



UNIFIED FINANCIAL AND SALES INSIGHTS: FROM RAW DATA TO EXECUTIVE DASHBOARDS

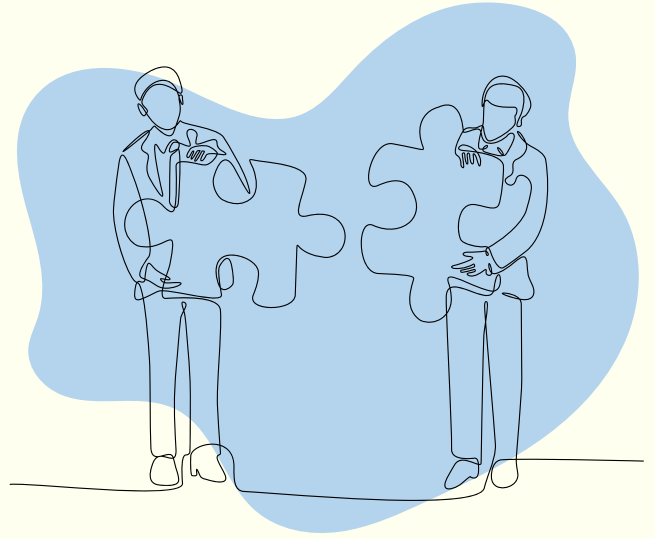
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OVERVIEW

Our client, a prominent manufacturer, needed advanced analytics capabilities to empower their Finance and Sales teams with real-time, actionable insights. They required separate, team-specific dashboards that could dynamically reflect data changes and drive informed decision-making.





CHALLENGES

Previously, the finance and sales teams faced several critical limitations:

- Reports were exclusively viewed directly in Microsoft Dynamics Business Central, restricting accessibility and flexibility
- Data could not be combined from multiple sources (Microsoft Dynamics Business Central, E21, and Chempax), resulting in fragmented insights
- Teams lacked the capability to view and analyze various business units collectively
- There was no capability to filter or view key metrics at monthly, weekly, or daily granularities, significantly reducing analytical effectiveness
- Year-over-year metric comparisons were cumbersome limiting strategic analysis and forecasting capabilities



PROJECT OBJECTIVES

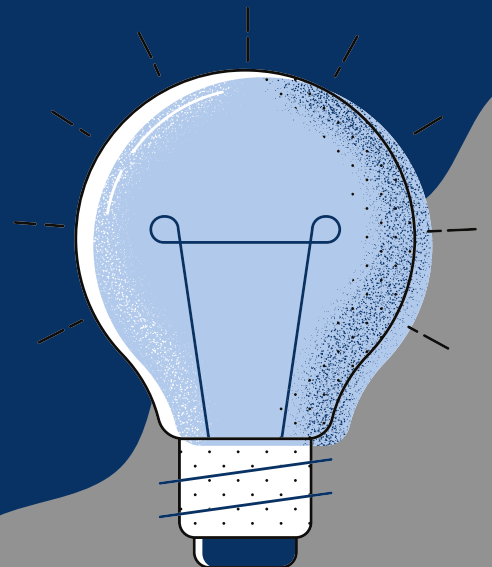
- Develop dynamic, real-time updating dashboards in Power BI
- Source and integrate data from Microsoft Dynamics Business Central, E21, and Chempax into a data warehouse – Snowflake
- Create specific dashboards catering to unique needs of Finance and Sales teams
- Enable detailed filtering and granular analysis of metrics
- Facilitate seamless year-over-year comparisons of key business metrics

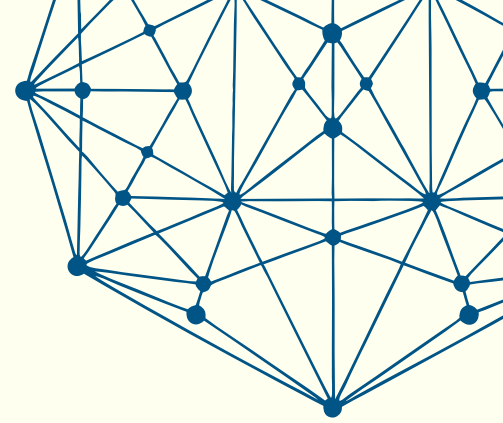
SOLUTION

The project utilized an integrated tech stack and robust data pipeline:

1. Data Source & Ingestion:

- Microsoft Dynamics Business Central, E21, and Chempax served as primary data sources.
- Data was ingested into Snowflake via Airbyte, enabling timely, accurate, and consolidated data availability.
- For E21 and Chempax, we performed a one-time data dump (as they were no longer in active use) to avoid ongoing pipeline costs.
- For Dynamics, we developed a custom connector to extract required tables — including invoices, general ledger, and chart of accounts — tailored to each business unit's needs.





