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Product Requirements Document (PRD) – AI-First FP&A Web Application

Overview

The finance and accounting team currently uses **IBM Cognos® TM1®** for planning, budgeting, forecasting, cost-allocation and reporting. TM1 is a multidimensional, in-memory OLAP database used to create sophisticated models and perform advanced calculations [1]. It can automate cost-centre reallocations, consolidation rules and support multi-dimension analysis [2], and its driver-based planning and rolling forecast features let users build complex models that link plans across functions [3]. However, it is primarily a record-keeping system rather than an assistant, has a steep learning curve [4], limited mobile support [5], and users often complain about inadequate training and support [6]. The team wants a modern, AI-first web application that offers all existing TM1 capabilities plus automated insights, anomaly detection and recommendations.

This PRD defines the requirements and phased roadmap (MVP1–MVP6) for building the new internal web application.

Problem Statement

1. **Limited insights and manual effort.** TM1's reporting tools generate standard statements (income statement, balance sheet, cash-flow etc.), but users must manually analyse the reports. They spend time on data collection and validation instead of analysis [7].

2. **Complexity and user adoption.** TM1 is flexible but requires specialized knowledge; it has a steep learning curve [4] and users find the training/support inadequate [6]. Mobile access is limited [5].

3. **Record-centric rather than assistant-centric.** TM1 automates allocations and consolidations [2] and supports driver-based planning [8], but it lacks AI-driven insights, anomaly detection, or natural-language interaction.

4. **Growth & scalability.** The current system cannot easily scale to more users or integrate seamlessly with modern data sources (e.g., external ERP, CRM, data warehouses). A modern architecture is needed to support web and mobile use.

Goals and Objectives

The new system should:

- **Replicate and enhance TM1 functionality.** Support all existing FP&A workflows: budgeting, forecasting, cost allocation, financial statement reporting, and what-if/scenario analysis [2] [8].

- **AI-first assistant experience.** Provide an intelligent assistant that generates reports, answers queries in natural language, highlights anomalies or outliers, and recommends actions or adjustments (e.g., cost reallocation suggestions).
- **Self-service and ease-of-use.** Offer a modern, intuitive web interface with drag-and-drop analysis and customizable dashboards [9] [10], with optional Excel integration [11].
- **Scalability and integration.** Support multi-dimensional, high-volume datasets using an in-memory engine or columnar database; integrate data from ERP, CRM and other internal systems [12].
- **Collaboration and governance.** Enable real-time collaboration and permissions; provide audit trails, workflow approvals, and controls.
- **Mobile and security.** Offer responsive design for mobile devices and ensure data security, confidentiality and compliance.

Success Metrics

- **User adoption & satisfaction:** at least 80 % of finance users actively use the new tool within six months of MVP1 launch; Net Promoter Score > 50.
- **Reporting efficiency:** reduce monthly report generation and distribution time from ~1.5 days (current) to less than 2 hours [13].
- **Planning cycle:** reduce budgeting/forecasting cycle time by 50 % compared to TM1 (targeting similar efficiencies as TM1's claim of cutting cycles by up to 70 % [14]).
- **AI insight accuracy:** anomaly detection and recommendations achieve precision ≥ 90 % in internal tests.

User Personas

Persona	Role & Needs
Finance Analyst	Prepares monthly/quarterly reports, performs variance analysis and cost allocations. Needs an intuitive interface, ability to adjust drivers, and access to historical data for forecasting.
Business Unit Manager / Cost Centre Owner	Reviews financial statements, allocates budgets, enters forecasts and makes adjustments. Wants simple dashboards, scenario comparison and AI-recommended actions.
Controller / CFO	Oversees consolidation, budgeting and forecasting. Needs high-level dashboards, KPI scorecards and governance controls; desires AI insights to identify anomalies and strategic risks.
System Administrator	Manages data integration, user roles, and system configurations; needs robust APIs, security and monitoring.

Functional Requirements by Phase

Phase MVP1 – Foundational Data Platform & Basic Reporting

Objective: Replace TM1's core record-keeping and reporting functions while establishing a scalable architecture.

1. **Data ingestion & storage**
2. Implement a multi-dimensional data engine (OLAP or columnar database) to store financial data (accounts, cost centres, time, product, geography dimensions). The engine must support complex models and in-memory calculations similar to TM1's 64-bit in-memory OLAP engine [15].
3. Build data connectors to import historical data from TM1/Excel and integrate with ERP/GL systems. Provide automated ETL/ELT pipelines.
4. **User management & security**
5. Role-based access control (RBAC) for analysts, managers, CFO, admin.
6. Authentication via company SSO (OAuth/OIDC), with two-factor authentication.
7. Audit logs capturing every change.
8. **Baseline reporting**
9. Generate standard financial statements (Income Statement/P&L, Balance Sheet, Cash-flow, Trial Balance). Provide template definitions and allow custom grouping/hierarchies.
10. Provide interactive dashboards with filters (period, department, product) and drill-down capabilities. Use a web UI with drag-and-drop analysis [9].
11. Export reports to PDF/Excel.
12. **Ad-hoc data exploration**
13. Allow users to slice and dice data across multiple dimensions and create ad-hoc pivot tables [16]. Provide quick charting options (bar, line, waterfall) and the ability to save views.
14. **Excel add-in** (optional in MVP1 or early MVP2)
15. Provide an Excel add-in for analysts who prefer Excel; allow bidirectional syncing of data and formulas [11].

