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BOS, Building Operating System
Smart Building for Smart Cities
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Building Operating System
Buildings Digitization: A Shift from BEMS

- Change of paradigm: old BEMS is over
  - Before: No HVAC -> No BEMS
  - Today: No Digital -> No Smart Building
  → ABB moves to be a leader in digital building & services platforms

- Digitization means Connected
  - Before: Mono-branded, hermetic and holistic solution
  - Today: Multi-branded, integrated and connected solution
  → ABB delivers the OS for buildings to easily connect 3rd party services

- Connection leads to Services
  - Before: Proprietary software, no open interface
  - Today: Services, API, Market-place, Cloud
  → ABB delivers a cloud oriented platform and consistency for services
Building Operating System
Tomorrow proof by design

Digital building management platform
- Interact with all the technical trades, across protocols
- Unify and structure data for seamless management
- Embedded applications for users’ interactions
- Software Development Kit for capabilities extension

IoT integration
- Integration of IoT data in applications, during exploitation
- Unify user experience, without silos at lower cost
- Avoid/diminish collection of SaaS silos (and their costs)

API Interface
- Structured around an ontology of qualified information on zones and functions
- Enables marketplace for applications and services
- Available on-premises and in Cloud
- Feeds any 3rd Cloud/AI

BIM Digital Twin
- Unique information repository
- Ensure BIM sustainability even in exploitation and maintenance
Information Configuration

Integration & Configuration

Planning Tool

Software Software

Edge Configuration

Field devices

Modbus, LonWorks, KNX, BACnet, Mbus, SNMP, OPC, BACnet

Corporate Software

Material Technical

Commissioning

Overview

SNMP

OPC

Reconciliation

Analysis

Maintenance

Corporate Cloud

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SaaS

3rd Party Supervision

Local

Information Management

Corporate Cloud

3rd Party Cloud

Technical Trades

b-OS

Usage / POI oriented

Back-offices

Asset

PM

FM

Tenant

Maint

Data geo-organized

Zone

FB

Resources

People

Usage / POI oriented

Energy Metering

Lighting

Room HVAC

Central HVAC

Blind controls

CCTV

Elevators

EV charging

E-mobility

Technical

Alarms

Emergency

lighting

IoTs

Access

control

Others verticals...
Building Operating System
Tooling based on project flow, qualifying data along the way

Specifications & Planning
- Visual planning based on partitions
- Comfort & Energy level target options
- Bill Of Materials issuance with matching devices references
- Issuance of a project config file

Sales & Quotation
- Manual quotation issuance based on BOM from planning

System Installation and commissioning
- Pre-engineered configuration from planning
- Retrieve field bus data from standard db
- Structure and configure data
- (Sub)metering definition
- Supervision definition
- Populate interfaces for web services/Apps

Operation (Use, Maintenance & Retrofit)

Ease of Sales
- Planning Tool

Ease of Quotation
- Quotation

Ease of Integration
- Integration Configuration

Ease of Operation
- Operation Tools

Digital Twin
As-built
Building Operating System

Conclusion

• **BOS is the central piece of the building’s information system**
  – Digital reflect of the current building’s state such as zoning, tenants allocations…
  – BIM is an input to the BOS, not the opposite
    • BIM helps to document the BOS, but lacks BMS related info, zoning, etc.
    • There will be buildings without BIM, but not without BOS
  – A BOS will dramatically increases the asset’s value and attractivity

• **System integration must be fast, pragmatic, business oriented, while leveraging value transparently**

• **BOS must be conceived as versatile and as open as possible**
  – One single company cannot supply all components from A to Z
    • Examples : iOS, Android, Windows are platforms with a collection of hardware manufacturers and apps developers
    • If 1 entity supplies all → proprietary solution
  – Need open and fully documented APIs, at field level & management level

• **ABB has the perfect profile to develop a BOS**
  – Large company with an international footprint
  – No legacy BMS system permitting to have a design started from a blank sheet
  – Access to market exclusively done via external partners, guaranteeing openness and independence