The shift from smart to **human-centric autonomous buildings**



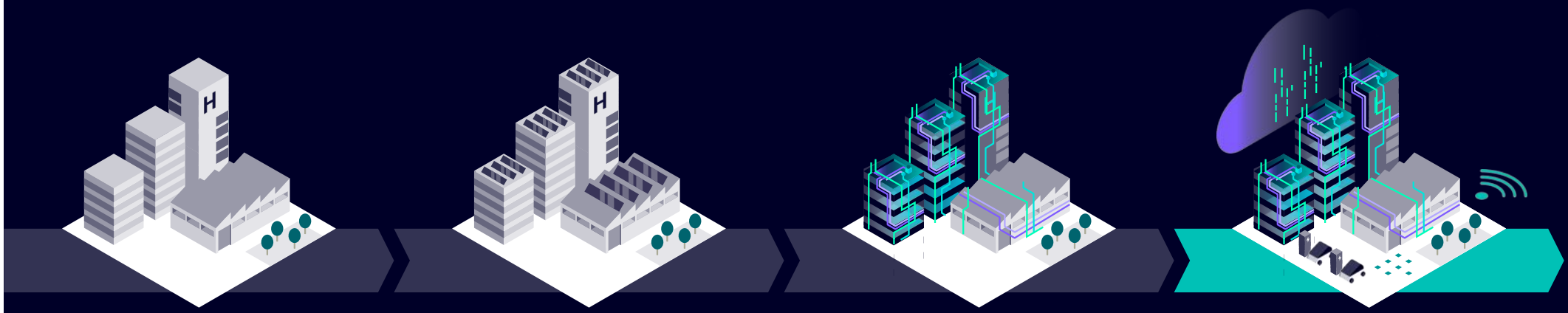
Valerie Williams
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Our Vision for the Future
The Human-Centric, Autonomous Building



Traditional building

Automated building

Smart building

Human-centric, autonomous building

From … → **To …**

- Complex integration of new technologies
- On-site management solutions
- Siloed control of building services
- Reactive on-site maintenance
- Predictive & prescriptive maintenance
- as-a-Service models
- AI-enabled remote operations
- Simple & easy integration of new tech

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The human-centric autonomous building

Performance

Maximising **operational efficiency**

- Cost reductions
- Operational resilience
- Workflow optimisation
- Workforce productivity

Experience

Creating **safe environments** and **promoting well-being**

- Ideal indoor environment
- Safety & protection

Sustainability

Delivering **energy savings**

- Energy savings
- Decarbonisation
- ESG compliance + reporting

Flexibility

Offering flexibility for **spaces and operations**

- Space optimisation
- Openness & integration

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The foundation for **autonomous buildings**



Building X
Autonomous
Sustainable
Profitable

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Building X Story



Use Cases

Energy & Sustainability
- Decarb. planning
- Compliance Reporting
- AI Energy Optim.
- Energy, Water, etc. Monitoring
- Utility Mgmt. & Insights

Operations & Maintenance
- Digital Engineering
- Operations Monitoring
- Fault Detection & Diagnosis
- Work order Mgmt.
- Cost-effective maintenance

Security & Safety
- Building Security
- Visitor Experience
- Building Access
- Fire System Monitoring
- Fire System Testing
- Fire System Maint. Scheduling

Space & Workplace Management
- Space Mgmt.
- Live Occupancy Insights
- Live IAQ Insights
- Workplace Utilisation Analytics
- Digital Workplace Admin.
- Desk & Room Booking

Corporate Portfolio Management*
- Portfolio Single Pane of Glass
- Portfolio Benchmark
- Data Quality & Auditing
- Workflow Automation & Reporting
- Cross Discipline Visibility

Digital Services

Automation & Mechanical
- Asset Performance Optimisation*
- Asset Power Monitoring
- Critical Storage
- Critical Space Monitoring
- Lab Manager Analytics

Energy Advisory & Diagnostic
- Smart Building Assessment
- Energy Performance Advisor
- UBM Service
- Energy System Twin
- Sustainability Advisory*

Energy Optimization
- Cooling Efficiency*
- Airflow Improvement*
- Load Optimisation*

