



NATIONAL
UNIVERSITY OF
SINGAPORE

INTEGRATED SMART FACILITIES MANAGEMENT

Singapore's First University-
Based Integrated Operations
Centre

170 HECTARES, 3 CAMPUSES ONE INTEGRATED PLATFORM

Across the world, estates are held back by fragmented legacy systems, reactive maintenance and disconnected teams. Security operates in one silo. Facilities in another. Sustainability targets are pursued without the data to track them.

At SJ Group, we take a different approach.

Through our purpose-built Integrated operations centres or IOCs, powered by our proprietary digital platform, we break down these silos. We bring security, incident and emergency response, facility energy efficiency tracking, traffic management and community feedback workflows together into one platform, one dashboard, one source of truth.

The Challenge

Before the IOC, National University of Singapore (NUS) faced the same fragmentation that plagues many large estates. Security, facilities, emergency response, and transport management each operated on separate systems. Incident reporting was manual.

Maintenance was reactive. Data was siloed.

The university spans 170 hectares across Kent Ridge, University Town and Bukit Timah campuses, serving a community of over 64,000 students, faculty and staff. Managing operations across this scale with disconnected systems was inefficient and resource-intensive.

NUS needed a unified approach to create a safer, smarter and more sustainable campus experience for its community.



OUR SOLUTION

We partnered with NUS to create Singapore's first university-based Integrated Operations Centre.

Operational since early 2025, the IOC centralises oversight across six key domains: security, emergency response, facilities, transport, housing and sustainability.

At its heart is a cutting-edge digital twin of the NUS campus: an interactive 3D model layered with live feeds from CCTV cameras, IoT sensors and building management systems. This allows operators to visualise the entire campus, conduct virtual patrols and respond to incidents in real time.

This is supported by a dynamic, integrated dashboard that consolidates alerts from multiple systems, enabling operators to detect anomalies, coordinate responses and streamline workflows.

What We Unified:

Integration Dimension	Scope
Functions	Security, emergency response, facilities management, transport, housing and sustainability
Physical Scale	170 hectares across Kent Ridge, University Town and Bukit Timah campuses
Data Scale	24,000 data points and 10,000 analytics points
Sub-Systems Integrated	Lifts, fire protection, building management, CCTV, air conditioning, utilities and people movement sensors
API Connectors	Over 150

THE RESULTS

+45%

IMPROVEMENT

Urgent fault response times

+57%

IMPROVEMENT

Non-urgent fault response times

-50%

REDUCTION

Emergency dispatch times

+40%

INCREASE

Operator productivity

UNIFIED COMMAND

A single operations team now monitors and manages the entire campus from one centre. Operators can detect incidents ranging from an isolated fire alarm to a chiller plant fault within 20 seconds, and designed to trigger a work order to respond to these incidents.

ENHANCED SAFETY

The IOC has the capacity for up to 6,000 live CCTV feeds with randomised view toggling and virtual patrolling through simulated prowling routes. This reduces the need for physical patrolling, enhancing labour productivity and reducing operational carbon footprint.

SUSTAINABILITY

Real-time alerts are triggered when utility consumption exceeds baseline thresholds by 40 per cent, allowing for timely corrective action. Over time, these alerts are linked to automated responses built into standard operating procedures.

A Platform for the Future

The NUS IOC is open and scalable. It was designed to allow for the expansion of more use cases over time, meeting the changing business needs.

Planned enhancements include:

- Real-time mobility dashboards to optimise internal shuttle bus operations
- Enhanced sustainability reporting aligned with NUS environmental targets
- Smart city technologies such as Wi-Fi-based crowd sensing

