AUTOMATED TECHNOLOGY COMPANY
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Automated Technology Company (ATC)
Company Introduction Presentation

Marketing & Sales

version: March 30, 2020

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Company Overview
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Summary

Introduction to the company, our vision and mission statements and our technology partners

Automated Technology Company (ATC) Mission/Vision

Our VISION: Transforming today's Buildings into tomorrow's Net-Zero Infrastructure

Our MISSION: Ensure the highest level of **SAFETY, COMFORT** and **EFFICIENCY** in buildings and infrastructure for the overall well being of their occupants and the overall environment

…ultimately leading to a Net-Zero energy performance level.

We ensure buildings are the safest, most comfortable and highly-efficient, in that order of priority; by using advanced proven technology, open protocols and industry standards, our building solutions provide maximum value for minimum costs yielding high ROIs.

Invested in the SAFETY, COMFORT and EFFICIENCY of tomorrow's buildings, today

Why Automated Technology Company (ATC)?

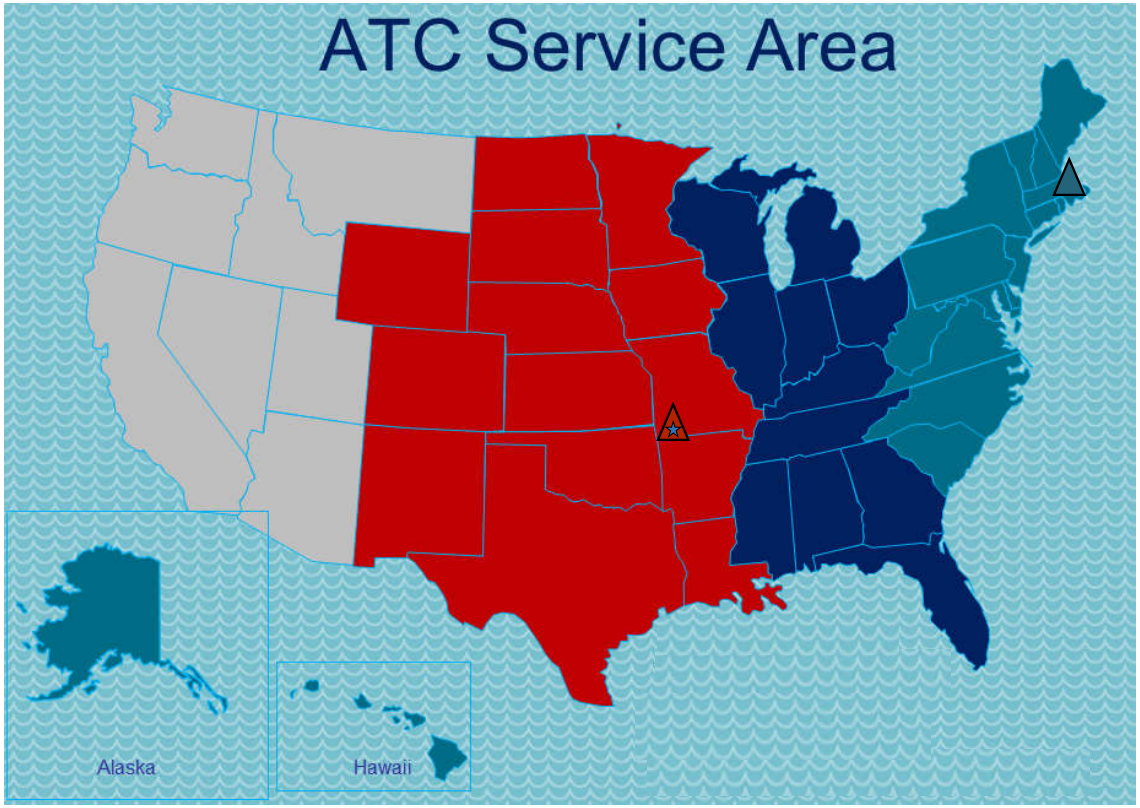
ATC provides a new offering to the market – **Predictable Building Management**, whereby we:

- partner with global building technology leaders: ABB, BAS-IP, Belden, Belimo, Control4, Danateq, HID, Intesis and Jung in order to provide open-integration across building trades.
- standardize on robust, open-standard protocols: KNX, for field-level room controls, BACnet, for automation-level controls and Intesis, for manufacturer proprietary integration
- provide an IP-convergence platform, ASCEND, to seamlessly integrate the open-protocols and deliver energy and operational cost savings from the mechanical and electrical systems
- select the most flexible, scalable and interoperable technology, insured for future building operational needs and expansion (i.e., future-proof)
- Employ artificial intelligence (AI) to "think into the future" by combining REAL-TIME building data and external logical data to anticipate and resolve situations when they occur

Future-proof, scalable building technology to ensure the best return on investment - ROI

Automated Technology Company (ATC)

Your Solution Integrator with national coverage across North America



Our service locations:

- Joplin, Missouri – HQ and Regional Office
- Boston, MA – Northeast Regional Office

About ATC – Key Components to achieve our Mission

Seamlessly and economically ensuring safety, comfort and efficiency in your built environment

atc
AUTOMATED TECHNOLOGY COMPANY

How do we achieve savings on our customer's bottom line?

With **SAFETY**, we:

- improve the life safety of building occupants and operators with intelligent products,
- protect the environment by reducing our CO2 footprint,
- secure your investment with an open, flexible architecture ready for future IoT requirements and
- provide compliance to regulations and standards.

With **COMFORT**, we:

- enrich the building environment for occupants and operators,
- improve occupant productivity and learning environment
- prevent unnecessary illness due to sick building syndrome

With **EFFICIENCY**, we:

- Reduce up to 50% in energy costs and up to 30% in maintenance costs via our building solutions
- provide transparency on field level consumption, allowing for real time:
  - discovery of improvement areas,
  - verification of actions,
  - trending with priority notifications and
  - benchmarking against performance

Partners – Building Automation Product ecoSystem Partners

Backed by strategically selected, global partners who are innovative leaders in controls technology

Alexander Maier GmbH (AM) was founded in Eberbach, Germany. Their competence lies in the field of visualization based on various building management protocols and communication interfaces. AM can look back on many innovative building projects and developments and are always a reliable partner to our customers in the areas of SW/HW and support.

Portfolio: ASCEND SCADA, powered by Eisbär

- Building Integration of protocols: BACnet, KNX, Modbus, M-bus, SNMP, JSON, MTTP; visualization

ABB is a technology leader that works closely with utility, industry, transportation and infrastructure customers to write the future of digitalizat-ion. Authorized Value Provider (AVP)

Portfolio: KNX, BACnet, Modbus

Central Automation:

- HVAC (BAC)

Room Automation:

- Lighting
- HVAC
- Security

Renewable Energy:

- EV-Charging – Terra
- Solar, Energy Storage
- Energy Monitoring

Belimo is global market leader in the develop-ment, production and marketing of actuator solutions for controlling heating, ventila-tion and air conditioning systems. Actuators, control valves and sensors make up the company's core business.

Portfolio: KNX, BACnet

HVAC Controls – Field Actuators, Valves, Sensors and Retrofit-kits

Energy Monitoring – Energy Valve™

HID is passionate about helping people use a verified, trusted identity to make it more convenient and safer for them to get to where they need to go and achieve what they want to do in everyday life.— with only a tap, twist, tag, push, swipe, or simply through the proximity of their chosen device.

Portfolio: Locator/Tracking, Badges, etc.

- Location services
- Badges for door-entry
- Interface to Door-Entry

JUNG provides equip-ment and systems that win over others using advanced tech-nology, sophisticated design, and a large variety of features. The portfolio includes switches, socket outlets, dimmers, sensors, etc. to provide innovative systems for control-ling your home. From lighting, blinds, or temperature control, Jung's KNX techno-logy covers the gamut of buildings/homes.

Portfolio: KNX

- Well-designed switches
- Sensors
- Actuators
- HMIs

Sierra Monitor Corpor-ation (SMC) provides Industrial Internet of Things (IIoT) solutions that target facility automation and safety require-ments. Our brand of FieldServer protocol gateways target the facility automation segment and are used by OEMs and SI's to enable local and remote monitoring and control. FieldServer is industry leading multi-protocol gateway.

Portfolio: Multi-protocol

- Multi, open-protocol and Man.-specific Gateways
- Routers (BACnet)

Partners –Residential Automation and Integration ecoSystem Partners

Backed by strategically selected, global partners who are innovative leaders in controls technology

Alexander Maier GmbH (AM) was founded in Eberbach, Germany. Their competence lies in the field of visualization based on various building management protocols and communication interfaces.

AM can look back on many innovative building projects and developments and are always a reliable partner to our customers in the areas of SW/HW and support.

Portfolio: ASCEND, powered by Eisbär

- Building Integration of communication protocols (BACnet, KNX, Modbus, M-bus, SNMP, JSON, MTTP)
- SCADA visualization

ABB is a pioneering technology leader that works closely with utility, industry, transportation and infrastructure customers to write the future of digitalization.

Authorized Value Provider (AVP)

Portfolio: KNX, BACnet, Modbus

Home Automation:

- Lighting
- HVAC
- Security

Renewable Energy:

- EV-Charging – Terra
- Solar
- Energy Storage
- Energy Monitoring & Control

Founded in 2003 , Control4 is a leading provider of automation and networking systems for homes and businesses,`````````````````
offering a personalized and unified smart home system to automate and control connected devices including lighting, audio, video, climate control, intercom, and security. The platform interoperates with approximately 14,000 third-party products and currently runs in around 400,000 homes.

Portfolio: Audio, Video Home Automation

International Company BAS-IP (United Kingdom)
Is a manufacturer of IP intercom systems that can be implemented on any project of technical complexity or building application.

Portfolio: IP-Based Intercom

With extensive experience in designing systems up to 2,700 apartments, as well as other residential and commercial applications (e.g., shopping centers, hospitals, car parks, etc.), BAS-IP has the platform to provide complete solutions for your building needs.

Sierra Monitor Corporation (SMC) provides Industrial Internet of Things (IIoT) solutions that target facility automation and safety requirements. Our brand of FieldServer protocol gateways target the facility automation segment and are used by OEMs and SI's to enable local and remote monitoring and control. With more than 200,000 products, supporting over 140 protocols, FieldServer is the industry's leading multi-protocol gateway.

Portfolio: Multi-protocol

- Multi, open-protocol and Manufacturer-specific Gateways
- Routers (BACnet)

Partners – Building Automation Product ecoSystem Partners

Backed by strategically selected, global partners who are innovative leaders in controls technology

Market Approach

Intelligent Building Offerings

Intelligent Home Offerings

Summary

ABB

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X, BACnet, Modbus

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ABB i-bus®
KNX

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BELIMO

Belimo is global market leader in the development, production and marketing of actuator solutions for controlling heating, ventilation and air conditioning systems. Actuators, control valves and sensors make up the company's core business.

Portfolio: KNX, BACnet

HVAC Controls – Field Actuators, Valves, Sensors and Retrofit-kits

Energy Monitoring – Energy Valve™

HID

HID is passionate about helping people use a verified, trusted identity to make it more convenient and safer for them to get to where they need to go and achieve what they want to do in everyday life. With HID's trusted identity solutions, people get effortless and worry-free identity verification experiences—with only a tap, twist, tag, push, swipe, or simply through the proximity of their chosen device.

Portfolio:
Locator/Tracking, Badges, etc.

- Location services
- Badges for door-entry
- Interface to Door-Entry

JUNG

JUNG provides equipment and systems that win over others using advanced technology, sophisticated design, and a large variety of features. The portfolio includes switches, socket outlets, dimmers, sensors, etc. to provide innovative systems for controlling your home. From lighting, blinds, or temperature control, Jung's KNX technology covers the gamut for your building or home.

Portfolio: KNX Products

- Well-designed switches
- Sensors
- Actuators
- HMIs

Control4

Founded in 2003 , Control4 is a leading provider of automation and networking systems for homes and businesses, offering a personalized and unified smart home system to automate and control connected devices including lighting, audio, video, climate control, intercom, and security. The platform interoperates with approximately 14,000 third-party products and currently runs in around 400,000 homes.

Portfolio: Audio, Video Home Automation

Intesis
Member of the HMS group

Founded in 2000, Intesis is today a leader in design, fabrication and commercialization of innovative solution for building automation. Wit HQ in Igualada (Barcelona), Spain, and customers in mor than 90 countries worldwide Intesis offers a wide portfoli of IntesisHome for the residential market and to systen integrator partners with the IntesisBox solution.

Portfolio: Multi-protocol

- Multi, open-protocol Gateways
- Manufacturer specific gateways
- RFID-based, IoT-connected identification technologies

AGENDA

Company Overview

Market Approach

Intelligent Building Offerings

Intelligent Home Offerings

Summary

The Building Space® market is made up of buildings which conduct professional business and/or services. This means that the infrastructure must support their core business – **safety**, **comfort** and **efficiency** accomplishes that.

Buildings Market Environment: Americas – Market Segmentation

BMS market of $2.1B with CAGR of 5.7% with most potential in commercial buildings

Overview of the Americas Available Market for Building Automation Equipment

By Product Type, Revenues $ Million

Product Type	2013	in %	2018	CAGR
Controllers	1,017.6	53%	1,345.7	5.7%
Sensors	430.1	22%	542.7	4.8%
Software	112.6	6%	141.0	4.6%
Actuators	210.3	11%	257.8	4.2%
Gateways	58.9	3%	72.9	4.4%
HMI Screens	87.9	5%	74.4	-3.3%
Total	**1,917.4**		**2,434.5**	**5.5%**

By Geography, Revenues $ Million

Country	2013	in %	2018	CAGR
United States	1,561.1	81%	1,982.2	5.6%
Canada	251.2	13%	319.0	4.2%
Rest of Americas	105.0	5%	133.3	5.6%
Total	**1,917.4**		**2,434.5**	**5.6%**

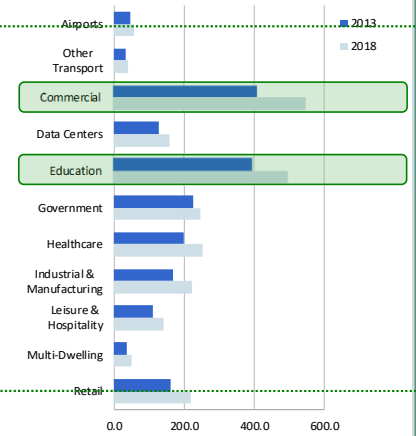
By Installation Type, Revenues $ Million

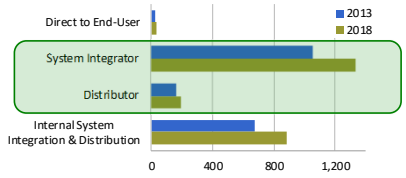
Installation Type	2013	in %	2018	CAGR
New Build	896.1	47%	1,137.8	5.0%
Retrofit & Refurbishment	1,021.3	53%	1,296.7	4.8%
Total	**1,917.4**		**2,434.5**	**5.5%**

By Channel, Revenues $ Million

Channel	2013	in %	2018	CAGR
Direct to End-User	23.7	1%	29.8	4.6%
System Integrator	1,055.4	55%	1,329.6	4.7%
Distributor	163.7	9%	194.3	3.5%
Internal System Integration & Distribution	674.5	35%	880.8	5.5%
Total	**1,917.4**		**2,434.5**	**5.5%**

By End-User Industry





Source: IHS

May-14

- BA NAM Market 2018: ~$2.5B @ 5% CAGR
- Largest growth potential for IoT in commercial buildings is software, controllers and gateways

- The Commercial and Education market segments are the largest and fastest growing sectors (CAGR 6.8% and 5.1%), respectively

- Retrofit/Refurbish Market 2018: $1.3B
- Mid-Commercial office buildings, schools, etc. with no BMS needing OPEX savings

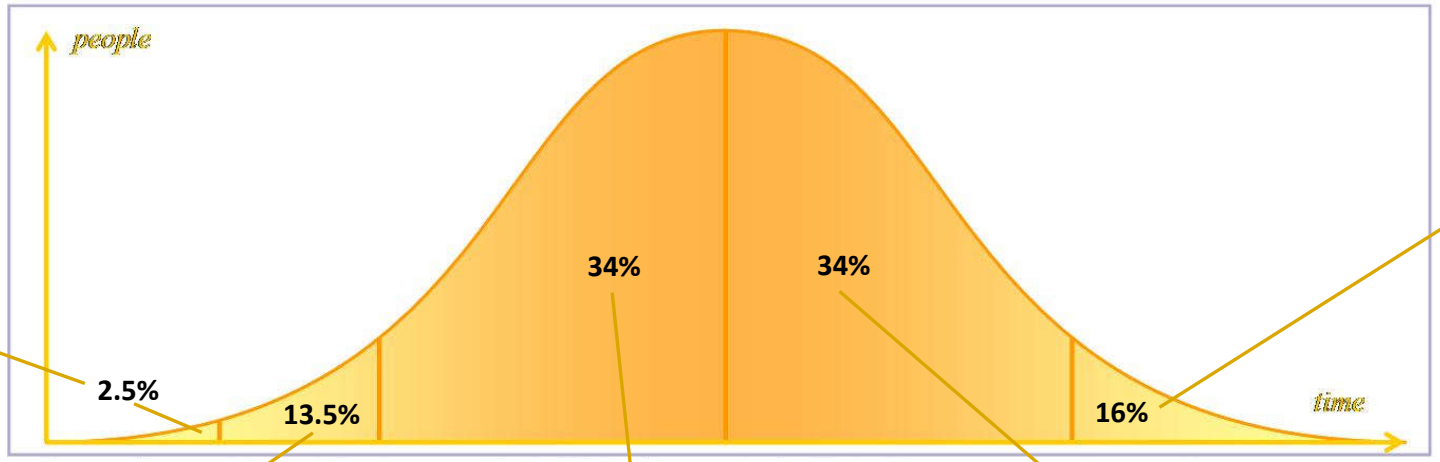
- System Integrator Channel is the leading channel to market (i.e., market expansion)
- Distributor market is mainly selling to local installers for simple, easy to configure systems

Overall IHS Findings:

- "Internet protocol (IP) controllers and field devices continue to gain traction… …advantage is a high of scalability and flexibility allowing for easy expansion of the number of network devices"
- Commercial was estimated to be the largest and fastest growing sector from 2013-2018"
- "Several countries in EU have energy efficient legislation because of the number of office buildings impacted"
- "Businesses expect BA systems when renting office space … So for owners to win tenants, they need BA equipment"

Buildings Market Environment: Americas - Mindset

The early adopters are the visionaries who change the status quo of building technology



Innovators
"The risk taking techies" who have the resources and desire to try new things, even if they fail.

