# Smart from the start with Building X

**Transform Data Centers to stay competitive and future-ready**



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SMART INFRASTRUCTURE 2025

# We create technology **to transform the everyday, for everyone**

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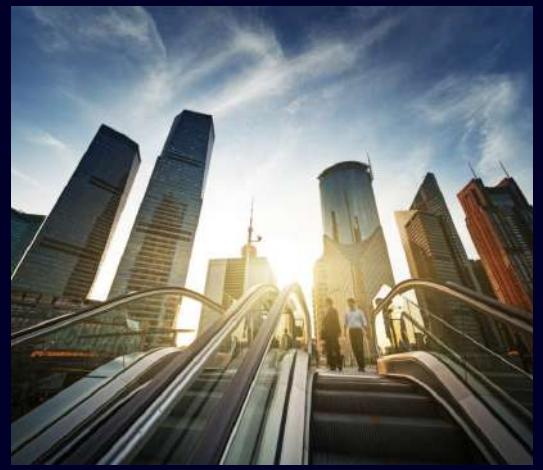
# Accelerating our customers' sustainable transformation

By combining the real and the digital worlds, **we create technology …**



**… to transform buildings.**

Together with our customers and partners we deliver adaptable and human-centric digital technologies and programs which increase energy and resource efficiency and enhance performance.

**… to transform electrification.**

We create technology to not only increase transparency, control and automation but also to optimize the current electrification infrastructure.

**… to transform grids.**

We create technology to transform grids, driving the clean energy transition and a new era for grid management. We pave the way towards autonomous grids.





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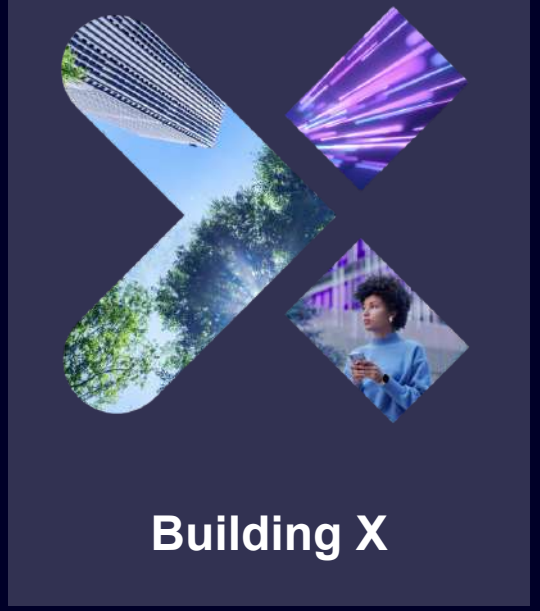
# Digitalization as an enabler

And this is how we do it: **Siemens Xcelerator**

More information



## Building X

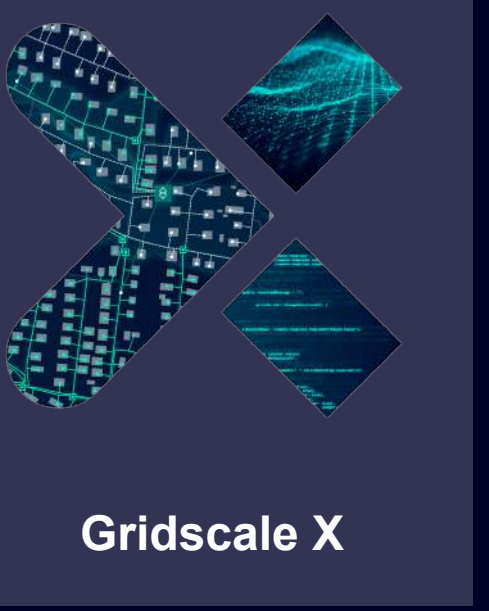
Digital building platform that digitalizes, manages, and optimizes building operations. Customers can make data-driven decisions that lead to improved sustainability, increased operational performance, and higher building value.

More information

## Electrification X

Scalable IoT SaaS offering to help renewable generators, TSOs, DSOs, industries, and infrastructure customers to manage their entire energy networks, increase uptime and improve reliability, asset utilization, energy efficiency, sustainability, and cybersecurity.

More information



## Gridscale X

Modular software enabling autonomous grid management. It makes it possible to scale grid capacity fast, handle the complexity of DERs, and increase grid flexibility with software that is easy to deploy and fast to integrate into existing IT and OT landscapes.





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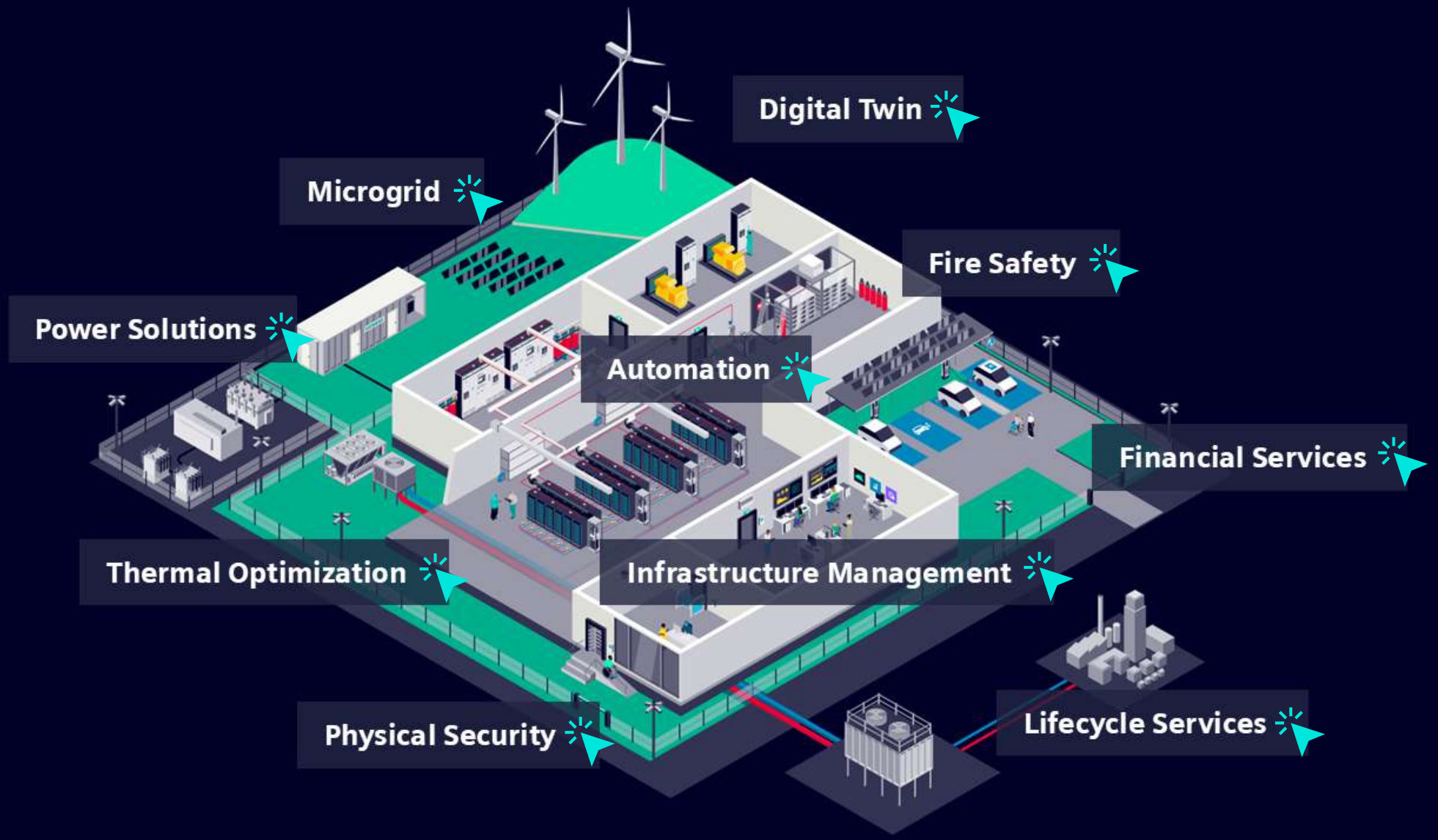
# Transform data centers to stay competitive and future ready.

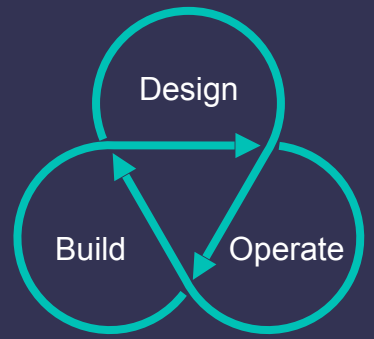
Come see us for more details!




