

Case Study

Business Intelligence & Augmented Analytics

Smarten Case Study: Augmented Analytics for Global Telecommunications Infrastructure Solutions Provider



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The Client

This Client is a global telecommunications infrastructure provider, offering comprehensive end-to-end solutions for wireless network planning, optimization, and performance management. It offers services to over thirty (30) Tier 1 and Tier 2 telecom operators and Original Equipment Manufacturers (OEMs) worldwide, and excels in advanced 5G NR and LTE-A technologies as well as legacy networks. Business services include RF Planning, Optimization, Quality of Service (QoS) Benchmarking, In-Building Solutions, and skilled Manpower Deployment to provide seamless execution across diverse environments. The Client operates in more than fifteen (15) countries and spans five (5) continents.

In addition to network solutions, the Client portfolio includes managed services for active and passive telecom infrastructure, supported by its in-house network analytics platform, Gladiator. This platform empowers real-time performance management, and delivers data-driven insight to optimize network operations and facilitate efficient decision-making.

With an expanded range of services in Site Acquisition, Telecom Equipment Installation, and BTS site construction, the Client is dedicated to providing efficient, cost-effective solutions that will address the complex needs of the

telecom industry. Its extensive liaison network with operators, equipment suppliers, and contractors enables a deep understanding of the telecom ecosystem and ensures a unique capacity to meet industry demands.

The Objective

The Client wished to enhance its data management and reporting capabilities to better support its large-scale telecommunications projects across various regions. As the Client business expanded, it faced increasing data consolidation and reporting challenges within a fragmented data environment. Data was spread across heterogeneous sources—some in structured databases, others in multiple file formats, with different regions using different applications or data sources, and manual maintenance of a significant volume of data. This fractured data management environment led to inefficiencies in managing, tracking, and analyzing data, and resulted in delays in generating the comprehensive, real-time insight necessary for timely decision-making.

To overcome these challenges, the Client required a robust data engineering and BI solution to unify diverse data sources, streamline reporting, and automate manual processes. By consolidating data within a single, accessible view with real-time dashboards, the Client sought to reduce manual effort,

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improve collaboration across teams, and enable faster, data-driven decisions to enhance operational visibility, support efficient, accurate project execution, and enable the organization to meet industry demands with greater agility and precision.

Challenges

- **Fragmented Data Sources with Low Data Quality** – Different formats and locations etc., and data quality related issues.
- **Fragmented Profit and Loss Reporting** – Consolidating profit and loss data across various modules, i.e., key financial reports such as vendor-specific earnings, salary expenditures, Daily Vendor Record (DVR), and reimbursement reports spread across multiple datasets. This fragmentation made it challenging to gain a comprehensive view of financial performance and hindered efficient reporting.
- **Incomplete Revenue Analysis** – Monitoring revenue accurately proved challenging due to fragmented data on invoices and purchase orders (POs). Without an integrated system, tracking revenue streams became difficult and resulted in gaps in financial visibility limiting the ability to make informed strategic and financial decisions.

- **Complex Cost Analysis** – The cost analysis process was complex and included diverse expenses like manpower costs, outsourced vendor expenses, and delivery-related costs. This diversity in cost elements made it difficult to achieve an accurate, consolidated view of total expenses.
- **Inefficient Operational Tracking** – Outdated tracking mechanisms hampered operational efficiency. Critical metrics like total work orders, customer-specific orders, and order aging could not be calculated in real time. This limited the ability to monitor and manage projects effectively.
- **Disjointed Delivery and Expense Management** – Delivery-related expenses, including cab and other logistical costs, were disconnected from core operational data. In the absence of a centralized view, the Client struggled to optimize delivery operations and manage associated costs efficiently.

The Solution

To address the myriads of business and data challenges, the Smarten team implemented a comprehensive BI solution with Augmented Analytics tools

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designed to unify and streamline data management across financial, operational, and delivery-related functions. By centralizing fragmented datasets within a single platform, the team established a cohesive view of profit and loss data, consolidating reports on vendor earnings, salary expenditures, DVR, and reimbursements. This integration enabled comprehensive financial insights, simplifying profit and loss reporting.

The solution provided a detailed, real-time view of invoices and purchase orders (POs), enabling accurate monitoring of revenue streams across various sources to achieve comprehensive revenue tracking. This capability enhanced financial visibility, and improved decision-making and strategic planning. Cost analysis was also greatly simplified, with tools to track diverse expenses, from manpower and vendor costs to delivery expenses, all within a unified framework.

The BI and Augmented Analytics platform addressed operational tracking needs by enabling real-time calculation of critical metrics, including total work orders and customer-specific orders. This streamlined approach to tracking allowed the Client to monitor projects more effectively, supporting efficient management and execution.

