Unpacking the Data Ecosystem for Launching, Maintaining, and Scaling Owned Digital Twin Solutions

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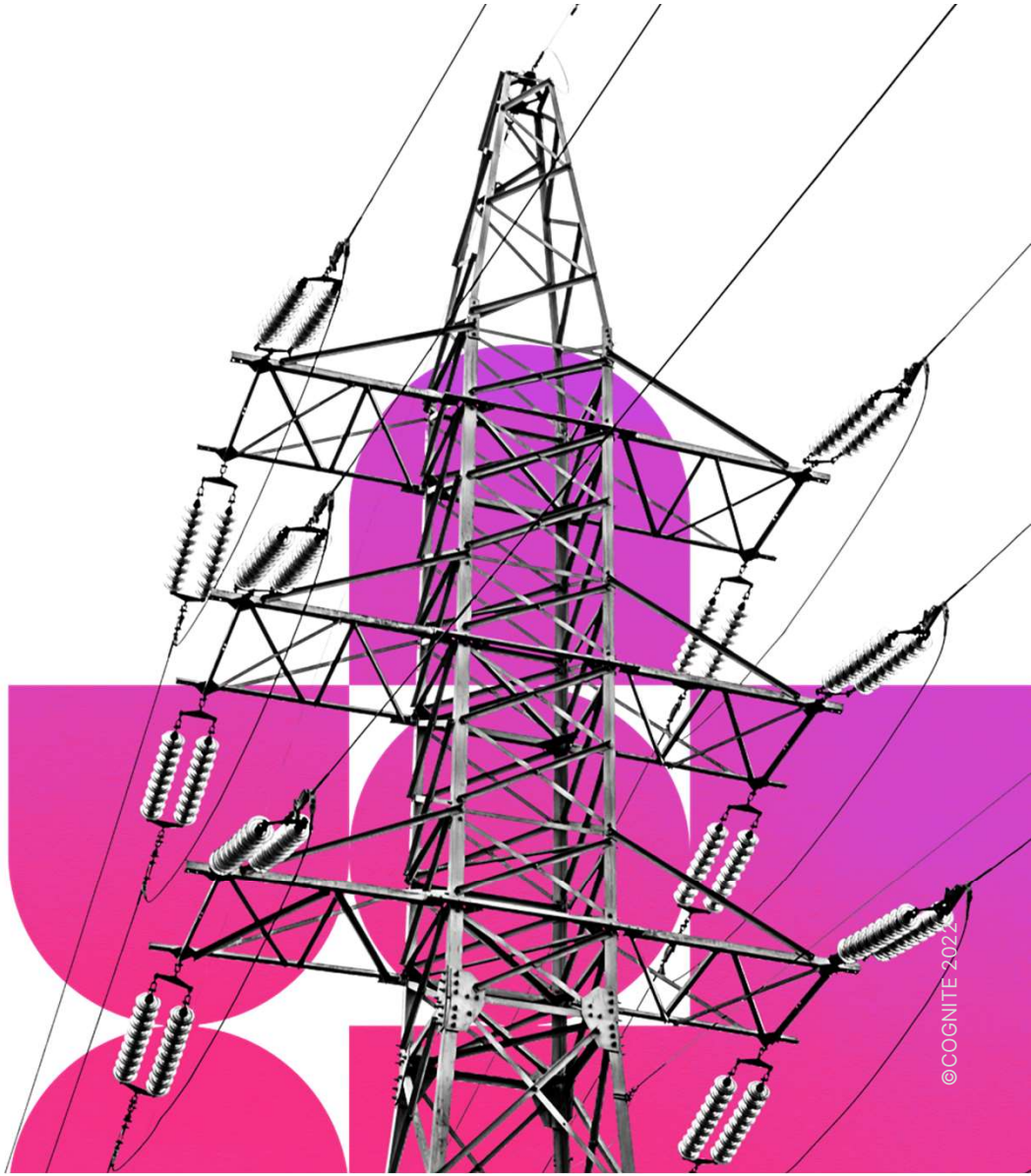
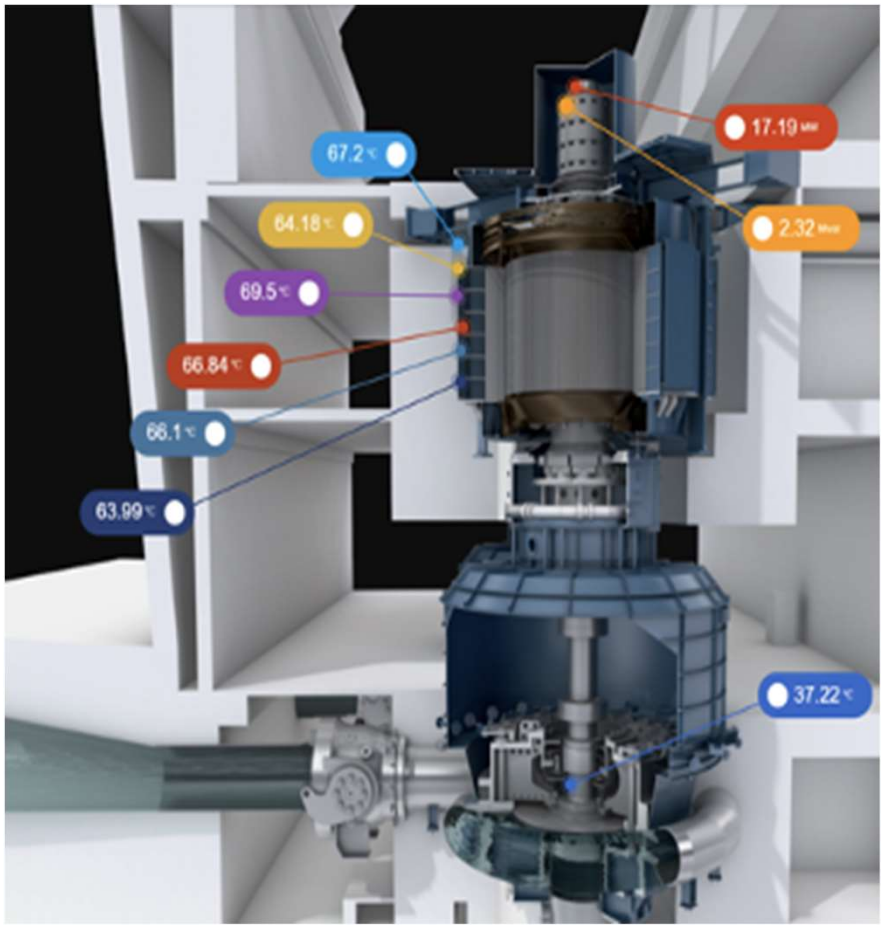
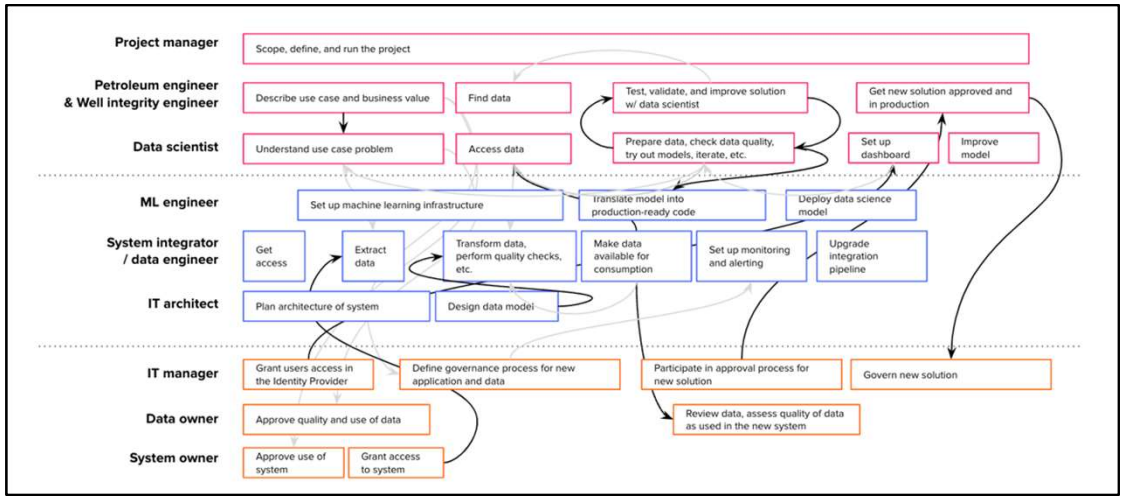