Optimize efficiency gains

Meet sustainability goals

Plan for resilient operations

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# Global trends and challenges in #Proptech

#Decarbonization #SaaS #Ecosystems

#Cloud #MachineLearning #Cybersecurity

#SkilledLaborShortage #NewNormal





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## The big picture

# The world needs to transition to a **net zero energy system by 2050**

**39%**

of global emissions are from buildings

Source: World Green Building Council

**95%**

of today's buildings will likely still be in operation by 2050

Source: European Environment Agency

**75%**

of total emissions come from energy

Source: World Resources Institute





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## The big picture

# Do organizations have **the right data** to advance on decarbonization and resource efficiency?

**44%**

lack emissions data

Source: Digital Transformation, Sustainable Returns: The New Pathway of Infrastructure

**30%**

lack energy consumption data

Source: Digital Transformation, Sustainable Returns: The New Pathway of Infrastructure

**80%**

of total lifecycle costs for the building, occur in the operational phase





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# The consequence of not doing smart from the start



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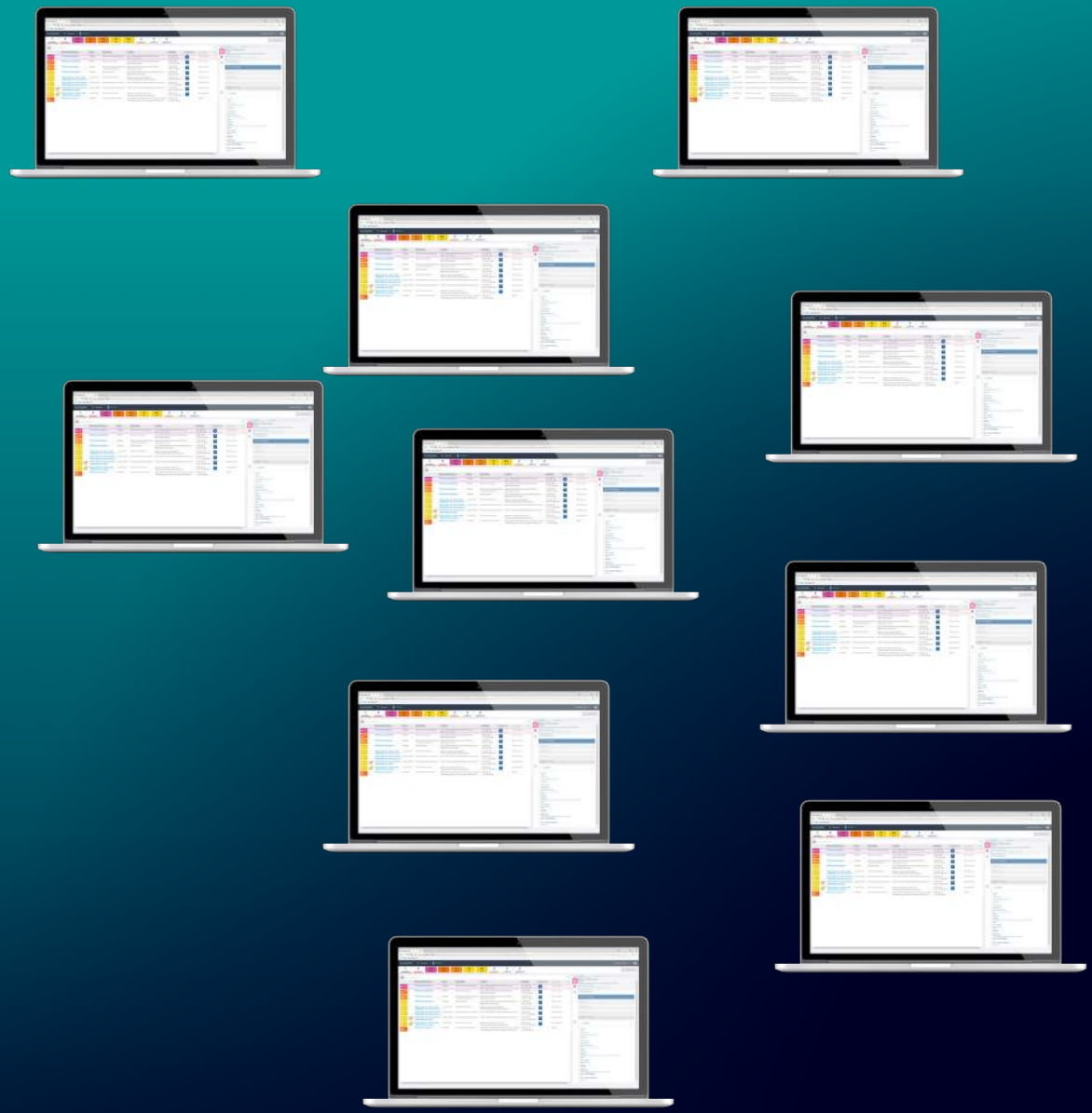
# Setting the scene


The building and its operational technologies







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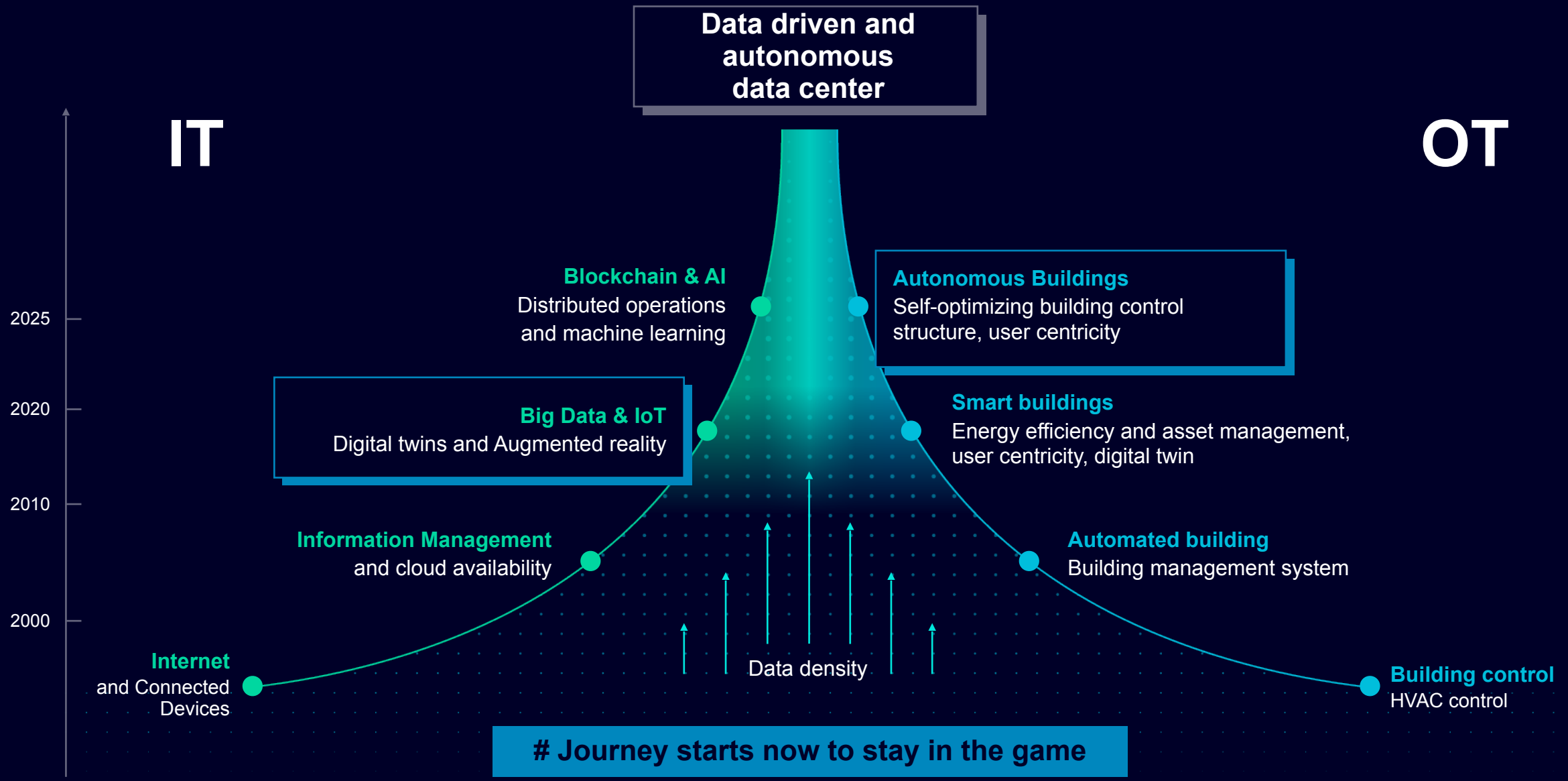






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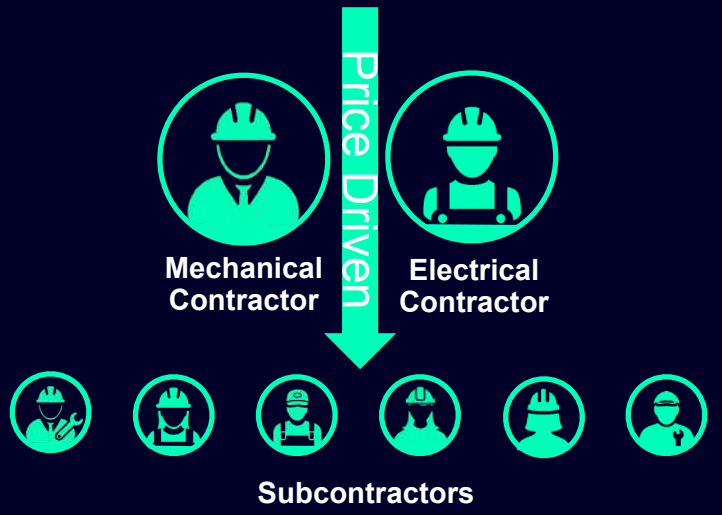
# How do you create a Smart Data Center?