Fire
- Data Driven Performance Review & Recommendations

Security
- False Alarm Detection & Reporting
- Access Right Review

Building X Platform

Applications

Energy & Sustainability
- Sustainability Manager
- Energy Manager
- Comfort AI

Operations & Maintenance
- Operations Manager
- Lifecycle Twin
- Data Visualiser
- 360 Viewer

Security & Safety
- Security Manager
- Visitor Manager
- Fire Apps

Space Mgmt.
- Occupancy
- Environmental & Air Quality

Portfolio Mgmt.
- Portfolio Manager*

+

Open APIs

Ecosystem

Connectivity
- Data Onboarding
- Service Extensions
- AI & Rule Analytics
- Building Twin
- Device & Edge Management
- Account Management

Building Structure Data

Partner/3rd IoT Solutions

Siemens Native IoT & SW Integrations
e.g., Desigo PXC, Connect Box, Desigo CC, Siveillance, Desigo Optic

Cybersecurity

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Building X transforms the way we live and work



10%
more net operating income through digitalisation

Up to **30%**
energy savings

24/7
transparency of live & historical events

We help you to create sustainable, autonomous, and profitable buildings.

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Sustainability

Delivering **energy savings**

Energy savings | Decarbonisation | ESG compliance + reporting

ESG tracking and reporting

Analyse performance, track decarbonisation targets, audit-proof reporting



Energy monitoring and analysis

Energy efficiency monitoring, forecasting and anomaly detection



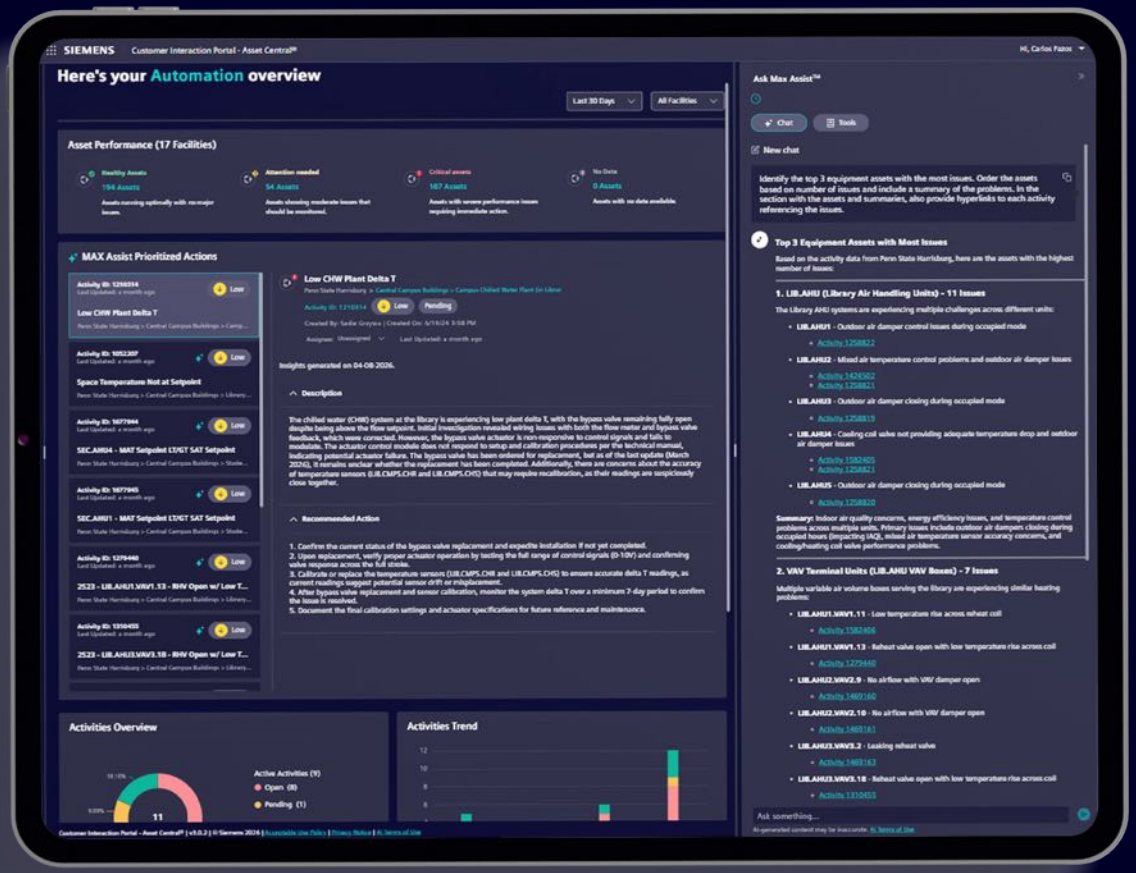
Autonomous optimisation

Launch AI-driven continuous improvements



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Autonomous Operations
Predictive and Prescriptive Maintenance - Automation