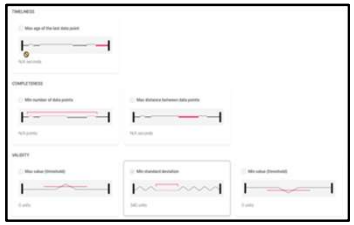
Industrial Digital Twins in 2022:

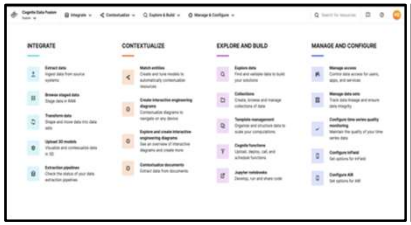
Expectation

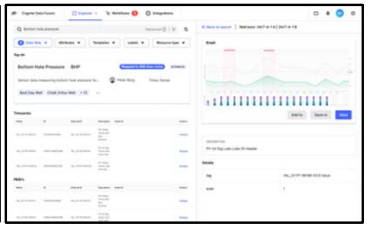


Reality









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Our challenge lies not in the PoC phase of potential digital twin use cases, but how to execute the digital twins in a scalable, IT-like environment.

Digital Transformation Lead
at large industrial software & services org

Key IT/OT Considerations for Digital Twin Efforts:

- **Digital Twin Scope & Roadmap**
- **Technology Stack & Ownership**
- **Data Quality & Trustworthiness**
- **Ongoing Maintenance and Enrichment**
- **Strategies for User Adoption**

What is a digital twin?

The complete canon of information available and put in context for an asset or process

ACTIVITY PLANNING
Access to active and historical work orders

SEARCH & NAVIGATION
Full search and seamless navigation

LAYERS & FILTERING
Detailed & configurable views by personas

MEASURING
Accurate measuring done remote.

