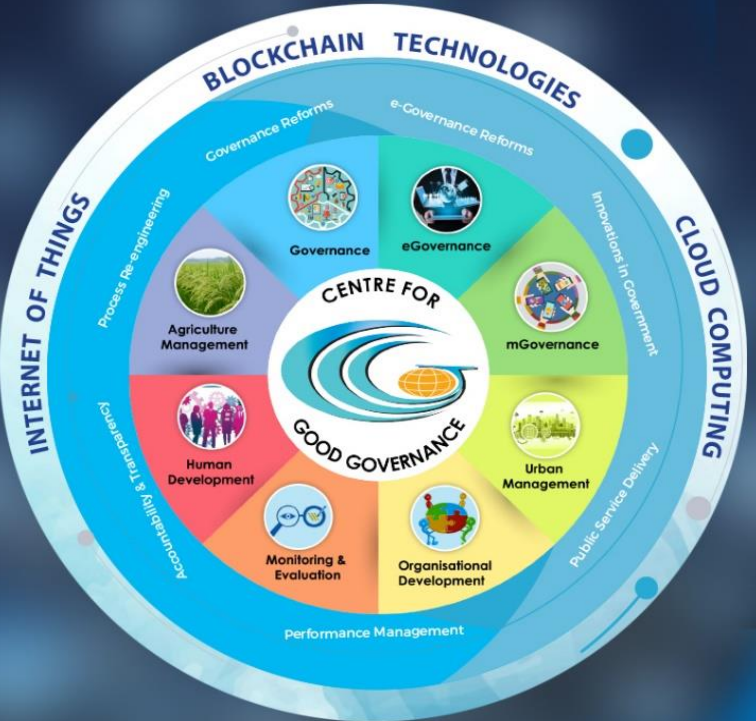


Emerging Technologies in Government Projects



Enabling Systems for Improved Service Delivery

Presentation Outline



**eGovernance to
m-Governance to
Emerging Technologies
– Game Changer**

**Case Studies on
Artificial Intelligence,
Block Chain and
Drones**

About CGG

Question and Answer



eGovernance

mGovernance

Emerging
Technologies



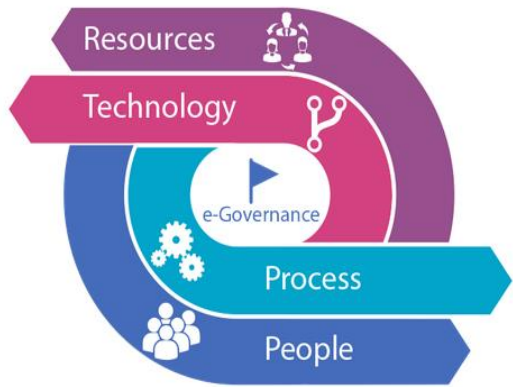
eGovernance = Governance

- eGovernance moved beyond mere information dissemination portals
- Citizen Centric Services – Empowers citizens and Governments
- Government Process Re-engineering for Refinements
- One Stop Shop for Service Delivery – CSCs, Mee Seva Centres
- Web-based Projects, Mobile Apps, GIS Solutions
- eGovernance is synonymous with Governance





E-GOVERNANCE : IMPORTANT PROJECTS



Agriculture

Online Procurement Management System (OPMS), GoTS (**Paddy**)

Plant Quarantine Management System (**PQMS**) and Comprehensive Registration of Pesticides (**CROP**) System for Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture and Farmers Welfare, **GoI**



Education

Electronic Payment and Application System of Scholarships (**ePASS**) for Telangana, Karnataka, Jharkhand, Himachal Pradesh

Admissions, Examination Management **and Results Processing** for **Telangana Board of Intermediate Education**

Degree Online Services, Telangana (**DOST**)