Early Adopters
"The visionaries" who are selective about the technology they start using, therefore they are "sought out" to verify the uncertainty of the new technology.

Early Majority
"The pragmatists" who take their time before adopting a new technology as long as they understand how it fits into their lives.

Late Majority
"The conservatives" who adopt in reaction to peer pressure, emerging norms or economic necessity. Most of the uncertainty around an idea must be resolved prior to adoption.

Late Minority
"The laggers" who are traditional and make decisions based on past experience and are unable to economically take risks on new ideas / technology.

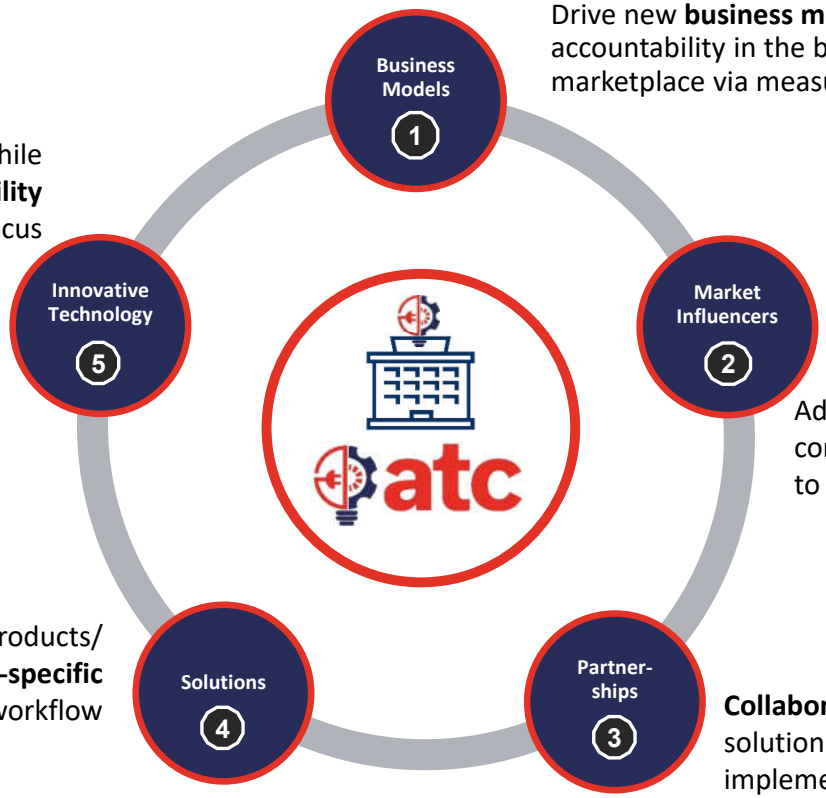
Source: *"Crossing the Chasm: Marketing and Selling High-Tech Products to Mainstream Customers"* (rev 2014) - Geoffrey A. Moore

America's Buildings Market – Our Go-to-Market Approach

Covering all commercial and technical market requirements to ensure innovation and value-added

Drive new **business models to reduce complexity** and promote accountability in the building construction and retrofit marketplace via measured performance

Drive **disruptive technology** while ensuring quality, **interoperability** (open protocols) and lifecycle focus



Advise and guide the 'Scope Drivers' (e.g., engineering consultants, regulatory agencies, trade groups, etc.) to ensure **the best technology is adopted**

Holistic approach by integrating products/ systems into **application and market-specific solutions** via a streamlined workflow

Collaborate and partner amongst the best technology, solution and services companies in the market to implement value-added, custom solutions

Building Solutions & Services

Living Space® and Building Space® is ABB's approach to the buildings market – ATC implements

Visit our website: *www.atcjomo.com*

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Company Overview
Market Approach
Intelligent Building Offerings
- Technology Platform
 - Offerings and Stakeholder Benefits
 - References
Intelligent Home Offerings
Summary

ATC Intelligent Building offerings, ranging from plug-n-play products to master system integration and enterprise services to provide a future-proof and high-return on your building technology investments and operations

Building Solutions & Services – Building Functions acc. to Market Segments

Covering the complete spectrum of buildings and their associated applications

Market Segments and Applications

Market Segments

- Office Buildings
- Apartments/Villas
- Theatres
- Hotels/Restaurants
- Exhibition Centers
- Sport Stadiums
- Museums/Churches
- Schools/Universities

Customer Channels

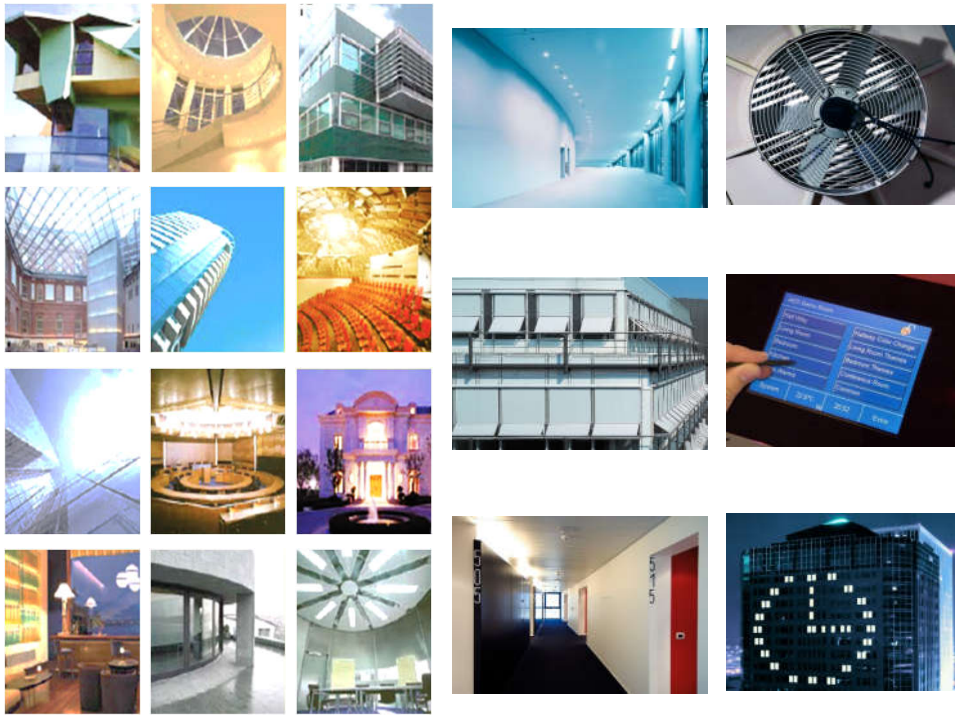
- End-Users (Key Accounts)
- General Contractors
- MEP Contractors
- Design & Build Firms
- Real Estate Developers

Building Functions & Applications

- Lighting and Shading
- HVAC
- Blinds and shading control
- Security and monitoring
- Energy and load management
- Visualization and operation
- Central automation supervision
- Remote monitoring and maintenance
- Integration to other control systems

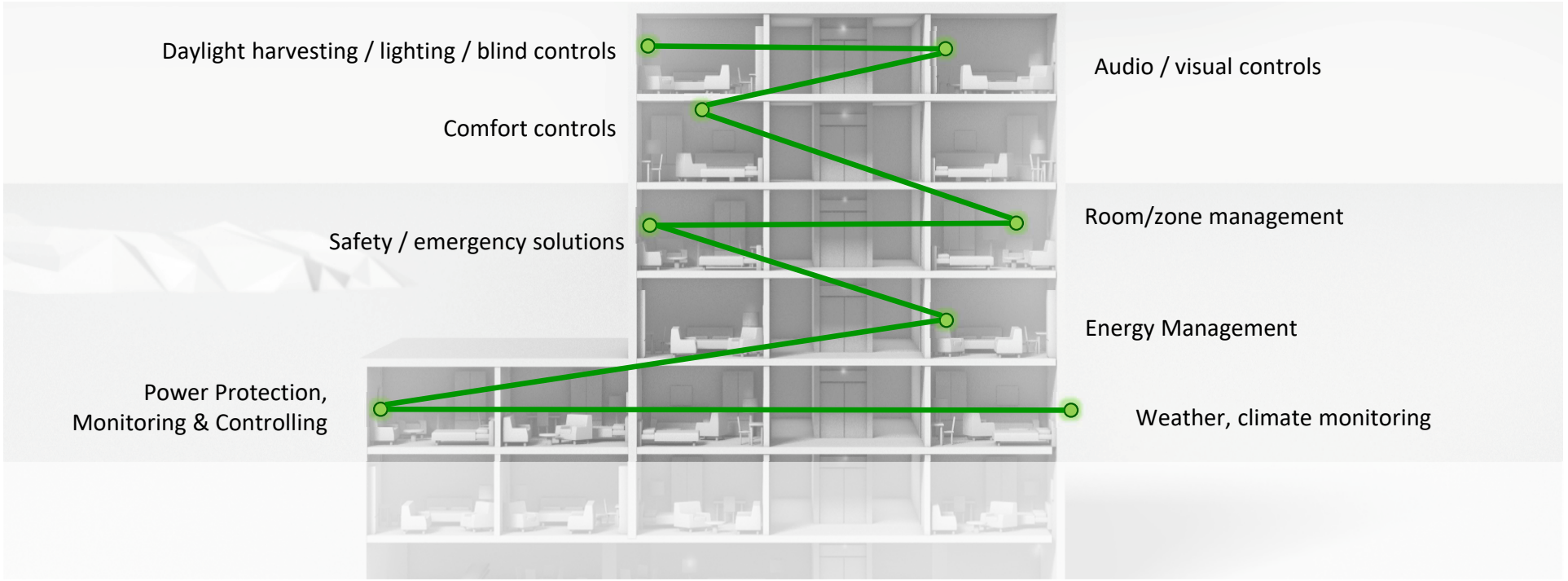
Key Channel Influencers

- MEP Consultants
- Architects
- Industry Agencies (ASHRAE, KNX, Green Building Council, etc.)



Building Solutions & Services – Building Function Intelligent Integration

How do we achieve savings on our customer's bottom-line?...Intelligent Integration



Up to 50% energy savings and 30% lower maintenance costs with intelligent buildings

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Intelligent Home Offerings
Summary

The ATC building technology platform integrates the traditionally HVAC driven building automation platform on BACnet, LON, etc. with the electrical application platforms (e.g., lighting, security, circuit monitoring, energy management, etc.) using KNX, Modbus, etc. to provide SAFETY, COMFORT and EFFICIENCY, in that order of priority, generating tangible ROIs for all stakeholders

ATC Offerings: Building Solutions

ASCEND-ing to the highest level of SAFETY, COMFORT and EFFICIENCY in your building

ASCEND

atc

With the Ascend Enterprise solution from ATC, integration and inter-operability across proto-cols, including some proprietary, is possible. Our unique IP-convergence platform integrates isolated building systems, specifically HVAC, lighting, electrical distribution, surveillance, access, etc. to monitor, identify, control and optimize ALL of your building technology under "one glass."

Your building is one entity and you don't have to continue to operate it disjointedly anymore… ASCEND to the highest level in SAFETY, COMFORT and EFFICIENCY!

OPC FOUNDATION HTML BACnet

BEMS - Building Energy Management System

Control, Scheduling, Trending and Alarming

across protocols on ONE interoperable platform

BACnet LONMARK INTERNATIONAL KNX Modbus SNMP

Technology Platform - ASCEND

ATC's platform, ASCEND, joining together all open-protocols in all facets of building technology

An interoperable platform…

…using an open standard portfolio…

…assured by an authorized partner

atc

JUNG HID ABB BELIMO SMC sierra monitor

A winning proposition for the smart building advocate

Technology Platform – ASCEND powered by Eisbaer

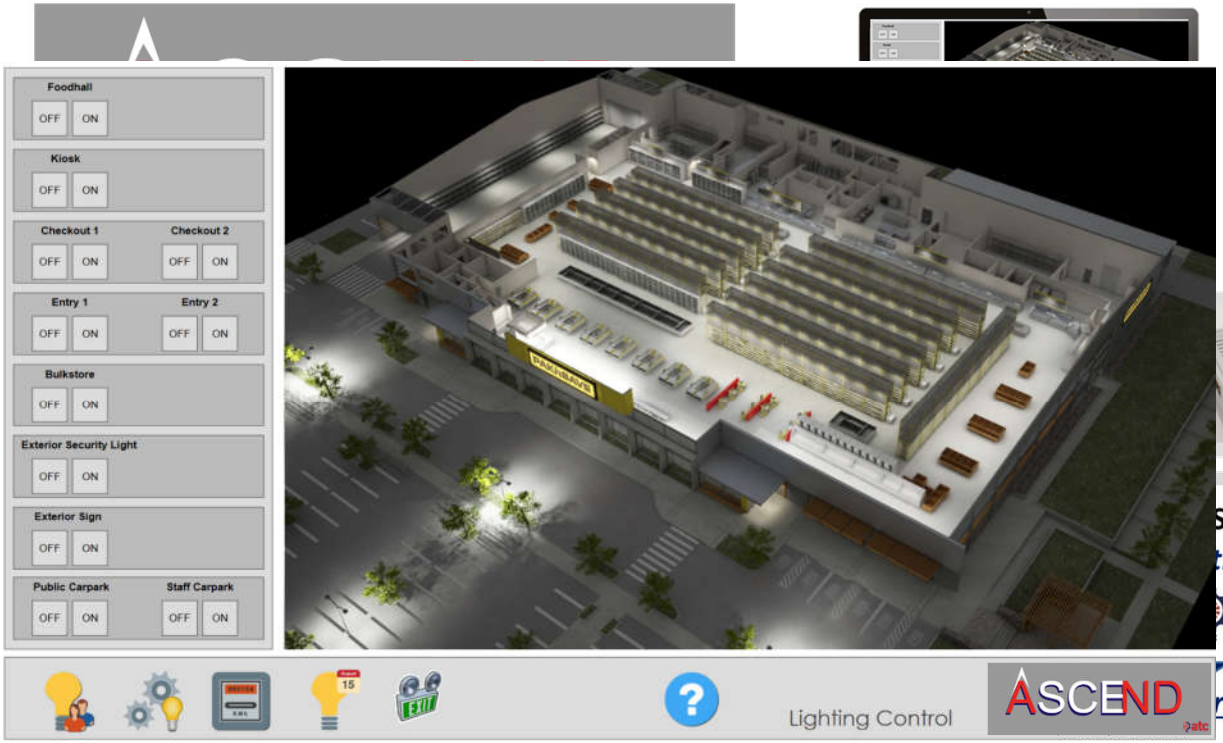
ATC's platform, ASCEND, joining together all open-protocols in all facets of building technology

Building Technology Solutions – Portfolio

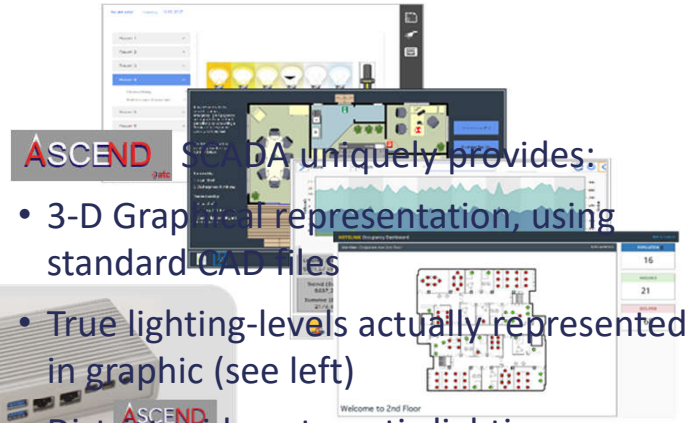
ASCEND-ing to the highest level of SAFETY, COMFORT and EFFICIENCY in your building

ASCEND BEMS uniquely provides:

- 3-D Graphical representation, using standard CAD files
- True lighting-levels are displayed “live” (as represented in graphic to the left)
- Automatic lighting luminaire failure notification for a pro-active maintenance regime on an enterprise level
- KNX and DALI open-protocols provide “zoning” functionality for both power and lighting, enabling real-time energy management at occupant level



COMFORT and EFFICIENCY!