REAL TIME DATA
Real time with benchmark/predicted optimal

PHOTOGRAMMETRY & COMPUTER VISION
Because reality is not the same as design

LIDAR/LASER SCAN
To complement/substitute CAD based 3D

ROBOTICS
To both capture data and to act on insights

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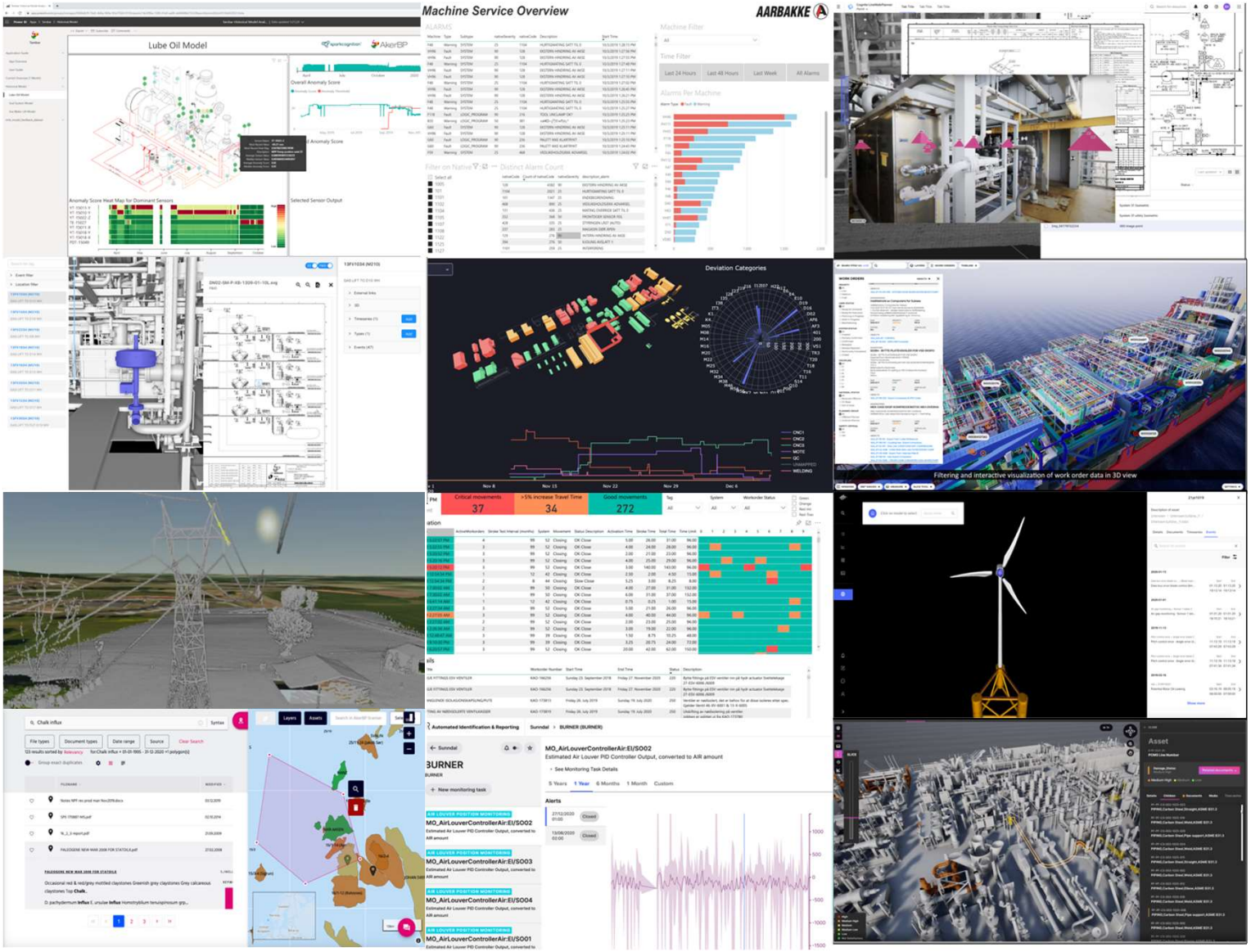
Digital twins should not be about any **ONE** digital use case,

They are about launching, enabling, & scaling **100s** of digital use cases at low marginal costs



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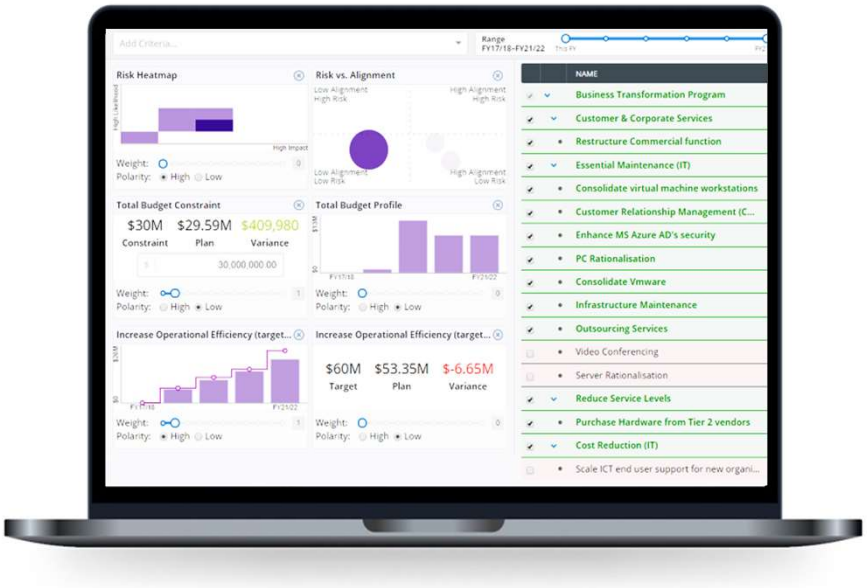
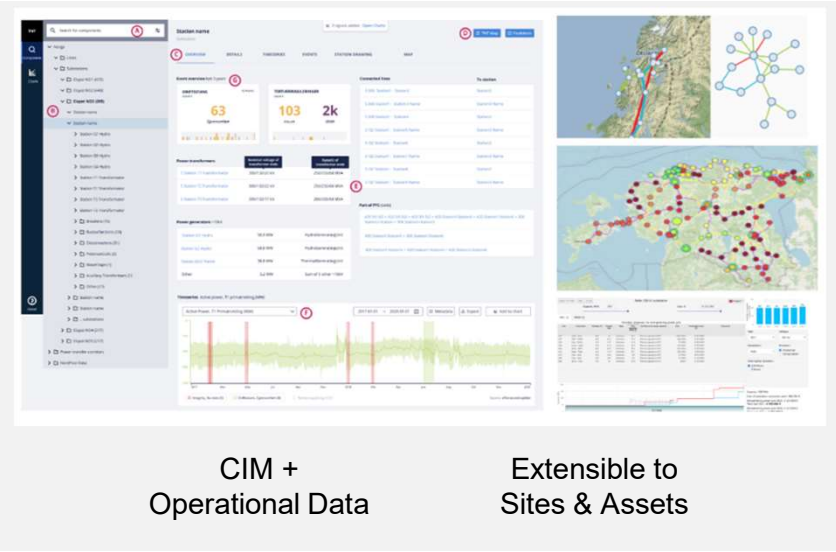
A few examples from our experience…

