

Questions & Answers for the Request for Proposal on the Smart & Easy-to-Clean Toilet

Q&A Panel

City Developments Limited (City Square Mall)	Mr Johnny Teng (Operations Manager)
Changi Airport Group	Mr Kenneth Ho (Senior Manager)
Marina Bay Sands	Mr Wong Kim Sung (Director for Public Area Department)
The Esplanade	Mr Kenny Yap (Chief Engineer)
NEA	Mr Kwok Wai Choong, (Deputy Director, Cluster Development, Industry Development & Promotion Office)
NEA	Mr Charles Wee, (Assistant Director, Cluster Development, Industry Development & Promotion Office)

1) What are the key features each premises are looking for in the proposal for a Smart & Easy-to-Clean Toilet?

Panel	Answer
Charles (NEA)	NEA welcomes all innovative concepts and ideas that could change user behaviour and encourage them to use toilets in a more hygienic way.
Kenneth Ho (CAG)	As the toilets in Terminal 4 are relatively new, CAG is not keen to tear down existing toilet infrastructure. Instead, they would like to adopt smart concept toilets that could reduce their reliance on manpower. Currently, Changi Airport hires more than 1200 cleaners to support T1 to T4. The size of the future T5 will be one million square metre, which would be similar to the size of the 4 existing terminals combined. It would not be feasible for CAG to hire the same amount of manpower (i.e. 1200 cleaners) for T5. Hence, it is important to adopt technology to make work more efficient, and to reduce the need to hire more cleaners.
Johnny Teng (CDL)	City Square Mall (CSM) experiences high human traffic daily particularly at L1 to B2. While they have ongoing test-bedding on some items (e.g. anti-odour tiles, traffic count devices and ammonia sensors), they are interested to implement new ideas on a wider scale. They would like to reduce reliance on manpower by moving away from traditional method of cleaning and monitoring. They would also like to adopt technology to reduce usage of water and toilet consumables. They would be opened to major overhaul of the infrastructure, such as changing of floor tiles and reconfiguring of toilet cubicles. Their test sites would be at toilets at Level B1 and B2 of CSM.
Kenny Yap (Esplanade)	The toilets in Esplanade are heavily utilised and it is a challenge to keep the toilets clean at all times. Esplanade is interested in innovative concepts that can make cleaning and maintenance of toilets easier and faster. They are keen to explore anti-odour floor tiles that are easy to wash and maintain.
Wong Kim Sung (MBS)	MBS would like to uplift the public image of their cleaners. By introducing smart technology such as the alert system to inform cleaners of the need to refill consumables, MBS hopes cleaners can move away from traditional way of cleaning and maintenance (e.g. hourly checks of consumables stocks) to a more efficient method.

2) Is wireless network provided at the test-bedding sites, or are suppliers expected to provide their own network?

Panel	Answer
Kenneth Ho (CAG)	CAG is currently performing test-bedding trials via the NB-IoT technology. Changi Airport is well covered with the NB-IoT network and other network connectivity from several telecoms providers.
Johnny Teng (CDL)	The City Square Mall is already Wireless@SG enabled. CSM also has wireless networks which could create separate SSID for link up to dedicated equipment.
Kenny Yap (Esplanade)	There is WIFI connectivity in Esplanade. Any request to connect to our network need to submit their proposal for our approval.
Wong Kim Sung (MBS)	There is wireless network in most MBS public area. Suppliers are not expected to provide their own network.

3) Is it possible that INCUBATE partners combine two or more proposals submitted by different companies, to create a partnership?

Panel	Answer
Charles (NEA)	Although this is not preferred, INCUBATE partners could assess the possibility to combine two or more proposals if this could better fulfil their requirement. For all the proposals submitted, NEA and the Restroom Association of Singapore (RAS) will provide inputs and recommendations. The partners will make the final decision on the proposals.
Kenneth Ho (CAG)	CAG is open to combine two or more proposals provided that one of them becomes the project lead.
Johnny Teng (CDL)	CDL prefers to work with one proposer for the implementation. However, if it is not possible for one proposer to have all the items and technologies, then CDL is prepared to work with the few main proposers to ensure the full benefits of the various proposals.
Kenny Yap (Esplanade)	Esplanade prefers to work with one proposer.
Wong Kim Sung (MBS)	MBS will select proposals/ideas which are suitable and work with vendors separately as it will be very complicated to combine proposals from various vendors in one agreement.

4) What is the budget and funding available by the INCUBATE partners to pay for the implementation?

Panel	Answer
Charles (NEA)	Every INCUBATE partners have different budgets available for these projects. NEA will recommend available grant schemes to each partner for support of these projects. As this is a good opportunity for technology provider to build their track records, companies are advised to price the proof of concept reasonably.

5) Are the INCUBATE partners open to physical modification of existing facilities of the toilets?

Panel	Answer
Wai Choong (NEA)	The toilets in Changi Airport Terminal 4 are relatively new. They are not keen to tear down existing toilet infrastructure but are looking at introducing smart technology systems and features. On the other hand, City Square Mall are open to physical modifications to their internal sanitary fittings as they would be undergoing a full renovation.
Kenny Yap (Esplanade)	Esplanade is open to physical modification but they would need to see the proposal and how it will impact them in their day-to-day operations.
Wong Kim Sung (MBS)	MBS is not open to physical modifications of our toilets at this moment as most of their toilets are still new.

