of ₹ 130 crore and manages billing for 10.5 lakhs connections across 15 different types.

KEA

A comprehensive solution for admission to all professional courses in the state, implemented since 2023, covering the entire process from start to finish.

e-Suraksha

An online, workflow-based system has been deployed for the services offered by electrical inspectorate departments. This system encompasses 25 different services.

WCMS

A Web Content Management System has been developed for the Department of Collegiate Education (DCE), serving 430 Government Colleges, 85 Government Polytechnics, 15 Engineering Colleges, and 14 universities.

EMIS

The Education Management Information System has been implemented for Government First Grade Colleges, Grant-in-aid Colleges, and Government Polytechnics, covering a total of 430 colleges.

RCCMS

The Revenue Court Case Monitoring System is a web-enabled application seamlessly integrated with the Karnataka Land Records System. It offers a comprehensive process flow for revenue courts, starting from the filing of cases to their final disposal.

eJanma

eJanma is a standardized software utilized for issue of digitally signed birth and death registration certificates in Karnataka. It is seamlessly integrated with various platforms including RCH, SAKALA, Bapuji Seva Kendras, Seva Sindhu, UIDAI, Kutumba, and Blockchain technology.

eSahamathi

eSahamathi is a solution designed to implement a consent framework based on the Data Enablement and Protection Architecture (DEPA) by NITI Ayog. It facilitates the sharing of data from the FRUITS System and NAD System.

National Projects

Following is a concise summary of the various National e-Governance projects maintained and implemented by NIC Karnataka for the state citizens:

- **eHospital:** A workflow-based ICT solution for government hospitals in Karnataka, comprising over 450 hospitals since 2015. With 8+ modules, it optimizes hospital operations, from patient admissions to billing.
- **Sarathi:** Streamlining activities related to driver's licenses, offering AI-based face authentication, 14+ faceless services, and serving 67 Regional Transport Offices (RTOs).
- **eOffice:** This system has been implemented



▲ Fig 2.7 : e-SAM Inauguration by Hon'ble Lieutenant Governor of Ladakh, Brigadier (Dr.) B. D. Mishra (Retd) at Raj Niwas, Ladakh, on 18th August 2023

across 29 instances, covering 2500 offices and serving 63,500 officers. It streamlines administrative processes, enhances efficiency, and ensures seamless document management, and thus, promising to revolutionize government operations in the state.

- **e-PAR:** Implementing electronic annual performance appraisal reports for 52,028 officers, enhancing efficiency and transparency in performance evaluations.
- **e-Procurement:** Enabling end-to-end eProcurement and e-publishing processes for 25+ Central Government Organizations and 8 Public Sector Units (PSUs), optimizing procurement operations.
- **PM Kisan:** Supporting farmers through the Government of India scheme since 2018, benefiting 45.8 lakh farmers by providing financial assistance.
- **eCourt:** Implementing ICT solutions in the Indian Judiciary, serving 3 benches of High Courts, 31 District Courts, and a total of 1,124 courts, enhancing judicial processes and accessibility.
- **iRAD:** Implementing electronic detailed accident reports, processing over 1,06,262 accident details and completing 63,756 cases

since April 1, 2021, improving accident data management and judicial processes.

- **Vahan:** Facilitating activities related to vehicle registration, offering faceless services for registration processes across 67 RTOs, ensuring efficiency and transparency.

Accolades

- Seva Sindhu, acclaimed for its multifaceted services, was honored with the Award of Excellence in Public Administration by the Hon'ble Prime Minister of India for its seamless, end-to-end delivery of citizen services without human intervention
- In addition, GST Prime was recognized at the 20th CSI SIG e-Governance Awards during the CSI SIG e-Governance Conference held by DAPRG in Madhya Pradesh in 2022

Way Forward

NIC Karnataka is strategically positioned to propel the state towards a future marked by digital innovation and inclusive governance, building upon its notable achievements. With a focused approach on bolstering digital infrastructure, augmenting service delivery, and harnessing cutting-edge technologies such as AI and blockchain, NIC Karnataka is dedicated to strengthening its role as a catalyst for positive transformation.

Through initiatives aimed at fostering innovation, forging strategic partnerships, and prioritizing sustainability, the organization endeavors to empower citizens, stimulate economic growth, and ensure equitable access to technological solutions across all strata of society. By embracing a culture of continuous learning and improvement, NIC Karnataka remains steadfastly committed to shaping a digital future that delivers tangible benefits and opportunities to the diverse populace of Karnataka.

▼ Fig 2.8 : NIC Karnataka team receiving 20th CSI SIG e-Governance Awards 2022 for GST Prime



Contact for more details

State Informatics Officer

NIC Karnataka State Centre
VI & VII Floor, Mini Tower
Dr. Ambedkar Veedhi, Bengaluru, Karnataka - 560001
Email: sio-kar@nic.in, Phone: 080-22863790

Darbhanga, Bihar

Shaping Darbhanga's Digital Destiny

Established in 1988, NIC Darbhanga has emerged as a key technological pillar in the District Administration. Located in the District Collectorate campus, it plays a crucial role in providing ICT support and advancing e-Governance initiatives. The Centre stands out as a central hub for delivering advanced IT solutions, offering expert consultation, and implementing a variety of e-Governance projects and applications.

ICT Initiatives in the District

e-Office

<https://eoffice.bihar.gov.in>

Darbhanga has pioneered the implementation of the e-Office system in Bihar, starting with the Collector's office and extending to Block and Circle levels. This initiative has notably transformed the SSP Office into a nearly paperless environment. The district adopted a tailored eOffice suite in 2022 to streamline service delivery and enhance operational efficiency. This system integrates file and records management, enabling efficient internal data handling and collaboration. Comprehensive training programs have been conducted to ensure proficient usage by officials, resulting in the efficient disposal of over 4000 files through the platform.

Janta ke Darbar me JilaAdhikari

The "Janta ke Darbar me JilaAdhikari" web portal and mobile app has revolutionized direct communication between the District Magistrate and the residents of Darbhanga. This platform allows citizens to submit grievances for prompt

resolution. Upon submission, applicants receive a meeting date via SMS, and attendance is digitally recorded. The process, including updates, is managed online, enabling applicants to track their grievances and receive resolution notifications. The portal also allows for the download of redressal letters. So far, over 3500 grievances have been presented directly to the District Magistrate, with 1245 successfully addressed. The system's effectiveness has garnered positive feedback from the public and recognition from the District Administration for NIC's efforts.



NIC Darbhanga excels in ICT innovation, notably implementing the e-Office system and Medhasoft for efficient governance and education management. Its high-speed VC facility was crucial during COVID-19, and its support in events like JAN-SAMVAAD showcases its pivotal role in digitalizing district administration and enhancing public service delivery.



Darbhanga District Website

The official website of Darbhanga district (<https://darbhanga.nic.in>) functions as an extensive digital portal for various government services. Recently modernized using the S3WaaS platform, it offers enhanced user accessibility and streamlined access to information. The website is consistently updated with the latest government announcements and advisories, ensuring timely and accurate information dissemination to the public.

Other Initiatives in the District

iRAD

Launched on January 13, 2022, in Darbhanga, iRAD compiles and analyzes road accident data from multiple departments to identify causes and inform policy making for road safety. NIC Darbhanga conducts regular training for Police, Health, and Road Personnel. So far, 782 cases have been recorded on the iRAD portal.

eTransport

NIC Darbhanga aids RLA and RTA in vehicle registration and driving license issuance using Vahan/Sarathi software. It also builds capacity for DEOs and dealers, with 25587 vehicles registered and 8100 licenses issued in 2023.

Bhu-Samadhan

Developed collaboratively by NIC Bihar, the Home Department, and the Land Revenue Department, this portal resolves land disputes at the Thana level. NIC Darbhanga supports SHOs, COs, ROs, and technical personnel, with about 1077 cases entered so far.

Arms License Issuance System (ALIS)

Implemented by the District Centre, ALIS assigns a Unique Number (UIN) to arms licenses, with training provided to officials. So far, 1233 licenses have been issued through ALIS in Darbhanga.

Aapda Sampoorti

NIC Darbhanga has played a critical role in implementing NIC Bihar's online software designed to record data of disaster-affected families. In response to Darbhanga's high flood risk, the NIC District Unit has meticulously gathered data from all families across 308 Panchayats in 18 Blocks, amounting to a total of 784,409 family records. These details have been uploaded to the Aapda Sampoorti server, a disaster management portal, facilitating the distribution of ₹6000 to each affected family via PFMS.

eLabharthi

NIC Darbhanga has enhanced the District Social Security Office's capabilities by providing advanced ICT support. This initiative enables real-



Rajeev Kumar Jha
Technical Director & DIO
rajeev.jha@nic.in



Rupa Kumari
STA-B & ADIO
rupa.kumari@nic.in



▲ Fig 3.1 : Inauguration of Executive Court Information System (ECIS) by District Magistrate, Shri Rajiv Raushan

time management and monitoring of pension scheme beneficiaries. As a result, approximately 431,444 individuals receive their pensions monthly through this efficient system.

Caste Based Survey Counting

NIC Darbhanga played a pivotal role in the caste-based survey, an online application project. The team conducted extensive training sessions for 9358 Enumerators and 1705 Supervisors on the mobile app used for the survey. Additionally, NIC Darbhanga District Unit provided comprehensive ICT support to IT Assistants at the Block level, ensuring effective technical assistance to Enumerators and Supervisors throughout the district.

MedhaSoft

NIC Darbhanga effectively utilizes Medhasoft, a NIC Bihar initiative, to manage and streamline student data for classes 1 to 12 in government schools. Hosted at <http://medhasoft.bih.nic.in>, this platform efficiently administers government benefits like uniforms, bicycles, and scholarships to students following PFMS verification. The software has successfully mitigated fraud and reduced teachers' administrative workload, with over 654,234 student records already processed.

▼ Fig 3.2 : DDG & SIO, Bihar visit and meeting with District Magistrate, Shri Rajiv Raushan



Invigilator Deputation Software

NIC Darbhanga has successfully implemented the Invigilator Deputation software, streamlining the allocation of invigilators for Bihar board's 10th and 12th annual examinations. This software ensures a fair and random deputation of invigilators to various examination centers and facilitates the issuance of their appointment letters.

Infrastructure, Network and Web Services

Video Conferencing: A high-speed VC facility in the District Collectorate used extensively for communication, especially during COVID-19 lockdowns.

NICNET: A 100 Mbps high-speed network infrastructure connecting government departments for seamless communication and operations.

ECIS: Implemented for efficient online case management and order updates in the district court.

Court Record Digitization: Under Hon'ble Patna High Court's initiative, approximately ten lakh old documents are being digitised.

Events

Key events at NIC Darbhanga included the visit of Dr. R K Mishra, Deputy Director General and State Informatics Officer, Bihar, on March 21, 2023, with a meeting held with the District Magistrate. Additionally, NIC Darbhanga supported the organisation of JAN-SAMVAD, addressed by Hon'ble PM Shri Narendra Modi on December 9, 2023, under the Viksit Bharat Sankalp Flagship Programme.

Awards

NIC Darbhanga Officers have been recognized and felicitated by the District Administration for their exemplary services on multiple occasions.

The NIC District Centre has been instrumental in implementing the e-Office Project and actively promotes e-Governance. The Centre's commitment to Darbhanga has fostered a conducive environment for executing various e-Governance projects. This has opened pathways for the District Administration to enhance their role in providing accurate, transparent and responsive informatics services to the citizens.

I appreciate their efforts and look forward to the NIC team to act up to the highest level by their sincere and strenuous efforts and wish them all the best in their present and future assignments.



Rajiv Raushan, IAS
District Magistrate & Collectorate
Darbhanga, Bihar

Way Forward

NIC Darbhanga envisions becoming a leader in digital transformation, bridging the digital divide by empowering every citizen through innovative and accessible e-Governance solutions. It aims to foster a digitally inclusive society where technology drives sustainable development and enhances the quality of life for all.

Contact for more details

District Informatics Officer
NIC District Centre
Collectorate Building, Laheriasarai
Darbhanga, Bihar – 846001
Email: dio-dbg@nic.in, Phone: 06272-243360

Palakkad, Kerala

Empowering Palakkad: Innovating for a Digital Future

NIC Palakkad, established in 1988, has played a pivotal role in the technological transformation of the district. For over three decades, this centre has been at the forefront of developing and implementing a wide array of information technology projects, significantly contributing to the digital infrastructure of the region. Its expertise has not only been confined to the local sphere but has also extended to designing, developing, and executing various state-level projects. The NIC Palakkad District Centre stands as a testament to the progressive integration of technology in governance and public services, marking a significant stride in the district's journey towards digital empowerment.

State Level Initiatives

ReLIS

ReLIS (Revenue Land Information System) is a key initiative under the Digital India Land Records Modernization Programme (DILRMP), aimed at modernizing and digitizing land records. This project enables online services for landowners, including mutation, tax payments, and accessing the Record of Right. It integrates revenue and registration processes for efficient management and offers comprehensive land records management. ReLIS also interfaces with various systems beyond property registration, covering aspects like land acquisition, assignment, relinquishment, and legal heirship. The system has successfully digitized basic land records for

NIC Palakkad has played a pivotal role in transforming e-Governance and IT infrastructure in the region. Key achievements include developing systems for land record digitization and management, enhancing survey and land records processes, and implementing a unified land management platform. Additionally, it has innovated in electoral processes and upgraded district websites to modern standards, significantly improving public service delivery and administrative efficiency.

all villages in Kerala, making online mutation and other services readily accessible.

RMS

RMS (ReSurvey Records Management System) is a workflow system developed for the Department of Survey and Land Records. It is integrated with ReLIS to streamline and enhance the efficiency of resurvey activities.

ILMS

ILMS (Integrated Land Management System) is a unified platform that consolidates major land-related applications from the Registration, Revenue, and Survey departments. It offers a one-stop portal for citizens to access all land services efficiently.

Key District Level Initiatives

Polling Booth Status Checker

The Polling Booth Status Checker is a progressive web application (PWA) created for the 2019 General Election, allowing users to check queue status at polling booths in real-time.

Palakkad District Website

The District website was successfully migrated to the S3WaaS framework, retaining its original content while incorporating new features required by the framework.

Entry Tickets Accounting Software

Entry Tickets Accounting software is a web-based application for issuing entry tickets and managing accounts for Malampuzha Aquarium. It efficiently generates necessary registers and various reports for back-office use and has been running successfully for several years.

CARE

It is an online platform designed to assist flood-affected individuals in Palakkad district. It serves as a unique portal for sponsoring household and other essential items to those impacted by the deluge.

Other Key Initiatives

eOffice

eOffice is a comprehensive web application that automates government file processing workflows, including Tapal creation, file creation, processing, and order issuance. It has been successfully implemented across all departments in the district.

e-District

e-District is an initiative for delivering integrated, online citizen services at the district level, featuring automated workflows, backend digitization, and process redesign. Palakkad district, a pilot for this initiative, offers G2C services like certificate issuance and RTI & public grievance filings, with over 16.51 lakh digitally signed certificates issued.

SPARK

SPARK (Service and Payroll Administrative Re-



Sreelatha L.
Sr. Technical Director & DIO
srilatha@nic.in



Suresh Kumar P.
Technical Director & ADIO
p.sureshkumar@nic.in



▲ Fig 4.1 : Live streaming of Viksit Bharat Sankalp Yatra's inauguration held on 15th November 2023 at Attappadi Block, Palakkad

pository for Kerala) is an integrated system providing personnel, payroll, and accounts services to all state government employees, including payroll and income tax details. This project has been successfully implemented in the district.

PARIVAHAN

PARIVAHAN has been implemented for RTO computerization in all 8 offices, PEARL in 23 Sub Registrar Offices, PDS in 8 Civil Supplies offices, and Treasury Information System across all Sub and District Treasuries.

The Entejilla App is deployed for public feedback, AEBAS in all offices, and a Revenue Recovery Application. Additionally, the District Centre actively participated in Local Bodies and General Elections.

Other successful projects in the district include the National Database of Arms License (NDAL/ALIS), MGNREGS, eAuction, eTender, Indian Citizen Application, iRAD/eDAR, and the implementation of the Forest Rights Act 2005.

The District Centre also coordinated and participated in the Viksit Bharat Sankalp Yatra, a Government of India programme, in the district from 15th November 2023 to 10th January 2024, providing training and support for portal use, and facilitating video conferencing and live streaming

across various district locations.