ASCEND SCADA uniquely provides:

- 3-D Graphical representation, using standard CAD files
- True lighting-levels actually represented in graphic (see left)
- District-wide automatic lighting failure notification regime for pro-active replacement
- Power and light level zoning, based on KNX and Dali open-protocols

S - Building Energy Management System

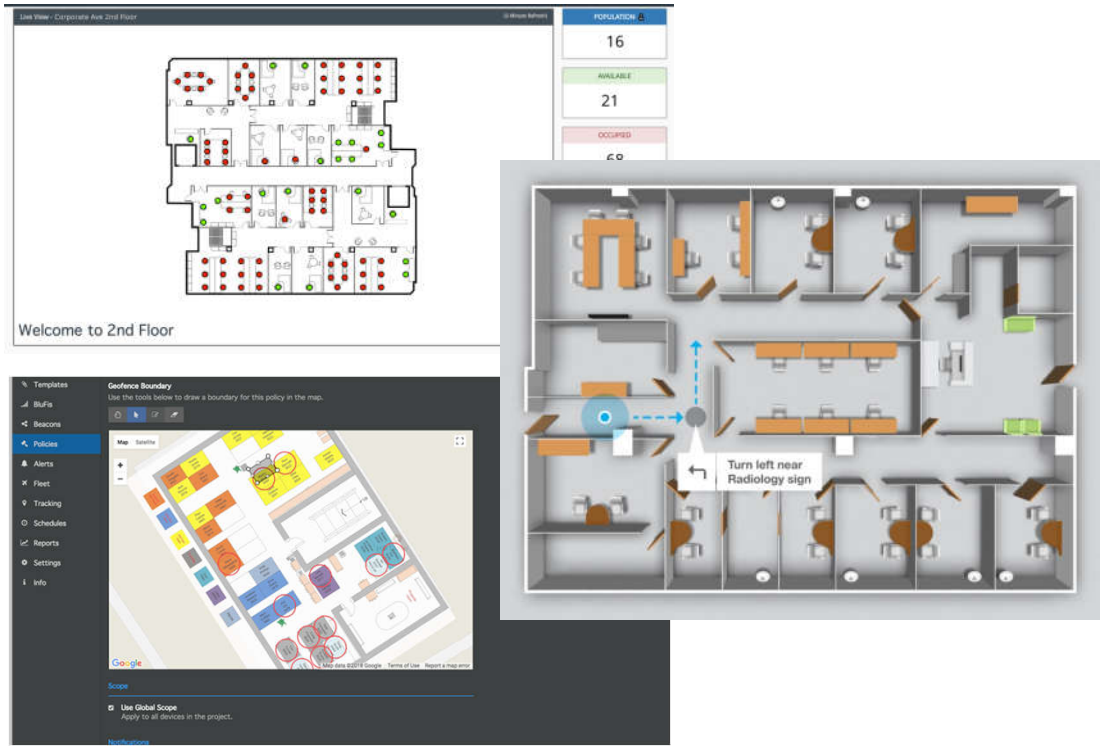
trol, Scheduling, Trending and Alarming

rotocols on ONE interoperable platform

BACnet LonMark International KNX Modbus SNMP

Technology Platform – HID Bluevision Location Based Services

Location-based services enables dynamic attendance to optimize occupancy and transparency

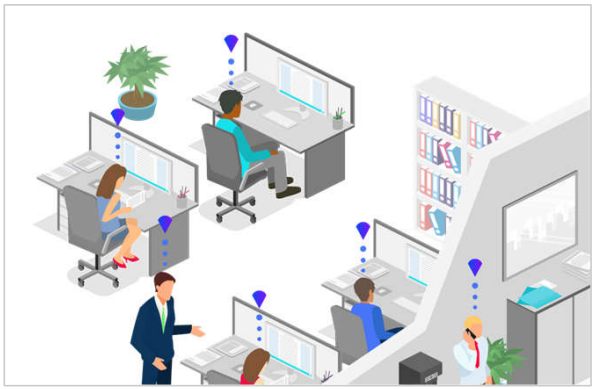


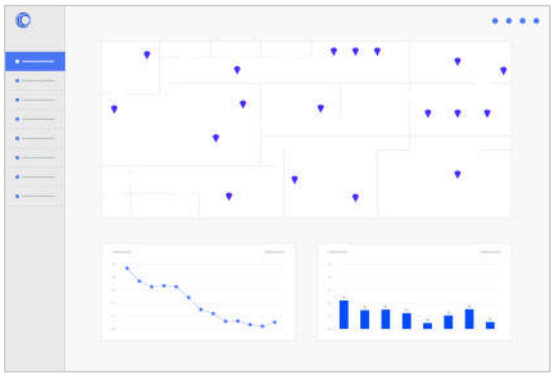
ATC's Location Based Services provides:

- **Actual occupancy** is displayed in various building layout views with individual privacy protected
- **Geofencing** provides **location-based** acknowledgement with mustering in the event of an emergency
- Example: Visitors in a school or office setting, given an **authorized** zone/area with **notification capabilities**
- An easy to deploy and **integration** into the **door entry system**, including badges
- **ATC location services** couples location-based data with BEMS data for a unique, powerful safety and security solution

Technology Platform – HID Bluevision Safety Solution

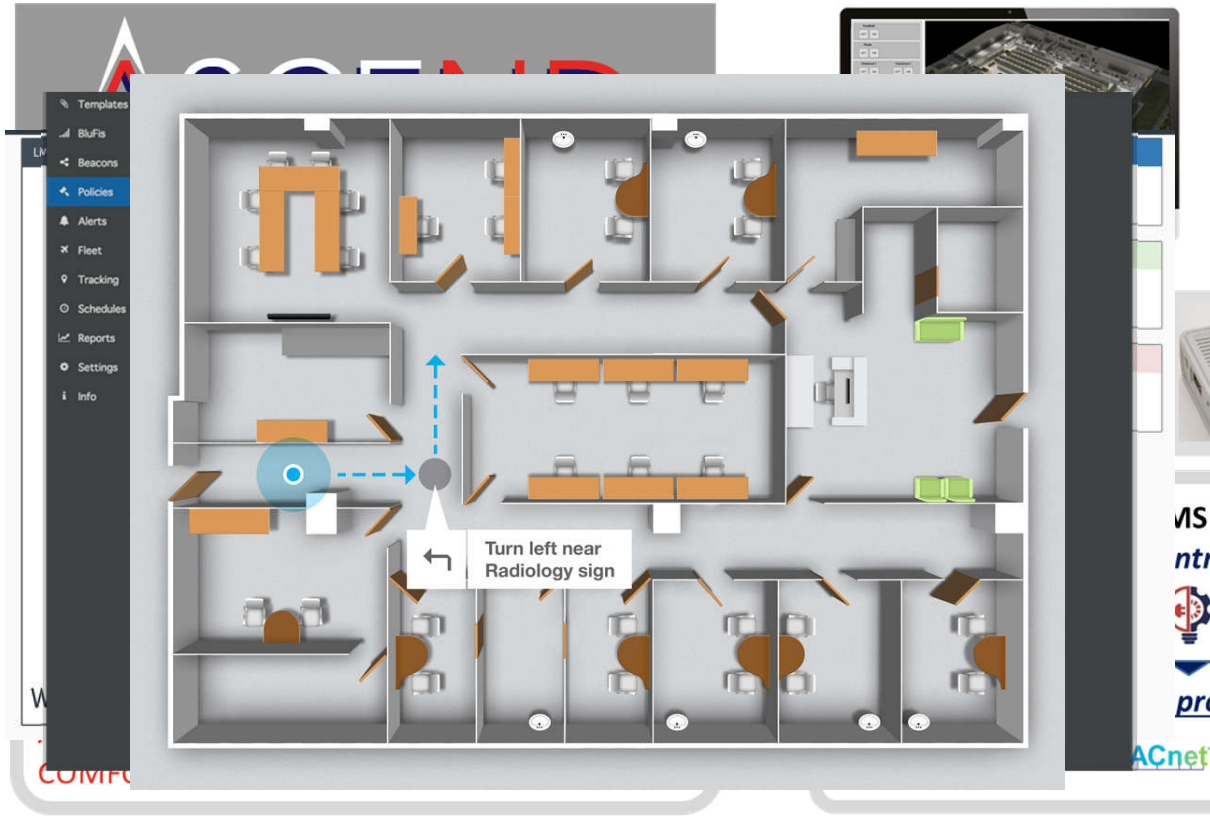
Upon activation, operations are immediately put into security and safety mode





Once activated, the following operations are done seamlessly :

- 1st-Responders and Admin have full system access
- All window shades are raised
- All lights come on and can be turned off remotely if needed
- All cameras are enabled
- All doors are locked and can be remotely controlled



ASCEND SCADA uniquely provides:

- **Actual occupancy** in displayed in building layout with individual privacy protected
- **Geofencing** provides location based acknowledgement with mustering in the event of an emergency
  - Example: Visitor in a school, given an authorized zone/area with **notification capabilities**
- An easy to deploy and **integration** into the **door entry system, including badges**
- **ATC location services** data coupled with BEMS controls provides a unique and powerful safety and security solution

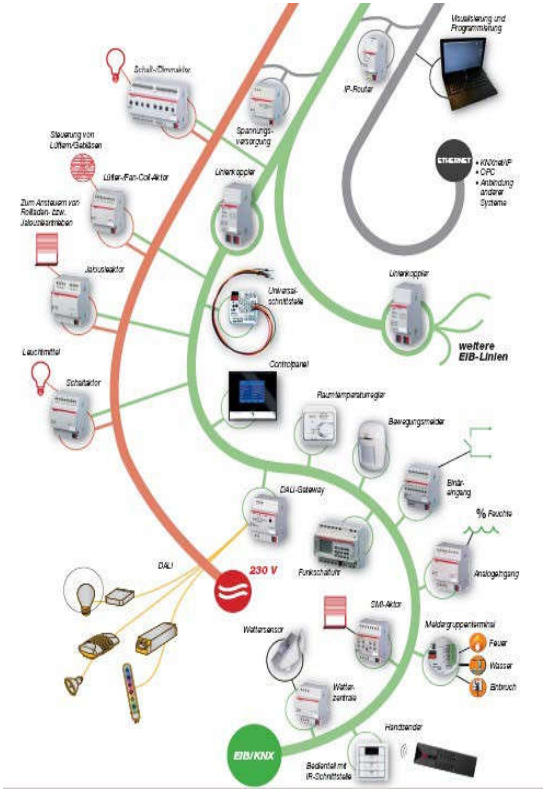
Technology Platform – Introduction to the KNX Protocol

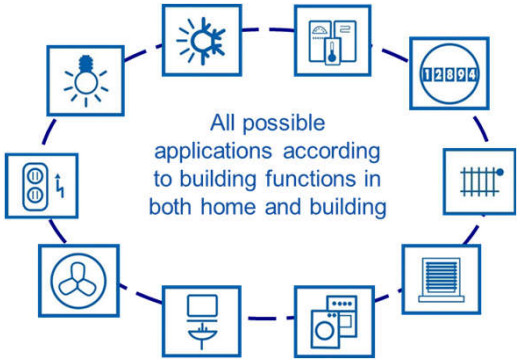
The world-wide building controls standard ensuring flexibility, interoperability & future renovations

KNX is fit for different types of buildings for multiple applications

- First truly open standard for home and building automation with over 400 manufacturers in 38 countries and 360 training centers worldwide
- Interoperable - retrofit or New-Build, it's flexible & easily modified on building alterations
- Lower installations costs using less wiring and labor
- Open-standard, future-proof with backward- and forward-compatibility
- Lower O&M costs by combining all building functions on one platform
- Integration capabilities to electrical distribution, renewables and IoT

www.knx.org





Technology Platform – Introduction to the KNX Protocol

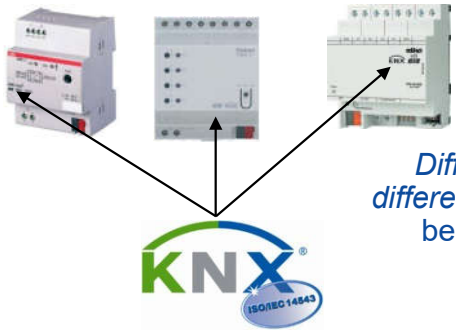
Adhering to the strictest regulations in the industry

International Standard, therefore, future proof

- **CENELEC**
  KNX became EN50090
- **CEN**
  KNX became EN13321-1/2
- **ISO/IEC**
  KNX became ISO/IEC14543-3
- **SAC**
  KNX became GB/Z20965
- **ANSI/ASHRAE**
  KNX became US ANSI/ASHRAE standard 135

By product certification, KNX guarantees interoperability & networking of products

KNX is the only standard operating on a global certification scheme via **products, training centers for 48.200 KNX partners in 140 countries**. Product compliance is checked at neutral laboratories covering several applications.

