Advancing energy technology for a sustainable future

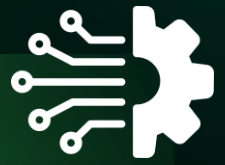
Schneider Electric

Three megatrends are transforming our world

New Energy Landscape

Access to energy for everyone through a resilient, modernized power grid, that is decentralized and decarbonized

61% **growth in global grid generation** from 28PWh in 2030 to 45 PWh in 2040[1]



Digital & AI

Adoption of digital technologies that give hardware and software systems human-like cognitive abilities

4x growth in global demand for data center capacity between 2023 and 2030[2]

Multi-Polar World

Shifting geopolitical landscapes, supply chains and workforces

-18% projected **decline in global trade** due to active and proposed re-localization measures[3]

1. International Energy Agency (IEA) *World Energy Outlook 2024*
2. McKinsey & Company *AI power: Expanding data center capacity to meet growing demand*
3. *OECD Supply Chain Resilience Review*

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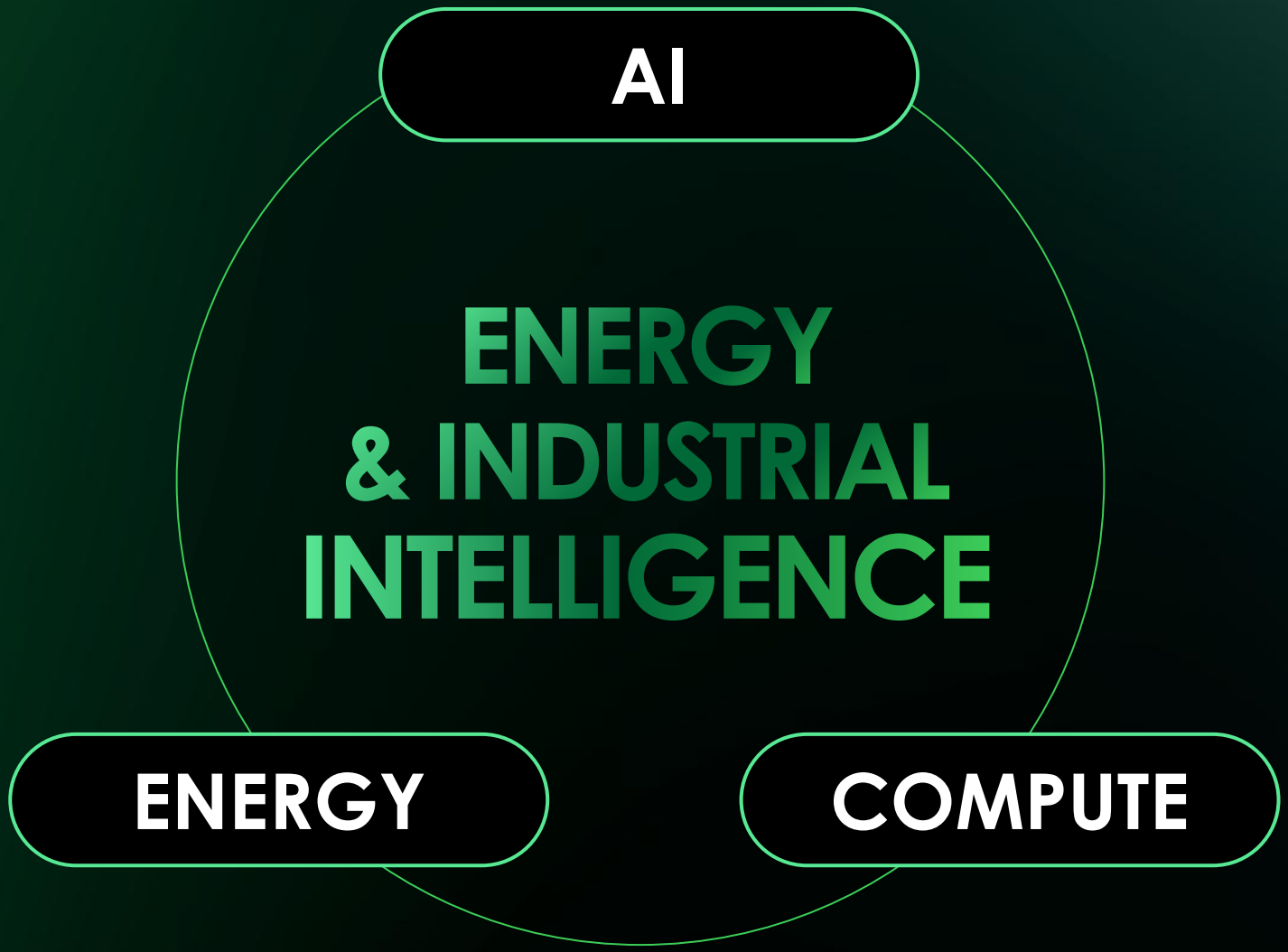


