



SMART FM IN SINGAPORE

Shaping the future of Facilities Management

**Practical benefits of Smart FM and six criteria
for choosing your technology partner**

SIEMENS



Executive summary

In Singapore, non-residential real estate is steadily advancing toward autonomous smart buildings through the Smart Facilities Management (FM) initiative. Over half of building owners have at least embarked on this journey, recognizing the value of self-optimizing buildings in future-proofing the built environment.

From a business perspective, these investments are seen as essential to protecting property portfolio values, attracting tenants, and securing premium rental yields. At the same time, digitalized building management systems provide transparency that delivers measurable benefits in operational efficiency, talent retention and energy cost reduction.

This paper summarizes the current state of adoption with Smart FM, explores the key drivers and benefits of early adoption, and outlines the qualities of an ideal technology partner to ensure a smooth, effective transformation.



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The drivers of Smart FM

Singapore is rapidly establishing itself as a global leader in sustainability, with government-driven initiatives aimed at reducing carbon footprint and natural resource consumption.

The Singapore Green Building Masterplan² sets out ambitious carbon emission reduction targets, under its '80–80–80 by 2030' vision.

- 80% of all buildings greened by gross floor area
- 80% of new buildings to be Super Low Energy (SLE)
- 80% improvement in energy efficiency for best-in-class buildings compared to 2005 levels

In this context, smart facilities management serves as a key enabler of low-emissions – especially when deployed at scale and integrated across building portfolios. It represents Singapore's drive to transform facilities management by integrating building systems, processes, technologies and people with the goal that buildings operations become more data-driven, predictive and productive.

The Building and Construction Authority (BCA)³ has spearheaded this effort through the FM Implementation Committee and its Smart FM Taskforce. Their key actions, purpose, rules and goals are summarized in the Guide to Smart FM⁴, enhanced in September 2022 with a Digitalization Maturity Map⁵ to characterize different stages of the adoption journey.



Smart FM refers to the integration of systems, processes, technologies, and personnel to enhance the management of a building's facilities. It is a means to an end and thus should not begin with technology in mind. It is important to consider the process and people aspects too to harness the full potential of Smart FM and achieve a holistic solution that can support data-driven decisions, create change and improve outcomes.

