

Problem Statement/Title: Data-driven Environmental Services Operations

Desired Outcomes:

A user friendly, modular data collation platform with built-in analytics capability to provide premises owners and its service providers real-time situational awareness and proactive management of the environmental services (ES) performed in the property.

Background of Problem:

Currently, Capitaland's business partners in the cleaning services use various technologies platform or system, and there are challenges to consolidate all the systems into a single platform for monitoring of performances and continuous workflow analysis, identifying room for improving productivity or improving ways to address issues. Capitaland envisage that in the near future, an intelligent platform will be made available to help the service providers (SPs) to work smarter and more productively so that it will also benefit the service buyers (SBs) to contain labour cost, ensure that the best cleaning standards are met and improve transparency through data ownership to aid the crafting of future requirements or improvement.

Technical Requirements:

1. To develop a single platform capable of harmonising data gathered and transmitted from different formats of existing and new robotics and digital technologies deployed.
2. To develop a user-friendly visualisation interface allowing users a real-time overview of the ES solutions deployed
3. To develop platform analytics capability to facilitate the following tasks:
 - a. Identify gaps in existing cleaning routine and suggest areas of improvement
 - b. Auto deploy suitable cleaning resources (robots/manpower) to perform ad-hoc cleaning needs (e.g. spillages, clearing of filled bins, etc)
 - c. Optimise needs-based deployment of manpower resources to maintain high level of service delivery
 - d. Reduce ad-hoc cleaning response time
 - e. Automate cleaning performance reporting, analytics on the variance between cost of service vs tender price
 - f. Automate collation of data (e.g. waste generation data, etc)
 - g. Contract administration
4. To auto-compute a performance index based on the various data received such as response time, feedback and task completed, etc against the threshold. The performance index report shall be of auditable quality.
5. The solution provided should be easy-to-use and elderly-friendly with relevant training provided to facilitate the users' adoption.
6. Compatibility of solution to harmonise with other building management platforms to facilitate a higher level of integration to Facilities Management (FM) platform.
7. At the end of the project, proposal needs to demonstrate that the overall cleaning cost can be contained versus the performance achieved with the implementation of the platform.
8. The platform must be able to monitor other environmental system such as general waste, recycling including food waste recycling data, or even pest control activities, to enable KPI setting.

Timeframe for development of proposed solution/product

12-15 months

Requirements of prototype

The prototype will need to ensure:

1. a reliable platform with at least 95% availability
2. instantaneous (*less than 2 sec*) toggling between data visualisations
3. 90% time reduction in responding to ad-hoc cleaning tasks (*task completion/response time - task creation time*)
4. 90% time reduction in supervising staff's need to perform day-to-day routine activities (*e.g. compilation of cleaning reports, workforce scheduling, etc*)
5. data driven inventory and consumables management
6. automated workforce management (*e.g. attendance, month to month payroll calculations, etc*)