UL Technology Solutions

Streamlining Municipal Services through Open Source PMS

ULCCS Ltd.

UL HOUSING

UL CYBERPARK

UL AGRICULTURE

SLTN

CRAFT VILLAGES

UL FOUNDATION

Nochad Grama Panchayath Integrated Agriculture

UL Dairy

Sargaalaya Arts & Crafts Village

Kovalam Crafts Village

Prasanthi School for Children with Special Needs

Nayanar Balika Sadanam

Madithattu

UL CARE

UL EDUCATION

UL Centre for Excellence

UL Skill Academy-DDU GKY

Vagbhatananda Edu Project

Indian Institute of Infrastructure and Construction (IIIC)

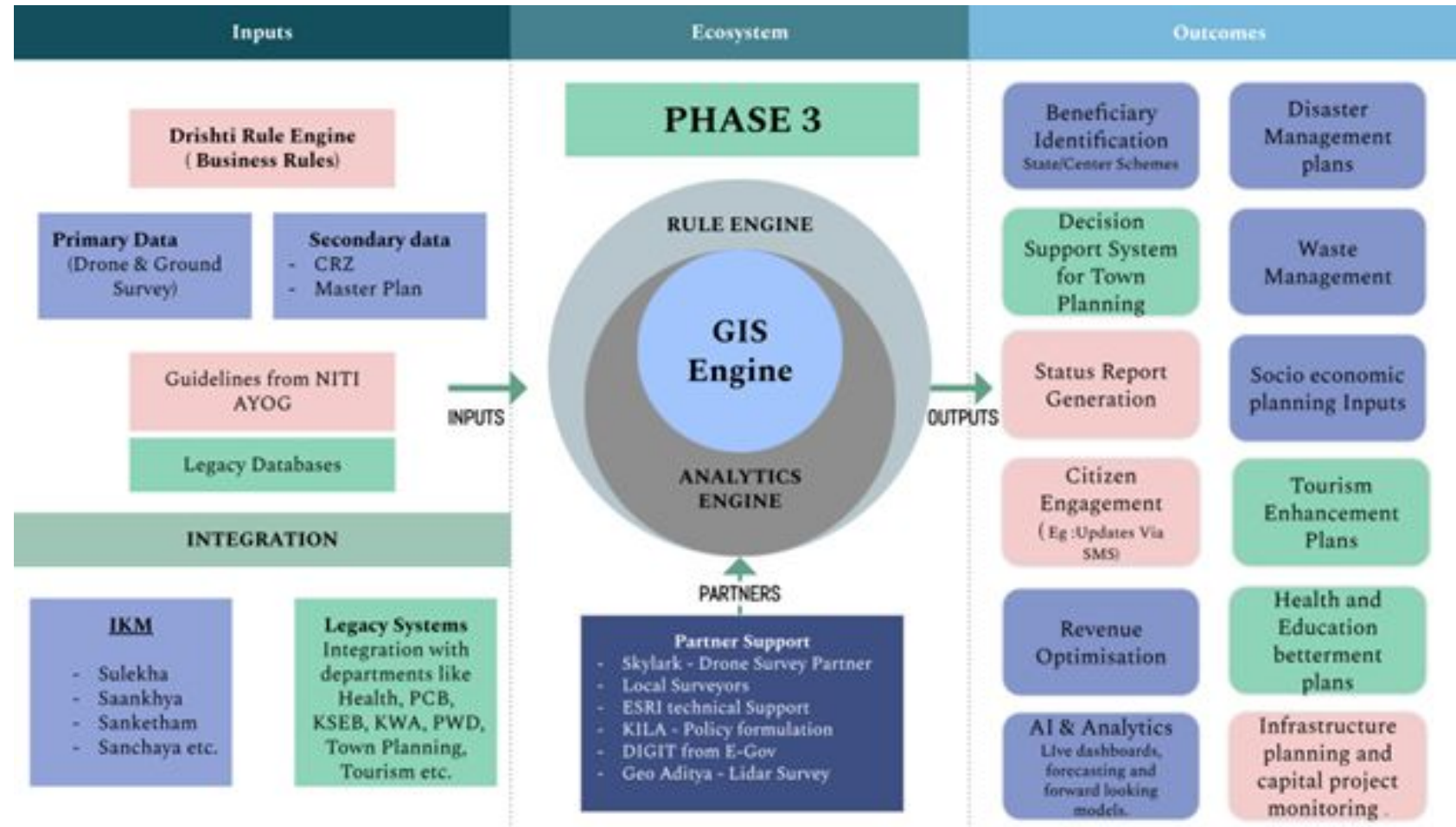Madappally School Academic Project for Learning and Empowerment (MAPLE)