Phase MVP2 – Planning, Budgeting & Forecasting

Objective: Introduce driver-based budgeting, forecasting and cost-allocation capabilities.

1. **Driver-based budgeting**
2. Support driver-based plans and rolling forecasts that link across functions, departments and geographies [8]. Users can define drivers (e.g., sales growth % , headcount, unit costs) and create formulas.
3. **Scenario and what-if analysis**
4. Provide the ability to model multi-dimensional scenarios and perform what-if analysis [17]. Users can adjust assumptions (prices, volumes, cost drivers) and instantly see impacts on P&L, cash-flow and balance sheet.
5. Support unlimited scenarios (base case, best case, worst case) with version control.
6. **Cost allocation engine**
7. Automate cost centre allocations using built-in drivers and rules [18]. Provide transparency for allocation logic and enable managers to override or adjust allocations for analysis.
8. Support complex hierarchical allocations (e.g., shared services to multiple business units).

9. **Workflow & approvals**
10. Implement budgeting workflow: define submission windows, notify managers, track status, and allow review/approve/reject cycles.
11. **Integration with Excel & CSV import/export**
12. Enhance Excel add-in to support input templates for budgets and forecasts; allow offline entry and later sync.

Phase MVP3 – AI-Assisted Reporting & Anomaly Detection

Objective: Introduce AI capabilities to surface insights and reduce manual analysis.

1. **Natural language query (NLQ) & generation**
2. Implement an AI assistant that accepts questions (e.g., "What were the top variances in OPEX last month?") and generates charts and written explanations. Use large language models fine-tuned on finance terminology and company data.
3. Provide guided suggestions for queries and built-in prompts to help novice users.
4. **Anomaly & outlier detection**
5. Use statistical methods and machine-learning models to detect anomalies in transactions, budget variances, and trends. Flag unusual values and provide reasons (e.g., unusual cost spikes) with recommended actions (e.g., investigate vendor invoice).
6. **Automated variance analysis**
7. Generate variance reports automatically comparing actual vs. budget/forecast, with commentary and root-cause drivers. Highlight high-variance accounts or cost centres and suggest drivers based on correlation analysis.
8. **Narrative generation**
9. Create AI-generated narrative summaries for financial statements ("Executive summary") to accompany dashboards. Summaries should highlight key trends and changes with context.
10. **Explainability and controls**
11. Provide explainability dashboards showing why the model flagged an anomaly. Ensure models are tested and auditable to meet finance governance.

Phase MVP4 – Predictive Forecasting & Recommendation Engine

Objective: Enable forward-looking insights and automated recommendations.

1. **Machine-learning forecasting**
2. Train time-series models (e.g., ARIMA, Prophet, LSTM) and regression models using historical financial and operational data to project revenues, expenses, cash flow and headcount. Models must update regularly and provide confidence intervals.
3. Allow users to override or adjust forecasts with scenario inputs; maintain a track record of accuracy for each model.
4. **Recommendation engine**
5. Suggest budget adjustments, resource reallocations and scenario choices based on predicted outcomes and company goals (e.g., recommend cost savings or revenue-growth initiatives). Provide rationale behind recommendations.
6. **Sensitivity analysis & driver optimisation**

7. Provide tools to run sensitivity analysis on key drivers and determine which variables have the biggest impact. Use optimisation algorithms to suggest optimal driver values under constraints (e.g., maximise EBITDA while keeping capex below budget).
8. **Integration of external data**
9. Incorporate macro-economic data (inflation, currency rates), market benchmarks and peer comparisons to enrich forecasting models.

Phase MVP5 – Collaboration, Mobile & Advanced Visualisation

Objective: Enhance user adoption through collaboration features, mobile access and advanced visualisation.

1. **Real-time collaboration**
2. Multiple users can view and edit budgets/forecasts simultaneously with cell-level locking to prevent conflicts. Provide comments, chats and @mentions on cells or sections. Support version history and ability to revert.
3. Provide built-in workflow dashboards for managers to see pending approvals and tasks.
4. **Mobile responsive UI**
5. Design a responsive web interface that works on tablets and mobile phones. Address the mobile accessibility gap noted in TM1 [5] . Provide push notifications for approvals and alerts.
6. **Custom dashboards and scorecards**
7. Enable users to build dashboards with charts, tables and KPI widgets. Include balanced scorecard templates and impact diagrams similar to TM1's integrated scorecards [19] .
8. **Self-service modeling & templates**
9. Provide a library of planning templates (headcount planning, revenue planning, cost allocation models) that users can customize. Allow drag-and-drop building of cubes/dimensions without code.

