

F R O S T & S U L L I V A N



ABB RECEIVES THE 2023 CUSTOMER VALUE LEADERSHIP AWARD

Identified as best in class in the global intelligent buildings industry

Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each Award category before determining the final Award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. ABB excels in many of the criteria in the intelligent buildings space.

AWARD CRITERIA	
<i>Business Impact</i>	<i>Customer Impact</i>
Financial Performance	Price/Performance Value
Customer Acquisition	Customer Purchase Experience
Operational Efficiency	Customer Ownership Experience
Growth Potential	Customer Service Experience
Human Capital	Brand Equity

A Market Snapshot

Global challenges stemming from rapid population growth and the correspondingly rampant urbanization (e.g., the building sector’s rising carbon emissions and energy consumption) increasingly drive building owners and facility managers towards digitalization. Moreover, the proliferation of Internet of Things (IoT) devices and the need to reduce operational expenses (OPEX) bolster the sector’s growing focus on energy efficiency improvement. Within this context, intelligent building solutions (e.g., primarily data-driven building energy management and building automation systems) enjoy increasing popularity as smart alternatives to improve operational efficiency, reduce energy consumption, minimize OPEX, and enhance occupant comfort across the built environment. These solutions embed digital technologies (including artificial intelligence [AI], machine learning, and IoT) into new or existing hardware and software systems to advance building operations and maintenance - transforming them from reactive to proactive. As a result, users can collect, analyze, and derive actionable insights from their building sensors and metering data, thereby empowering them to monitor, manage, and optimize their building systems seamlessly. Frost & Sullivan foresees tremendous growth potential for the intelligent building space, forecasting the digital solutions in the built environment to reach \$50.99 billion in revenues by 2028, growing at a compound annual growth rate of 25.1%.¹

Frost & Sullivan’s ongoing research reveals that despite a supportive regulatory landscape and shifting consumer attitudes, several challenges continue to restrain the growth of the intelligent buildings space.

¹ Top 50 Start-ups Advancing Decarbonization and Digitalization in the Global Homes and Buildings Industry (Frost & Sullivan, August 2022)

Firstly, smart building solutions' high capital expenditures, considerable complexity, and limited interoperability with legacy systems impede mass-market adoption. Moreover, the building sector's ongoing skilled labor shortage and aging workforce emphasize the need to simplify data-driven operations and autonomous maintenance for a more connected, cognitive, and sustainable built environment. Similarly, customers' valid concerns regarding digital building solutions' cybersecurity risks hinder the overall market growth.

Building on more than 130 years of excellence, ABB's 105,000 (approximately) employees are committed to driving innovations that accelerate the industrial transformation. More specifically, ABB Electrification is a global technology leader in electrical distribution and management from source to socket, electrifying the world in a safe, smart, and sustainable way. The business area's 50,000+ employees across 100 countries collaborate with customers and partners to transform how people connect, live, and work. Combining global scale with local expertise, ABB Electrification develops innovative products, solutions, and digital technologies that enable energy efficiency and a low carbon society across all sectors, delivering customer excellence and powering a sustainable future. Its Smart Buildings Division offers a range of innovation-led, cloud-based solutions that effectively address the critical needs of residential and commercial customers.

ABB Smart Buildings Solutions: Simplifying Building Intelligence

ABB Smart Buildings leverages its decades-long domain expertise, cutting-edge technologies, and continual innovation to offer smart building and automation solutions to support the global transition towards low-carbon energy and increased energy efficiency. Specifically, the Division's scalable smart

"The Smart Buildings portfolio comprising the intuitive and user-friendly ABB Ability™ cloud-based software-as-a-service (SaaS) solution reduces the complexity and cost associated with intelligent buildings solution implementation, thereby driving adoption across diverse building segments. Furthermore, these solutions help real-world customers make buildings safer, smarter, and more sustainable by supporting their end-to-end sustainability journeys."

***- Anirudh Bhaskaran,
Industry Principal***

buildings portfolio encompasses highly innovative technologies and integrated digital solutions that optimize energy distribution and building automation to deliver significant financial, operational, and sustainability benefits.

