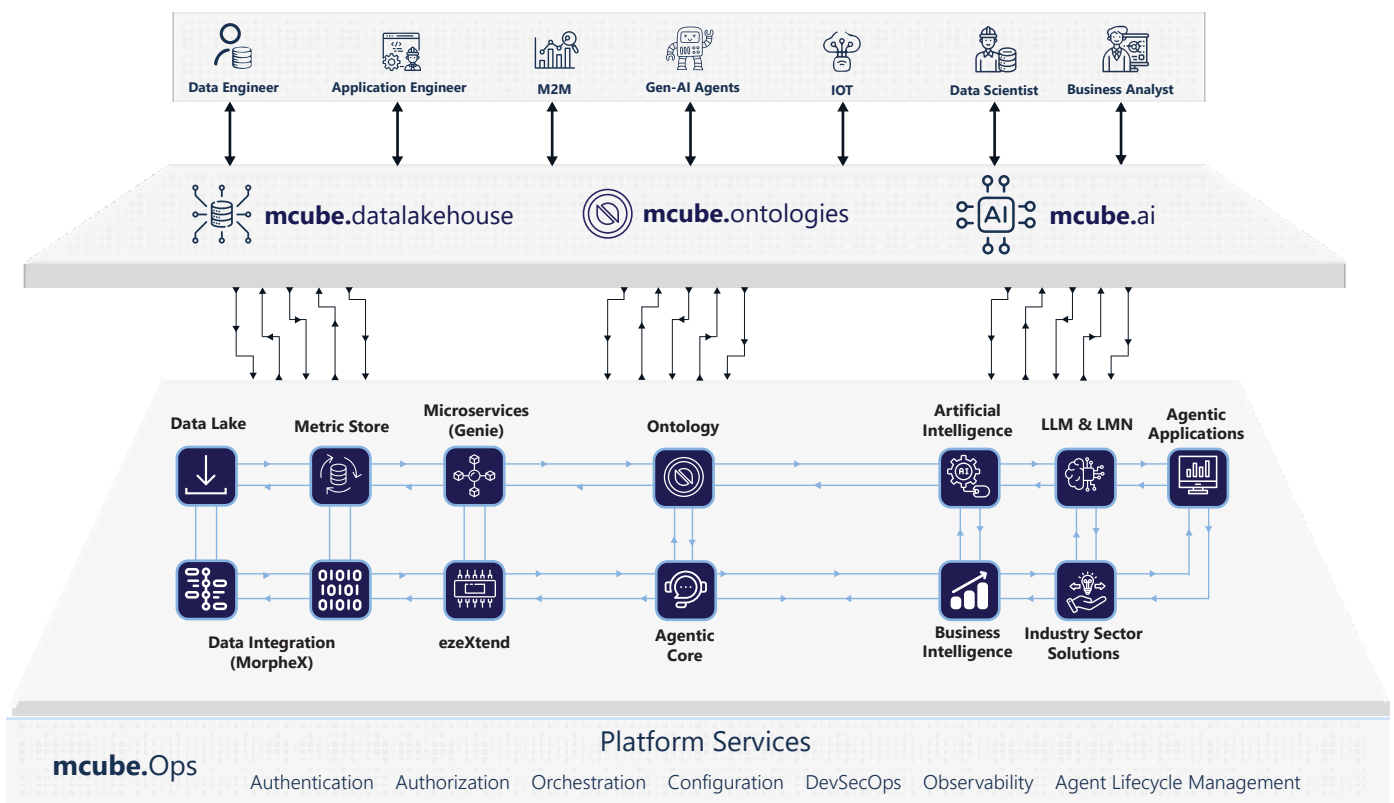


# Optimizing Operations, Driving Higher Margins

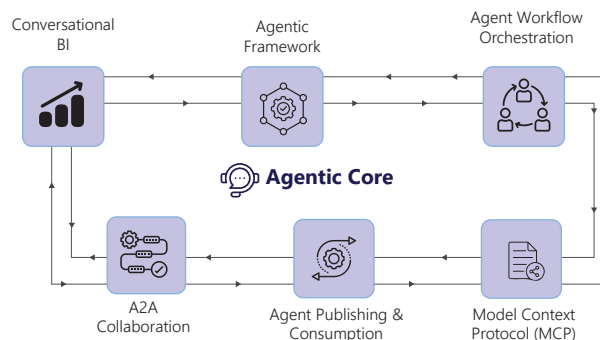
mcube™ is TCG Digital's Agentic & Enterprise AI platform - engineered at the intersection of deep industry knowledge and digital innovation. Built on domain-driven design, the platform transforms enterprise data into contextual intelligence through a semantic and ontology foundation, while its Agentic Core, enables production grade autonomous agents to orchestrate complex workflows, and operationalize intelligence across real-world enterprise operations.

Combined with LLM integrations and platform innovations such as AI 2.0, ezeXtend, and Genie, mcube™ helps organizations scale AI adoption and drive measurable impact across complex enterprise data environments.

## mcube™ Architecture



mcube.ai is the intelligence layer of the platform, providing an integrated environment for building, deploying, and operationalizing AI at scale. It combines advanced AI development tools, Agentic AI capabilities, low-code configuration, and business intelligence to empower both data scientists and business users to deliver impactful AI-driven solutions.



## The Agentic Core of mcube™

The **Agentic Core of mcube™** enables enterprises to operationalize AI through intelligent, autonomous agents that understand business context, orchestrate workflows, and execute actions across enterprise systems. Built on domain ontologies and enterprise data, these agents transform enterprise insights into autonomous decisions and operational outcomes.

### Agentic Framework

Provides the architectural foundation for building enterprise AI agents that combine ontology-driven context, enterprise data, and LLM intelligence to enable reasoning and action.

### Agent Workflow Orchestration

Coordinates multi-agent workflows to execute complex business processes and automate operational decisions across enterprise systems.

### A2A Collaboration

Enables specialized agents to collaborate, share context, and jointly solve complex enterprise challenges.

### Model Context Protocol (MCP)

The universal connective tissue that seamlessly orchestrates agents and data, transforming raw enterprise information into ranked business recommendations.

