Working Session: *Next Generation BI & Analytics*

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Leadership Partner
EITL/DNA
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Talk Data to Me!!!

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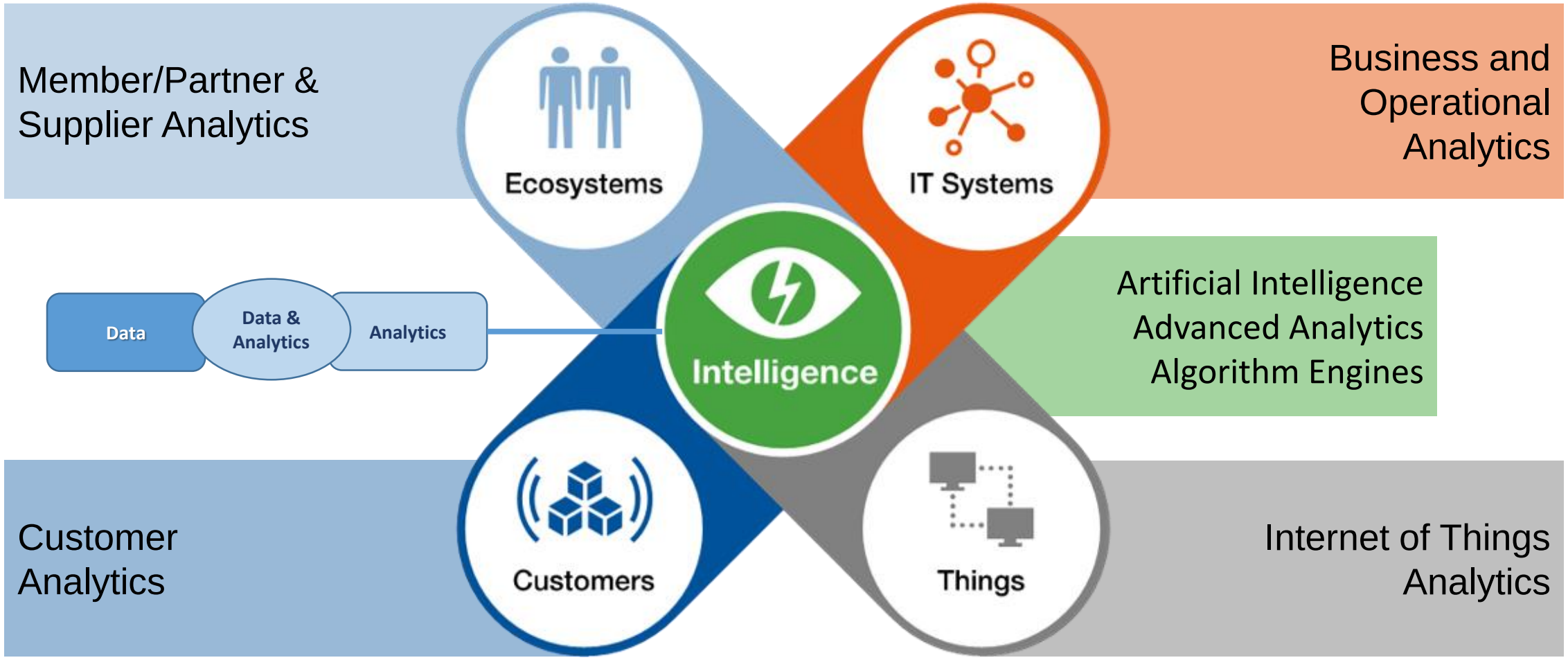
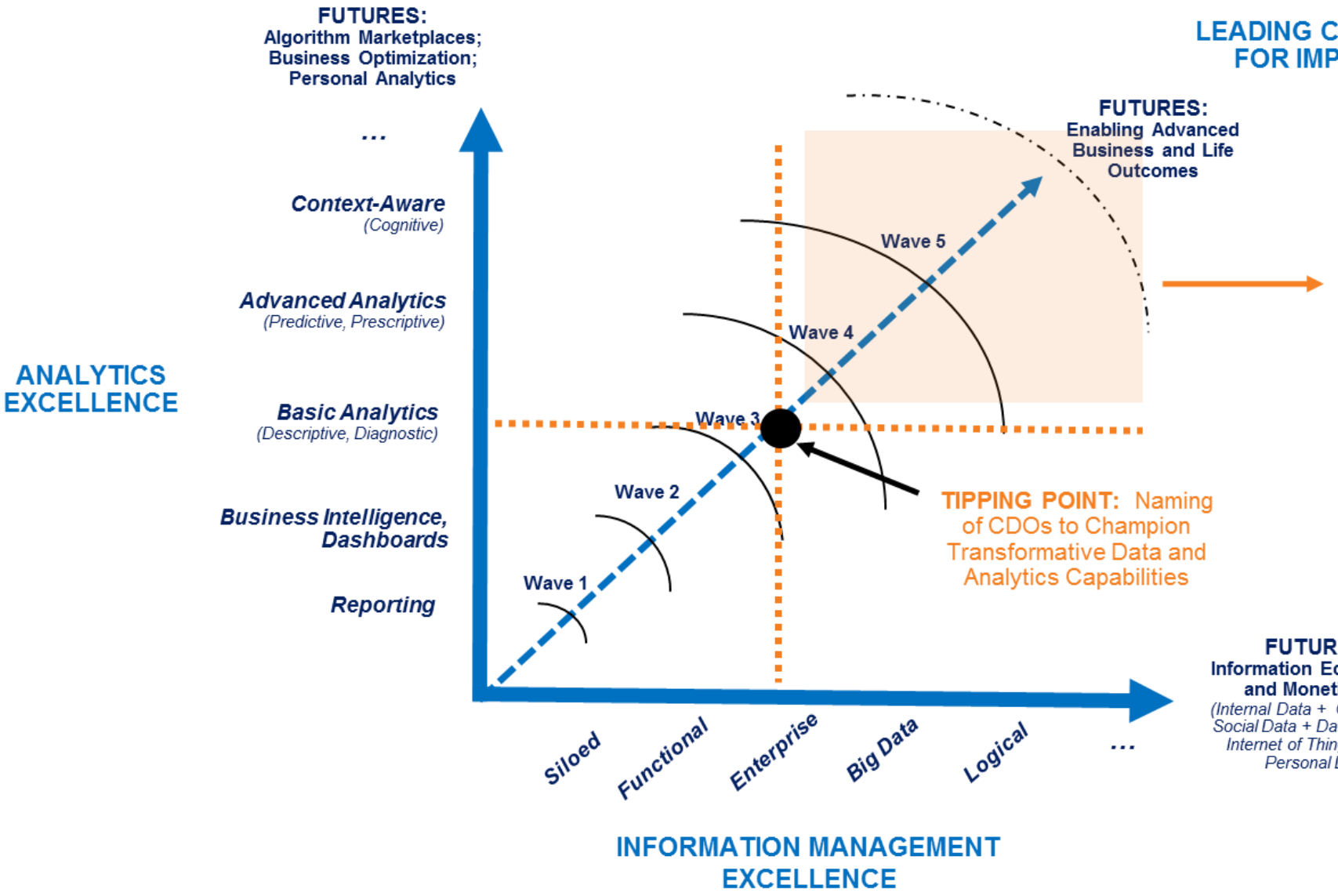
Intelligence Is Central to the Digital Platform