PROBLEM STATEMENT

- **Water Security & Access**: Ensuring 'water security' and providing functional water connections to households in statutory towns to improve residents' access to clean water.

- **Municipal Service Enhancement**: Focus on enhancing both water security and municipal services to meet the growing needs of urban areas.

- **Financial Stability**: Encouraging Urban Local Bodies (ULBs) to implement essential property tax and user charge reforms within a strict two-year timeframe to enhance financial stability.

- **Property Tax Boost**: Implementing GIS property mapping to efficiently identify previously untaxed properties, cyclically increasing property tax revenues, and thereby strengthening ULB finances.
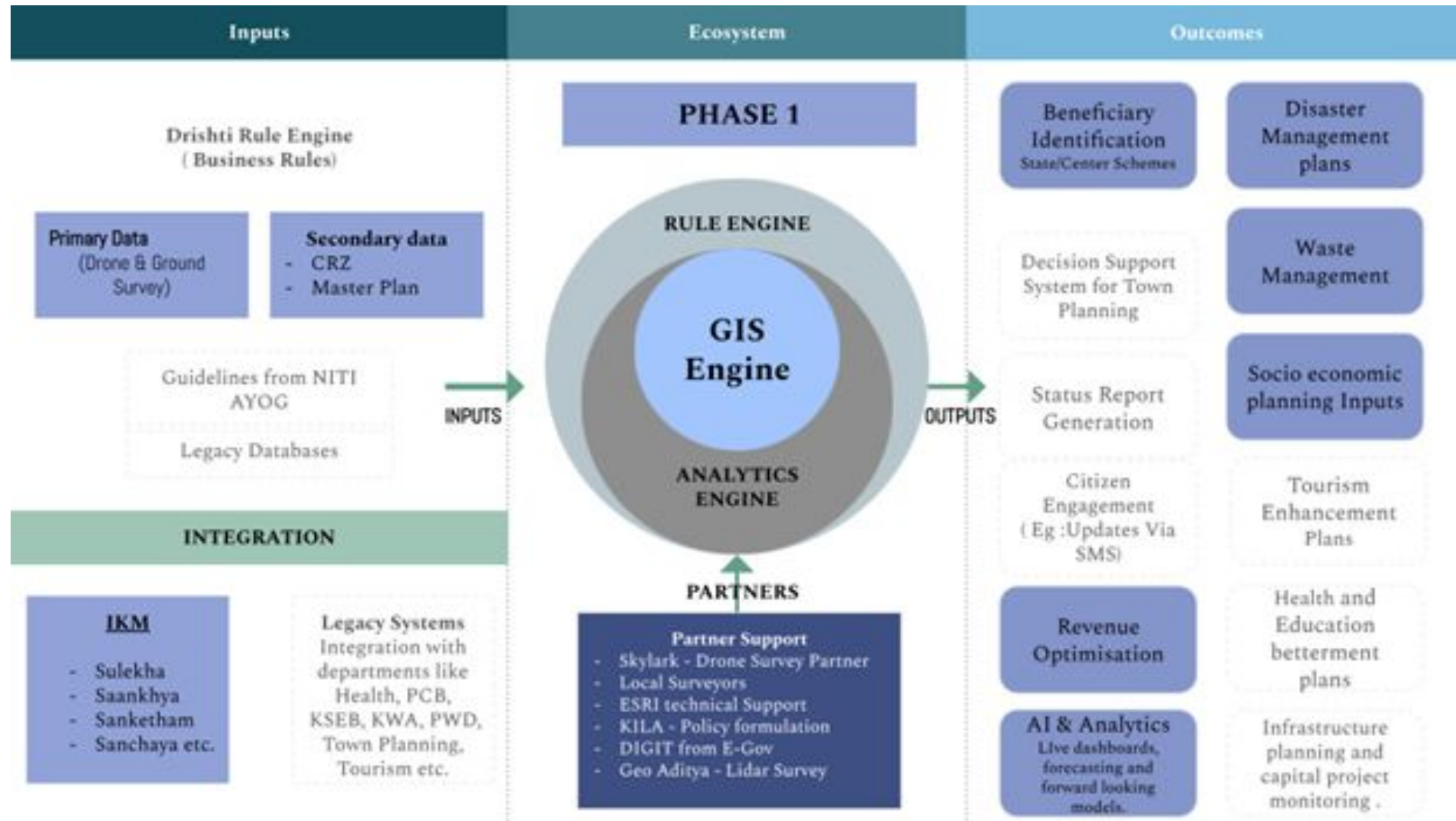
CHALLENGES FACED BY LSGD

