iviva

case study

# Smart Integrated Facilities Management Platform for a Large-Scale Mixed-Use Development in Singapore

## Integrating 50,000+ Data Points Across a Mixed-Use Precinct

Our client is a large-scale, mixed-use commercial development comprising Grade A office towers and a retail mall environment.

As operational complexity increased across mechanical, electrical, fire, security, and tenant-facing systems, the client required a unified, future-ready Smart Building Management platform.

The objective was not simply system integration, it was to eliminate fragmentation, reduce vendor dependency, standardise data access, and create a scalable digital foundation that would protect long-term asset value.

iviva delivered a unified platform **integrating over 50,000 live I/O points**, **digitalising assets and spaces, enabling smart facilities management and predictive maintenance, supporting Green Mark Platinum reporting**, and **consolidating ELV systems into a centralised Common Data Environment**.

**The result:** improved operational visibility, reduced duplication of infrastructure, enhanced resilience, and a scalable platform capable of evolving with the lifecycle of the precinct.

**500,000+**
Square Feet of Integrated Floor Area

**50,000+**
Live Data Points Integrated

**15**
Major ELV Subsystems Unified

**3**
Office Buildings and 1 Major Retail Mall

**Green Mark**
Platinum Reporting Enabled

THE CHALLENGE

## Fragmented Systems Undermining Operational Visibility and Performance

The precinct operates across multiple buildings and a retail mall environment, encompassing:

**Office Towers** with high occupant density

**Complex Infrastructure** spanning mechanical and electrical systems

**Security, Access Control,** and people flow management

**Retail and F&B** environments

**The business-level challenges were clear:**

**Fragmented Systems and Vendor Lock-In**
Multiple ELV systems operated independently, often through proprietary platforms. This increased integration costs, limited interoperability, and created long-term dependency on single vendors.

**Operational Inefficiency and Duplication**
Graphics, trending, reporting, scheduling, and alarm management were duplicated across systems. Because they operated in silos without integrations or connected workflows, these systems could not be aligned into one unified operational process. The precinct needed a single connected system where data, systems, people, and processes worked together seamlessly.

**Limited Standardisation of Data**
Access to real-time data, historical trends, alarms, and schedules varied by subsystem, creating inconsistency and operational blind spots.

**Sustainability and Compliance Pressure**
Achieving and sustaining Green Mark Platinum certification demanded reliable, auditable performance data across utilities and building systems, supported by comprehensive analytics to measure performance against benchmarks and guide informed decision-making.

The client needed more than a building management system. They required a unified digital backbone capable of scaling across assets and over time.

THE SOLUTION

## A Unified, Open, and Scalable Digital Platform

iviva implemented a centralised Smart Facilities Management platform to unify and standardise operations across the precinct, consolidating all ELV services into a single, consistent user environment that significantly enhanced operator efficiency and situational awareness while future-proofing performance.

## 1. Open / Propietary Protocol Integration at Scale

The platform integrated all major subsystems using industry-standard open / proprietary protocols, including:

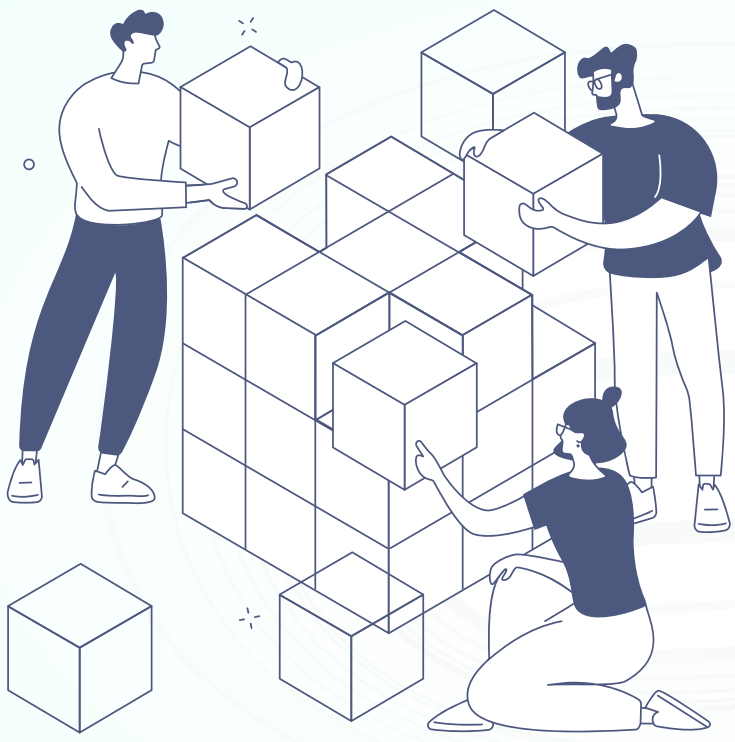
- **Mechanical ventilation systems**
- **Electrical and lighting systems**
- **Water distribution and pumping systems**
- **CCTV and access control**
- **People counting systems**
- **Fire safety systems**
- **Car park management**
- **Lifts**
- **AC systems (Chillers, AHUs, FCUs, VAVs, cooling towers)**

This reduced integration costs and eliminated dependency on proprietary architectures.