DNA at the Tipping Point



LEADING CHANGE FOR IMPACT

SUCCESS FACTORS:

- **VISION & VALUE: Offense and Defense** (innovative use cases for growth and potential monetization plays, plus efficiency and risk management plays)
- **STRATEGY: Bimodal Approach** (Carve off talent and infrastructure capacity to intentionally support the core, and explore)
- **ORGANIZATION: Hybrid CoE** (Analytics Center/Community of Excellence with supportive hub and empowered self-service/citizen model; active communications, sharing successes)
- **GOVERNANCE: Integrated** (Data AND analytics governance model)

Evolving Analytic Capabilities

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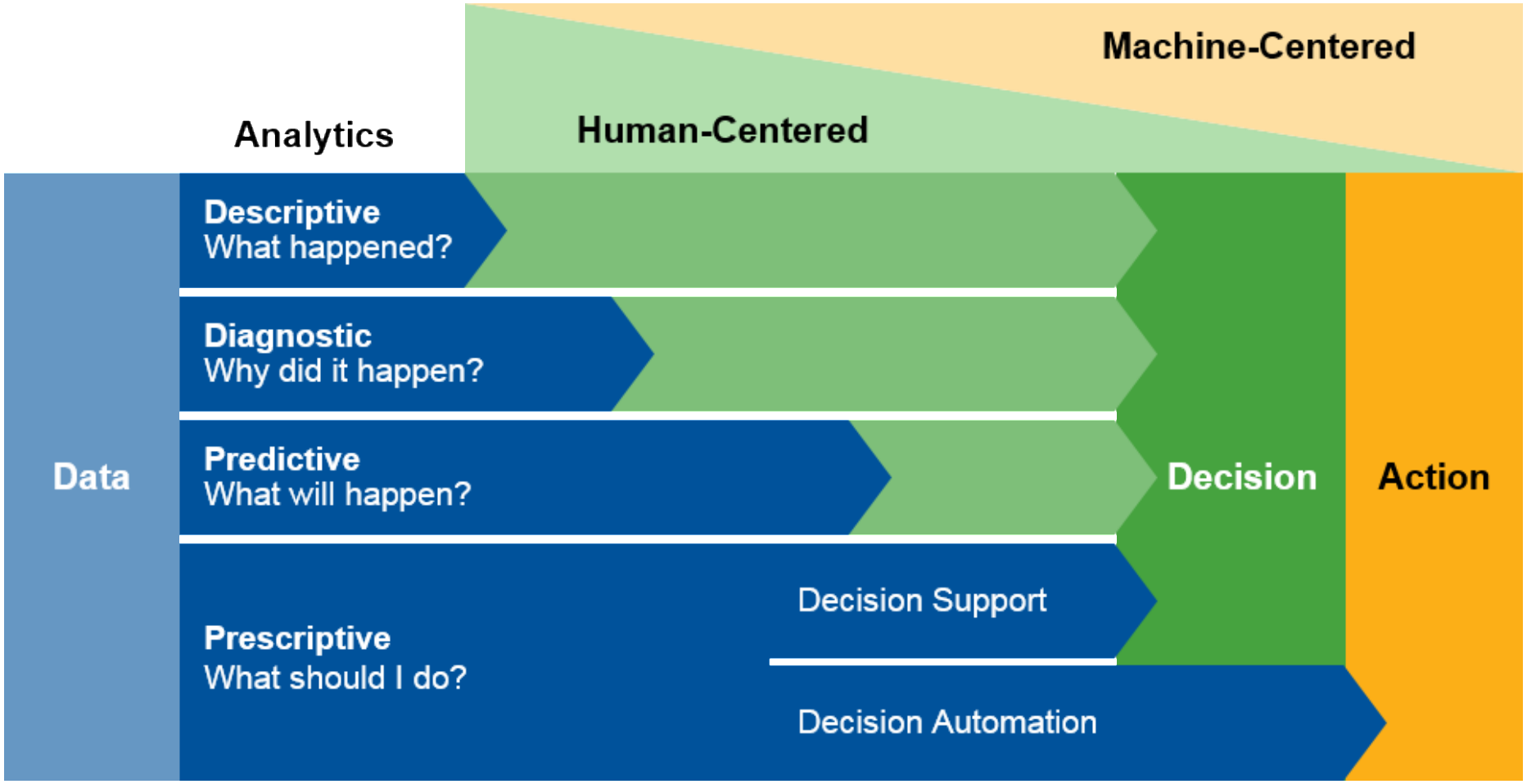
Gartner Analytics Continuum