Predict Issues Early
Siemens AI-driven services detect faults and performance deviations before they escalate into failures or comfort complaints.

Act on What Matters
Issues are automatically prioritized by impact on comfort, energy, and maintenance, cutting through data overload.

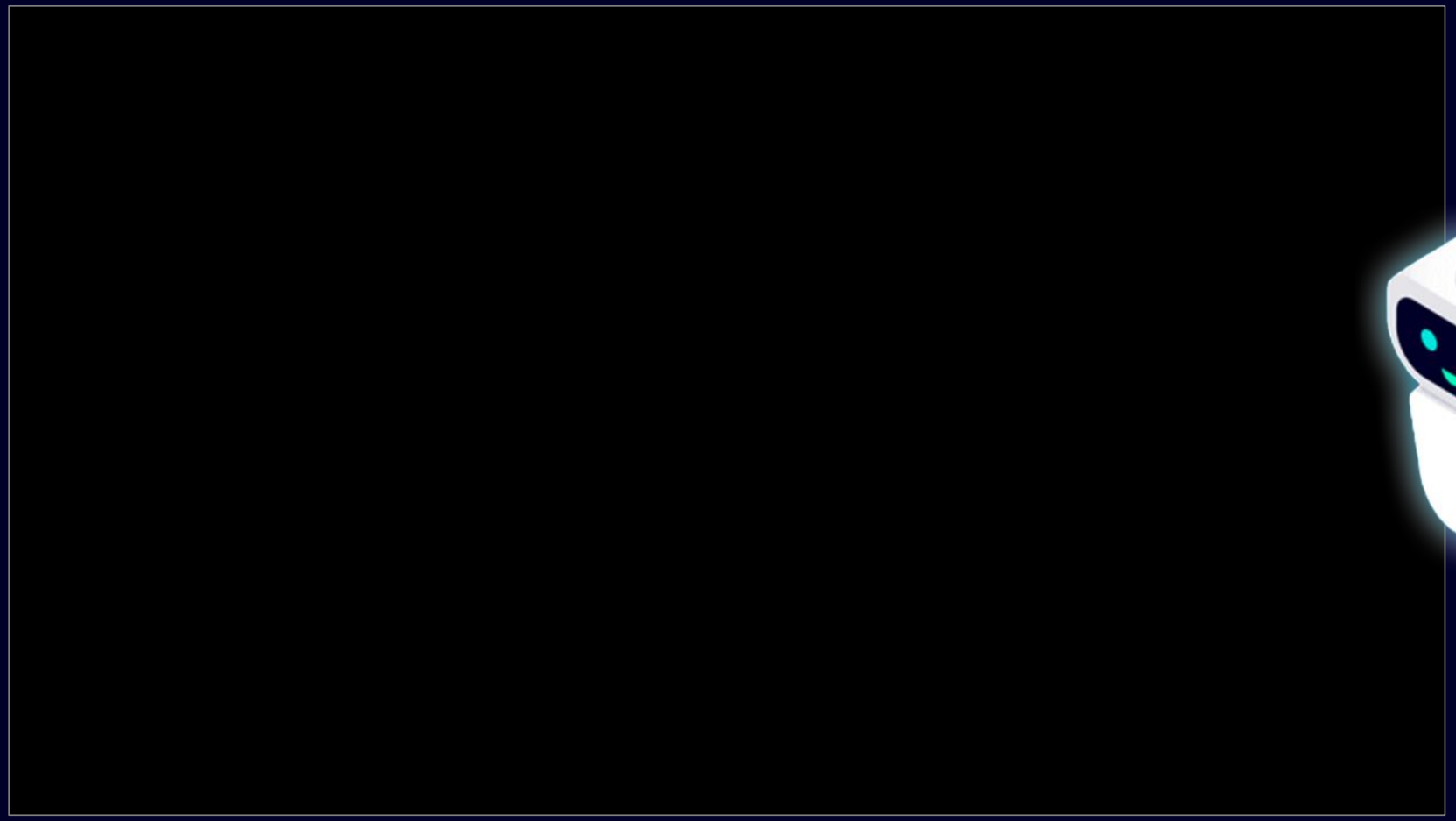
Reduce Reactive Maintenance
Prescriptive insights and recommended actions reduce reactive firefighting, unnecessary site visits, and wasted effort.