### Agent Publishing & Consumption

Allows agents to be securely deployed and reused across applications, accelerating enterprise-wide AI adoption.

### Agent Lifecycle Management

Provides governance across agent deployment, monitoring, and continuous improvement to ensure scalable and responsible AI operations.



## AI 2.0 Workbench

- Extended Auto EDA with customization capabilities
- Auto-ML for accelerating AI workflows
- Robust MLOps to move AI models from PoC to large-scale production



## Multi-modal AI workflows

Classical ML, Deep Learning, Computer Vision, Gen-AI, all accessible from a low-code front-end



## ezeXtend: Low-Code Configuration

- Low-Code Configuration of web interface screens for data capture / write-back / customized presentation / interaction with AI process flows
- Drag-drop & Graphical Widgets in constructing new web screens
- Seamless Interaction with our micro-services framework



## Genie: The Microservices Framework

- On-demand, scalable orchestration, and execution of services
- Reuse of complex processes/functions
- Supports license-based access/authentication
- Integration with any RESTful services accessible by mcube™



## Conversational BI for Intuitive Insights

- Data visualization with an extensive library of charts and graphs
- Interactive BI dashboards that users can query, ask questions, and receive quick insights in real time
- Self-service dashboards for business users to explore and analyze data independently
- Operational reporting to support compliance and governance

mcube.data provides the intelligent data foundation of the platform, purpose-built to make enterprise data agent ready. It enables organizations to ingest, unify, and contextualize structured, semi-structured, and unstructured data across real-time and batch environments, creating a scalable, secure, and governed data layer that powers Agentic AI and enterprise decision-making at scale.

## MorpheX – Intelligent Data Pipeline Engineering

MorpheX redefines enterprise data integration through **AI-driven, metadata-powered pipeline engineering**. As a conversational Software-Driven Data Integration (SDDI) capability, MorpheX enables organizations to design, generate, and operationalize complex data pipelines through natural language and intelligent automation—dramatically accelerating the journey to **AI-ready and agent-ready data**.