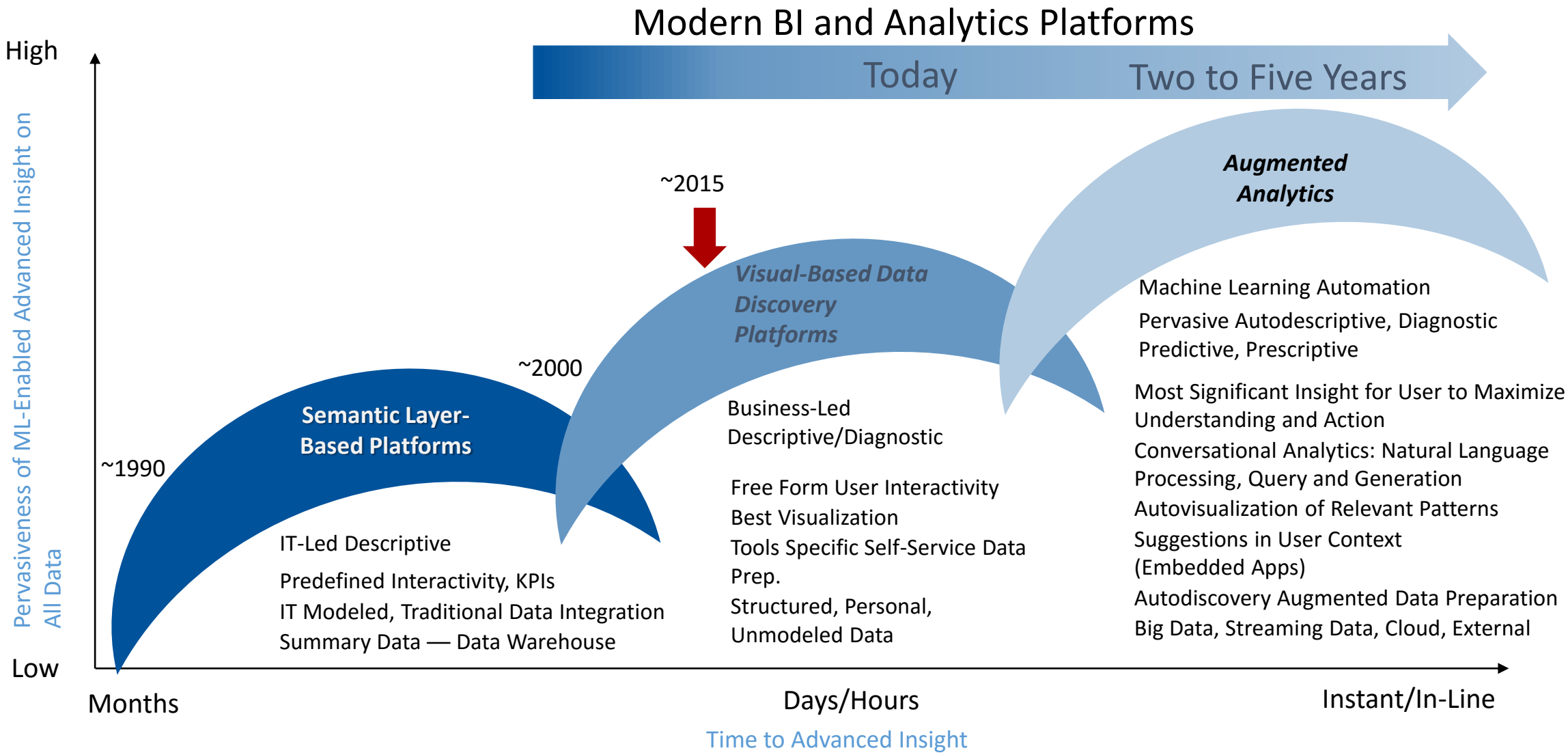
When to Use Which Analytic Capability

- ✓ Use **descriptive analytics** to understand historical performance, alert you to events, spot trends, and monitor the performance of models and actions.
- ✓ Use **diagnostic analytics** to visualize and interact with the data, discover relationships, and explain why you are observing outcomes, events or trends.
- ✓ Use **predictive analytics** to answer questions about the future or to determine the likelihood of unknown outcomes.
- ✓ Use **prescriptive analytics** to optimize decisions, efficiently allocate resources or find the best customer treatments.