The solution integrated delivery and expense management under one umbrella, connecting cab and logistical expenses with other operational data. This centralized view allowed the Client to optimize delivery operations and manage related expenses, thereby improving cost control and operational efficiency.

Technology & Platform

Server	: AMD EPYC 7543 32-Core Processor @2.80 GHz
Operating System	: Windows 2019 Standard
Applications	: Commercial ERP from an Indian Vendor, In-house ERP Tool
Back-End (Source)	: SQL Server

Key Analytical Objects Implemented in the First Phase of Deployment:

- **Resource and Cost Tracking:**
 - **Project Manpower Resource Breakup:** Detailed analysis of manpower allocation across projects.

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- **Outsourced Vendor Cost:** Comprehensive tracking of outsourced vendor expenses.
- **Customer and Engineer Work Orders:** Insight into work orders organized by customer and engineer.
- **Cost of Delivery:** Full visibility into delivery costs.
- **Cost Percentage Relative to Revenue:** Analysis of costs as percentage of revenue.
- **Gross Revenue Generation Index (RGIN):** Metrics for gross revenue and profitability.
- **Tools and Material Cost:** Tracking of expenses related to project tools and materials.
- **Purchase Order (PO) Breakdown:** Detailed analysis of received POs.
- **Work Order Aging:** Tracking of open and aging work orders for better resource allocation.
- **Detailed Reports:**
 - **Work Done Revenue Report:** Insight into revenue generated from completed work.
 - **Salary-Based Profitability Report:** Analysis of profitability relative to salary expenses.
- **Vendor Activity Tracker:** Overview of vendor activities and associated costs.
- **Daily Volume Report (DVR):** Daily activity and progress reporting.
- **Reimbursement Report:** Tracking of reimbursements to manage expenses.
- **PO and Invoice Trackers:** Detailed tracking of POs and invoices for financial transparency.
- **Workforce Management Report:** Insights into workforce distribution and management.
- **Profit & Loss Overview:**
 - **Revenue:** Comprehensive breakdown of revenue by business and customer types, along with total work done revenue.
 - **Cost:**
 - **Project Manpower Costs:** Total expenses related to project manpower.
 - **Outsourced Vendor Costs:** Detailed cost tracking for outsourced services.
 - **Delivery Costs:** Expense tracking for delivery operations.

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- **Other Costs:** Additional cost categories for a holistic view.
 - **Gross RGIN and Percentage:** Gross revenue analysis and profitability ratios.
 - **Revenue Analysis:**
 - **Work Done Breakdown:**
 - **With PO:** Revenue generated from work with purchase orders.
 - **Without PO:** Revenue from work completed without formal purchase orders.
 - **PO Status:** Detailed tracking of PO statuses—executed, invoiced, non-invoiced, and open POs.
 - **Billed vs. Not Billed Revenue:** Comprehensive view of billed and unbilled revenue streams.
 - **Revenue Type Breakdown:** Classification by various revenue sources.
 - **Cost Analysis:**
 - **Total Overall Cost:** Complete view of total project expenses.
- **Cost Breakdown by Project:** Specific cost allocation across different projects.
 - **Project-Based Vendor Cost Breakdown:** Analysis of outsourced vendor costs by project.
 - **Cost of Delivery by Employee and Vendor:** Tracking of delivery expenses by employee and vendor.
 - **Project-Specific Manpower Costs:** Manpower-related expenses categorized by project.
 - **Field Reimbursement Costs:** Tracking of field expenses reimbursed.
 - **Tools and Material Costs:** Specific tracking of tools and material expenditures.
 - **Other Project Expenses:**
 - **Training Expenses:** Costs associated with training activities.
 - **Medical Expenses:** Health and safety-related costs.
 - **Operational KPIs:**
 - **Workforce Management (WFM):**
 - **Open and Closed Work Orders:** Status tracking of work orders.

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- **Aging of Work Orders:** Monitoring of open work orders based on aging.
- **Work Orders by Engineer and Customer:** Classification of work orders by responsible engineer and customer.
- **Site and Resource Overview:**
 - **Total Number of Sites:** Tracking of all operational sites.
 - **Total Resources Deployed:** Count of resources involved across projects.
 - **Outsourced Vendor Count:** Number of vendors engaged in projects.
 - **Delivery Costs:**
 - **Vendor Count for Cab Services:** Number of vendors supplying cabs.
 - **Running Kilometers:** Total kilometers traveled for project purposes.
 - **Extra Kilometers:** Additional kilometers traveled beyond planned distances.
 - **Engineer Count:** Total engineers engaged in projects.

