QUANTORI

The Lab of the Present

Lowering the Barriers to Scientific Innovation with Quantori's Q-Suite Accelerators

Chris L. Waller, PhD | Bio-IT World 2026

Quantori moves beyond IT services to build AI-enabled digital solutions that solve the most complex healthcare and life sciences problems

With deep domain expertise and end-to-end capabilities in AI, data science, and software engineering, we help biotech, pharmaceutical, and healthcare organizations accelerate research, enhance data-driven decision-making, and improve patient outcomes.

Quantori at a Glance

QUANTORI

Trusted by Industry Leaders

Partnering with leading biotech, pharma, and healthcare organizations worldwide to deliver AI and scientific computing solutions

Domain Knowledge

Specializing in pharmaceutical, healthcare, and life sciences, with a strong blend of technology and regulatory knowledge

AI-Driven Scientific & Data Platforms

Delivering AI-powered solutions for drug discovery, bioinformatics, scientific data platforms, and advanced analytics

Agile & Scalable Team

600+ experts worldwide with a flexible, adaptable engagement model, ensuring rapid onboarding and seamless scalability for any project

Q-Suite

Zero Gravity Solution Accelerators

Q-SUITE™: Powering Life Sciences R&D

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Q-Suite™ is Quantori's comprehensive, modular platform powered by agentic AI designed to fundamentally transform the way biopharma and healthcare organizations conduct R&D, manage knowledge, and optimize their infrastructure.

Q-Scientist

Enterprise AI and data platform enabling advanced scientific R&D workflows.

Flagship Platform

Q-Discover

Agentic AI platform accelerating drug discovery and computational chemistry.

Q-Data

AI-ready data platform that unifies fragmented life sciences datasets.

Q-Portal

Secure enterprise environment for governed use of LLMs and Generative AI.

Q-Models

Integrated Bio-AI models supporting molecular design and screening workflows.

Q-HPC

Agentic platform that automates and optimizes large-scale scientific computing.

Q-Image

AI platform for longitudinal medical imaging analysis and disease progression modeling.

Accelerate Scientific Discovery

Unify Data and Research Workflows

Scale R&D with Enterprise Infrastructure

Enable Secure Enterprise AI Adoption

Q-Scientist: The Agentic AI Backbone for Life Science R&D

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The flagship platform of the Q-Suite™ AI ecosystem – orchestrating complex scientific workflows, integrating fragmented data, and delivering intelligence directly to the point of decision.