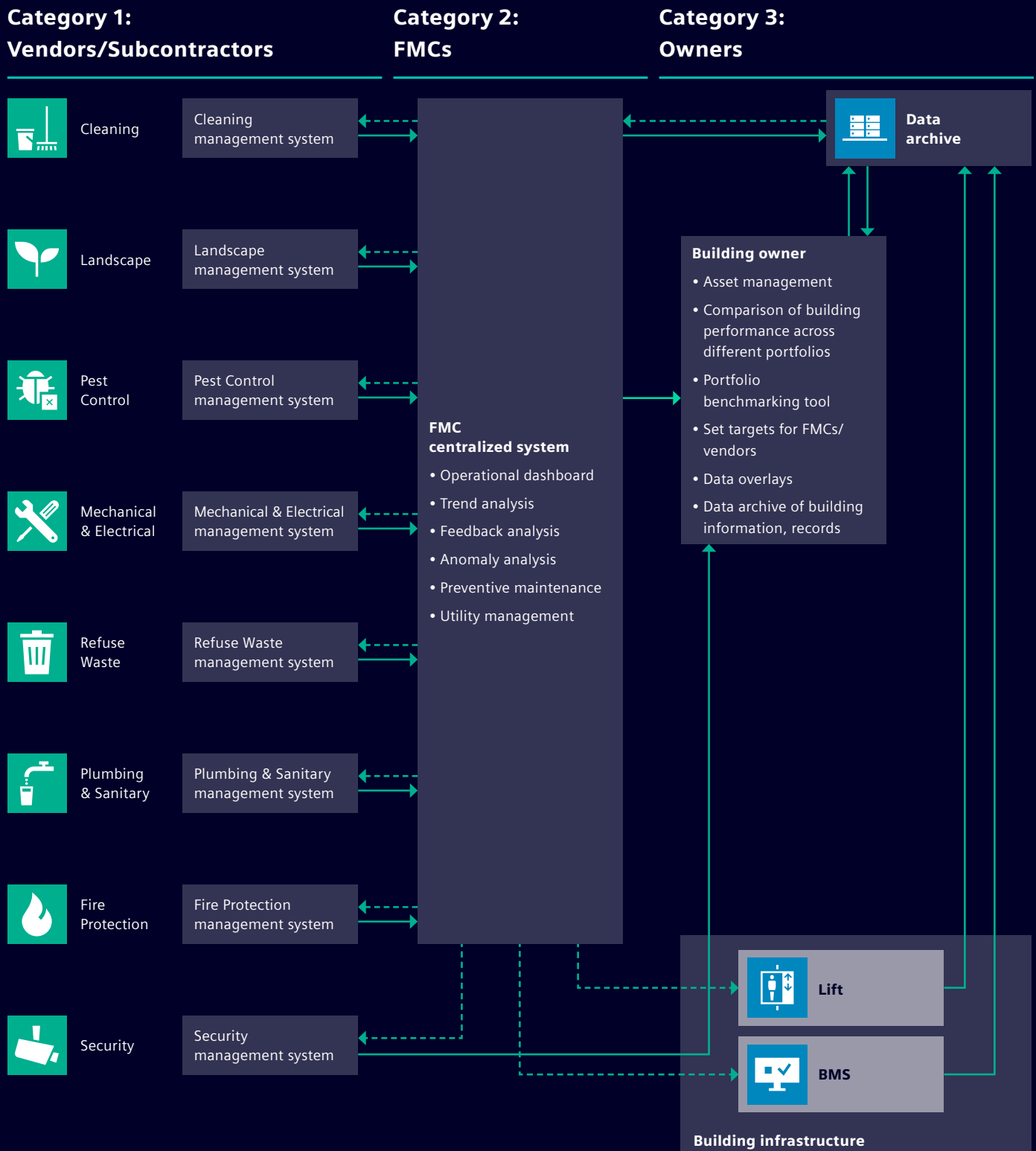
Singapore Building and Construction Authority¹



AI is no longer just a nice to have – it is an essential strategy for helping reduce carbon emissions, mitigate climate risk, and future-proof real estate portfolios.

KPMG

FM Digitalization Relationship Mind Map



Adoption support

Singapore has put strong policy levers and funding mechanisms in place to accelerate the adoption of Smart FM. These include the BCA's IFM/AFM⁶ grant, the IMDA's⁷ Productivity Solutions Grant, a government initiative to help small and medium-sized enterprises with pre-approved technology solutions, and a refreshed Built Environment Industry Digital Plan that highlights AI, condition-based maintenance, and key benefits⁸.

It is clear that Smart FM has a continuously growing momentum. Strong public-sector leadership such as GreenGov.SG mandating Smart FM for new public buildings greater than 5,000m² by 2030, is driving uptake.

In addition, the pressures of skilled technician shortages and the constant drive for productivity are further accelerating adoption⁹.

Evidence of this momentum is clear. The BCA's IFM/AFM grant which explicitly funds Smart FM technologies, has been extended to 2028 and from April 2025, will provide co-funding of up to 50%, a clear indication of increasing demand. Similarly, the IMDA's refreshed Built Environment Industry Digital Plan reports "strong take-up" from over 900 SMEs of pre-approved digital solutions since 2020. The refreshed plan also promotes AI-driven asset monitoring and condition-based or predictive maintenance which are core Smart FM capabilities¹⁰.

The benefits of Smart FM

- **Operational efficiency:** Smart FM empowers customers to streamline facility operations and optimize resource use; improving efficiencies.
- **Regulatory and sustainability compliance:** With built-in capabilities for energy monitoring and performance tracking, Smart FM helps buildings and facilities achieve Green Mark certification and other industry standards.
- **Cost reduction:** By minimizing energy waste and reducing manual interventions, Smart FM directly contributes to lower operating costs.
- **Workforce optimization:** Centralized platforms reduce reliance on scarce skilled labor, allowing teams to focus on strategic tasks rather than reactive troubleshooting.
- **Business continuity:** Smart FM reduces downtime through real-time monitoring and proactive issue resolution, helping ensure uninterrupted operations and minimal disruption to core business activities.