Digital twin of project portfolio to simulate portfoio choices for different market and rate base constraints



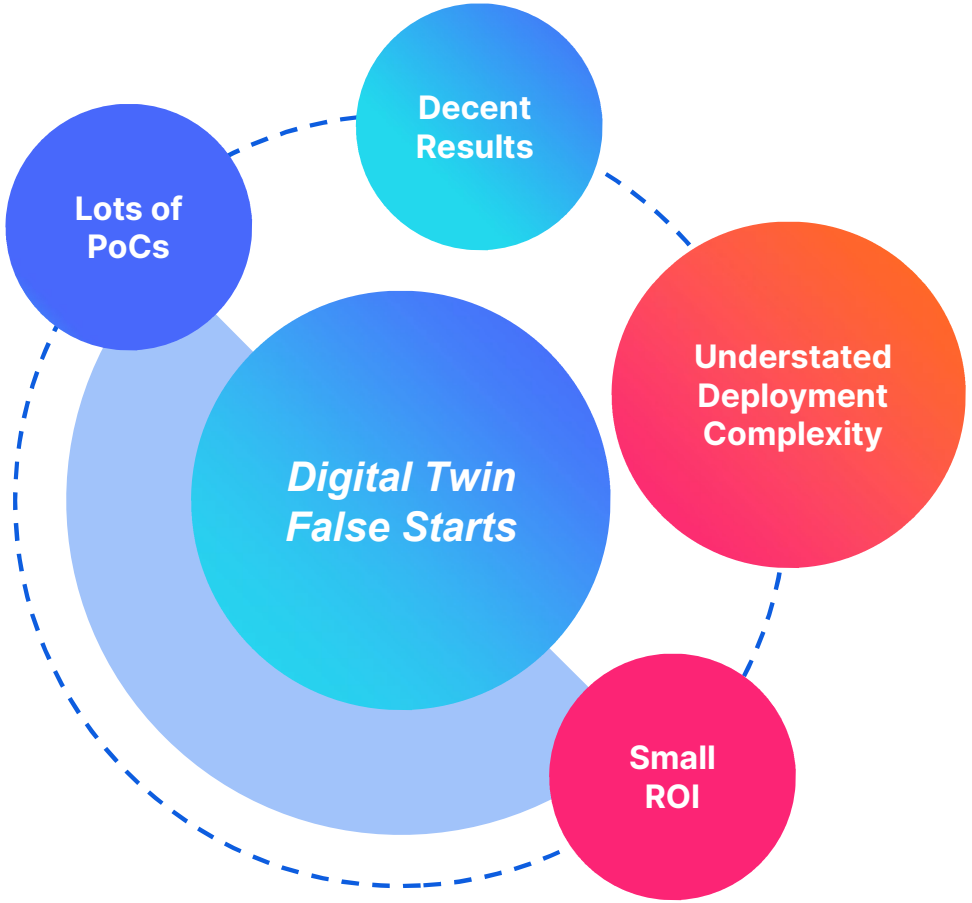
Digital twin of a transmission network for advanced power system analysis and querying in domain-specific language



CIM + Operational Data

Extensible to Sites & Assets

Operationalizing digital twins still remains a challenge



100s of Use Cases

- Ops Visibility & Smarter Alerting
- Streamlined Diagnostics & RCA
- Site-to-Site Performance Analysis
- Robotics & Automated Workflows

People Problems	• Digital Twin Developers are Not Digital Twin Users • Unclear Ownership of Twin Enrichment & Management
Process Problems	• Digital twins are kept separate from business • Limited re-usability of application work
Technology Problems	• Data stack is not designed to support needs of digital twins • Data Quality, Trust, Context, Availability, Interoperability

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Audience Poll:
What other challenges have you had developing and/or deploying digital twins?

The building blocks for accelerated digital twin development and adoption

Clear strategic direction

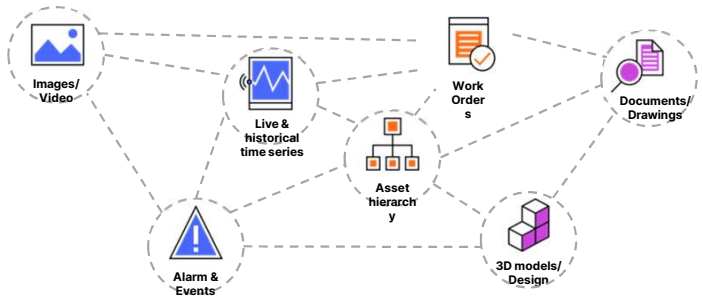
1 Digital twin strategy aligned with enterprise strategy