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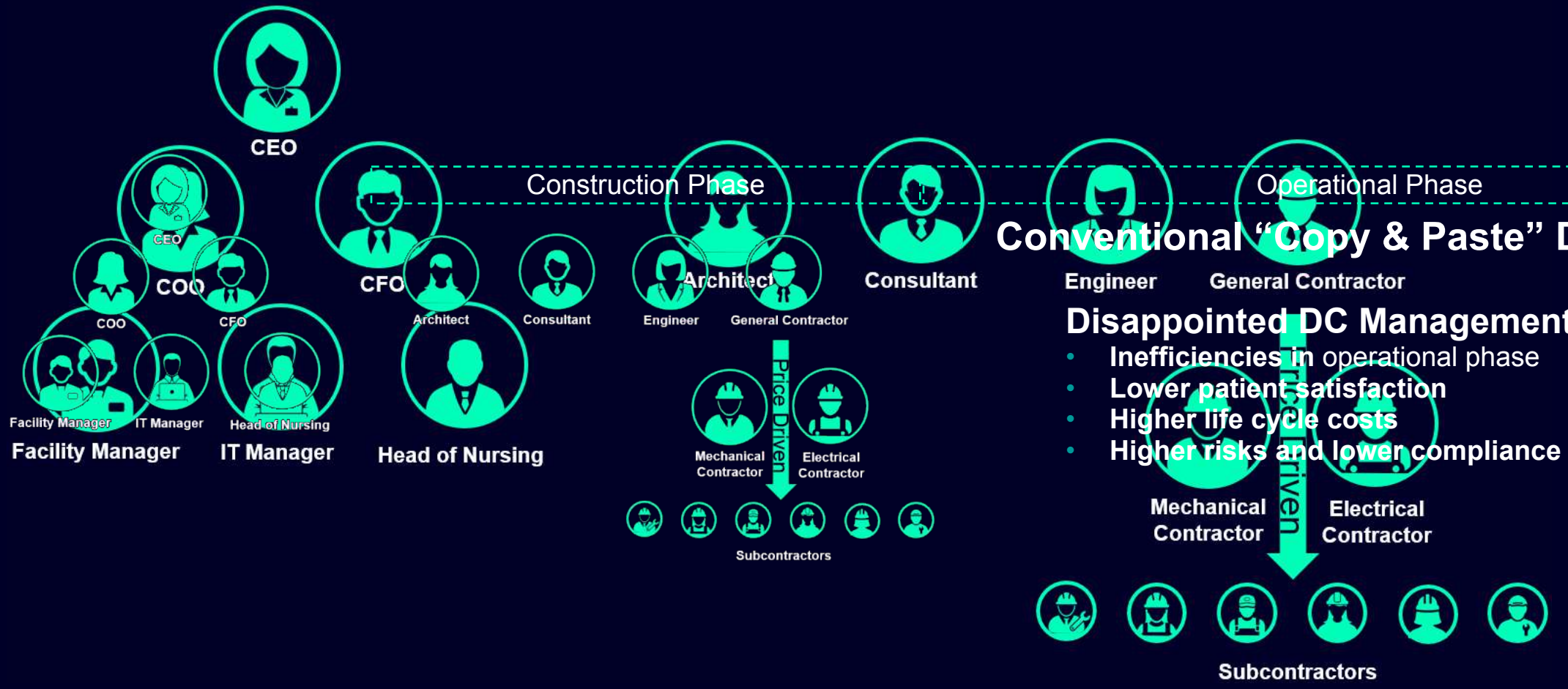




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# Construction project – one example of information anarchy

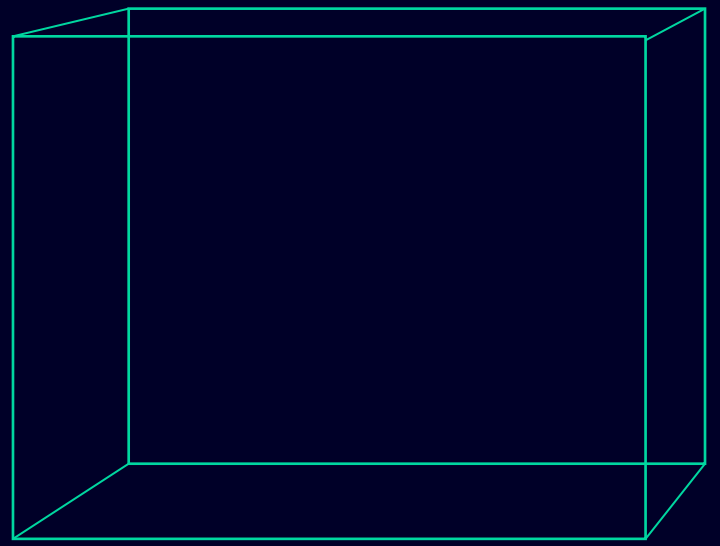
**Arcitecht**
D-1003

**Electrical**
DR-v1-45

**Construction**
D167i

**Access control**
Door –v1-r27

**Information delivery**







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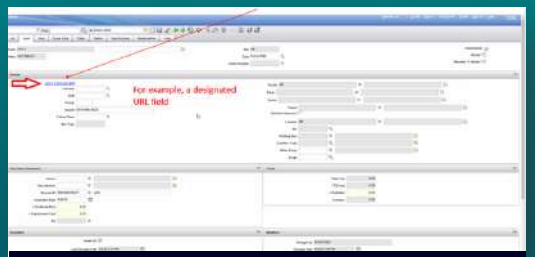
# Today's Challenge: Siloed Digital Information

3D Models: BIM, Point Cloud




CMMS

CAFM

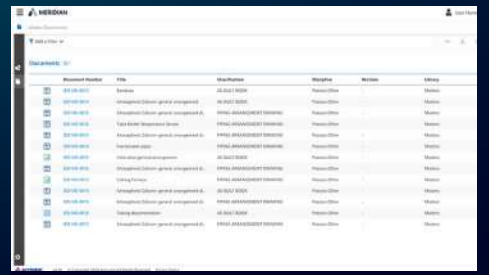
No single source of information for multiple stakeholders

- For one physical asset, there exists multiple digital representations

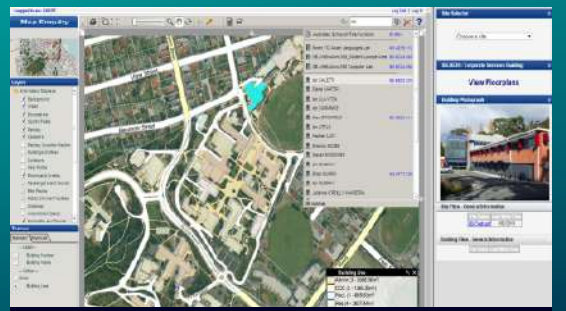
## What's Needed

- Decisions should be made on complete information from all these systems working together
- Interests of all stakeholders should be considered and matched
- Easy access to dependable information for effective decision making

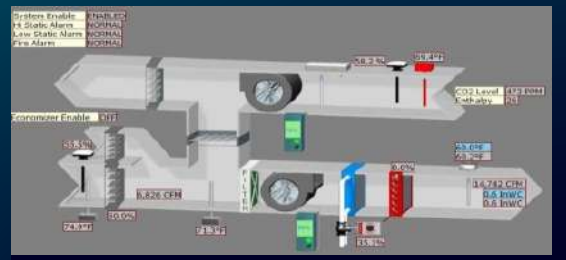
Schematics



Documents



Geographical Information System (GIS)



Building Automation System (BAS), IoT data


ERP

# Separate **data silos are expensive**

- Inefficient and high maintenance
- Limited insights and access to data
- Compliance and security risks
- Cost inefficient

Building owners are paying for information that won't create value in the operational phase

Digital landscape will cause unreliable data quality, difficult to update

Perpetuates reactive maintenance of all assets

Every digitization effort will be costly and engineering heavy

# Lets move from **separate data silos …**

- Inefficient and high maintenance
- Limited insights and access to data
- Compliance and security risks
- Cost inefficient

# … to **one cloud platform**.

- Cross domain use cases
- Holistic and centralized insights
- Scalable and flexible