E-GOVERNANCE : IMPORTANT PROJECTS

Employment and Skill Development

TSPSC – Group I, Group IV, TET

Online Recruitment and Admission Processing System

Skill development systems for EGMM & MEPMA and portal for NAC

Telangana Pattana Pragathi- Urban Street Vendor Survey

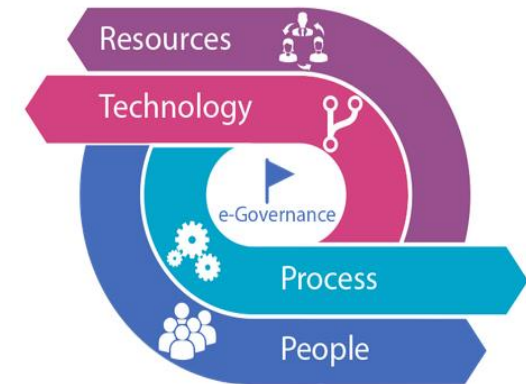


Business/Industries

ICT solution for Labour, Factories, Boilers, Fire and other 6 departments) for establishing and operating industries under **Ease of Doing Business (EoDB)** along with seamless interface with TS-iPASS Portal

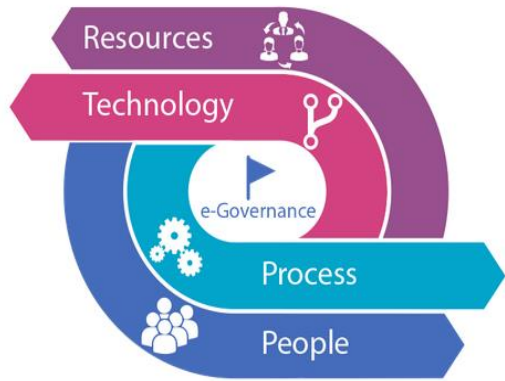
Mana Isuka Vahanam (Sand Taxi), implemented in 12 districts of Telangana

Online Hazardous Waste Management System for **Telangana, AP & TN Pollution Control Boards**





E-GOVERNANCE : IMPORTANT PROJECTS



Governance

“Te-Poll”, Election Management System (EMS)

Computerization of Legislature for Telangana and AP

Computerization of GAD and Cabinet Resolution Monitoring System, GoTS



Direct Benefit Transfer

Kalyana Lakshmi & Shaadi Mubarak welfare schemes

Online Beneficiary Management & Monitoring System (**OBMMS**) - an integrated e-Tool for 17 Corporations/Federations in GoTS to facilitate disbursement of subsidy benefit to the BPL beneficiaries for grounding of Self Employment / Economic Support Schemes

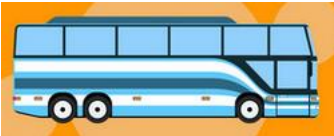




E-GOVERNANCE : IMPORTANT PROJECTS

Transport

Road Transport Corporation Project (Bus Pass) for TSRTC



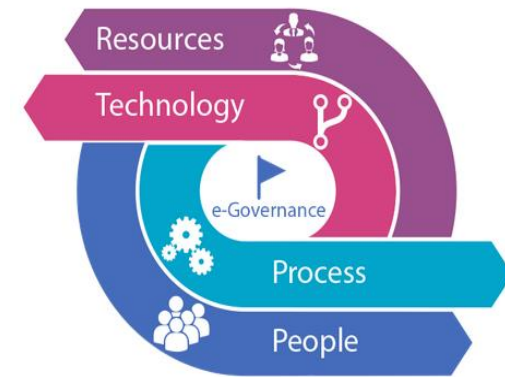
Urban & Rural Local Bodies

Layout Regularisation Scheme (LRS) 2020, GoTS

GHMC - over 40 IT applications since 2014, including Property Tax, Mutations, Trade License, Building Regularization Scheme (BRS) & LRS, Grievances System, Solid-waste management, Geo-tagging of properties, myGHMC Mobile App etc.,

eMunicipal(CDMA, GoTS)

139 municipalities and corporations



MOBILE GOVERNANCE



1.2 billion mobile subscribers (2021)

- 750 million smart phone users in India
- only 11% of households with any type of computer

<p>Access Anywhere, Anytime</p>	<p>Ease of Payment (UPI & Wallets)</p>	<p>Auto Utility deductions (power, water, rent...)</p>
<p>Accessing Instant Status, Selection of Choices</p>	<p>Fostering business operations & growth</p>	<p>Geo-fencing - Capture</p> <ul style="list-style-type: none"> • Physical Presence • Location
<p>QR & Bar Code reader (ticketing applications)</p>	<p>Maps - measurement of distance, area of work</p>	<p>User Validation - Face ID, Live photo</p>