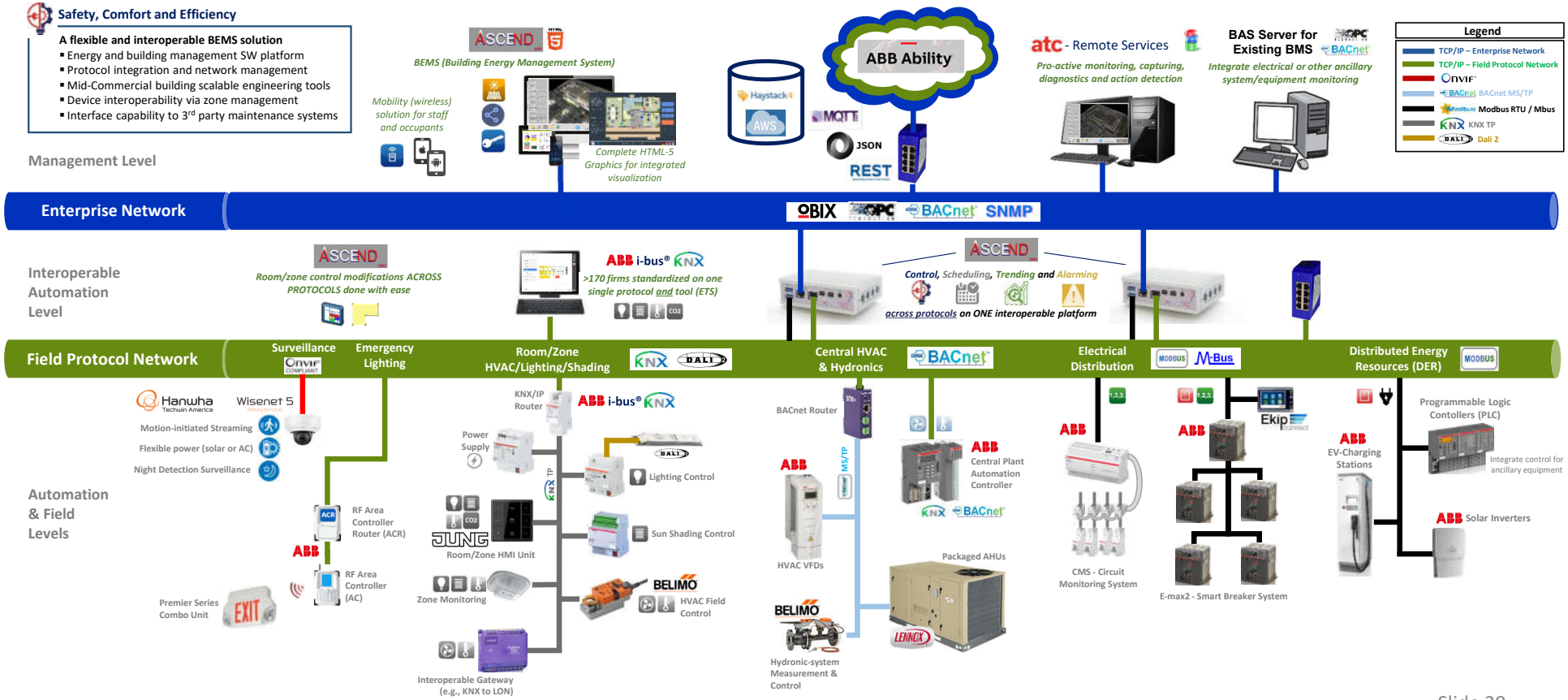


KNX stamp ensures quality and functionality

Different products of *different* manufactures can be used in *different* applications

Technology Platform – ASCEND converging open-protocols on IP

atc ntelligent building - integration into ONE interoperable, future-looking eco-System



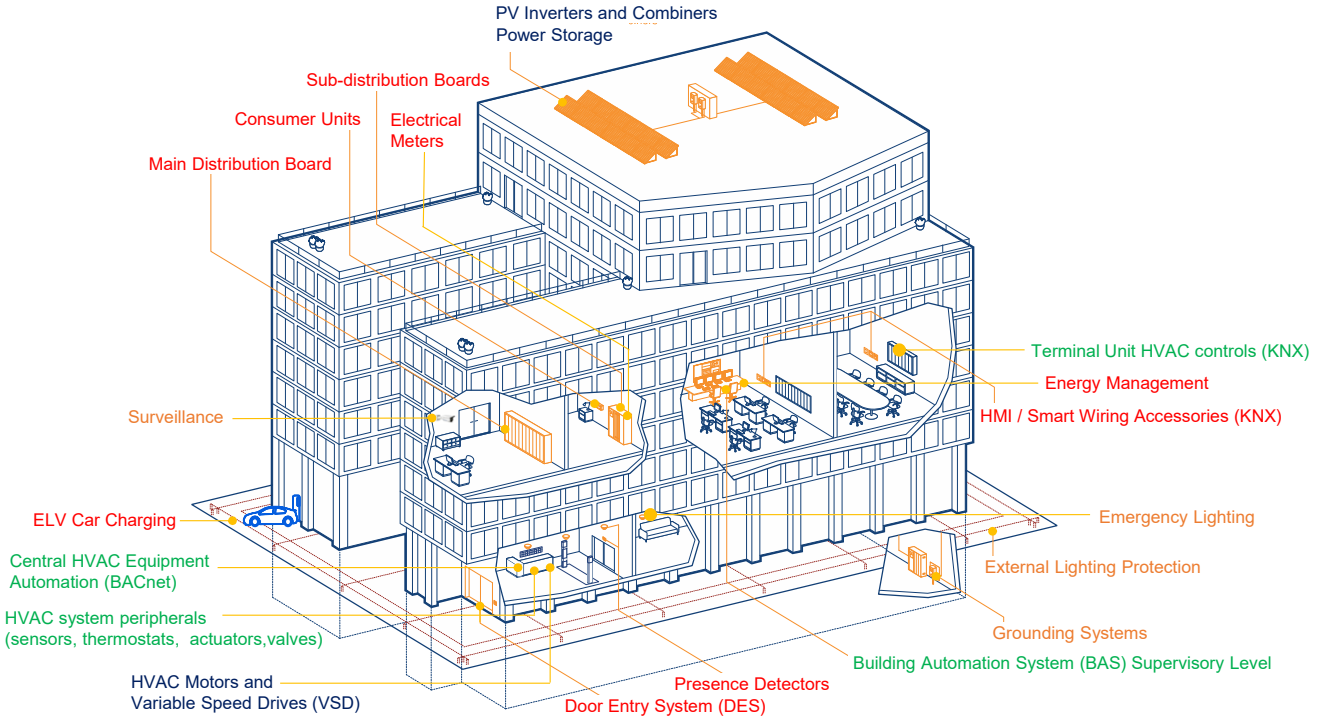
Technology Platform – All under “one glass”

atc ntelligent Building – a holistic, integrated eco-System with interoperability and flexibility

atc Intelligent Building Commercial Office

ABB i-bus® KNX BACnet Modbus

Intelligent Building via an interoperable platform



EPBP	Electrical Low Voltage Systems
EPIP	Building Infrastructure Systems
EPDR	Renewable and Motor Control
HVAC	Building Automation HVAC Controls

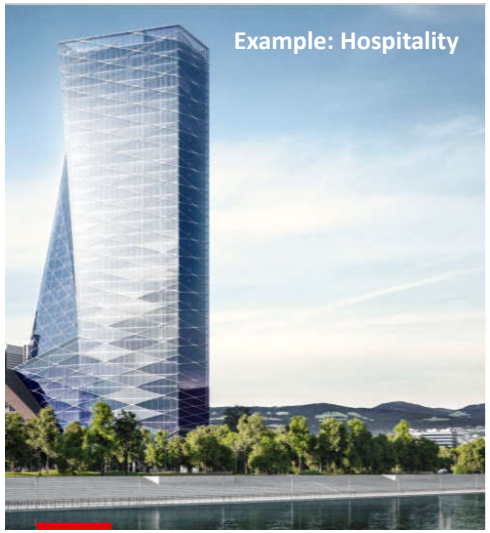
AGENDA

Company Overview
Market Approach
Intelligent Building Offerings
- Technology Platform
- Offerings and Stakeholder Benefits
- References
Intelligent Home Offerings
Summary

ATC Building Technology Solutions combine all HVAC, lighting, shading, access, etc. on the room level i.e., at the final point of control, resulting in both energy and operational savings backed by industry standards

ATC Offering – the tangible benefits

Allowing for streamlined management of your building with economic and sustainable benefits



On average, America's 47,000 hotels spend $2,196 per available room each year on energy, representing approx. 6% of all operating costs. Through a strategic approach to energy efficiency, a **10% reduction in energy consumption** would have the same financial effect as increasing the average daily room rate (ADR) by $0.62 in limited-service hotels and by $1.35 in full-service hotels.

The atc Building Energy Management System (BEMS):

- typically provides an **ROI of less than 5 years,** while protecting your investment for future renovations via open standards and proven technology partners
- automatically executes **LOAD SHEDDING**, eliminating unnecessary loads when approaching peak intervals, to **save 30% in utility peak demand charges**
- **Reduces installation** costs (lighting circuit wiring, switches and labor) **and operational costs up to 50%**
- Improves power (factor) quality and length of time a device or load consumes electricity
- Set alarms when a device fails or malfunctions, thereby **pro-actively avoiding guest complaints**
- Transfers **key performance data of equipment** for maintenance management regime
- Provides building owners and managers with data for making future decisions and plans **Enterprise Level across your portfolio**

Tangible Results:

Average **energy savings** from **11 to 31%**

Integrated technology allows data collaboration and **productivity**

Partner with a **future oriented platform** and solution provider

Highest level **Guest Experience** with safety, comfort & efficiency

Sources: [1] KNX Association www.knx.org [2] EnergyStar (energystar.gov)
[3] Building Automation and Control (BAC) efficiency classes to EN 15232

ATC Offering – Technology Platforms

Open-protocols and innovative technology covering from the occupant level to cloud analytics

Building Inter-operability & Predictive Analytics (AI)

ALEXANDER MEIER GMBH
ATC's ASCEND platform is EisBaer's SCADA and ATC's solution portfolio for the Americas. The software is a modern and affordable software for visualisation and automation of intelligent buildings and facilities. Super-visory Control and Data Acquisition (SCADA) is the central monitoring and controlling of technical processes ranging from individual rooms or machines, apartments and homes to the largest building complexes.
ATC is also using the ASCEND platform for artificial intelligence (AI) solutions that include data input, models, and actions that correspond with achieving key user objectives.

System/Auto-mation Level

BACnet Protocol
The BACnet protocol is an inter-operable platform for trending, alarming and scheduling which enables multiple systems to communicate data to operate a building on system/equipment level as well as communicate and interface into other SCADA systems to unite systems under one automation level platform.

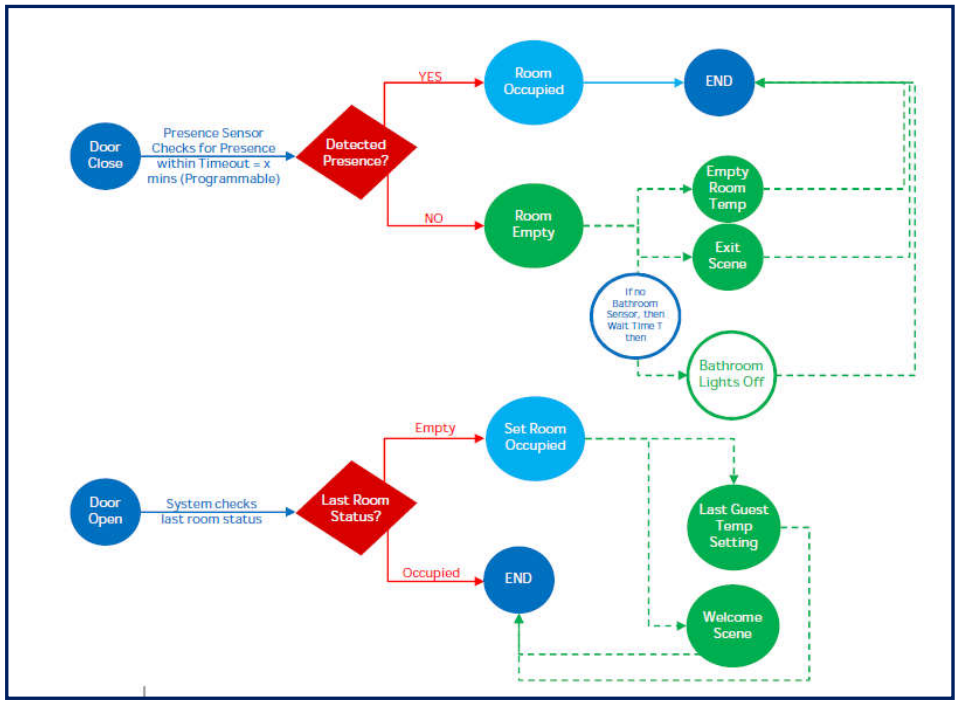
Occupant Level

KNX and DALI Protocols
The KNX and DALI protocols provide an inter-operable occupant/field level control that it agnostic to all manufacturers as their products need to be tested and verified by their standards. This enables customers to have a choice from both a technology and aesthetic perspective to enable their occupants complete control and transparency on the lowest level.

ATC Offering – Example: Hospitality

Example: Guest Room Management process aligning the various systems to function as one

Guest Room Management - Sequence of Operation



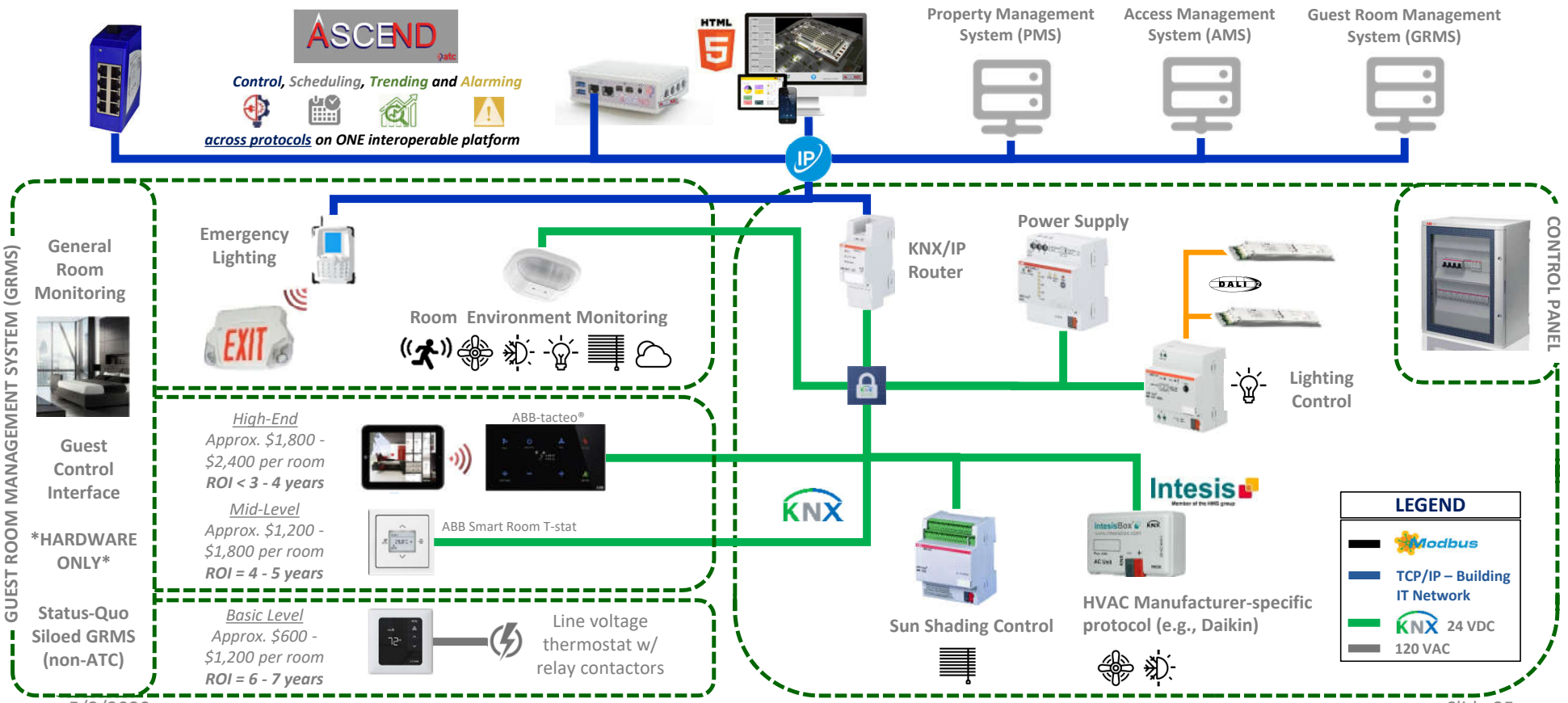
Room Management follows a simple, but effective, process flow to provide safety and comfort with the highest efficiency for the most gratifying guest experience at the lowest possible operating costs.

