### **Document Control**

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| **Author** | Expert Product Manager |
| **Stakeholders** | VP of Sales, VP of Product, Lead Engineer, Lead Designer |

### **Change History**

| Date | Author | Summary of Changes |
| --- | --- | --- |
| July 12, 2025 | Expert Product Manager | Initial draft focused on leveraging existing transactional data to analyze sales profitability and performance. Aligned features and technical specifications with the current Druid schema and project README. |

## **1. Introduction and Strategic Context**

This Product Requirements Document (PRD) defines the purpose, features, and technical specifications for the Sales Analytics Dashboard. It serves as the central source of truth for all teams to communicate what we are building, who it is for, and how it delivers value. 1

### **1.1. Product Vision**

To empower our sales organization with real-time, actionable intelligence that drives profitable growth. This dashboard will transform our sales data from a raw asset into a strategic tool, enabling a shift from intuition-based decisions to data-driven strategy execution.

This vision will be realized through a phased approach:

* **Initial Release (This Document):** First, we will deliver a powerful dashboard focused on **analyzing the profitability and performance of our successful sales**. By leveraging our existing transactional data, we will provide immediate, high-impact insights into what is working today.
* **Future Enhancements:** The insights and baseline established by this initial release will form the data-driven foundation to justify the future integration of pre-sale CRM data. This will unlock a complete, end-to-end view of the sales funnel, enabling advanced analysis of conversion rates, sales velocity, and lead effectiveness.

### **1.2. Problem Statement**

Our organization has identified a significant gap between the high volume of sales inquiries and our rate of successful conversions. This indicates potential inefficiencies in our sales process that lead to lost revenue. However, our current analytical capabilities are limited. We lack a centralized, real-time tool to diagnose *why* this is happening. We cannot effectively measure salesperson performance beyond top-line revenue, identify bottlenecks in the sales funnel, or understand the characteristics of our most profitable deals versus those that fail.

This dashboard will address these questions by providing a clear, deep analysis of our successful deals, establishing the essential first step toward optimizing our entire sales motion.

### **1.3. Strategic Fit**

This project directly supports the company's core objectives of increasing market share and improving operational efficiency. By providing clear insights into profitability, the dashboard empowers the sales team—our primary revenue engine—to focus on high-margin activities, reduce the cost of sales, and increase the lifetime value of our customers. 2

The technical architecture, as defined in the project README, establishes a robust and scalable platform using modern technologies (React, FastAPI, Apache Druid). This is a strategic investment that creates a foundational asset for future analytics initiatives, including the planned integration of AI-driven sales guidance.

### **1.4. Assumptions**

* **Business Assumption:** Providing clear, real-time data on **profitability** will lead to measurable behavioral changes in the sales team, such as improved deal negotiation and a focus on higher-margin products.
* **User Assumption:** Our target users (VPs, Managers, Reps) are computer-literate but are not data analysts. The user interface must be highly intuitive, and visualizations must be easy to interpret. 4
* **Technical Assumption:** The sales\_analytics datasource in Druid, as currently designed, is the single source of truth for this initial release. All features defined herein are based on the columns available in this schema.

## **2. Business Objectives and Measures of Success**

Success for this initiative will be defined by clear, measurable outcomes that are directly achievable with the available data. 5

### **2.1. Primary Business Objectives**

* **Objective 1: Maximize Sales Profitability:** Shift the team's focus from revenue volume to profit generation by providing clear visibility into the most profitable products, customers, and sales activities.
* **Objective 2: Enhance Sales Team Performance:** Equip sales managers and representatives with the data needed to identify best practices, self-correct strategies, and improve negotiation outcomes.
* **Objective 3: Establish a Data-Driven Foundation:** Create a single source of truth for sales performance that builds a data-driven culture and provides the business case for future, more comprehensive analytics projects. 7

### **2.2. Success Metrics (KPIs)**

The following metrics will be used to measure the success of the dashboard. They are all calculable from the provided Druid schema.