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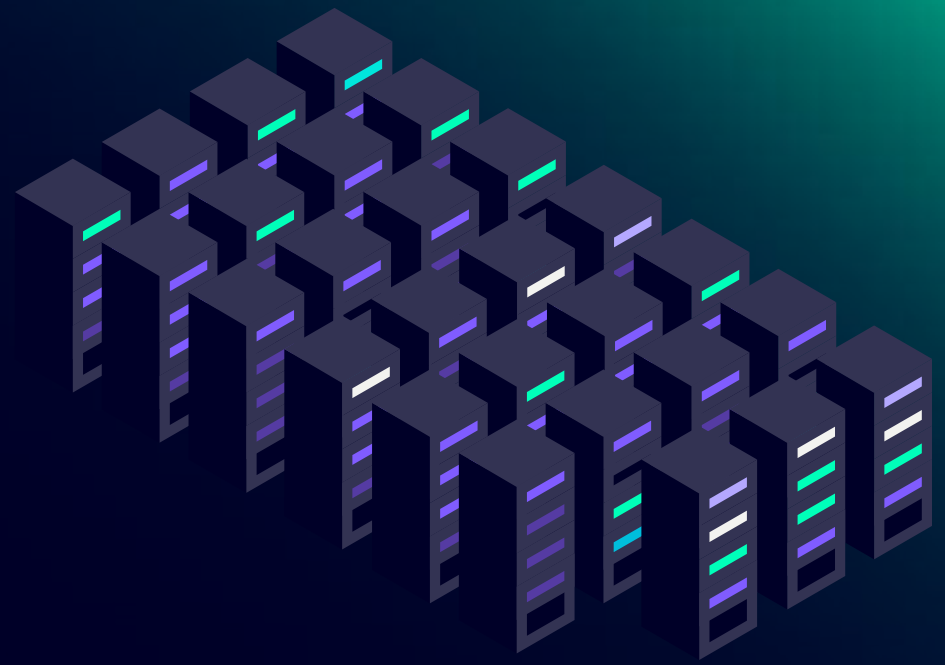
# Smart from the start





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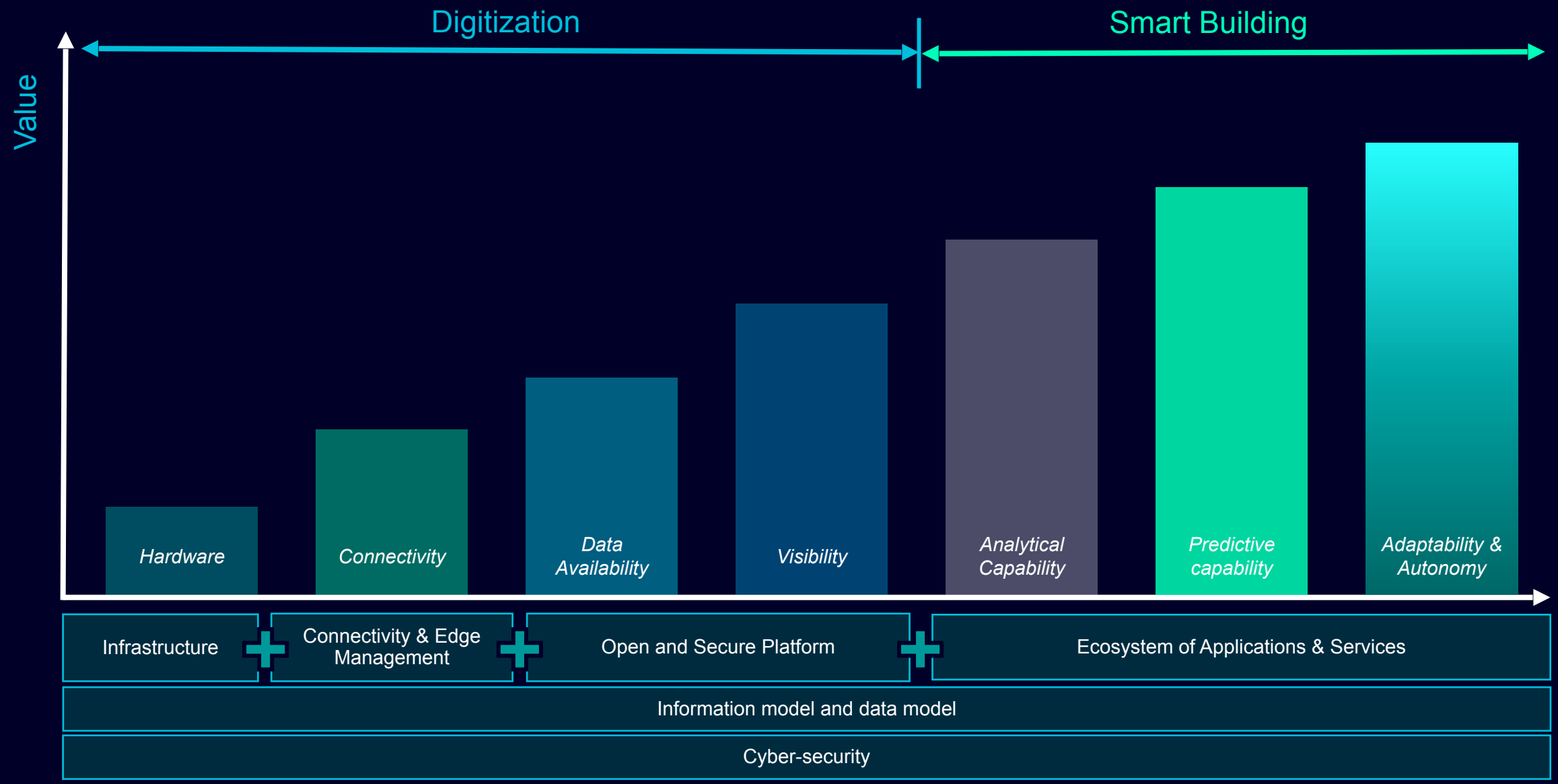
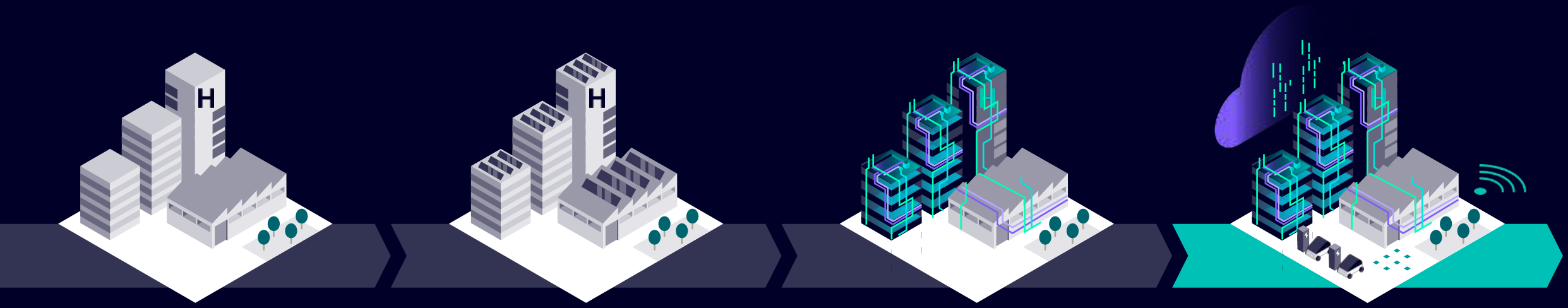
# Framework to transition towards Smart Buildings:
Create an cohesive eco system



# Our Vision for the Future
## The Human-Centric, Autonomous Building



**Traditional** building

**Automated** building

**Smart** building

**Human-centric, autonomous** building

**From …**

- Complex integration of new technologies
- On-site management solutions
- Siloed control of building services
- Reactive on-site maintenance
- Limited information about building and assets

**To …**

- Predictive & prescriptive maintenance
- as-a-Service models
- AI-enabled remote operations
- Simple & easy integration of new tech
- Single source of truth – centralized platform for all building and asset data





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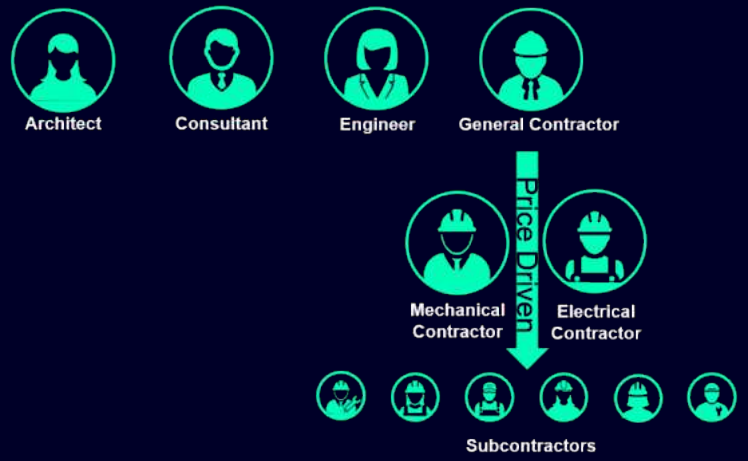
# How do you create a Smart Data Center?

