Solution Overview

ElixirData is an enterprise-ready **Agentic Data Intelligence Platform** that unifies, governs, and analyzes data across modern platforms (Databricks, Snowflake, Azure Synapse) and legacy enterprise systems (SAP, Oracle EBS, Dynamics 365).

It is powered by a **multi-agent semantic context fabric** orchestrated through the **ElixirData Orchestrator**. By combining **discovery, governance, observability, quality, and semantic context agents** with **insight (Nyra), anomaly (Oracle), and prediction (Vera) agents**, ElixirData empowers enterprises with explainable intelligence at scale.

The platform integrates **AI-augmented dashboards** (similar to ThoughtSpot) and conversational natural language interfaces, enabling business users to directly explore and act on data with speed, trust, and compliance.

Problem Statement

Enterprises struggle to realize value from data due to:

- **Fragmented silos** across ERP, CRM, and lakehouse platforms
- **Inconsistent metadata** and lack of semantic context
- **Manual analysis cycles** that are error-prone and slow
- **Lack of governance and auditability** in AI-driven analytics
- **Inaccessible insights** due to reliance on technical teams
- **Absence of real-time anomaly detection and forecasting**

ElixirData addresses these challenges with a **governed, agentic intelligence platform** that unifies data context, delivers explainable insights, and enforces Responsible AI.

Solution Detail

ElixirData employs a **dual-layer agentic architecture**:

Semantic Context Layer Agents

- **Data Discovery Agent** – Identifies and catalogs datasets, schemas, and relationships
- **Governance Agent** – Applies access policies, compliance rules, lineage
- **Observability Agent** – Monitors Context Building pipelines, detects anomalies, ensures SLA compliance
- **Quality Agent** – Validates data integrity, consistency, and completeness

- **Context Fabric Agent** – Builds a semantic graph unifying enterprise data context

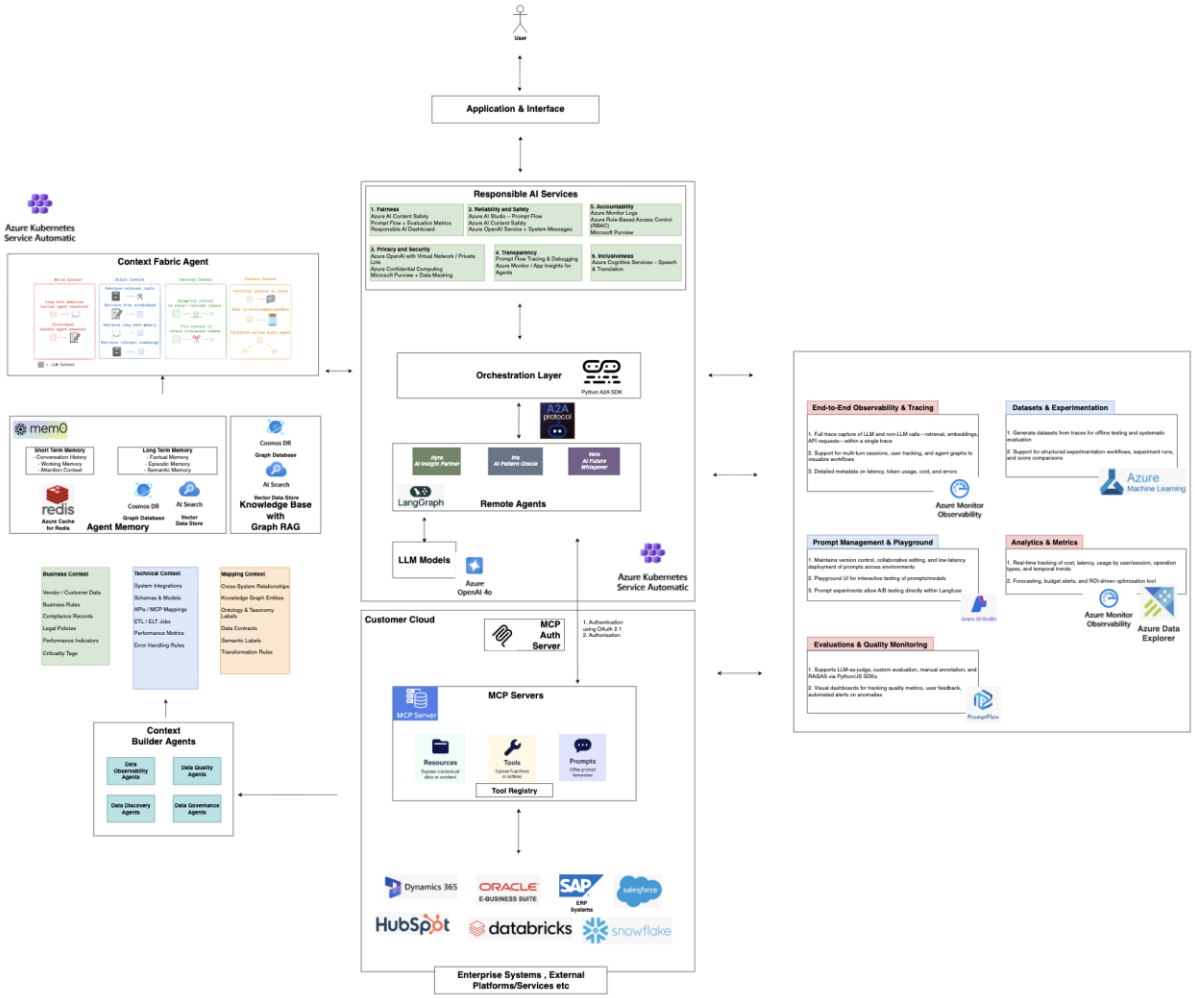
Analytics & Insight Agents

- **Nyra (Insight Agent)** – Provides narrative-driven insights and dashboards
- **Oracle (Anomaly Agent)** – Detects anomalies in financial and operational systems
- **Vera (Prediction Agent)** – Forecasts trends, demand, and performance outcomes