Potential savings according to scientific studies:

Room heating control:	about 14 to 25 %
Heating automation:	about 7 to 17 %
Shutter control:	about 9 to 32 %
Lighting control:	about 25 to 58 %
Air-conditioning control:	about 20 to 45 %

ATC Guest Room Management Solution (GRMS) – ASCEND and KNX

Energy savings based on combining all room functions to provide effective load shedding strategies



ATC Offering – Functionality Comparison

Reduced Initial Cost vs. Better Economic and Future-Proof – the choice is clear

LEGEND

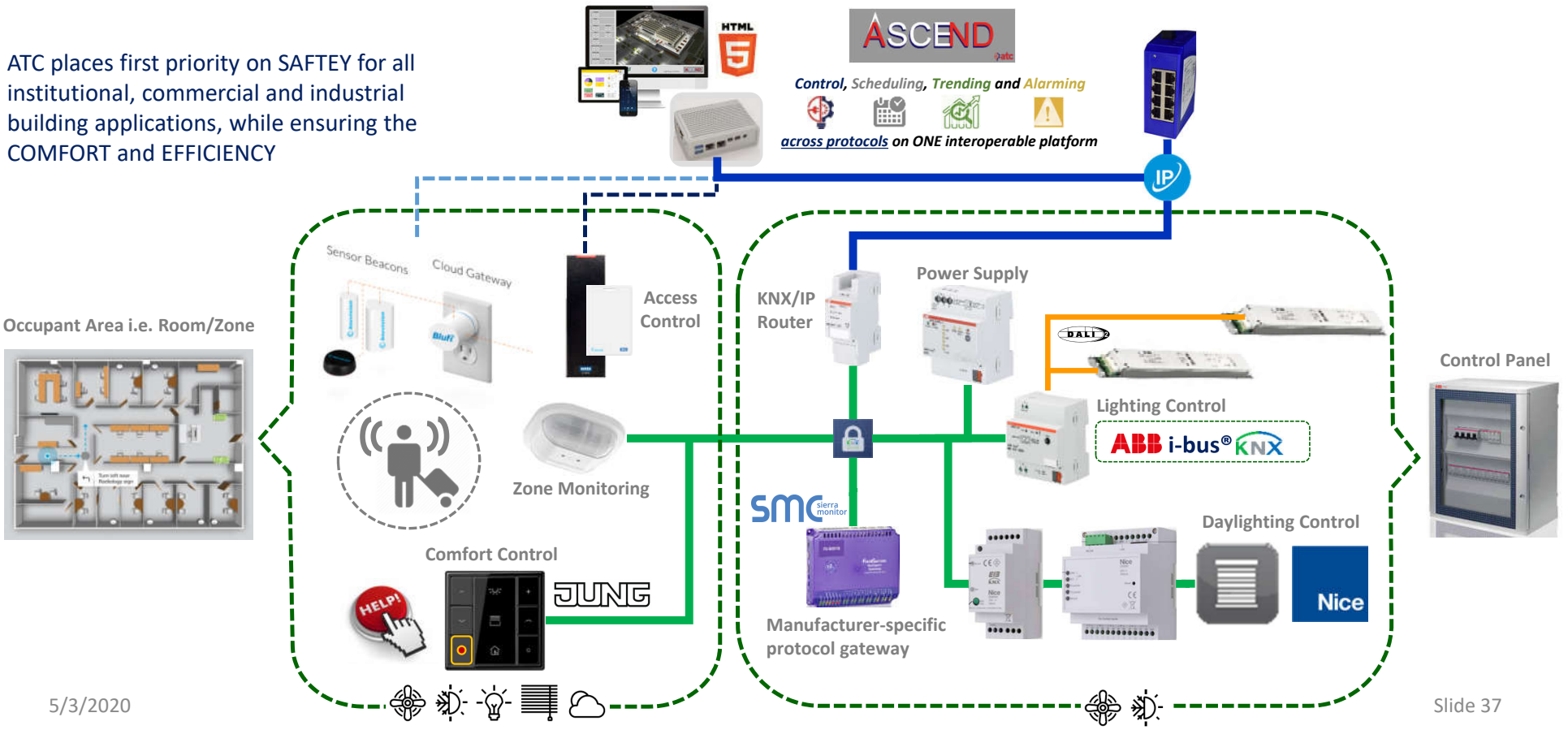
- Not Covered
- Partially Covered
- Fully Covered

Functionality / Solution Offering	Field Level Load Shedding (e.g., Smart, Networked T-stat)	Complete Building Load Shedding (e.g., All Elec and Mech systems)	Reduced Initial Investment Cost	Low Installation labor costs for wiring	Lower wiring material costs	Efficient Operational & Maintenance (i.e., running) Costs	Open Standard protocols	Inter-operability between building systems (Lighting/electrical/HVAC)	Flexibility & Economics for Future Renovations or Expansions	Field Sensing Accuracy	Renewables Integration	Peak Demand Limiting	Electrical Distribution Monitoring
Standard BMS	Partially Covered	Not Covered	Fully Covered	Not Covered	Not Covered	Not Covered	Not Covered	Not Covered	Not Covered	Partially Covered	Not Covered	Not Covered	Not Covered
atc ASCEND	Fully Covered	Fully Covered	Partially Covered	Fully Covered	Fully Covered	Fully Covered	Fully Covered	Fully Covered	Fully Covered	Fully Covered	Fully Covered	Fully Covered	Fully Covered

ATC Offering – Occupant-level (i.e., field-level) control

Integrating into the operational platform of the school maximizes staff safety and overall value

ATC places first priority on SAFTEY for all institutional, commercial and industrial building applications, while ensuring the COMFORT and EFFICIENCY

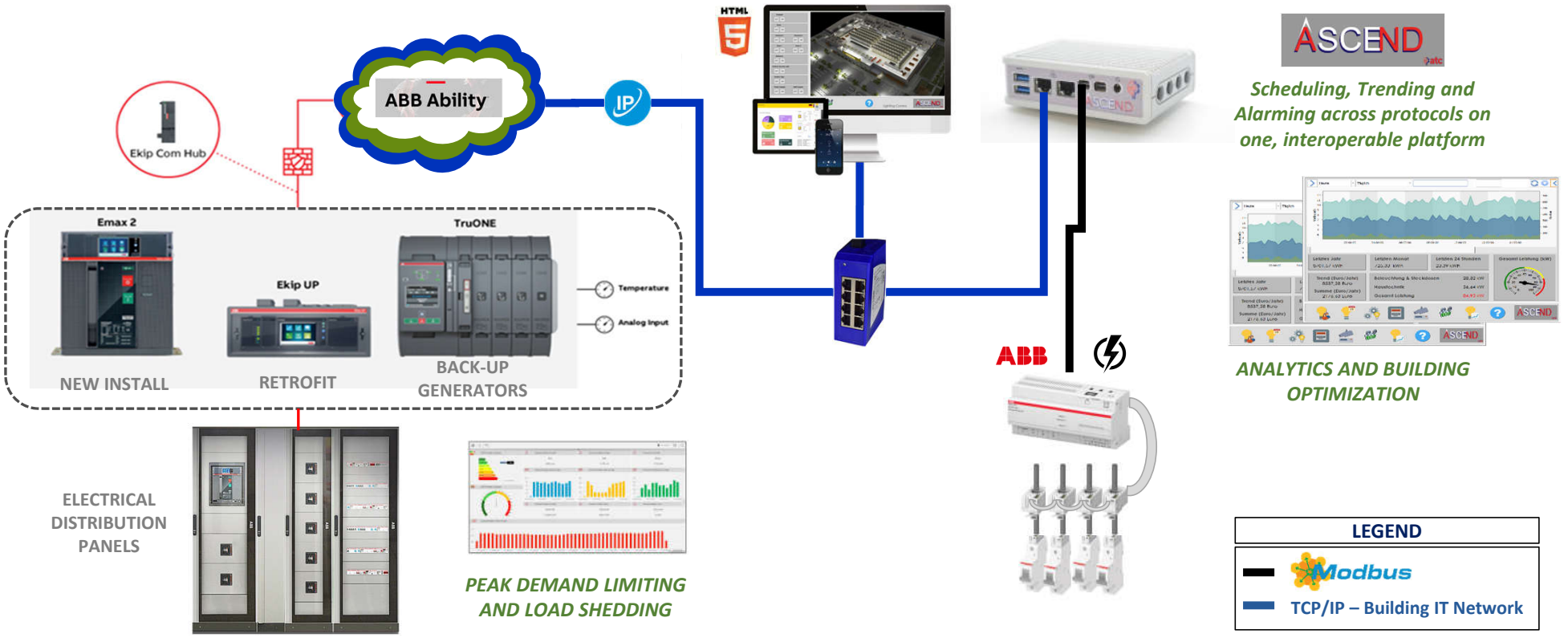


ATC Offering – Central Plant power analytics and energy optimization

Chiller and refrigeration systems can be now controlled via a holistic approach and platform

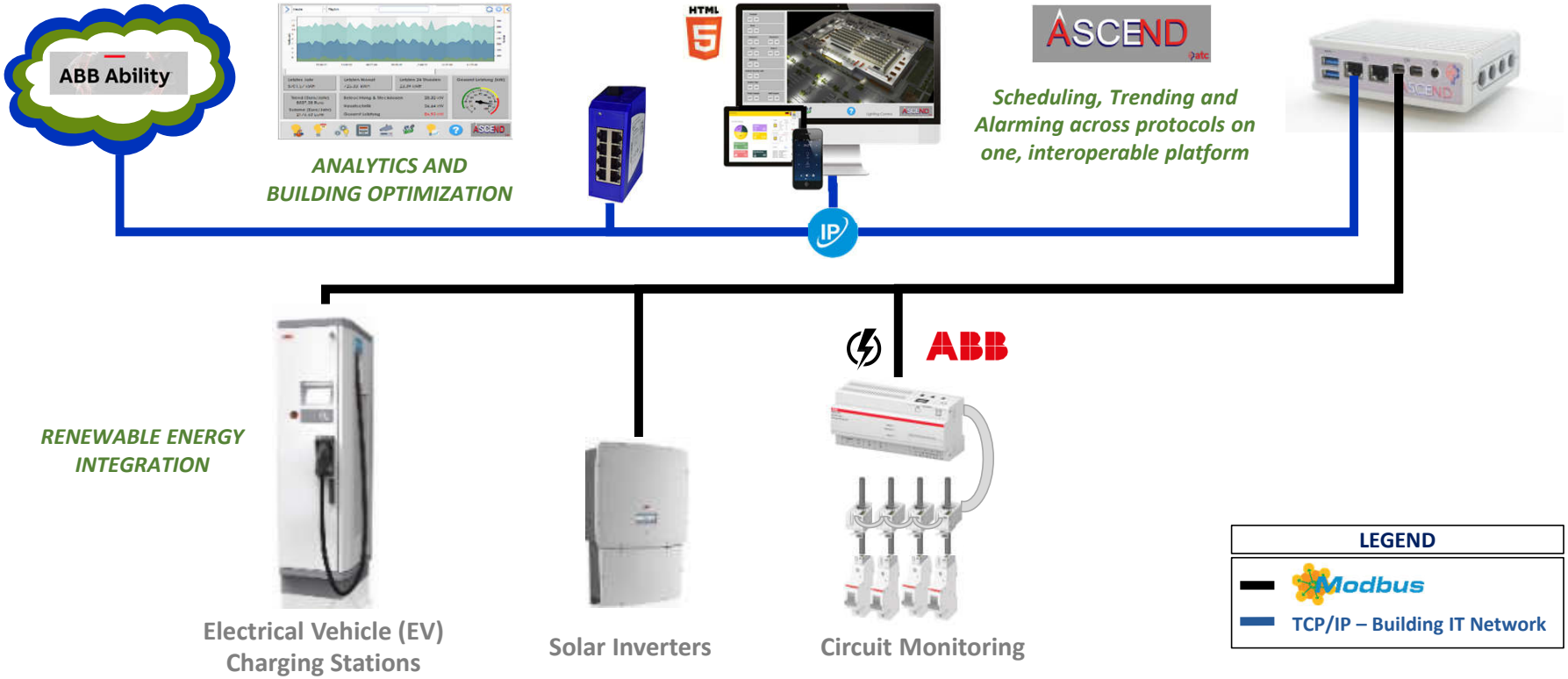
ATC Offering – Electrical Distribution Control Systems EDCS

Protection safeguarding your infrastructure with power analytics, peak-demand limiting and ADR



ATC Offering – Renewable technologies

Renewable integration e.g., solar and EV-charging with circuit monitoring reduces peak demand



ATC Offering - Building Services: Assessment and Optimization

Identifying, solving and servicing your SAFETY, COMFORT and EFFICIENCY needs with assurance

atc BUILDING SERVICES

BUILDING ASSESSMENT

BUILDING OPTIMIZATION

ATC Offering - Building Services: Assessment and Optimization

Identifying, solving and servicing your SAFETY, COMFORT and EFFICIENCY needs with assurance

atc INTELLIGENT SOLUTIONS

BUILDING ASSESSMENT

BUILDING OPTIMIZATION

atc INTELLIGENT SOLUTIONS

ATC Offering - Building Services: Assessment and Optimization

Identifying, solving and servicing your SAFETY, COMFORT and EFFICIENCY needs with assurance

BUILDING ASSESSMENT

Our BUILDING ASSESSMENT TEAM of experts will ensure your **SAFETY**, **COMFORT** and **EFFICIENCY** needs are met with the following offerings below:

- Desktop Analysis
- Preliminary Energy Assessment
- Detailed Energy Engineering Study
- Solution Design

BUILDING OPTIMIZATION

…while our SERVICE TEAM of experts will provide assurance on your building technology assets to ensure proper diagnostics, operation and maintenance

- Building Monitoring & Analytics
- Building Optimization
- Performance Retrofit
- Predictive Building Management (AI) – new!

Ensuring **SAFETY** by applying codes:

- NFPA/NEC (National Electrical Code)
- NEMA (National Electrical Manu-facturer's Assoc.)

Ensuring **COMFORT** and **EFFICIENCY** following standards:

- ASHRAE 90.1-2004 (Energy Standard for Buildings)
- US Green Building Council's LEED®
- National Green Building Standard (ICC-700)
- ASHRAE 189.1 (Green Buildings)
- International Energy Conservation Code (IECC)
- International Green Construction Code (IgCC)

Building Assessment – From Initial Survey to Intelligent Building Design

Our solutions team evaluates, identifies improvements and designs solutions to EXECUTE

BUILDING ASSESSMENT

SITE SURVEY AND EVALUATION

A site inspection and evaluation as part of a coordinated site survey to assess the current status of your building from a SAFETY, COMFORT and EFFICIENCY perspective. The level and magnitude of the survey is always customized to your specific needs, which may include spot or fixed time period field (energy) measurements of pertinent equipment or systems.

POST SURVEY ENGINEERING

Once the survey notes, pictures, documentation and measurements are assembled, the engineering begins by calculating present operational parameters and equipment/system conditions in order to establish the baseline operation, the energy and operational impact (risks) and possible improvement measures.

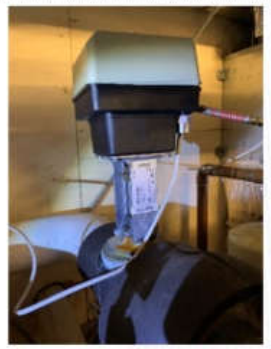
IDENTIFY IMPROVEMENTS AND DESIGN SOLUTIONS

A report is generated and presented based on the results of the engineering, the existing operation, associated risks (w/ impact) and optional improvement measures, The proposed solutions are discussed and agreed upon based on the current customer situation. The reports can be Investment Grade level i.e., the level of detail can be used for conceptual engineering and/or project specification.

Building Assessment – From Initial Survey to Intelligent Building Design

Example section of a Building Inspection and Advisory Report

Location: MER-1, Mezzanine

Control Panel Overview		Detailed Connection View
		

Field Notes: The Heat Pump is currently being enabled through a relay contactor in the DDC control panel. Therefore, the existing controls for the field equipment and devices may be reused only when the equipment being controlled i.e., pumps, actuators, etc. have been confirmed to monitor and control. The enable/disable function can be reconnected to the heating/cooling units (e.g., geothermal heat pumps), when installed.

Primarily, all field devices are Honeywell sensors and actuators tied to the LONWorks E-bus network. Other devices are hardwired via relay contactors or other I/O types. The situation is that this is a 10+ year old system on a fading protocol with proprietary field device communication tied to one manufacturer, Honeywell.

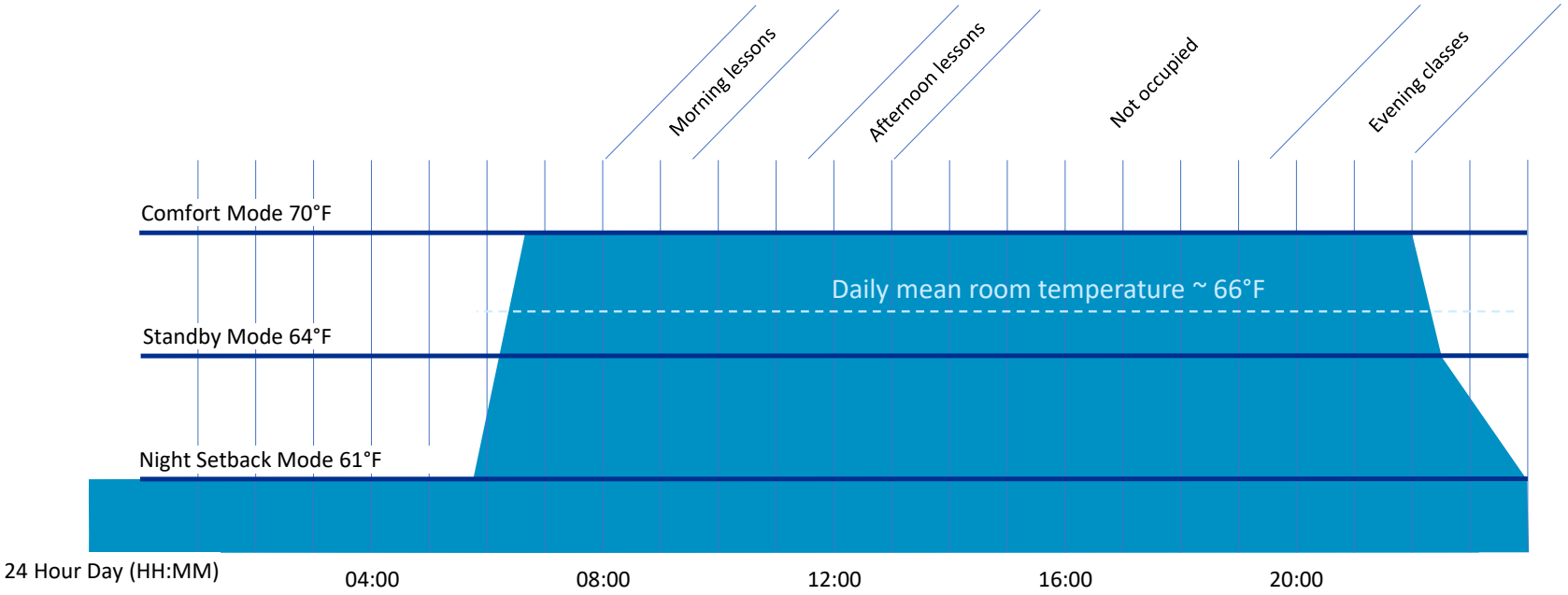
Key risks are the LONWorks communication to the field devices as well as the field devices operating.

