digital twin™ CONSORTIUM

Digital Twins Capabilities Periodic Table

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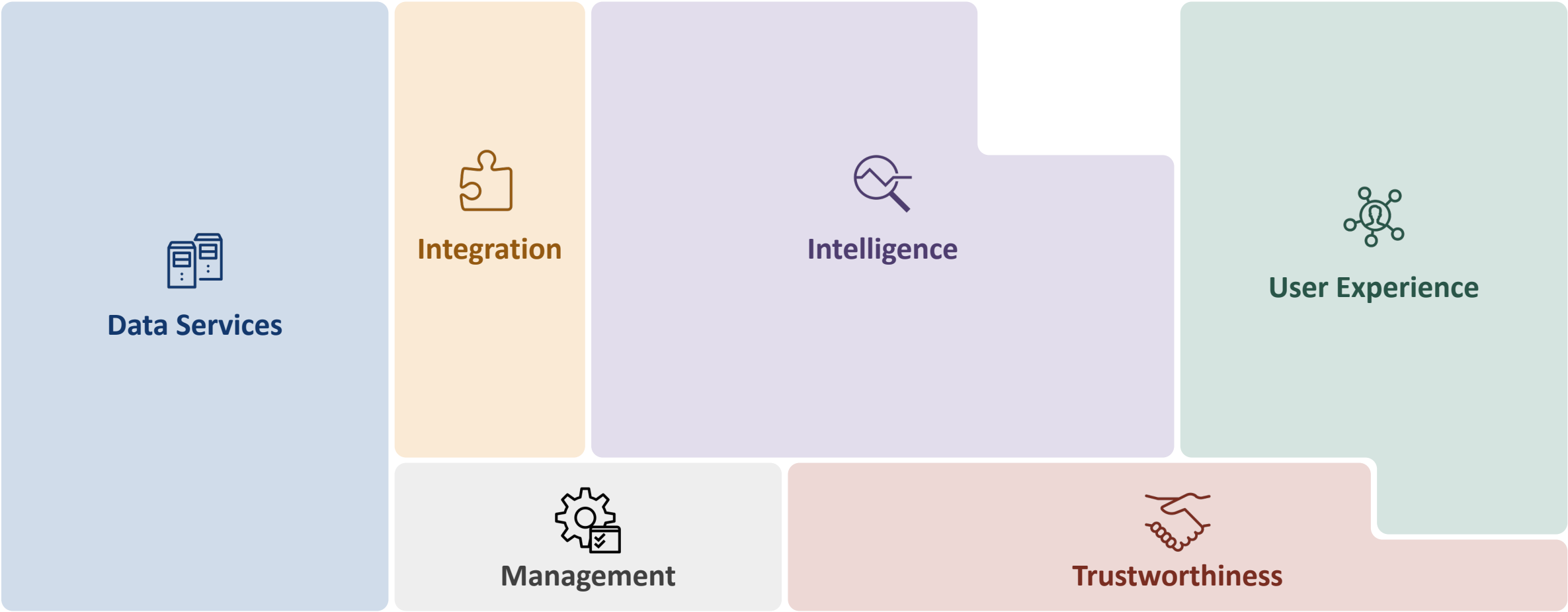
Capability Categories

No	Category Name	Category Description
1	Data Services	Enables data access, ingestion and data management across the platform from the edge to the cloud. It establishes the physical to virtual connection and receives data directly from equipment sensors or control systems, performs localized processing, and distributes to other tiers
2	Integration	Enables data access to existing internal and external enterprise systems and applications. Enables communication across different digital twins.
3	Intelligence	Provides an environment for the development and deployment of industrial Digital Twin solution. It provides the services for data integration, basic and advanced analytics, AI, orchestration, and other Digital Twin process capabilities.
4	UX	Provides the user with the ability to interact with Digital Twins and visualize its data.
5	Management	System and ecosystem management capabilities
6	Trustworthiness	Security, privacy, safety, reliability, and resilience capabilities

Periodic Table Groups



Digital Twin Capabilities Periodic Table

1 Data Acquisition & Ingestion	9 Synthetic Data Generation	17 Enterprise System Integration	23 Edge AI & Intelligence	29 Prediction		39 Basic Visualization	45 Dashboards
2 Data Streaming	10 Ontology Management	18 Eng. System Integration	24 Command & Control	30 Machine Learning ML		40 Advanced Visualization	46 Continuous Intelligence
3 Data Transformation	11 Digital Twin (DT) Model Repository	19 OT/IoT System Integration	25 Orchestration	31 Artificial Intelligence AI	35 Prescriptive Recommendations	41 Real-time Monitoring	47 Business Intelligence
4 Data Contextualization	12 DT Instance Repository	20 Digital Twin Integration	26 Alerts & Notifications	32 Federated Learning	36 Business Rules	42 Entity Relationship Visualization	48 BPM & Workflow
5 Batch Processing	13 Temporal Data Store	21 Collab Platform Integration	27 Reporting	33 Simulation	37 Distributed Ledger & Smart Contracts	43 Augmented Reality AR	49 Gaming Engine Visualization
6 Real-time Processing	14 Data Storage & Archive Services	22 API Services	28 Data Analysis & Analytics	34 Mathematical Analytics	38 Composition	44 Virtual Reality VR	50 3D Rendering
7 Data PubSub Push	15 Simulation Model Repository	52 Device Management	54 Event Logging	56 Data Encryption	58 Security	60 Safety	51 Gamification
8 Data Aggregation	16 AI Model Repository	53 System Monitoring	54 Data Governance	57 Device Security	59 Privacy	61 Reliability	62 Resilience

