

OPEN INFRASTRUCTURE. SMARTER BUILDINGS. AI-READY INFRASTRUCTURE AT SCALE.

How C4SBi Interest Groups come together to create value.

TWO MARKET DRIVERS



DATA CENTERS

The High-Value Proving Ground

- Extreme demands for power, cooling, uptime and scale
- Massive growth driven by AI
- Economic pressure to do more with existing capacity



AI FOR BUILDINGS

The Ultimate Beneficiary

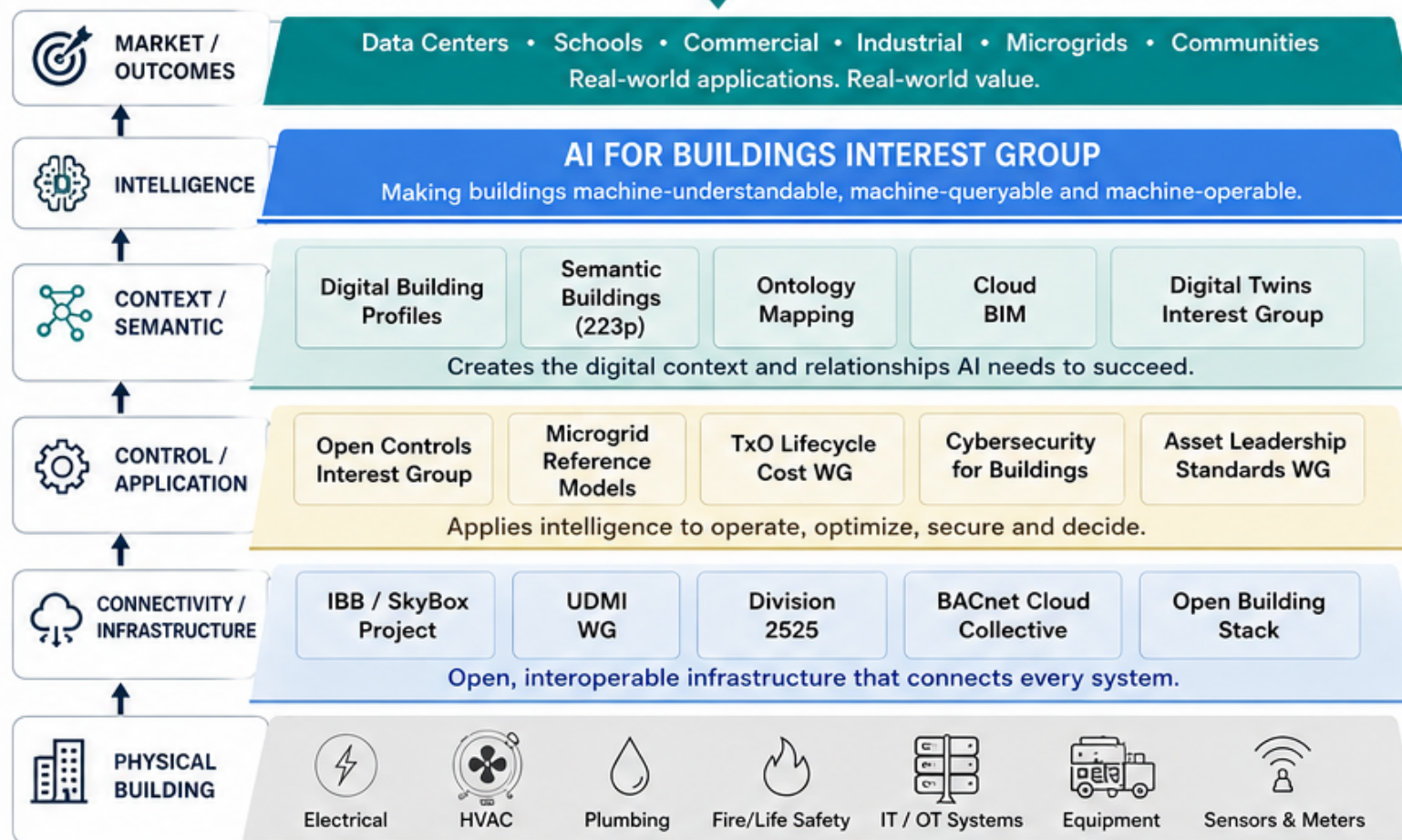
- AI needs context to understand buildings
- C4SB provides the machine-understandable foundation
- Enables AI to reason, optimize and act safely

TOGETHER:

Data centers prove the value. AI unlocks it at scale across every building type.

A COMMON QUESTION THAT CHANGES EVERYTHING

"We need more capacity, better efficiency, lower cost and higher resiliency—what can we safely and confidently do with the infrastructure we already have?"



HOW IT WORKS: THE AI-READY DATA CENTER EXAMPLE



VALUE DELIVERED



UNLOCK CAPACITY

Find and use stranded capacity in power, cooling and systems.



LOWER COSTS

Optimize operation, reduce energy spend, defer capital.



INCREASE RESILIENCE

Microgrids, cyber-secure systems and open interoperability.



SUSTAINABILITY

Lower carbon, water and resource use.



AI-POWERED OPERATIONS

AI can finally understand, predict and act with confidence.