Accolades

- Awarded the Chief Minister's Award for Innovations in Public Policy in 2019
- Received the inaugural Kerala State e-Governance Award in 2008 in the Digital File Flow category
- Received first-ever CSI-Nihilent e-District Award in 2007-2008 for its e-Governance initiatives
- Received the CSI-Nihilent Best Project award in 2006-2007 for implementation of DC Suite project in Palakkad District

Way Forward

As NIC Palakkad moves forward, its future roadmap is focused on further integrating advanced technologies to enhance e-Governance and public service delivery. The centre aims to expand its digital infrastructure, incorporating AI, IoT, and cloud computing to streamline processes and make services more accessible. There is also a strong emphasis on cybersecurity to protect data and privacy. Collaborating with local communities and stakeholders, NIC Palakkad plans to develop more citizen-centric applications, ensuring that

The NIC, Palakkad has played a vital role in organizing e-Governance activities within the district. The web and mobile applications like ReLIS, Revenue e-payment and Revenue e-services etc developed and implemented in the district, are now being used all over the State. Many other initiatives like Care for Palakkad, an online platform for helping affected people of deluge, Aadhaar Enabled Attendance System (AEBAS) for State Government employees which was a pilot programme in the district etc are also being used all over Kerala now. The role of District NIC team in the development and maintenance of District Website, Resurvey Management System, support to General Elections to Lok Sabha, Assembly and Local Bodies are worth mentioning. The dedication and pro-active approach of the NIC team have been instrumental in navigating through the COVID times and other disasters faced in the district. In addition to all the works in district, they have also been giving support for the usage of web applications across the state.



Dr. S.Chithra, IAS

**District Collector & District Magistrate
Palakkad, Kerala**

digital advancements are inclusive and beneficial to all. By staying abreast of emerging tech trends and continuously innovating, NIC Palakkad is set to redefine the landscape of digital governance in the region.

▼ Fig 4.2 : Inauguration of Revenue eServices & Mobile App in order to facilitate the users with easy access of the revenue services



▼ Fig 4.3 : Palakkad district website homepage



Contact for more details

District Informatics Officer

NIC District Centre Palakkad

Collectorate, Civil Station, Palakkad, Kerala – 678001

Email: srilatha@nic.in, Phone: 0491-2505017

Udaipur, Rajasthan

Empowering communities through technology for transparent, efficient governance

Established in 1988, the NIC District Centre in Udaipur has spearheaded numerous ICT initiatives, playing a pivotal role in implementing e-Governance initiatives for enhanced public service delivery in the district. This technology hub builds on Udaipur's rich history as a centre of art, culture, and architecture under the Mewar dynasty, now leveraging its legacy to drive technological advancement and innovation.

ICT Initiatives in the District

eNagar

eNagar is a software suite developed for the Urban Development Authority (UDA), facilitating citizens to access UDA services online by submitting forms electronically. This paperless system allows applicants to upload required annexures electronically along with their applications, as per UDA's business rules. Services offered include Subdivision and Reconstitution, Lease Exemption certificate, Mutation, Building Plan, Auction, Lottery, and Layout Plan Approval. The project has been replicated in four districts: Ajmer, Bikaner, Bharatpur, and Bhilwara.

TERMS Portal

NIC provided technical support to Rajasthan State Council of Educational Research and Training (RSCERT) in designing and developing the TERMS Portal. This platform covers student educational assessments and various RSCERT activities. The portal facilitates the creation, moderation, and approval of question banks based on class, subject, difficulty level, and topic. Subject teachers can prepare and download approved question papers in both English and regional languages.



Mazher Hussain
Sr. Technical Director & DIO
dio-udp@nic.in



NIC Udaipur drives digital governance through online services, website development, software solutions, networking infrastructure, training, technical support, and data management. Collaborating with stakeholders, we identify ICT needs, develop solutions, and promote digital inclusion and innovation at the district level. The District Centre's efforts enhance government operations' efficiency, transparency, and accessibility.



Power Monitoring App

This system tracks real-time electricity usage and maintains a history of power outages in an area. It also includes a transformer redressal system for inventory management and filing complaints for damaged transformers.

e-Scheme

This web application assesses citizens' eligibility for government schemes. Gram Sevaks can register eligible beneficiaries on the spot during village surveys and enter them into the system.

Scheme Monitoring Software

This software tracks the progress of works under the Rural Development and Panchayati Raj Department. It monitors administrative, financial, and various stages of work to ensure effective implementation.

eSmart Nagar

eSmart Nagar is an integrated computerised system developed for Udaipur Municipal Corporation (UMC), which serves as a comprehensive platform for enhancing citizen service delivery, efficiently managing municipal functions, optimising revenue generation, and facilitating capacity building for municipal personnel within UMC. This innovative application marks a significant leap towards smarter governance and enhanced citizen satisfaction.

Elections Management System

Elections Management System (EMS) automates various stages of Lok Sabha, State Assembly, and Panchayati Raj elections, including personnel management, poll-day operations, counting of votes, result declaration, and EVM tracking. It manages personnel such as Area Magistrates, Sector Officers, Zonal Magistrates, Polling Officers, Micro Observers, and Counting Party members.

In addition to this system, NIC also handles other ECI related applications like ETPBMS, EnCORE, CVigil, Suvudha, and other tools for smooth pre- and post-election processes.

Other Key Initiatives

NIC Udaipur District Centre supports a diverse range of central and state projects including Integrated Financial Management System (IFMS), Prison Management System with Visitor Management, Public Distribution System (PDS), National Data of Arms Licenses, eTransport with Vahan, Sarathi, and iRad, e-Procurement, Civil Registration System (Pehchan), ePanjiyan, Pregnancy & Child Tracking System, Shala Darpan, eGram, Social Security Pension, Panchayat Enterprise Suite, and Digital India Land Records Modernization Programme.

In addition to these aforementioned projects, other important initiatives supported by NIC Udaipur are:

Transformer Complaint Redressal System (TCRS)

The TCRS provides consumers with a streamlined platform to report issues related to



▲ Fig 5.1 : eNagar website homepage

failed transformers, ensuring prompt resolution and efficient management of complaints received through both toll-free numbers and web portals, including those submitted at AEN offices.

Quarantine Tracker App

This app ensures effective monitoring of individuals under quarantine during COVID, providing guidance for the prescribed isolation period.

Hospital Bed Management System

The app streamlines the allocation of critical resources such as ICU Beds and General Ward Beds, enhancing top-level management's ability to respond to patient needs.

Asset Management System

Through this system, meticulous tracking of essential medical assets like Ventilators, Wheelchairs, Masks, and IV Sets is enabled, facilitating data-driven decision-making.

Lease Calculator App

The app offers public convenience by allowing easy calculation of lease amounts for plots or flats, considering factors like area, reserve price, and possession date.

▼ Fig 5.3 : eGovernance Project review meeting chaired by District Collector with other high-level District Officers



▲ Fig 5.2 : State award for Best Electoral Practices to DIO Udaipur by District Collector on the occasion of 12th edition of National Voters Day

Important Events Organized

- VC services and IT support during Hon'ble Prime Minister, Hon'ble Chief Minister and other VIPs in the district
- Technical support during important events like Rozgar mela, Kisan mela, Krishi Mahotsav, Garib Kalyan Mela, e-Lokarpan and Yoga Day
- Training workshops and awareness programmes for various eGov web applications
- Demonstration of NIC Projects in "Alluring Rajasthan" and other state level exhibitions being held at Udaipur
- Organized awareness generation drive for online services and initiatives through Common Service Centre

Accolades

- **'Rajasthan e-Gov Leader' Award:** State-level recognition by the Government of Rajasthan for outstanding contributions to promoting e-Governance.
- **State Level Award on National Voters Day:** Presented by the Hon'ble Governor for exemplary performance in election-related tasks.

- **Award of Appreciation by District Administration:** Recognized on Republic Day in 2003 and 2020 for commendable efforts.

NIC has played a key role for helping out digital culture in district. The consistent efforts show the technical strength of NIC officials. The major online computerization citizen centric activities executed by District Centre are commendable. I appreciate dedicated efforts in making e-Governance initiatives successful in the district.



Arvind Kumar Poswal, IAS
District Collector, Udaipur

Way Forward

The consistent efforts of NIC Udaipur District Centre have resulted in spreading cognizance and awareness about ICT-enabled services among citizens. Thus, this fulfill the Digital India manifesto aims to harness the transformative power of technology to accelerate India's socio-economic development, empower its citizens, and position the country as a global leader in the digital age.

Contact for more details

District Informatics Officer
NIC District Centre Udaipur
Room No 116, Collectorate Campus,
Udaipur, Rajasthan - 313001
Email: dio-udp@nic.in Phone: 0294-2414118

COMPOSE

Comprehensive Operations and Management of Presses Over Secure Environment



COMPOSE, developed by NIC Kerala, represents a groundbreaking shift in Gazette Publishing, revolutionizing conventional manual procedures with an advanced digital platform. This comprehensive solution standardizes and simplifies the Gazette Publishing process for both daily and weekly Gazettes, significantly streamlining operations for the Printing Department of the Government of Kerala. By automating Gazette publication, COMPOSE overcomes inherent challenges associated with traditional methods, particularly in eliminating the need for Gazette Printing, resulting in substantial savings in paper stationery and reducing the workload for the DTP and Reading sections.

Gazette publications play a pivotal role in disseminating vital information to citizens and government departments regarding major policy decisions and announcements. The inauguration of e-Gazette Publication by the Hon'ble Chief Minister of Kerala, Shri Pinarayi Vijayan, marked significant milestones, with Gazette number 38 being the first online gazette published on October 2, 2021. Mandating all Gazette notifications to be published as e-Gazettes using COMPOSE further underscores the government's commitment to modernization and efficiency.

The manual Gazette publication process involved a complex series of stages, requiring content submission to the printing department, iterative proofreading, and manual signing by the Superintendent General of Presses (SGP). This

COMPOSE marks a significant leap forward in Gazette Publishing, replacing age-old manual practices with a cutting-edge digital platform. This innovative solution modernizes and streamlines the Gazette Publishing process, catering to both daily and weekly Gazettes, and notably enhancing efficiency within the Printing Department of the Government of Kerala. By digitizing Gazette publication, COMPOSE effectively tackles the limitations of traditional methods, notably eliminating the necessity for physical Gazette Printing. This not only translates to substantial savings in paper and stationery but also lightens the workload for departments involved.

dergoes workflow-based approval, ensuring format accuracy and data integrity. The eGazette is then published for public access and download, eliminating the need for physical visits to the Government Press and enhancing citizen experience.

Integration with various government platforms, including eOffice, Kerala government e-treasury application, SPARK - Payroll system, and the eSevanam portal, enables seamless workflow and enhances service accessibility. Moreover, COMPOSE caters to a wide range of stakeholders, including government departments, autonomous bodies, legislative bodies, local bodies and state public service commissions, facilitating efficient governance and service delivery.

In conclusion, COMPOSE represents a paradigm shift in Gazette Publishing, offering numerous advantages in terms of accessibility, cost-effectiveness, timeliness, and environmental sustainability. By leveraging digital innovation, COMPOSE not only modernizes Gazette publication processes but also enhances citizen services and overall efficiency, benefiting stakeholders across the spectrum of governance in Kerala.

Working Process

COMPOSE streamlines the entire Gazette publishing process by digitizing manual procedures, automating workflows, and enhancing accessibility for both government departments and citizens. Through its robust features and integration capabilities, COMPOSE represents a significant advancement in Gazette Publishing technology, empowering stakeholders and facilitating efficient governance.

- **Submission of Gazette Content:** Government departments and agencies submit Gazette content online through the COMPOSE platform. This content includes notifications, announcements, and other relevant information.
- **Digital Signature and Approval:** The submitted content undergoes digital signature and approval processes. This ensures the authenticity and integrity of the Gazette publications. Once approved, the content becomes ready for publication.
- **Template-Based Content Preparation:** COMPOSE provides standard templates in multiple languages, such as English, Malayalam, Tamil, and Kannada, for content preparation. This en-



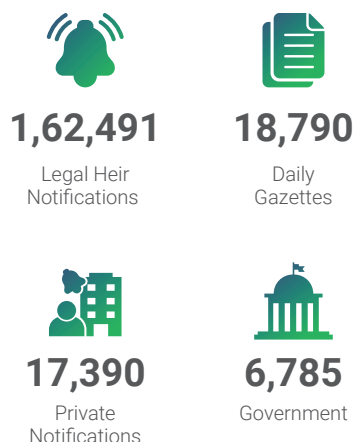
Beena Jayaprakash
Sr. Technical Director
beena.jp@nic.in



K.V. Jaya Kumar
Technical Director
jaykumar.kv@nic.in

cumbersome procedure, involving around fifteen workflow stages, often resulted in delays and challenges in timely publication, especially for urgent notifications.

To address these inefficiencies, COMPOSE re-engineers Gazette publication processes, facilitating online content submission with digital signatures and offering templates in multiple languages. Once submitted, Gazette content un-



▲ Fig 6.1 **COMPOSE at a Glance**

sures consistency and simplifies the formatting process for users.

- **Workflow-Based Approval:** The platform employs a workflow-based approval system, where Gazette content goes through various stages of review and approval. This ensures compliance with standards and regulations before publication.
- **Preview and Finalization:** Users have the opportunity to preview Gazette notifications before final submission. Any necessary adjustments can be made at this stage to ensure the accuracy and correctness of the content.
- **Publication and Accessibility:** Once approved, Gazette notifications are published electronically as e-Gazettes. These publications are made available for public access and download through the COMPOSE platform and the official website of the Printing department.

- **Integration with Other Systems:** COMPOSE is integrated with various government systems and platforms, such as eOffice, Kerala government e-treasury application, SPARK - Payroll system, and eSevanam portal. This integration facilitates seamless workflow management and administrative approvals across different departments.
- **Citizen Services and Search Functionality:** The platform offers enhanced citizen services, including Name Change, Signature Change, and Religion Change, with corresponding notifications generated automatically. Citizens can search e-Gazettes through the portal using keywords, Gazette numbers, GO numbers, or department names, enhancing accessibility and convenience.
- **Status Tracking and Reporting:** COMPOSE provides status tracking features, allowing users to monitor the progress of Gazette publication and other related activities. Additionally, the platform generates reports and analytics to provide insights into Gazette publishing trends and performance.

Features

- **Online Publication:** Streamline Gazette publication through digital platforms.
- **Standard Templates:** Simplify content preparation with pre-defined formats.
- **Digital Signature:** Ensure authenticity with enabled Gazette approval.
- **Online Submission:** Facilitate easy submission of Gazette requests for both government departments and citizens.
- **Citizen Services:** Offer a range of services including Name, Signature, Caste, Religion, and Gender change.
- **Taluk Officer Module:** Enable submission of Legal Heirship notifications.

NIC has been a pillar in digital transformation of the state of Kerala with release of major applications like eOffice, Finance applications like eTreasury, eStamping etc, ReLIS for Land Records, PEARL for Registration etc.

COMPOSE released during 2019 has enabled printing department, other departments of Govt of Kerala and Citizen in efficient service delivery of notifications through gazette publication. The workflow based, digitally signed eGazette has significantly reduced resource requirement in terms of time, effort and cost of service. Standardized processes with fixed responsibility ensures optimal productivity with efficiency.

