

E-book

The Same Old Building Management System

Solving the sustainability challenge in the built environment requires a serious rethink on the role of the conventional Building Management System (BMS)



Oct 2022

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1.0 Introduction

Buildings consume 40% of the world's energy, and the BMS's role (at least one would assume) amongst many other things, is to ensure that this energy consumption is kept to a minimum. A badly configured BMS (as most are) or the absence of a BMS will often result in a building utilizing 10 to 30% more energy. When you do the math on a global scale, the amount of energy wasted by buildings is rather startling.

With great power comes great responsibility. And now comes the big question: does the conventional BMS really live up to the world's expectations?

What is a BMS?

A computer system installed in a building that can interact with the building's equipments is known as a Building Management System (BMS), enabling its owner to keep an eye on and manage installations, such as energy supply systems and air conditioning, heating, ventilation, and lighting etc. Often times, the term Building Automation System (BAS) is used with BMS interchangeably.

In other words, a BMS, also sometime known as Building Automation System (BAS), is the “automated operator” that drives and monitors the technical assets of a building: HVAC, lights, energy, etc. These systems have been around since the late '80s. Because of the cost and complexity, they tend to be only present in about 15% of buildings, the largest and most expensive ones.

What does it do?

BMS allows the user to

- Control the different systems of the building
- Manage the energy consumption of a building
- Monitor and schedule operations
- Set up management of breakdowns
- Produce data reports

Challenges of a conventional BMS

- Expensive and tedious to install
- Incredibly complex
- One size doesn't fit all - caters mostly larger buildings
- Not scalable

From what property owners, property managers, and facility managers tell us the BMS does not live up to that expectation. Let's dive into that.

2.0 Why are so many BMS getting discarded?

Of course, there are also happy stories regarding BMS that operate effectively, with satisfied property managers, owners, and tenants. Unfortunately, the majority of stories belong to the opposing side.

So often this is what we hear about the conventional BMS:

“After some years, it does not work”,
“Nobody knows how to use it fully”,
“We are locked-up by the manufacturer”
“When we want to make some changes, it is too expensive”
“Too costly to maintain”,
“Our technicians are trained only to use the basics”

Over the recent years, we have seen that despite the large investment of setting up a BMS, many customers (owners of office buildings, occupiers etc.) took a radical decision and unplugged their BMS.

Some of the mid-large building portfolio managers have said:

“We have removed the BMSs in all our buildings, we now control them with the general switches, and we are better off.”

“Our maintenance technicians no longer look at the BMS; they are simply reacting when the occupants in the building call them.”

While we agree that everyone in the ecosystem works hard to make it operate, including the manufacturer, integrator, maintenance team, and owner, nobody intends for the BMS to fail the end user. So what happens?

Impact of conventional BMS in the post-pandemic world

Post-pandemic, hybrid work is the new normal, with the majority of organizations adopting such models for employees to customize their work hours and perhaps come to the office only a few days a week. That's causing heartburn for many facilities managers who—in matching their building management systems (BMS) to meet the fluctuating energy demands from these flexible schedules—are needing to evolve their systems to be much more agile and efficient.

3.0. Why do building operators think BMS is not worth the money ?

In our opinion, primarily following main reasons can be attributed to challenges of BMS

3.1. Hard to manage hardware

If you ever looked at the architecture schematic of a typical BMS, you will notice that it is complex combination with network layers, a multitude of communications protocols, numerous PLCs, and gateways.