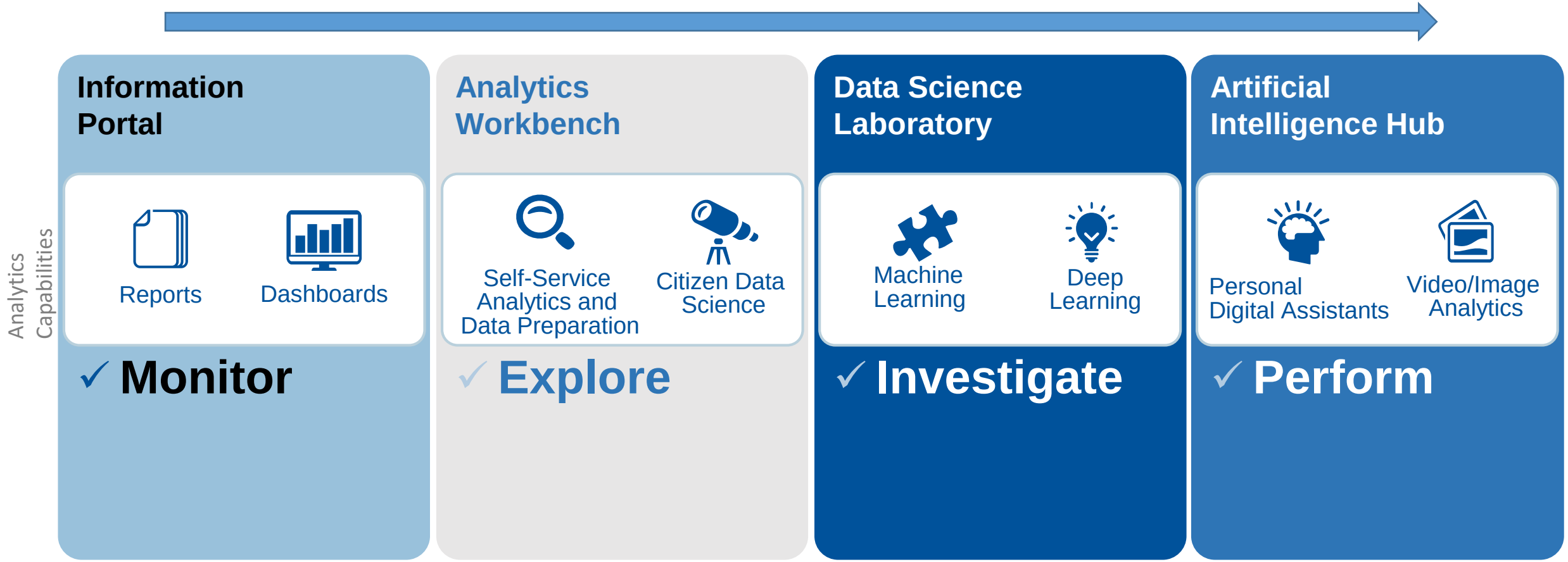
Examples of Analytic Capabilities

	Descriptive and Diagnostic	Predictive	Prescriptive
Questions Answered	• What Happened (Is Happening)? • Why Did It Happen?	• What Will Happen? • What If?	• What Should I Do? • What Is the Best Option?
Sample Technologies	• Interactive Visualization • Descriptive Data Mining • Content Analytics	• Predictive Modeling • Machine Learning • Forecasting • Simulation	• Modeling • Simulation • Optimization • Visualization
Sample Analytical Methods	• Cluster Analysis • Link Analysis • Classification • Principle Component Analysis	• Decision Trees • Regression • Neural Networks	• Decision Trees • Monte Carlo Simulation • Linear and Non-Linear Programming • Game Theory

The Emergence of Augmented Analytics



Analytics Domains



Sample list of analytics capabilities:

Four-Tier Analytic Architecture Supports Functional Clusters

Information Portal	Analytics Workbench	Data Science Laboratory	Decision Hub
Reports, Dashboards	+ Self-Service Analytics & Data Preparation, Citizen Data Science	+ Advanced Analytics, Machine Learning	+ Decision Support, Decision Automation
▪ Credible ▪ Consistent	▪ Agile ▪ Insightful	▪ Advanced ▪ Comprehensive	▪ Automated ▪ Optimized
✓ Monitor	✓ Explore	✓ Investigate	✓ Industrialize

Detailed Data, IT/OT, Audio, Image, …

Local Data Marts, Ad Hoc Files, Social, Open Data, External Data Providers, Text, …

Enterprise DW

Information

The Logical Data Warehouse

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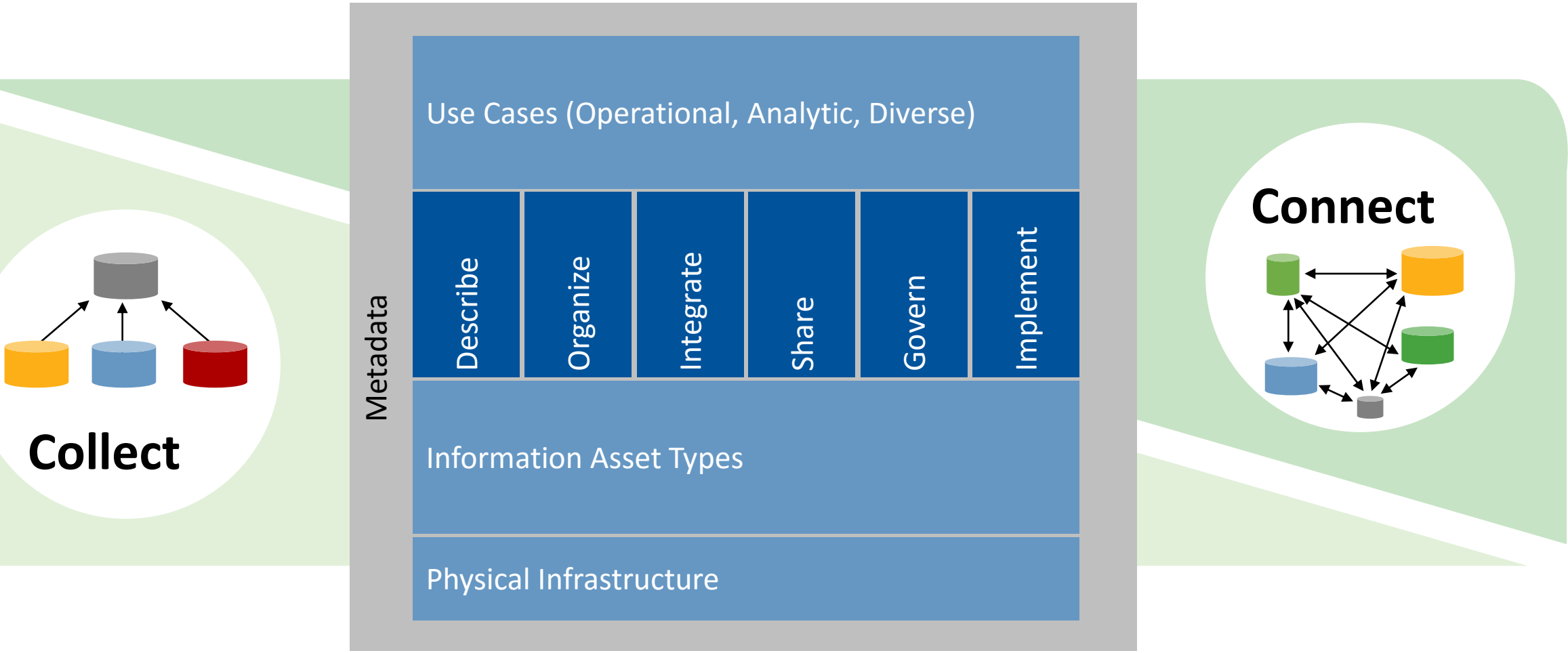
There Is No Single Solution …