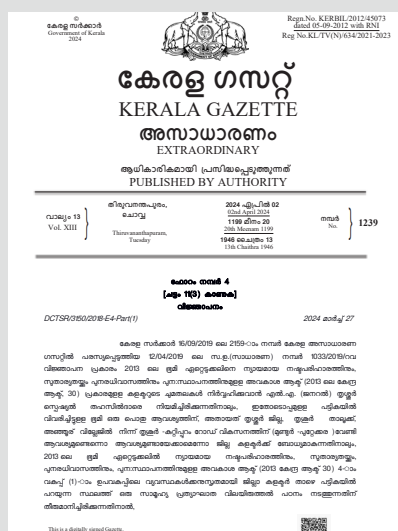


Dr. Rathan U. Kelkar, IAS
Secretary, E&IT and Environment Department
Government of Kerala

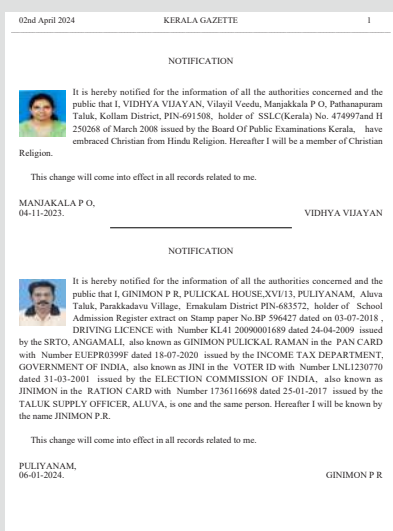
- **Registration Department Module:** Allow requests for Chit Notifications.
- **Taluk-wise Notifications:** Organize Legal Heirship notifications by Taluk.
- **Preview Functionality:** Review Gazette notifications before finalization.
- **Online Fee Payment:** Integrate e-treasury for

▼ Fig 6.2

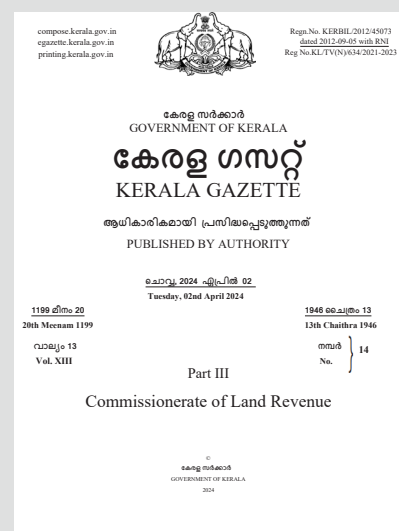
Daily Gazette

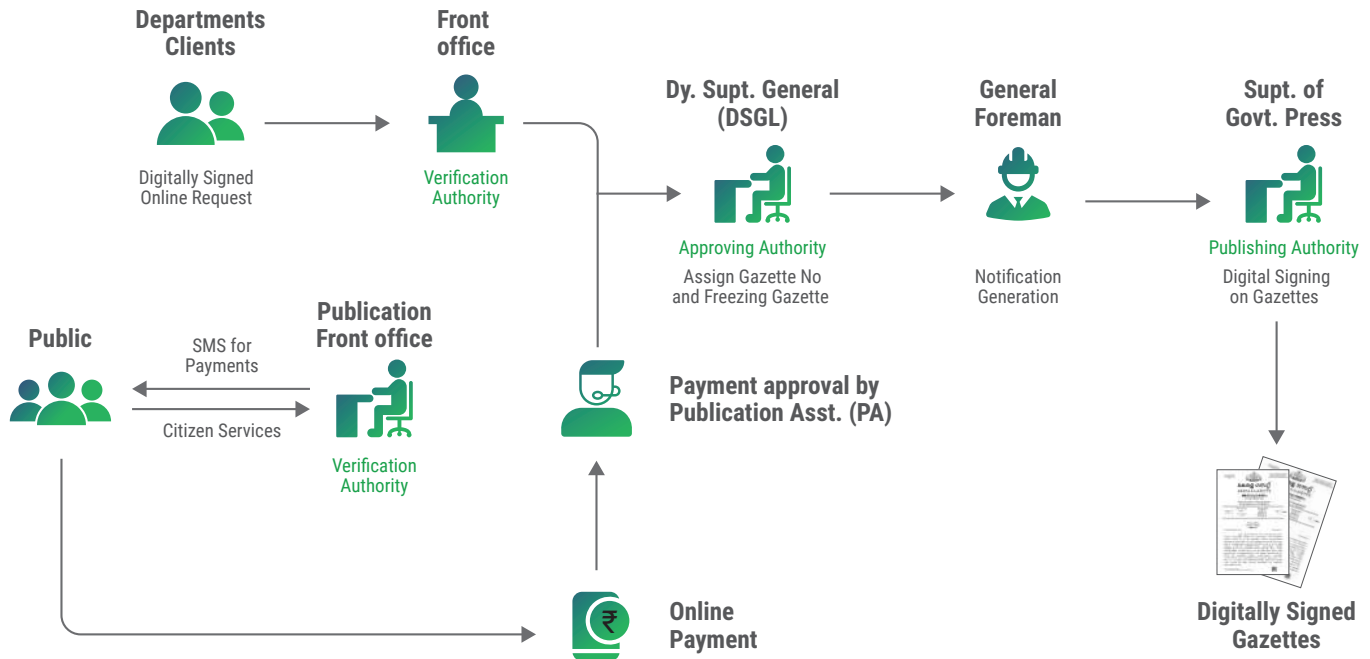


Citizen Notifications



Weekly Gazette





▲ Fig 6.3 COMPOSE Process Flow

seamless payment and verification.

- **Content Size Checking:** Automatically validate uploaded content adherence to required formats.
- **Workflow Printing:** Manage printing activities through an online submission, work order generation, cost sheet calculation, and payment monitoring system.
- **Outturn System:** Generate outturn reports for various sections within the Printing Department.

It gives me immense pleasure to express our sincere thanks to NIC Kerala on behalf of the Printing Department. By e-publishing through COMPOSE, the Kerala Gazette has significantly improved efficiency, transparency, and accessibility, fostering better communication between the government and the public. I extend my heartfelt appreciation and congratulations to the NIC team for their unwavering dedication and sustained efforts in the effective development and implementation of COMPOSE application.



Veeran T.

Superintendent of Govt. Presses
Directorate of Printing
Govt. Central Press

- **Material Management:** Streamline stock requests, distribution, annual indent processing, and balance tracking.
- **QR Authentication:** Embed QR codes for authenticity verification.
- **E-payment Integration:** Incorporate electronic payment methods for convenience.
- **NIC Bulk SMS Service:** Implement bulk SMS notifications for effective communication.
- **NIC e-sign Tool:** Utilize electronic signatures for document authentication.
- **Alert Services:** Stay informed with integrated SMS and Email alerts throughout various stages.
- **Calendar System:** Generate Gazette headers using English, Malayalam, Saka, and Kolla Varsham calendars.

Key Benefits

- **Efficiency:** COMPOSE streamlines processes, reduces manual intervention, and optimizes resource utilization, enhancing overall efficiency.
- **Transparency:** The platform provides transparency in Gazette Publishing processes, ensuring accountability and trust.
- **Accessibility:** Citizens and government departments can easily access Gazette publications and submit requests online, enhancing accessibility and convenience.
- **Environmental Sustainability:** By eliminating the need for physical printing, COMPOSE reduces paper usage, contributing to environmental sustainability.
- **Cost-Effectiveness:** Through streamlined processes and reduced resource consumption, COMPOSE offers cost-effective Gazette Publishing solutions.

- **Citizen Satisfaction:** Citizen-centric services and streamlined processes enhance satisfaction levels among citizens and stakeholders.

Software Architecture and Technology Stack

- **Operating System:** Linux OS
- **Application Server:** Wildfly
- **Database:** PostgreSQL
- **Programming Language:** Java
- **Framework:** Spring Boot
- **Additional Technologies:** PDF Builder, NICDsign for Digital Signing, NIC Bulk SMS Service

Summary

COMPOSE represents a significant leap forward in Gazette Publishing, embracing digital transformation to enhance efficiency, transparency, and citizen-centricity. With its array of features, key benefits, and robust software architecture, COMPOSE sets new standards for Gazette Publishing platforms, paving the way for a more efficient and accessible administrative system. As governments worldwide seek to modernize their operations, COMPOSE stands as a testament to innovation driving positive change in public service delivery.

Contact for more details

Beena Jayaprakash

Sr. Technical Director

NIC Kerala State Centre

CDAC Building, Vellayambalam

Thiruvananthapuram, Kerala - 695033

Email: beena.jp@nic.in, Phone: 0471-4712729895

e-Panchayat Sabha

A digital workplace for Gram-Panchayat Meeting



Panchayati Raj Institutions (PRIs) are constitutionally mandated bodies for decentralised area based development planning and execution at the local level and to govern the rural areas to ensure economic development & social justice to all the inhabitants at different tiers of Rural Local Governance. Gram Panchayat level meetings must be held at regular intervals as per statutory provisions for the successful planning and implementation of a large number of schemes and services to be catered to the citizens in the rural areas. To ensure accountability, transparency, efficiency and reliability of various activities conducted in meetings at the Gram Panchayat level e-Panchayat Sabha application has been introduced by Government of Odisha.

The e-Panchayat Sabha Web Application is a digital workflow-based meeting process at the Gram Panchayat level. The functionalities cover all meeting-related end-to-end activities starting from system-generated scheduling of meetings to despatch of minutes of meeting (MoM) as role-wise detailed below.

- The Admin user is at GP, Block, District and State level, who has the role in creating user, ed-



Dr. Ashok Kumar Hota
Dy. Director General & SIO
sio-ori@nic.in



Mamata Khamari
Sr. Technical Director
m.khamari@nic.in



Rama Krishna Sahoo
Technical Director
r.sahoo@nic.in



e-Panchayat Sabha is a digital workflow-based meeting process which facilitates strengthening the process of conducting meetings at the Gram Panchayat (GP) level by providing a digital interface. The application ensures better governance through effective monitoring and implementation of development schemes and social welfare measures. The mobile application, as a supportive and complementary solution, facilitates GP officials to attend to meeting related functions and other stakeholders to access meeting related information and documents anytime – anywhere. These Applications are currently being used by all 6,794 GPs across Odisha. These have replaced paperwork associated with the conduct of statutory monthly/quarterly/half-yearly meetings and improved governance and transparency.



iting user profile, activating / deactivating user, Pushing Special Agenda from higher level to GP Level Meeting etc.

- The Assistant / GRS / DEO has the functional role for entering data in the context of agenda,

capturing agenda-wise data, despatching notice of meeting with agenda, uploading signed attendance and photo of the meeting, entering Minutes of Meeting (MoM) and Despatching MoM.

- Panchayat Executive Officer (PEO) has the responsibility of initiating meeting schedule, selecting participants of the meeting, preparing agenda, verification / vetting of agenda-wise data, sending the schedule and agenda to Sarpanch for approval, sending meeting schedule with agenda for despatch, verification of draft MoM prepared, sending the MoM to Sarpanch for approval and finally sending approved MoM for despatch.
- Sarpanch (Presiding Officer) has the role of approval of meeting schedule, agenda and MoM.

System Functionalities

This workflow-based product covers all meeting-related end-to-end activities starting from system-generated scheduling of meetings to despatch of minutes of the meeting as detailed below.

- System-generated meeting scheduling with Meeting ID on 28th of every month for a meeting to be held next month.
- Initiation of the meeting with schedule (Date, Time and Venue)
- Managing agenda and list of participants
- Managing data details as per the Agenda
- Approval of meeting with agenda
- Generation of notice/ letter of meeting with agenda
- Sending of meeting notice / letter with agenda to the participants of the meeting through Sandes Mobile App
- Managing attendance
- Preparation of MoM using the template
- Approval of MoM
- Sending of MoM to the participants of the meeting through Sandes Mobile App
- User Management
- MIS Report generation
- Pushing of Special Agenda from the higher level authorities (State/District/Block) to GP Level Meeting
- Pushing of Special Meeting with Agenda from higher level authorities (State/District/Block) to GP Level Meeting

Agenda Details

Agenda No.	Agenda description	Periodicity*
A01	Confirmation of the proceedings of the last meeting	M
A02	Compliance of decisions taken in the last meeting	M
A03	Letters received & issued and Business transacted since last meeting	M
A04	Presentation/ Approval of Monthly receipt & expenditure statement	M
A05	Presentation of Demand Collection Balance in FORMAT-VIII	M
A06	Discussion on MGNREGA	M
A07	Discussion on Drinking Water	M
A08	Discussion on Sanitation	M
A09	Discussion on Street lighting	M
A10	Payment of Electricity Dues	M
A11	Own Source of Revenue	M
A12	Discussion on Livelihood Mission	Q
A13	Discussion on Public Distribution System	Q
A14	Discussion on MBPY/ IGNOAP/ IGNDP/ IGNWP/NFBS	Q
A15	Discussion on Rural Housing	Q
A16	Compliance of Inspection Note, Audit Reports & Visiting remarks	Q
A17	Compliance of the decisions taken in the Grama Sabha	Q
A18	Discussion on pendency of Utilization certificate	Q
A19	Discussion on Women & Child Development	Q
A20	Discussion on Primary Education	Q
A21	Discussion on activities undertaken on Agriculture and allied matters	Q
A22	Presentation and Approval of Reports of Various standing Committee	H
A23	Discussion on Minor Forest Product	H
A24	Discussion on Disaster Management	M
A25	Others (As per approval of Sarpanch /anyone who presides the meeting)	

* Periodicity: M- Monthly, Q- Quarterly, H- Half-Yearly

e-Panchayat Sabha web application is transforming Gram Panchayat (GP) into a digitally empowered Institution. This IT solution facilitates conduct of meetings including fixing of meeting date, issue of notices with agenda, circulation of minutes of meeting at GP level through a digital platform. It caters 5T (Transparency, Technology, Teamwork, Time and Transformation) governance model of Government of Odisha in local governance in GP Level and empowers as well as streamlines functioning of PRI Institutions for better developmental planning and project execution in a timely manner.

I would like to congratulate NIC, Odisha team for providing technical support and Officials of Panchayati Raj & Drinking Water Department for making this project a successful.



Sushil Kumar Lohani, IAS

Principal Secretary
Panchayati Raj & Drinking Water Department
Government of Odisha

Salient Features

- Application available in both English and Odia to facilitate the ease of operation at Gram Panchayat level
- Different MIS reports can be generated with respect to the schemes and agendas of the meetings
- Dashboard for State Administrator, District Administrator, Block Administrator, GP Administrator, Sarpanch (Presiding Officer), Panchayat Executive Officer and Data Entry Operator login
- Track meetings
- Geo-tagged photo and attendance uploading through mobile app
- Configurable to implement in PAN India

Integrations

- NIC Chart Interface (NICCI) chatbot has been integrated
- SMS integrated at strategic processes
- OTP based authentication system
- Sandes (Government Instant Messaging System) mobile app integrated to receive notice with agenda and MoMs by the Participants of the meeting
- Integration of Odisha map with regards to data pertaining to e-Panchayat Sabha

graph of meeting would be annexed in the MOM

- System generated MoM

Key benefits

- Strengthening of Process of Conduct of Meetings of Gram Panchayats
- Improved efficiency and transparency of Panchayat Administration
- Ensures better governance through effective monitoring and implementation of development schemes and social welfare measures.
- Members empowerment through availability of information
- Create digital records of all meetings held for better analysis at Block / District / State level

Implementation and Impact Government of Odisha

Since the launch of e-Panchayat Sabha web application on 5th March, 2023, almost all Gram Panchayats have adopted e-Panchayat Sabha for conducting meeting at GP level. It has enhanced the performance of governance by effective monitoring and implementation of different development schemes and social welfare measures.

It has strengthened the process of conduct of regular meetings of gram panchayats, improved efficiency and transparency of panchayat administration. Members' empowerment has been achieved through availability of information. It creates digital records of all meetings held at GP.

Way Forward

Alerts to higher officials on meetings not held, eSign / DSC Integration for signing of agenda and MoMs, Integration of Speech to Text AI in regional language, API Integration of different Schemes etc. are in pipeline to expand the scope the application.

An end-to-end application is being envisioned with similar functionalities to be made available at Panchayat Samiti and Zilla Parishad level and thus disseminating the development process with bottom to top approach.

- Scan to view documentary on e-Panchayat Sabha Web Application



- Scan to view documentary on e-Panchayat Sabha Mobile Application



Contact for more details

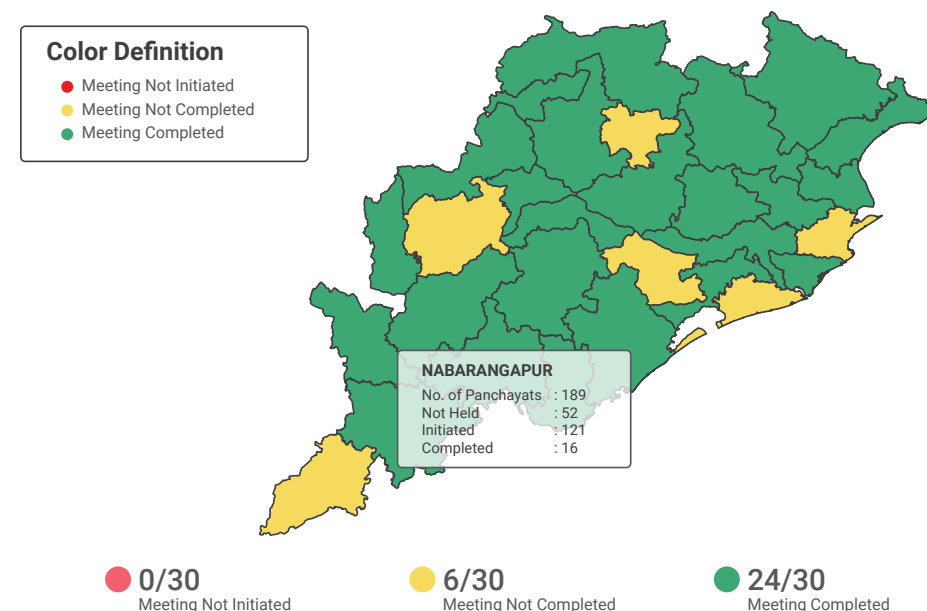
Mamata Khamari

Sr. Technical Director

NIC Odisha State Centre

Sachivalaya Marg, Unit-IV, Bhubaneswar - 751001

Email: m.khamari@nic.in, Phone: 0674-2508438



▲ Fig 71 Real-time Meeting Status across Odisha

Technologies Used

Web Application

- **Server** : Linux – Ubuntu-20, Apache Tomcat 10
- **Database** : PostgreSQL
- **Development Platform** : Java Spring Boot
- JSP

Mobile app

- Flutter, Android SDK-26

Deployment Environment

- Cloud

Deliverables

- Intimation /alert on meetings to all / targeted stakeholders through Sandes App
- Intimation /alert on cancellation of meetings to all / targeted stakeholders

- 25 types of agenda with periodicity of monthly, quarterly and half yearly have been incorporated. Data formats for different agenda have been designed to be used uniformly
- Issue notice with agenda with all / targeted stakeholders
- Sharing information on new / priority schemes intimated from State / District / Block through Special meeting with agenda / Special agenda
- Share MoM with all / targeted stakeholders
- Share compliance report of last meeting with all/ targeted stakeholders
- MIS Reports
- Incorporate data / information of different development schemes in the related points of MOM
- Attendance of the participants and Photo-

▼ Fig 7.2 : A glimpse of ePanchayat Sabha meeting scheduled using e-Panchayat Sabha Application at Satyabhamapur, Odisha



NexGen DARPAN

Transforming Complex Government Data Into Compelling Visuals



The implementation of the Darpan Dashboard was driven by the urgent need to enhance transparency and operational efficiency within the government. Recognizing the evolving expectations of citizens and the global trend towards digital governance, there was a clear requirement for a platform capable of providing quick, real-time insights into government initiatives, budget allocations, and performance metrics. Uttar Pradesh has made significant strides in advancing its e-Governance framework through the deliberate adoption of the Darpan Dashboard. This dashboard serves as a crucial tool in promoting administrative accountability, providing seamless access for stakeholders, and facilitating the evaluation of relevant information. Leveraging Meghraj Cloud Services, the dashboard currently manages an extensive portfolio comprising 805 projects across 67 departments, encompassing a total of 5837 registered Key Performance Indicators (KPIs).