Mobile Apps By CGG



150+ mobile applications developed by CGG

MyGHMC – An integrated mobile app for citizens to access citizen centric services provided by GHMC

TSBIE Theory Exams mobile app for Center In-charges
(Update the details of the attendance, malpractices and usage of blank barcodes during the examination)

Te-Migrant Worker Mobile app for Telangana Overseas Manpower Company (TOMCOM)

Pattana Pragathi Mobile App – For the officers of CDMA to enroll the street vendors for PM SVANidhi scheme

Mana Iuka Vahanam & MIV Officer apps for Mines & Geology Department, GoTS

FRAP

(Forest Rejuvenation Action Plan) Mobile App for forest beat and section officers to update the physical progress of the activities planned in FRAP

Field Inspection app [Schools, GCC, Schemes & Engineering works] for Tribal Welfare Department, GoTS

Leave Management System for AIS officers developed for General Administration Department (**GAD**), GoTS

Online Paddy Procurement App and Integrated app for field level officers of Civil Supplies Department, GoTS

Te-Poll – For Citizens

(To download the voter slip(s) to produce at polling booths to cast their vote)

Emerging Technologies: Game Changer



- **eGovernance → mGovernance → Emerging Technologies**
- Emerging technologies not for adding incremental value but changing the service delivery mechanism
+ more value-added services (unimaginable in past)
- **Infusion of Emerging Technologies** MUST to enhance service delivery Speed and Quality
- Creation of more **robust citizen-centric public services** – in coming days
- **State governments** building technology-driven reforms by powered by Emerging technologies

Emerging Technologies



**Artificial
Intelligence**



Big Data



Blockchain



**Internet of
Things (IoT)**



VR and AR



**Drones and
Robotics**



**Cloud
Computing**



WHAT THE TECHNOLOGIES BRING TO TABLE

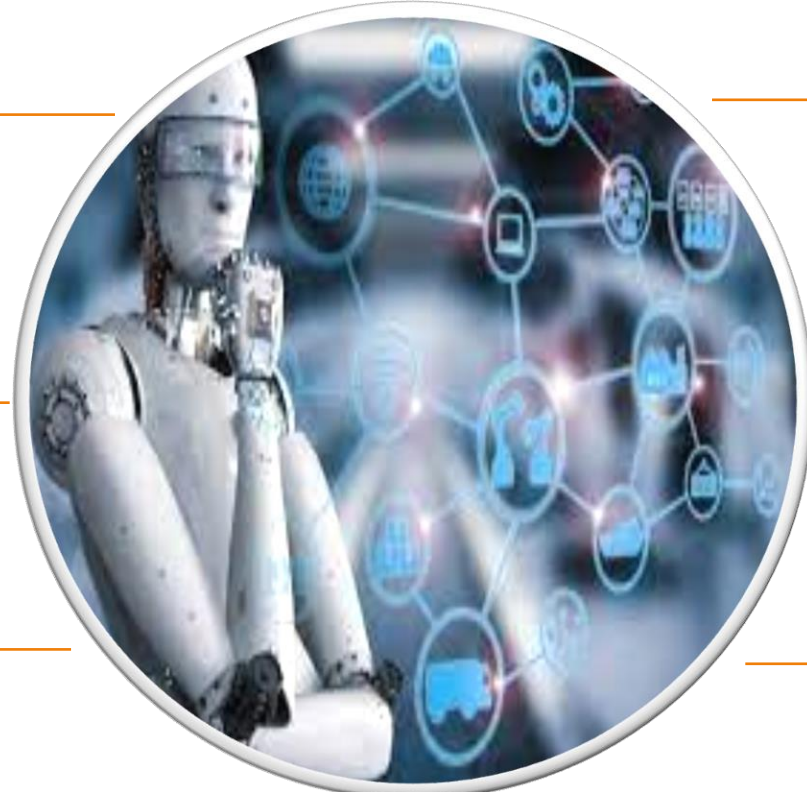
Artificial Intelligence (Ai)

- Computer systems perform tasks as humans like
 - **Speech Recognition**
 - **Image Recognition**
 - Decision-Making
 - Language translation
- Ability to learn through supervisory and unsupervisory methods
- Churn large amount of data and recognize patterns and forecast results.