Smart DC Workshop


Technology Partnership

Construction Phase

Operational Phase




## Smart Data Center Technology Partnership

### Benefits DC Management

- Continuous improvement of data center efficiency
- Implementation of new use-cases
- Information and data available from day 1 after hand over
- Lower risks – higher compliance
- One-stop-shop for integration of systems



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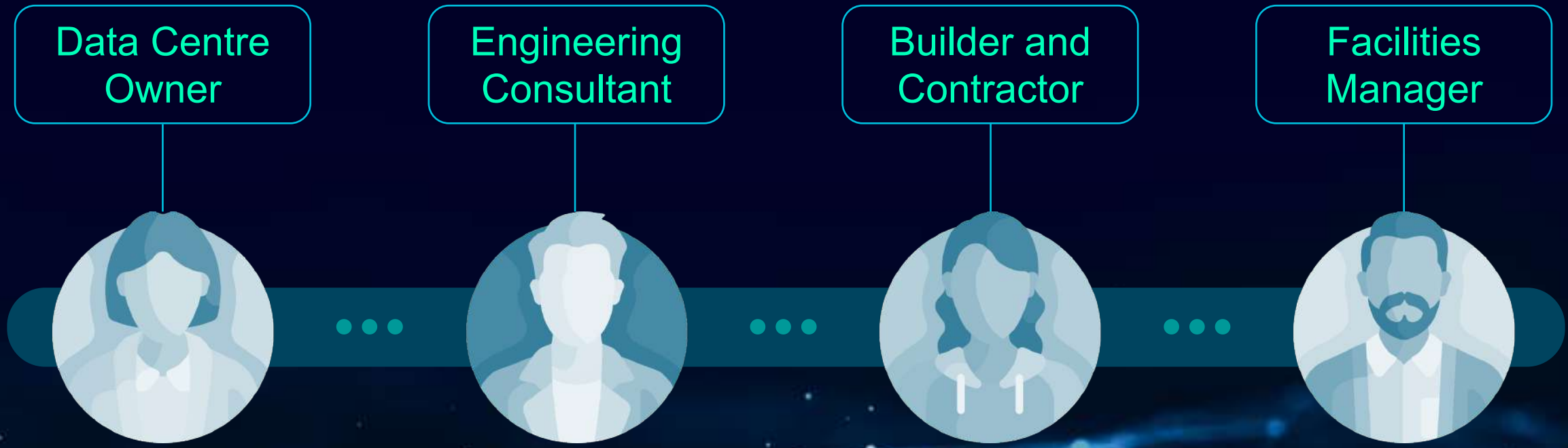
# Design and Construction

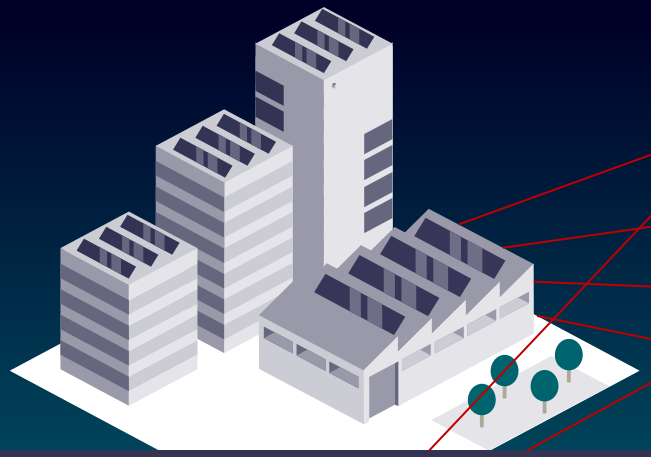



Full transparency of construction progress

Manage design reviews with multiple disciplines / stakeholders

Manage information during production with a frictionless handover

Receive a complete handover that meets operational requirements



**Field Devices & Data Sources**

- Lighting & Electrical
- CCTV
- Security
- Building Twin
- Utility
- Microgrid
- Elevator
- CMMS
- HVAC
- Fire
- Automation
- E-mobility
- Indoor sensors
- Meter Data
- IoT Data
- Photovoltaic generation





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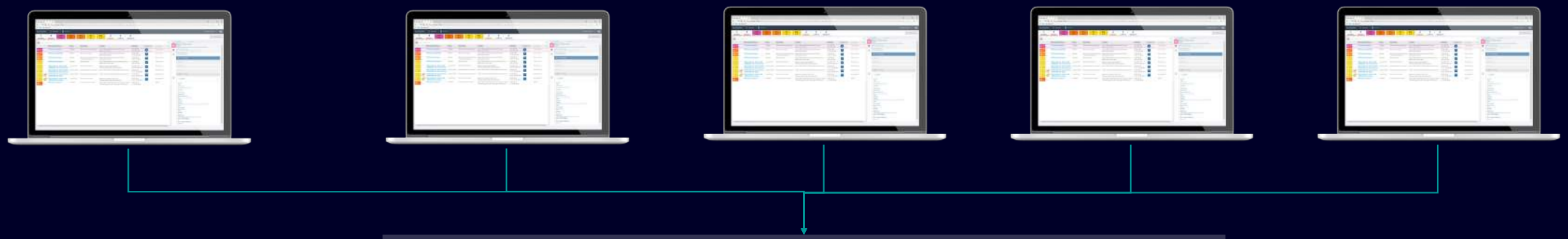

**Building X**
The data platform for all building, asset and sensor data

**Field Devices & Data Sources**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Lighting & Electrical | CCTV | Security | Building Twin | Utility | Microgrid | Elevator | CMMS |
| HVAC | Fire | Automation | E-mobility | Indoor sensors | Meter Data | IoT Data | Photovoltaic generation |





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## Combining the real and digital worlds is game-changing for Data Centers, and creates tangible business outcomes

# Data center of **the future**

Efficiency

Sustainability

Resilience

Up to
**40%**
savings for cooling

→ **Optimize for efficiency gains**

**-50%**
$CO_2$ by 2030

→ **Meet sustainability goals**

**24/7**
up to 100% uptime transparency of live & historical events

→ **Plan for resilient operations**



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# **How** we create Data Centers of the future



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# **Digital transformation solutions** – Discover solutions and use cases that support the priorities, objectives and outcomes of your business

**Financing**

**Energy & Performance Contracting**

**Cybersecurity**

**Use Cases**

- Use AI dynamically match cooling to IT load
- Optimize chiller plant
- Provide open platform environment
- Integrate building and energy management into a single platform
- Manage $CO_2$ reduction with onsite renewable power generation
- Plan and implement flexible plug-and-play solutions ensuring reliable power supply
- Automate & control heat sharing between your data center and district heating
- Create transparency and reduce energy consumption
- Using lifecycle digital twin create a holistic view of sustainability impact

**Apps and Services**

**Out of the Box SaaS Apps**

**Digital/Remote Services**

**Ecosystem Apps and Services**

Epic, heyPatient, Cerner, mDoc, HOPPEN, GETINGE

**Platform Layer**

Data Lake & APIs

IOT Platform

Qlik LEAD WITH DATA, Vigilent, Sunbird

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- Automation
- E-mobility
- Indoor sensors
- Meter Data
- IoT Data
- Photovoltaic generation
- Intrusion
- RTLS data

KONE, Quuppa, DISRUPTIVE TECHNOLOGIES, wavewarе, Brightly, Linits



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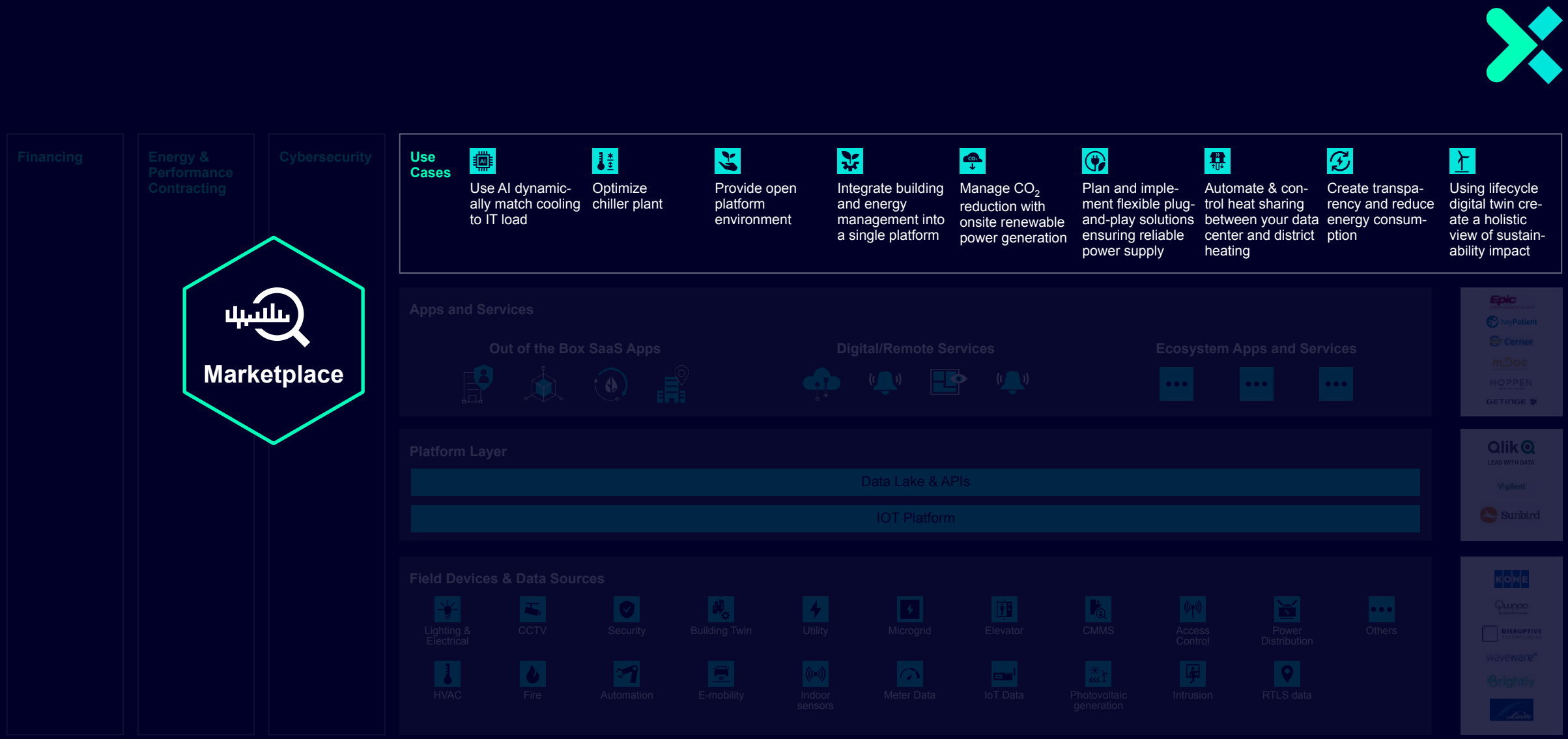
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Financing