AI-Coordinated Workflows
AI-supported prioritization and coordination align Siemens services, customer teams, and partners to resolve issues efficiently end to end.

50%
Reduction in labor cost
related to maintenance calls

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Building X Agents **Demo**

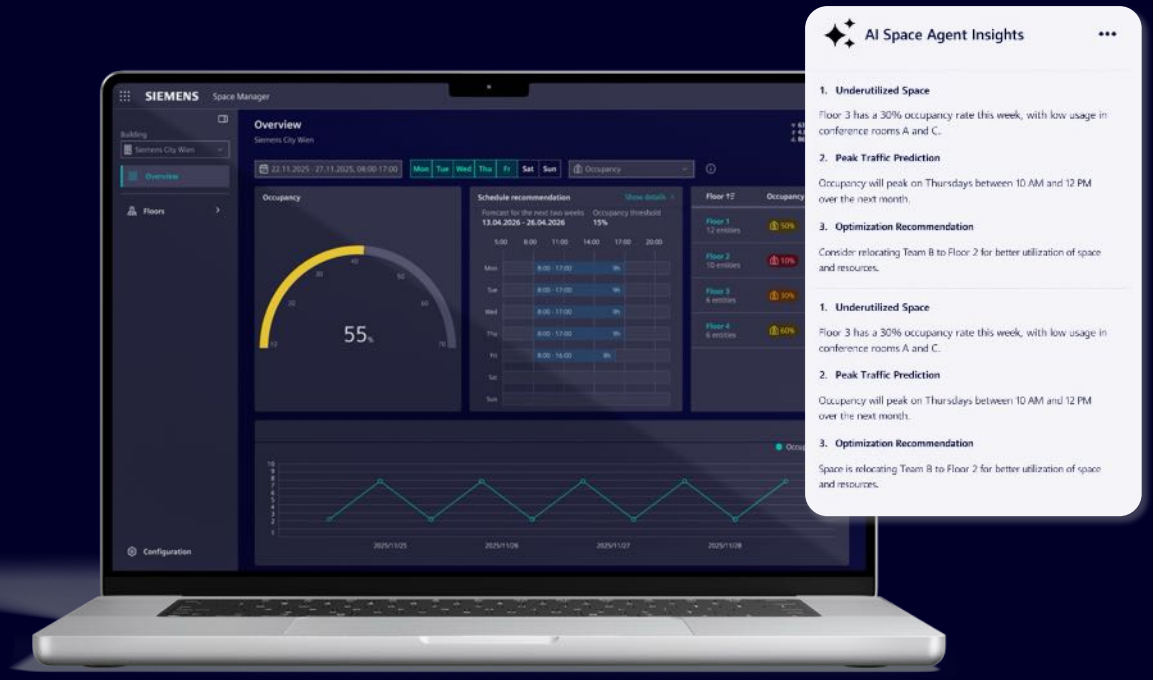




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Autonomous Space Optimization

AI-Powered Planning and Space Orchestration



Query Space Naturally

Space data is accessed instantly and optimization insights are generated through natural-language interaction by the Space Agent.

Manage Space with Data

Space scenarios are simulated and future demand is forecast using AI-driven predictive models.

Optimize Space Allocation

Workspaces are optimally distributed across teams and departments based on utilization patterns, comfort, and cost efficiencies.

Orchestrate Space Operations

Scheduling and monitoring of services such as cleaning, waste management, and workplace guidance are autonomously coordinated by the Space Orchestrator within human-defined policies.