ABB's portfolio of digital solutions, branded ABB Ability™, combines the company's deep domain expertise with connectivity and software innovation to future-proof infrastructure and transform key business processes for safer and smarter operations that contribute to a low-carbon future. The Smart Buildings digital portfolio, powered by the market-leading ABB Ability™ technology solution, is a holistic suite of vendor-agnostic digital solutions that is

completely compatible with its customers' existing open system infrastructure, promoting interoperability and dismantling building system silos. As a result, the company provides unmatched flexibility in designing and implementing smart building solutions to facilitate seamless adaptation to specific customer needs. Additionally, ABB's solutions interoperability secures its customers' investments for future modifications and extensions.

Serving the varying needs of real estate developers, building owners, and investors, the ABB Ability™-enabled Smart Buildings portfolio incorporates several digital solutions and services to address these customers' operational efficiency improvement, OPEX reduction, and energy consumption minimization needs. These solutions integrate capabilities for real-time visibility (remote monitoring), asset management (predictive and prioritized maintenance, access control), optimization (data analytics), safety, security, and reliability into a single dashboard. Additionally, through ABB's partnership with Microsoft, users can access advanced tools on the Azure cloud platform (e.g., data analytics, AI, and cybersecurity). More importantly, the company combines its digital solutions with legacy building management products (including the ABB HVAC, lighting, shading controllers, and meters) to form the comprehensive ABB Ability™ Smart Buildings offering.

The ABB Ability™ Smart Buildings portfolio's best-in-class™ solutions include:

- **ABB Ability™ Building Analyzer:** As the evolution of the company's market-leading ABB Ability™ BE Sustainable with Active Energy offering, this digital solution streamlines its predecessor's configuration and connectivity capabilities. The Building Analyzer tracks both building data (occupancy, equipment runtime hours, and temperatures) and utilities data (energy, gas, water, and steam) in real time, empowering customers to take the necessary steps to reduce their buildings' energy consumption and carbon emissions by up to 20% and time spent on reporting by up to 50%.²
- **ABB Ability™ Efficiency AI:** An update of the company's ABB Ability™ BE Sustainable with Efficiency AI, this offering leverages AI to proactively optimize its customers' heating, ventilation, and air conditioning (HVAC) systems. As a result, customers can achieve remarkable cost savings, reduce carbon emissions, and increase occupant comfort. The control system-agnostic solution employs deep learning models to enable customers to make informed decisions and autonomously drive HVAC systems, transforming operations from reactive to preemptive. Therefore, customers benefit from an up to 40% reduction in carbon footprint, up to 25% reduction in HVAC energy costs, up to 50% extension of equipment service life, and up to 60% improvement in occupant comfort.³

The Smart Buildings portfolio comprising the intuitive and user-friendly ABB Ability™ cloud-based software-as-a-service (SaaS) solution reduces the complexity and cost associated with intelligent buildings solution implementation, thereby driving adoption across diverse building segments. Furthermore, these solutions help real-world customers make buildings safer, smarter, and more sustainable by supporting their end-to-end sustainability journeys. To this end, the company groups its strategic energy-efficient solutions under three pillars: Analyze, Control, and Optimize.

- **Analyze:** One of the first steps in any customer's sustainability journey is to analyze their current state. By tracking their building and utilities data in real time, the ABB Ability™ Building Analyzer provides actionable insights, enabling customers to save money while improving energy efficiency and occupant awareness.
- **Control:** ABB offers its Aspect Building Management System, BACnet HVAC equipment controllers, and KNX lighting and shading controllers to empower customers to pursue any identified energy

² <https://buildings.ability.abb/>, accessed March 2023.

³ Ibid.

improvement opportunities by controlling their buildings' energy consumption patterns. Moreover, customers can integrate these offerings seamlessly into existing building systems, adding clear value and enabling additional use cases. As buildings consume more than 30% of the world's energy while emitting 40% of global carbon emissions, these solutions provide scalable automation and energy control, allowing real-time monitoring and control of a wide variety of commercial buildings while addressing the buildings' energy efficiency and carbon footprint.

- **Optimize:** The company's Efficiency AI solution leverages advanced AI technology to optimize its customers' HVAC equipment, reducing the industry's current dependence on HVAC experts and automating the cumbersome manual issue diagnosis and resolution process. As a result, customers can quickly scale energy optimization measures across multiple buildings, achieving significant energy and operational efficiency improvements.