Energy & Performance Contracting

Cybersecurity

**Portfolio**

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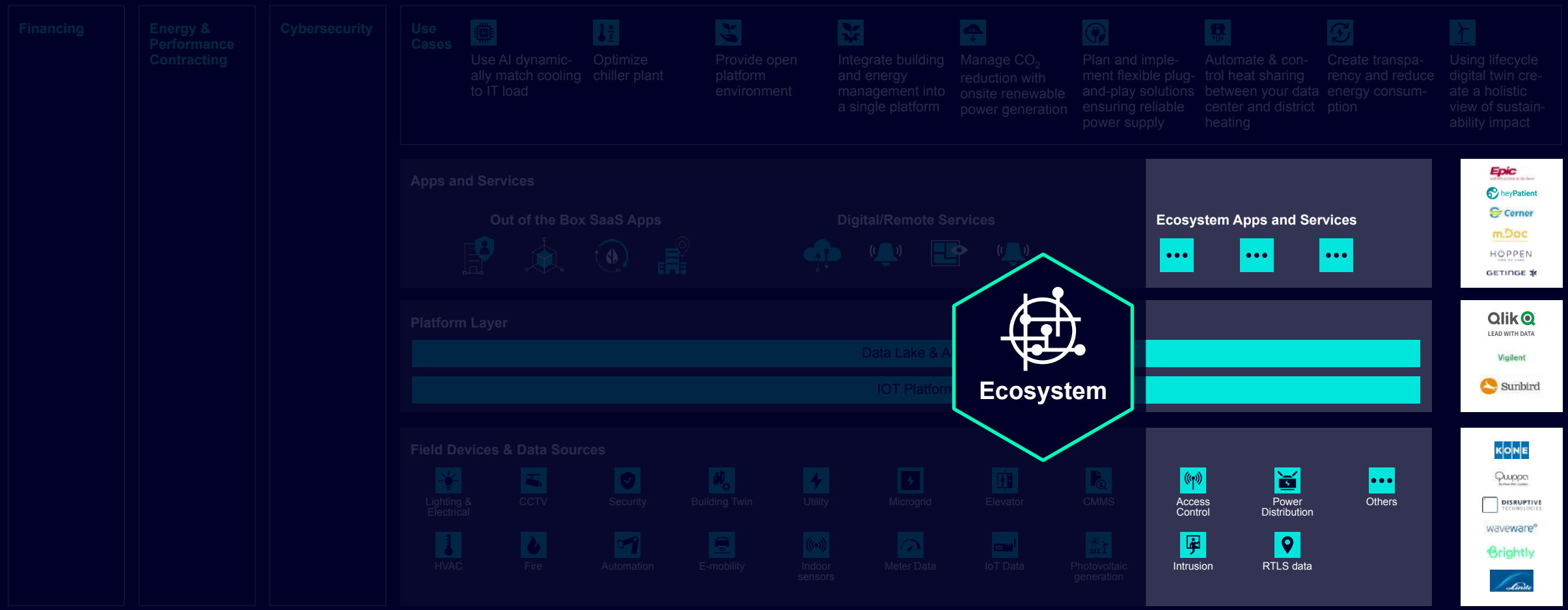
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# The **Digital Twin**

## As-Built Information

## Performance Data

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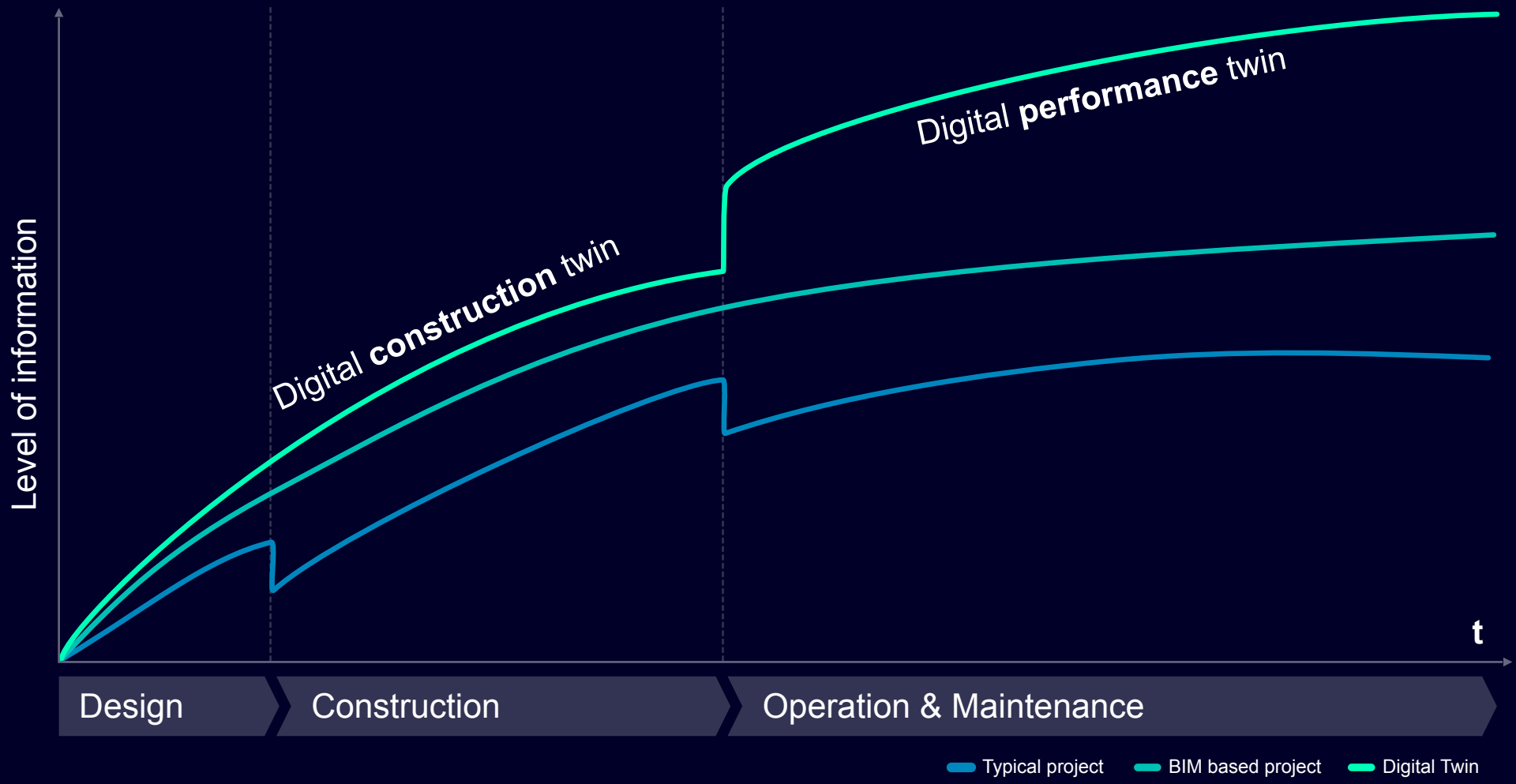
# Property (Asset) Lifecycle Long term Benefits

The Digital Twin is enriched with information throughout the entire building lifecycle




bsi BIM Software KITEMARK™

Information Management framework

## Challenges at interface

- Delay in time
- Additional cost
- Inconsistencies
- Loss of quality

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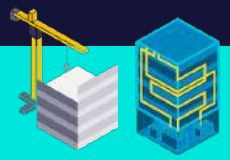
# Building X
# Lifecycle Twin …

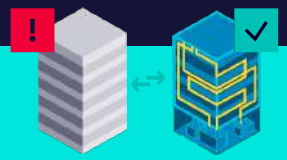
… enables more efficient decision making, smoother project delivery and improved longevity of assets.

Design

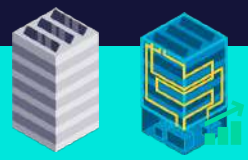
Construction



Operation



Renovation



**Use case 1:** Information handover

**Use case 2:** Shutdown planning

**Use case 3:** Reactive maintenance

**Use case 4:** Emergency planning

**Use case 5:** Preventive maintenance/FCA

**Use case 6:** Regulatory audit

## Solution

Building X Lifecycle Twin is a digital twin software that creates, maintains and visualizes digital twins for buildings and infrastructure based on Building Information Modeling (BIM).