6) Singapore is already well-known for their efficiency and clean toilets. Would you be able to share the need to further innovate? What is the expectation of the improvement outcome?

Panel	Answer
Wai Choong (NEA)	Other than Singapore, NEA has identified several innovations in Dubai and China pertaining to improvements in toilet designs. However, what were discovered were sporadic implementation of such systems. NEA is looking at an end-to-end solution from cleaning efficiency to a maintenance-free toilet design that could be easily reproduced at industry level. At the same time, NEA hopes to reduce the reliance of manpower in the cleaning industry and yet, uphold the image of Singapore that is well known for its clean toilets.

7) Is there a timeline to how long we need to monitor and measure the effectiveness of the project?

Panel	Answer
Charles (NEA)	In order to have meaningful measurement of the trial performance indicators, it should minimally be monitored over a period of 6 months. Proposers are to propose the timeline in the proposals, which could be subsequently discussed with the partners.

8) Do you have preference over locally host program or cloud application/environment?

Panel	Answer
Kenneth Ho (CAG)	CAG has no preference. However any proposals shall be submitted to CAG's IT security unit for approval.
Johnny Teng (CDL)	CDL has no preference.
Kenny Yap (Esplanade)	Esplanade has no preferences as long as it is not a proprietary product.
Wong Kim Sung (MBS)	MBS would prefer a locally hosted environment.

9) Is there a specific timeline to the implementation of the project after trial period?

Panel	Answer
Charles (NEA)	The four partners have different timelines due to the different scope of projects. Projects with bigger scope such as the City Square Mall which requires full renovation, will be implemented later than partners like MBS or CAG. Proposers are to propose the timeline in the proposals, which could be subsequently discussed with the partners.

10) Would you consider a possible technology that is currently only available in prototype? During the submission of proposal, would like to see a real simulation of how the technology works, or can it be done later on after the project is awarded?

Panel	Answer
Charles (NEA)	If the prototype is able to perform the same function as the actual equipment and proves to be effective, it will still be considered by the partners. NEA and the partners will facilitate in the evaluation and scaling up the implementation of the technology accordingly.
Kenneth Ho (CAG)	CAG is open to consider new technology as long as it can contribute to more productive cleaning operations, and the cost is reasonable. Upon successful pilot trial, the idea could potentially be implemented to the future T5.
Johnny Teng (CDL)	The same technology may not be suitable for all premises. It is important to understand the building characteristic, such as the daily traffic and nature of business, and evaluate the suitability of the technology, before submitting the proposal. CDL is open to new technology if it is suitable for City Square Mall.
Kenny Yap (Esplanade)	Esplanade is interested to try out new technologies in the market that can help to transform our toilets. Esplanade is going to build a new Waterfront Theatre and the smart toilet concept can help to reduce manpower for cleaning. Esplanade hopes the trial can be successful, so the technology can be applied to the new Waterfront Theatre in future.
Wong Kim Sung (MBS)	MBS is open to any new technology or concepts. Prototype is fine during the submission. If MBS likes the idea, they would like to see how the technology works. Project/contract will only be awarded when they are convinced it can work.

11) If the pilot trial offered by the vendor is proven to be feasible for your premise, would the partners award the project to them directly, or call for a tender for potential candidates?

For the purpose of this RFP, if the proposal is evaluated to be feasible, the partners will award the pilot project directly to the vendor.

For scopes beyond this RFP, for example if the pilot project is proven successful and the partners would like to up-scale the implementation for the other toilets in their premises, please refer to the replies below by the various partners:

Panel	Answer
Kenneth Ho (CAG)	CAG informed that it is possible for propriety systems (no one else can do it except the vendor). However for other systems which are generic, CAG would have to procure it in accordance to the prevailing CAG procurement guidelines i.e. through open or limited sourcing.
Johnny Teng (CDL)	CDL is a public listed company which has a standard procurement procedure. The usual process is to call for tender for potential candidates. However, it is also possible to award the project to the vendor who provides the pilot trial, especially so if the solution is proprietary. The decision to award the project will be discussed and decided by the senior management of CDL.
Kenny Yap (Esplanade)	Esplanade would need to call for open tender.
Wong Kim Sung (MBS)	MBS' answer same as CDL's.

12) What is the percentage of manpower reduction CAG is looking at for Terminal 5 for the project since CAG hired more than 1200 cleaners for the four terminals?

Panel	Answer
Kenneth Ho (CAG)	CAG does not have a KPI target set on the reduction of cleaning manpower for T5. The objective of adopting technology is to first make cleaning work easier, which may translate to cost-savings on manpower. However, CAG recognises that it is impossible to fully automate the job of cleaning. CAG hopes to stretch the potential of the initiative to more than just manpower reduction, but also make jobs smarter with new innovation.

13) Where can I get the reference materials and additional information of the briefing?

An email has been sent to all attendees, with information on the briefing presentation slides and contact list of the attendees. The details of the request for proposals, site plans and layout have been uploaded on NEA website (www.nea.gov.sg/grants-awards/request-for-proposal-for-a-smart-easy-to-clean-toilet). The purpose of sharing the contacts of the attendees is to encourage potential collaborations.

Any further queries on the request for proposal, or submission of proposals can be emailed to ESITM_Innovation@nea.gov.sg