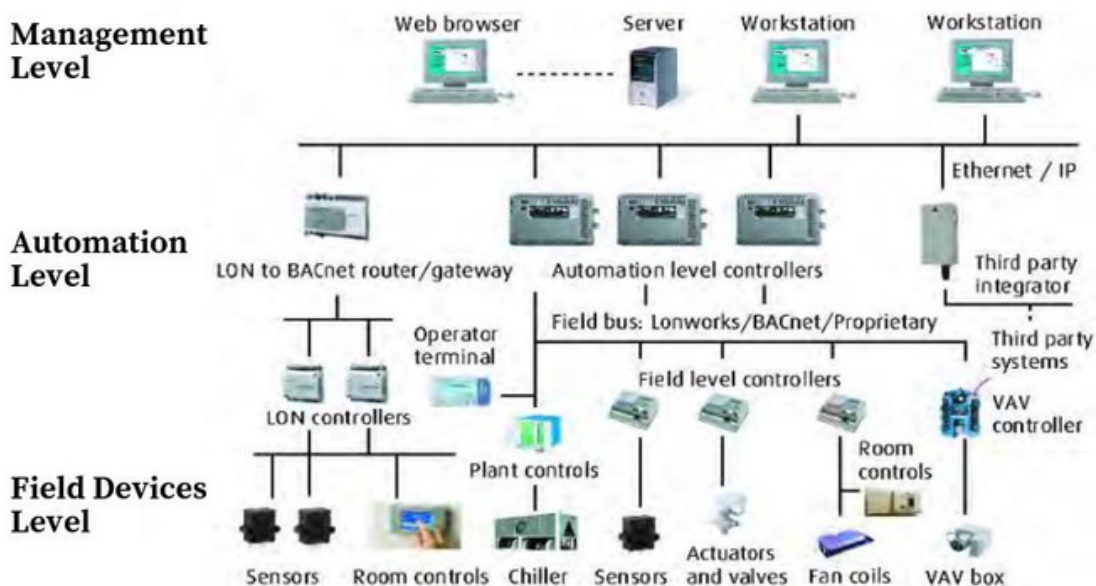


image 3.1 - System architecture of a typical BMS

Due to the limited electronic capabilities two decades ago, this type of fragmented architecture made sense, but not anymore. Today, your phone now has enough processing power to power a sizable office building's BMS. Due to a silo mentality among the various industry stakeholders, and in spite of the enormous advancements in electronics, BMS architectures have not changed much. It is extremely challenging to configure, test, and maintain hardware architecture that is so fragmented and complex. Each piece of intermediate hardware increases the integrator's manual workload significantly, limits the amount of data and functions the BMS can access, and hence necessitates expensive maintenance.

As a result of the hardware diversity, each and every one of them is extremely expensive. The cost of electronics is determined entirely by volume. Because the market is so fragmented, volumes are kept low and costs are kept high.

If you actually think about it, the BMS vendors would like to keep it that way, and maintain their status quo!

3.2. Hard to manage software

The BMS sector deviated from the rest of the software industry about 40 years ago. Today, we can find excellent, simple-to-use software solutions for just about anything, including constructing and managing websites, hosting cloud services, and getting from point A to point B using any mode of transportation. In such a short period of time, so much is now feasible.

Regarding the BMS, we can't truly say the same. Over the years, so little has changed. Most people still view the BMS as a desktop application that is locked away in a "BMS room" and that only a select few are even aware of how to operate.

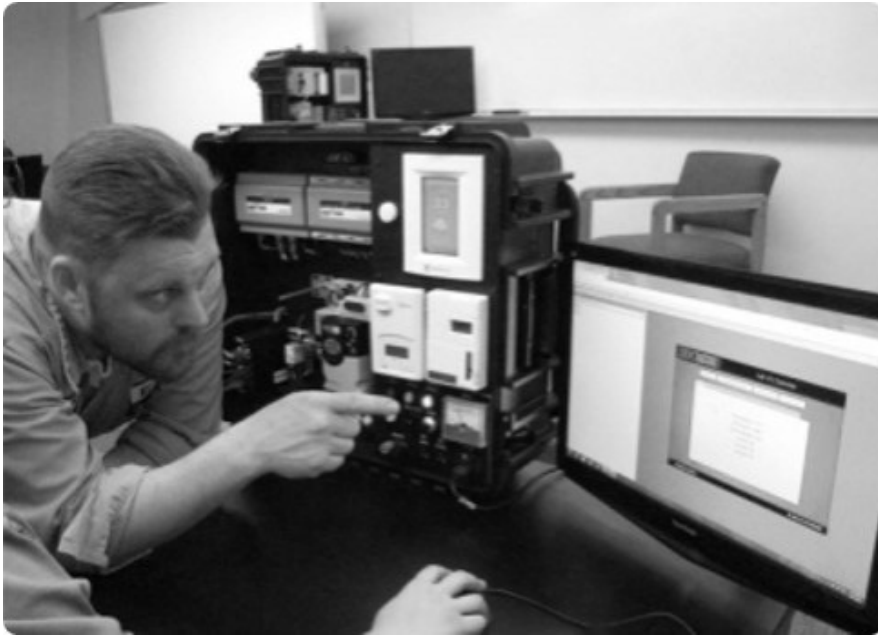


image 3.2- Typical BMS room with bunch of computers and people to manage them

The technological divergence of the BMS industry created a bad precedence for everything that got developed on top of it. They slowed innovation and created a competition barrier for better software.

We believe that so much can and should be improved. For example, there should be scope for **better network configuration**. It should not take days or weeks just to make equipment speak with one another.

Another example is, that there should be a huge scope for **better data modeling**. Standard data models deployed quickly are essential for software companies to deliver solutions at scale and not be handcrafted one building at a time.

When we hear property owners discuss their BMSs, it makes us think of how many of us interacted with cabs before Uber came up. Even though you didn't like it, you had no other choice but to stand on the road and call/wait for a cab. While the challenge in for the cabs was due to lack of technology, for the building world, we believe it is due to the way property owners & stakeholders think about BMS and how they purchase their BMS.

