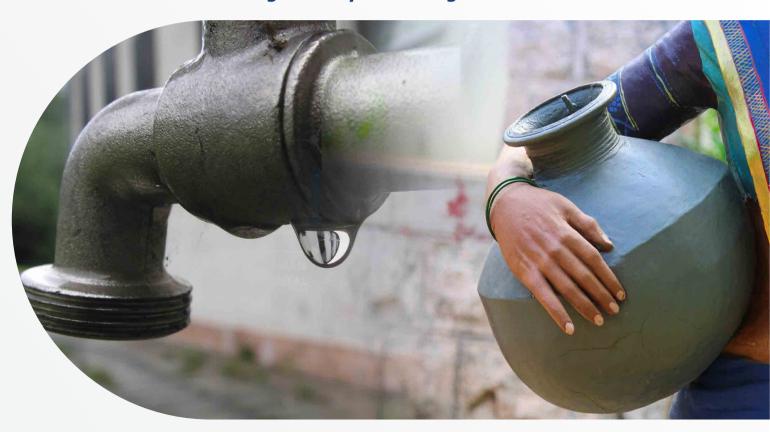# Case Study

Business Intelligence & Advanced Data Discovery

**Smarten Augmented Analytics Implementation for
Water and Sanitation Customer of Leading India System Integrator**

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Case Study

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Client

This Partner is a leading system integrator for public and private sector organizations in India. This System Integrator has a wide network of consultants and technology experts through which they achieve and support a presence across countries like the UK, US and India.

The Objective

The System Integrator Partner has a rapidly growing business for Agile Consulting, Application Development and other IT projects. It serves major customers from the public sector with innovative technologies.

They wanted to implement an agile augmented analytics solution for a customer from the public sector. The System Integrator customer is a water administration organization that functions as a public utility providing water and sanitation management for the state of Maharashtra in India. The System Integrator developed and deployed an application for this Water Administration Organization and wished to expand its products and services to include a suitable augmented analytics solution that could be used to derive data from this application and provide reports and data sharing capabilities.

Challenges

- Data consolidation and data quality
- Security of data
- Providing MIS for procurement of loans and funds
- Dependence on manual Excel-based reports that are non-interactive, time consuming and inaccurate with no data security
- Need for performance-driven culture within the organization
- Need to roll-out augmented analytics and reporting access to teams within the organization
- Need to create a roadmap for assisted predictive modeling to plan, forecast and identify trends and patterns using fact-based decision-making
- Compatibility with current and future customer data sources and operating systems

To overcome these challenges, and better serve its rapidly growing customer base, the System Integrator wanted an intuitive, self-serve augmented analytics solution built on industry-standard architecture that was suitable for use by all business users with little or no technical know-how. The System Integrator wanted a browser-based system that could be accessed from any location using all types of mobile devices.

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The Solution

The System Integrator used its position in the IT community to research and review its options for an augmented analytics solution. The System Integrator selected Smarten to satisfy functional and technical needs for its customer. Smarten demonstrated its solution to the System Integrator Technical and Management teams and the solution was analyzed from various perspectives.

The Smarten team created a staging database to process data from json files from MongoDB to PostgreDB. Using this staging database as a source, the Smarten team created appropriate objects to satisfy all requirements.

Technical training was delivered to address administration, data source connectivity, multi-dimensional cube architecture and best practices for the System Integrator IT team so that the team could accurately serve and support its customer.

Solution implementation was a joint effort between the System Integrator IT team and the Smarten team.

The Smarten solution was implemented to address three crucial modules: Water Coverage, Sanitation and Social Management.

Technology & Platform

Server : Intel Core Processor (Broadwell) X 8 (64 Bit)
O.S. : Linux with 12 GB RAM
Applications : Web Application of Client using MongoDB
Backend (Database) : Production – MongoDB
                      Staging – PostgreDB
ETL : Talend®

Key objects implemented in the first phase of deployment included:

Water Coverage Management
- Analytics for habitations covered under Water Management Schemes
  - % Habitations fully covered, partially covered and not covered
  - % households meeting the NRDWP criteria of LPCD availability
  - % Water Treatment Plant working
  - % of Households with tap connection
  - % of Households connected by piped water supply
  - % of Households connected by Group Connection/Stand post
  - % of Households with service connections
  - % habitations that have at least 4 hrs. daily supply for at least 330 days in a year
  - % Non-functional schemes