I. P. S. Sethi
Dy. Director General
sethi@nic.in



Sunil Sharma
Dy. Director General & SIO
Sunil.sharma@nic.in



Ajai Gopal Bharatariya
Sr. Technical Director
ajai.gopal@nic.in



Vaibhav Agarwal
Sr. Technical Director
vaibhav.agarwal@nic.in

NexGen DARPAN (Dashboard for Analytical Review of Projects Across the Nation) is configurable, generic and bilingual copyright product of NIC and provides the administrations with at-a-glance insights into departmental activities and scheme monitoring. DARPAN enables dynamic project monitoring without coding, featuring drilldown capabilities for quick and detailed perspectives of all flagship government projects. With its unparalleled adaptability and versatility, the DARPAN platform stands ready for seamless integration, offering its robust functionality across various States as well as Central Ministries/ Departments.

A vital aspect of this initiative involves the rigorous implementation of a Data Quality Index (DQI) and Star Rating mechanism. This evaluative framework relies on meticulously sourced data from diverse departments, contributing to the Chief Minister's dashboard. Through thorough analysis of this data, a monthly compilation of Rankings and Gradings is conducted, covering Projects, Departments, Districts, and Composite entities.

The Darpan Dashboard was inaugurated by Hon'ble Chief Minister Yogi Adityanath, in the

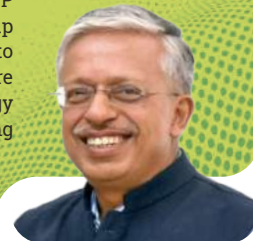
presence of Hon'ble Deputy Chief Ministers Shri Brajesh Pathak and Shri Keshav Prasad Maurya, along with Shri Swatantra Dev Singh, Minister of Jal Shakti, Government of Uttar Pradesh (GoUP), Shri Suresh Kumar Khanna, Minister of Finance, GoUP, and Shri Arvind Kumar Sharma, Minister of Urban Development and Minister of Energy, GoUP, on July 30th, 2023.

The CM Command Centre and DARPAN Dashboard will play a pivotal role in evaluating the performance of officials across sectors such as Police Service, Municipal Corporations, and Development Authorities. Furthermore, they will assess the effectiveness of various government schemes through monthly ranking and grading processes.

The Legacy System

The creation of the DARPAN Dashboard arose from the urgent necessity for a centralized platform to monitor government projects and streamline data management. It seamlessly integrates with multiple online systems, each offering varying levels of data granularity, and amalgamates information from diverse departments. Through this process, it transforms this heterogeneous data into actionable insights, thereby facilitating more efficient governance.

UP CM DARPAN Dashboard empowers informed decision making and facilitates seamless integration of departmental MIS portals with the Dashboard. Its prowess in project monitoring ensures culture of healthy competition among departments. Much success to the UP Dashboard group as they work to shape a future where technology is the driving force.



S.P. Goyal, IAS
Additional Chief Secretary
Govt. of Uttar Pradesh



▲ Fig 8.1: Hon'ble Chief Minister, Yogi Adityanath Ji, inaugurated Darpan 2.0 and the CM Command Centre at Shastri Bhawan, Lucknow

Process at Glance

The system architecture comprises two closely integrated modules: Data Integration Services and Data Visualization (Dashboard) Services. Within this structure, the Data Validation module ensures Data Quality by detecting and eliminating Data Outliers. DARPAN provides users with the flexibility to access data at various granularities, including Time-stamped Master Data and the most recent Master Data. Moreover, DARPAN optimizes processes through automated workflows, establishing a resilient approval-based Content Management System. It also employs a robust authentication mechanism for web API Data consumption and integration with Management Information Systems (MIS).

Secure Web API

Our versatile RESTful web-API, fortified with 256-bit AES Encryption and G-zip Compression, ensures seamless data consumption across

diverse environments. Additionally, HMAC, which combines a cryptographic hash function with a secure Cryptographic key, guarantees real-time validation of client payload data. The deployment of SSL further underscores our commitment to robust security measures.

Authenticated MIS

DARPAN simplifies the integration of departmental MIS portals with its Dashboard, enabling monitoring officers to swiftly access beneficiary-level data. Project administrators have the option to implement Secure MIS (DARPAN Authenticated MIS) to prevent unauthorized access. Enhanced security measures, such as MIS key and token validation processes, are employed to restrict access solely to authorized parties, ensuring data confidentiality and integrity.

Key Highlights

- The platform offers specialized dashboards customized for various organizational levels and functions:
 - Sectoral Dashboards
 - Departmental Dashboards
 - Ministry Dashboards
 - Project Dashboards
- The dashboard offers thorough insights into government schemes, aiding informed decision-making and performance evaluation through the following options:
 - Scheme Overview
 - Descriptive Analysis
 - Comparison Series
 - Demographic Analysis
 - Trend Timeline Series
 - Peer Analysis
- The platform includes these essential features to ensure data accuracy and reliability, empowering stakeholders to make confident, informed decisions:

Timely implementation of numerous government flagship projects and convenience of single window monitoring have both been greatly facilitated by the UP CM Dashboard. I want to thank the NIC team for all of their hard work and dedication, and I hope that they will continue to work diligently to make e-Governance a success on every level.



Sanjay Prasad, IAS

Principal Secretary
Govt. of Uttar Pradesh

Integrated dynamic rating and grading capabilities helps in transparent performance comparison of schemes in UP CM Dashboard. It also guarantees data consistency and secure data collection, allowing for fair resources allocation. Star ratings enhances efficacy of government machinery in implementation of flagship projects. Congratulations to the team DARPAN for their successful IT application implementation.

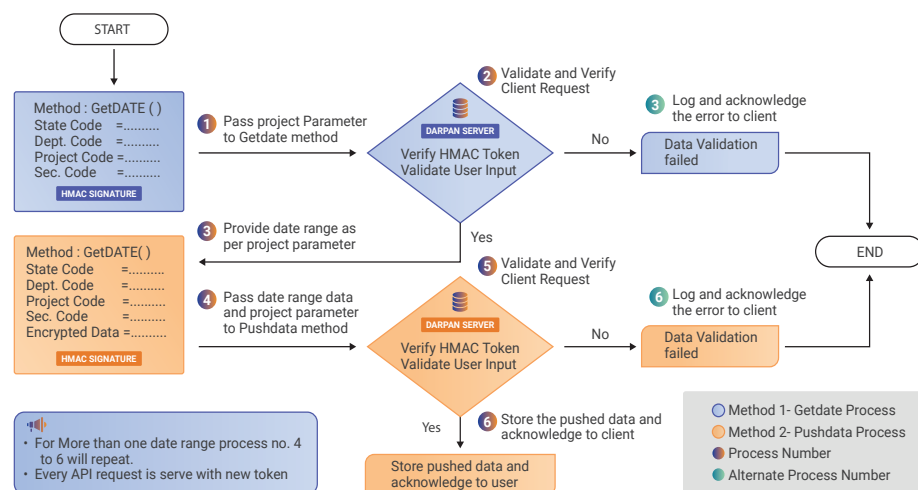


Alok Kumar, IAS

Principal Secretary
Govt. of Uttar Pradesh

- Data Quality Index (DQI)
- Star Rating
- DQI Mark sheet
- The product provides versatile ranking capabilities for districts, divisions, departments, and projects with various modes:
 - Fixed Formula: Consistent criteria-based ranking
 - Dynamic Formula: Adapts to changing factors
 - Delta Ranking: Focuses on progress made from onetime period to another. It helps in identifying top / bottom performers
- The system allows authorized users to tailor their views, prioritize important information, and customize chart options for a personalized experience, enhancing perspectives on priority projects.
- The system generates a comprehensive book-

▼ Fig 8.2 Data Consumption Process Flow



Data Visualization of UP CM DARPAN allow for rapid comparisons and in depth analysis. The extensive Insight of schemes highlights the strengths and areas for improvement by showcasing its performance across micro levels. Specifically designed to be used in performance review meetings, it gives officers access to relevant dashboard data. The integrated Command Centre adeptly facilitates video conferencing, call centre and collaborating seamlessly with the DARPAN UP team. Well done to the teams at the NIC and the command centre for their unwavering dedication to providing exceptional service.



Prathmesh Kumar, IAS

Special Secretary
Govt. of Uttar Pradesh

let offering detailed insights into project performance across various levels. It provides a holistic view, highlighting both underperforming and successful projects.

- This feature offers users a dynamic viewing experience, enabling them to review specific projects in real-time. It operates from a gallery of project information based on user-selected criteria, such as project and timeframe.
- The mobile app empowers users to seamlessly monitor projects and performance across diverse platforms, ensuring flexibility and accessibility.

The state of Uttar Pradesh has taken major strides towards implementation of UP CM Dashboard powered by NexGen DARPAN. The system is exceptional in ensuring ease of single window monitoring of various schemes across state at various levels. Good luck to Team

DARPAN! I'm excited for all the future e Governance projects that NIC has in store.



Amit Singh

Secretary
Govt. of Uttar Pradesh



▲ Fig 8.3 Advantages of NexGen DARPAN

Technology Stack

The system is built using cutting-edge .NET web technologies and seamlessly integrated with SQL Server. RESTful APIs are structured meticulously following the Model, View, and Controller (MVC) architecture, while jQuery and JavaScript libraries are utilized for efficient client-side activity management.

Impact

- The DARPAN Dashboard is utilized by the Hon'ble Chief Minister's Office of Uttar Pradesh and reviewed by government officials involved in policy and decision-making at both state and district levels.
- It empowers Hon'ble Chief Ministers, Commissioners, DMs, CDOs, SPs, and Police Commissioners to efficiently monitor critical information, streamlining decision-making processes.
- The dashboard enables real-time district-level project monitoring, providing Hon'ble Chief Ministers with direct insights for swift decision-making and timely interventions.
- A strategic ranking system based on KPIs ensures accountability and healthy competition among departments, driving continuous improvement.
- DARPAN offers an objective assessment of departmental activities up to the district level, enabling informed decision-making by identifying successes and areas for improvement.

Advantages

The benefits of the DARPAN Dashboard are extensive, enhancing efficiency and decision-making across administrative levels:

- Streamlined KPI Visualization: The web-based dashboard simplifies KPI visualization across departments, enabling quick assessments without navigating intricate source systems.

- Real-Time Project Evaluation: Real-time project evaluation empowers decision-makers to swiftly measure progress, fostering an adaptive and responsive approach to project management.
- Detailed Information Accessibility: Dashboards allow users to seamlessly drill into detailed information by selecting desired variables or objects from complex datasets, facilitating nuanced understanding for informed decision-making.
- Universal Accessibility: DARPAN's programming ensures universal accessibility, reaching diverse stakeholders anytime, anywhere, aligning with inclusivity and expeditious decision-making.

Accolades

The DARPAN Dashboard was honored with the Award of Excellence at the CSI SIG e-Governance Awards 2021, recognizing its remarkable contribution to digital governance.

Ending Remarks

The DARPAN Project Management Unit (PMU) at NIC Uttar Pradesh State Unit, Lucknow, is headed by Shri Ajai Gopal Bhartariya, Senior Technical Director with Shri Vaibhav Agarwal, Smt. Shalini Singh, Shri Vijay Singh Pal, and Shri Kamlesh Singh actively contributing to product development and implementation. They operate under the guidance of Shri I.P.S Sethi, Deputy Director General (DDG) at NIC Headquarters, New Delhi with consistent support from Shri Sunil Sharma, State Informatics Officer (SIO), Uttar Pradesh.

Contact for more details

Ajai Gopal Bhartariya
Senior Technical Director & Project Head
NIC Uttar Pradesh State Unit
Lucknow, Uttar Pradesh - 226001
Email: ajai.gopal@nic.in, Phone: 0522-2298828

Online Policy-Based Transfers System

A Comprehensive System for Implementation of Bulk Transfers

Within the expansive infrastructure of the HRMS application lies an innovative tool known as the online policy-based transfer system. This system serves as a beacon of transparency, orchestrating the seamless migration of regular employees throughout the labyrinthine corridors of various departments, boards, and corporations within the Government of Haryana.

Gone are the days of cumbersome paperwork and bureaucratic hurdles; this module heralds a new era of efficiency by digitizing the transfer process, ensuring that each movement is executed with precision and clarity. Over the span of the last two years, this system has notched up an impressive tally, successfully executing more than 100 online transfer policies across different cadres. This system makes it super easy to move lots of employees among different departments, boards, and corporations.

Such a feat has not gone unnoticed, as the Government of Haryana basks in the glow of well-deserved recognition for their forward-thinking approach. Indeed, this online transfer system stands as a testament to their commitment to modernization and effectiveness in governance.



The Online Policy-Based Transfers System simplifies employee movement within the government, replacing paperwork with digital efficiency. It orchestrates seamless transfers across departments, streamlining processes and ensuring clarity and precision in each movement. Recognized for modernization, it underscores the government's commitment to effective governance.



These eligible employees undergo a rigorous evaluation process to determine their suitability for transfer. Their individual scores, computed based on the outlined criteria, serve as a guiding beacon in the allocation of vacant positions across different offices. It's a process driven by objectivity, ensuring that each transfer decision is rooted in fairness and meritocracy.

The implementation of this system is facilitated through two main portals: HRMS (<https://hrmshry.nic.in>) and IntraHry (<https://intra hry.gov.in>). The HRMS portal serves as the nerve center for administrative action, allowing nodal officers and other authorities within the various departments to oversee and execute transfer procedures. On the other hand, IntraHry empowers employees themselves, providing them with a platform to verify their scores, express their preferences, and participate actively in the transfer process.

In essence, the online policy-based transfer system epitomizes the government's commitment to efficiency, transparency, and employee welfare. It's a technologically-driven solution that streamlines what was once a complex and arduous administrative task, ultimately fostering a more agile and responsive workforce.

Features

Following are the features of this system:

- **Generation of Transfer Drive:** The process kicks off with the nodal officer of each department creating an online transfer drive. This involves setting key parameters such as the cut-off date for tenure calculation and any mandatory requirements. Essentially, it's about laying down the groundwork for the upcoming transfer process.
- **Score Generation and Verification:** Next comes the generation and verification of scores. This is a two-step process where the authority responsible for each employee calculates their score based on the matrix defined in the transfer policy. Once generated, the score is then checked by the employee themselves and finally locked in by the authority, ensuring accuracy and fairness.
- **Voluntary Participation:** Certain categories of employees have the option to participate voluntarily in the transfer drive. For instance, those who are due to retire within a year from the date of the transfer drive's generation can choose to join the process willingly, adding a layer of flexibility to the system.



Deepak Bansal

Dy. Director General & SIO
sio-hry@nic.in



Kiran Kumar Koul

Sr. Technical Director
kiran.koul@nic.in



Vijay

Scientist - D
v.bansal@nic.in

Objectives

The online policy-based transfer system serves as a pivotal module within the bureaucratic machinery of the government, designed specifically to orchestrate large-scale transfers of employees within a particular cadre. Each cadre, or group of employees, operates under a predefined policy framework established by the government. This framework delineates the criteria and guidelines for transfers, ensuring a fair and transparent process.

