

PRESENTATION

FRANCK JUNG, PRODUCT MANAGER

BOS, Building Operating System

Smart Building for Smart Cities

Brussels, Belgium – 4th & 5th September 2019



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

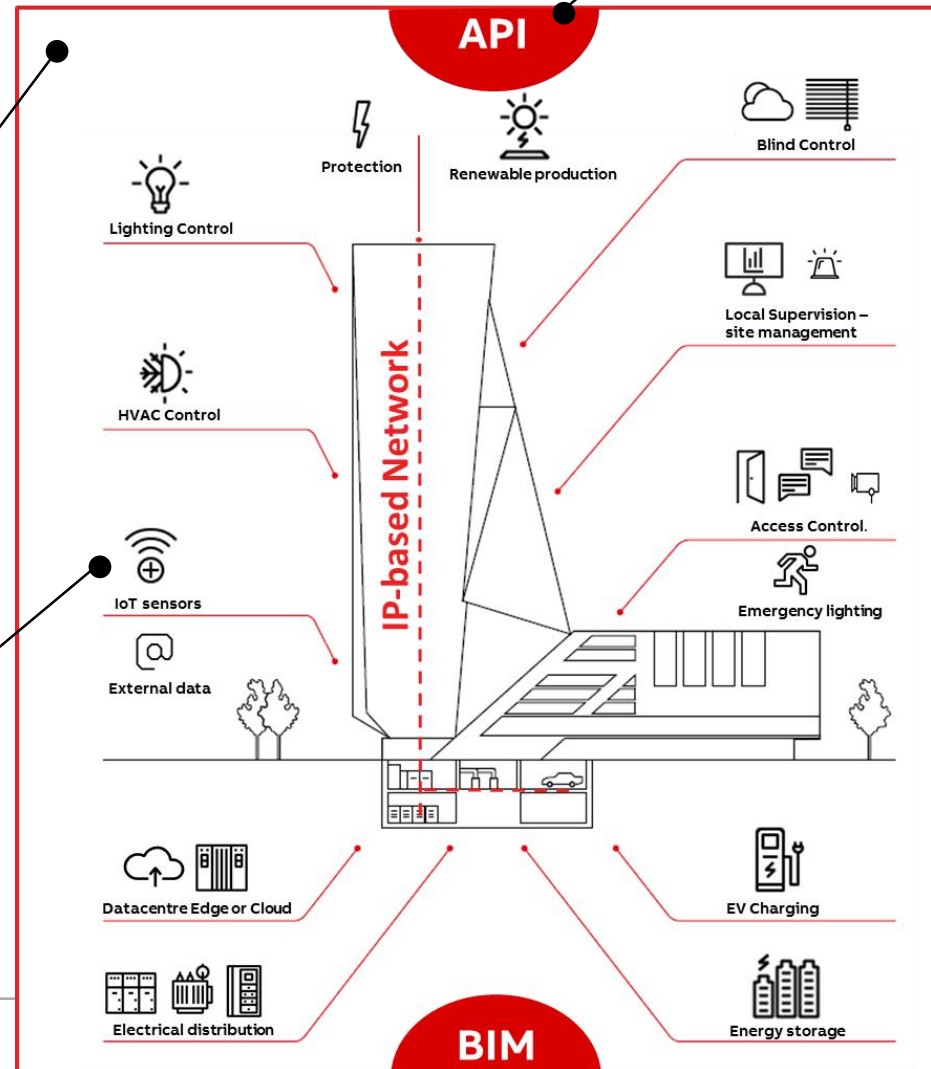
Tomorrow proof by design

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

An open & versatile
Building Operating System

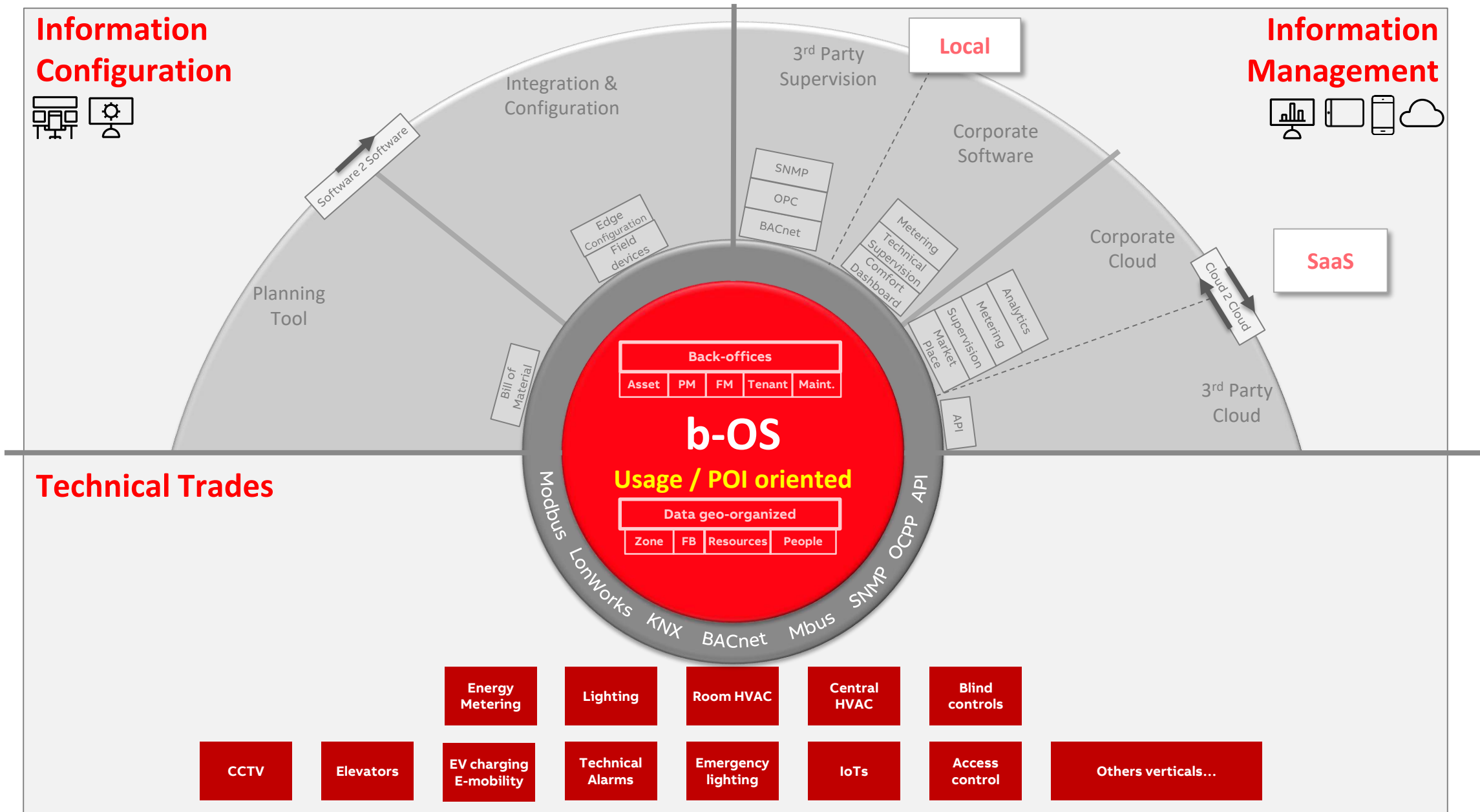
BIM Digital Twin

- Unique information repository
- Ensure BIM sustainability even in exploitation and maintenance

Information Configuration



Information Management



Technical Trades

Building Users

Visitor

- Specific virtual remote controllers
- Geo-positioning & direction (toilets, meeting room, shops)
- Emergency exit geo-guidance
- Extinguisher localization
- Macro-environment data (public transport, traffic,...)

Tenant End User

- Virtual remote controllers
- Incident declaration
- Geo-positioning & direction
- Macro-environment data (public transport, traffic,...)
- Resources booking (meeting room, EV charging,...)
- Emergency exit geo-guidance
- Canteen queue time



Tenant FM-er

- Facility Repartitioning
- Comfort oriented visualization
- Energy Analytics Reporting
- Heat map of facilities' occupation
- Analytics Room presence report



Property Manager

- Energy Analysis and Reporting for :
 - o Billing tenants
 - o Improve energy efficiency of assets portfolio
 - o Closer follow-up of assets / outcomes
- Demand/Response management
- Occupation and renting reports



Asset Manager

- Advanced analytics KPIs for investor
- Energy Dashboard with financial ratios: Consumption /net m², /gross m², /person, /building type,