Without BUILDING OPTIMIZATION

Conventional building controls do not address the actual occupant needs and schedules

Building Efficiency Scale (EN 15232)

Typical Room – C-standard for BACS[2)]: No zone control or interface between HVAC and lighting



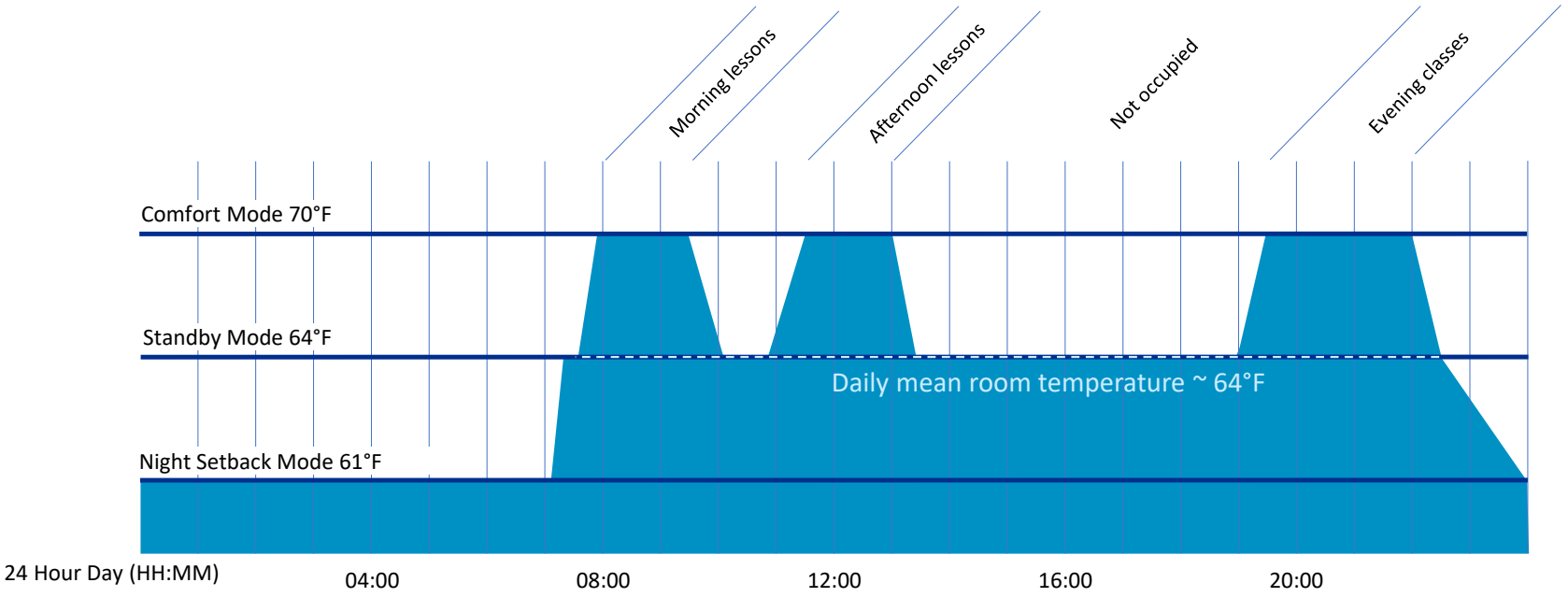
Sources: [1)] KNX Association www.knx.org [2)] Building Automation and Control (BAC) efficiency classes to EN 15232

With BUILDING OPTIMIZATION

Optimized field-level controls provide the highest efficiency and occupant comfort

Building Efficiency Scale (EN 15232)

Typical Room – A-standard for BACS[2)]: Integrated HVAC & Lighting on the field (occupant) level

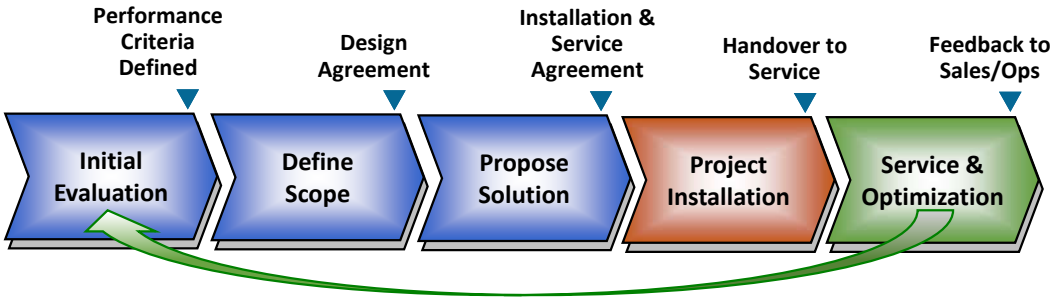


With BUILDING OPTIMIZATION, every 2°F reduction yields 6% energy savings

Sources: [1)] KNX Association www.knx.org [2)] Building Automation and Control (BAC) efficiency classes to EN 15232

Building Service – Custom Solution Development

Solutions are developed via a pragmatic, transparent process incorporating all stakeholders' needs



Initial Evaluation
Either during or in the follow-up introduction by Marketing, Sales engages with either (or, ideally, both) the Economic and Technical Buyers to determine the performance criteria i.e., the measurable metrics driving the decision. A Memorandum of Understanding (MOU) or other documented means of defining the next steps.

Define Scope
Based on the MOU requirements on a cursory level (~+/- 15% accuracy), the Solution Development Engineer (SDE) estimates the cost, savings, work scope, risk, etc. on a cursory level (~+/- 15% accuracy) from surveying the site (max. 2 days). The performance criteria is confirmed in a DESIGN AGREEMENT with the Customer.

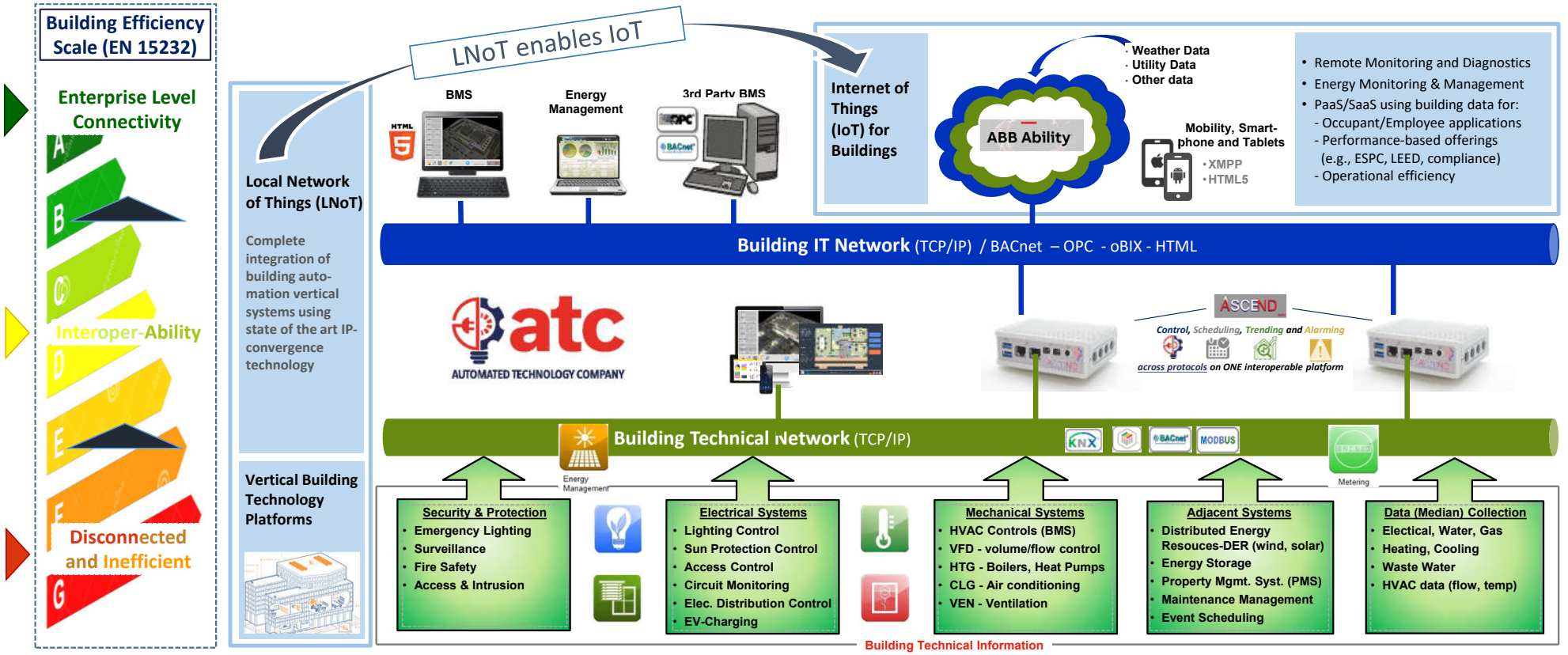
Propose Solution
SDE conducts a detailed site survey using experts (e.g., partners: manufacturers, consultants, design & build contractors, etc.) to finalize the analysis of Facility Improvement Measures (FIMs) that validate the performance criteria. Sales submits the standard ATC contract or terms & conditions to the Customer for signature/approval.

Project Installation
Based on the Solution contract/purchase order, the Project Manager together with his/her project team of suppliers, subcontractors, etc. completes the installation according to the contract requirements.

Service & Optimization
The Service Technician monitors, controls and reports the performance of the FIM's to ensure target achievement of performance until the contract period is concluded. Feedback to sales and operations during service to provide additional value added services is pro-actively done and managed.

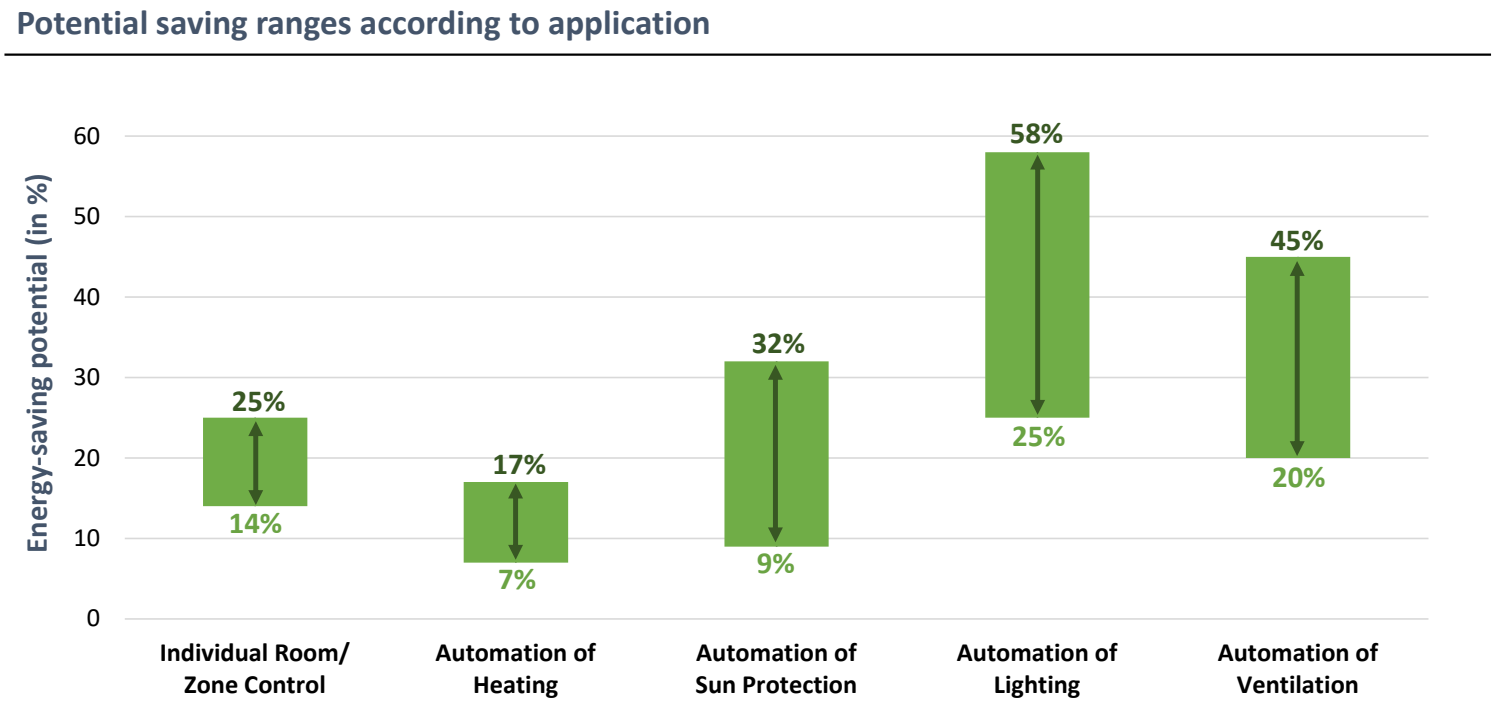
Stakeholder Benefits – Local Network of Things (LNoT)

The Local Network of Things™ enables IoT w/ flexibility on a wide range of building applications



Stakeholder Benefits

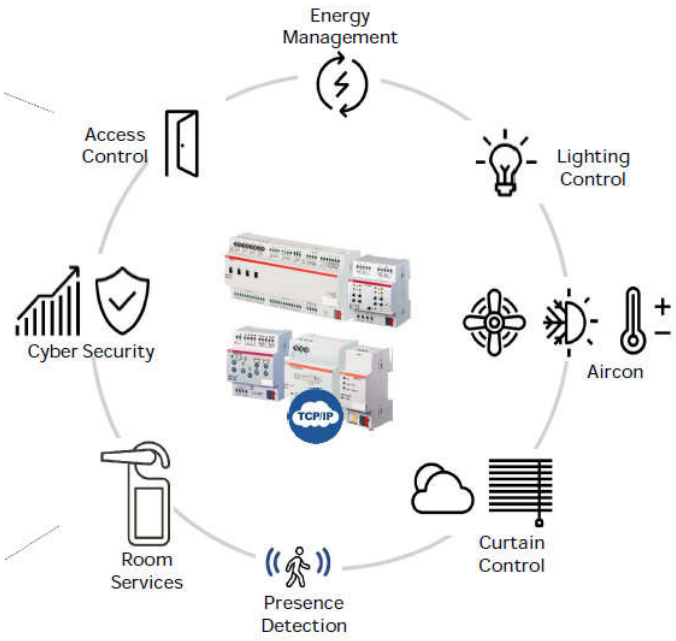
Energy Efficiency savings based on Building Function (Application)



Source: KNX Association www.knx.orgb

Stakeholder Benefits

Both holistic and room-level approach is needed to achieve top-level efficiency performance



The following diagram shows the differences in energy consumption for three building types in the energy efficiency classes A, B and D relative to the basis values in class C. For example, by using class A, 30% of the thermal energy can be saved in offices.

