

Case Study

Business Intelligence & Augmented Analytics

Smarten Case Study: Augmented Analytics for India Construction and Infrastructure Development Company



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The Client

The Client is an India-based construction and infrastructure development company, committed to delivering quality infrastructure for private, public, and government projects. With over fifty (50) years of accumulated knowledge and experience, the organization applies its extensive resources to ensure superior infrastructure solutions.

The Objective

The Client aims to achieve market leadership by undertaking high-performance projects that redefine industry standards in contracting and infrastructure development. The company used Excel spreadsheets to manage complex reporting formats and it faced challenges in this process as its data volume grew.

To address these challenges the Client incorporated an India-based commercial ERP solution with an in-house ERP solution to manage data, but its reporting and data consolidation efforts were cumbersome and ineffective.

To enhance data management and reporting capabilities, the Client sought to implement an augmented analytics solution and integrate this solution with both ERP systems to achieve a one-stop solution that would offer end users an

intuitive, insightful analytical solution to improve decision-making. This solution would consolidate business intelligence, automate report generation, and provide interactive, easy-to-use dashboards accessible from any location and any device.

Challenges

- **Data Fragmentation:** The existing solution encompassed built-in reporting using a commercial ERP software program. The Client faced issues with external data dependency, and needed to develop an in-house ERP solution. Running both ERP systems in parallel required consolidating data and reporting from both ERPs and from spreadsheets, which further complicated data integration.
- **Reporting Needs:** Business users often required new reports, KPIs, and dashboards. It was difficult to process these reports with both ERP solutions operating simultaneously.
- **Non-Interactive Reports:** Client end users relied on time-consuming, non-interactive, Excel-based reports with unsecured data.
- **Financial Analysis:** Understanding payment loopholes, leakages, and gaps between site budgets and actual data was difficult.

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- **Automated Reporting:** There was a need to automate the export and publishing of reports.
- **Data Integration:** The Client needed to combine heterogeneous data sources into a single report for comparative analysis of budgeted work orders, billing data, and approved payments.
- **Visual Data Interpretation:** The Client needed visual interpretation of data to analyze overviews and summaries within interactive dashboards, with options to export the analysis as required.

The Solution

After evaluating a range of options from various vendors, the Client team selected Smarten Augmented Analytics. The Smarten team developed a comprehensive proof of concept using sample data from the Client so the Client could evaluate the solution, to verify the fulfilment of functional and technical possibilities. The Client assessed Smarten self-serve features, simplicity of use, compatible architecture, and scalability, and selected Smarten as its business intelligence (BI) and augmented analytics solution, to support its users and its BI practice division.

The Smarten team designed the metadata structure, and provided support to the Client team for extraction, transformation, and loading (ETL) to analyze the

data, clean and structure the data, and migrate reports from Excel spreadsheets. The Smarten augmented analytics solution was integrated with both Client ERP systems and with Excel sources.

The Smarten team also provided technical training for administration, data source connectivity, creation of datasets, and best practices for users. Periodic hands-on training programs were conducted as required.

Implementation was a joint effort between the Client data team and the Smarten team. Smarten Augmented Analytics was deployed to cover crucial modules of Client data sources, including a work order system, work order to billing, service item-quantity and amount calculation for each site, vendor analysis, project and site analysis, and work order vs. certified vs. billing amount overview.

Technology & Platform

Server	: 64-bit Intel(R) Xeon(R) Platinum 8175M CPU @ 2.50GHz
Operating System	: Linux
Applications	: Commercial ERP from an Indian Vendor, In-house ERP Tool
Back-End (Source)	: Excel Files (Imported via Amazon S3 Buckets)

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Key Analytical Objects Implemented in the First Phase of Deployment:

- Overview
- Work Order Amount Details
- SC Bill Amount Details
- Certified Amount Details
- Number of Vendors
- Number of Projects
- Number of Service Groups
- Project Amount
- Service Group Amount
- Vendor Wise Amount