- Occupation ratio with financial ratios



Building Managers

Facility Manager / Maintainer

- Technical visualization
- Alarms management system
- Tenants management
- Preventive & curative maintenance
- Repartitioning
- Tenants' services administration
- Incident management / CAMM interface



Information centric

Technology centric

bOS

Services providers

Services for tenant operator



Services for buildings operator



Start-ups ecosystem



Planner

- Easy quotation tool
- Bill of Materials (BOM) issuance



M&E Installer

- Simple Quotation tool
- Jobs follow up
- Backup of the entire project
- Documentations issuance
- Contractual documents issuance



System Integrator

- Configuration tool
- Backup / maintenance / update
- Pre-configured device templates
- Pre-configured zone templates
- Pre-configured vertical templates
- Set of graphical designs
- 3rd party manufacturer plug ins

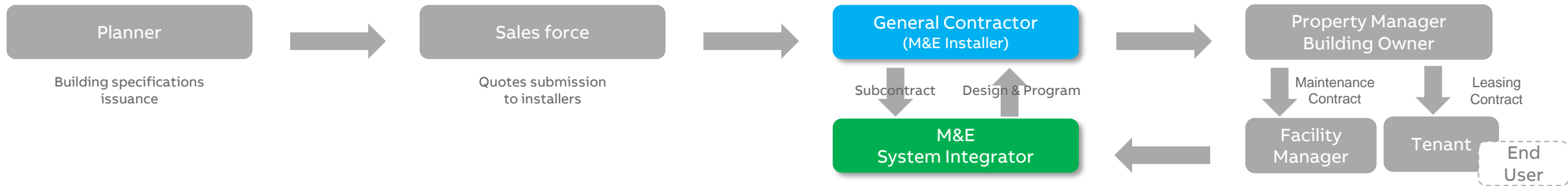


Building Services Providers

Building Designers

Building Operating System

Tooling based on project flow, qualifying data along the way



Planning Tool

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

Quotation

- Manual quotation issuance based on BOM from planning



Integration Configuration

- 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 Tools

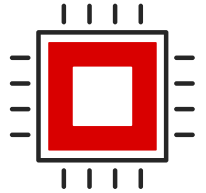
Asset	FM	Tenants
Analytics	Technical Supervision	Comfort Dashboard
	Analytics	Analytics
	Technical App	Life App



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 attractiveness
- **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





AABB