Data Services · Integration · Intelligence · UX · Management · Trustworthiness

Example Capability Description

What it is	21. Edge AI and Intelligence	Capability Type - Intelligence
What it does (describe the “ability to”)	Ability to make decisions at the device level based on real -time data, distribution and federation of analytics at the edge instead of transporting the data to the cloud to perform analytics.	
What it means (outcome or purpose)	The purpose is to make real-time decisions near field	
Classification	Core (foundational)	
	Enhanced ✓	
	Specialist	

Windfarm Condition Monitoring Use Case

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Data Services · Integration · Intelligence · UX · Management · Trustworthiness

Windfarm Energy Prediction Use Case

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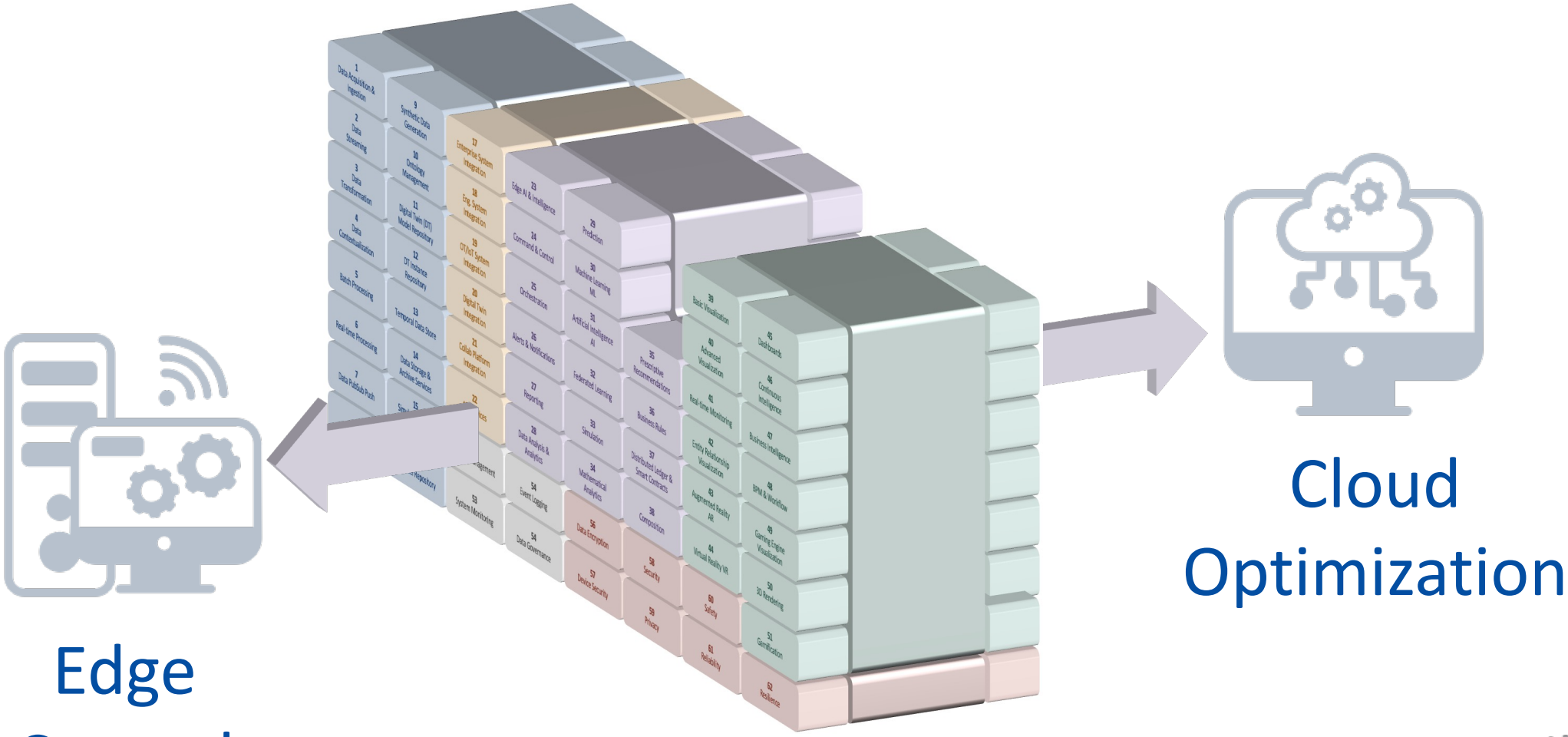
Capabilities Span Edge to Cloud Continuum