Detailed Reports

- Project Detail Report
- Service Group Detail Report
- Vendor Detail Report

Grading Reports

- Highest or Lowest Grading Service Groups by Work Order Amount
- Highest or Lowest Grading Vendors by Work Order Amount
- Highest or Lowest Grading Project by Work Order Amount
- Highest or Lowest Grading Service Groups by SC Bill Amount
- Highest or Lowest Grading Vendors by SC Bill Amount
- Highest or Lowest Grading Project by SC Bill Amount
- Highest or Lowest Grading Service Groups by Certified Amount
- Highest or Lowest Grading Vendors by Certified Amount
- Highest or Lowest Grading Project by Certified Amount

Vendor Growth

- Vendor Yearly Growth Based on Work Order Amount
- Vendor Quarterly Growth Based on Work Order Amount
- Vendor Monthly Growth Based on Work Order Amount
- Vendor Daily Growth Based on Work Order Amount

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Service Group Growth

- Service Group Yearly Growth Based on Work Order Amount
- Service Group Quarterly Growth Based on Work Order Amount
- Service Group Monthly Growth Based on Work Order Amount
- Service Group Daily Growth Based on Work Order Amount

Labour Analysis

- Concrete
- Shuttering
- Reinforcement
- Brick Work
- Plaster
- Unbilled Amount Analysis

Key Benefits and Deliverables:

- **Seamless Connectivity and Integration:** The solution was integrated with both proprietary Construction Project Information System and ERPs

(commercial and in-house) along with spreadsheets for comprehensive data consolidation.

- **Interactive and In-depth Visualization:** Provided easy-to-use, drag-and-drop interface allowing the team to slice and dice data, and create insightful reports and dashboards effortlessly. Interactive dashboards and informative KPI widgets make it easy to track key metrics and make informed decisions.
- **Consulting Services:** Defined KPIs and modified existing templates to suit Client needs.
- **Training:** Provided training for the Client IT and Business Analyst teams.
- **Enhanced Value:** Offered an analytical platform layered over the Construction Project Information System.
- **Technology Integration:** Smarten analytics functions well with all technologies to deliver swift, dependable results.
- **Simplified Client Process:** Offered a uniquely designed simple client process with straightforward licensing and client policies.
- **Easy System Integration:** Provided the Smarten analytics solution which is easy to integrate with the Client system, and is supported by a technical team that is experienced in cross-platform and application integration.
- **Ready-to-Use Templates:** Reduced the burden on the Client IT team with ready-to-use templates.

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- **Enterprise Architecture:** Provided Zero-footprint browser interface ensured rapid roll-out across various locations to a large number of users.

The Smarten Team Role

The Smarten team takes a collaborative approach to build trust with the Client and pave the way to meet the analytical requirements related to their processes. The team provides support to the Client IT team to develop analytics by enhancing Smarten templates and creating datasets, dashboards, reports, and Key Performance Indicators (KPIs) and integrating file-based data into Smarten. The team also provided training to the Client to support business users in modifying or creating dashboards and reports as needed.

Services Provided:

- Installation and Connectivity with In-House Solutions
- Assessment of Client Data Structure
- Design and Development of Metadata Structure, Datasets, and Cubes
- Work with Client Team to Create Default Analytics Templates for Infrastructure and Construction System Data
- User Acceptance Testing (UAT)

- Go Live Support
- Technical Training
- End User Training
- Ad-Hoc Requirements and Enhanced Existing Reports
- Ongoing Support and Training to Client Technical Team for Modifying and Enhancing Smarten Analytics Objects for Business Users

Conclusion

The Client required a self-serve, sophisticated, easy-to-use augmented analytics and reporting capabilities solution to integrate with its commercial ERP system and an in-house ERP system with intuitive dashboards and reporting suitable for end-users. The Smarten team provided a comprehensive set of reporting and analytics tools, including overview, grading, vendor growth, service group growth, and labour analysis, all as interactive self-serve reports with dashboards, KPIs, graphical analysis, and other features and functionality to improve productivity, collaboration, decision-making and data access across the organization and ensure significant Return on Investment (ROI) and user adoption.

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Contact Us

Elegant MicroWeb Technologies Pvt. Ltd.

A-305, Shapath - IV, Opp. Karnavati Club,
SG Highway, Ahmedabad-380051 India
Email: contact@Smarten.com
URL: www.Smarten.com

Sales & Partnership:

For sales, licensing, and partnership-related inquiries,
please email sales@Smarten.com

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