2. Data Modeling:

- Data was modeled using dbt to create structured, analytics-ready datasets that powered two key dashboards: Finance and Sales — each built on distinct logic and sources.

Finance Dashboard Data Modeling:

Built from 12 curated fact views, the Finance Dashboard supports detailed, multi-entity financial reporting and strategic decision-making.

Key Sources:

- Revenue & COGS: Captured income and costs for profit analysis
- Operating & Other Expenses: Enabled tracking of direct/indirect costs
- Net Profit: Derived by integrating revenue, COGS, and expenses
- Inventory (Current & PY): Offered year-over-year stock valuation
- A/R & A/P: Provided liquidity insights and YoY comparisons
- Multi-Entity Metrics: Enabled consolidated reporting across business units

Modeling Approach:

- Each view was modeled independently in dbt for modularity and performance, then joined using keys like date, account, and entity IDs to form a unified financial analysis layer. This enabled accurate monthly roll-ups and real-time tracking of key metrics such as revenue, expenses, cash flow, inventory, receivables, and payables.

Sales Dashboard Data Modeling:

Sales insights were powered by the Unified Shipments view, which consolidates core sales and shipment metrics.

Key Sources:

- Shipment Details: Sales, product, and customer information
- Sales Rep Mapping: Links reps to their sales codes
- Sales Invoices: Invoice-level and line item data

Data Joins for Sales Modeling:

- Sales Rep Mapping was left joined to Shipment Data using rep abbreviation to retain all shipment records, even without matching rep details.
- Sales Invoices were left joined on order number to associate invoice info while preserving unmatched shipments.
- Invoice Line Items were inner joined on item number to include only shipments with corresponding product-level details.


3. Visualization & Dashboards:

Power BI dashboards were connected directly to Snowflake, enabling real-time updates and interactive analysis.

Finance Dashboard (2 Sheets):

- Sheet 1: Income statement metrics — Revenue, COGS, Operating Costs, Other Income/Costs, and Net Profit (Current vs. Previous Year).
- Sheet 2: Balance sheet metrics — AP, AR, and Inventory trends.

Key Features:

- Line charts and KPI cards for YoY trend analysis
 - Slicers for date range, company, and time granularity (daily/weekly/monthly)
 - Bookmark toggles for switching between current year and YoY views
 - Narrative summaries auto-generated based on user selections
 - Tooltip pages with contextual insights on hover
 - Synchronized slicers and dynamic axis scaling
 - Conditional formatting to flag key indicators (e.g., negative profit)
- 



Sales Dashboard:

Three key reports were developed to support sales performance analysis:

- Report 7: Tracks individual sales rep performance by product and customer, with period-over-period and YoY comparisons.
- Report 12: Ranks customer sales and profit by brand, comparing current vs. prior periods.
- Report 18: Shows product volumes sold over the last 24 months, helping reps identify trends.

Key Features:

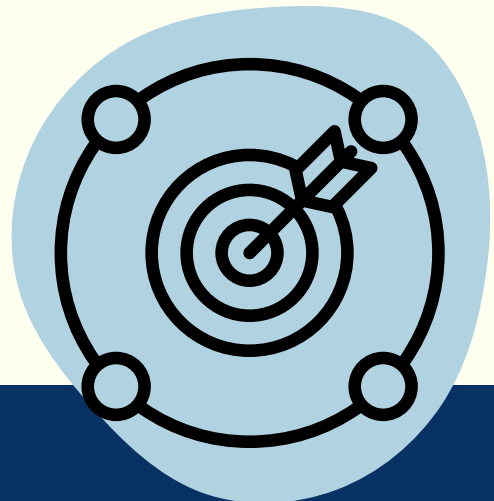
- Matrix visuals for side-by-side comparisons across customers, items, and time
- Slicers for detailed filtering (year, rep, customer, item, invoice, etc.)
- Bookmark buttons (“All Time,” “Custom,” “Last 3 Years”) for timeframe switching
- Top N filters for quick ranking by volume or profit
- Conditional formatting to flag outliers
- Tooltip pages for contextual insights
- Auto-scaling axes to match selected timeframes

RESULTS

- **Enhanced Decision Making:** Real-time dashboards significantly improved the ability of finance and sales teams to respond swiftly to changing conditions.
- **Increased Efficiency:** Automated data ingestion and dynamic reports reduced manual reporting tasks, freeing teams to focus on strategic initiatives.
- **Improved Visibility:** Comprehensive, interactive dashboards provided deeper insights into financial and sales performance, aiding strategic planning and operational efficiency.

Conclusion

By leveraging a cohesive data strategy using Microsoft Dynamics Business Central, E21, Chempax, Airbyte, Snowflake, dbt, and Power BI, the project successfully transformed the client's analytical capabilities, leading to better, data-driven decisions across finance and sales departments





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