OUR METHODOLOGY

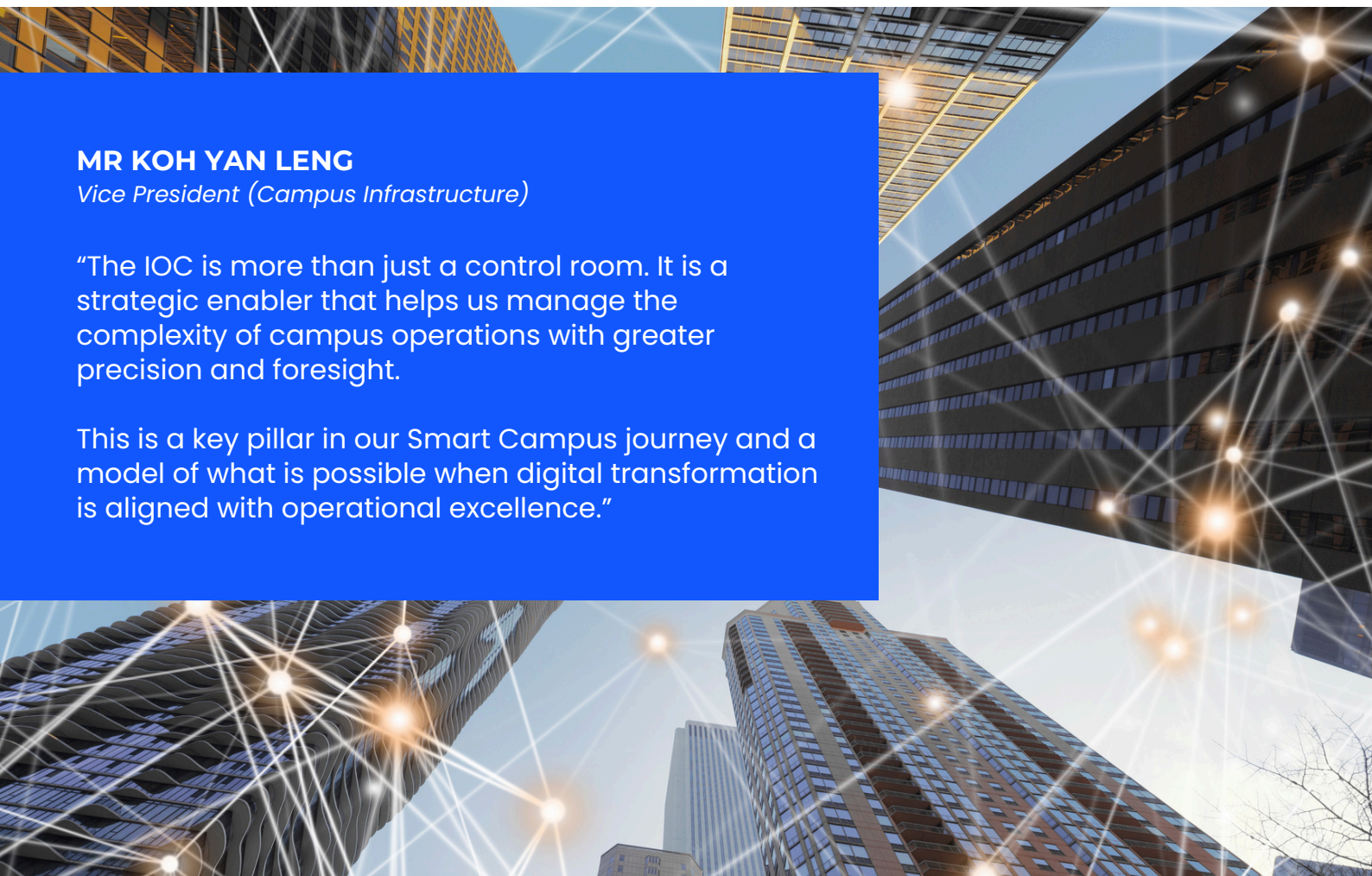
Capability	How We Delivered It
Unified Digital Platform	Our digital platform aggregated data from eight sub-systems through over 150 API connectors, creating a single source of truth.
From Reactive to Predictive	Condition-based monitoring established data-backed thresholds that trigger alerts before equipment fails.
Automated Workflows	Integration between CMMS and the IOC platform enables automatic fault ticket creation the moment an asset reading falls below threshold.
Virtual Intelligence	Capacity for over 6,000 live CCTV feeds with virtual patrolling reduced physical patrol requirements and improved response times.

MR KOH YAN LENG

Vice President (Campus Infrastructure)

“The IOC is more than just a control room. It is a strategic enabler that helps us manage the complexity of campus operations with greater precision and foresight.

This is a key pillar in our Smart Campus journey and a model of what is possible when digital transformation is aligned with operational excellence.”



SCALABILITY BEYOND CAMPUSES

Our solution is highly scalable. The possibilities are shaped by your unique context, and we begin by understanding your specific needs. Together, we can reimagine what seamless operational harmony looks like for your built environment.



RESIDENTIAL TOWNSHIPS

We unify security, utilities, mobility and community services into a single operations centre.

AIRPORTS

We integrate baggage handling, security, environmental systems and passenger flow for seamless operations.



RETAIL MALLS

We connect building management, occupancy sensors, tenancy management and security to optimise energy and user experience.

MIXED-USE COMMERCIAL

We unify offices, retail, hospitality and residential under one integrated platform.



CITY-LEVEL MANAGEMENT

We scale our IOC model to precincts, townships and entire cities for unified urban operations.

Let Us Build Smarter, Together

Unifying Intelligence

Integration is not just about connecting systems.

We design, build and operate integrated smart facilities management solutions that break down silos, automate workflows and turn data into decisions. At National University of Singapore, we have proven that this approach delivers:

- Real-time fault identification and prediction
- Measurable energy and carbon reduction
- Operational efficiency gains
- Workforce development opportunities



Our integrated approach scales across any estate – from campuses and airports to townships and precincts.

CONNECT DIRECTLY WITH OUR DIGITAL TECHNOLOGY AND FACILITIES MANAGEMENT LEADS:

Say Leng TEO
Executive Director, Digital Technology
sayleng.teo@surbanajurong.com

Chee Meng ANG
Senior Director,
Facilities Management + Asset Management
cheemeng.ang@surbanajurong.com



Visit our page to read more.