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Indium's Scalable ETL Pipeline: Transformed Business Operations for an African Retail Supply Chain Leader
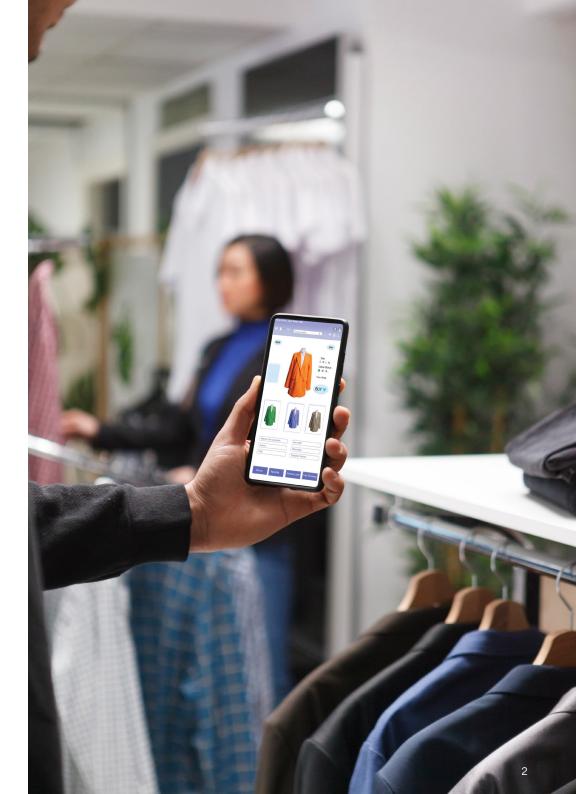
Client Overview

The client is an African retail supply chain transformation company dedicated to empowering small shops and retailers by integrating them into the digital economy. Through innovative mobile ordering and distribution systems, the client provides these businesses with the tools they need to streamline operations, enhance efficiency, and compete more effectively in the modern marketplace. The organization offers a suite of enterprise services designed to support the growth and sustainability of small retailers, including access to financial services, inventory management, and data-driven insights. The client has established a vast B2B eCommerce network that spans across Africa, connecting suppliers, distributors, and retailers in a seamless digital ecosystem.

Navigating the Data Maze

The client aims to establish an ETL (Extract, Transform, Load) pipeline to effectively manage enterprise data for reporting and analytics. This solution is essential for consolidating and processing vast amounts of data from multiple sources, ensuring accurate and timely insights for critical business functions. The ETL pipeline will serve as the backbone for analyzing sales performance, optimizing supply chain and stock management, monitoring credit services, and evaluating delivery agent activity.

Key Requirements:

Build and Manage the Entire ETL Data Pipeline

- Design, develop, and maintain a robust ETL pipeline to extract data from multiple sources, transform it into a usable format, and load it into a centralized data repository.
- Ensure seamless integration of the ETL pipeline with the client's existing systems, including their ERP system, FMCG (Fast-Moving Consumer Goods) processes, and loan application processes.

Develop Reports and Analytics for Key Business Metrics

Create comprehensive reports and dashboards to monitor and analyze critical business operations, including:

- Delivery Agent Performance
- Credit Services
- Vehicle Utilization
- Sales Activities

Enable data-driven decision-making by providing actionable insights and visualizations to stakeholders.

Transition from Existing Environment to a Big Data Platform

- Migrate the current system, built on Java and Postgres, to a modern Big Data platform capable of handling large volumes of structured and unstructured data.
- Leverage Big Data technologies to enhance scalability, performance, and real-time data processing capabilities.

Streamlining Business Insights

Indium developed a solution to set up an ETL pipeline to manage enterprise data for Reporting and Analytics. The ETL solution will drive analysis of sales performance, supply chain and stock management, credit services, and monitor delivery agent's activities. Let's explore the key benefits of implementing ETL.

Building a Scalable Data Pipeline

▶ Developed and implemented ETL pipeline to manage the data using Big Query and Google Cloud Platform (Google Data Flow and Apache Beam).

End-to-End Data Ownership for Actionable Insights

▶ Managed the complete data lifecycle to develop comprehensive reports and dashboards using Tableau.

Seamless Integration for Unified Analytics

▶ Integrated QuickBooks ERP, Loan Management System, and the client's existing customer app/backend applications into the ETL pipeline (BigQuery - GCP) for enhanced analytics and reporting.

Automating Reports for Real-Time Decision-Making

▶ Enabled self-service reporting with automated daily, weekly, and monthly tracking using Python and Streamlit.

Indium's Impact: Enhancing Efficiency and Reducing Costs

Indium revolutionized the client's data ecosystem with a powerful, scalable ETL solution, turning raw data into actionable insights. Let's dive into how Indium unlocked exciting new growth opportunities.

▶ Achieved **60% reduction in ETL process runtime** for transition to a cloud Big Data ecosystem.

▶ **20% increase in performance efficiency** with the developed solution that created visibility into business activities and performance metrics for each category.

▶ **15-20% reduction in delivery costs** after implementation of delivery planning methods and visualization through Reports and Insights.

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About Indium

Indium is an AI-driven digital engineering company that helps enterprises build, scale, and innovate with cutting-edge technology. We specialize in custom solutions, ensuring every engagement is tailored to business needs with a relentless customer-first approach. Our expertise spans Generative AI, Product Engineering, Intelligent Automation, Data & AI, Quality Engineering, and Gaming, delivering high-impact solutions that drive real business impact.

With 5,000+ associates globally, we partner with Fortune 500, Global 2000, and leading technology firms across Financial Services, Healthcare, Manufacturing, Retail, and Technology—driving impact in North America, India, the UK, Singapore, Australia, and Japan to keep businesses ahead in an AI-first world.

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