- **Digital Infrastructure Requirement:** Need for robust digital infrastructure to effectively manage and update asset records, including socioeconomic and demographic data.

- **Undetected Revenue Loss:** Authorities are losing revenue due to undetected leakage, which could potentially lead to significant financial losses.

- **Data Reliability for Beneficiary Identification:** Need for reliable data to identify beneficiaries of government programs, ensuring that assistance is targeted to those who need it most.

- **Geospatial Data Deficiency:** Lack of the geospatial data they need to plan and monitor capital projects, which could lead to delays and cost overruns.

- **Visualization Tool Gap:** Lack of visualization tool to help them understand and communicate complex information, such as capital projects planning and LSGD asset monitoring.

- **Digitization and Automation Shortfall:** Need for digitization and automation of their operations to improve efficiency and reduce costs.
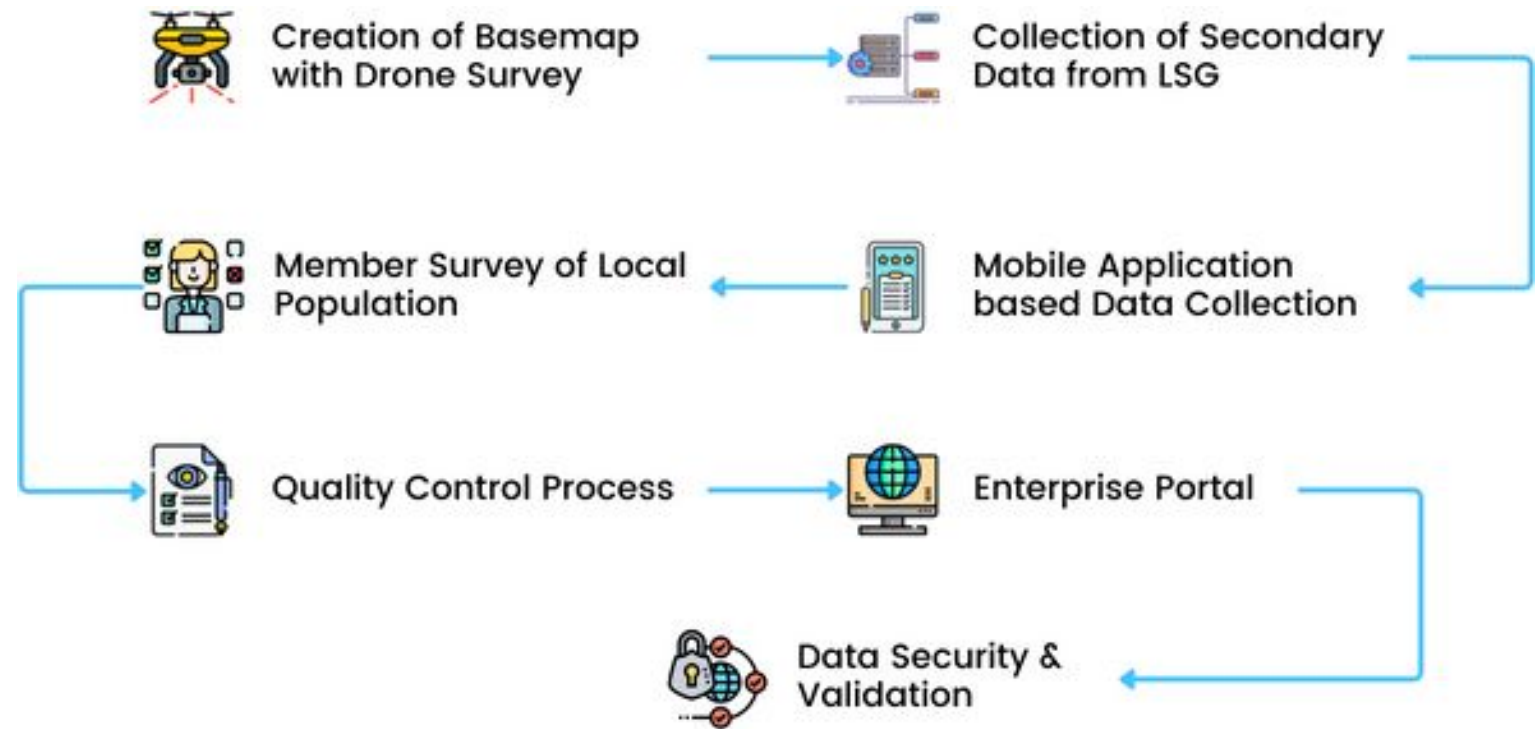
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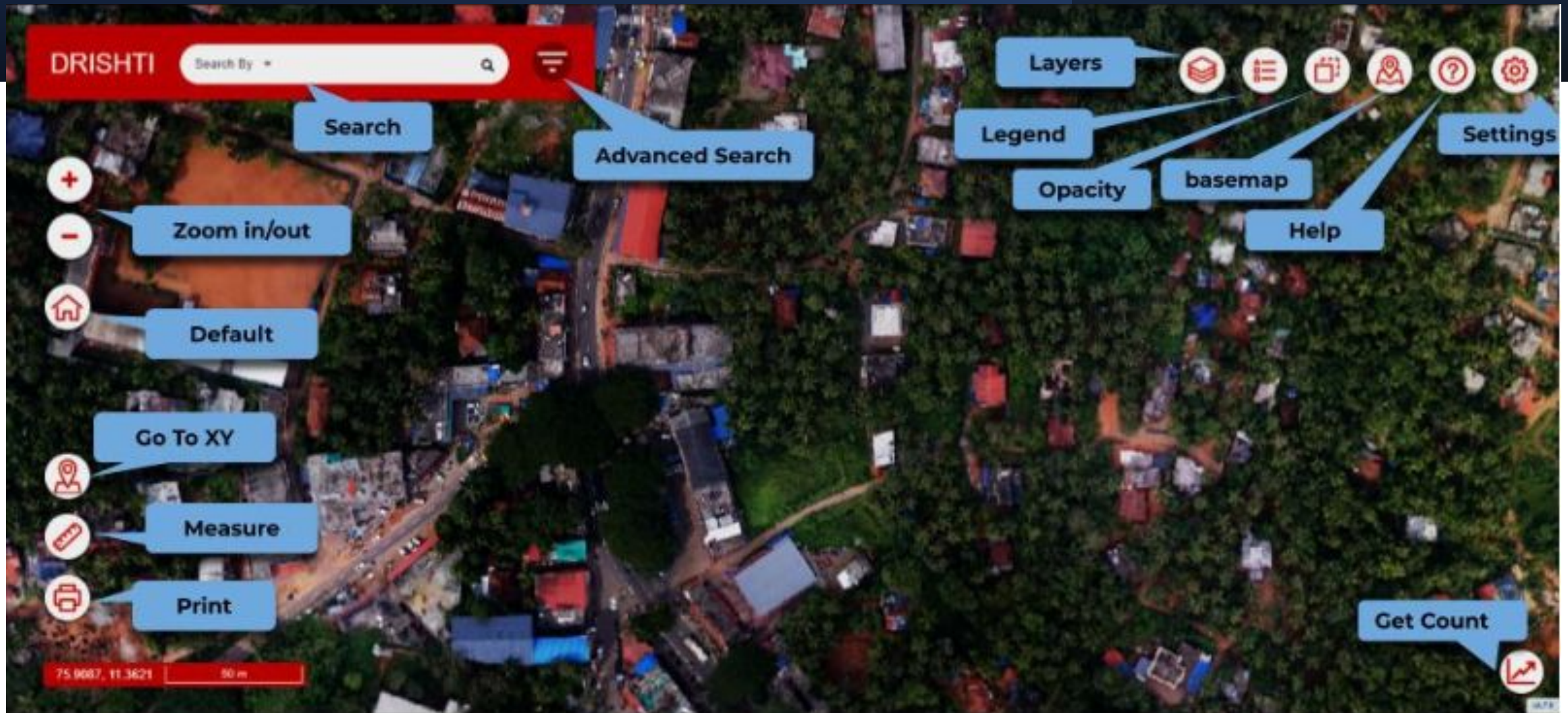
DRISHTI ECOSYSTEM PHASE I