Ai: Few Important Use Cases



Jal Shakti Ministry
IoT Devices to monitor
Rural Drinking Water
Supply



The Supreme Court of India
AI for reforming Justice
Delivery



**Forecasting
Energy Needs
Using Ai - GoAP**



**National Highways
Authorities of India (NHAI)**
Attendance of Field Staff



Telangana
Real-time Digital
Authentication of
Identity (pensioners)



Uttar Pradesh
AI-based application to trace
criminals



MyGov, Meity
AI enabled Corona Helpdesk



Tamil Nadu
Cataract screening app





Jal Shakti Ministry, IoT Devices to monitor Rural Drinking Water Supply

- Jal Jeevan Mission (JJM) program, GoI – Assured piped drinking water to every rural household across the country by 2024
- Sensor-based IoT devices to monitor the implementation of this programme in > 6 lakh villages
- Types of sensors deployed - Flow meters, groundwater level sensors, chlorine analyzer, pressure sensors, pump controller to measure all the relevant aspects of water service delivery (Quantity, duration, quality, pressure)



APTRANSCO: Forecasting Energy Needs

- Released the day-ahead electricity forecasting model using AI and ML to forecast next day's electricity consumption, incl a day-ahead electricity demand for every 15 minutes
- Help AP State Load Dispatch Centre (SLDC) to take decisions on electricity demand and supply, grid management and minimise power purchase cost.



Real-Time Digital Authentication of Identity (RTDAI) in Authenticating Pensioners, GoTs

- Pensioners travel long distances to a govt. office to submit proof of liveness & establishing identity
- In the new system, upload a freshly-taken selfie on the app
- 3 levels of authentication: Demographics (name, father's name and address), Photo & Liveness
- AI based liveness check solution + Big data & machine learning based demographic check solution + Deep learning based image comparison solution.



MyGov, MEITY: India's Ai-Enabled Corona Helpdesk

- To equip its 1.3 billion citizens with a responsible AI tool that provides accurate and useful information on the pandemic
- **Persona-based chatbot**
- Provide customized answers for queries relevant to farmers, migrants, senior citizens, frontline workers and other citizens
- To adopt behaviors that minimize transmission and exposure to the coronavirus



The Supreme Court of India, for reforming Justice Delivery

- Huge Pending Cases: Total No. of pending cases ~ 44 million across all Indian courts; 67,000 for Supreme Court (as of April 2021)
- Supreme Court Portal for Assistance in Courts Efficiency (SUPACE): Extract relevant information, Read case files, Manage teamwork & Draft case documents
- 4 parts: File preview, Chatbot, Logic gate & Notebook
- The case files (in PDFs) can be converted into text | Chatbot (Voice & Text) gives quick overview of the case | Case overview, chronology, judgement etc | An integrated word processor makes the tool an end-to-end system |



NHAI, Ai-based Attendance for Field Staff

- Ai based face recognition system to monitor attendance of the field staff at different project locations
- Real-time location tracking of personnel
- Data analytics platform - Data Lake tags each personnel with unique identification and monitoring



Uttar Pradesh Police – Ai based application to catch criminals

- AI-powered mobile application named 'Trinetra' - record of 5 lakh criminals (picture, address and criminal history)
- Powered by facial recognition, visual search, machine learning, & deep learning solutions, & works well with low-resolution images and videos
- Helps police personnel easily register or search for criminals via simple biometric features, such as images or videos



Tamil Nadu Cataract screening app

- To address the resource constraints in screening a large number of people for cataract
- Click a picture for preliminary screening of the eye.
- Also Detects macular disintegration
- Any volunteer can join the mission of eradicating preventable blindness



