



HFBB Benchmark, Inc. (HFBB)

Democratising Student Property Ownership

HFBB Smart Buildings & IoT

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HFBB and Smart Building Technology

HFBB plans to utilise the latest Smart Building technology in order to enhance efficiency, promote a lower carbon footprint and provide a better user experience.

What is a smart building?

A smart building is any structure that uses automated processes to automatically control the building's operations including heating, ventilation, air conditioning, lighting, security and other systems.

Modern buildings contain complex mechanical devices, sophisticated control systems and a suite of features to improve the safety, comfort and productivity of occupants. The smart building will require connectivity between all the equipment and systems in a building.

Enabled by technology, smart buildings connects the structure itself to the functions it exists to fulfill:

- Connecting building systems
- Connecting people and technology
- Connecting to the bottom line
- Connecting to the global environment
- Connecting to the smart power grid
- Connecting to an intelligent future

What is Big Data?

Big data is a term that describes the large volume of data – structured and unstructured – that inundates a business on a day-to-day basis.

Defining Big Data in Smart Buildings

The next generation in business and operational intelligence derived from the analysis of data integrated across multiple streams or sources for the purposes of overall system understanding, performance, and optimization. The term big data encompasses both the solution architecture and associated analytics.

Internet of Things (IoT)

Devices that are connected to the internet, integrating greater computer capabilities, and using data analytics to extract meaningful information.

THE IoT is a suite of technologies and applications that equip devices and locations to generate all kinds of information—and to connect those devices and locations for instant data analysis and “smart” actions.

Leveraging IoT Data:

- Creating Value Through Efficiency -
- Enhanced Building Performance
- Better Portfolio Risk Management
- Creating Value Through Differentiation -
- Focus on Occupant Health
- Service Innovation to Tenants
- Benefits to the Broader Ecosystem

Global IoT Market is Poised for Explosive Growth

2013 = \$1.9 Trillion.

By 2020, \$7.1 Trillion, larger than the predicted Russian GDP.

HFBB Smart Building MVPs

HFBB will use the following three distinct Smart Building models:

- INDIVIDUAL APARTMENT MANAGEMENT SYSTEM
- PARTIALLY INTEGRATED BUILDING MANAGEMENT SYSTEM
- FULLY INTEGRATED, IoT-ENABLED BUILDING MANAGEMENT SYSTEM

Each of the 3 Smart Building Models in Detail:

1. INDIVIDUAL APARTMENT MANAGEMENT SYSTEM

Smart Apartment (Minimum Asset MVP)

Sensor Network

User Satisfaction -

- Feedback Polling

Occupancy -

- Presence

Energy Metering -

- Electricity
- Gas
- Water
- Waste

Big Data Platform

Other Inputs -

- 3rd Party Data
- Accounting
- Computer-aided design and drafting (CADD)

User Output -

- End User Apps

2. PARTIALLY INTEGRATED BUILDING MANAGEMENT SYSTEM

Medium Smart Building (Medium Asset MVP, 4-6 Apartments)

Sensor Network

User Satisfaction -

- Feedback Polling

Occupancy -

- Presence
- Traffic Flow
- Door Counter

Energy Metering -

- Electricity
- Gas
- Water
- Waste

Well Being -

- Temperature
- CO2
- Humidity
- Noise

Big Data Platform

Other Inputs -

- Computer-aided facility management (CAFM)
- Performance Benchmarks
- 3rd Party Data
- Accounting
- A building management system (BMS)/building automation system (BAS)
- Computer-aided design and drafting (CADD)

Advanced Analytics -

- Data Visualisation

User Output -

- End User Apps

Building Automation System -

- Access Control
- CCTV
- Fire Alarm
- Remote Access
- Wireless Network

3. FULLY INTEGRATED, IoT-ENABLED BUILDING MANAGEMENT SYSTEM

Target Smart Building (Target Asset MVP, 8-12 Apartments)

Sensor Network

User Satisfaction -

- Feedback Polling

Occupancy -

- Presence
- Traffic Flow
- Door Counter

Energy Metering -

- Electricity
- Gas
- Water
- Waste

Well Being -

- Temperature
- CO2
- Humidity
- Noise

Big Data Platform

Other Inputs -

- Computer-aided facility management (CAFM)
- Performance Benchmarks
- 3rd Party Data
- Accounting
- A building management system (BMS)/building automation system (BAS)
- Computer-aided design and drafting (CADD)
- Digital identity management

Advanced Analytics -

- Data Visualisation

User Output -

- End User Apps
- Improvement Initiatives

Advanced Building Automation System -

- Advanced Analytics
- Smart Actions
- 24/7 Monitoring

- Lift Monitoring
- Renewable Energy Technology
- Energy Occupancy Sensing
- Keyless Entry
- Integration with Smart Grid

Smart Cloud Remote Access Services -

- Appliances
- Laundry
- Computers
- Utilities
- Lighting
- TV and Media Devices

Resources and Contacts

Resource Links:

[PwC Real Estate 2020 - Building the Future](#)

[PwC Industry 4.0 - Building the Digital Enterprise](#)

[Deloitte Smart Buildings & IoT Adds Value to Real Estate](#)

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