- **Number of Trips:** Total trips recorded across projects.

The Smarten Team Role

The Smarten team played a pivotal role in transforming Client data management and reporting processes. Collaborating closely with the Client IT department, Smarten conducted a thorough assessment of the existing data structures and reporting workflow. This analysis identified key areas for improvement and informed the customization of the Smarten platform to meet the Client needs.

The Smarten team facilitated seamless integration of diverse data sources, including databases, spreadsheets, and manually maintained files, into a unified BI environment, developed tailored datasets, interactive dashboards, and key performance indicators (KPIs) to provide real-time insight into financial and operational metrics. By automating manual reporting processes and enabling self-service analytics, the Smarten team empowered Client users to access and analyze data independently, thereby fostering a culture of data-driven decision-making.

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Throughout the implementation, Smarten provided comprehensive training and support, to ensure smooth user adoption. Ongoing collaboration with the Client team ensured that the BI solution and self-serve Augmented Analytics solution remained aligned with evolving business objectives to deliver sustained value and operational efficiency.

Services Provided

- **Installation and Integration:** Established seamless connectivity with Client in-house solutions to ensure data flow and compatibility with existing systems.
- **Data Structure Assessment:** Conducted a comprehensive assessment of the Client data architecture to identify areas for optimization and integration.
- **Metadata and Dataset Design:** Designed and developed customized metadata structures, datasets, and data cubes tailored to the Client reporting and analytics needs.
- **Template Creation:** Collaborated with the Client team to develop default analytics templates specific to infrastructure and construction system data to support streamlined reporting.

- **User Acceptance Testing (UAT):** Led UAT processes to validate solution performance and ensure that the system met the functional requirements.
- **Go-Live Support:** Provided dedicated support during the deployment phase to facilitate a smooth transition to the new BI and Augmented Analytics platform.
- **Technical Training:** Delivered in-depth technical training to equip the Client IT team with the skills to manage and maintain the solution effectively.
- **End-User Training:** Conducted training sessions for end users to maximize adoption and enable them to leverage self-service analytics capabilities.
- **Custom Enhancements and Reporting:** Addressed ad-hoc requirements and enhanced existing reports as needed to adapt to evolving business needs.
- **Ongoing Support and Training:** Offered continuous support and training to the Client technical team, enabling them to modify and enhance Smarten analytics objects to meet user demands.

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Key Benefits and Deliverables

- **Unified Data and Centralized Reporting** – The Smarten BI solution and Augmented Analytics suite of tools consolidated data from multiple sources, providing the Client with a single source for profit and loss reporting, revenue analysis, and cost tracking. This centralization improved data accuracy and transparency, supporting informed decision-making across global teams.
- **Real-Time, Interactive Dashboards** – Smarten interactive dashboards offered real-time insight, enabling teams across regions to efficiently monitor performance metrics, work order status, and financial data. This global accessibility enhanced collaboration, agility, and decision-making.
- **Automated Reporting and Analysis** – By automating previously manual reporting processes, Smarten reduced the time and effort needed to generate reports. This allowed the Client to respond more quickly to business-critical questions, significantly boosting operational efficiency.
- **Customizable KPIs and Reports** – Smarten tailored Key Performance Indicators (KPIs) and adaptable reporting templates to empower the

Client IT team and business users to modify and create new reports independently, thereby reducing dependency on external resources.

- **Scalable and Future-Ready Solution** – The Smarten flexible, scalable Augmented Analytics BI platform ensures that the Client can continue to grow and evolve its data management capabilities. Designed to accommodate future needs, the solution represents a sustainable, long-term investment.

Conclusion

The Smarten solution enabled a powerful digital and business transformation addressing the Client data management and reporting needs with a unified, intuitive platform. By consolidating data from various sources and automating critical reporting processes, Smarten provided the Client with a comprehensive view of key financial and operational metrics, enabling faster and more informed decision-making.

Using Smarten interactive, real-time dashboards, the Client achieved comprehensive visibility across global projects, empowering teams to collaborate effectively and access insights on demand.

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The scalability of the Smarten solution and suite of self-service analytics reduced reliance on manual processes and facilitated a shift towards data-driven strategies. The Smarten Team equipped the Client with the tools and technology to operate more efficiently, optimize resource allocation, and deliver high-quality results across its telecommunications projects, positioning the Client business for continued success and growth in the industry.

The integration of Smarten Augmented Analytics with the existing Client systems led to significant improvements in end-user satisfaction and elevated the Client industry standing. Real-time, interactive dashboards provided a competitive edge, empowering the organization to utilize data more effectively, increase operational efficiency, and drive revenue growth. This powerful integration also expanded Client capacity to support a growing number of end-users across global teams.

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