Artificial Intelligence in Agriculture

Crop Yield Prediction & Price Forecasts

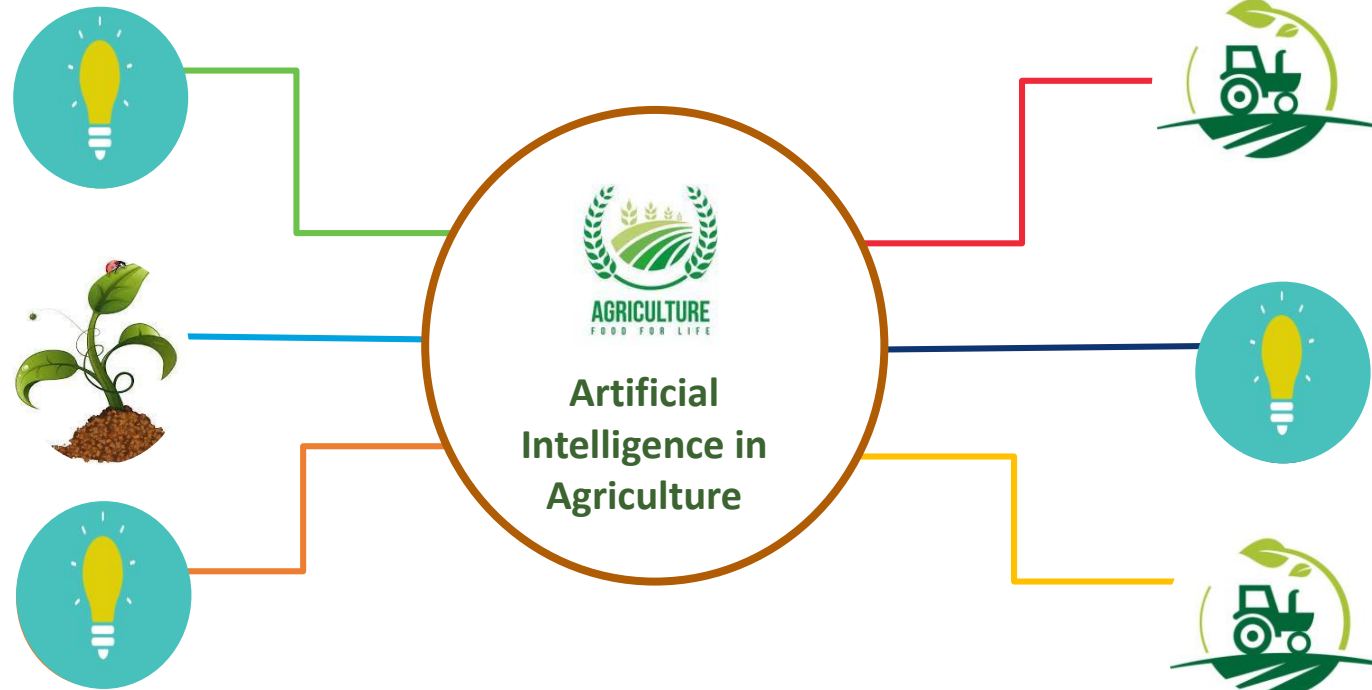
Identify the output yield of crops and forecast prices for the next few weeks will help the farmer to obtain maximum profit

Intelligent spraying

AI sensors can detect weed affected areas and can precisely spray herbicides in the right region reducing the usage of herbicides

Predictive Insights

Insights on “Right time to sow the seeds” for maximum productivity. Insights on the impacts created by the weather conditions



Agriculture Robots

Using Autonomous robots for harvesting huge volumes of crop at a higher volume and faster pace

Crop and Soil Monitoring

Using ML/AI, we can monitor the crop health for diagnosing pests/soil defects, nutrient deficiencies in soil etc.

Disease Diagnosis

Prior information and classification of Plant diseases help farmers control the disease through proper strategy



Blockchain Technologies

- “A reliable record of who owns what, and who transacts what.”
- **Decentralized** database - **Ledger** of digital transactions - **not under the control of any single entity or individual.**
- Individual transaction data files (blocks) are like new pages in a physical ledger
- Newer blocks are linked to older ones, forming a chain, hence the term blockchain.
- Blockchain popular platforms – IBM Hyperledger, Ethereum, R3 Corda

Potential Blockchain use cases

- Aadhar - National Registry of Citizenship
- eVoting
- Digital Passport & Immigration
- Land Registration

Blockchain use cases (PoC)

- Issuing Birth-Death Certificates
- Property Records (eAasthi – Karnataka)
- T-Chits (Telangana)



