



**CLEANING OPERATIONS  
AT MNC 1, SINGAPORE**

Image source: <https://www.freepik.com/free-photos-vectors/business> Business photo created by evening\_tao - www.freepik.com

A photograph of a modern, clean restroom. In the foreground, a white smart toilet with a wooden cabinet is visible. To the left, a row of white urinals is mounted on a dark, speckled wall. The ceiling features a large, curved white light fixture and several small recessed lights. The overall atmosphere is bright and contemporary.

## Abstract

In October 2019, SmartClean was engaged by this company to implement the SmartToilet+ Solution .

The report discusses how the key metrics of Workforce Productivity, Resource Management, and User Experience were redefined at the premises through the adoption of a *predictive and on-demand* cleaning approach.

Image source: <https://www.freepik.com/free-photos-vectors/water> photo created by 4045 - www.freepik.com

## Introduction

This MNC has a Singapore based office complex located in the Jurong Lake District. It is a 32-storied facility, with a total area of 447,778 sq. ft. of office space. The scope was to introduce SmartToilet+ at the facility.

This facility has 72 toilets and a cleaning force of 12 cleaners deployed across the property. On an average, the Cleaners performed 216 spot checks in a ten-hour shift. As a result of following a *Scheduled Cleaning* approach, the cleaning staff spent around 36 hours everyday on spot-checking alone.

In October 2019, they began the transition from *Scheduled* to *On-Demand & Need-Based* cleaning for their facility.

This transition involved the installation of SmartClean's proprietary solution, SmartToilet+, as a part of the roll-out .

SmartClean's customer success team worked along with Summit's facility management team to understand the operations better and worked together to find improvement areas. Based on the existing operations and the data collected over a period of 4 months, the team developed a phase-wise implementation plan to transform the cleaning operations to focus on higher productivity and improved customer experience.

**They made a transition from Scheduled & Proactive Cleaning to On-Demand & Need-Based Cleaning**

Key Challenge 1

Unbalanced Distribution of Manpower

This facility had 12 cleaners assigned across the premises based on number of washrooms and not on basis of the actual usage of the washrooms.

While establishing a **base case scenario**, SmartClean’s team divided them into **4 zones**. This was done to understand the usage of washrooms across each zone in order to optimize manpower later.

Solution 1

Redeployment of Manpower

After the analysis of the base-case, it was seen that **Zone 3 & Zone 4 contributed to most of the alerts** generated – thus, needed more attention.

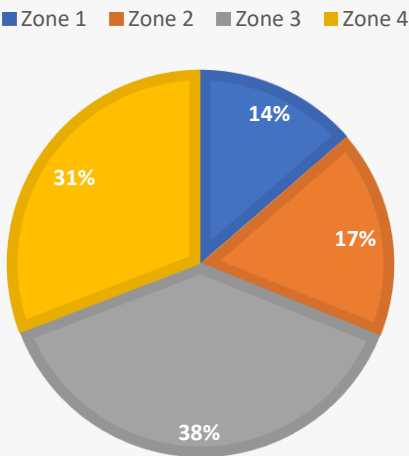
Whereas, **Zone 1 & 2** were identified as zones where **lesser attention was needed**.

Basis the above observation, redeployment of cleaners was done and there was **room for optimization of workforce**

REZONING

Zone 1	B1 – B3, L2 – L4
Zone 2	Business Centre (L1)
Zone 3	L5 – L24
Zone 4	L25 – L31

% OF ALERTS



Zone-wise analysis of alerts helped identify locations where workforce could be optimized

Key Challenge 2

Large amount of time was being spent on spot-checking

Due to the scheduled nature of operations **36 hours** a day were spent by the cleaning staff on **spot-checks**

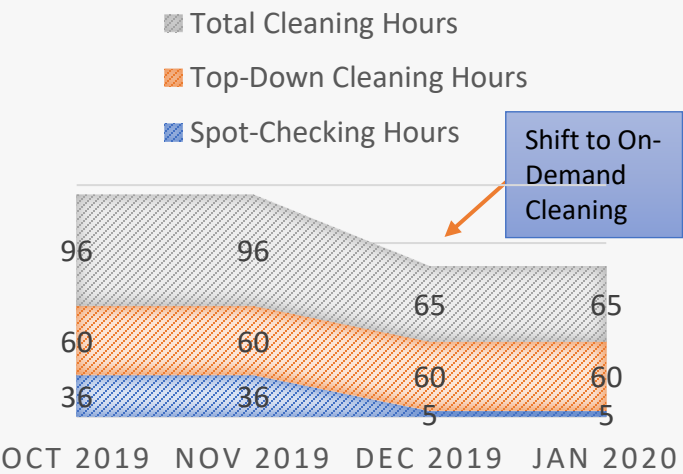
Due to the large number of hours being spent on spot-checking, quality of overall cleaning was getting impacted and there was a redundancy in terms of the no. of cleaners deployed across zones.