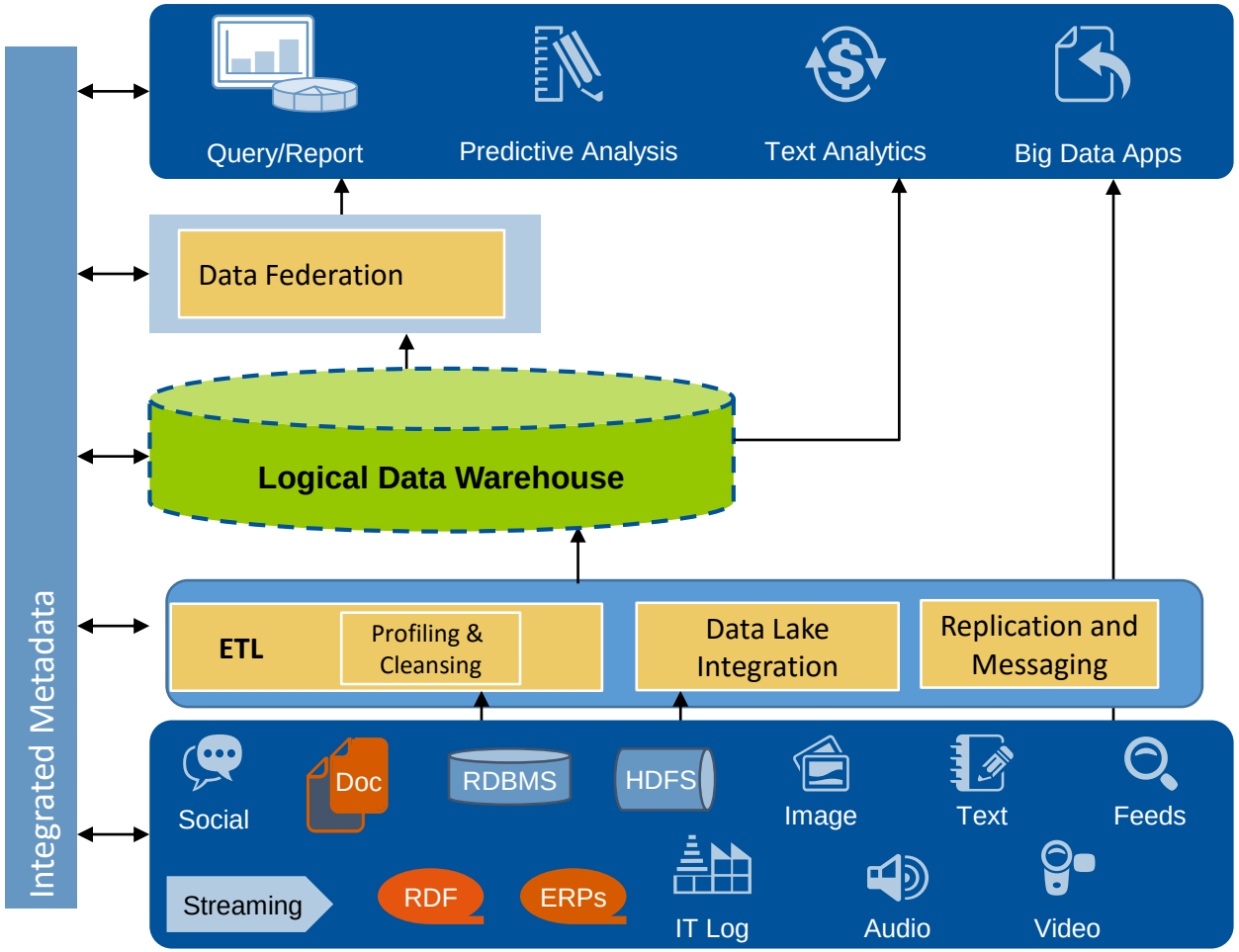
- In a recent Advisory Board survey, 32% of respondents indicated their organization has 5 or more BI solutions, 57% 3 or more.

The single EDW is a concept of the past — actually, it was hardly ever achieved. Your new data warehouse architecture will most likely require *more than one* type of engineering solution.