Blockchain Technologies: Advantages



- A blockchain-based digital government can
 - Protect data
 - Streamline processes
 - Reduce fraud, waste
 - Increase trust and accountability.
- Eliminates a single point of failure and inherently protects sensitive citizen and government data.
- A blockchain-based government has the potential to solve legacy pain points and enable the following advantages:
 - Secure storage of government, citizen, and business data
 - Reduction of labor-intensive processes
 - Reduction of excessive costs associated with managing accountability
 - Reduced potential for corruption and abuse
 - Increased trust in government and online civil systems

Blockchain in Various Sectors



Blockchain: Few Important Use Cases



Birth & Death Certificates



Healthcare Records

T-chits (Chit Fund Administration)



E-Justice System

Land Records



Urban Property Management

e-Voting



Online Supply chain Management system for Drugs



Birth & Death Certificates

- New Town Kolkata Development Authority (ULB in West Bengal)
- Creation of immutable record
- Complete traceability of information

T-Chits

- Chit fund - A very traditional and indigenous financial instrument
- T-chits, GoTS brings the complete foreman organizations in the state and the registrars onto an immutable, smart contract enabled, highly secure Blockchain system

eVoting

- By Telangana State Election Commission
- Blockchain-enabled remote voting method
- Distributed ledger technology has been used to secure de-identified and encrypted votes so that they are maintained as immutable records.

Electronic Health Records (EHR)

- Smart contracts automate and track state transitions in a system, such as viewership rights or new record production
- Records are cryptographically hashed to ensure data integrity.

DRONES



- Much faster than conducting manual surveys and can also easily access hazardous, difficult-to-reach places.
- Literal bird's eye view, powered by high-resolution cameras, captures accurate topographical data for mapping or for planning infrastructure development in the case of cities.

DRONES TECHNOLOGY ADVANTAGES



- Important propeller for growth due to
 - Reach | Versatility | Ease of Use
 - Covers a large area for surveillance | Real-time surveillance
- Provide productivity and efficiency at low costs for a variety of activities/sectors
- Areas not easily accessible to humans are surveyed by drones
- A critical tool for emergency services
 - Saving many lives in cases of natural disaster, Accidents
 - Rescue mission after the flash floods

DRONES: FEW USE CASES



Payload deliveries

- Medicine from the Sky (GoTS)
- Drone Response and Outreach in Northeast (iDrone) – Covid-19 vaccines, syringes, gloves, multivitamins etc

Agriculture activities

- Hara Bahara project to drop about one crore seed balls in the forest area – GoTS
- Pesticides/insecticides/nutrient sprays – Many States
- Crop Assessment – Several States

Aerial Surveillance

- Illegal Sand Mining- Maharashtra
- Forest Governance
- Monitoring of stockpile storage, 3D mapping & volumetric analysis of limestone over a period of time - GoAP
- Property Surveys (ULBs) – Karnataka

Project Monitoring

- Road construction by NHAI
- 25-km long Seawoods-Belapur-Uran15 corridor – Indian Railways

Actionable Framework & Policy by GoTS

- SpaceTech Framework (Draft) 2021
- Cloud Adoption Policy: G.O. and Framework 2020
- AI Framework 2020
- Drone Framework 2019
- Blockchain Framework 2019

Dedicated government wing for Emerging Technologies

- Drive adoption of emerging technologies in government department. (govt as-first-buyer)
- Build a robust emerging technologies ecosystem in Telangana

Constituted unique institutions

- T-AIM: Ai body in collaboration with NASSCOM and its members
- Centre for Research in Applied AI (CRiAA): Focus on healthcare and mobility domains; Intel, IITH and PHFI are the other founding partners
- Blockchain District
- CoE in Cyber Security
- CoE in e-Waste



EMERGING TECHNOLOGIES
ITE&C DEPARTMENT

Govt. of Telangana - steps towards Emerging Technologies



1. Don't re-invent the wheel
 - a. Search for the Govt. organization using such application
 - b. Visit & understand
 - c. Try to Replicate
2. Understand the project needs correctly, spend considerable time - saves a lot of time
3. Evaluate the strengths & weakness of Vendors; Don't go by L1 mind-set
4. Estimate Preparation
 - a. Scope of the work
 - b. Time requirement
 - c. Cost
5. Close liaison with the working agency - Periodic reviews | Module-wise | Identify roadblocks
| Timely resolutions
6. Continuous learning and updating knowledge on new technologies - Gives the required edge