Smart FM – where are we today?

So, what is the current state of play for Smart FM?

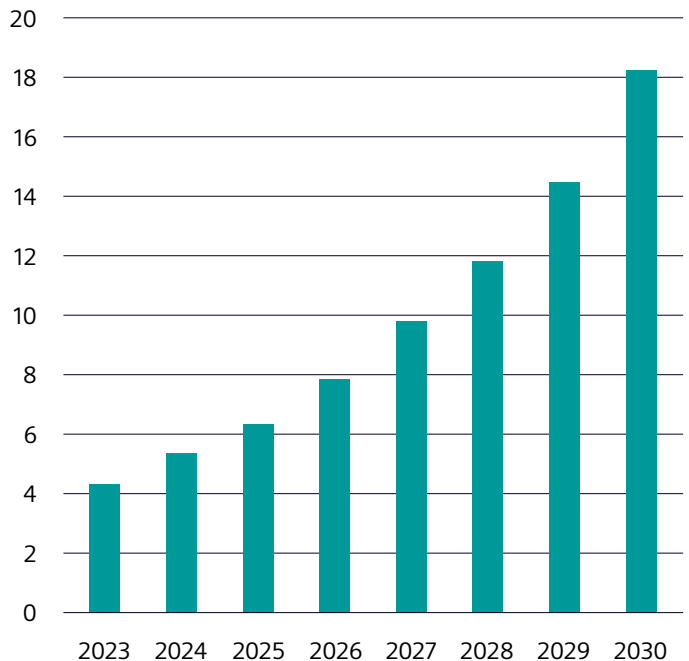
According to the BCA, Smart FM adoption rose from 85% (2023) to 93% (2024) for public buildings, and from 43% to 58% for private buildings, measured by gross floor area¹¹. Yet, these statistics should be treated with caution. They indicate where a meaningful start to Smart FM conversion has been made, but not the proportion of buildings that have reached full Smart FM maturity. In reality, that number is likely much smaller, possibly only around 10% of private sector buildings, though no definitive measurement yet exists. What is clear, however, is the scale of untapped potential. Predictions for Singapore's smart buildings market point to annual growth rates exceeding 20%¹², something only possible if most buildings are still far from full adoption.

For property owners, managers and investors, the message is clear: early maturity matters. Those who lead in Smart FM adoption are better positioned to drive stronger tenant demand, higher property values and market differentiation. Late adopters by contrast risk being seen as laggards, missing out on premium yields in an increasingly competitive commercial property landscape.

From an operational standpoint, the case is just as compelling. Building operators and managers are under pressure to do more with less, and Smart FM enables exactly that – reducing energy use, lowering operating costs and helping occupants work more efficiently. These benefits apply across all sectors, whether in commercial buildings, hospitals, universities, data centers or pharmaceuticals.

Smart buildings market – Singapore

SGD (billion dollar)



One of Singapore's first business parks is managed through a Building-Management-System-as-a-Service (BMSaaS) solution from Siemens. At its core is Desigo CC, Siemens' building management system, which is hosted on the cloud and connected to more than 100,000 building data points. Thanks to its open architecture and modular design, this scalable solution seamlessly integrates with a wide range of mechanical and electrical systems and devices – ensuring flexibility, interoperability, future readiness as well as enhanced cybersecurity and maintenance synergies.



Choosing a partner **to accelerate Smart FM adoption**

There clearly is an urgency to not only begin migrating to Smart FM standards, but to accelerate the journey. Portfolios need to be enhanced to maintain their competitive position and to maximize rental revenues. At the same time, for facilities and operations professionals, every day that passes without upgrading to Smart FM is more money and resources unnecessarily wasted through avoidable inefficiencies.

Any organization in Singapore, therefore, is keen to accelerate the transition to Smart FM. But who is the right technology partner to support that journey? To support owners, investors, and operators in their decision-making, we've outlined six key qualities to consider when selecting the right partner for a successful Smart FM transformation.