Platform Capabilities

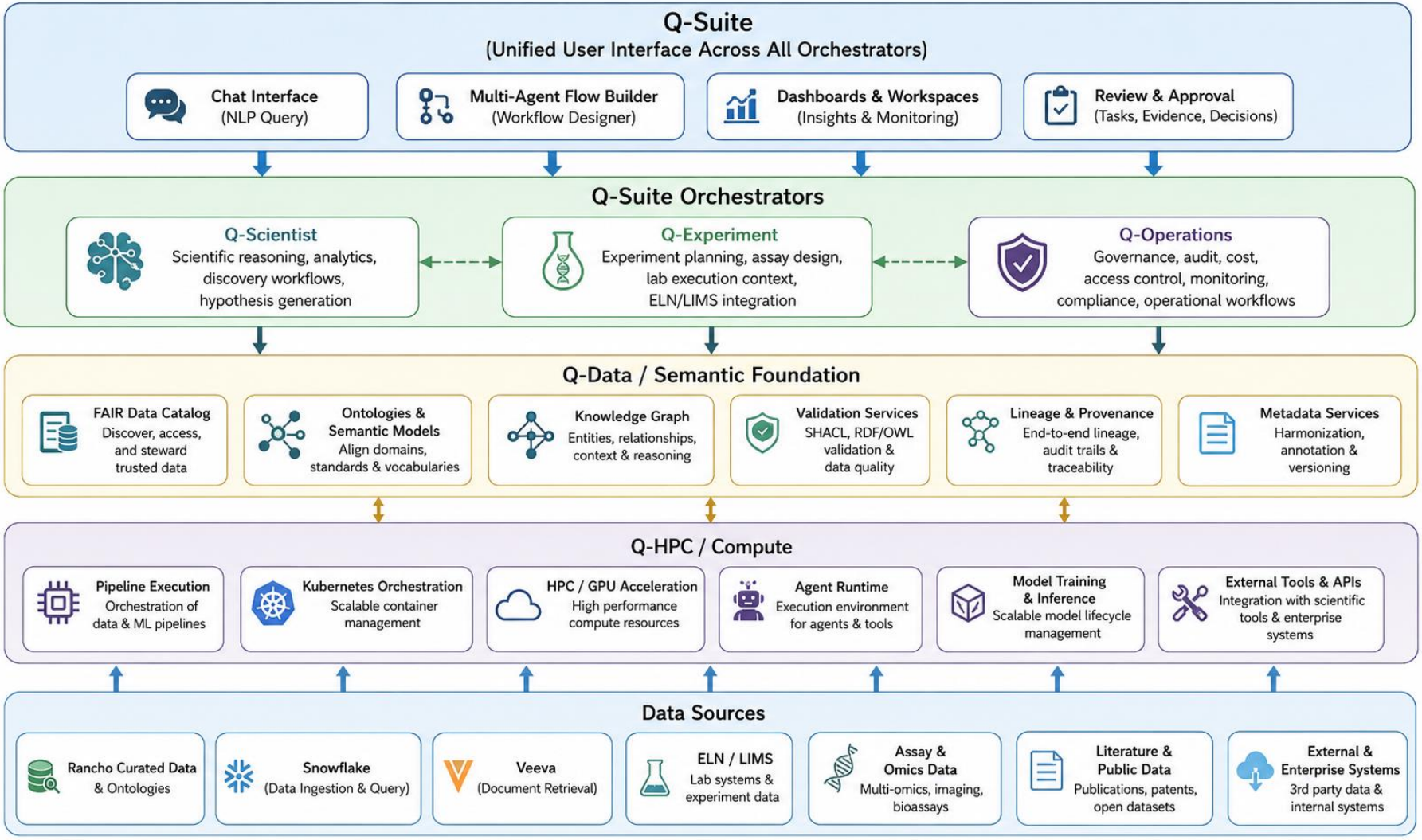
- Agentic Workflow Automation
- Domain-Specific AI Modeling
- Multi-Modal Data Integration
- Unified User Experience

Core R&D Accelerators

- Target Identification & Biomarker Discovery
- Predictive PK/PD Modeling
- AI-Driven Molecular Generation

ENTERPRISE-READY

- Cloud-agnostic (AWS, GCP, Azure)
- HPC-optimized infrastructure
- Enterprise security & access control


Q-Suite
(Unified User Interface Across All Orchestrators)
Chat Interface
(NLP Query)
Multi-Agent Flow Builder
(Workflow Designer)
Dashboards & Workspaces
(Insights & Monitoring)
Review & Approval
(Tasks, Evidence, Decisions)
Q-Suite Orchestrators
Q-Scientist
Scientific reasoning, analytics, discovery workflows, hypothesis generation
Q-Experiment
Experiment planning, assay design, lab execution context, ELN/LIMS integration
Q-Operations
Governance, audit, cost, access control, monitoring, compliance, operational workflows
Q-Data / Semantic Foundation
FAIR Data Catalog
Discover, access, and steward trusted data
Ontologies & Semantic Models
Align domains, standards & vocabularies
Knowledge Graph
Entities, relationships, context & reasoning
Validation Services
SHACL, RDF/OWL validation & data quality
Lineage & Provenance
End-to-end lineage, audit trails & traceability
Metadata Services
Harmonization, annotation & versioning
Q-HPC / Compute
Pipeline Execution
Orchestration of data & ML pipelines
Kubernetes Orchestration
Scalable container management
HPC / GPU Acceleration
High performance compute resources
Agent Runtime
Execution environment for agents & tools
Model Training & Inference
Scalable model lifecycle management
External Tools & APIs
Integration with scientific tools & enterprise systems
Data Sources
Rancho Curated Data & Ontologies
Snowflake
(Data Ingestion & Query)
Veeva
(Document Retrieval)
ELN / LIMS
Lab systems & experiment data
Assay & Omics Data
Multi-omics, imaging, bioassays
Literature & Public Data
Publications, patents, open datasets
External & Enterprise Systems
3rd party data & internal systems

The Paradox of Productivity

Unprecedented Investment vs. Manual Bottlenecks

AI Transformation Barriers in Pharma Labs

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From European Pistoia Alliance Meeting Future Labs Breakout – April 15, 2026