- % water supply schemes rendered non-functional before completion of their average lifetime
- % habitations that recover full Operations & Maintenance expenditures from user charges/ water tax alone
- % schemes across habitations receiving periodic Operations & Maintenance charges (in a pre-defined period)
  - Preventive Operations & Maintenance
  - Demand based Operations & Maintenance
- Amount of non-revenue water

Sanitation Management
- Analytics for habitations covered under Sanitation Management Schemes
  - % of households with access to Individual Household Latrine (IHHL) and achievement
  - % achievement in Community Sanitary Complexes (CSCs)
  - Number of Rural Sanitation Marts established
  - % AIP households received IHHL incentive
  - % Aggregate households received IHHL incentive
  - % IHHL incentive fund released
  - % Households with access to Functional Individual Household Latrine (IHHL)

- % functional Community Sanitary Complexes (CSCs) and % being used
- % of GPs declared Open Defecation Free (ODF) for 3 consecutive years
- % of SLWM units functional
- % of GPs declared Open Defecation Free (ODF)
- % GPs with Solid and Liquid Waste Management (SLWM) unit
- % not-ODF GPs with no AIP components mapped
- % BPL households covered

Social Management
- Analytics for complaints covered under Social Management
  - % SC/ST Habitations that are Fully Covered
  - % SC/ST habitations that are Not Covered
  - % population covered among SCs/STs/ Women/ Minorities, Poor/Marginalized/ Disabled across Villages
  - % of complaints in category of Operations & Maintenance
  - % complaints in category of Water Quality
  - % of complaints resolved in a given period
  - Aggregate % of complaints resolved to date
  - % complaints in category of User charges
  - % complaints in category of Scheme execution
  - % complaints in category of Corruption

- % GPs with a functional Grievance collection and Redressal mechanism in category of Water Supply
- % BPL households covered
- % of complaints resolved in a given period
- Aggregate % of complaints resolved to date
- % complaints in category of IHHL incentive
- % complaints in category of CSCs
- % complaints in category of SLWMs
- % complaints in category of Corruption

Smarten addressed the critical functional areas for Water Supply Coverage, Sanitation coverage, and complaints resolution as required by the System Integrator customer business.

Smarten Team Role

The Smarten team provided dedicated services and support to the System Integrator to review and understand its customer functional requirement, and to create a staging database, ETL, and front-end object development for dashboards, KPIs and Reports. With an understanding of the needs and functions of the System Integrator customer business needs, the Smarten team provided appropriate training to the System Integrator team so that it could effectively serve its customer needs.

- Creating staging Database by ETL using Talend® to process json files from MongoDB to Postgre DB
- Understanding customer functional requirements
- Design, development and testing of ETL
- Conceptualization, design and development of dashboards, reports, KPI and ad-hoc analysis
- User Acceptance Testing (UAT)
- Go live support
- Analytical concepts and best practices sessions
- Technical training
- Administration training
- Business analyst training
- End user training

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Conclusion

Rapid access to information was essential for the System Integrator team to provide the necessary MIS service to governing authorities and effectively serve its customer needs.

Key Benefits and Deliverables:

- Designing Staging database and ETL using Talend®
- Centralized access to information through interactive graphical and ad-hoc analysis
- Compiling, structuring and streamlining reports and analysis to meet the requirements of various departments and needs of the System Integrator and its customer
- Automating all operational reports with comprehensive data integrity
- Low cost acquisition, rapid roll-out, and minimal training requirements to achieve low total cost of ownership (TCO)
- User-friendly interface reduced the burden of ad hoc queries for System Integrator IT team
- Enterprise architecture with zero footprint browser interface ensured rapid roll-out across all locations to a large number of users
- Responsive user interface allowed users to access the solution with smart phones, tablets, and other mobile devices

Smarten supported the System Integrator in its effort to serve its water administration customer needs and to leverage technology to help its customer with required analytics. The solution provides adaptive and flexible augmented analytics to allow the customer to easily change processes and adapt to business and market changes. The Smarten solution is web-based, and provides a self-serve system that is affordable, dependable and scalable. The solution provides a comprehensive fit for the System Integrator customer and allows users to, optimize data sources and centralize access to information at a reduced cost and time schedule so users can easily and quickly deliver and use analytics for monitoring progress and find insights.

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