We call them the Six 'A' Grades:

#1	Advisory and audit
#2	Absolute transparency
#3	Application ecosystem
#4	Actionable insights
#5	Achievable promises
#6	Always-on security

A cooling plant in Singapore experienced high energy costs and an inability to dynamically adjust to demand flows and optimize energy consumption. Siemens provided a digital twin solution in the form of Building X Lifecycle Twin combined with Siemens Chiller Plant optimization controls. The solution's AI-based cooling optimization reduced energy consumption, improved uptime, reduced complexity and improved real-time transparency of plant condition and performance.



'A' Grade #1: **Advisory and audit**

Does your partner offer an objective appraisal of where you stand today with your brownfield retrofits? Do they audit your digital readiness and your cybersecurity status? The foundations for the digital journey towards autonomous buildings begin with ensuring that the physical environment is fully digitalized. This means establishing digital connectivity for physical assets and analog processes such as sensor data, asset location tracking, asset logs, maintenance records, access permissions, safety systems, and more. Without this baseline, investments in Smart FM risk falling short of their potential.

This connectivity also provides the essential planning data to make Smart FM upgrades both robust and cost effective. From a cybersecurity standpoint, organizations need to determine which components can be updated through firmware and which require full replacement. When selecting a partner, pay close attention to the scope of their advisory and audit services and ensure their assessments are thorough, practical, and actionable.

Siemens currently has over 50 connected buildings technology clients in Singapore, receiving remote, automated services through integrated OT/IT, cloud-based, building management solutions.

'A' Grade #2: **Absolute transparency**

In the journey towards autonomous systems that enable Smart FM, all aspects of building management systems need to be unified into a single data repository. IT and OT data need to flow into a single, unified platform – no fragmentation, no silos. It is this unified data lake that allows smart AI applications to deliver intelligent, automated building management.

The University of Wollongong, working toward sustainability goals, implemented Building X apps to manage sensitive equipment in a lab and observatory building with 14,000 components. The Siemens solution implemented Building X Energy Manager for consumption tracking, Operations Manager for building health monitoring and critical event response, and Lifecycle Twin for asset information management. The result was reduced energy consumption and enhanced visibility of assets. The centralized and remote building management approach reduced complexity and time needed searching for information¹³.

A strong partner should also demonstrate the ability to automate your sustainability reporting. Sustainability disclosure requirements are only going to increase, so manual reporting will become more costly and more error prone. Automated systems not only reduce the burden of compliance but also ensure accuracy and transparency as obligations expand.

Also, look for open architecture. Built-in interoperability is key to offering you the most cost-effective path to Smart FM by accommodating both legacy protocols and newer IoT data formats. Stakeholders should be able to view, monitor, and optimize building performance from anywhere.

Platform assessments should also consider scalability, whether a solution can scale robustly from one site to dozens or even hundreds. With facility teams already stretched as a result of skills shortages and increasing complexity of buildings technology, scalable system support is critical. It enables organizations to coordinate, inform and optimize the use of limited skilled personnel where they are needed most.

Serious partners for your Smart FM transition should offer a single source of truth through comprehensive cloud-based suites designed to break down the barriers between building controls and business applications. Every part of the system must communicate seamlessly, whether Integrated Workplace Management Systems (IWMS), Computer-aided Facilities Management Systems (CAFM), or Computerized Maintenance Management Systems (CMMS).



Building X seamlessly integrates through open protocols with new and existing building systems, giving full functionality for smart building management. Supported protocols include: BACnet/IP, BACnet SC, Modbus/IP, Modbus RTU, P2, File data, Niagara, KNX, KNX PL-Link, SNMP, OPC UA, LoRaWAN, Modbus, M-Bus, PROFINET, LON, LBP, Diematic and IEC. Once data is onboarded into the Building X platform, users can sort and clean it and then make it available to a wide variety of users and applications¹⁴.

'A' Grade #3: Application ecosystem

The ideal Smart FM partner will deliver on a scalable open platform approach.