Primary barriers are human and organizational, not technical

- Change fatigue from continuous transformation without adequate support
- Capability gaps across functions - need people who speak both science and technology
- These bridging professionals are rare and unevenly distributed

Process fragmentation issues

- Siloed functions operating without shared governance
- No clear ownership of AI tools
- Human-in-the-loop accountability exists on paper but not in practice
- Validation culture devolves to overvalidation for everything

Technology challenges

- Legacy systems that don’t communicate
- Data without standards
- Tools built for individual use cases that don’t scale
- Infrastructure not designed for integrated AI-enabled workflows

Fragmented Silos and Bottlenecks

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The Computational Bottleneck

Model Drift

Models degrade as unique corporate data is generated

Explainability Chasm

"Black box" AI inhibits scientific trust

Reproducibility Crisis

Lack of version control for model state

The Physical Bottleneck

Data Fragmentation

Research trapped in disparate ELNs/LIMS

Manual Overhead

Scientists spend 40% time on repetitive tasks

Automation Gap

Robots are "blind" task-executors

Agentic AI: Intelligence in Motion

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From Tools to Collaborators

> Unlike standard software requiring human triggers, **Agentic AI** possesses autonomous reasoning and planning capabilities.

> Agents decompose high-level scientific goals (e.g., *"Optimize this lead for better ADMET"*) into actionable instructions for digital and robotic systems.

The Three Pillars of the Framework

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Autonomous Agents

Specialized entities that decompose complex scientific goals into granular, actionable steps.

AI Workflows

The digital nervous system orchestrating agents across simulations and robotic hardware.

Managed Services

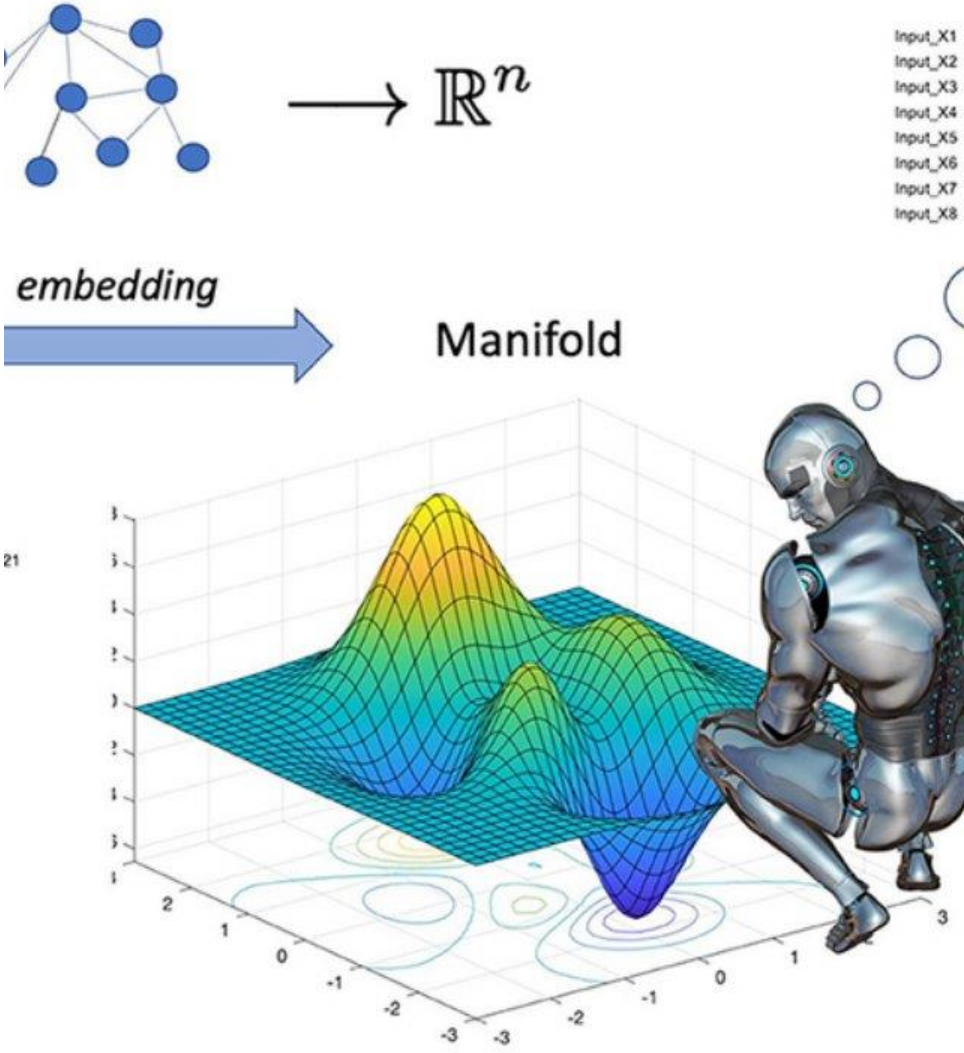
MAIS provides governance, retraining, and monitors for "hallucinations" in the agent ecosystem.