CGG: VISION AND OBJECTIVES

Vision

“To be a world-class institution to guide governance reforms by bringing together and harnessing the power of knowledge, technology and people for good governance”

Objectives

- To be a think tank to foster growth-oriented and people-centric governance
- To enable the Government organizations with e-Governance tools for improved service delivery
- To create a bank of best practices and tools in Governance Reforms including e-Governance
- To support change management programmes in government
- To provide consultancy services to national, state and local governments and developing countries to promote good governance





GOVERNANCE STRUCTURE



Chairman, CGG – Governing Board
Sri K. Chandrashekar Rao
Hon'ble Chief Minister, Government of
Telangana



Executive Vice-Chairman, CGG Board
Dr. Rajiv Sharma, IAS (Retd.)
Chief Advisor to Government of Telangana,
Chairman - Steering Committee, CGG



Director General
Sri Rajendra Nimje, ex-IAS

Board Members

Political Vision

The Hon'ble Finance Minister
The Hon'ble IT E & C Minister

Executive Strength

The Chief Secretary
Principal Secretary, Finance
Principal Secretary, Planning
Principal Secretary, IT E & C
Principal Secretary GPM & AR
DG, Dr. MCR HRDI
Secy DAR & PG (GOI) nominee
DAR & PG (GOI) nominee

Industry and Academic Strength

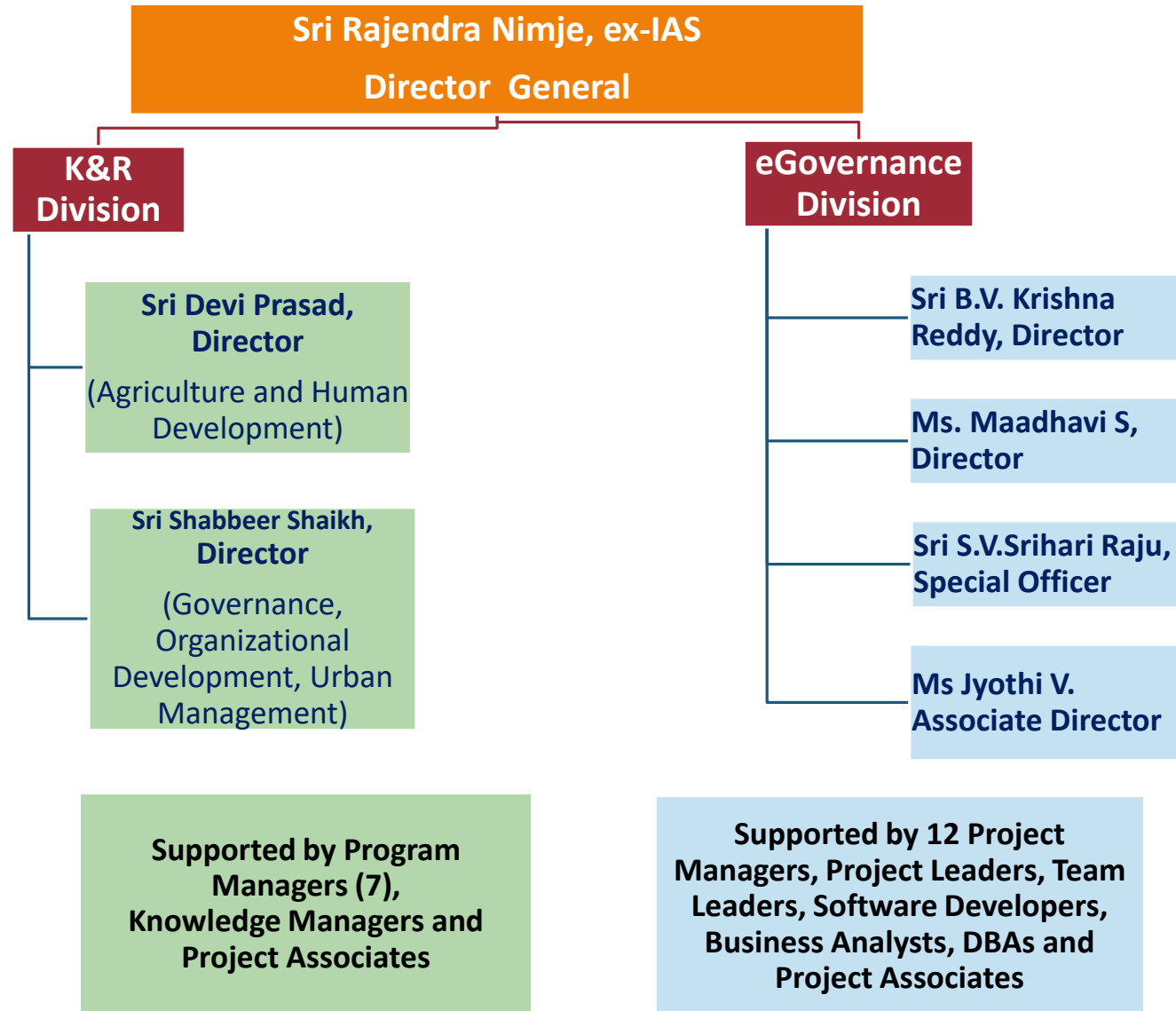
Dean Indian School of Business
Director IIT, Hyderabad
Director, TISS, Mumbai