When to Collect — And Where? *When to Connect — And How?*



The Logical Data Warehouse Uses a Combination of Technology to Deliver



Analytical Clients

Virtual Access

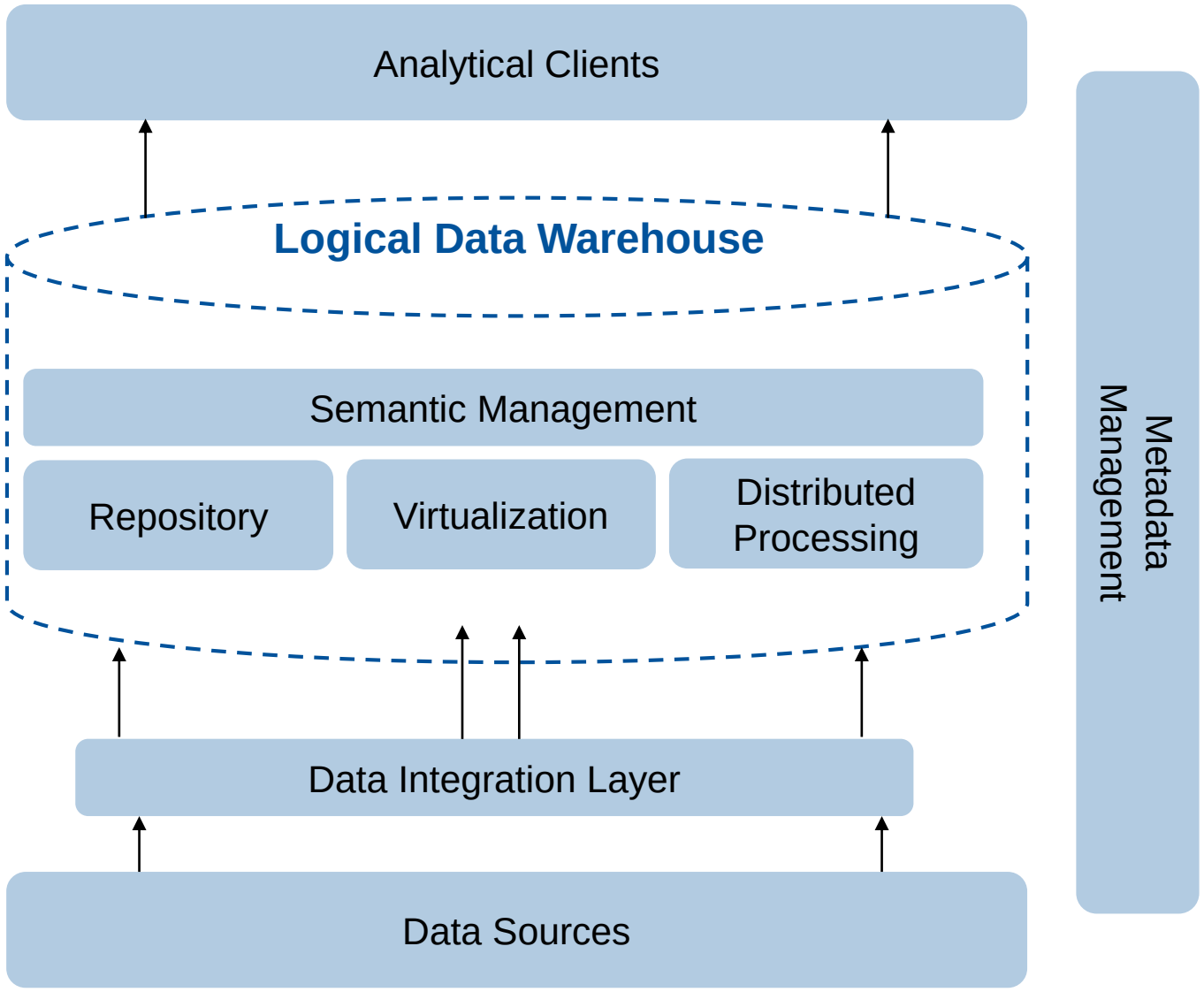
LDW

Data Movement

Information Sources

Most users require multiple approaches, so the architecture must support them.

The LDW Components



The **LDW** is made of the following components:

Data Integration Layer

Batch, mini-Batch, messaging, replication, streaming
(includes SLA requirements, auditing and management statistics)

Data Management Layer

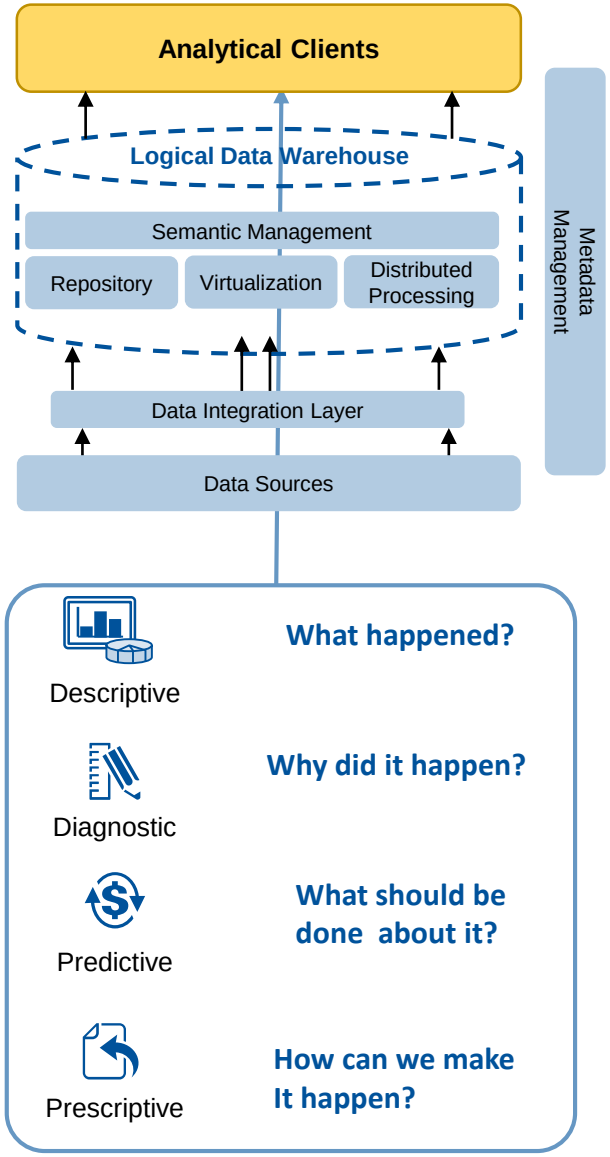
- Repository
- Virtualization
- Distributed processing

Semantic Management

Metadata Management

The above components are surrounded by **Data Sources and Analytic Clients**

Analytic Clients



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✓ Monitor	✓ Explore	✓ Investigate	✓ Industrialize