| Business Objective | Key Performance Indicator (KPI) | KPI Definition & Formula | Target (6 Months Post-Launch) |
| --- | --- | --- | --- |
| Maximize Sales Profitability | **Average Profit Margin** | The average gross profit as a percentage of sales revenue. Formula: (SUM(grossRevenue) - SUM(totalCost)) / SUM(grossRevenue). | Increase overall profit margin by 5%. |
| Maximize Sales Profitability | **Sales by Product Line** | The total grossRevenue and returnsValue attributed to each ProductLine. | Identify top 3 and bottom 3 product lines by net revenue. |
| Enhance Sales Team Performance | **Profitability per Salesperson** | The total grossRevenue and net profit (grossRevenue - totalCost) generated by each SalesPerson. | Establish a clear performance baseline for every salesperson. |
| Foster a Data-Driven Foundation | **Dashboard Adoption Rate** | The percentage of the sales organization who are active users on a monthly basis. | Achieve 90% Monthly Active Users (MAU). |

## **3. Target User Personas and Scenarios**

To build a product that users adopt, we must understand who they are and what they need to accomplish. 8

### **3.1. Persona 1: Valerie, the VP of Sales (Executive)**

* **Quote:** "Show me where we're actually making money. I need to see which branches, product lines, and teams are driving real profit so I can double down on what works."
* **Goals:**
  + Optimize resource allocation toward the most profitable market segments.
  + Understand long-term profitability trends to guide annual strategy.
* **Jobs-to-be-Done with the Dashboard:**
  + **Quarterly Business Review:** Use the dashboard to analyze and present on the profitability of different regions (Branch) and product categories (ProductLine, ItemGroup).
  + **Strategic Planning:** Compare year-over-year profitability trends to inform headcount and investment decisions.

### **3.2. Persona 2: Sam, the Sales Manager (Managerial)**

* **Quote:** "I need to see beyond the total sales number. I need to know which of my reps are consistently closing high-margin deals and who is relying on discounts. That's how I can provide coaching that actually impacts the bottom line."
* **Goals:**
  + Improve the team's overall profit margin.
  + Provide targeted, data-backed coaching on value-selling and negotiation. 10
* **Jobs-to-be-Done with the Dashboard:**
  + **Weekly 1:1s:** Review a rep's deals, focusing on the grossRevenue vs. totalCost for each, and compare their average profit margin to the team's average.
  + **Team Performance Meetings:** Use the profitability leaderboard to recognize top performers and facilitate discussions on the strategies used to close high-margin deals.

### **3.3. Persona 3: Alex, the Account Executive (Operational)**

* **Quote:** "I want to be a top performer. Show me which of my deals were most profitable and which products have the best margins, so I can focus my efforts and maximize my impact (and commission)."
* **Goals:**
  + Exceed personal targets for both revenue and profitability.
  + Understand which products and customer types lead to the most profitable sales.
* **Jobs-to-be-Done with the Dashboard:**
  + **Personal Performance Review:** Track personal grossRevenue and net profit over time to understand performance trends.
  + **Pre-call Planning:** Review past sales to similar customers (AcctName) to see which products resulted in the most profitable deals, informing the current sales strategy.

## **4. Product Features and Requirements**

This section details the "what" that will be built, aligning with the project's README and focusing on features deliverable with the current Druid schema. These features are designed to directly answer the key questions of the "Phase 1" strategy.

### **4.1. Epic: Profitability & Performance Analysis**

**Description:** This epic provides the core analytical views for understanding sales outcomes. These features are critical for all three personas to gauge business health and individual performance based on profitability.