3.3. The unchanged role of BMS

The BMS, originally an industrial solution got repurposed to used in the building environment. While it started of with control and monitoring, very little has changed since them. Compare this to any other enterprise grade software. For example, does a CRM simple a data base of your leads & contacts? No. It has so many other features that it manages the entire sales & marketing workflows. Today, to manage a the building operations, you need a unified solution that removes all data siloes, brings all stakeholders on a single platform and seamless manages the entire workflows that is required manage building operations efficiently and productively.

3.4. Incorrect business model of BMS

A BMS is just another IT system. There is a tonne of code throughout. It is essentially software running on a network.

As you are probably aware, a substantial shift occurred in the software industry over the past few years: everything became SaaS or software-as-a-service.

Since 2016 Windows is being purchased as a subscription model, and so is your accounting software, CRM, music, entertainment, and your every other software.

Did you also observe that for SaaS products, most of the software's quality, availability, and usability have all considerably improved?

SaaS companies go to tremendous lengths to maintain customer satisfaction. The decision to purchase the products is quicker since they provide the option to change. But in order to continue doing business with a customer, they must keep them satisfied always.

On the technical side, the SaaS model has another significant advantage. Your system and your SaaS vendor remain connected all the time. They can do maintenance, push updates, and gather usage data. Basically, the continuous improvement process is in place to make your software perform better and better.

4.0 In conclusion

Some people will argue that they prefer to buy their software one time to better control it. Here we believe this is counter-intuitive - You buy software, and then there is only one vendor who can upgrade it or modify it. We are not sure who controls who!

The same thing applies to the BMS, if you buy it one time, you are stuck with the vendor.

Forward-thinking property owners have led us to believe that they prefer the SaaS approach because they can:

- Freely choose which apps/devices to use in their building irrespective of the make
- Keep their vendors in check
- Avoid hidden costs
- Reduce investment and total cost of ownership at the same time

Almost every software has already made the transition to SaaS or is doing so quickly since SaaS is the way forward.

5.0 About IQnext

IQnext is a cloud-based platform for centralized building management using a connected, data-driven, and integrated approach to improve sustainability and efficiency.

Centrally managed building operations platform, unifying devices, people & processes in real-time across portfolio

Centralized dashboard for portfolios



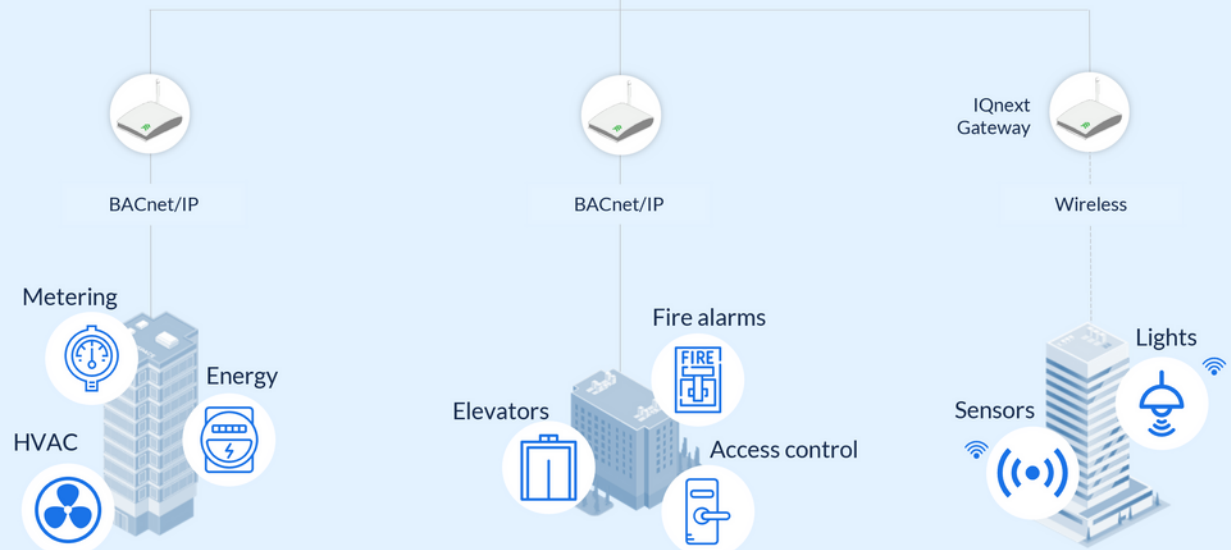
Real-time operational insights




Mobile app for space & comfort management

IoT-driven integrated energy management

Asset maintenance & alarm management



Comparison

	Conventional BMS	
Short payback periods	⊖	✓
Intuitive web-based UI	⊖	✓
Effortlessly Scalable	⊖	✓
Open, integrated & cross functional	⊖	✓
Software first approach	⊖	✓

Additional reads

- Why SaaS is a go-to solution for smart buildings: An Enterprise-Wide Guide ([eBook](#))
- Integration of your facility devices with IQnext ([Knowledge base article](#))
- About Building Automation Protocols ([Knowledge base article](#))



Transforming buildings for a better tomorrow