## 2. Digitalisation of Physical Assets

Assets, infrastructure services, spaces, users, and locations were digitally structured within the platform, creating a true Common Data Environment.

This not only standardised monitoring and analysis but also transformed systems, people, and processes, providing a consistent framework for long-term asset and operational lifecycle management.



THE SOLUTION

## 3. Standardised Data Accessibility

The system provided a unified method to access:

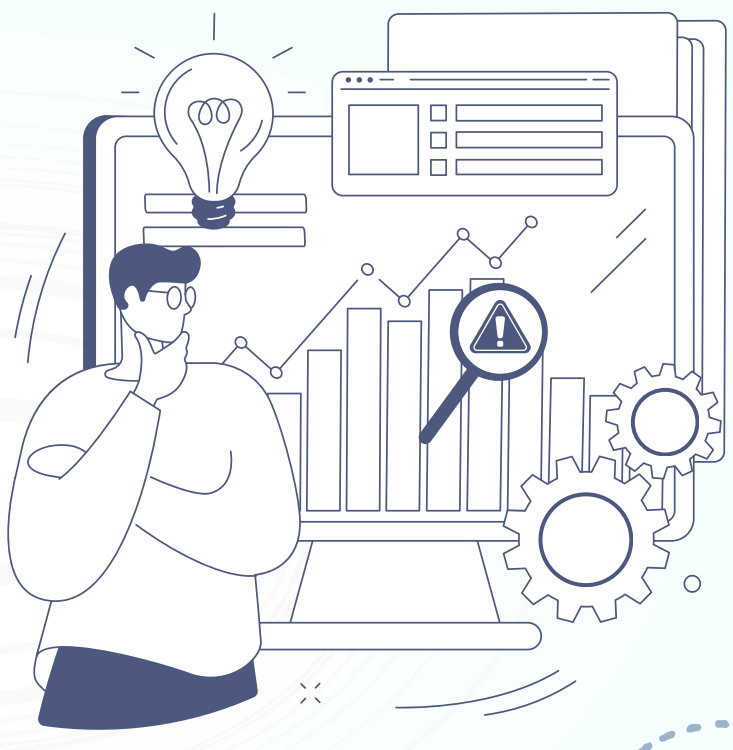
- Real-time operational data
- Historical data
- Alarms and alerts
- Trends and schedules

Secure web services enabled standardised data access from any integrated subsystem.

## 4. Fault Detection & Diagnostics (FDD)

Advanced analytics were deployed to:

- Detect abnormalities early
- Cross-verify system behaviour
- Improve operational reliability
- Enhance resilience
- Reduce unplanned downtime



## 5. Predictive Maintenance

Machine learning and data analytics shifted operations from reactive and preventive models to predictive maintenance:

- Identifying early signs of equipment degradation
- Preventing unexpected failures
- Optimising maintenance activities
- Reducing operational costs

## 6. Utility Monitoring & Sustainability Reporting

Comprehensive monitoring of electricity, water, gas, chilled water, and other utilities enabled:

- Energy performance benchmarking
- Cost allocation
- Energy optimisation
- Automated reporting for Green Mark Platinum compliance

The platform transformed sustainability from a reporting exercise into a measurable operational strategy.

# MEASURABLE IMPACT

The transformation delivered measurable operational and strategic outcomes:

- Lowered maintenance costs through predictive strategies
- Streamlined Green Mark Platinum reporting
- Improved response times to system faults through Fault Detection and Diagnostics
- Consolidated graphics, trending, alarm management, and reporting
- Reduced duplication of IT infrastructure and software licensing
- Improved energy visibility and optimisation
- Reduced unplanned downtime

Operationally, the precinct transitioned from siloed system management to centralised, data-driven decision-making, reducing operational costs and improving efficiency. Strategically, the development now operates on an open, scalable platform capable of integrating new technologies and workflows without structural redesign.

The precinct is now positioned as a digitally unified commercial precinct with:

**Vendor-independent Architecture**

**Reduced Long-Term Integration Risk**

**Standardised Data Governance**

**Scalable Digital infrastructure**

**Enhanced ESG Reporting Readiness**

**Improved Occupant Comfort & Service Quality**

The implementation protects long-term capital investment by ensuring the platform can evolve alongside regulatory changes, tenant expectations, and operational requirements. Instead of managing systems, the precinct now manages intelligence.

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