SCALES TO EVERY BUILDING

Proven in data centers. Applicable to every building type.

The result:

Smarter decisions. Better outcomes. More value.

C4SB IS BUILDING THE OPEN DIGITAL INFRASTRUCTURE THAT MAKES PHYSICAL BUILDINGS UNDERSTANDABLE, ACTIONABLE AND AI-READY — INCLUDING THE MOST DEMANDING BUILDINGS ON THE PLANET.



Digital Building Profiles

- Standardized representation of building systems, assets, and capabilities
 - Enables consistent assessment across portfolios
 - Creates a baseline for modernization, benchmarking, and capital planning
- Value:** Establishes a repeatable starting point for digital transformation across all assets.



AI for Buildings Interest Group

- Defines the infrastructure and context required to make buildings AI-ready
 - Connects building data, semantics, digital twins, controls, and operational systems to AI
 - Demonstrates practical AI use cases for understanding, analyzing, predicting, and optimizing building performance
- Value:** Turns C4SB's interoperability, semantic, and digital infrastructure work into actionable intelligence and measurable building outcomes.



Microgrid Reference Models

- Creates standardized models for building-scale microgrids and distributed energy resources
 - Defines relationships among utility service, generation, batteries, loads, controls, and systems
 - Repeatable integration of buildings with microgrids, demand response, and grid-interactive systems
- Value:** Accelerates deployment of resilient, grid-interactive buildings by providing reusable models for energy orchestration and control.



Cloud BIM

- Extends BIM into operational and cloud environments
 - Connects design construction operations
 - Preserves and activates design data for long-term operational value
- Value:** Prevents data loss and improves lifecycle performance and decision-making.



Open Building Stack

- Reference architecture for modern buildings (edge + cloud)
 - Open protocols and modular services
 - Provides a blueprint that reduces design time and integration complexity
- Value:** Accelerates deployment with proven, repeatable architectures.



Interoperable Building Box Interest Group

- Portable, vendor-neutral integration platform
 - Plug-and-play system connectivity
 - Standardizes integration at the edge, reducing custom engineering effort
- Value:** Simplifies deployment across diverse building portfolios.



BACnet Cloud Collective

- Extends ASHRAE BACnet into modern architectures
 - Enables scalable, cloud-connected deployments
 - Protects existing investments while enabling future-ready systems
- Value:** Bridges legacy infrastructure with modern platforms.



UDMI

- Led by Google
 - Standardized IoT device management
 - Enables large-scale, consistent deployment of connected devices
- Value:** Simplifies operations across large portfolios and distributed assets.



Asset Leadership Standards

- Standards for managing building assets over time
 - Data-driven lifecycle performance strategies
 - Aligns operational performance with asset value and ownership goals
- Value:** Improves asset longevity, efficiency, and financial returns.



Semantic Buildings

- Standardized data models across systems
 - Enables consistent naming, relationships, and context
 - Creates a unified data foundation required for analytics and AI
- Value:** Unlocks scalable insights and cross-system intelligence.



Data Center Interest Group

- Applies C4SB technologies to one of the most demanding building environments
 - Integrates power, cooling, controls, IT/OT, cybersecurity, and distributed energy systems
 - Demonstrates how open infrastructure can unlock capacity, improve resilience, and support rapidly growing AI workloads
- Value:** Provides a high-value proving ground for C4SB technologies while addressing critical capacity, energy, and infrastructure challenges.



Ontology Mapping for Buildings

- Maps relationships among major building ontologies, schemas, and industry data models
 - Connects semantic standards such as ASHRAE 223, Brick, REC, IFC, and other domain models
 - Data created for one system to be understood and reused by other applications
- Value:** Creates the semantic bridge that allows building data to move across systems, standards, and lifecycle stages without losing meaning



Digital Twin Interest Group

- Real-world environments for testing digital twin implementations
 - Validation of interoperability and performance
 - De-risks innovation by proving solutions before large-scale deployment
- Value:** Reduces project risk and accelerates adoption of new technologies.



OPEN Controls

- Open, executable control logic (replacing static sequences)
 - Development of Open Sequences Language (OSL)
 - Transforms controls into portable, reusable software across vendors
- Value:** Eliminates vendor lock-in and enables scalable, software-driven operations.



Cybersecurity for Buildings

- Frameworks for securing building systems end-to-end
 - Device, network, and cloud-level security models
 - Addresses growing enterprise risk as buildings become connected infrastructure
- Value:** Protects assets, operations, and corporate networks from increasing cyber threats.



LONMark International

- Certification and interoperability for devices
 - Multi-vendor ecosystem support
 - Ensures reliable device-level compatibility across systems
- Value:** Reduces integration risk at the lowest level of the stack.



TxO Lifecycle ROI Interest Group

- Total lifecycle cost modeling (design → operations)
 - Financial frameworks for decision-making
 - Connects technical decisions directly to ROI and capital allocation
- Value:** Enables smarter investment decisions and long-term cost reduction.



Division 2525

- Modern construction specifications for controls and integration
 - Alignment with software-driven systems
 - Bridges the gap between design intent and deployable systems
- Value:** Ensures what gets specified is actually delivered and operational.

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C4SB Open Standards.
Open Innovation.
Smarter Buildings for All.