Less Than

1 Year

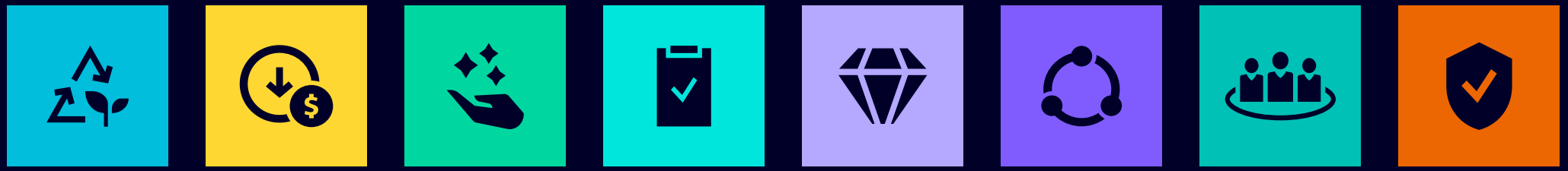
Simple Payback

Enhanced

Workspace satisfaction, flexibility and utilization

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Where to **start** & what **outcomes** are important to you?

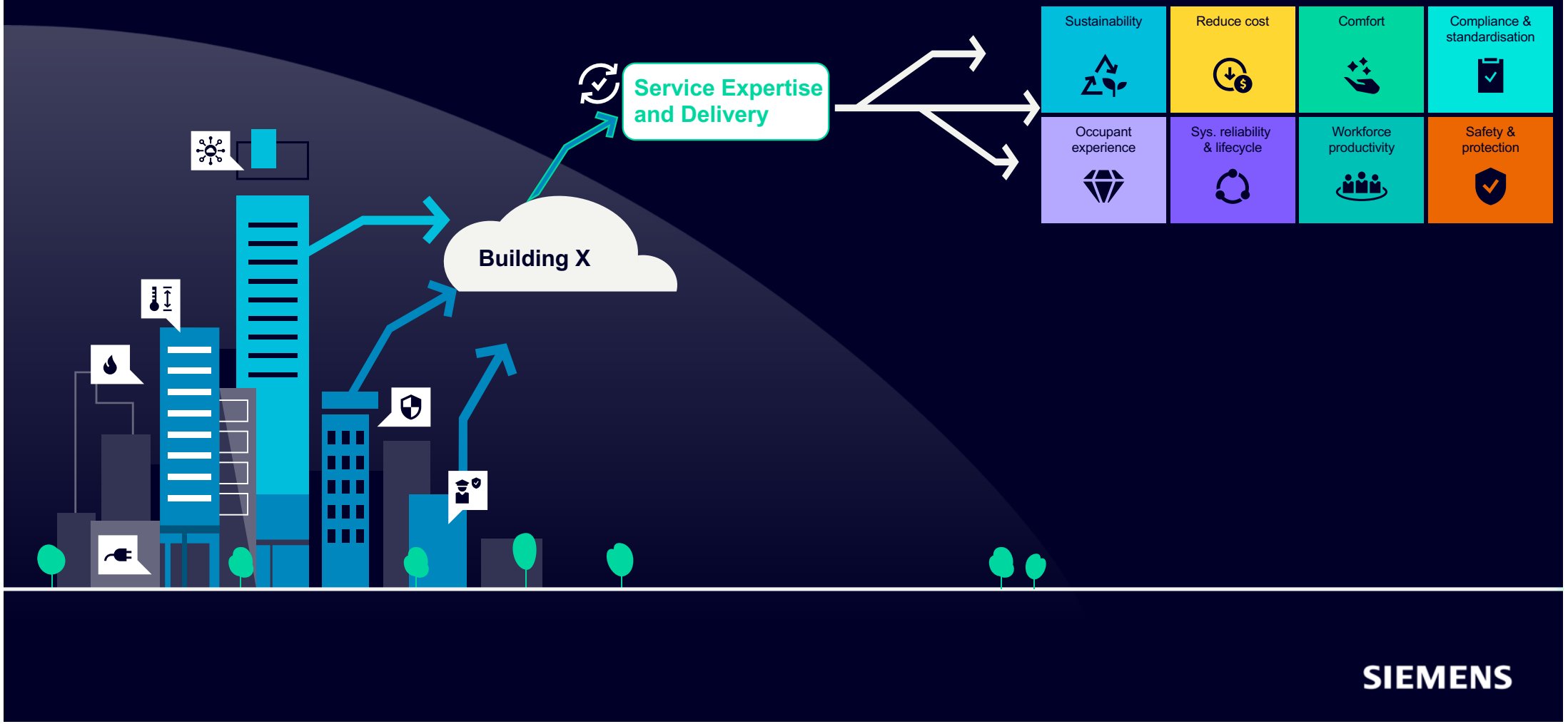


Sustainability | Reduce cost | Comfort | Compliance & standardisation | Occupant experience | System reliability & lifecycle | Workforce productivity | Safety & protection