Phase MVP6 – Enterprise Integration, Governance & Extensibility

Objective: Finalise the product by adding enterprise-grade features and extensibility for long-term growth.

1. **API & integration framework**
2. Provide REST/GraphQL APIs and webhooks to integrate with ERP, CRM, HRIS, data warehouse, and BI tools (e.g., Tableau, PowerBI). Support scheduled data synchronisation and real-time updates.
3. **Advanced analytics and AI services**
4. Offer plug-in architecture for custom AI models (e.g., credit risk scoring, procurement optimisation). Provide sandbox environment for data scientists to build models and deploy them via APIs.
5. **Governance & compliance**
6. Implement fine-grained access controls, segregation of duties, and audit logs. Support regulatory compliance (SOX, GDPR, local data privacy laws). Provide data lineage and versioning of models and reports.
7. **Performance & scalability**
8. Optimise the in-memory engine for concurrency and scale to hundreds of users [20] . Provide monitoring dashboards for system health and performance.
9. **Marketplace & integrations**
10. Build an internal marketplace where teams can share templates, models and AI components. Allow integration with third-party services (e.g., Slack, Teams) for notifications and chat-ops.

Non-Functional Requirements

1. **Security & Privacy** – Data must be encrypted at rest and in transit. Implement row-level security and anonymisation where necessary. Adhere to company and regulatory requirements.
2. **Performance** – Query response time should be under 2 seconds for most user interactions. Forecasting and AI tasks should complete within minutes for typical datasets.
3. **Reliability & Availability** – System uptime of 99.9 % (excluding scheduled maintenance). Support disaster recovery and regular backups.
4. **Usability & Accessibility** – Follow WCAG accessibility guidelines. Provide intuitive UI with minimal training requirements.
5. **Extensibility** – Modular architecture to add new models, data sources or AI capabilities without major refactoring.

High-Level Architecture

- **Data Layer:** Cloud-native relational or columnar database (e.g., Snowflake/BigQuery) plus in-memory cube engine for multi-dimensional analysis [15] . Data lake for raw ingestion.
- **Integration Layer:** ETL pipelines connecting to ERP, CRM, HR, spreadsheets, and external APIs.
- **Application Layer:** Microservices for reporting, planning, AI services, and workflow management. AI services built using Python/ML frameworks hosted on scalable containers.
- **Front-End:** Single-page web application (React/Next.js) using modular widgets (pivot table, charts, natural language interface). Mobile-responsive design.
- **Security & Auth:** Central authentication service integrated with SSO; RBAC; auditing.

Risks & Mitigations

Risk	Mitigation
Data quality & integration issues. Inconsistent source data or mapping errors could lead to incorrect forecasts or reports.	Build robust data validation and reconciliation steps; maintain a data dictionary; allow users to trace source records.
AI model bias or inaccuracies. AI recommendations may misinterpret data or create false anomalies.	Use transparent models; provide confidence intervals and explanations; allow users to override suggestions; continuously monitor and retrain models.
User adoption resistance due to change. Users familiar with TM1 may resist the new system.	Include users early in design; provide training, change-management communication, and an Excel add-in for continuity.
Security & compliance risks. Sensitive financial data must be protected.	Implement strict security controls, encryption, and compliance audits; restrict access based on roles.
Performance bottlenecks with large models. Complex calculations may slow down user experience.	Use scalable in-memory architecture and optimise queries; implement caching and asynchronous processing.

Phase Timeline (Estimated)

Phase	Duration	Key Deliverables
MVP1	3–4 months	Data platform, baseline reporting, role-based access, dashboards, initial Excel integration
MVP2	3 months	Driver-based budgeting, forecasting, cost allocation engine, scenario analysis, workflow
MVP3	2 months	AI assistant with NLQ, anomaly detection, variance analysis & narrative generation
MVP4	3 months	Predictive forecasting models, recommendation engine, sensitivity analysis, external data integration
MVP5	2 months	Real-time collaboration, mobile UI, custom dashboards & scorecards, template library
MVP6	3 months	API integration framework, advanced analytics, governance & compliance, performance tuning

Conclusion

The proposed AI-first FP&A web application will replace IBM Cognos TM1 and transform the finance team's operations from a record-centric system into an intelligent assistant. By delivering features in phased MVPs, the team can validate functionality early, manage complexity and progressively introduce advanced AI capabilities. The end goal is a scalable, user-friendly platform that automates routine tasks, surfaces actionable insights and enables finance professionals to focus on strategic analysis.

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