Industrialized innovation and operations integration

2 Digital twin innovation and product portfolio management

3 Ideation / digital twin engine

Funnel management



4 Operations integration and digital twin services

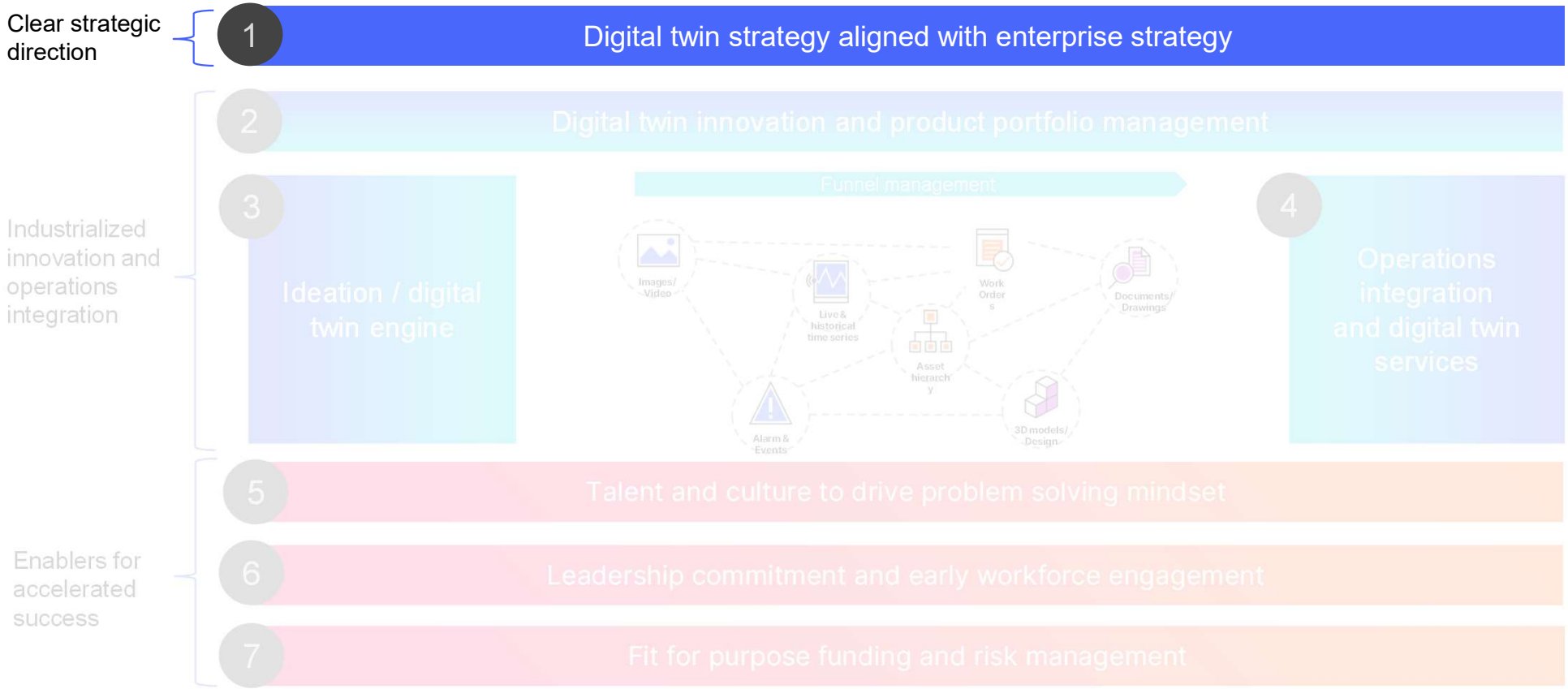
Enablers for accelerated success

5 Talent and culture to drive problem solving mindset

6 Leadership commitment and early workforce engagement

7 Fit for purpose funding and risk management

The building blocks for accelerated digital twin development and adoption



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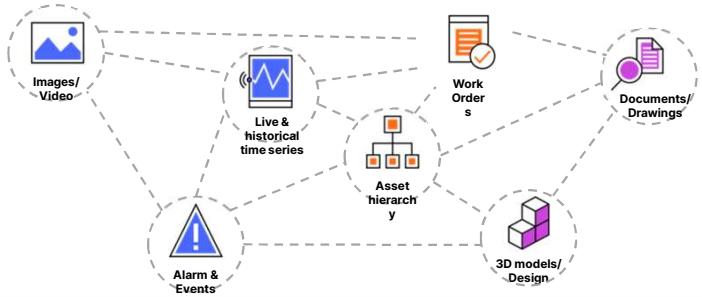

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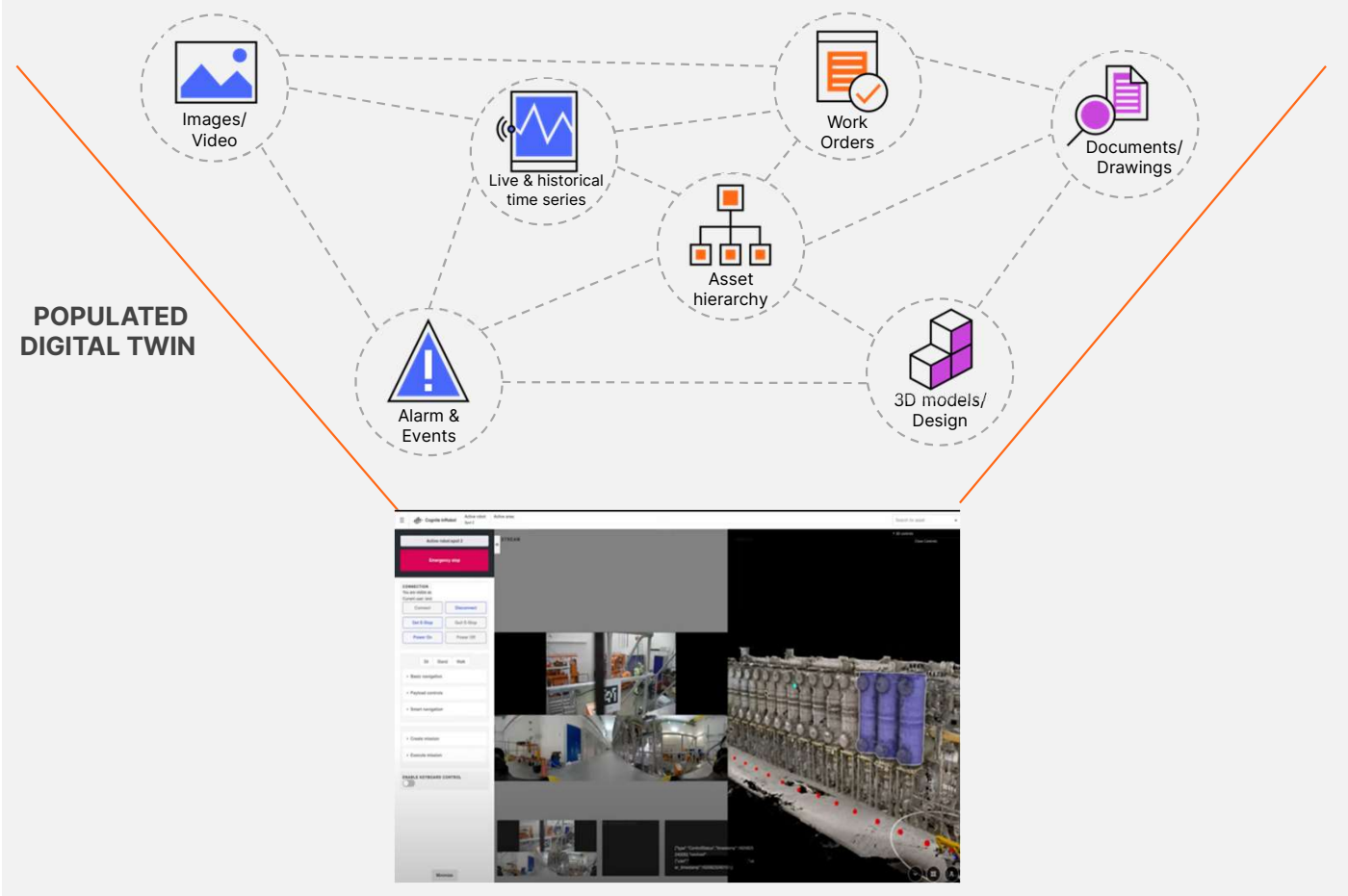
What industrial data management capabilities are needed to efficiently build and scale use cases?