Moreover, ABB builds on its competitive differentiation by continually enhancing the capabilities and overall customer value of its market-leading ABB Ability™ Smart Buildings portfolio through strategic industry partnerships. For instance, in October 2021, the company invested in BrainBox AI, the Canadian building automation company, to leverage the partner's pioneering AI capabilities to leapfrog its current approaches to digital transformation, further reduce energy costs, and decrease HVAC system-related carbon emissions. ABB integrated BrainBox AI's predictive, self-adaptive, and scalable cloud-based AI into its ABB Ability™ digital solutions to build its groundbreaking Efficiency AI offering.⁴

Similarly, in 2022, ABB announced a global partnership with Samsung Electronics, combining ABB-free@home® and Samsung SmartThings in one, fully integrated system. The collaboration offers property developers and operators a holistic home system that can be remotely managed and connected to the existing property management system while delivering tenants and owners an individualized smart home experience. The joint solution integrates all Samsung Electronics devices and appliances, including HVAC.⁵

Roadmap to Success: Customer-centric, Continuous, Proactive

Unlike other competitors, ABB develops its solution offerings by collaborating closely with various stakeholders across the entire value chain to evolve alongside and holistically address market trends. To this end, the company utilizes its robust backward 'ABB Innovation Process,' especially for its Commercial Building offerings, to ensure it listens to the voice of the customers and resolves common issues at the beginning of the solution development process. For instance, the company built its Building Analyzer solution alongside key end customers, ensuring it met their needs before the product's market launch. Similarly, ABB moderates an Advisory Council, a platform comprising system integrators and end-users, that fosters a user community where customers can support each other with problem resolution. The council also provides regular feedback and invaluable insight into the company's strategic direction and product development roadmaps. At the same time, ABB's digital SaaS model extends customer relationships from one-time interactions (for instance, a hardware installation) to multi-year relationships, enabling it to accumulate customer insight and deliver recurring value over time.

⁴ <https://new.abb.com/news/detail/84046/abb-invests-in-building-technology-startup-brainbox-ai>, accessed February 2023.

⁵ <https://new.abb.com/news/detail/89667/abb-partners-with-samsung-electronics-to-drive-holistic-smart-building-technology>, accessed February 2023.

In addition to this continual customer-driven product innovation, ABB strongly supports its customers throughout the customer journey, from understanding the offering, solution selection/planning, installation, commissioning, and user operation to daily maintenance and end-of-life handling. Within this context, the company ensures optimal customer satisfaction during its solutions' active lifecycle by using base technologies that fulfill customer requirements, ensuring forwards-backwards product compatibility, and continuing to support legacy solutions.

ABB supplements its dedicated local and global specialists supporting customers with their pre- and post-sales needs with several enablers to optimize customer experiences, such as:

- **Sales:** ABB provides digital sales support and enablement tools (such as its value/ROI calculator and specification writer) to help its internal technical sales team and channel partners assist customers during the purchase process.
- **Planning:** The company offers its newly launched Commercial Building Planner solution to expedite project planning operations by up to 50%. This digital tool comes pre-programmed with requirements for the smart building sector's standards and regulations, significantly reducing the need to cross-reference building plans with regulatory requirements to improve speed and efficiency.
- **Purchase:** ABB offers its unified subscriber portal, ABB Ability™ Marketplace, to enable end customers and system integrators to easily discover, subscribe, manage, and scale across its ecosystem of digital offerings.
- **Connect:** The company's digital solutions provide system integrators with various connectivity and integration options [including hardware devices, such as Cylon Nexus, Cylon Matrix, and Building Edge and software options, such as Data Collection Agents (DCAs)], empowering them with unrivaled flexibility to select the options that best match customer needs and the installed system design.

Furthermore, the company offers customers essential resources, including technical documentation, self-learning modules, virtual training aids, chatbots, and face-to-face events, supporting them with extensive self-learning and problem-resolution options. For instance, Smart Building's recent investment in Mavenoid, a hardware support platform that integrates into the ABB free@home® application, enables the company to leverage AI and empower its installers to address customer inquiries and resolve queries.⁶

Case Study Example: *Manchester Metropolitan University*

The newly built Faculty of Arts and Humanities department at the Grosvenor East Building in the Manchester Metropolitan University integrated ABB's Smart Building system to improve energy efficiency and minimize operational and maintenance costs. The six-storey building featuring a 180-seat theatre space was powered by a cutting-edge, web-based Building Management System with automated control and 24X7 web access to alarms, trends, and scheduling for temperature, lighting, and air quality. Some of the key elements of the system, including ABB Cylon® ASPECT® control platform and ABB's Cylon® NEXUS control engine, improves its reach and provides backwards compatibility and web connectivity for the university's installed base of 1,200 Cylon Unitron devices. ABB's Smart Buildings system enabled the new

⁶ <https://new.abb.com/news/detail/94288/investment-in-ai-driven-hardware-support-platform-mavenoid-reduces-complexity-and-cost-in-home-automation>, accessed March 2023.