At the heart of this system lies a meticulously crafted policy document, meticulously crafted and ratified by the government, which serves as the blueprint for employee transfers. It delineates various criteria such as the tenure of service at a particular location, performance ratings, and other relevant factors. Based on these predetermined criteria, a pool of eligible employees is identified from within the cadre, each awaiting potential relocation.

- **Rationalization of Posts:** The system is seamlessly integrated with the ePost module, which stores information on sanctioned posts for each department down to the office level. This allows for a comprehensive overview of each office's staffing situation including sanctioned, filled and vacant posts. Nodal officers then adjust post allocations based on workload requirements, ensuring efficient resource distribution.

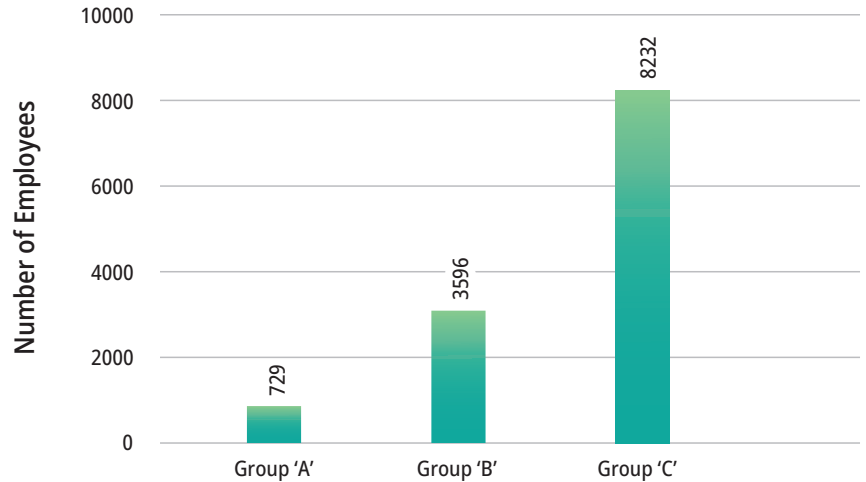
- **Choice Filling:** Eligible employees slated for transfer submit their choices in order of preference. Only offices with vacancies opened through post rationalization are visible for choice filling, streamlining the process and ensuring realistic options for employees.

- **Transfer Order Generation:** Once choices are submitted, final transfer orders are generated using predefined templates provided by the department. Prioritization of office allocation is based on employee scores, with higher-scoring employees receiving priority. Offices are allocated based on employee preferences and vacancy availability, ensuring a fair and efficient distribution of transfers.

- **Relieving and Joining:** After transfer orders are generated, the system automatically updates the data for relieving and joining of employees in the respective authorities' accounts, ensuring a smooth transition for all parties involved.

Technologies Used

Online policy based transfer module is a part of HRMS application which is developed in ASP.NET framework as front end. Microsoft SQL server is used for database of application. In addition, application uses Bootstrap, Javascript for designing and scripting purposes. Microsoft reporting



▲ Fig 9.1

Online Policy-Based Transfers - Group Wise

services are used for generating reports at different steps in module.

Architectural Flow

The architectural flow of the online policy-based transfer system involves the interaction between various components and stakeholders to facilitate the smooth execution of employee transfers within the government bureaucracy. Here's an architectural flow based on the provided information:

- **Policy Framework Establishment:** The government establishes a comprehensive policy framework for employee transfers. This framework defines criteria and guidelines for transfers, en-

suring fairness and transparency.

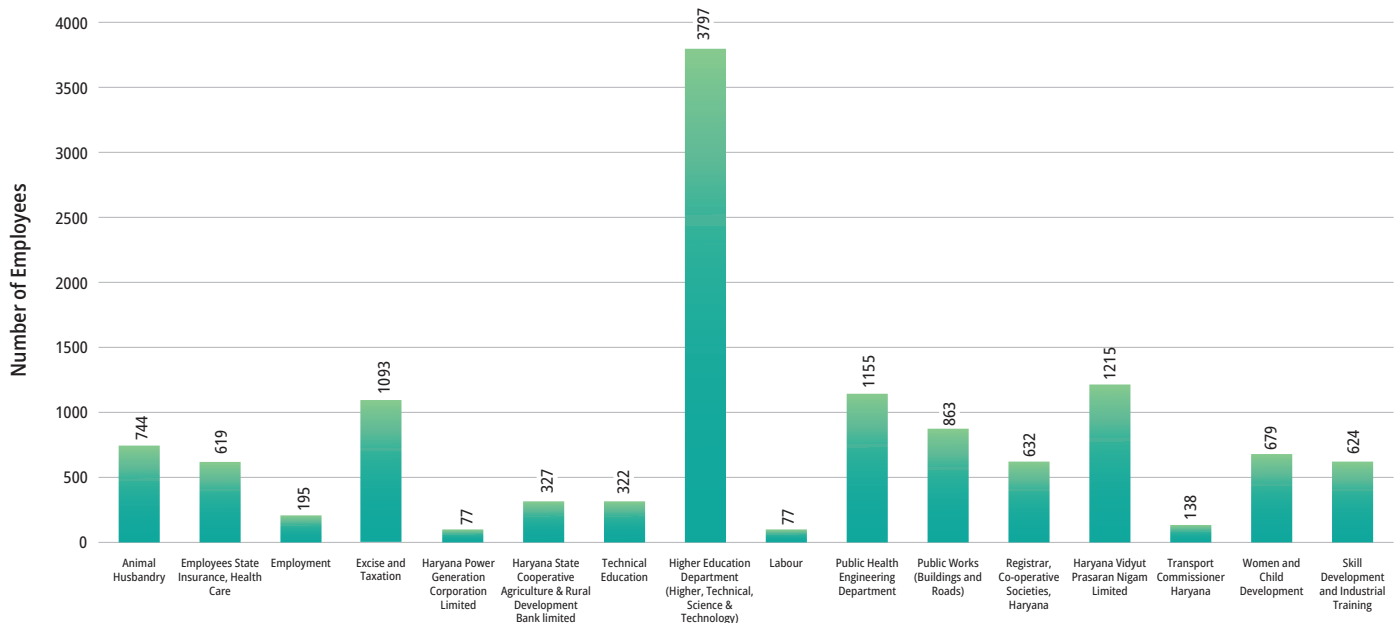
- **Policy Document Management:** The meticulously crafted policy document serves as the blueprint for transfers. It is stored and managed within a secure repository accessible to authorized personnel.

- **Eligibility Evaluation Module:**

Criteria Processing: Eligible employees are identified based on predefined criteria such as tenure of service and performance ratings.

Evaluation Algorithm: A rigorous evaluation process computes individual scores for eligible employees based on the outlined criteria.

- **Transfer Allocation Module:**



▲ Fig 9.2

Online Policy-Based Transfers - Department Wise

Score-based Allocation: Vacant positions across different offices are allocated to eligible employees based on their computed scores.

Fairness and Objectivity: The allocation process ensures fairness and objectivity, adhering to the principles of meritocracy.

- **HRMS Portal:**

Administrative Interface: Nodal officers and authorities within departments access the HRMS portal to oversee and execute transfer procedures.

Transfer Management: The portal facilitates the management of transfer requests, approvals, and related administrative tasks.

- **IntraHry Portal:**

Employee Interface: Employees access the IntraHry portal to verify their scores, express preferences, and participate actively in the transfer process.

Preference Submission: Employees submit transfer preferences and engage with available positions through the portal.

- **Transfer Execution:**

Approval Workflow: Transfer requests are processed and approved through the HRMS portal, triggering the execution of transfers.

Logistics Management: Logistics and administrative tasks associated with employee relocation are managed to ensure a smooth transition.

- **Monitoring and Feedback Mechanism:**

Continuous Monitoring: The system allows for continuous monitoring of the transfer process to ensure compliance with the policy framework.

Feedback Collection: Mechanisms for gathering feedback from employees and stakeholders enable iterative improvements to the transfer system.

- **Security and Compliance:**

Data Security: Measures are in place to ensure

the security and confidentiality of employee data throughout the transfer process.

Compliance: The system adheres to regulatory and compliance requirements governing employee transfers within the government.

- **Scalability and Performance:**

Infrastructure Scalability: The architecture is designed to accommodate large-scale transfers and varying workload demands.

Performance Optimization: Optimization techniques are employed to enhance system performance and responsiveness.

Overall, this architectural flow illustrates how the online policy-based transfer system orchestrates employee transfers within the government bureaucracy, leveraging technology to ensure efficiency, transparency, and fairness in the process.

Benefits

- **Transparency:** The policy-based transfer system offers complete transparency, allowing departments to effortlessly track the status of each employee with just a click. This visibility ensures accountability and clarity throughout the process.

- **Less Prone to Error:** With allocations handled by precise algorithms, the online system is significantly less susceptible to errors compared to manual methods. This reduces the risk of mistakes and ensures accuracy in station assignments.

- **Easy Monitoring:** Unlike manual processes that require meticulous paper-based tracking and analysis, the online system provides departments with comprehensive reports, enabling them to monitor every stage of the transfer drive effortlessly. This simplifies oversight and enhances efficiency.

- **Quick Implementation:** Transfer drives are

swiftly implemented, typically spanning 15 to 30 days depending on cadre strength. This rapid turnaround is a stark contrast to the lengthy 2-3 month duration of manual processes, which often involve physical file movements.

- **No Legal Hassles:** By adhering to approved policies and executing transfers transparently online, departments mitigate legal risks. The absence of manual intervention ensures compliance and reduces the likelihood of legal complications.

- **Paperless Operation:** Embracing a paperless approach from start to finish, the system saves significant amounts of departmental paper usage. This not only promotes environmental conservation but also streamlines operations by eliminating paperwork-related inefficiencies.

Targets Ahead

At present, the implemented policies differ between departments, posing challenges for state government authorities to ensure consistent implementation and for NIC to adapt the code accordingly. The state government is currently drafting a standardised online transfer policy applicable across all departments. Certain adjustments are required in the existing online module within HRMS to align with the modifications in this unified policy.

Contact for more details

Shri Deepak Bansal

Dy. Director General & State Informatics Officer
NIC Haryana State Centre
Ground Floor, Room No. 04, Sector 17
Chandigarh - 160017
Email: sio-hry@nic.in, Phone: 0172-2711642

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TS-eMining

Geological & Mineral Resources Planning

TS-eMining stands as an encompassing and cohesive solution crafted by NIC, Telangana, specifically tailored for the Department of Mines and Geology under the Government of Telangana. The Department plays a pivotal role in the advancement of mineral resources, encompassing tasks such as the exploration of mineral deposits, regulation of mineral activities within the state, and the collection of mineral revenue.

This initiative introduces a robust and streamlined approach to mineral resources planning and management through a series of online modules. These modules, integrated into the department's web portal at <https://mines.telangana.gov.in>, are designed to enhance the ease of conducting business while ensuring effectiveness and transparency in operations.

The system caters to various stakeholders within the mining sector, including mining and quarry lease holders, mineral dealers, temporary

TS-eMining application has digitized and streamlined mineral resource management processes in Telangana. It facilitates transparent governance, efficient concession management, and sustainable mining practices through real-time data access and integrated systems, fostering economic growth and environmental stewardship in the sector.

from the leaseholders and maintain all development activities using DMF funds for the interest, benefit and sustainable development of areas affected by mining or mining related operations

- Collecting State Mineral Exploration Fund (SMET) from the leaseholders for geological investigation, mapping, exploration and development of mineral resources in the State
- Disseminating geological and mineral information of the mineral resources to promote mineral based industries and overall development of mineral sector in the State
- Auto Approval of online ePermits, Online Transfer & Renewal of Lease Applications

Implementation

The scope of the eMining Project is to design, develop, test and to implement all the activities related to mines and mineral resources planning. The software comprises all major functionalities to address the ICT requirements of the Department of Mines and Geology. The Department is determined to go for a full-fledged e-Governance Solution aiming for total 'paperless' mineral administration in the State of Telangana. eMining provides users with real-time access to mineral service information, introducing transparency and efficiency to the department, ultimately benefiting citizens and stakeholders alike.

To achieve the same following web application modules are being implemented:

- Grant of Minor Mineral Concessions (Quarry Leases) through Auction through Telangana State eAuction Platform
- Online Mineral e-Payment & e-Permit System.
 - Online payment of statutory amounts
 - Issue of e-permits (now Auto Approval)
 - Mineral Revenue Assessments etc.
- Online grant of Transit Passes generation Transit Forms for Lease Holders. (Printing on Secured Stationery)
- Online issue of Temporary Permits for Minor Minerals
- Grant of Quarry Leases in case of QL Applications wherein Letter of Intent (LoI) has been issued
- Online Filing, Receipt, Processing and Approval of Renewal Mineral Concession Applications
- Online Filing, Receipt, Processing and Approval of Transfer Mineral Concession Applications



Ajay Madhukar Joshi
Dy. Director General & SIO
sio-ts@nic.in



Govardhana Srikanth
Sr. Technical Director
g.srikanth@nic.in



Aravind Nehru Lankamsetty
Scientist-D
aravind.nl@nic.in



Ravi Bandi
Scientist-C
ravi.bandi@nic.in

permit holders, entrepreneurs, and chief-engineering divisions of government departments. By offering a user-friendly interface and comprehensive features, eMining aims to modernize operations, simplify processes, and foster a conducive environment for all involved parties.

Objectives

The key objectives of integrated Mines & Mineral Resources Planning System are as follows:

- To support major functions of the Department include Promotion, Regulatory & Mineral Revenue Collections by maintaining the data of all stakeholders and their activities
- Development of Standard Operating Procedure & End to end tracking of mineral extraction to consumption
- Simplify mineral administration, effective realization of revenue & curb leakages
- Decision Support System for Managerial level staff and transactional details for Operational staff
- To collect District Mineral Fund (DMF) online

- Online Filing, Receipt, Processing and Approval of Quarry Lease for Minor Minerals in Patta Land
- Appeals – Online Filing, Processing & Disposal of Appeal Applications
- Zero Permits for Government Works
- Show-Cause Notice/Determination of QL Module – In case of breach of lease conditions, online issue of Show Cause Notice and for non-rectification of the breach, online Determination of Quarry Lease
- Implementation of eOffice – Processing and disposal of files through NIC eOffice Platform
- Online filing of Application for Registration of Brick Manufacturing Kiln and Mangalore Tiles
- Online filing of Application for Renewal of existing Mineral Dealer License
- Registration of Mineral Transporting Vehicles in the State
- MIS Reports: Various MIS & Data verification reports are developed and implemented for dealing hands, concerned authorities and Assistant Directors at district, regional and state level for regular day-to-day monitoring of various activities being undertaken at respective levels which includes:

- Mineral Revenue Report
- Permit-wise Revenue Reports
- Daily Permit Reports
- Daily Passes Reports
- Bank Transactions Reports
- Income Tax Reports
- MDL Permit Report
- NMET (National Mineral Exploration Trust) Report
- SMET (State Mineral Exploration Trust) Report
- DMF (District Mineral Fund) Report

TS-eMining Mobile App

TS-eMining MobileApp is a robust and dynamic in nature, being enriched continuously with new functionalities that empowered by latest technology and standard practices. This Mobile App is an effective and integrated mineral transport solution that provides access to all the stake holders related to mineral transport services. It facilitates online verification of transit form, transit pass, road inspection etc. The Mobile App provides a platform that empowers inspection teams to perform inspection of minerals during transportation by vehicles.

- TS-eMining Mobile App serves the field officers at District level (Assistant Director's, Assistant Geologist's, Royalty Inspector's, Technical Assistant's,) to verify the validity of the transit forms/passes, sand way bills, brick transportation etc. issued by the Department
- The Mobile App facilitates auto calculation of statutory payments based on the quantity, type and variety of mineral, in case of detection of unauthorized mineral transportation. An online payment link shall be sent through SMS to the owner of the vehicle to pay penalty online
- It provides online payment facility for the penalty imposed due to non-availability of passes or excess quantity that being transported
- Owners/defaulters shall be communicated through SMS to avoid manual interface including handling of cash by the officers in the field.
- Online Receipts and Reports shall be generated by the concerned authorities

The TS-eMining Mobile App was ceremoniously launched on September 30, 2023, at B.R. Ambedkar Telangana State Secretariat. Leading the inauguration were distinguished figures including Shri P. Mahender Reddy, Hon'ble Minister

Department of Mines & Geology, Telangana designed TS-eMining software which is developed by NIC eMining Team, and being implemented for 'ease-of-doing-business' under G2G, G2B & G2C.

Facilitated mineral concessions through auction, online payments, permit system, mineral dealer registration & transit passes for dispatch of finished mineral, appeals etc. in online mode with accountability & transparency in the form of SLAs (Service Level Agreement) and intimation (SMS) all levels of approvals.