For a start, interoperability is now a compliance expectation. In its Green Mark "Intelligence" section, BCA explicitly encourages FM data platforms to use open protocols and APIs. Similarly, BCA's Smart FM guidance frames this as integrating technologies, people, and processes as essential, and stresses that it only scales affordably if systems talk through open interfaces. IMDA's SS 695:2023 further reinforces this by standardizing IoT interoperability across estates, reinforcing vendor-neutral choices¹⁵. Open-by-design solutions also align with how both new and retrofitted buildings will be assessed by regulators. After all, open data flows reduce retrofit risk, accelerate deployment and are particularly important in Singapore's mixed-vendor and legacy-heavy building stock, where open platforms enable onboarding of both old and new subsystems, unify dashboards, and automate reporting.

As one example, Building X is designed as a modular, vendor-agnostic, API-rich platform under the Siemens Xcelerator umbrella. Xcelerator is Siemens' framework for best practice digitalization, combining robust governance protocols with a cybersecure, open standards approach. All solutions are

designed to be interoperable, built on best-in-class open protocols and APIs. Beyond technology, Xcelerator brings together Siemens' industry expertise and a curated ecosystem of partners to deliver holistic solutions to today's biggest challenges – such as decarbonization. This gives customers confidence that their digital investments are future-proof and capable of delivering on their promises using the best the market has to offer.

For example, Bember, a Building X ecosystem partner, provides data-driven tenant and operations tools to reduce building carbon footprints, demonstrating the power of partner apps enabled by open APIs. Additionally, within the Building X environment, Siemens Mendix low-code platform enables fast integration and extension of ecosystem partner portfolios, allowing FM teams to build bespoke workflows on top of open data layers.

The diagram below illustrates a range of Smart FM use cases enabled by Building X as a standard offering. With its open ecosystem, customers have the flexibility to expand beyond these examples to achieve wider operational business outcomes.

Building X is the digital backbone for autonomous, sustainable and profitable buildings. It unifies energy, operations, security and more on a cloud-based, open platform- delivering AI-driven insights with seamless integration.

Operations Manager

To monitor building performance and history, event management, web based BMS access

Energy Manager

Utility management reporting, energy consumption, budgets, and forecasting analytics

Lifecycle Twin

Operational BIM to manage and access data as a common data environment, asset management, document management, work order management

Environmental and Air Quality (EAQ)

Monitor and automatically detect environment and air quality patterns impacting comfort

Fire Manager

Site monitoring, compliance management, testing and condition-based maintenance



Comfort AI

Closed-loop optimization for room and zone-based air-side control

ChillOps

Chilled water plant health digital service, identifies inefficiencies and issues proactively

Data Visualizer

Data analytics and dynamic dashboards

Fault Detection and Diagnostics

Fault report management, condition monitoring, root cause analysis

Space and Workplace Management

Facility booking system, book rooms, user feedback on comfort, building information

Sustainability Manager

Understand your building's performance and track it against your sustainability and compliance targets

'A' Grade #4: **Actionable insights**



The largest real estate investment company in Greece – PRODEA Investments – with a portfolio of 345 buildings collaborates with Building X to fast-track their sustainability goals. Their forward-thinking strategy is key in boosting tenant retention and increasing operational efficiency across their diverse portfolio. This digital platform enables them to effectively monitor and optimize energy consumption, costs, and emissions, while ensuring compliance with the latest EU environmental regulations.

With a solid, unified data foundation in place, the next step is ensuring your partner can turn that data into actionable intelligence. Does their solution automatically flag maintenance needs or detect faults and failures via cloud dashboards? Can it identify unusual energy consumption patterns and enable remote investigation and resolution, right down to the room level? This is where Smart FM begins to deliver real value: better-managed buildings at lower cost.

For instance, a key component of the autonomous building is AI-driven Fault Detection and Diagnosis (FDD). FDD applies AI-powered rules and analytics to continuously compare live building data against expected system behavior. It automatically flags issues, and often their root causes, before they escalate into occupier complaints, equipment downtime, or unnecessary energy spend. In digital building platforms like Building X, many of these issues can be resolved remotely or semi-remotely. This is a good specific area to evaluate when assessing potential partners.

At a leading private hospital and medical center in Singapore, Siemens was engaged to address energy efficiency. The result was a 30% annual energy efficiency saving from the previous consumption benchmark including over SGD 400,000 energy reduction achieved using Siemens chilled water optimization technology.