The Semantic Guardrail

Knowledge Graphs as Ground Truth

> The greatest risk is unconstrained autonomy. Quantori solves this through the **Q-Scientist Actions Graph.**

> Agents act on **Semantic Logic**: KGs enforce the laws of chemistry and biology, ensuring synthesis is physically possible and safe.



Standardizing with MCP

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N + M

Integration Efficiency

Model Context Protocol

MCP creates a standardized, two-way connection for AI agents, allowing them to interface seamlessly with data sources and tools without custom code.

By solving the "NxM" integration problem, we empower agents to query LIMS, EHRs, and CDS rules engines dynamically and securely.

The “Optimal” Self-Optimizing DMTA Cycle

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1. Design

Q-Scientist uses Q-Models to suggest candidates based on potency, toxicity, and permeability, etc. instantly.

2. Make

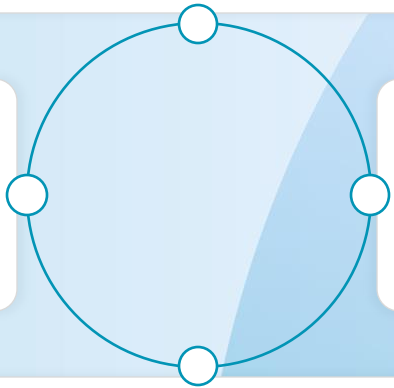
Q-Experiment invokes Q-Data and queries the KG for efficient synthetic routes and programs robots autonomously.

3. Test

Q-Scientist uses Q-HPC and simulates assay conditions using digital twins to optimize results and reduce material waste.

4. Analyze

Q-Scientist uses Q-Data and aggregates instrument data and maps findings back to the original KG hypothesis.



The Agentic DMTA Ecosystem

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A Hybrid Multiple Supplier Agent-based Self-optimizing Community that is Constantly Learning

DESIGN

SandboxAQ

Accelerating compound discovery through physics-based simulation.

- → collaboration
- → **Large Quantitative Models (LQMs)** for binding affinity
- → Integration via **Model Context Protocol (MCP)**
- → Generative molecule design with numerical fidelity

MAKE

Benchling Sapio

Orchestrating laboratory operations and robotic hardware.

- → & agents
- → Direct orchestration of liquid handlers and plate readers
- → **Digital SOPs** translated to robotic protocols
- → Automated inventory and lineage tracking

DMTA CYCLE

ANALYZE

Expert Systems

Derisking compounds with multi-modal context.

- → partnership
- → Predictive **ADMET** & property modeling
- → Synthesis of proprietary lab data + Literature/Patents
- → Decision-support for candidate transition to clinical

TEST

Osmosys

AI-FAIR data capture at the point of creation.

- → Edge Compute
- → Analysis at the point of creation—low cloud latency
- → **AI-FAIR** analytics-ready data structures
- → Eliminating raw data bottlenecks via edge analysis