Building Automation and Control (BAC) efficiency classes to EN 15232	Efficiency factor for thermal energy			Efficiency factor for electric energy		
	Office	School	Hotel	Office	School	Hotel
A High efficiency BACS* and TBM**	0.70	0.80	0.68	0.87	0.86	0.90
B Advanced BACS and TBM	0.80	0.88	0.85	0.93	0.93	0.95
C Standard BACS	1	1	1	1	1	1
D Non energy efficient BACS	1.51	1.20	1.31	1.10	1.07	1.07

* BACS: Building automation and control system
** TBM: Technical building management

Class A:

- Individual room temperature control with communication between the controllers
- Variable supply heating temperature to areas, depending on their specific load
- Constant light control / daylight control
- Presence detection for lighting and HVAC control
- Motorized blind operation
- Combined lighting-, blind- and HVAC-control (i.e., inter-operable Room Control)

Sources: [1] KNX Association www.knx.org
[2] Building Automation and Control (BAC) efficiency classes to EN 15232

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Intelligent Home Offerings
Summary

ATC project references to demonstrate proven, innovative solutions have already been installed and currently benefiting from **SAFETY**, **COMFORT** and **EFFICIENCY**

Market References

One of Denmark's largest intelligent, high-efficiency buildings inspired by ABB Building Space®

Case Study: Microsoft Headquarters, Lyngby, Denmark (7.5 miles north of Copenhagen)

Solution

- 1769 ABB KNX protocol products sensors, lighting and switches
- ABBs doGATE providing SCADA interface for 5,000 data-points
- ABBs MOOVnGROUP graphical (zone) programing tool

Benefits

- Gold International LEED Standard for low-energy buildings
- Energy savings were accomplished without sacrificing comfort
- Smooth integration of ABB KNX room automation products and LON devices on a BACnet/IP platform
- 50% reduction of engineering hours vs. manual zoning
- Future renovations are easily modified with simple tooling

Comfort, efficiency and overall occupant satisfaction

Market References

The first ABB Smart Building showcase for ABB Building Technology – not just Building Automation

Case Study: ABB Industrial Automation HQ, Highland Hills, OH

Solution

- ATC's ASCEND SCADA platform for integration to adjacent systems and a built-in graphical zoning tool for future flexibility
- ABB KNX protocol products sensors, lighting and switches (total of over 1,000 devices)
- Belimo KNX VAV actuators; Cylon BACnet devices for solution test room

Benefits

- Energy savings accomplished without sacrificing safety or comfort
- Showcase for ABB Building Automation via Demo Room
- Smooth integration of ABB KNX room automation products and JCI/York equipment on Cylon BACnet to provide converged IP platform
- Future renovations are easily modified with simple tooling
- ABB Ability™ ready – future integration possible to EV-charging, Emax2 and solar (under discussion)

Safety, comfort, efficiency and overall occupant satisfaction

AGENDA

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Summary

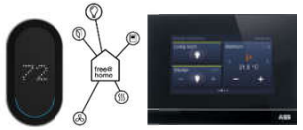
ATC Intelligent Home Offerings provide everything that you need to run your homes and multi-tenant buildings the safest, most comfortable and with the highest efficiency. From ‘plug-n-play, do it yourself’ to systems installed by a service provider, our products are streamlined to get your building smart in no time.

ATC Smart Building Products

ATC Residential offerings assured through streamlined, packaged solutions

An affordable, flexible platform

Home Automation



Door Entry/ Intercom

...with interoperability across systems

- Blinds
- Light
- Heating
- Air-conditioning
- Door Entry/Intercom

...assured through an authorized partner

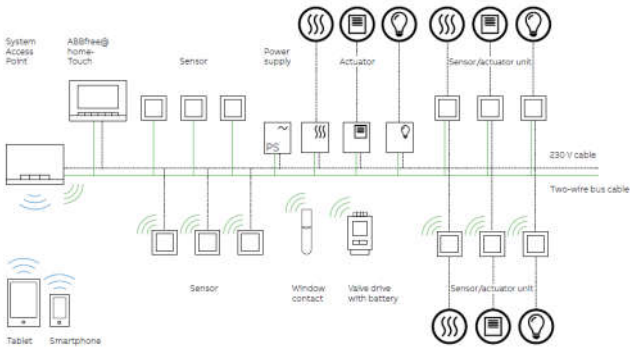
atc, basIP, JUNG, smc sierra monitor

From 'Plug-n-Play, Do-it-yourself' to Custom Installations, we cover the gamut of applications

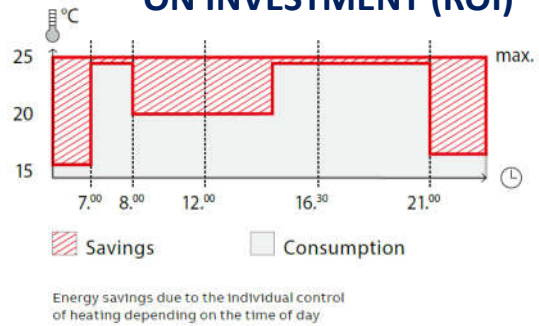
Smart Building Products - atc intelligent home

Heating and lighting control in the home - flexible, affordable with safety, comfort & efficiency

PRACTICAL TOPOLOGY



EXCELLENT RETURN ON INVESTMENT (ROI)



Energy savings due to the individual control of heating depending on the time of day

ABB-free@home®

SIMPLE PROCESS TO GET UP AND RUNNING

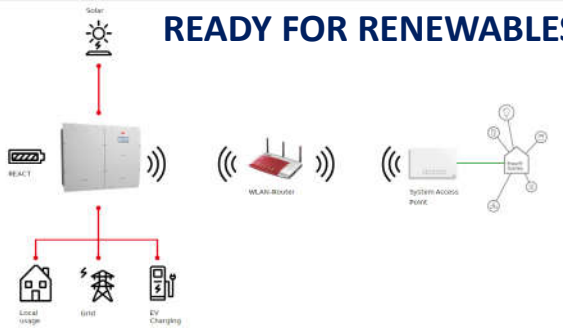
① ② ③

The house
First the electrician sets up the floor plan with its floors and rooms.

Assigning
Then the sensors in the app are integrated in the floor plan and assigned in the system.

Combining
And finally, the elements can be combined according to individual preferences and requirements.

READY FOR RENEWABLES



Smart Building Products - atc intelligent home

BAS-IP – A leading IP-Intercom System providing door entry, camera and intercom all in one

basIP

Key features

- Operation on the open SIP protocol
- Ability to connect KNX devices
- UKEY mobile access
- Integradable with other access control and home automation systems
- Reader supports: Bluetooth, NFC, EM-Marin, Temic, MIFARE®, etc.
- Ability to install 3rd party Android applications into the monitors

Benefits of IP-based systems:

- Data transmission on the TCP-IP protocol
- Transmission of video in digital format
- Almost unlimited number of devices in the system
- Easy to install
- Ability to upgrade the firmware, providing additional functions
- Ease of configuration and maintenance

Smart Building Products - atc intelligent home

A flat, simple IP-infrastructure allowing ease of integration into the smart home of the future

Support for open SIP protocol

BAS-IP supports the open SIP 2.0 protocol, which allows calls by IP telephony to BAS-IP devices just like any other SIP devices, as well as in the opposite direction.

Benefits to residents with common network connection:

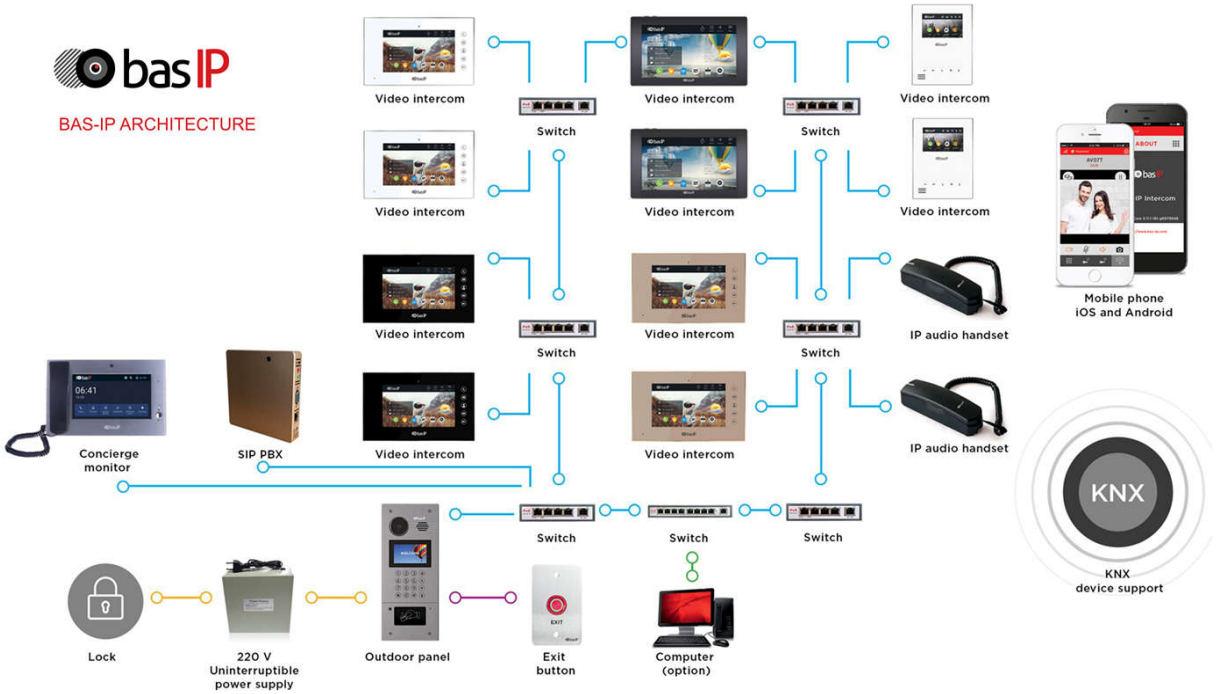
- talking to each other using video intercom;
- control of entrances, individual panels, as well as the entrance to the parking lot or the common gate;
- getting access to the services of a service organization by a single touch of the button on the intercom;
- viewing IP cameras at the playgrounds, parking lots and other areas;
- managing home automation from the monitor screen or smartphone;
- single access control system throughout the complex.

Interface into the "Smart Home“ with KNX

- KNX protocol interface provides usage of the BAS-IP monitors in combination with smart home applications; this enables to control home automation, intercom system and video surveillance under one system eliminating multiple devices and gateways.
- ZigBee protocol support allows wireless installation in cases where repair is ready, but you really want to add some functions.

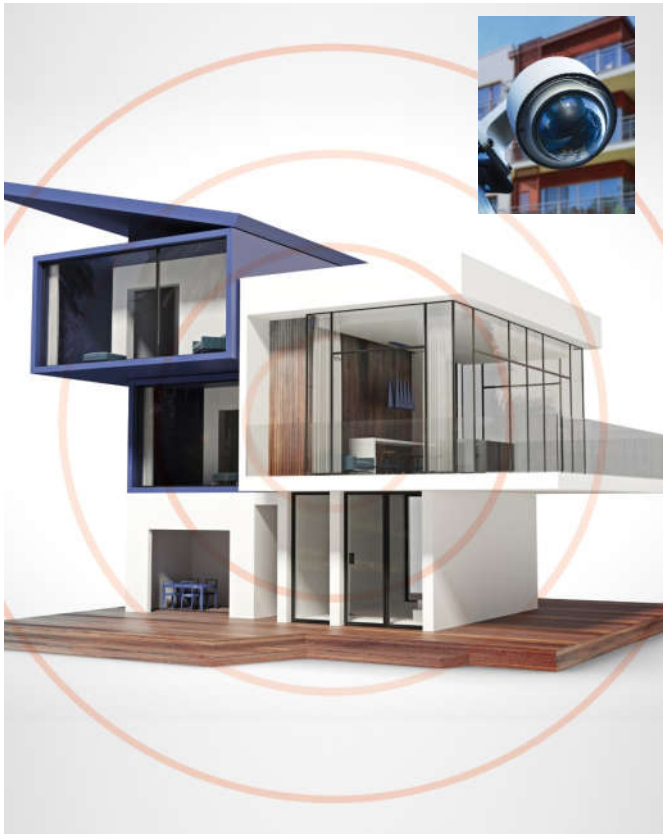
Smart Building Products - atc intelligent home

A flat, simple IP-architecture allows for ease of integration into the smart home of the future



Smart Building Products - atc intelligent home

IP Video Surveillance



IP video surveillance

The system allows broadcasting IP cameras to monitors using the RTSP stream from the outdoor panels to record into any IP video surveillance system.

Complex integration is achieved with "Intelligence" software of an ITV company.

Smart Building Products - atc intelligent building

Enabling state-of-the-art controls communication with our BEMS IP-Switch and KNX-rated Cable

BEMS IP-Switch

Internet Protocol (IP)/Ethernet switches in BEMS projects is growing due to the increase in BACnet IP-controllers. This could be problematic when facing the building owner's IT-staff, as connecting to the IT-system is a critical data security topic. This is where the ATC BEMS IP-Switch answers the call. Our switch is pre-configured to install immediately with all ports enabled by default (i.e., no shutdown); a stringent requirement for most IT-managers responsible for the information security in a building. Together with the DIN-Rail mounting, robust industrial grade construction and compact size, it provides a "plug-and-play" and worry-free entry into the Internet of Things (IoT) – the future of building technology and automation.

KNX Cable

With our exclusivity agreement with Belden Cable for USA and Mexico, we are set up for a transactional business the more KNX is adopted with significant growth as we continue to drive and sell KNX projects and multiply the users in the market

AGENDA

Company Overview
Market Approach
Intelligent Building Offerings
Intelligent Home Offerings
Summary

To capture the true perspectives of our Customers, our Voice of the Customer approach listens attentively to understand the priority issues at hand

Summary

Feedback from our Voice of the Customer (VOC) interviews w/ building technology stakeholders…

Some truly difficult problems…

- "I have too many controls platforms which do not talk to each other, so my maintenance staff is inefficient/ineffective…"
- "I have no overview or transparency with my energy consumption in the building – my utility bill is too high!…"
- "I'd like to reduce my maintenance agreement costs, as every time I have a change in my system, I call XYZ and then I need to get out my checkbook! …"
- "I've invested so much in our existing XYZ system, so how can I change vendors without losing my investment…"
- "I have a multi-purpose building, which means that the occupants have differing needs that the existing systems are not able to manage…"

…which can swiftly turn into solutions

- "Are these platforms based on open protocols? We can assess your existing platform and provide a retrofit solution."
- "Have you considered monitoring your main energy consuming points? Do you need support in the design?…"
- "Our building technology solutions use open standards and the SW tooling is set up so that you can make changes on your own (or we can remotely) at little to no cost…"
- "We can actually interface with this system, either as a "bolt-on" or as a complete BMS with interface capability. We are flexible to keep building on your existing investment…"
- "Our solutions are based on applications for the building occupant, whether they are a tenant, facility manager or building owner…"

Automated Technology Company (ATC)

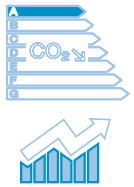
Transforming today's buildings into tomorrow's net-zero standard

Voice of Customer (VOC) - Building Owners Conclusions and 'Call-to-Action'

- Be flexible to **new business models**; traditional, conservative commercial procurement models need to be challenged (design & build, EPC, services, etc.)
- **Partner** with innovative, "early-adopting" firms which com-plement a complete, end-to-end market segment solution
- Ensure the pertinent building **data** is made **readily available** for all stakeholders (operator up to the top management)
- Provide **market segment specific solutions** to the eco-System building technology influencers (e.g., consultants, agencies, trade associations) that adhere to local requirements
- Ensure solutions are **interoperable**, scalable and flexible

Achieving the ultimate in comfort and efficiency, at the safest possible level

Data Transparency



"What gets measured, gets managed"
- Peter Drucker

Partnering

"Great things in business are never done by one person, they are done by a team of people"
- Steve Jobs

New Business Models

"All existing business models are wrong. Find a new one"
- Hugh Macleod

Market Driven

"If markets were rational, I would be waiting tables for a living"
- Warren Buffett

Summary

Thank you for your attention and please don't hesitate to contact us!