### Conversational Pipeline Generation

Enables users to define data integration requirements through natural language, automatically translating business intent into fully structured data pipelines.



### Metadata-Driven Automation

Leverages metadata, semantic intelligence, and reusable pipeline frameworks to automatically generate scalable, production-grade data pipelines across complex enterprise ecosystems.



### Low-Code Data Engineering at Scale

Empowers data engineers, analysts, and domain experts to rapidly build and deploy integration pipelines—reducing development cycles from weeks to hours while maintaining enterprise-grade governance and reliability.



## LLM Connectors

- Connects large language models with enterprise data sources to power contextual AI/Agentic.
- Enables integration with internal and third-party systems for real-time information access.
- Provides a unified interface for interacting with both cloud and on-premise LLM environments.



## DevSecOps

- Embeds security and compliance directly into development and deployment pipelines.
- Enables continuous monitoring, vulnerability detection, and automated risk mitigation.
- Supports real-time incident detection and response within DevOps environments.



## Edge Computing

- Enables local data processing to support low-latency decision-making and operational resilience.
- Supports distributed analytics across edge and IoT environments.
- Optimizes bandwidth usage, security, and reliability in decentralized data architectures.

mcube.ontologies provides the semantic foundation, transforming enterprise data into a shared, business-contextualized knowledge layer. By defining core business concepts, relationships, and rules through ontologies and knowledge graphs, it makes data consistent, explainable, and immediately usable across workflows.



## Semantic Harmonization

Maps disparate enterprise data to a common business vocabulary, reducing ambiguity and creating a consistent semantic foundation across systems.



## Knowledge Graph Contextualization

Builds dynamic knowledge graphs that connect data, entities, processes, and dependencies, enabling a richer context for enterprise decisions and automation.



## Ontology-Driven Reasoning

Applies business rules and semantic relationships to infer insights, detect inconsistencies, and improve the reliability of downstream analytics and AI.



## AI Grounding and Explainability

Provides the contextual layer that grounds AI and LLM outputs in enterprise meaning, improving accuracy, transparency, and trust.



## Governed Semantic Interoperability

Enables data, applications, and AI agents to operate on a governed semantic model, accelerating reuse, integration, and enterprise-wide scale.

# Solving the Most Complex Business Challenges with mcube™



## Agentic Command Center for Plant Operations & Maintenance

See how mcube™ enables intelligent plant operations through multiple AI agents working together, combining real-time monitoring, asset reliability insights, and supply intelligence. Detect operational risks early, generate maintenance playbooks, and evaluate supplier scenarios—helping teams move from alerts to informed action in minutes.

[Scan for Platform Demonstration](#)

## Agentic AI for Hydrocracking Catalyst Discovery & Optimization

Discover how Agentic AI accelerates petrochemical R&D by transforming hydrocracking catalyst development. This demo showcases a human-in-the-loop, multi-agent workflow that generates, evaluates, and optimizes catalyst hypotheses - reducing experimentation cycles while maintaining scientific control and delivering faster, lab-ready insights.

[Scan for Platform Demonstration](#)



## Agentic Framework for IROPs Management

Strengthen airline operational resilience with mcube™. The Agentic IROPs framework combines predictive intelligence, proactive passenger communication, and optimization agents to anticipate disruptions and coordinate recovery strategies—helping airlines manage delays, cancellations, and resource constraints with greater agility and efficiency.

[Scan for Platform Demonstration](#)





TCG Digital is the AI & Digital arm of The Chatterjee Group (TCG). For 25 years, we've operated at the intersection of domain depth and digital excellence—partnering with global enterprises to embed AI into mission-critical operations, securely and at scale.

At the core is mcube™, our enterprise and agentic AI platform, built on strong domain-driven thinking and design. mcube™ unifies data, ontologies, and advanced AI models to navigate disparate data landscapes, accelerate decision-making, and deliver measurable ROI — with accelerated time-to-value! Driven by our mantra "Velocity to Value," we enable enterprises to transform smarter, and innovate with confidence. Operating from 11 global offices, TCG Digital serves enterprises across North America, Europe, Asia, Middle East & Africa.

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