Accelerating Discovery Velocity

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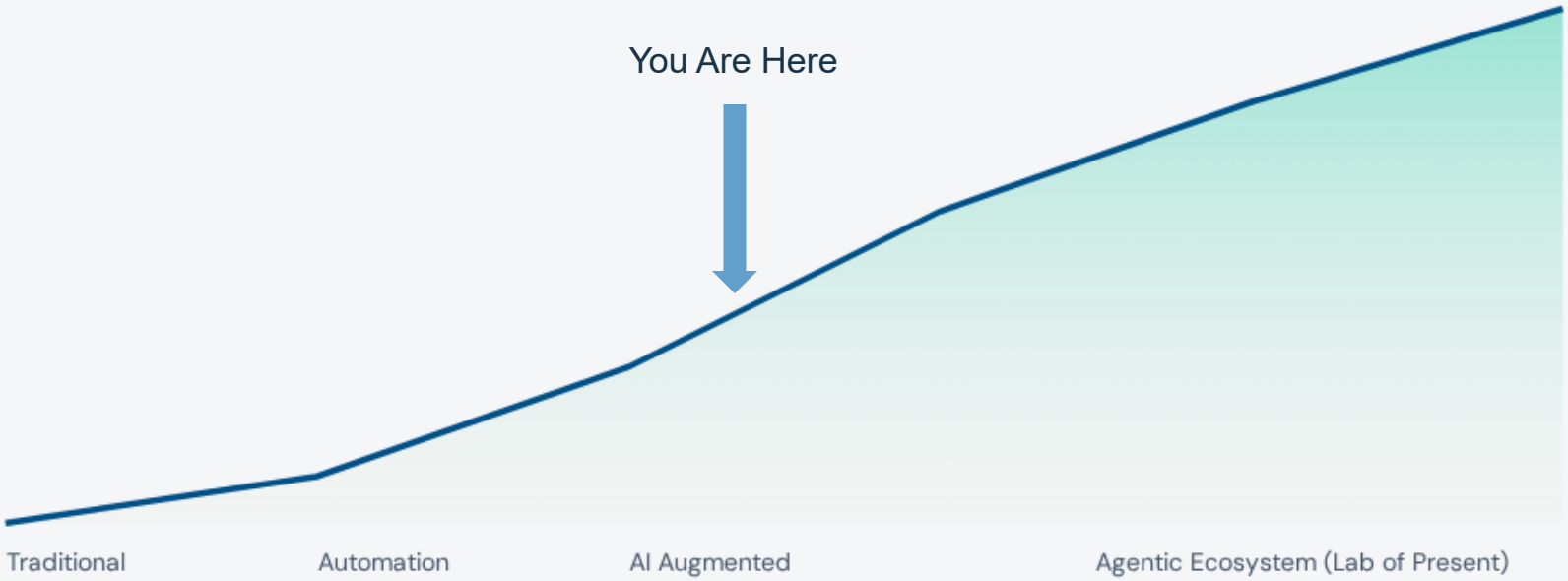

Compressing drug discovery timelines from months to days

Beyond Discovery

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Indicative Agents for Chemistry, Manufacturing, and Controls (CMC)

AGENT PERSONA	CORE FUNCTION	BUSINESS BENEFIT
The Optimizer	**Process Development:** Defines Critical Process Parameters (CPPs)	Robustness against process variations during scale-up
The Translator	**Tech Transfer:** Maps source equipment params to target facilities	Dramatically reduced time and cost of facility transfers
The Documentarian	**CMC Compliance:** Automatically drafts Module 3 sections for FDA/EMA	Eliminates risk of human error in complex regulatory filings

The Silicon Frontier

"We are creating new silicon-based life forms and don’t have the ethical guidelines in place for the treatment of these new creatures."

— Chris L. Waller, Ph.D.

Closing Thoughts: What Could Go Wrong?

Chemistry in Pictures: Radioactive hairdo

Hair oil spiked with radioactive elements seems like an obviously bad idea to us now. But in the decades right after scientists such as Marie Skłodowska-Curie and Pierre Curie observed and characterized nuclear decay, people put radioactive materials into all sorts of personal care products and beverages. One of the biggest brands was Tho-Radia. As the name suggests, the company put varying amounts of thorium and radium into their products, including a line of cosmetics and curatives for adults and teens. The Musée Curie, a small but amazing museum in Paris built around Skłodowska-Curie's office and personal chemistry lab, exhibits this rare Tho-Radia men's hair oil and several other artifacts to educate museum visitors about how public fascination with radiation at that time ran far ahead of the careful scientific work being done to understand it.

Source: https://cen.acs.org/safety/consumer-safety/chempics-radium-cosmetics/104/web/2026/04

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LET'S KEEP THE CONVERSATION GOING

Thank You!

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Come say hi at

Booth #505

May 19-21