**Single source of truth**



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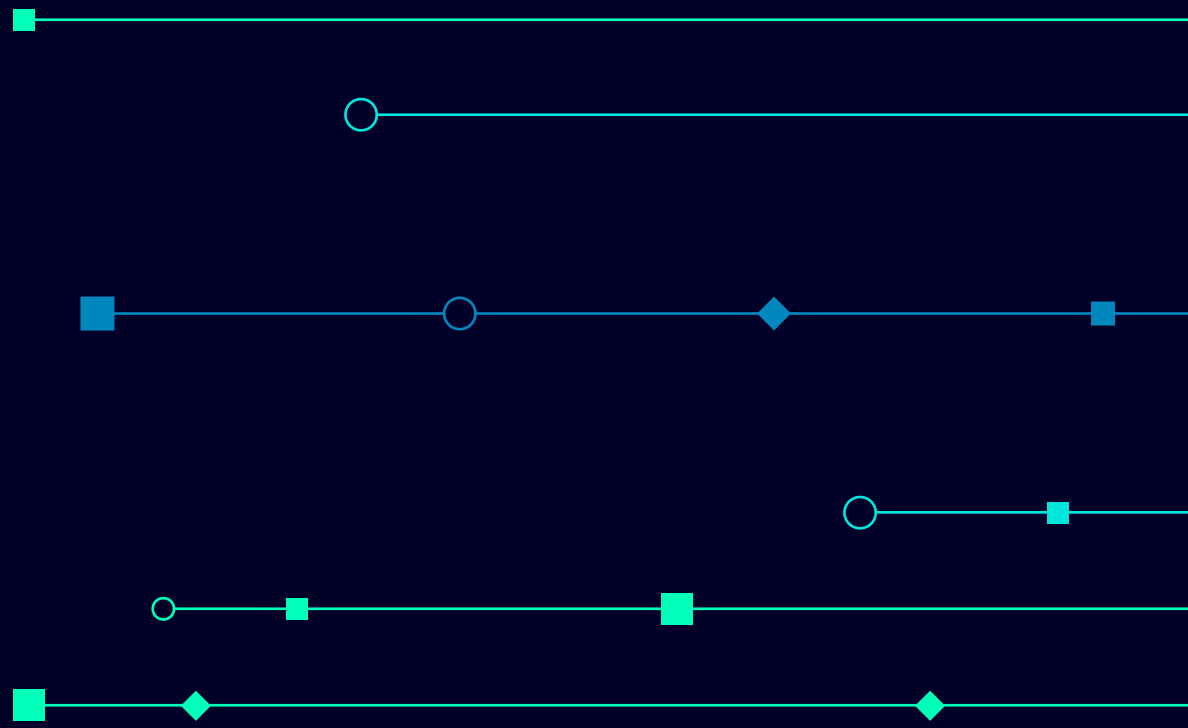
# **A single pane of glass** intersects information siloes







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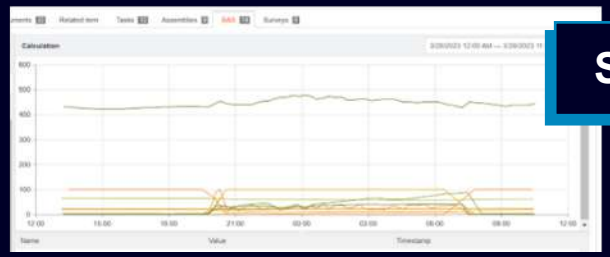
# Single Pane of Glass

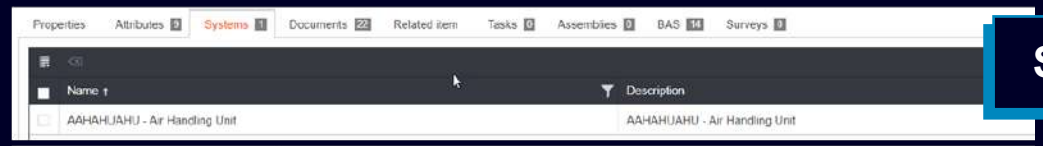
3D

Floor Plan

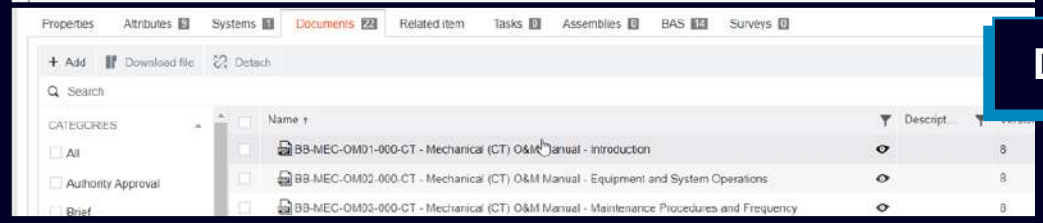


Sensors


Profile

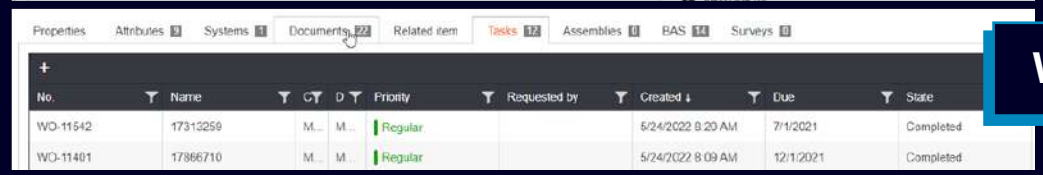



Systems




Documents


Related Items




Work Orders





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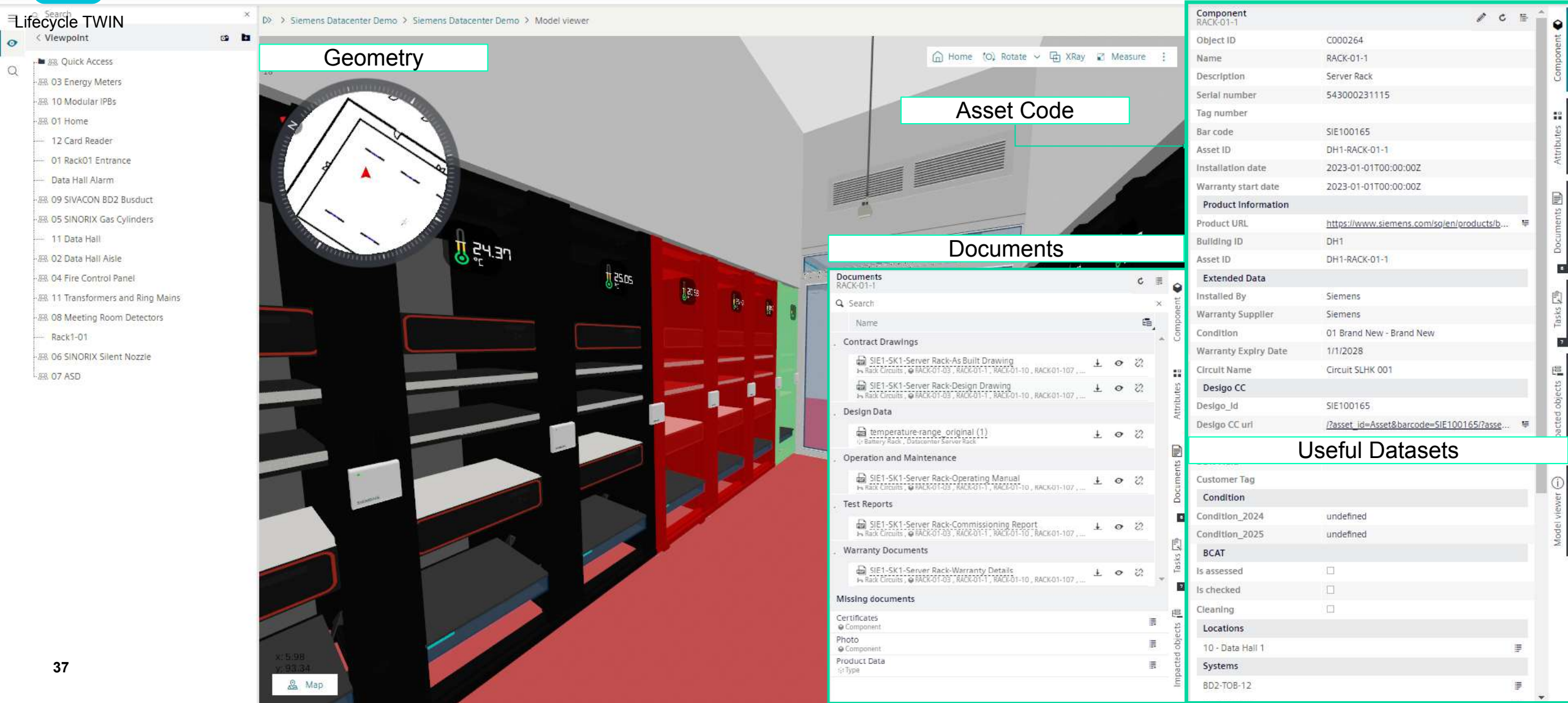
# Informational TWIN

**Informational TWIN**

Geometry + Asset Codes on Critical Assets + Useful Data on Critical Assets + Documents

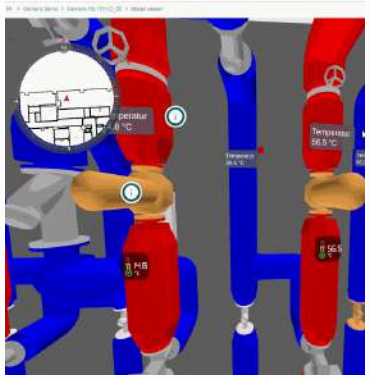


# Operational TWIN

## Operational TWIN

Informational TWIN + Sensor Values from Desigo CC/ Niagara / Johnson Controls etc.