Orchestration & Infrastructure

- **ElixirData Orchestrator** manages all agents via the A2A protocol
- **Containerized deployments** on AKS with Redis, Cosmos DB, and AI Search as semantic memory
- **Observability and compliance** via Azure Monitor, Prompt Flow, and Responsible AI services

Technical Architecture



Layers include:

1. **User Interface Layer** – Natural language and AI-augmented dashboards
2. **Responsible AI Layer** – Fairness, bias, transparency, safety monitoring
3. **Orchestration Layer** – ElixirData Orchestrator with A2A protocol
4. **Semantic Context Layer** – Discovery, governance, observability, quality, context fabric agents
5. **Analytics Agents Layer** – Nyra, Oracle, Vera
6. **MCP Servers** – Secure connectors for ERP/CRM/data lakes
7. **Observability Stack** – Azure Monitor, Prompt Flow, Data Explorer
8. **Deployment Layer** – Azure Kubernetes Service

Key Components

- **Orchestrator Agent** – Central control for workflows, state, and routing

- **Semantic Context Agents** – Data discovery, governance, observability, quality, context fabric
- **Analytics Agents** – Nyra (insight), Oracle (anomaly), Vera (prediction)
- **Context Orchestrator** – Memory and knowledge retrieval (Redis, Cosmos DB, AI Search)
- **MCP Servers** – Secure integration with enterprise platforms
- **Responsible AI Services** – Content safety, fairness evaluation, explainability

Integration Points

- **Enterprise Systems**: SAP, Oracle EBS, Dynamics 365, Salesforce, HubSpot
- **Data Platforms**: Snowflake, Databricks, Azure Synapse
- **Authentication**: Azure AD, MCP Auth Server
- **Monitoring & Evaluation**: Azure Monitor, Prompt Flow, Data Explorer
- **AI-Augmented Dashboards**: ThoughtSpot-style dashboards integrated into ElixirData

Use Cases

- **Revenue forecasting and margin analysis**
- **Supply chain demand prediction**
- **Churn detection and customer insights**
- **Financial anomaly detection and fraud prevention**
- **Operational SLA monitoring and root-cause analysis**
- **Narrative-driven executive summaries**

Customer Pain Points Addressed

- Inaccessible siloed data
- Manual, error-prone analytics
- Lack of semantic alignment and governance
- Absence of anomaly detection and forecasting tools
- Heavy reliance on IT/engineering for insights
- Compliance and audit gaps

Industry-Specific Applications

- **Manufacturing**: Vendor delays, quality issues, inventory forecasting
- **Retail**: Category performance, customer insights, demand forecasting
- **Financial Services**: Risk analysis, compliance, anomaly detection
- **Healthcare**: Claims anomalies, service optimization
- **Telecom**: Network optimization, predictive service desk automation

Sample Customer Journey

1. Business user asks: *"Why did Q2 revenue drop in North America?"*
2. **Semantic Interpretation Agent** translates query into analytical intent.
3. **Context Fabric Agent** aligns "revenue" and "Q2" with ERP data schema.
4. **Query Planning Agent** generates retrieval workflow.
5. **Data Access Agent** pulls data from SAP and Snowflake.
6. **Oracle Agent** identifies anomaly: vendor delays.
7. **Nyra Agent** narrates: *"Q2 revenue decline was driven by Vendor ABC's delays, impacting SKU performance."*
8. User follows up: *"What is Q3 forecast?"*
9. **Vera Agent** predicts upward recovery trends.

Technical Requirements

- Azure subscription with OpenAI and Prompt Flow access
- AKS cluster for scalable deployments
- Redis + Cosmos DB + Azure AI Search for semantic context memory
- MCP connectors for ERP/CRM/data lakes
- Azure Monitor + Data Explorer for observability

Security Architecture

- **MCP Auth Server** for RBAC and centralized authentication
- **Private networking** (VNet, Private Link) for secure access
- **Data governance** via Azure Purview and Governance Agent
- **Confidential execution** for PII-sensitive workloads
- **Full audit logs** for traceability and compliance

Performance Considerations

- Modular agents enable parallel execution
- Semantic memory reduces repetitive query latency
- Dynamic orchestration ensures load balancing
- Caching speeds repeated questions
- Real-time observability for bottleneck detection

Tools and Azure Services Used

- **Azure OpenAI, Azure AI Foundry Studio**
- **Azure Monitor, Data Explorer, App Insights**
- **Azure Purview**
- **Azure Kubernetes Service (AKS)**
- **Cosmos DB, Redis, Azure AI Search**

Users of Agent

- Enterprise Analysts
- Finance Controllers
- Operations & Sales Leaders
- CX and Support Managers
- Data Engineers & Architects (administrators)

Dependencies

- MCP platform for connectors
- Pre-built agent prompts and semantic models
- Integration with enterprise identity providers
- Azure cloud infrastructure with observability stack

Key Benefits and Differentiators

- **Semantic Context Fabric** unifies data across systems
- **Specialized agents** for discovery, governance, anomaly, and prediction
- **AI-augmented dashboards** for business-friendly self-service analytics

- **First-class Responsible AI** with compliance and explainability
- **Scalable modular architecture** adaptable to any enterprise

Value Proposition

ElixirData transforms enterprise decision-making by enabling users to directly query complex data with **natural language and dashboards**, receive **explainable insights**, and trust outputs with **governance and auditability**.

Its modular, secure, and future-ready architecture bridges the gap between **raw enterprise data and contextual, explainable intelligence.**