

# How to move from a reactive to a dynamic, smart and connected building management system using existing infrastructure?

*Mindtree's Gladius Connected Buildings was used to integrate the clients existing systems on an IoT platform to digitally transform their facility management systems*

*One of UAE's largest real estate company is known for its focus on tenant happiness. It has a wide variety of buildings, ranging from high end malls, offices, villas and residential complexes. It wanted to leap-frog from a system that was reactive and hinged on a day-to-day management or incident-based firefighting to a more dynamic building management system that was predictive and responsive.*

## Project Snap Shot

### Customer Need Redefined

A more responsive system to help serve tenants better while optimizing energy costs and increasing life of the assets

### Mindtree Approach

A digital IoT platform that integrates the existing OT and IT systems which is capable of taking intelligent, automated decisions using analytics

### Results

Innovations to enhance user comfort proactively while, enhancing energy efficiency 18% month on month.

## Understanding the customers needs by studying the current infrastructure

The three buildings chosen for the project, one was commercial complex, the second was a high-end mall and the third a residential complex. Each building had multiple heterogeneous systems made by different manufacturers, and were operating as individual islands with little automation, no centralization, or analytics.



### Energy Efficiency and Resource Efficiency

**Energy Efficiency:** Each of the buildings had a number of chillers, FAHU and pumps which that formed a large component of facility management bills. There was no methodology to understand the causes fluctuating energy bills.

**Water management:** Water consumption analysis and leakage detection was an area they wanted to improve.



### Asset Management and Maintenance

The Company followed a fixed schedule and reactive asset management causing costly downtime and lowering user comforts.



### Manual interventions

Human Interventions were necessary for asset operations making process slow and prone to human errors.



### Information Islands without Analytics

Real time data and insights were restricted to control rooms. The senior staff could not access data on a real time basis and depended on the ground staff to report problems and provide data.

## Customer Need Redefined - Envisioning Dynamic Smart Building Management Goals

The customer and Mindtree wanted building management goals to be dynamic and capable of constant improvement. The platform was implemented to enable

- Make informed decisions and take timely action through centralization, automation and analytics.
- Drive Energy Efficiency by automation and monitor device health and equipment level energy consumption.
- Proactive asset management through intelligent and automated systems.
- Process automation that integrated OT and IT systems. Raising tickets and ticket management using client's enterprise systems.
- Provide tenant comfort and well-being by innovation of services.

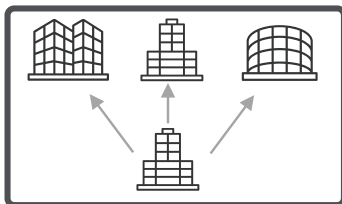
### Mindtree Approach - Gladius Connected Building- A Smart Layer For Your Existing Infrastructure Within Buildings And Across Buildings

Mindtree studied the existing infrastructure in its entirety and several initiatives were planned. The journey of digital transformation began by integrating OT, IT and IoT systems. We installed energy meters at the asset level to understand the energy consumption. Subsequently, we set intelligent rules based on ambient conditions and occupancy level on assets like chillers and AHU to help us deliver energy efficiency.

As a part of Digital transformation, facilities are equipped with video analytics and IoT enabled analytics that helps you enhance user comfort and safety.

Ticket generation is automatic and depending on the nature of the alert, can be accessible on multiple hand held devices or digital console

#### Facility infrastructure before GCB Implementation



##### Multiple Systems

No central control, Manual operations, Intuitive decisions



##### Asset Health

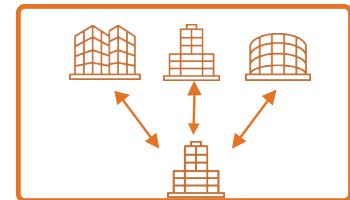
Reactive maintenance, Possibility of asset break down



##### Energy Efficiency

Unpredictable energy bills, Always on Assets?