TS-eMining Mobile APP implemented to check Mineral Transporting Vehicles, and in case violation, the penalty will be collected through online process.



P. Katyayani Devi, IAS

Director of Mines & Geology
Telangana State

for Mines & Geology and Information and Public Relations (I&PR); Smt. A. Santhi Kumari, IAS, Chief Secretary to the Government of Telangana; Smt. P. Katyayani Devi, IAS, Director of Mines & Geology; and the dedicated eMining Team of NIC Telangana. This significant event marked a milestone in

▼ Fig 10.1 : Launching the TS-eMining Mobile App by Shri P. Mahender Reddy, Hon'ble Minister for Mines & Geology and Information and Public Relations (I&PR) at BR Ambedkar Telangana State Secretariat on September 30, 2023





▲ Fig 10.2 : TS-eMining Mobile APP screens

advancing technology for efficient management and oversight of mining activities in the region.

Technologies Used

- Front-end: HTML, CSS, JS, and Bootstrap
- Back-end: Microsoft.NET with ASP .NET and C#
- Database: Microsoft SQL Server
- Mobile App: Android

Innovations Applied

The ICT solution implemented for the Department of Mines & Geology in Telangana, accessible through the '<https://mines.telangana.gov.in>' web portal, represents a significant stride towards governance modernization. Its robust architecture provides a comprehensive repository of information pertaining to mineral resources, ad-

ministration, policies, regulations, revenue, and production.

Functioning as a centralized resource hub, the portal plays a pivotal role in facilitating streamlined access to mining-related data for stakeholders, entrepreneurs, and the general public alike. From initial application to final disposal, the management of mineral concessions is seamlessly handled online, bolstered by Service Level Agreements (SLAs) and SMS notifications that ensure transparency throughout the process.

Through the elimination of redundancies and the enhancement of data integrity, the portal simplifies information gathering by employing standardised proformas. Moreover, it optimises the frequency of data collection and empowers decision-makers through the provision of Management Information Systems (MIS) and analysis reports.

The integration of mining activities and databases within the portal creates a cohesive user experience, standardised processes, and prioritises user-friendliness, thereby promoting hassle-free operations. This comprehensive approach not only enhances efficiency but also fosters a culture of transparency and accountability within the mining sector in Telangana.

Benefits

The Telangana state government has established district offices (32 in total) to streamline mineral administration, ensuring accessibility for mining entrepreneurs down to the micro-level. Oversight is provided by three regional offices dedicated to regulating mineral activities. Under the e-Governance policy, the department is implementing Information & Communication Technology (ICT) solutions to enhance service delivery, communication, and integration across government functions. This initiative aims to benefit government entities, citizens, and stakehold-

ers by facilitating transparent, efficient, and convenient mineral services. The complete rollout of the eMining software was achieved through collaborative efforts, involving stakeholders in discussions, design, and development to mitigate initial resistance. Customized training modules were deployed at multiple levels, and employees were engaged step by step in the rollout process to identify and address challenges promptly. Software performance was rigorously evaluated post-implementation to ensure effectiveness.

Awards

At the 8th National Digital Transformation Conclave and Awards-2022, held on December 9, 2022, in Guwahati, Assam, the TS-eMining Project team from NIC Hyderabad, Telangana, and the Mines and Geology Department, Government of Telangana, received the Digital Transformation Award in the Government Initiative in IT category. This recognition by GovConnect highlights the Centre's dedication to nurturing a strong Digital Transformation ecosystem.

Target Ahead

All major activities of mineral administration are digitized. Emerging technologies like AI, ML and Big Data are yet to be explored in mineral administration, regulation to optimize production, exploration processes, improve supply chain, logistics and increase sustainability, with emphasis on environmental friendly mining and conservation.

As the huge amount of data available to process, the digital tools, such as advanced process control, AI, Big Data, digital twins, augmented reality, and IoT may come into play and may facilitates to take better decisions. The department is planning to launch Mining Tenement System (MTS) in tune with the guidelines of Ministry of Mines, Government of India, which would primarily involve automating the entire mineral concession life-cycle, starting from identification of area and ending with closure of the mine, and connecting various stakeholders, for real time transfer of electronic files and exchange of date. This may enable effective management of mineral concession regime and transparency in mining operations, transportation of ore with the help of online electronic weighbridges.

The department also taking steps to implement Mining Surveillance System (MSS) in tune with the guidelines of Ministry of Mines, Government of India for geo-referencing of mining and quarry leases and mineral bearing areas in the State. The MSS enable to detect and curb illegal mining and transportation activities.

▲ Fig 10.3 : Department of Mines & Geology officials, along with the NIC team, honored at the 8th National Digital Transformation Conclave and Awards-2022 on December 9, 2022



Contact for more details

Ajay Madhukar Joshi

State Informatics Officer

NIC Telangana State Centre, A Block, BRKR Bhavan

Tank Bund Road, Hyderabad - 500063

Email: sio-ts@nic.in, Phone: 040-23494700

UEBA

An In-depth Exploration of User and Entity Behavior Analytics

In today's rapidly evolving cybersecurity landscape, organisations confront a perpetual challenge: safeguarding their digital assets against an array of potential risks. While traditional security measures offer some level of protection, they often fall short in detecting and countering insider threats, targeted attacks, and other sophisticated cyber assaults. In response to this imperative need for more robust security solutions, User and Entity Behavior Analytics (UEBA) emerges as a critical component within modern cybersecurity frameworks.

UEBA signifies a paradigm shift in security analytics, providing organisations with a proactive approach to threat detection and mitigation. Unlike conventional security tools that primarily focus on perimeter defence and signature-based detection methods, UEBA delves deep into the behavioural patterns of users and entities within an organisation's network environment. By harnessing advanced analytics, machine learning algorithms, and behavioural modelling techniques, UEBA solutions analyse extensive data sets to establish baseline behaviour and pinpoint deviations indicative of potential security threats.

The concept of UEBA extends beyond traditional user behaviour analysis to include monitoring various entities, such as applications, devices, and systems. This holistic approach empowers organisations to gain deeper insights into the activities occurring within their digital ecosystems, enabling them to detect anomalous behaviour that might evade conventional security measures.



UEBA revolutionises cybersecurity by scrutinising the behaviour of users and entities within a network. Through advanced analytics and machine learning, UEBA identifies anomalies in real time, allowing organisations to detect potential security threats swiftly. By establishing baselines of normal behaviour and assigning risk scores, UEBA provides proactive threat detection and helps prioritise response efforts. Integrated with other security tools, UEBA enhances overall cybersecurity posture, empowering organisations to mitigate risks effectively and safeguard their digital assets against evolving threats.



In this article, we will explore the key components, functionalities, benefits, challenges, and implications of UEBA for modern cybersecurity operations. By gaining a comprehensive understanding of the foundational principles and capabilities of UEBA, organisations can enhance their security posture, mitigate risks, and proactively defend against a wide range of cyber threats.

Introduction

UEBA, first introduced in 2015, builds upon User Behavior Analytics (UBA) by extending its scope

beyond end-user behaviour to encompass the monitoring of non-user entities such as servers, routers, and IoT devices for suspicious activity. This expansion enhances threat detection capabilities, particularly in identifying insider threats that mimic legitimate network traffic—a challenge for traditional security tools. Integrated into security operations centres (SOCs) and various enterprise security solutions such as Security Information and Event Management (SIEM), Endpoint Detection and Response (EDR), Extended Detection and Response (XDR), and Identity and Access Management (IAM), UEBA plays a pivotal role in bolstering defences against evolving cyber threats. Its effectiveness in detecting insider threats makes it an essential component of modern cybersecurity strategies.

How UEBA Works

UEBA solutions leverage data analytics and machine learning to provide security insights. These tools analyse extensive data from various sources to establish a baseline of normal behaviour for privileged users and entities. Through machine learning, the baseline is continuously refined, requiring fewer samples over time for accurate assessment.

Once the baseline is established, UEBA employs advanced analytics and machine learning to detect deviations in real-time user and entity activity data. It draws from multiple enterprise sources, including network equipment, security tools, authentication databases, threat intelligence feeds, and ERP/HR systems, to assess behaviour comprehensively. UEBA identifies anomalous behaviour and assigns risk scores accordingly. For example, multiple failed authentication attempts or abnormal system access patterns may signal insider threats, resulting in low-risk alerts. Conversely, suspicious activities such as plugging in multiple USB drives and unusual download patterns may indicate data exfiltration, warranting higher risk scores. This scoring system enables security teams to prioritise threats effectively and monitoring low-level alerts.

UEBA Use Cases

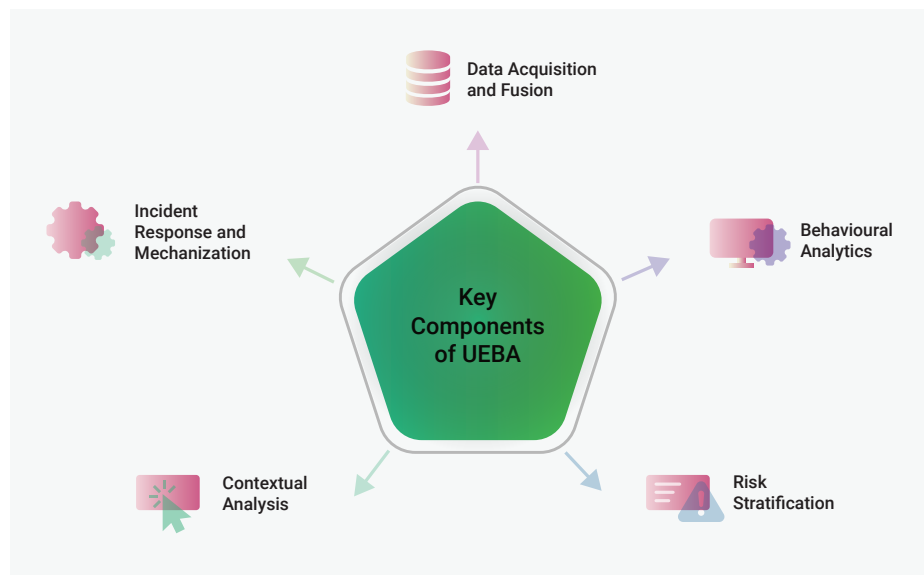
UEBA aids organisations in identifying suspicious behaviour and fortifying data loss



Avtar Singh
Scientist - D
avtarsingh@nic.in



Sumit Vimal
Scientist - B
sumit.vimal@nic.in



prevention (DLP) strategies. In addition to its tactical applications, UEBA can also fulfil strategic roles, such as ensuring compliance with regulations pertaining to user data and privacy protection.

Tactical Applications

Malicious Insiders: These individuals possess authorised access to corporate networks and attempt cyberattacks. While conventional data analysis may overlook them, UEBA's advanced analytics can pinpoint them by focusing on specific user behaviours rather than IP addresses.

Compromised Insiders: Attackers acquire legitimate user credentials through methods like phishing, making them appear authorised. UEBA detects their anomalous behaviour, aiding in thwarting their attacks.

Compromised Entities: With the proliferation of IoT devices lacking robust security measures, organisations become vulnerable to hackers who exploit these entities for data theft or disruptive activities. UEBA identifies signs of compromise in these entities, enabling proactive threat mitigation.

Data Exfiltration: Both insider threats and malicious actors target servers and devices to steal sensitive data. UEBA alerts security teams to unusual data access patterns in real-time, facilitating swift responses to potential breaches.

Strategic Applications

Zero Trust Security Implementation: UEBA plays a pivotal role in implementing a zero trust security approach by providing comprehensive

visibility into all user and entity activities. This ensures continuous authentication, authorization, and validation to maintain network security.

GDPR Compliance: Compliance with the GDPR mandates meticulous tracking of personal data access and usage. UEBA tools aid in GDPR compliance by monitoring user behaviour and access to sensitive data, ensuring adherence to regulatory requirements.

Key Components

Data Acquisition and Fusion: UEBA platforms aggregate and correlate data from multiple sources to provide a comprehensive view of the organisation's digital landscape.

Behavioural Analytics: Machine learning algorithms analyse historical and real-time data to establish normative behaviour patterns for users and entities, facilitating the detection of deviations.

Risk Stratification: UEBA assigns risk scores to users and entities based on their behaviour, enabling security teams to prioritise response efforts.

Contextual Analysis: Consideration of contextual factors such as time, location, and user roles enhances the accuracy of behavioural analysis.

Incident Response and Mechanization: UEBA automates response actions to security incidents, streamlining the mitigation process and reducing response times.

Advantages

Preliminary Threat Detection: UEBA enables

the early detection of potential security threats, minimising the impact of breaches.

Insider Threat Recognition: By monitoring user activities, UEBA can identify both deliberate and inadvertent insider threats, enhancing internal security measures.

Mitigation of False Positives: Contextual analysis and risk scoring capabilities reduce false positives, allowing security teams to focus on genuine threats.

Sustained Monitoring: UEBA provides continuous oversight of user and entity behaviour, adapting to evolving threats and ensuring ongoing security vigilance.

Challenges and Considerations

Data Privacy: Concerns about user privacy necessitate transparent policies and adherence to regulatory frameworks.



Integration: Seamless integration with existing security infrastructure requires careful planning and coordination to avoid disruptions.

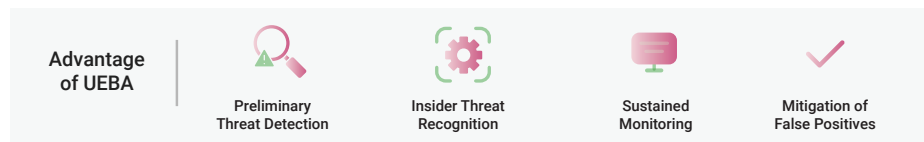
False Positives: Fine-tuning UEBA systems to minimise false positives requires ongoing adjustments and alignment with organisational dynamics.

Summary

In conclusion, UEBA stands as a pivotal tool in the modern cybersecurity arsenal, empowering organisations to proactively detect and respond to potential security threats. By harnessing the capabilities of advanced analytics and machine learning, UEBA enhances security posture, safeguarding critical assets against evolving cyber threats. As organisations navigate an increasingly complex threat landscape, the adoption of UEBA represents a proactive step towards fortifying digital defences and mitigating security risks.

Contact for more details

Avtar Singh
Scientist - D
1st Floor Block 3
DMRC IT Park, Shastri Park, New Delhi - 110053
Email: avtarsingh@nic.in, Phone: 011-24305862



Key Digital Initiatives launched in celebration of the Supreme Court's Diamond Jubilee



Multiple technology initiatives - Digital Supreme Court Reports, Digital Courts 2.0 and new website of Supreme Court were launched by Hon'ble Prime Minister, Shri Narendra Modi at the Diamond Jubilee celebration of Supreme Court at the Supreme Court auditorium, New Delhi on January 28, 2024

In a significant step towards digitization and accessibility, Prime Minister Shri Narendra Modi inaugurated the Diamond Jubilee celebration of the Supreme Court of India. The event took place in the Supreme Court auditorium on January 28th, marking the court's 75th year.

During this event, the Prime Minister launched several citizen-centric technological initiatives. These include the Digital Supreme Court Reports (Digi SCR), the Digital Courts 2.0 application, and the Supreme Court's revamped website.

The Digital SCR initiative is a landmark move to democratise access to justice, making all Supreme Court judgments since 1950 available free of charge in a digital, user-friendly format. This archive encompasses over

36,308 cases across 519 volumes.

Further enhancing judicial efficiency, the Digital Courts 2.0 application, an extension of the e-Courts project, aims to digitise court records for district court judges. It incorporates advanced artificial intelligence for real-time speech-to-text transcription.

Lastly, the Prime Minister unveiled the Supreme Court's new bilingual website, featuring an interface in both English and Hindi, designed for improved user experience. These initiatives represent a significant stride towards a more transparent and accessible judiciary system in India.

- Informatics News Desk, NIC-HQ

713 District Courts Shift to NIC's S3WaaS Platform for Enhanced Digital Accessibility

In a major advancement for the Indian judiciary's digital infrastructure, all 713 District Courts across the country have successfully migrated their websites to the NIC's S3WaaS (Secure, Scalable, and Sugamya Website as a Service) framework. This move aligns with the Government of India's guidelines for enhancing the accessibility and user-friendliness of government websites.

S3WaaS, a cloud-based service specially designed for government entities, stands at the forefront of this digital transformation. It focuses on creating websites that are secure, scalable, and 'Sugamya' – meaning accessible in Hindi. This innovative platform offers a range of customizable themes, enabling government bodies to tailor their online presence according to their specific needs and objectives.

This transition marks a significant leap in ensuring that information and services from the district courts are readily accessible to the public. The new websites, underpinned by the S3WaaS framework, are expected to offer improved navigation, enhanced security features, and a user-friendly interface, thereby facilitating better interaction between the courts and the citizens.