Inputs

Drishti Rule Engine (Business Rules)

| Primary Data (Drone & Ground Survey) | Secondary data - CRZ - Master Plan |

Guidelines from NITI AYOG

Legacy Databases

INTEGRATION

| IKM - Sulekha - Saankhya - Sanketham - Sanchaya etc. | Legacy Systems Integration with departments like Health, PCB, KSEB, KWA, PWD, Town Planning, Tourism etc. |

Ecosystem

PHASE 1

RULE ENGINE

GIS Engine

ANALYTICS ENGINE

INPUTS

OUTPUTS

PARTNERS

Partner Support
- Skylark - Drone Survey Partner
- Local Surveyors
- ESRI technical Support
- KILA - Policy formulation
- DIGIT from E-Gov
- Geo Aditya - Lidar Survey

Outcomes

Beneficiary Identification State/Center Schemes

Disaster Management plans

Decision Support System for Town Planning

Waste Management

Status Report Generation

Socio economic planning Inputs

Citizen Engagement (Eg :Updates Via SMS)

Tourism Enhancement Plans

Revenue Optimisation

Health and Education betterment plans

AI & Analytics Live dashboards, forecasting and forward looking models.

Infrastructure planning and capital project monitoring .

METHODOLOGY

Creation of Basemap with Drone Survey → Collection of Secondary Data from LSG → Mobile Application based Data Collection → Member Survey of Local Population → Quality Control Process → Enterprise Portal → Data Security & Validation

METHODOLOGY

Creation of Basemap with Drone Survey → Collection of Secondary Data from LSG

Spatial data integration with ULB's property tax module ← Mobile Application for property registration by citizen

Quality Control Process → Enterprise Portal

Data Security & Validation

GIS PORTAL - DRISHTI

ENTERPRISE GIS PORTAL

Open-Source Enterprise GIS Platform - Drishti

- Utilizes best-in-class Open-Source technology stack.

- Ensures lowest total cost of ownership.

- Empowers governments to maintain strategic control over systems and data.

Mobile-Enabled Survey

- Providing surveyors with robust mobile applications for efficient on-site data collection.

- Enable secure data uploads to the State Data Center, ensuring data integrity, accessibility, and high-level security.

ENTERPRIS E GIS PORTAL

Insightful Data Analytics Dashboards:

- Data analytics dashboards offer actionable insights on demand.
- Analytics cover domains like property tax, health, education, demography, skills, employment, and government scheme beneficiaries.
- Multiple criteria-driven data analysis.