#### Facility infrastructure after GCB Implementation



##### Centralized

IT and OT integration, Generate automatic tickets



##### Intelligent

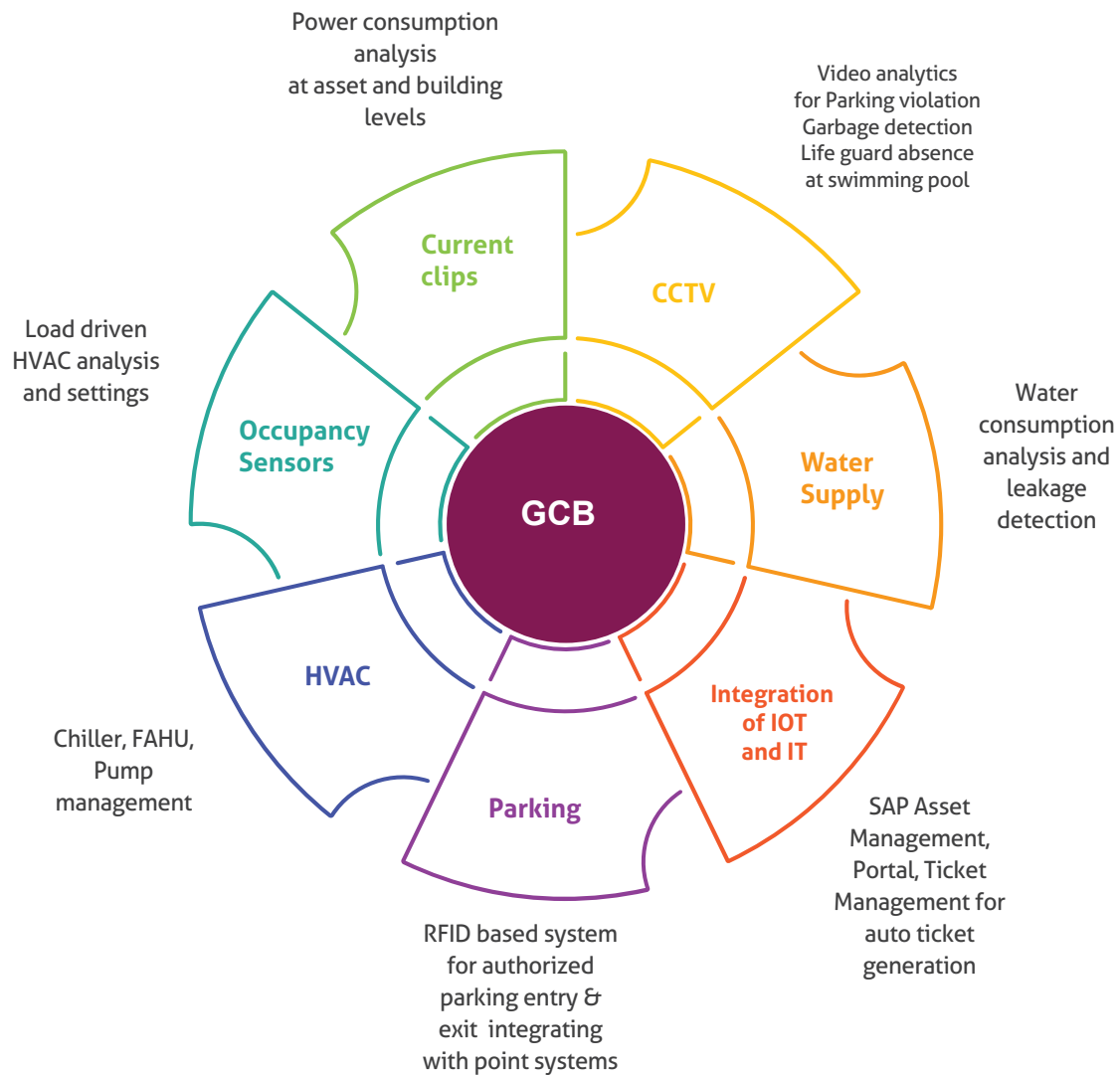
Complex rules to control assets, Set receive and act on alerts



##### Automated

Turn On - Off equipment or have granular schedules

## Delivering a world of benefits using GCB



### Implementation highlights

**Centralization and Integration:** GCB centralized and integrated the entire system of IT, OT and IoT systems, within buildings and across buildings into one single console. Now, the senior management can get access to real time and are able to take data driven decisions.





**Enhanced energy efficiency:** A combination of energy saving strategies (such as consistent monitoring), automation coupled with intelligent HVAC controls increased the energy efficiency by as much as 18% month-on-month.

**Enhanced Asset life and operational efficiency:** Set point management, auto alerts when in manual mode of operation, automatic ticket generation through mobile apps or email have made facility management more proactive. The customer, has now over 265 rules configured across 4500 sensors. These rules are executed over 2500 times a day, and on an average, perform over 300 actuations to impact operational efficiency and enhance asset life.

**Innovation using video analytics and IoT analytics:** Apart from analytics on trends based on historical records, GCB has provided the ability to carry out video and IoT-based analytics on video surveillance feeds now has several innovative features to drive tenant safety and comfort, such as life guard missing alerts in swimming pools, detection of garbage or parking violation.

## Results

GCB enhanced the existing infrastructure of to impact the below building management goals

Results	GCB, delivering results through	GCB, performs the following actions
<p><b>Energy Efficiency</b> at an equipment level up by 18% month-on-month.</p> 	<ul style="list-style-type: none"> <li>▪ Device health monitoring</li> <li>▪ Intelligent and Automated HVAC controls with dynamic set points for ambient conditions, and occupancy level</li> <li>▪ Equipment level consumption monitoring</li> </ul>	<ul style="list-style-type: none"> <li>▪ Switch on/ off periodically</li> <li>▪ Vary intensity levels of the system, depending on its stability</li> <li>▪ Set granular schedules</li> </ul>
<p><b>Proactive asset management</b></p> 	<ul style="list-style-type: none"> <li>▪ Intelligent and automated systems capable of setting complex rules, and controls</li> <li>▪ Asset and sensor level monitoring</li> </ul>	<ul style="list-style-type: none"> <li>▪ Automated alarms and service ticket generation in client's SAP ticket management system</li> <li>▪ Real time alarms and alerts in terms of sensor or asset faults</li> </ul>
<p><b>Make informed decisions and take timely actions</b></p> 	<ul style="list-style-type: none"> <li>▪ Central contextual dashboards and mobile</li> <li>▪ IoT based Analytics</li> </ul>	<ul style="list-style-type: none"> <li>▪ Collect and collate data on a real time basis which is compared with historical data to track efficiency of energy or asset functioning</li> <li>▪ Real time alarms and alerts in terms of energy consumption.</li> </ul>
<p><b>Innovation of services to provide tenant and user comfort</b></p> 	<ul style="list-style-type: none"> <li>▪ RFID-enabled entry and exit for cars of the tenant, thus keeping intruders away</li> <li>▪ Video analytics to enhance safety and security</li> </ul>	<ul style="list-style-type: none"> <li>▪ Capture video surveillance feeds and apply IoT analytics to provide intelligent automation</li> <li>▪ Mobile apps enabled quicker turn around times</li> </ul>

### Please contact us to know more

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