Unique value proposition for customers across the lifecycle

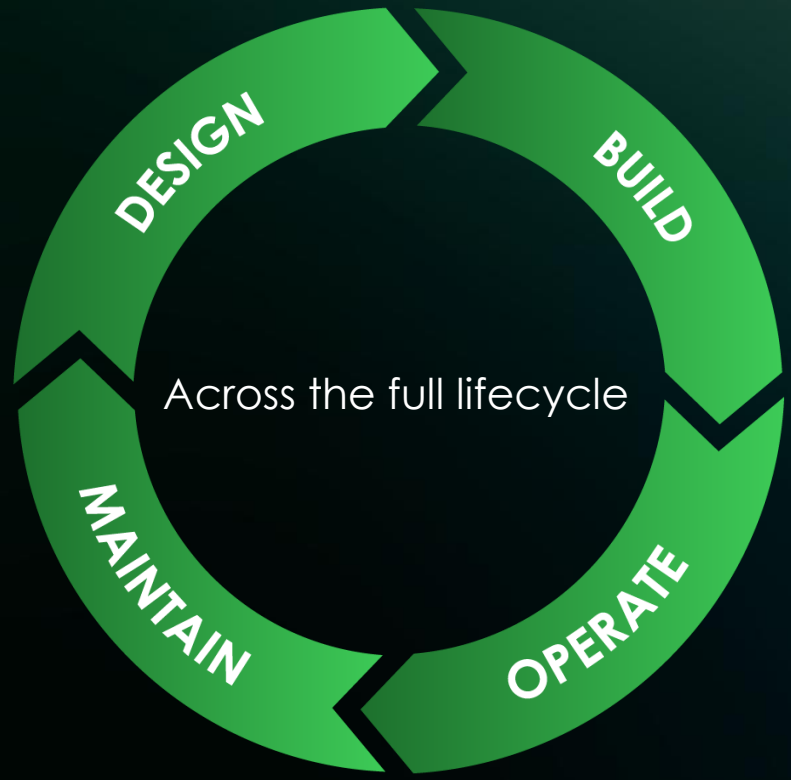
Our integrated EcoStruxure portfolio

3 domains of expertise

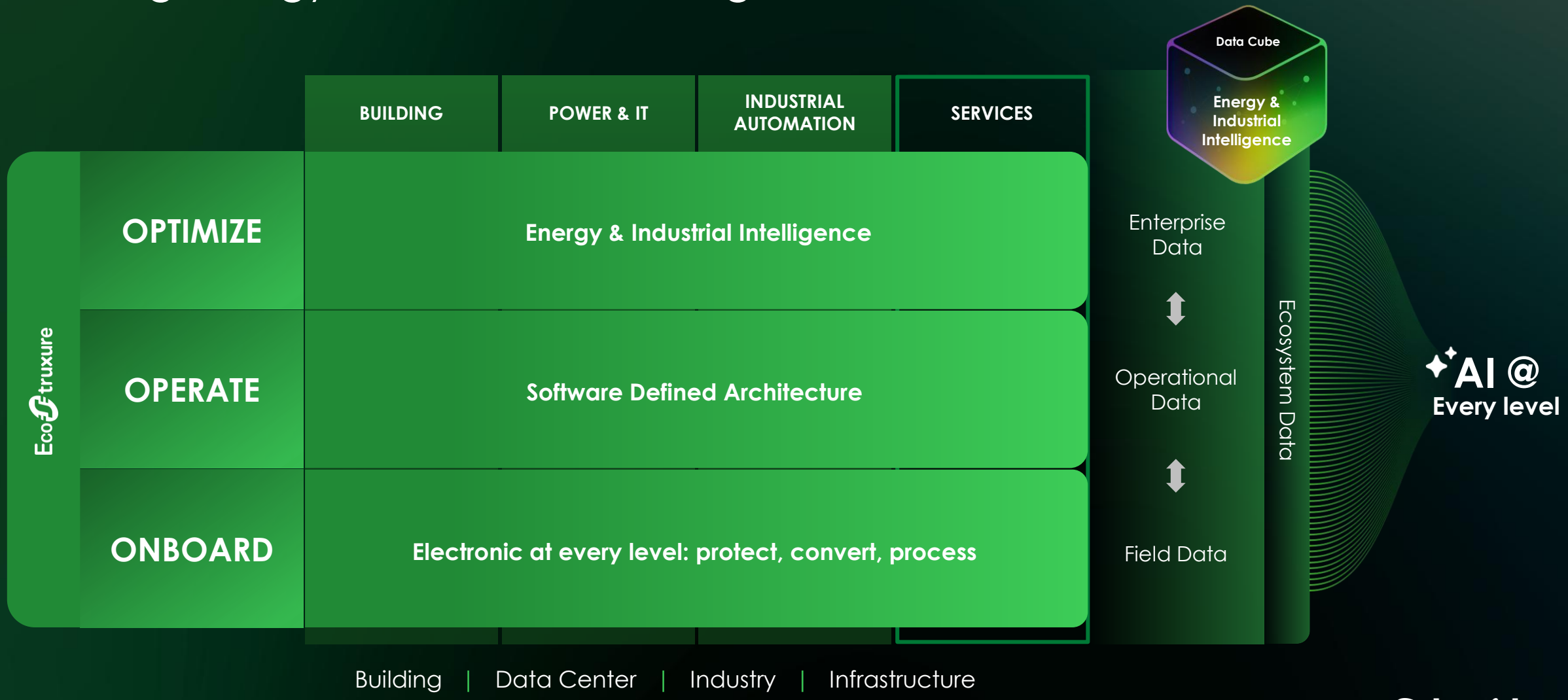
	BUILDING	POWER & IT	INDUSTRIAL AUTOMATION
EcoStruxure	**OPTIMIZE**	**Software & Services** that empower collaboration and actionable insight to grow enterprise value	
	OPERATE	**Edge Control & Computing** that simulate and automate systems for flexible, efficient and resilient performance	
	ONBOARD	**Intelligent Devices** integrated seamlessly that sense, think and act	

Building | Data Center | Industry | Infrastructure

4 end-markets



EcoStruxure: Schneider Electric's AI-powered, software-defined platform creating energy and industrial intelligence



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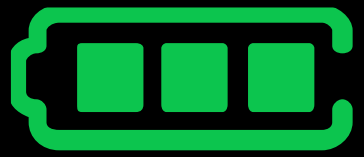
Building a New Level of Intelligence

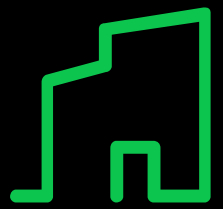
The major challenge is their significant impact on the environment

Through deep learning capabilities, intelligent real-time automation, and the sheer scale of data processing capacity, AI could adapt to our dynamic building environments and the critical management challenges

Sustainability
Compliance & Reporting



Energy
Optimization & Load Management



Workplace
Comfort, Health & Safety

Operations
Predictive Maintenance

Asset
Reliability & CyberSec

Data
Integration & Tagging

Real Estate
Portfolio Management

AI & Machine Learning Use Cases in Smart Commercial Buildings

Data Integration and Analytics

- Data Integration & Aggregation
- Analytics & Forecasting
- Data Visualization
- Performance Benchmarking and KPI Tracking
- Systems Validation/Handover/ Operationalization
- Smart Building Investment Case Evaluation

Emergency and Safety Systems

- Real-time Incident Detection
- Incident Response
- Health and Safety Monitoring
- Environmental Monitoring and Response

Indoor Environment and Occupant Comfort

- Thermal Comfort
- Air Quality
- Dynamic Lighting Control
- Noise Control and Acoustics