Market Share Analysis

Risk Stratification

Contact Forecast and Modeling

Customer segmentation …

Financial and Operational Reporting

Decision Support

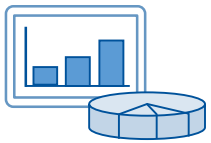
Quality and Compliance Reporting

Cost Analysis

Disease Registries & Outcomes Analysis

Cognitive/Adaptive …

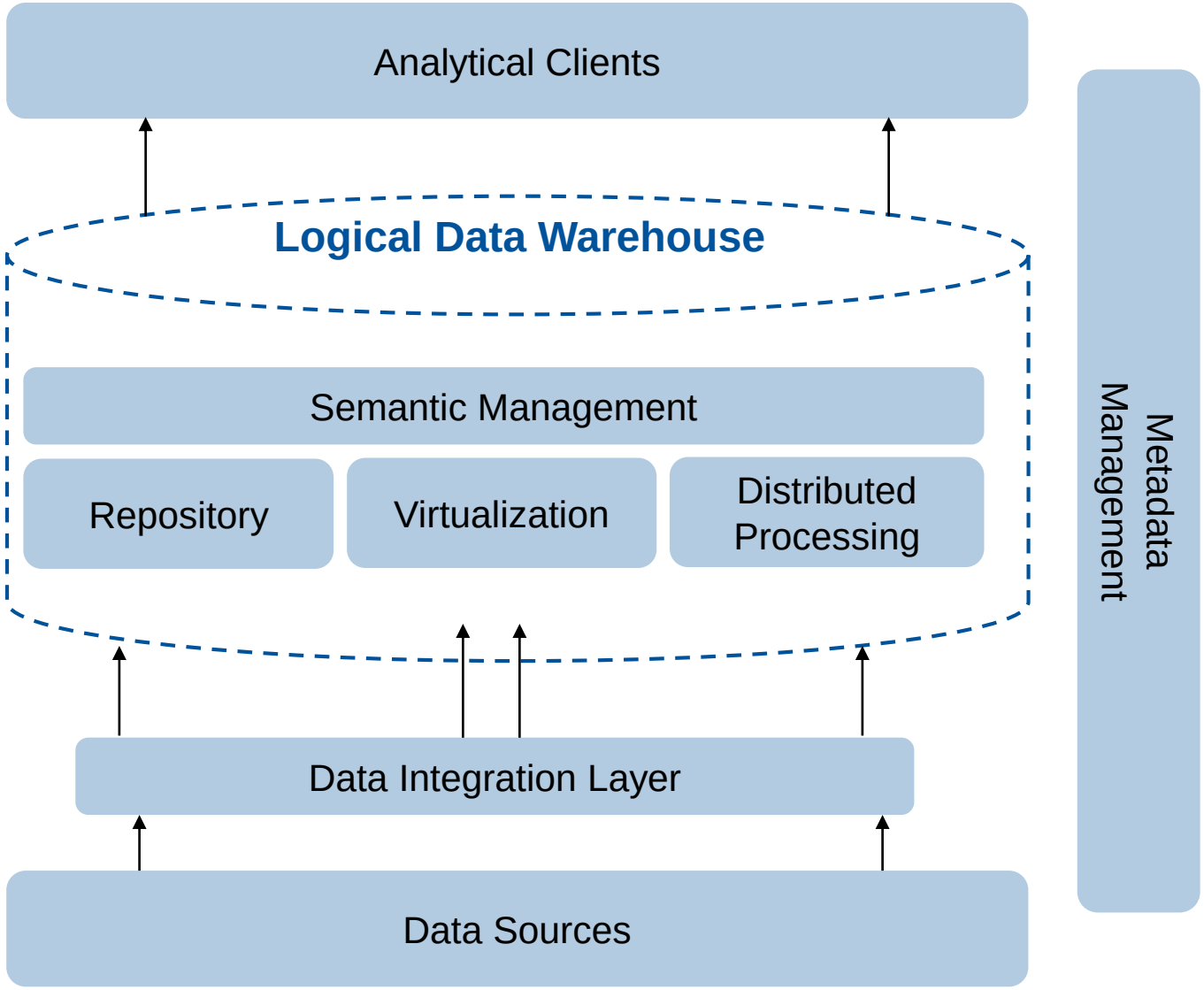
Sentiment Analysis



Descriptive **Diagnostic** **Predictive** **Prescriptive**

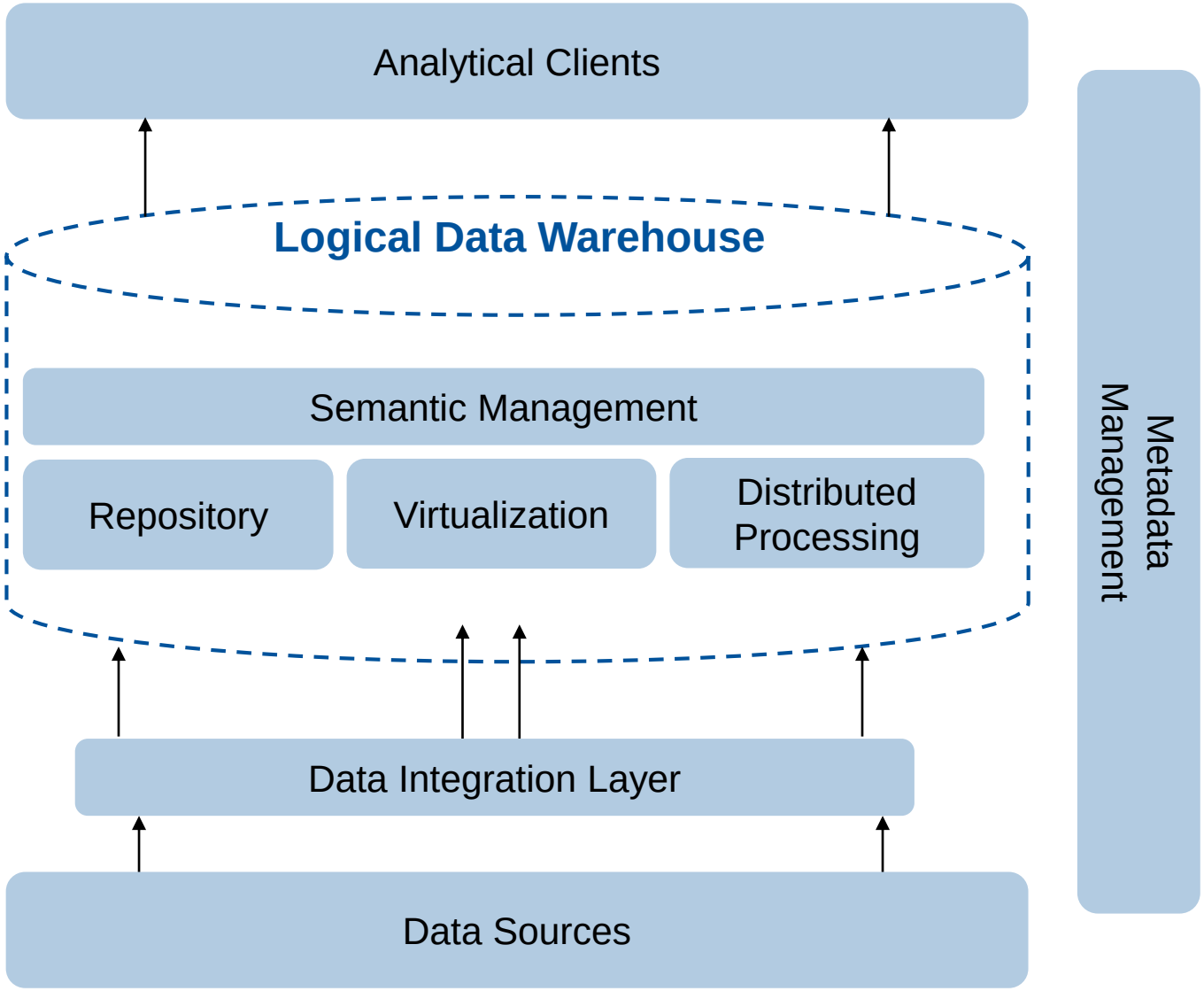
Putting It All Together

- A comprehensive, integrated ecosystem information assets
- Coordinated governance of information assets