For any questions or further information, please contact us at:

AUTOMATED TECHNOLOGY COMPANY

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Joplin, MO 64801
Tel. 417.625.6679

website: www.atcjomo.com
info: info@atcjomo.com
sales: sales@atcjomo.com
support: support@atcjomo.com

atc

ATC Solution Offering – Glass Touch which is affordable, flexible and scalable

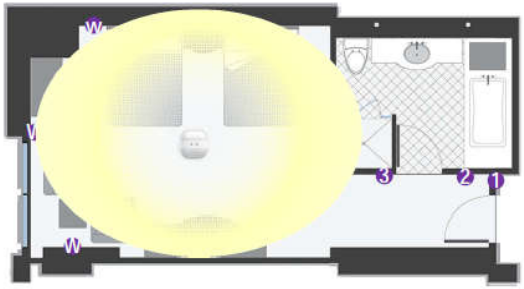
ABB tacteo® - simple, flexible and high-end quality appearance, yet affordable and future-proof

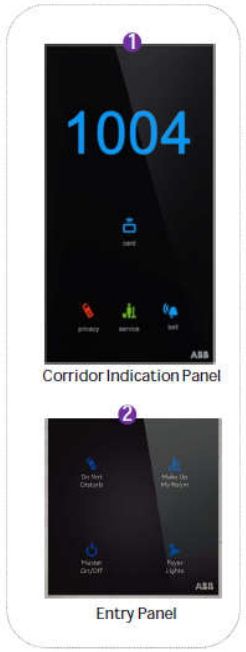
ABB-tacteo® Customizable Guest Panels

—

ABB-tacteo®

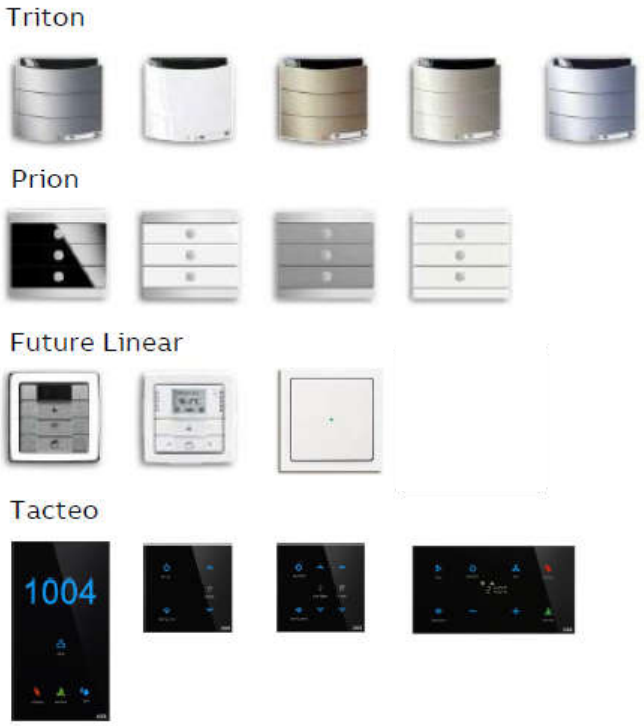
1. Built-in temp sensor
2. Ultra-slim glass touch design
3. heating/ cooling Indication
4. ECO Mode
5. Occupancy indication





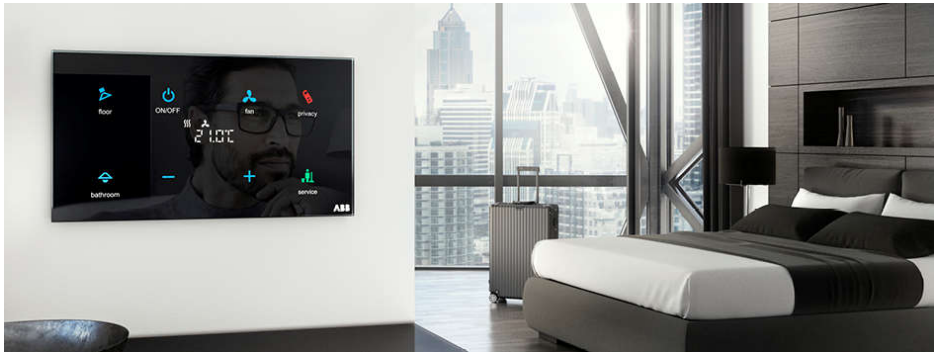
ATC Solution Offering – An assortment of award winning switches

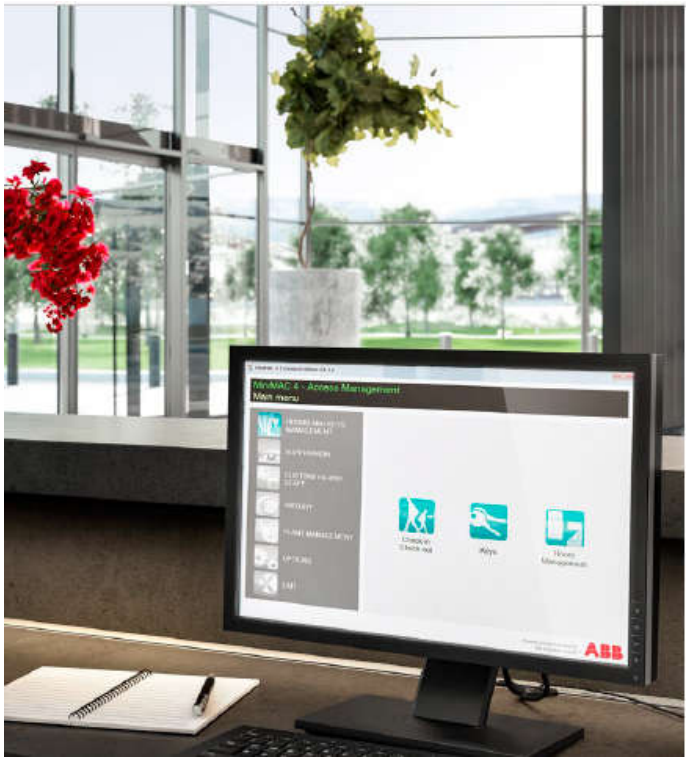
A full assortment of wiring accessories, each fitting to the building design intention and budget



ATC Solution Offering – Example: Hospitality

ATC combines all the key room functions under one open application





Offerings – Building Solutions Platform

INTEGRATED AND INTEROPERABLE BUILDING TECHNOLOGY ALL UNDER ONE GLASS

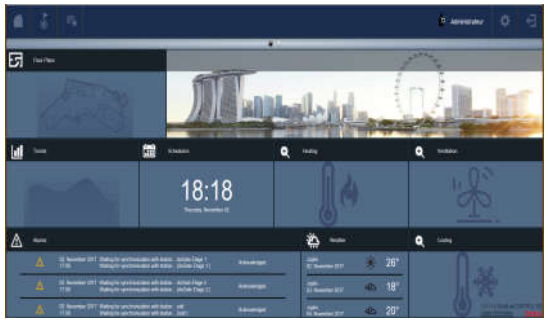
Trending, Alarming & Scheduling

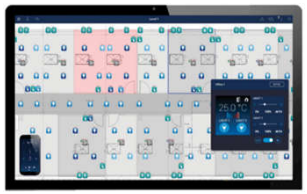
Central/Packaged HVAC

Zone HVAC Terminal Unit

ABB Newron Solutions

Web-based BEMS





Comfort Layout (Room/Zone)

Laptop

Smart Phone/ Tablet

Occupant Individual Control

Energy Management

Building Manager Interface >> Actionable data transparency

Building Occupant Interface >> Flexible data admin rights

Partners – Smart Building ecoSystem Partners

Backed by strategically selected, global partners who are innovative leaders in controls technology

Alexander Maier GmbH (AM) was founded in Eberbach, Germany. Their competence lies in the field of visualization based on various building management protocols and communication interfaces.

AM can look back on many innovative building projects and developments and are always a reliable partner to our customers in the areas of SW/HW and support.

Portfolio: ASCEND, powered by Eisbär

- Building Integration of communication protocols (BACnet, KNX, Modbus, M-bus, SNMP, JSON, MTTP)
- SCADA visualization

Belimo is global market leader in the development, production and marketing of actuator solutions for controlling heating, ventilation and air conditioning systems. Actuators, control valves and sensors make up the company's core business.

Portfolio: KNX, BACnet

HVAC Controls – Field Actuators, Valves, Sensors and Retrofit-kits

Energy Monitoring – Energy Valve™

Since 1985, Cylon has building energy management systems across all categories of buildings maximizing comfort and efficiency.

Cylon's BEMS solutions have been installed both large- and buildings in the small comercial office, retail center, state and local school districts, universities, hospitals, health and leisure centers, hospitality, hotels and industrial markets.

Portfolio: BACnet

- HVAC Central Automation Controls
- HVAC Room Controls
- Retail Market Solutions

HID is passionate about helping people use a verified, trusted identity to make it more convenient and safer for them to get to where they need to go and achieve what they want to do in everyday life. With HID's trusted identity solutions, people get effortless and worry-free identity verification experiences—with only a tap, twist, tag, push, swipe, or simply through the proximity of their chosen device.

Portfolio:
Locator/Tracking, Badges, etc.

- Location services
- Badges for door-entry
- Interface to Door-Entry

Founded in 2000, Intesis is today a leader in design, fabrication and commercialization of innovative solutions for building automation. With HQ in Igualada (Barcelona), Spain, and customers in more than 90 countries worldwide, Intesis offers a wide portfolio of IntesisHome for the residential market and to system integrator partners with the IntesisBox solution.

Portfolio: Multi-protocol

- Multi, open-protocol Gateways
- Manufacturer specific gateways
- RFID-based, IoT-connected identification technologies

Partners – Smart Building ecoSystem Partners

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Authorized value provider ABB

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max2
ergi-lite

BELDEN
SENDING ALL THE RIGHT SIGNALS

Belden produces and sells a comprehensive portfolio of connectivity and networking products into a variety of markets, including industrial, enterprise, and broadcast. Our bands benefit from over a century of excellence in manufacturing to the highest standards, and they're able to share innovations and thought leadership across the organization to stay ahead of the competition.

Portfolio: KNX, Dali

Connectivity and networking products, specifically for ATC:

- KNX Cable
- Dali Cable
- IP-Switches

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NX, Modbus

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rols – HVAC Drives
nitoring System (CMS)
ist. – Tmax, Emax2
Lighting - Emergi-lite
ers - Trio
ehicle (EV)
Terra

basIP

International Company BAS-IP (United Kingdom)
Is a manufacturer of IP intercom systems that can be implemented on any project of technical complexity or building application.

Portfolio: IP-Based Intercom

With extensive experience in designing systems up to 2,700 apartments, as well as other residential and commercial applications (e.g., shopping centers, hospitals, car parks, etc.), BAS-IP has the platform to provide complete solutions for your building needs.

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Control4

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JUNG

JUNG provides equipmen
systems that win over oth
using advanced technolog
sophisticated design, and
large variety of features.
portfolio includes switche
socket outlets, dimmers,
sensors, etc. to provide
innovative systems for
controlling your home. Fr
lighting, blinds, or temper
control, Jung's KNX techn
covers the gamut for your
building or home.

Portfolio: KNX Products

- Well-designed switches
- Sensors
- Actuators
- HMIs

Our Differentiation – We are agnostic to all building equipment and systems

ATC’ s open, IP-convergence platform enables us to be agnostic to all building equipment systems

IP-Convergence BEMS…

…across ALL Open-Protocol, Smart Products

BEMS - Building Energy Management System

Control, Scheduling, Trending and Alarming

across protocols on ONE interoperable platform

BACnet LonMark INTERNATIONAL KNX Modbus SNMP

…for ALL Building Types and Applications

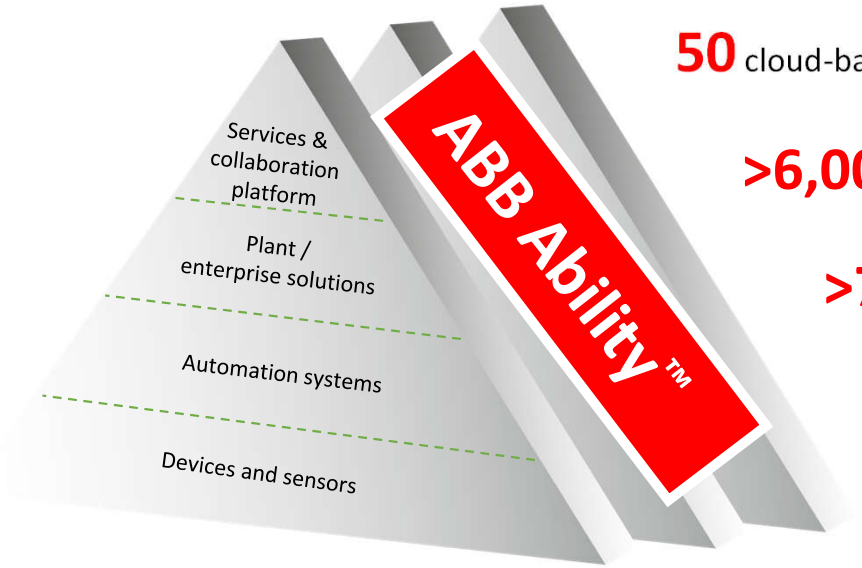
Building Type	Building Functions (Applications)
– Office Buildings	– Lighting and Shading
– Apartments/Villas	– HVAC
– Theatres	– Blinds and shading control
– Hotels/Restaurants	– Security and monitoring
– Exhibition Centers	– Energy and load management
– Sport Stadiums	– Visualization and operation
– Museums/Churches	– Central automation supervision
– Schools/Universities	– Remote monitoring and maintenance
	– Integration to other control systems

…agnostic to ALL HVAC Equipment and Systems

LENNOX TRANE Carrier AAON YORK DAIKIN Rheem LG MITSUBISHI ELECTRIC AIR CONDITIONING SYSTEMS

Building Solutions

ABB – a “hidden” digital champion with a global software digital offering via ABB Ability™



50 cloud-based services and advanced analytics

>6,000 solutions installed

>70,000 systems

>70,000,000 digitally enabled devices connected

Digital ABB offering
across businesses: integrate, penetrate, replicate

> 55% of ABB’s sales come from software and digitally enabled devices.

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Safety, Comfort and Efficiency

A flexible and interoperable BEMS solution
- Energy and building management SW platform
- Protocol integration and network management
- Mid-Commercial building scalable engineering tools
- Device interoperability via zone management
- Interface capability to 3rd party maintenance systems

IP-Convergence BEMS…

…across ALL Open-Protocol, Smart Products

BEMS - Building Energy Management System

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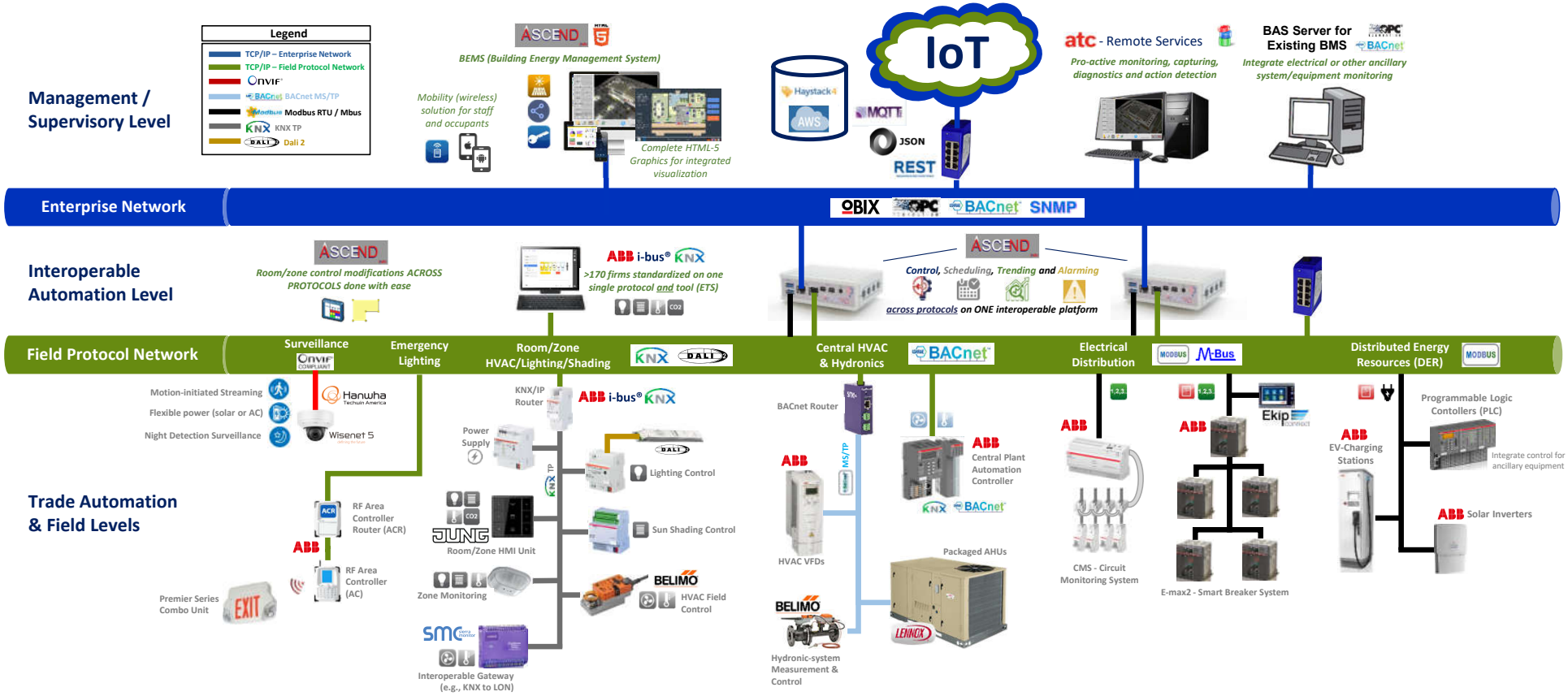
atc Intelligent Building