Furthermore, the adoption of this technology underscores the government's commitment to digitizing and streamlining public services, making them more inclusive and accessible. This initiative is a key component of the



broader efforts to modernize India's judicial system, ensuring that it keeps pace with the evolving digital landscape and meets the needs of a digitally empowered society.

- Informatics News Desk, NIC-HQ

State of Punjab gets Comprehensive Web Portal for NRI Affairs

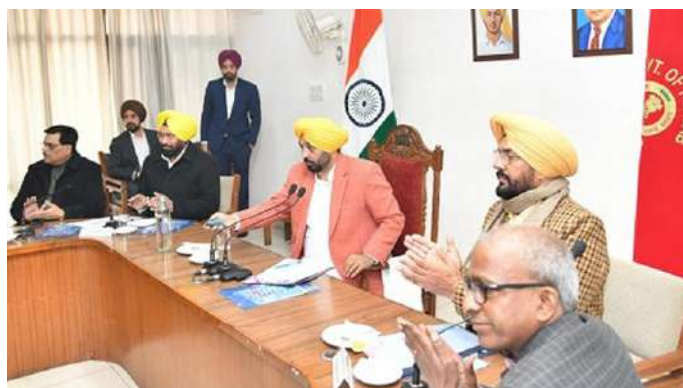
Hon'ble Chief Minister of Punjab, Shri Bhagwant Mann, has officially launched a dedicated web portal for the Department of NRI Affairs, an initiative developed by the National Informatics Centre (NIC) Punjab. The launch event, which took place on December 29, 2023, saw the Chief Minister being briefed on the portal's features by the Minister of NRI Affairs of Punjab, Shri Kuldeep Singh Dhaliwal.

The Chief Minister lauded the collaborative efforts of the NIC team, the Directorate General of Resettlement (DGR), and the NRI department in bringing this significant project to fruition. He highlighted the portal as a groundbreaking step towards supporting the Non-Resident Indians (NRIs) community, facilitating their connection with their homeland.

The portal, accessible at (<https://nri.punjab.gov.in>), serves as a comprehensive resource for NRIs, offering detailed information on various aspects such as the NRI police wing, Punjab State Commission for NRIs, and NRI Sabha. It simplifies access to the facilities offered by the state government to NRIs through a single-click interface.

Additionally, the website provides extensive information on travel and immigration agents registered with the Punjab Government and the Ministry of External Affairs. It also includes a link to Punjab's centralized complaint portal, enabling NRIs to easily register their complaints.

The launch ceremony was attended by several dignitaries, including MLAs,



Hon'ble CM Punjab, Shri Bhagwant Mann, launches a dedicated web portal for the Department of NRI Affairs on December 29, 2023

Shri Dilip Kumar, IAS, Principal Secretary of the Department of NRI Affairs, Smt. Kanwal Preet Brar, IAS, Secretary, Shri Paramjit Singh, IAS, Additional Secretary, and officers from the NRI Police Wing.

- Parminder Kaur, Punjab

Manipur Embraces Digital Governance with Launch of National e-Vidhan Application



Hon'ble Chief Minister of Manipur inaugurates the National e-Vidhan Application (NeVA) for Manipur Legislative Assembly on February 27, 2024

In a landmark move towards enhancing digital governance, the Hon'ble Chief Minister of Manipur has inaugurated the National e-Vidhan Application (NeVA) in the Manipur Legislative Assembly. This initiative, developed by the NIC, is set to revolutionize the way legislative business is conducted in the state.

NeVA is a sophisticated workflow-based application designed to facilitate the smooth conduct of the proceedings of the House. It allows for a paperless assembly, thereby promoting environmental sustainability and operational efficiency. The application is expected to transform the traditional paper-reliant legislative process by digitizing all records, including questions, answers, debates, and reports, ensuring real-time availability and access.

The Chief Minister, in his address during the launch, highlighted the significance of NeVA in the current digital era. He emphasized that this system

is not just about going paperless but is a step towards a more transparent, accountable, and responsive legislative process. The implementation of NeVA is a testament to Manipur's commitment to adopting innovative technologies for better governance.

The launch event demonstrated various features of the NeVA, showcasing how it can aid the Chair of the House in managing the day-to-day activities of the legislative assembly more effectively. The system ensures seamless coordination among various departments, members of the legislative assembly, and other stakeholders, thereby enhancing the overall productivity of the legislative process.

- M. Budhimala Devi, Manipur

Patna High Court Initiates Document Digitization at Purnea District Court

Marking a significant step towards modernising the judicial system, the Hon'ble Chief Justice of Patna High Court, Shri K. Vinod Chandran, in collaboration with officials from the NIC Bihar, inaugurated a pilot Scanning and Digitization Centre at the Purnea District Court.

This new facility is focused on the scanning and digitization of crucial legal documents, a task that has been entrusted to the National Informatics Centre Services Inc. (NICS). The primary objective of this initiative is to preserve these vital documents in a digital format, ensuring their longevity and easy accessibility.

The inauguration ceremony, attended by prominent figures from the legal and digital technology sectors, highlighted the importance of integrating technology into the judicial process. Chief Justice Shri K. Vinod Chandran, addressing the gathering, emphasized the significance of this project in safeguarding legal documents against the wear and tear of time and in improving the efficiency of the legal system.

The digitization process will not only secure the documents against physical deterioration but also facilitate quicker and more efficient retrieval of information, a crucial factor in the judicial process. It is seen as a move towards a more transparent and responsive legal system, aligning with the broader goals of digital India.

– Syed Mumtaz Husain, Bihar



Hon'ble Chief Justice of Patna High Court, Shri K. Vinod Chandran, in the presence of NIC Officials inaugurated the Scanning & Digitization Centre (Pilot) at Purnea District Court. The Scanning & Digitization of important documents has been assigned to NICS to preserve them

NIC Chandigarh Develops Property Management System for Streamlined Estate Office Services

In a major technological advancement, NIC Chandigarh has developed a comprehensive Property Management System to revolutionize property-related services offered by the Estate Office in Chandigarh UT. This initiative is set to significantly reduce paperwork and enhance efficient service delivery for citizens.

Residents of Chandigarh can look forward to a more efficient way of handling property-related grievances and complaints, thanks to the new online portal introduced by the UT administration. Developed by NIC Chandigarh, this dedicated portal is designed to address all property-related issues in a time-bound manner, shifting away from the less effective physical redressal system.

The system aims to address a long-standing issue where estate office employees and officers have been known to raise repeated objections in property cases, leading to applicant harassment. The new online grievance

filing system, to be implemented soon, is expected to eliminate such inefficiencies.

A senior officer of the UT administration highlighted the benefits of the new system, noting that it will allow for regular monitoring of complaints by senior estate office officers. This ensures early and time-bound resolution of issues, especially benefiting elderly applicants who will find the online system more accessible.

Chandigarh's UT estate office oversees approximately 60,000 prime properties, predominantly residential, both freehold and leasehold. The introduction of the Property Management System by NIC Chandigarh is a significant step in managing these assets more effectively.

– Vivek Verma, Chandigarh



Dr. Vijay Namdeo Rao Zade, Finance Secretary UT Chandigarh, Shri Ajay Chagti, Secretary Personnel & Establishment, Smt. Hargunjit Kaur, Special Secretary Finance, Shri Ramesh Kumar Gupta, DDG & SIO NIC UT Chandigarh, Shri Kapil Setia, Chief Architect and Shri Rajiv Tewari, AC (F&A) during the launch of Online Grievance Redressal Portal for State Office



NIC Sikkim Hosts Comprehensive Knowledge-Sharing and Training Program for Government Officials

NIC Sikkim has embarked on a significant initiative by organizing a Knowledge-Sharing cum Comprehensive Training program. This program is specifically designed for NIC officials and trainee officers from various government departments.

The training program encompasses a series of detailed presentations and interactive sessions on a variety of crucial technological topics. These include Networking Technologies, Cloud Computing, Cyber Security, and Video Conferencing (VC) Services, among others. Each session is crafted to provide in-depth knowledge and practical insights into these rapidly evolving technological domains.

This initiative by NIC Sikkim aims to equip government officials with the latest technological advancements and skills, enhancing their capacity to handle the digital needs of their respective departments efficiently. The program is also seen as a platform to foster collaboration and knowledge exchange among different government entities.

A spokesperson for NIC Sikkim emphasized the importance of this training, stating, "In today's digital age, it's imperative for government officials to be adept in the latest technologies. This program is not just about imparting knowledge but also about preparing our workforce for future challenges and opportunities in the digital landscape."

The training sessions are being conducted by experienced professionals and experts in the field, ensuring that the participants receive comprehensive and up-to-date information. The program also includes hands-on training to help participants better understand the application of these technologies in their work environment.

This knowledge-sharing initiative is part of NIC's broader commitment



NIC Sikkim hosts Comprehensive Knowledge-Sharing and Training Program for Government Officials

to enhancing digital capabilities within government departments, thereby improving service delivery to citizens. The success of this program in Sikkim is expected to pave the way for similar training initiatives in other states, aligning with the national objective of building a digitally empowered government workforce.

- Dr. Laxmi Prasad Sharma, Sikkim

Online RTI Portal and Hybrid Hearing System to revolutionize RTI ecosystem in Uttarakhand

In a significant move towards digital governance and transparency, the Hon'ble Chief Minister of Uttarakhand has officially launched the 'Online RTI Portal' and the 'Online Second Appeal, Complaint, and Hybrid Hearing System' for the state. These pioneering initiatives, developed by NIC, are set to revolutionize the way Right to Information (RTI) requests and appeals are handled in the state.

The newly introduced Online RTI Portal offers a user-friendly platform for the citizens to submit RTI requests online, along with the convenience of online payment for the requisite fee and any additional charges. This system streamlines the process, making it more accessible and efficient for the general public. Furthermore, the Online Second Appeal, Complaint, and Hybrid Hearing System is an innovative addition that allows for the digital filing of second appeals and complaints under the RTI Act. It also introduces a hybrid hearing mechanism, which is a blend of online and offline processes, aimed at expediting the resolution of appeals and complaints.

The Chief Minister, during the launch, emphasised the government's commitment to transparency and accountability. He stated, "These platforms are a step towards making the administration more responsive and citizen-friendly. By leveraging technology, we are ensuring that the right to information is not just a statutory right but also an easily accessible one for every citizen of Uttarakhand."

The launch of these platforms is expected to significantly reduce the time



Hon'ble Chief Minister of Uttarakhand launches 'Online RTI Portal' and the 'Online Second Appeal, Complaint and Hybrid Hearing System' in the state

and effort required to file RTI requests and appeals, thus enhancing the effectiveness of the RTI Act. It also reflects the state government's dedication to adopting digital solutions for governance challenges.

- Arvind Dadhichi, Uttarakhand

Launching of Official Websites for New Nagaland Districts Marks Milestone in Digital Governance

On March 12, 2024, Chief Secretary of Nagaland, Shri J. Alam, IAS, led the launch of official websites for five newly established districts of Nagaland. The event took place at the Chief Secretary's office in the Civil Secretariat, Kohima.

Shri Alam unveiled the websites for the newly formed districts of Noklak, Shamator, Tseminyu, Chumoukedima, and Niuland, alongside Shri Naveen Kumar, State Coordinator for NIC Nagaland State Centre, Kohima, and the Deputy Director General of NIC Headquarters, New Delhi.

In response to the formation of Tseminyu, Chumoukedima, Niuland, and Shamator districts in Nagaland, NIC collaborated with the respective District Administrations to develop these websites. Using the S3WaaS framework, which ensures security, scalability, and accessibility, the websites were meticulously crafted, audited for security, and deployed on production servers. This framework adheres to the guidelines of GIGW (Guidelines for Indian Government Websites) and utilizes cutting-edge Open Source Technology.

The websites serve as comprehensive sources of information about each district, covering historical backgrounds, administrative structures, geographical features, demographic profiles, economic landscapes, tourism attractions, statistical data, and government initiatives. Dedicated sections for "Citizen Services" and "Public Utilities" offer guidance on accessing government services. Additionally, the websites are designed to be responsive across Smartphones, Tablets, and Desktop PCs.

These websites are now accessible to the public via the following links: noklak.nic.in, tseminyu.nic.in, chumoukedima.nic.in, niuland.nic.in, and shamator.nic.in



Chief Secretary, J. Alam, IAS officially launching the websites of the newly created districts of Noklak, Shamator, Tseminyu, Chumoukedima and Niuland at his office chamber on 12th March 2024 (DIPR)

- Ruuvise Kehle, Nagaland

Scan and Share Feature for Seamless OPD Booking at RIMS, Imphal

The Scan and Share feature of the NextGen eHospital Application has been launched at the Regional Institute of Medical Sciences, Imphal. This feature streamlines the process for patients with Ayushman Bharat Health Accounts (ABHA) to book OPD tickets through the ABHA App without enduring long queues.

Patients can now easily scan QR codes displayed at multiple locations in the waiting and registration areas using their smartphones. This allows them to share their demographic details and health records, minimizing queue congestion and data inaccuracies.

Various ABHA-enabled smartphone Personal Health Record (PHR) applications are available, enabling individuals to create their ABHA number, link and store their health records, and share them with health facilities. These applications also facilitate QR code scanning in the OPD registration area, transferring demographic information to the hospital's Health Management Information System (HMIS).

The hospital's HMIS generates a token number for patients based on the shared information, which is then sent to their mobile phones. Patients can wait at designated areas until their token number appears on overhead screens. When their turn arrives, operators retrieve demographic details from the system and print the OPD card, significantly reducing wait times and ensuring accurate data entry.

This streamlined process eliminates the need for patients to stand in long queues, as they only need to visit the counter for payments and to collect their OPD card.



Launch of ABDM Compliant Scan and Share Feature of NextGen e-Hospital Application at RIMS Imphal, Manipur

- Informatics News Desk, NIC-HQ

Land Records Revolution: Blockchain Pilot Launched in Assam

In a significant leap towards modernising land records management, Smt. Nidhi Khare, Secretary of the Department of Land Resources, Government of India, led the launch of a Blockchain Pilot in the Land Records System, along with the rollout of the Unique Land Parcel Identification Number (ULPIN) seeding of geo-referenced maps from Bhunaksha and the National Generic Document Registration System (NGDRS) in Assam. The event held on 13th February 2024 was a collaborative effort between the Revenue and Disaster Management Department, Government of Assam, and the Department of Land Resources.

The inauguration ceremony witnessed a detailed presentation on Blockchain technology and its pivotal features by the State Informatics Officer (SIO) of Assam. Smt. Khare emphasized the importance of NGDRS, a project initiated by the Department of Land Resources, Ministry of Rural Development, Government of India, under the One Nation One Software initiative. She elucidated that NGDRS, developed by NIC Pune, serves as a common, generic application for registration departments across the country. Notably, the Assam Instance of NGDRS, hosted in the State Data Centre (SDC), has been integrated with various platforms like Dharitree, NOC, eGras, e-Stamp, and citizen services of Sewa Setu, facilitating seamless online payment and citizen services. With NGDRS now operational in all 77 Sub-Registrar Offices (SROs) of Assam, the project marks a significant milestone in enhancing transparency and efficiency in land registration processes.

Highlighting the significance of Blockchain technology, Smt. Khare emphasized its role in revolutionizing land records management. She stressed that Blockchain ensures increased trust, auditability, traceability, and immutability of land records data, thus enhancing the integrity of the system. The integration of ULPIN as the unique blockchain ID further strengthens the authenticity and uniqueness of land parcels. Describing ULPIN as the “Aadhar or fingerprint for land,” Smt. Khare explained its reliance on geo-referenced cadastral maps to provide a 14-digit alphanumeric identification number to every land parcel. The implementation of ULPIN aims to ensure uniqueness in all transactions, update spatial records, facilitate linking of property transactions, and eliminate fraudulent activities.



Smt. Nidhi Khare, Secretary, Department of Land Resources, Government of India, launches a Blockchain in the Land Records System, along with ULPIN in Assam

The District-level Blockchain-based cadastre and land records registry Pilot, launched in Darrang district, marks a significant step towards ensuring security, accountability, and scrutiny of land records from start to end. The pilot project, set to be rolled out pan Assam shortly, promises to usher in a new era of transparency and efficiency in land administration, paving the way for comprehensive land records management in the state.

This knowledge-sharing initiative is part of NIC's broader commitment to enhancing digital capabilities within government departments, thereby improving service delivery to citizens. The success of this program in Sikkim is expected to pave the way for similar training initiatives in other states, aligning with the national objective of building a digitally empowered government workforce.

- Kavita Barkakoty, Assam

Cyber Security Awareness Workshops for Government Officers Organised by NIC District Units in Himachal Pradesh

A series of workshops on Cyber Security of Digital Assets and Critical Information Infrastructure have been conducted by NIC District Units in Himachal Pradesh at District Headquarters. The basic objective of these workshops is to make Government Officials, at higher levels, aware about the potential threats in this era of Digitization and Internet.