Grosvenor East building to get certified as excellent under the United Kingdom’s Building Research Establishment Environmental Assessment Method (BREEAM) as part of the university’s carbon management plan and energy efficiency initiatives.⁷

As a testament to the company’s high client satisfaction rate, ABB acquires many customers through word-of-mouth accolades and industry recognitions, fueled by its differentiated solution portfolio and continual innovation. The company’s 360 view of customers supported by the Salesforce Customer 360 tool and an extensive channel partner network (with over 30,000 community members, including distributors and system integrators) support these efforts. Moreover, ABB employs targeted marketing campaigns, websites, videos, tradeshow, social media, education, sales enablement tools, and online demo systems to drive its customer acquisition process.

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**- Sama Suwal,
Best Practices Research Analyst**

In 2022, ABB Electrification achieved an operational EBITDA of 16.5% and generated \$14.1 billion in annual revenue, a 7% increase from 2021.⁸ As the electrification business’ largest end-user market, the Smart Buildings division generated between \$2,750 million and \$3,250 million in revenues during the financial year. With a presence in over 100 countries, the division operates 12 research and development locations (with more than 20 people) and employs approximately 12,000 experts, generating more than 1.5 million products daily across 35 manufacturing sites.

Frost & Sullivan recognizes ABB’s impressive growth momentum and trajectory as true testaments to its customer-centric approach, revolutionary intelligent building offerings, and exceptional operational strategies, earning its clients’ trust and loyalty and

enabling it to capture more market share.

⁷ <https://new.abb.com/news/detail/94538/manchester-metropolitan-university-secures-top-sustainability-rating-with-abb-smart-building-scheme>, accessed March 2023.

⁸ https://search.abb.com/library/Download.aspx?DocumentID=9AKK108467A7781&LanguageCode=en&DocumentPartId=&Action=Launch&_ga=2.24972346.1686675855.1678159291-1021613811.1677829012, accessed February 2023.

Conclusion

Customer-centric strategies help companies safeguard leading positions in markets, but only if the approach is authentic - and the implementation is seamless. ABB incorporates customer-focused strategies and exemplifies best practice implementation. Offered as cloud-based software-as-a-service solutions, ABB Electrification's intuitive and user-friendly ABB Ability™ Smart Buildings digital portfolio reduces the complexity and cost associated with intelligent buildings solution implementation, thereby driving adoption across the low- to mid-complexity building segment. Frost & Sullivan appreciates the way these solutions help real-world customers make buildings safer, smarter, and more sustainable by supporting their end-to-end sustainability journeys. Moreover, the company's comprehensive suite of vendor-agnostic digital solutions is completely compatible with customers' existing open system infrastructure, thereby promoting interoperability and dismantling building system silos.

Unlike other competitors, ABB develops its solutions by collaborating closely with various stakeholders across the entire value chain to evolve alongside and holistically address market trends. To this end, the company utilizes its robust backward 'ABB Innovation Process' to ensure it listens to the voice of the customers and resolves common issues at the beginning of the solution development process. This overall customer-first approach offers immense value to existing and new clients and solidifies ABB's reputation in the market.

With its strong overall performance, ABB Electrification's smart buildings division earns the 2023 Frost & Sullivan Global Customer Value Leadership Award.

What You Need to Know about the Customer Value Leadership Recognition

Frost & Sullivan's Customer Value Leadership Award recognizes the company that offers products or services customers find superior for the overall price, performance, and quality.

Best Practices Award Analysis

For the Customer Value Leadership Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Business Impact

Financial Performance: Strong overall financial performance is achieved in terms of revenues, revenue growth, operating margin, and other key financial metrics

Customer Acquisition: Customer-facing processes support efficient and consistent new customer acquisition while enhancing customer retention

Operational Efficiency: Company staff performs assigned tasks productively, quickly, and to a high-quality standard

Growth Potential: Growth is fostered by a strong customer focus that strengthens the brand and reinforces customer loyalty

Human Capital: Commitment to quality and to customers characterize the company culture, which in turn enhances employee morale and retention

Customer Impact

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers proudly own the company's product or service and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and high quality

Brand Equity: Customers perceive the brand positively and exhibit high brand loyalty