Digital Twin and Building Simulation

- Operational Performance Modelling
- Lifecycle Cost Analysis
- Scenario Planning
- Retrofit Simulation

Cybersecurity and Network Management

- Network Security Monitoring
- Incident Response
- IoT Device Management
- Forensics and Root Cause Analysis
- Data Privacy Compliance

Sustainability & Regulatory Compliance

- Automated Sustainability Reporting
- Regulatory Compliance Monitoring
- Environmental Impact Assessment
- Sustainability Performance Optimization
- Modelling for Climate Adaptation and Resilience

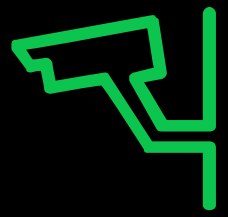
AI & Machine Learning Use Cases in Smart Commercial Buildings

Energy Management and Efficiency

- HVAC Optimization & Adaptive Control
- Energy Efficient Lighting
- Demand Response
- Microgrids and Distributed Energy Resources
- Energy Storage Optimization
- EV Charging Integration

Security and Access Control

- Facial Recognition
- Anomaly Detection
- Intrusion Detection
- Suspicious Behavior Monitoring
- Automated Visitor Management
- Object Detection
- Vehicle Access Control
- Crowd Analytics
- Biometric & Multi-Factor
- Access Control

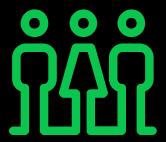


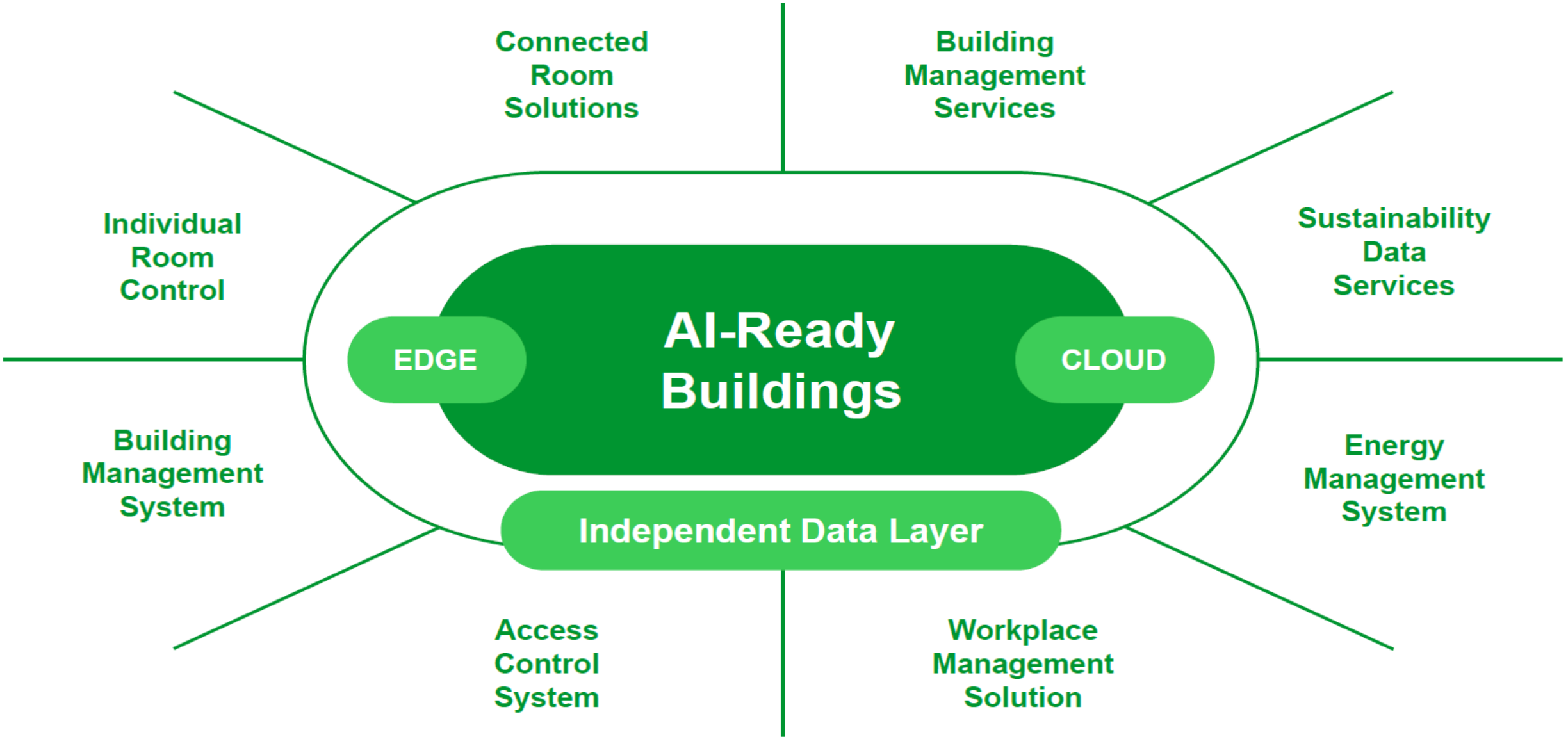
Predictive Maintenance and Asset Optimization