Lifecycle TWIN



Geometry

2D Floor Plans

Asset Code

Dataset ++

Documents

BMS Data Points Values,Trend Series Data & Animations

Building X

# Energy Performance Optimization

## Anomaly analysis and detection

Continuous monitoring of your energy data and automated detection of irregular consumption patterns and anomalies via Artificial intelligence

## Energy Optimization reports

Regular reports on detected anomalies with a detailed root cause analysis and handling advise to optimize energy consumption

## Advisory meetings & Best practices

Regular meetings with Siemens experts to discuss findings and share best practices on energy savings actions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# White Space Cooling Optimization

### Thermal maps to monitor mounting issues

A map of white space is overlaid with real-time data to generate the Thermal Map, which allows you to find hot spots, areas of overcooling, and airflow issues.

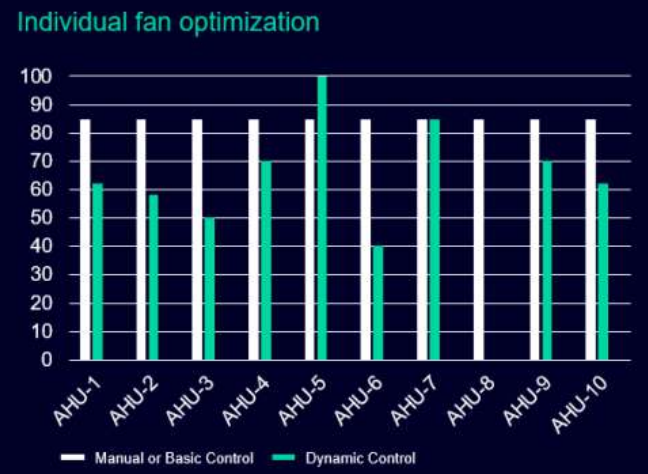
### Influence maps to determine optimal settings

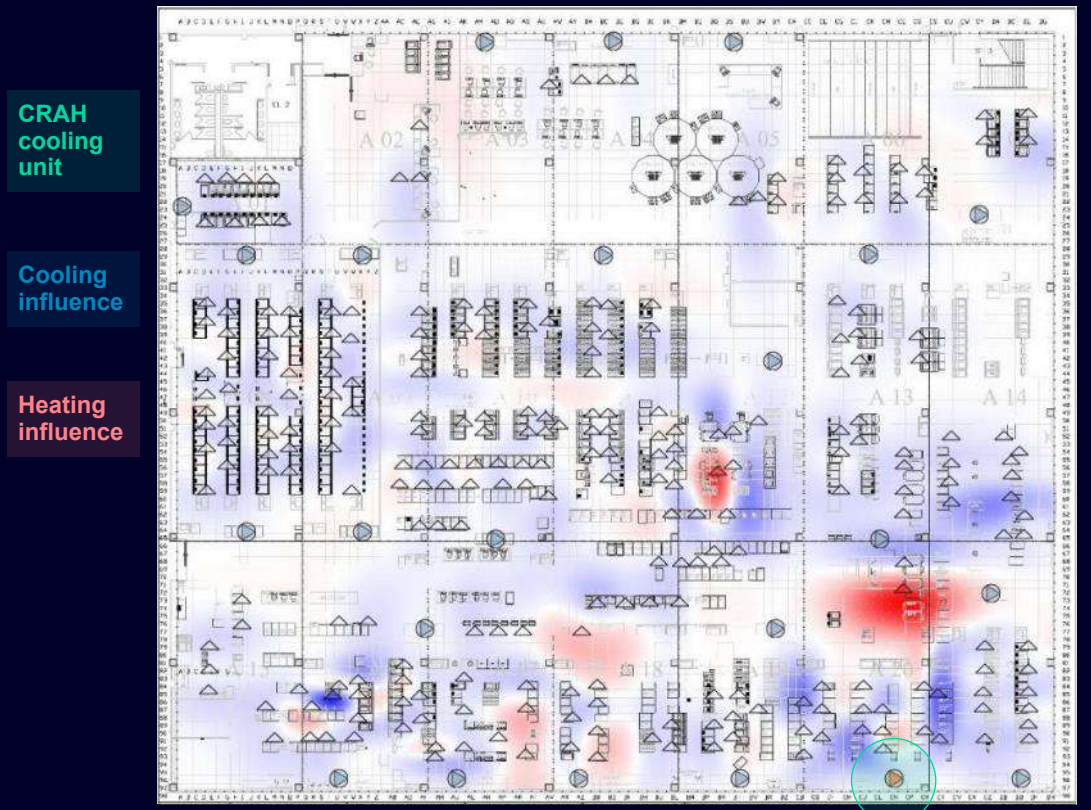
Influence maps display how every single CRAC/H unit is influenced by each individual rack of the white space, dynamically and automatically. Allow to fine tune fan speeds and overall complex airflow

### Taking into account multiple key DC KPIs

including: Cooling Capacity Factor, Cooling Efficiency, Cooling Load, Daily Cooling Load Cost, PUE.

**May require additional Hardware/software and configuration.*



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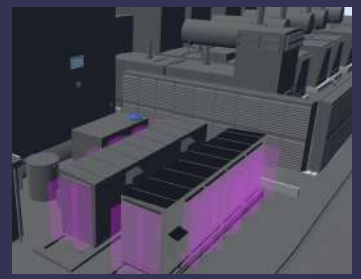
# ANZ Data Centre

Siemens leads the design and construct of core electrical systems





**Primary objectives**

- Achieve transparency across project in one place
- Digitalize manual information management process
- Deliver a frictionless information handover
- Reduce administrative resources by empowering technical teams

20% labor **cost savings** during construction and commissioning

**Single** data input

**Correct** information at hand throughout lifecycle

**Successful** operations handover

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# We deliver tangible outcomes to support your objectives

## Optimize **efficiency gains**

Efficiency

Sustainability

Resilience

### Reduce operational complexity

Up to 20 – 30% less OPEX costs[1]

### Lower energy consumption and PUE

Up to 40% less energy consumption

### Increased efficiency

Reduce investigation and repair time by up to 70% per incident

1 Uptime Institute 2021 DC Industry survey



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# We deliver tangible outcomes to support your objectives

## Meet **sustainability goals**

Efficiency

Sustainability

Resilience

**Achieve decarbonization and energy efficiency goals**
Up to 15% lower emissions

**Comply with norms and regulations**

**Improve resource efficiency & circularity**

**Ensure people health & wellbeing, societal impact**



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## We deliver tangible outcomes to support your objectives

# Plan for **resilient operations**

Efficiency

Sustainability

Resilience

### Achieve power resilience
Protect core services

### Protect people and assets
Increase uptime, democratize knowledge

### Improve Business Continuity
Mitigate risks, Improve redundancy



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# Four key take-aways from this presentation

1. A Smart from the start is an organizational commitment to a digital strategy
2. Having the smart and autonomous building as your north star in construction projects, will elevate the entire life cycle of your data center
3. Implement a centralized data platform for all building and asset data + sensor data from the OT systems
4. If you take a data driven approach you will see tangible business outcomes

# Your **trusted partner** for Data Centers of the future



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# At Siemens, we focus on long-term value creation through a holistic integration of OT, IT, and IoT across the entire lifecycle

A holistic approach for digital transformation

1 Plan

**Data Center Workshop** to align internal requirements

Involve key stakeholders

2 Design

**Central management of stakeholders** to develop the ideal solution

Focus on short term goals and long-term perspective

3 Build

**Central management of contractors** to balance quality and cost

Financing to optimize cash flow for your organization

Cybersecurity risks strategy implementation

4 Operate

**Data Center of the future allowing for**

Technology driven by AI to automate your Data Center

Implementation of new use cases

Higher customer satisfaction

Lowering risks, with higher compliance

A one-stop shop for system integration

Continuous improvement of efficiency

5 Assess

Continuously monitor performance of facilities,

Maintain and preserve

Comply with latest regulations and ESG goals

Assess energy performance



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# Let’s start our journey **now**

### Identify strategic objectives and form project team

to work with Siemens and design your data center of the future

### Define outcomes, use cases, and related KPIs

that are approved by your project team, to deliver quick wins and generate value for the portfolio

### Run a pilot project

to test the value of the jointly designed solution

### Scale up

Implement more use cases based on experience and measurable outcomes



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**Upcoming webinar:**

Tuesday, December 9, 2025 | 9.00 – 9.45

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