Automated building and maintaining of data relationships
AI-powered contextualization services

Interoperable system
Open APIs, connectors to adopted industry solutions

Data governance
"Data has no value unless business trusts it and uses it." - Forrester

Real-time data access
Highly optimized time series database for read and write.

At the heart of a digital twin 2.0 platform is the means to create and manage real-time IT/OT/ET data relationships using automation

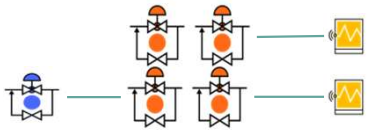
DATA SOURCES

CONTEXTUALIZATION SERVICES

Match resource types

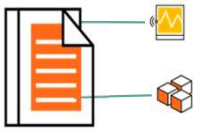
Automatic and expert guided mapping of resources (assets, time series, events, 3D nodes) to appropriate counterparts creating belongs-to-relationships

Contextualize P&ID's / Drawings



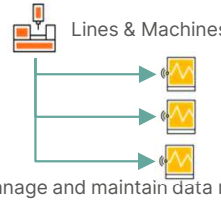
Parse P&ID's with the help of AI or augmented these data with your own experience to make interactive diagrams.

Contextualize documents



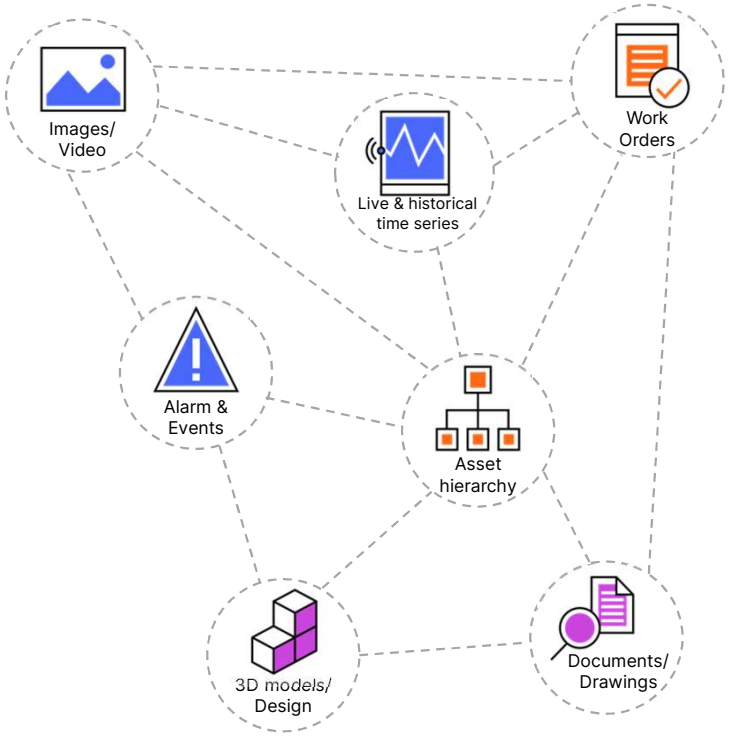
Recognize asset names in documents and contextualize them accordingly with the help of automatic models and OCR