ORGANIZATION STRUCTURE

20+ years in Good Governance

Since its inception in 2001, CGG has become truly a National Institute by providing support to several States as well as GoI Ministries/Departments



Nearly 330+ Resource Pool

In 2021-22, implemented nearly 200 Projects in e-Governance & 20 Projects in K&R



CGG: RESOURCE GROUPS

Governance & Reforms

Policy Formulation

Programme Evaluation

Project Management Support

Knowledge & Research Division

Agriculture Management

Human Development

Governance

Organization Development

Urban Management

Monitoring & Evaluation

e-Governance Division

End to End eGov Solutions (Development & Hosting)

Mobile Apps

GIS based solutions

Integration of services & platforms

Emerging Technologies (IoT, Artificial Intelligence)

Technology cum Strategic Consultancy

Citizen-centric projects

Government Process Re-engineering

DSS through Dashboards



National Awards for eGovernance 2020-21, GoI

- Mana Isuka Vahanam, ***My Sand Vehicle*** (Category: Universalizing Access including e-Services)

Digital India Awards, 2018, GoI

- **Platinum Award**
- Citizen-centric Integrated Services for **GHMC**

Telangana State Democracy Award, 2019

- **By Telangana State Election Commission**
- **Te-Poll Application**
- Elections to Panchayat Raj Institutions



CSI SIG eGovernance Awards

- 2020: **Mana Isuka Vahanam & Te-Poll**
- 2018: Integrated services for **Fire Dept**, GoTS & Degree Online Services, Telangana (**DOST**)
- 2017: **Police Work Force** Management, **APOBMMS**, Comprehensive Service for **Fire Dept**, GoTS

SKOCH Smart Governance Awards

- **Platinum Awards**
 - Electronic Payment and Application System for **Scholarships (ePASS)**
 - **DOST**





CGG: PROCESS DRIVEN ORGANISATION



Notable Strengths of CGG



Adherence to Standard Processes for Software Development, Testing & Deployment

Strict adherence to QA Testing, QA Audit, GTGW and Security Audit in IT Solutions

Strict adherence to DB Audit, Code Audit, Process Audit by Third Party or Other Project Teams



STATE-OF-THE ART IT INFRASTRUCTURE



Data Centre Gachibowli & DR Center Jubilee Hills

- Highly available and scalable private cloud computing platform with a capability of hosting over 1000 applications
- Near line Disaster recovery Site at STPI , Hyderabad with 4 hours RPO (Recovery point Objective)

Virtualisation , Bandwidth Backup and Monitoring

- Efficient Virtualization Management, Cloud Management, Reporting, Replication between DC-DR Sites.
- Complete automated backup with Commvault and 24x7 monitoring from ZOHO
- 600 Mbps Internet of Bandwidth for DC –DR operation



Licenses and Security

- Operates with current and latest IT licenses and software's
- Datacentre is protected with two layered Firewalls and Host based malware protection for all the servers.





THANK YOU

Rajendra Nimje, ex IAS

Director General,

Centre for Good Governance

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Hyderabad 500033, Telangana, India

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