Effortless Report Generation:

- Generate status reports for various LSG body aspects.
- Reports cover infrastructure and other parameters.
- Minimal effort required for report creation.

Revenue Optimization

Through the survey, we can increase tax revenue by at least 30% on an average.

- **Innovative measurement:** Accurately measure building footprints and floor area using aerial photos and laser measurements.

- **Analyze revenue leakage:** Identify and address the causes of revenue leakage to eliminate tax losses.

- **Administrative zone boundaries:** Use administrative zone boundaries to analyze revenue leakage and identify areas with high losses.

Mitigate Revenue Losses: Combine aerial photogrammetry, laser measurements, and analysis of administrative zone boundaries to accurately measure building footprints and floor area and identify and address the causes of revenue leakage.

Social Benefits

Collects complete social information of individuals within the location boundaries

- **Harnessing GIS Surveys for Social Protection:** GIS surveys capture vital data on vulnerable individuals, guiding precise welfare distribution for maximum impact.

- **Empowering Relief Efforts with Local Data:** Local data identifies at-risk groups, enabling targeted relief interventions to ensure equitable access to essential resources.

- **Strategic Insight through GIS Mapping:** GIS mapping identifies beneficiaries and monitors their advancement, while also mapping skills repositories to connect job seekers with tailored training opportunities.

- **GIS for Social Protection: A win-win for all:** GIS can help governments, NGOs, and other organizations to improve the effectiveness of social protection programs, leading to better outcomes for vulnerable people.

BENEFITS

Health Management

Spatial information aids in identifying the causes and prevalence of diseases alongside health data.

- **Empowering Vulnerable Populations:** Identifies vulnerable populations, providing tailored care and services.

- **Unveiling Disease Patterns:** Analyzes disease spatial correlations, leading to targeted interventions.

- **Safeguarding Communities:** Tracks infectious disease spread, empowering communities to take action.

- **GIS for Health:** GIS can be used to improve health outcomes for vulnerable populations by identifying them, tracking disease patterns, and safeguarding communities from infectious diseases.

Infrastructure Planning & Development

Sanitation poses a major challenge for governing bodies, requiring spatial analysis for effective solutions.

- **Transforming Insights into Action:** Harness the power of GIS to access location-based data to drive informed decisions by understanding data on waste disposal, sanitation, and freshwater availability.

- **Unveiling Infrastructure Gaps:** Identify regions lacking essential infrastructure like waste disposal, sanitation, and freshwater to offer insights to allocate resources strategically.

- **Empowering Decision-Making:** Empower decision-makers with data on infrastructure distribution, population needs, and potential outcomes to enable effective choices by providing spatial insights.

- **Mapping Progress of Development:** Unveil topographical information of slums and colonies to Pave the way for precise development strategies that cater to unique local requirements.

BENEFITS

Environmental Conservation

Spotting biodiversity shifts and gauging environmental concerns is key to reducing harm.

- **GIS Survey for Biodiversity Insight:** GIS collects spatial data on wetlands, quarries, ponds, canals, and more to understand area biodiversity balance.

- **Optimizing Land Use with GIS:** GIS offers spatial insights on fields, micro-level land use, tube wells, and water availability to enable sustainable land and water resource management.

- **Sustaining Water Resources with GIS:** GIS identifies low water availability zones to aid in conserving biodiversity while meeting human and wildlife needs.

GIS for Biodiversity and Land Use: GIS collects and analyzes spatial data to understand biodiversity and optimize land use.
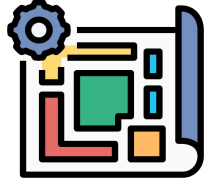
Urban Planning

GIS prevents unsustainable land use and plans sustainable development at urban and local levels.

- **Harnessing GIS for Comprehensive Planning:** Integrates data to analyze intricate interdependencies, facilitating micro-level land use planning.

- **Taming Urban Growth with GIS:** Identifies at-risk areas for unplanned development, aiding proactive management of urban expansion.

- **Unveiling Spatial Development Potential:** Pinpoints zones suitable for various development types, enhancing strategic decision-making.