#### **User Stories & Acceptance Criteria**

**Story 1: Salesperson Profitability Leaderboard**

* **As a** Sales Manager (Sam),
* **I want to** see a leaderboard of my reps ranked by their net profit and average profit margin,
* **so that** I can recognize top performers and identify who needs coaching on value-selling.
* **Acceptance Criteria:**
  1. **Given** I am on the main dashboard, **then** a table titled "Salesperson Performance" is displayed.
  2. **Given** the table is displayed, **then** it lists each SalesPerson with columns for "Total Gross Revenue," "Total Cost of Sales," "Net Profit," and "Average Profit Margin."
  3. **Given** the table is displayed, **then** I can sort it by any of the metric columns.
  4. **Given** I am an Account Executive (Alex), **then** my own row is visually highlighted for easy identification.

**Story 2: Product Performance Analysis**

* **As a** VP of Sales (Valerie),
* **I want to** see a breakdown of revenue, returns, and net profit by ProductLine and ItemGroup,
* **so that** I can make strategic decisions about inventory, marketing focus, and product promotions.
* **Acceptance Criteria:**
  1. **Given** I am on the dashboard, **then** a bar chart or table titled "Product Performance" is displayed.
  2. **Given** the visualization is displayed, **then** it shows aggregated grossRevenue, returnsValue, and net profit for each ProductLine.
  3. **Given** the visualization is displayed, **then** I can apply a filter to drill down from ProductLine to the more specific ItemGroup.
  4. **Given** I hover over a segment, **then** a tooltip appears with the precise values for that category.

**Story 3: Valuable Customer Identification**

* **As a** VP of Sales (Valerie),
* **I want to** identify our most valuable customers based on total revenue and gross profit,
* **so that** we can begin to build an Ideal Customer Profile (ICP) and focus our marketing and retention efforts.
* **Acceptance Criteria:**
  1. **Given** I am on a customer analysis page, **then** a table titled "Top Customers by Profitability" is displayed.
  2. **Given** the table is displayed, **then** it lists AcctName with columns for "Total Gross Revenue" and "Total Net Profit".
  3. **Given** the table is displayed, **then** it is sorted by "Total Net Profit" in descending order by default.

### **4.2. Epic: Dashboard Framework & Interactivity**

**Description:** This epic covers the foundational application framework, including layout, theming, and universal filtering controls, as outlined in the project README.

#### **User Stories & Acceptance Criteria**

**Story 4: Flexible Filtering**

* **As a** user (any persona),
* **I want to** filter all dashboard components by a date range, Branch, and ProductLine,
* **so that** I can conduct focused analysis on specific time periods and business segments.
* **Acceptance Criteria:**
  1. **Given** the dashboard is loaded, **then** global filter controls for Date Range, Branch, and ProductLine are prominently displayed.
  2. **Given** the filters are present, **then** the Branch and ProductLine filters support multi-selection.
  3. **Given** I select any filter value, **then** all visualizations on the page update in under 1 second to reflect the filtered data.
  4. **Given** filters are applied, **then** a "Clear All" button is visible that resets all filters to their default state.

## **5. Technical Specifications and Architecture**

The technical plan is based on the architecture defined in the project's README.md and is tailored to the provided Druid schema.

### **5.1. System Architecture Overview**

The architecture is a modern, full-stack application designed for performance and scalability.

* **Frontend:** React + TypeScript, Material-UI, Recharts, React Query.
* **Backend:** FastAPI (Python 3.12+), Polars, Apache Druid, Sentry.
* **Database:** Apache Druid.
* **Containerization:** Docker and docker-compose.yml.

### **5.2. Data Model (Apache Druid)**

The analytics will be powered by the existing sales\_analytics datasource. This schema is denormalized, which is a best practice for Druid as it eliminates the need for slow, query-time joins and maximizes performance.

* **Datasource Name:** sales\_analytics
* **Primary Timestamp:** \_time (derived from DocDate).
* **Dimensions (for filtering/grouping):** ProductLine, ItemGroup, Branch, SalesPerson, AcctName, ItemName, CardName.
* **Metrics (for aggregation):** grossRevenue, returnsValue, unitsSold, unitsReturned, totalCost, lineItemCount.

### **5.3. API Endpoints**

The API will be versioned and adhere to RESTful principles. The endpoints listed in the README will be refined to support the profitability-focused features.