Data templatization

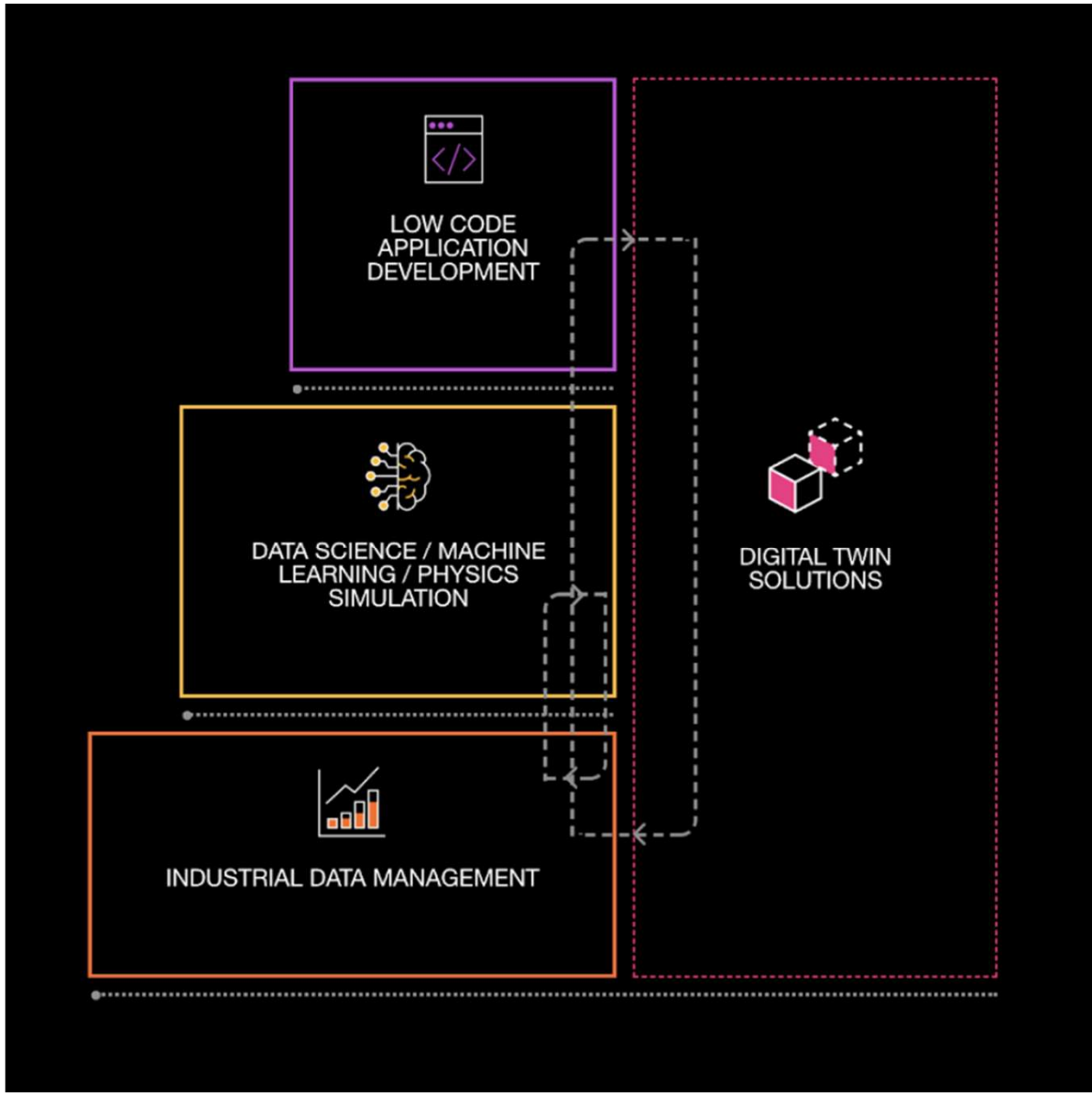


Manage and maintain data models (templates) at the enterprise level, application level and personal level. Template population is guided by AI.

POPULATED DIGITAL TWIN



Taking an open, interoperable approach is critical for a next-generation **digital twin platform**



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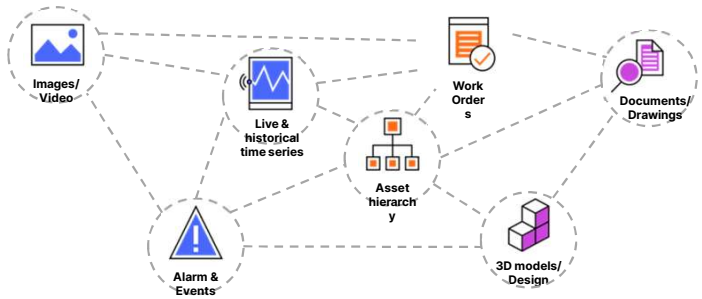

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Audience Poll:
What building blocks are well-developed and where do you see gaps in your organization?

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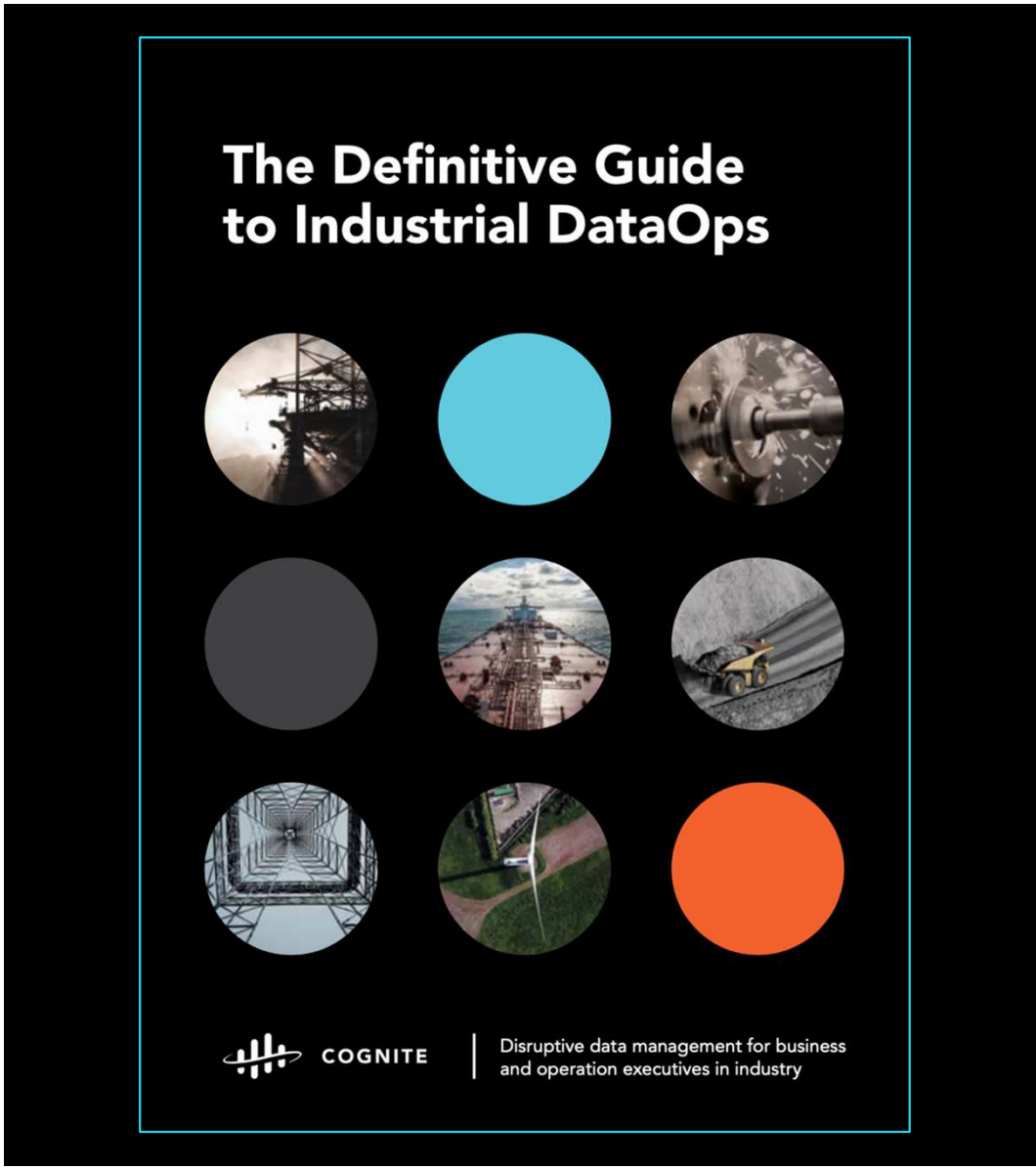
To learn more about how to build a digital twin platform **with trusted data that scales**, visit Cognite's booth in the expo hall.