The workshops were organised under the chairpersonship of respective Deputy Commissioners who delivered the keynote address and stressed upon ensuring complete cyber security in the office work as per guidelines issued by CERT-IN and NIC from time to time. The heads of various Departments at District level have attended these workshops along with their nodal IT officers. A total of 402 Government officials have participated in these 10 workshops.

The DIOs and ADIOs are the key persons in these workshops and their presentations were oriented towards different types of threats prevailing these days and how officials can safeguard their organisations and computers from these threats. The emphasis was given on keeping strong passwords, installing latest patches for software, Anti-Virus installation on all the machines, getting software/mobile applications security audited every year and removing obsolete hardware/software items. The cyber threats like Malware, Phishing Attacks, Distributed Denial of Service Attack, Ransomware, etc. were covered too. The officials were made aware about the importance of Cyber Security in mitigating the Cyber threats. They were also briefed about the Digital Personnel Data Protection (DPDP) Act, 2023 and the role of Indian Computer Emergency Response Team (CERT-In).



Shri Anupam Kashyap, IAS, Deputy Commissioner, Shimla, chairs the Cyber Security Workshop.

- Ajay Singh Chahal, Himachal Pradesh

NIC Jharkhand and CEO Office Collaborate to Enhance Election Management with Vehicle Management System

In a concerted effort to modernize election logistics, NIC Jharkhand, in collaboration with the Chief Electoral Officer (CEO) Office Jharkhand, recently hosted a training programme on the Vehicle Management System (VMS), also known as Sugam. This initiative marks a significant advancement in leveraging technology for streamlined election management processes in the state.

VMS offers a comprehensive suite of functionalities tailored to manage vehicles during elections efficiently. It aims to optimize resource allocation, enhance transparency, and streamline administrative procedures throughout the election cycle. The training programme showcased the various benefits of VMS, including:

- Systematic issuance of requisition letters for vehicles required during the election period
- Detailed capture of vehicle information, enhancing accountability and traceability
- Automation of digital log book generation, providing a comprehensive record of vehicle usage
- Streamlined online payment and expenses management, reducing manual paperwork
- Facilitation of seamless inter-district vehicle transfers, ensuring optimal resource deployment
- Expedited payment calculation and release, enhancing efficiency in financial transactions
- Effective communication with vehicle owners through SMS, fostering transparency



Senior Jharkhand Officials participate in Workshop on VMS (Sugam) hosted by NIC Jharkhand and CEO Office Jharkhand

- Online complaints mechanism for prompt resolution of grievances

The successful implementation of VMS reflects the commitment of NIC Jharkhand and the CEO Office to modernize election management practices through technological innovation. By embracing solutions like VMS, Jharkhand aims to enhance the efficiency and transparency of its electoral processes, setting a precedent for other states to follow suit.

- Rajiv Kumar Sinha, Jharkhand

State Level Workshop on Civil Registration System in Rajasthan

The Directorate of Economics and Statistics, Rajasthan, orchestrated a State Level Workshop on the Civil Registration System, Pehchan, in Jaipur. The workshop aimed to acquaint participants with new features on the portal and updates regarding the RBD Amendment Act 2023. Attended by District Registrars, Block Officers, Registrars, and Sub Registrars, the event facilitated a comprehensive understanding of the system's advancements.

Senior officials from NIC Rajasthan delivered an in-depth presentation on the Pehchan portal, delving into technical intricacies and addressing queries from participants. During his inaugural speech, the Chief Registrar of Rajasthan lauded the state's pioneering status in IT-enabled Civil Registrations and online citizen services.

Pehchan, developed by NIC Rajasthan, stands as a unified portal for Birth, Death, Still Birth, and Marriage Registrations, seamlessly operational for over a decade. It boasts usage by all 14,500+ Registrars and Sub Registrars, alongside approximately 1,900+ private hospitals. The portal's primary objective remains transparent and timely registration of vital events in the state.

Integration with various departments ensures authentication of registrations and retrieval of digitally signed certificates. Daily data sharing with the Ministry of Panchayati Raj, Government of India (GoI), Registrar General, GoI, and Jan Aadhaar, Government of Rajasthan, enhances administrative efficiency. Pehchan also offers a plethora of online services for citizens, including certificate downloads, registration applications, baby name additions, and legacy certificate computerization. Additionally, mobile apps cater to both citizens and registrars, augmenting accessibility.

Certificates generated through Pehchan find a secure abode in DigiLocker,



Senior Officials from Rajasthan attend the State Level Workshop on Civil Registration System

further streamlining document management. The workshop not only shed light on these advancements but also served as a testament to Rajasthan's commitment to leveraging technology for efficient governance and citizen-centric services.

-Amit Agarwal, Rajasthan

Appscape

Mobile technology has emerged as a primary tool for governments to serve their citizens. It has bypassed the need of traditional physical networks for communications and collaborations. It is also much more affordable and accessible, thus strengthening the nation through better citizen-government interaction. To further nourish this interactivity, NIC has created a repository of more than 730 mobile apps available through both the Android and iOS platforms. This issue of Appscape covers some of the more popular mobile apps launched recently. These apps belong to different sectors such as Administration, Development, Finance, Public Distribution, Health and Education.



Aasra

Aasra App represents a groundbreaking mobile solution, offering indispensable information on Social Rehabilitation (SR) schemes within Mumbai. Developed in collaboration with NIC's Utility Mapping Division, it harnesses Geographic Information System (GIS) data to provide tailored, location-based services specifically designed for residents of Mumbai's slums.

Key features

- Dynamic map views with customizable layer toggles
- Bilingual language support to cater to the diverse linguistic landscape of Mumbai
- GPS location tracking for precise navigation
- Robust search functionalities for quick access to relevant information

Users can effortlessly explore detailed information on SR schemes, administrative boundaries, and housing data through the intuitive interface of Aasra App. With real-time updates and user-friendly controls, Aasra empowers citizens to navigate and avail themselves of SR initiatives seamlessly.

This innovative platform plays a pivotal role in bridging information disparities, ensuring equitable access to crucial resources for the vulnerable communities residing in Mumbai's urban landscape.

 **Yogender Kumar** (yogender.kumar@nic.in)

For NIC apps related query, please contact

Android

Sandeep Sood
Email: sood.sandeep@nic.in | Phone: 0177-2880890

iOS

Andrews Varghese
Email: kerkan@nic.in | Phone: 0497-2700761

mSuvridha

mSuvridha app, developed by NIC Himachal Pradesh for Himachal Pradesh Kaushal Vikas Nigam (HPKVN), serves as a valuable tool benefiting both citizens and skilled individuals. HPKVN offers training in various trades like plumbing, computer data entry operation, beautician services, and electrician work to the youth of Himachal Pradesh. The app serves as a platform for these skilled individuals to showcase their expertise and connect with potential clients.

For skilled persons, mSuvridha provides an avenue to gain exposure and be contacted by citizens seeking their services. By listing their skills and contact information on the app, skilled individuals can expand their clientele and increase their opportunities for employment.

For citizens, mSuvridha offers the convenience of accessing a directory of service providers in their area of choice. Whether they need a plumber, electrician, beautician, or any other skilled professional, they can easily find and contact the right person through phone, WhatsApp, or email. Overall, mSuvridha facilitates a seamless connection between skilled individuals and citizens, benefiting both parties and fostering economic growth in Himachal Pradesh.

 Ajay Singh Chahal (sio-hp@nic.in)

My Coir

My Coir app serves as an invaluable resource for entrepreneurs, particularly small businesses, who are beneficiaries of the Coir Board's various schemes aimed at improving the socio-economic conditions of coir workers. This app provides a concise overview of the Coir Beneficiary Schemes implemented by the Coir Board, under the Ministry of MSME, Government of India including Coir Udyami Yojana (CUY), and Scheme of Fund for Regeneration of Traditional Industries (SFURTI).

Entrepreneurs can use the My Coir app to access detailed descriptions of the different Coir Beneficiary Schemes, helping them understand the available opportunities for support and assistance. Additionally, the app allows beneficiaries to track the status of their submitted applications, providing transparency and clarity throughout the process.

By centralizing information and streamlining communication between the Coir Board and beneficiaries, My Coir app empowers entrepreneurs to make informed decisions and navigate the various schemes effectively. Ultimately, it plays a vital role in facilitating access to resources and fostering growth within the coir industry, contributing to the socio-economic development of coir workers and small businesses across India.

 Dr. Suchitra Pyarelal (sio-ker@nic.in)

gLodge

The gLodge app offers a convenient solution for individuals seeking to book rooms in government-operated accommodations, including Circuit Houses, Inspection Bungalows, Guest Houses, and Tourist Lodges across various locations within the East Siang District.

Designed to streamline the booking process, gLodge provides users with a user-friendly interface to browse available accommodations, check room availability, and make reservations directly from their mobile devices. Whether for official visits, tourism purposes, or personal trips, the app simplifies the task of securing accommodation in government-operated facilities.

With gLodge, users can access comprehensive information about each accommodation option, including amenities, room types, and pricing details. This allows travelers to make informed decisions based on their preferences and budget constraints.

By offering an efficient and transparent booking platform, gLodge aims to enhance the overall experience of travelers visiting the East Siang District. Whether for business or leisure, the app provides a hassle-free way to arrange accommodations in government-operated facilities, ensuring a comfortable and convenient stay for all visitors.

 T. Devaraj Singh (siangpas@nic.in)

TN Police Citizen App

The TN Police Citizen App offers citizens a comprehensive platform to access essential police services conveniently from their mobile devices. With six key services available, users can register complaints online, track the status of registered complaints, monitor the progress of FIRs, check the status of the Community Service Register (CSR), verify details of vehicles, and obtain information about arrested persons.

Accessible remotely, users can utilize the app anytime, anywhere, as long as they have a working network connection on their Android device. The app enables seamless online complaint registration and provides real-time updates on the status of complaints, FIRs, and CSR entries directly from the CCTNS backend system.

Moreover, citizens can use the app to verify if a vehicle is reported stolen or involved in any criminal activity, enhancing public safety and crime prevention efforts. By offering these vital services through a user-friendly mobile interface, the TN Police Citizen App empowers citizens to engage with law enforcement efficiently and contribute to maintaining peace and security within their communities.

 CJ Antony (sio.tn@nic.in)

Meghalaya Sign Bank

Meghalaya Sign Bank is an initiative aimed at empowering deaf community in Meghalaya by preserving and promoting their unique sign language. Unlike other linguistic communities, the deaf community in Meghalaya is not defined by geographical boundaries but by their shared language – the Meghalaya Sign Language. This app serves as a repository of signs, providing users with easy access to sign language translations for English words.

Key features

1. Allows users to simply type a word and instantly view its corresponding sign in video format.
2. Users may encounter multiple citations for a single sign, reflecting the linguistic diversity within Meghalaya's deaf community. These variations are treated as dialectical forms.
3. Lexical entries are organized not only alphabetically but also according to semantic categories, facilitating easy navigation and comprehension.
4. Each sign entry is translated into Khasi and Garo, allowing users to access signs through the language they understand.
5. Includes English alphabet fingerspelling and numerals for users who cannot sign, providing comprehensive linguistic support.

 Santosh VT (sio-megh@nic.in)

Delhi Budget App

Delhi Budget App modernizes the presentation of the State Government's annual budget. By transitioning to an electronic format, the government aims to enhance accessibility and transparency in budgetary proceedings. Once the budget proposals are tabled in the State Legislature, the app provides seamless access to a comprehensive array of budget documents, all readily available in the public domain.

This innovative app serves as a centralised platform, offering Members of the Assembly and the general public alike easy and quick access to essential budgetary information. Users can effortlessly view various budget documents, including the constitutionally prescribed Annual Financial Statement, Demands for Grants, and the Appropriation Bill, all in a digital and eco-friendly manner.

The primary objective of the Delhi Budget App is to democratize access to budget-related information, empowering stakeholders ranging from policymakers to the general public with critical insights into the allocation and utilization of financial resources. By providing budget information at the touch of a button, this initiative exemplifies the government's commitment to fostering transparency.

 Smt. Manie Khaneja (manie@nic.in)

Australia Blends AI with Law Enforcement to Modernise Public Safety

The AI for Law Enforcement and Community Safety Lab (AiLECS), a groundbreaking initiative between Australia's Monash University and the Australian Federal Police (AFP), is at the forefront of integrating artificial intelligence (AI) into law enforcement strategies. This state-of-the-art lab primarily focuses on enhancing community safety through technology, particularly in the digital domain, addressing critical issues such as cybercrime, identity theft, misinformation, and online exploitation.

Launched to much acclaim, AiLECS is co-directed by Associate Professor Campbell Wilson from Monash University and AFP Leading Senior Constable Dr. Janis Dalins. It represents a unique blend of academic research and practical law enforcement experience. The lab employs advanced AI technologies, including machine learning, natural language processing, and network analysis, to tackle a range of challenges. These include countering child abuse material, identifying illegal firearms, debunking misinformation, and dissecting complex online criminal networks. Ethical AI development is a cornerstone of AiLECS's approach, ensuring the AI systems are not only effective but also adhere to responsible usage standards.

Since its inception as a research lab in 2019, AiLECS has initiated numerous projects aimed at strengthening community safety and augmenting law enforcement capabilities. Monash University's Interim President and Vice-Chancellor praise AiLECS as a beacon of innovation, contributing significantly to building safer global communities.

AiLECS features a diverse team, including Monash University AI and technology scientists, AFP representatives, and renowned experts like Professor Jon Rouse APM, celebrated for his anti-child exploitation efforts. The lab's work is instrumental in tackling the sophisticated use of technology by criminals, which poses a myriad of challenges to national security, social harmony, and economic stability.



One of AiLECS's notable projects is Project Metior Telum, which leverages photogrammetry and 3D scanning technology to build a detailed digital library of firearms. This digital arsenal aids in the quick development of tools for detecting and combating firearms trafficking, highlighting AiLECS's commitment to innovative, tech-driven solutions in law enforcement.

AiLECS's endeavors are supported by significant funding from the Commonwealth Confiscated Assets Account and Monash University, emphasizing the critical importance of this partnership in advancing AI applications in law enforcement and community safety. The lab not only addresses current security challenges but also sets a precedent for responsible AI use in public safety, reinforcing the need for ethical considerations in the deployment of advanced technologies.

Source- <https://www.afp.gov.au>

Singapore's Advanced Defense Strategy: Tackling WMDs with Innovative Technologies at CBRNE CoE

Singapore's commitment to national security extends beyond conventional threats like terrorism and cyber-attacks to encompass the complex challenge of weapons of mass destruction (WMDs), which include chemical, biological, radiological, nuclear, and explosive materials (CBRNE). This multi-faceted approach to security was emphasized by May Ong, Director of HTX's CBRNE Centre of Expertise (CoE), at the recent CBRNE Convergence Asia 2024 conference.

The CBRNE CoE plays a critical role in safeguarding Singapore's borders against these diverse threats. To this end, the CoE has established a network of specialized laboratories at key border checkpoints. These labs, adhering to the stringent IEC/ISO 17025 standards, are equipped with state-of-the-art analytical instruments. Their primary function is to swiftly identify and prevent any attempts to smuggle CBRNE substances into the country, ranging from illicit drugs to wildlife trafficking.

Ong highlighted the CoE's commitment to technological innovation in enhancing Singapore's border security. A notable development is the exploration of muon technology for cargo scanning. Muons, subatomic particles found in cosmic rays, have the unique ability to penetrate dense materials more effectively than traditional X-rays. This makes them particularly useful for detecting concealed security-sensitive substances.

In addition to muon technology, the CoE is leveraging advancements in robotics and drone technologies. These are being developed into mobile

scanners, which can be deployed in situations where standard stationary scanners are impractical or insufficient. This mobility significantly enhances the flexibility and reach of Singapore's border security operations.

Digital innovation is another key area of focus for the CBRNE CoE. The team is working on integrating Artificial Intelligence (AI) with X-ray scanners to improve the accuracy and speed of threat detection. Additionally, the CoE is developing digital tools designed to sift through vast amounts of data to quickly flag the presence of potential CBRNE substances.

Looking to the future, the CoE recognizes the importance of being prepared for emerging threats. This foresight is driving their investment in AI and computational chemistry tools to not only predict new types of CBRNE threats but also to understand how changing weather patterns might influence the frequency and distribution of hazardous material incidents. This aspect is particularly crucial given the potential impacts of climate change on security scenarios.

Through these multi-dimensional efforts, Singapore's CBRNE CoE is ensuring that the nation stays at the forefront of combating and preventing a broad spectrum of security threats, thereby maintaining its reputation as a safe and secure nation in an increasingly complex global landscape.

Source- <https://www.htx.gov.sg>