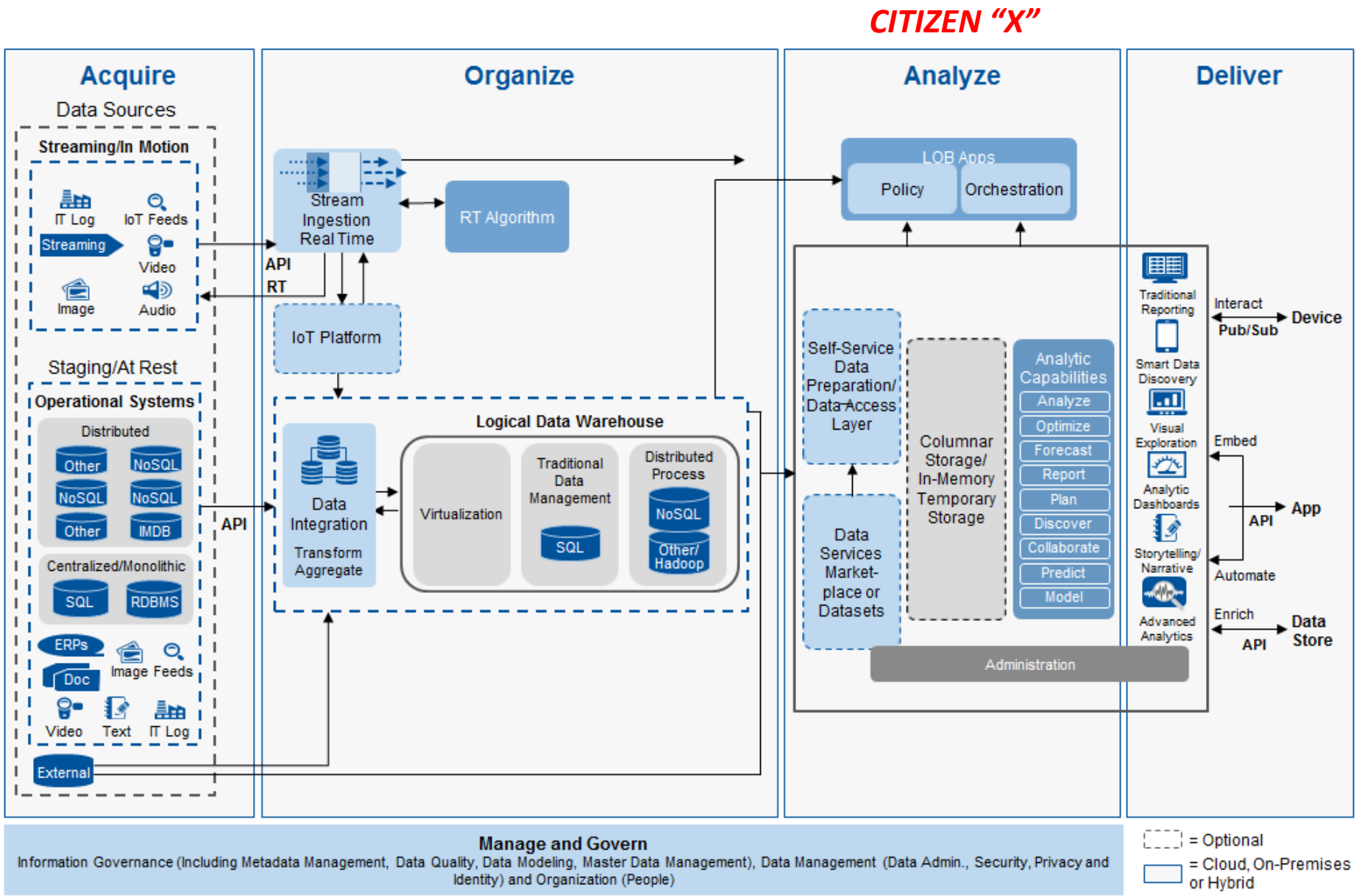


Strengths

- Improves flexibility and agility
- Reduces data sprawl
- Enables effective collaboration and data governance
- Meets the challenges of big data and the high variety of types of data
- Helps manage dictionaries, ontologies and taxonomies
- Supports improved decision making by offering different paths to get at the answers



Comprehensive View of Data and Analytics Architecture



Community of Practice
CoP

Center of Excellence
CoE

Next Generation BI & Analytics Questions

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