'A' Grade #5: **Achievable promises**

The Jakarta Heart Center, an innovative hospital located in the heart of West Java, Indonesia, has forged a strategic partnership with Siemens to usher in a new era of intelligent healthcare solutions. The facility's automation system manages a total of 2,200 data points. Siemens supplies all field devices, ensuring optimal efficiency and seamless operation. With this solution, the hospital can rely on a very efficient and highly reliable HVAC system, guaranteeing an optimal environment for the patients.

The right partners have the confidence to make firm commitments and back them up in practice. A good partner will also support a modular, staged approach to Smart FM adoption because full conversion does not need to happen in one step. By prioritizing areas with the highest returns, whether cost savings, compliance, or competitive advantage, they help secure early results while building toward long-term success. This approach requires analyzing your buildings and portfolio from multiple angles. With the help of cross-system data visualization tools, stakeholders should be able to:

- Track real-time KPIs
- Drill into asset and equipment performance
- Optimize maintenance schedules with historical and live data
- Streamline planning through digital walk-throughs
- Generate insights via advanced analytics to extend uptime, utilization, and asset lifespan

Key to these capabilities is a digital platform with core embedded AI for future-proofing. For the AI to be effective, look for flexibility on data ontology and taxonomy to cover current and future data requirements.

At the Greenergy Data Center, a significant share of operational energy is consumed by cooling and thermal load management. To optimize this in a scalable, automated, and AI-driven manner, Siemens deployed its White Space Cooling Optimization (WSCO) system.

When demand rises, it reacts automatically and dynamically adjusts the number of units and the airflow to match the load requirements. Data center engineers oversee and manage the cooling infrastructure via Desigo CC, gaining full visibility and control.

In addition, the Power Manager extension to Desigo CC provides comprehensive monitoring of the data center's electrical infrastructure, with dashboards, trends, KPI monitoring, alerts, and historical data to support power distribution, load balancing, and energy performance optimization.





'A' Grade #6: **Always-on security**

No discussion of Smart FM is complete without addressing cybersecurity. Earlier, we noted the importance of assessing your current state to plan the right upgrade path. Equally critical is evaluating the cloud services a partner provides. Robust, secure cloud platforms, such as those Siemens has developed in cooperation with the Singapore Government, demonstrate that cloud connectivity can be secure when designed properly. Cloud-based systems are also essential for accessing the latest software, continuous monitoring, vulnerability protection, and advanced AI models that leverage big data.

The right partner will guide you through a staged, best-practice approach to achieving a cyber-secure building – treating Smart FM as both an OT and IT program, with requirements such as

- Procuring Cloud Security Alliance (CSA) recognized technology
- Ensuring platforms comply with ISO/IEC 27001, 27017/27018 (for cloud), and ISO 19650-5 (for security-minded BIM data flows)
- Applying secure-by-design methodologies
- Implementing zero-trust segmentation between OT and IT
- Enabling secure remote access and Privileged Access Management (PAM) for vendors
- Conducting continuous monitoring, software updates, vulnerability assessments, and regular penetration testing

Key takeaways



Smart FM marks a turning point for Singapore's built environment. Adoption is advancing, regulations are tightening, and the benefits are undeniable, but the journey is far from complete. Success will depend not only on technology, but also on selecting partners who can provide clarity, confidence, and the right eco-system for growth. The Six A-Grades offer a practical guide for making those choices.

With platforms like Building X as the technology layer for Smart FM, organizations can trust their systems to evolve with changing needs, whether in data accessibility, actionable insights, workflow management, condition-based maintenance, building optimization, or even readiness for robot-enabled facilities. Ultimately, Smart FM is not just about managing buildings more efficiently today, but about shaping a resilient, sustainable, and future-proof built environment for tomorrow.

Ready to map out your Smart FM journey?
Contact us for a free consultation:

Contact us

Explore what's possible with Building X.
Start your free 14-day trial today:

Learn more

Footnotes

- 1 https://www1.bca.gov.sg/docs/default-source/docs-corp-buildsg/facilities-management/guide_to_smart_fm_v2.pdf
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