# PRD: AI Cost & Insights Copilot

## Problem Statement

FinOps analysts need an intelligent, AI-powered platform to analyze cloud spend data, identify cost optimization opportunities, and answer natural language questions about cloud costs with actionable recommendations.

## Target Users

**Primary:** FinOps Analysts, Cloud Cost Engineers, Finance Teams  
**Secondary:** Engineering Managers, DevOps Teams, C-suite Executives

## Core Use Cases

### 1. Natural Language Cost Analysis

**User Story:** As a FinOps analyst, I want to ask questions like “Why did my Azure spend jump 22% in May?” and get detailed analysis with sources and next steps.

**Acceptance Criteria:**

* Support natural language queries about cost data
* Provide detailed breakdowns by service, resource group, and time periods
* Include confidence scores and data sources
* Return 1–3 specific actionable recommendations

### 2. Automated Cost Optimization Detection

**User Story:** As a cost engineer, I want the system to automatically identify idle resources and quantify potential savings.

**Acceptance Criteria:**

* Detect idle/underutilized resources (< 10% utilization)
* Identify tagging gaps causing cost allocation issues
* Provide monthly and annual savings estimates
* Prioritize recommendations by impact and confidence

### 3. KPI Monitoring & Trend Analysis

**User Story:** As a finance manager, I want to track key cost metrics and trends across services and resource groups.

**Acceptance Criteria:**

* Display monthly cost totals and trends
* Break down costs by service and resource group
* Show top cost drivers and anomalies
* Support filtering by time period, service, and tags

## Success Metrics

**Primary KPIs**

* Cost Savings Identified: $50K+ monthly savings opportunities detected
* Query Response Time: < 3 seconds for 95% of questions
* Recommendation Accuracy: > 80% of recommendations actionable
* User Adoption: > 90% of FinOps team using weekly

**Secondary KPIs**

* Data Coverage: > 95% of cloud resources properly tagged and tracked
* System Uptime: > 99.5% availability
* User Satisfaction: NPS > 8/10
* Time to Insight: Reduce manual analysis time by 70%

## Business Value

* Cost Reduction: Identify 10–15% cloud cost savings through optimization
* Efficiency Gains: Reduce manual cost analysis time from hours to minutes
* Better Governance: Improve resource tagging and cost allocation accuracy
* Proactive Management: Shift from reactive to proactive cost management

## Technical Requirements

* Support 500–2K monthly billing records
* Handle 6+ months of historical data
* Process natural language queries in multiple formats
* Integrate with existing cloud billing APIs
* Provide REST API for programmatic access

## Assumptions

* Users have basic understanding of cloud services and FinOps concepts
* Cloud billing data is available in structured format (CSV/JSON)
* Organization has established cloud tagging policies
* Users prefer conversational interface over complex dashboards

## Out of Scope (V1)

* Real-time cost monitoring (daily batch processing acceptable)
* Integration with multiple cloud providers (single cloud focus)
* Advanced budgeting and forecasting features
* Role-based access control (basic security sufficient)
* Mobile application interface

## Risk Mitigation

* Data Quality: Implement comprehensive data validation and quality checks
* AI Accuracy: Provide confidence scores and source citations for all responses
* Performance: Use caching and optimized queries for sub-3-second responses
* Security: Implement input validation and prompt injection protection