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Our Approach

To build a human-centric autonomous building tailored to your needs



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Power your business with global digital service capabilities…

24/7 Monitoring

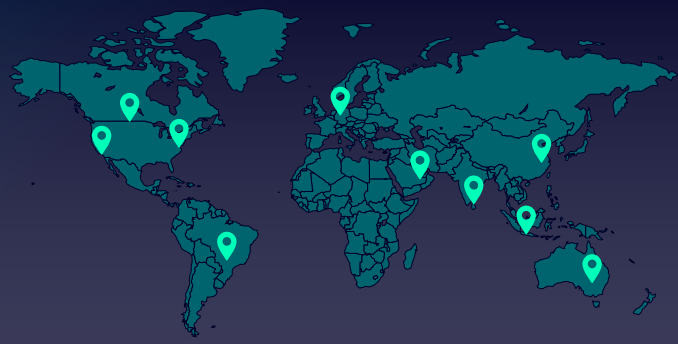
Analytics & Diagnostics

Digital Service Center

Performance Optimization

Software Services

Local Organisation with global capabilities



600+ professionals | **27** countries

140,000+ connected buildings



Helping you deliver **smarter, safer, more sustainable** buildings.

You focus on your business. Siemens delivers the digital service engine behind you.
Remote expertise. Global scale. Proven execution.

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Work backwards from the autonomous building

Everything it needs on day one is decided at RIBA Stages 0–2.

What it needs	Where it is decided
A performance target to steer towards	**RIBA 0–1** In the brief: an operational energy target
Data it can trust	**RIBA 2** Metering strategy, open protocols, tagging
A complete record of the asset	**RIBA 0–1** Information requirements for operations
Rules for what it may decide	**RIBA 2** Scope, boundary and override agreed

The dream state

A building that runs itself

Optimises energy within limits the client agreed

Proves its performance against a measured rating

Stays open to any supplier at the next refit

Miss Stage 2 and autonomy becomes a retrofit. The digital spine is a design decision.

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Bridging the gap from design model to measured performance

Design
RIBA 2–4

Energy modelling, simulation and analysis predict how the building will perform.

Lifecycle twin
RIBA 4–5

Models, assets, points and documents held in one record and built up as installed.

Handover
RIBA 6

Data checked against what operations needs before sign-off, not boxed up as O&M manuals.

Operations
RIBA 7

NABERS UK rates measured energy after 12 months. Autonomous control works from the same data.

Building X Lifecycle Twin one record from design model to verified handover RIBA 2–6

Energy Manager · Comfort AI Operations Manager RIBA 7

The performance gap: the model is built at design, then left behind. The bridge is the data that carries it into operations.

5★ **11 & 12 Wellington Place, Leeds:** the first UK building to complete Design for Performance, with its design target verified by measured energy in use.

~150 UK office projects have set a Design for Performance target

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How to specify the digital layer

What engineering consultants can write into their documents at each stage

In the brief
RIBA 0–1

— Set an operational energy target, such as a NABERS UK rating

— Write information requirements for operations

— State that the client owns the data

At concept
RIBA 2

— Match the metering strategy to the energy model's end uses

— Name open protocols and a tagging convention

— Agree what the building may decide: scope, boundary, override

In the specification
RIBA 3–4

— Make the points schedule and data model contract deliverables

— Leave spare capacity in controllers and network

— Require export of all data and decision logs in open formats

At handover
RIBA 6–7

— Verify data against the information requirements before sign-off

— Keep the model live and calibrate it against metered data

— Extend aftercare until the rating is verified

Want it as a CPD for your team? Find me at the Siemens stand.

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Come and see us on **D11** for **live demo**



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