- Equipment Health Monitoring & FDD
- Maintenance Scheduling
- Building Envelope & Structural Health Monitoring
- Performance Benchmarking
- Lifecycle Analysis & Management
- Facilities Services Optimization
- Escalator & Elevator Optimization

Space, Occupancy & People Movement

- People Counting & Footfall
- Real-time Occupancy Monitoring
- Dynamic Workspace Allocation
- Way Finding & Navigation
- Space Analytics & Optimization
- Heat Maps & Pathing Analysis





AI-Ready Building Case Studies

Case 1: AI Portfolio HVAC Optimization in Swedish Schools

SISAB owns, operates over 600 schools in Sweden, with an energy budget of €24.3M. The facilities range from 100 to 48,000 m2 and from 7-15 years old, each requiring different heating setpoints maintain a comfortable environment for the 200,000 students and staff.

They wanted to reduce overall energy costs without replacing equipment.

The AI solution implemented in 624 school buildings. After five months of operation in winter season, the AI-enabled solution reduced heating energy by 4%, reduced electricity usage by 15%, reduced CO2 emissions by 205 Tonnes, and reduced occupant complaints by 23% with a 2-year payback.

Heating energy was reduced by anticipating temperature patterns, the AI model proactively lowered the setpoints before natural heat spikes from solar radiation and raised occupancy, enabling it to increase mean indoor temperature by 1°C while reducing overall energy use. The electricity savings came mainly from optimizing ventilation to reduce fan motor energy, and less CO2 emissions came from reduced demand on district heating, all while complaints reduced.

AI-Ready Building Case Studies

Case 2: A Showcase Office Building for an Industry Leader

Sidara, a global collaborative of design, engineering and consulting specialists, is a driving force of innovation. It aimed to showcase this expertise in its new 135,000sq. ft. headquarters at 150 Holborn in London, a state-of the-art workplace meeting high design standards and the well-being needs of its 1,000+ employees.

The team implemented intelligent climate control with 6,000 sensors tracking energy use, occupancy patterns, and more, to drive energy savings without impacting occupant comfort (90/100), as well as condition-based monitoring, fault detection, and AI diagnostics to support decision-making. AI workplace analytics provided visibility on occupancy, supporting people flows, meeting room preparation, and even canteen queue estimations.

As a showcase project, the building achieved the highest technical standards, receiving SmartScore Platinum, WiredScore Gold, BREEM Outstanding & LEED Platinum certifications.

The Path to AI-Ready Buildings

A clear roadmap ensures efficient progress toward AI-ready buildings

1. Assess: do you have input (tr. Sensor, device..) and the capability to collect the data

2. Prepare: determine where to deploy technology investments starting from a single area, establishing granular baselines and benchmarks for metrics and targets and prioritizing desired and feasible outcomes

3. Test & Scale: Once a small, simple deployment has provided conducive results against the metric and targets, the deployment can scale to other rooms, floors or buildings. Make sure to select buildings and spaces showing a strong energy ROI & align with customer outcomes

4. Validate: Understand the long-term nature of AI, requiring regular evaluation & adjustment. Measure ROI and ensure continued effectiveness by deploying proactive & preventative maintenance

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