* GET /api/health: Health check endpoint.
* GET /api/kpis/sales-performance: Refined to return aggregated grossRevenue, totalCost, and derived profit metrics, grouped by SalesPerson.
* GET /api/kpis/product-analytics: Refined to return aggregated grossRevenue, returnsValue, and net profit, grouped by ProductLine and ItemGroup.
* GET /api/kpis/customer-value: A new endpoint to return aggregated grossRevenue and net profit, grouped by AcctName.

## **6. Implementation and Release Plan**

The project will follow a phased approach to deliver value incrementally and build the business case for future enhancements.

### **6.1. Phased Rollout**

**Phase 1: Core Profitability MVP (Weeks 1-4)**

* **Goal:** Implement the foundational dashboard framework and the core profitability analysis features (Salesperson, Product, and Customer performance).
* **Milestone:** A functional dashboard is released to a pilot group of users representing each persona for initial feedback.

**Phase 2: Enhanced Analysis & Internal Release (Weeks 5-8)**

* **Goal:** Incorporate feedback from the pilot, add secondary analysis views (e.g., profitability by Branch), and polish the user experience.
* **Milestone:** The dashboard is released to the entire internal sales organization. Formal training and feedback sessions are conducted.

**Phase 3: Strategic Review & Business Case Presentation (Weeks 9-10)**

* **Goal:** Use the insights and user feedback from the live dashboard to present a formal, data-driven business case for the next phase of development. This presentation will highlight the value delivered and articulate the critical questions that can only be answered by integrating CRM data.
* **Milestone:** A proposal for the next set of features is presented to stakeholders, focusing on the ROI of analyzing the full sales funnel.

## **7. Potential Risks and Mitigation Strategies**

A proactive approach to risk management is essential for project success. 11

| Risk ID | Risk Description | Category | Likelihood (1-5) | Impact (1-5) | Mitigation Strategy |
| --- | --- | --- | --- | --- | --- |
| R-01 | **Inability to Solve the Full Conversion Problem:** The dashboard, while valuable, will not be able to analyze the pre-sale funnel (e.g., win rates), which is the root of the initial problem statement. This could lead to stakeholder disappointment if expectations are not managed. | Strategic / People | 4 | 5 | **Mitigate:** Proactively and repeatedly communicate the two-phase strategy. Frame this initial release as the essential first step to establish a performance baseline. Use the insights from this dashboard to build a powerful, data-driven case for why access to CRM data is the critical next step. |
| R-02 | **Poor Data Quality:** Inaccurate or incomplete data in the source table (e.g., totalCost or returnsValue being null) could undermine the credibility of the profitability analysis. | Data / Technical | 3 | 4 | **Mitigate:** 1. Implement robust data validation and cleansing steps in the ETL process. 2. Create a "Data Quality Health" widget on an admin view to monitor for data issues. 3. Work with data source owners to improve data entry discipline. |
| R-03 | **Scope Creep:** Stakeholders request features (e.g., "show me my pending deals") that are not possible with the available data, threatening the timeline. | Project Management | 4 | 3 | **Avoid / Mitigate:** 1. Strictly enforce the scope as defined in this PRD. 2. Use the "Out of Scope" section to clearly communicate limitations. 3. Maintain a "Future Features" backlog to capture all new ideas, explicitly noting their data dependencies. |

## **8. Out of Scope for This Release**

To maintain focus and manage expectations, the following capabilities are explicitly **out of scope** for this initial release due to data limitations. They represent the primary candidates for future development phases, pending access to additional data sources.

* **Funnel Analysis:** Win/Loss Rate, Sales Cycle Length, Lead Conversion Rate.
* **Activity Tracking:** Analysis of calls, emails, or meetings.
* **Predictive Analytics:** Forecasting, lead scoring, or AI-driven recommendations.
* **Quota Tracking:** Measuring performance against sales targets or quotas.
* **User Authentication and Role-Based Access Control.**

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