- **Balancing Infrastructure with GIS:** Guides targeted interventions to address disparities and enhance urban equilibrium.

- **Remote Precision in Planning:** Eliminates the need for on-site visits, optimizing land use strategies.

Disaster Management

GIS aids disaster management by providing information and tools to lessen impact and save lives.

- **Mapping Natural Hazards:** Maps regions susceptible to natural hazards, supporting early warning systems and evacuation strategies.

- **Analyzing Vulnerability:** Assesses asset and population vulnerability to natural hazards, informing emergency response strategies and resource allocation.

- **Effective Resource Management:** Manages resources during disasters, ensuring efficient deployment for people's safety.

- **Improving Disaster Response:** Improves disaster response by providing accurate information, supporting decision-making, and managing resources.
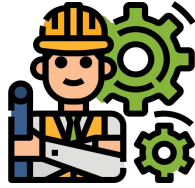
Engineering

GIS have a wide range of applications in engineering

- **Road and Drainage Geodatabase:** A comprehensive database of road and drainage assets to facilitate infrastructure project planning and monitoring.

- **Visual Insights for Maintenance:** Photos and data on roads provide insights for proactive maintenance strategies, aiding in identifying repair and improvement requirements.

- **Environmental Efficiency with GIS:** Identifies sensitive areas, enabling minimal environmental impact by informed planning.

- **Sustainability of Infrastructure Projects:** Enhances sustainability of infrastructure projects by minimizing environmental impact and promoting proactive maintenance.

BENEFITS

Property tax information system

Kerala State Town and Country Planning Department (TCPD)

Utilize dashboard's visualizations for city layout analysis, including population distribution, infrastructure, and land use, to identify revitalization needs, plan future growth, and promote balanced urban environments

Kerala Public Works Department (PWD)

The dashboard aids transportation authorities in route planning for new roads, improving existing infrastructure, optimizing public transit routes, and promoting eco-friendly transportation choices like cycling and walking

Kerala State Pollution Control Department (KSPCB)

The dashboard facilitates the tracking of water resources, alterations in land use, pollution levels, and vegetation cover, empowering informed choices to promote sustainable urban development while mitigating environmental impact

Kerala State Electricity Board (KSEB)

The portal helps KSEB plan utility networks, prioritize maintenance, improve emergency response, and promote sustainability.

Kerala Department of Health and Family Welfare (DHFWS)

The dashboard has the capability to display up-to-the-minute population data, healthcare facility details, and disease patterns, facilitating efficient resource allocation, improved disease monitoring, and precise healthcare interventions.

Kerala State Disaster Management Authority (KSDMA)

High-risk areas can be pinpointed, evacuation plans formulated, resources allocated, and emergency teams coordinated swiftly and efficiently during crises by harnessing real-time data and visualizations from the dashboard.

KEY COMPONENTS

Safety & Security: Better safety and security of the data is ensured through storing the data in State Data Centre and through the use of K-CERT certified enterprise Application
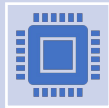
Flexibility: Possible to use the same data for different purposes according to the requirement of the system. Data Editing and Update features with embedded Verification and Approval Workflow

Interoperability: Easy API based integration with legacy applications and line departments.

Accessibility: Better accessibility to citizen services through the one-stop solution which is driven by a Centralized repository of information

Transparency: By opening a single truth platform to the general public, the system ensures transparency and reliability

ULTS

UL Technology Solutions(ULTS), is the IT/ITES division of Uralungal Labour Contract Co-operative Society (ULCCS) Ltd. that provides a range of services and solutions, including GIS, Cybersecurity, Blockchain Technology, Software development, IT consulting, and more.

- 12 + years industrial experience

- 80+ LSGI Projects completed

- 3000+ sq. km. area covered in UAV/Drone Survey

- 1 Million+ Asset Surveyed

- 6000+ km of road mapped

- ISO 9001:2015 & ISO/IEC 27001:2013 certified for Quality & Information Security Management System

- CMMI Level 3 Certified for Solution Development

- 100%   client satisfaction

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