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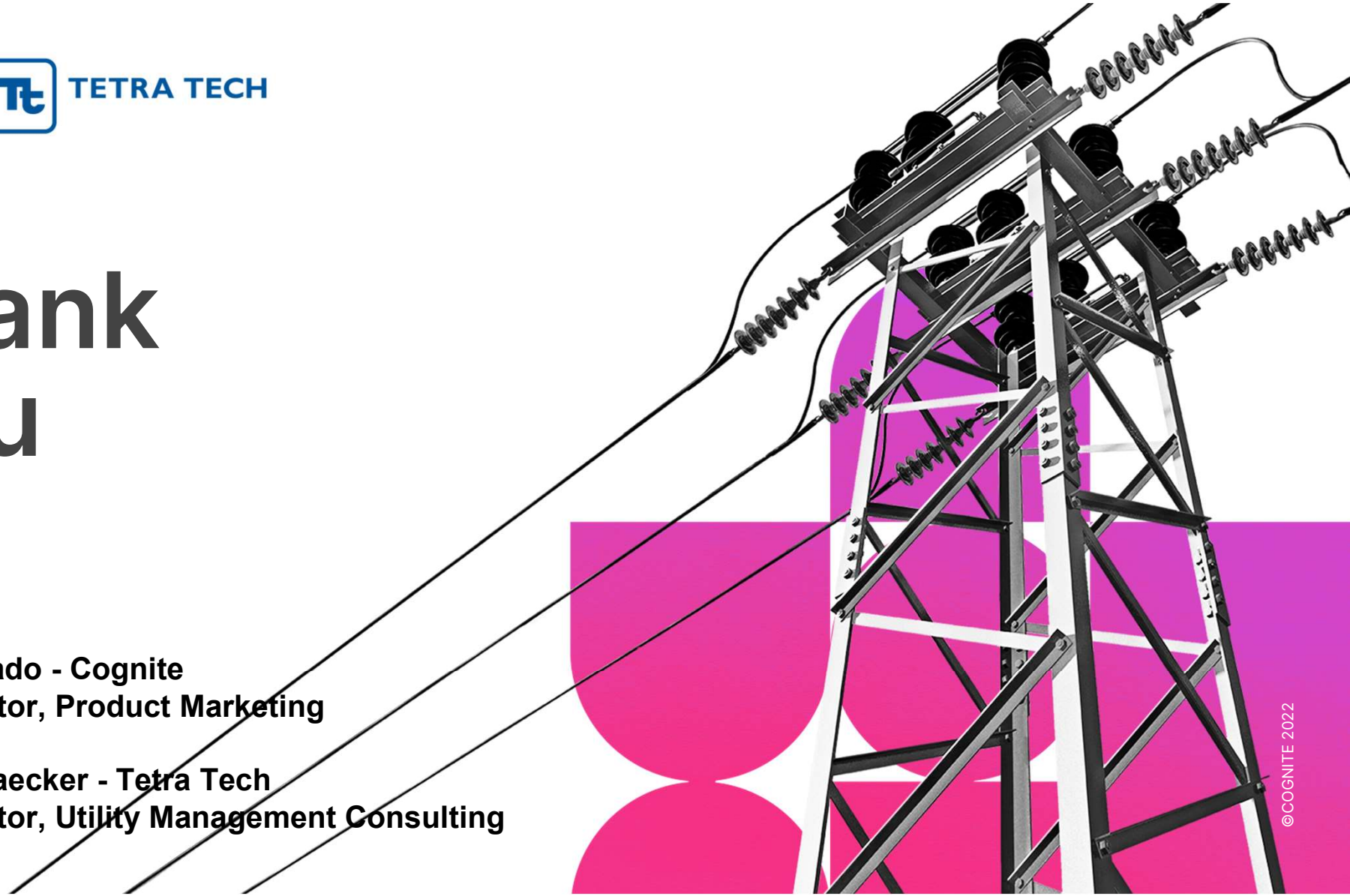
Thank You



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