Solution 2

100% shift to On-demand cleaning

Moving from scheduled to *on-demand* cleaning from **mid-December**, the number of spot-checks **reduced substantially to around 60 per day**. This resulted in a reduction of the amount of time spent on **cleaning from 96 hours to 65 hours daily** – **Leading to an optimization of workforce from 12 to 8.**

	Scheduled Cleaning	On-Demand Cleaning
Time Spent on Spot-Checks	36 Hours	5 Hours
Time Spent on Top-Down Cleaning	60 Hours	60 Hours
Total Time Spent by Cleaners	96 Hours	65 Hours



**30% decrease in total cleaning time which led to reduction of workforce from 12 to 8**



### Key Challenge 3

#### Negative user experience

Before the installation of SmartClean+, issues in the toilet were identified only during spot checks. Moreover, user complaints and feedback were neither captured nor addressed proactively –resulting in **Poor user experience**

During the base-case analysis it was also found that the user experience before the transition to Predictive cleaning and the training of the cleaning staff, the user experience was largely negative

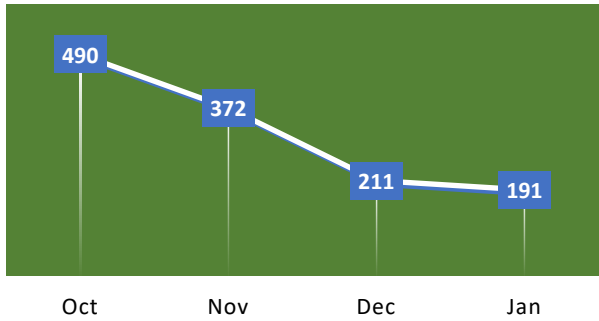
### Solution 3

#### Predictive Cleaning & Improved User Experience

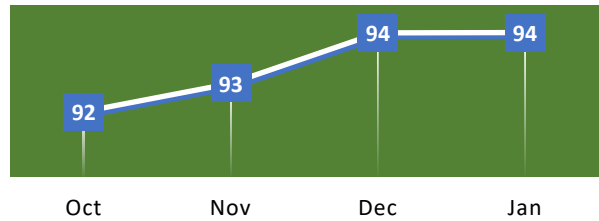
As a result of transitioning to the SmartToilet+ solution, the hygiene levels at the toilets improved. A testament to the improvement in quality is reflected by the following metrics:

	Oct	Nov	Dec	Jan
Bad Feedback	490	372	211	191
Good Feedback as % of Total Feedback	92	93	94	94
Resolution Rate (in %)	74.9	85	92.5	94.6

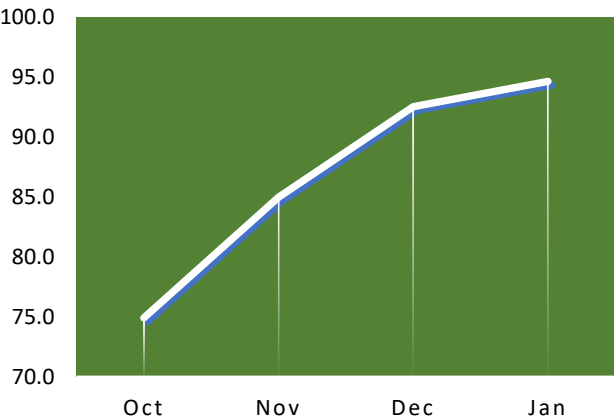
#### BAD FEEDBACK



#### GOOD FEEDBACK AS % OF TOTAL FEEDBACK



#### RESOLUTION RATE (IN %)



The complete transition to On-Demand Cleaning led to a significant improvement in user experience

## Conclusion

SmartClean, through its SmartToilet+ solution transformed the cleaning operations at MNC 1 at Singapore, using a data driven approach in a systematic and phased manner.

In the initial two months, post the implementation of the SmartToilet+ infrastructure, a base-case analysis of the cleaning operations at the facility was done to identify the key challenges and areas of improvement.

SmartClean and the Facility Management Team there worked together to train the cleaning workforce at the site to transition to SmartClean’s methodology of On-Demand cleaning. As a result, following were the key outcomes:

1	Over 30% increase in manpower savings
2	Resolution rate of complaints increased from 75% to 95%
3	60% Reduction in negative user feedback



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personal spaces  
to shared spaces

SmartClean is an end-to-end IoT & AI based solution, bringing intelligence to facilities with connected sensors and intelligent algorithms, enabling data-driven cleaning operations for increased productivity and improved service quality.



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Singapore, India,  
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