

Towards a High Tech & Productive Lift Sector – Updates on RM&D Sandbox

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1. Current Challenges and Opportunities in the Lift Sector
2. Towards a High Tech & Productive Lift Sector
3. Updates on Regulatory Sandbox for RM&D lifts



Characteristics of the Lift Sector

- *Dirty, Dangerous & Demanding*
- *Aging Workforce*
- *Gradual Reduction in Foreign Workforce Quota* (to encourage localisation of jobs)*

Growing pool of Equipment and demand for services

- *Unsustainable for manpower to increase in tandem with number of equipment*
- *Ability to handle sudden manpower shock during crisis*

Hiring Competition from other industries

- *Limited number of locals*
- *Fewer foreigners choosing to join the industry*

* Dependency Ratio Ceiling reduced from 40% in 2019 to 35% in 2021

A High Tech & Productive Lift Sector

Ability to maintain more lifts with current numbers:

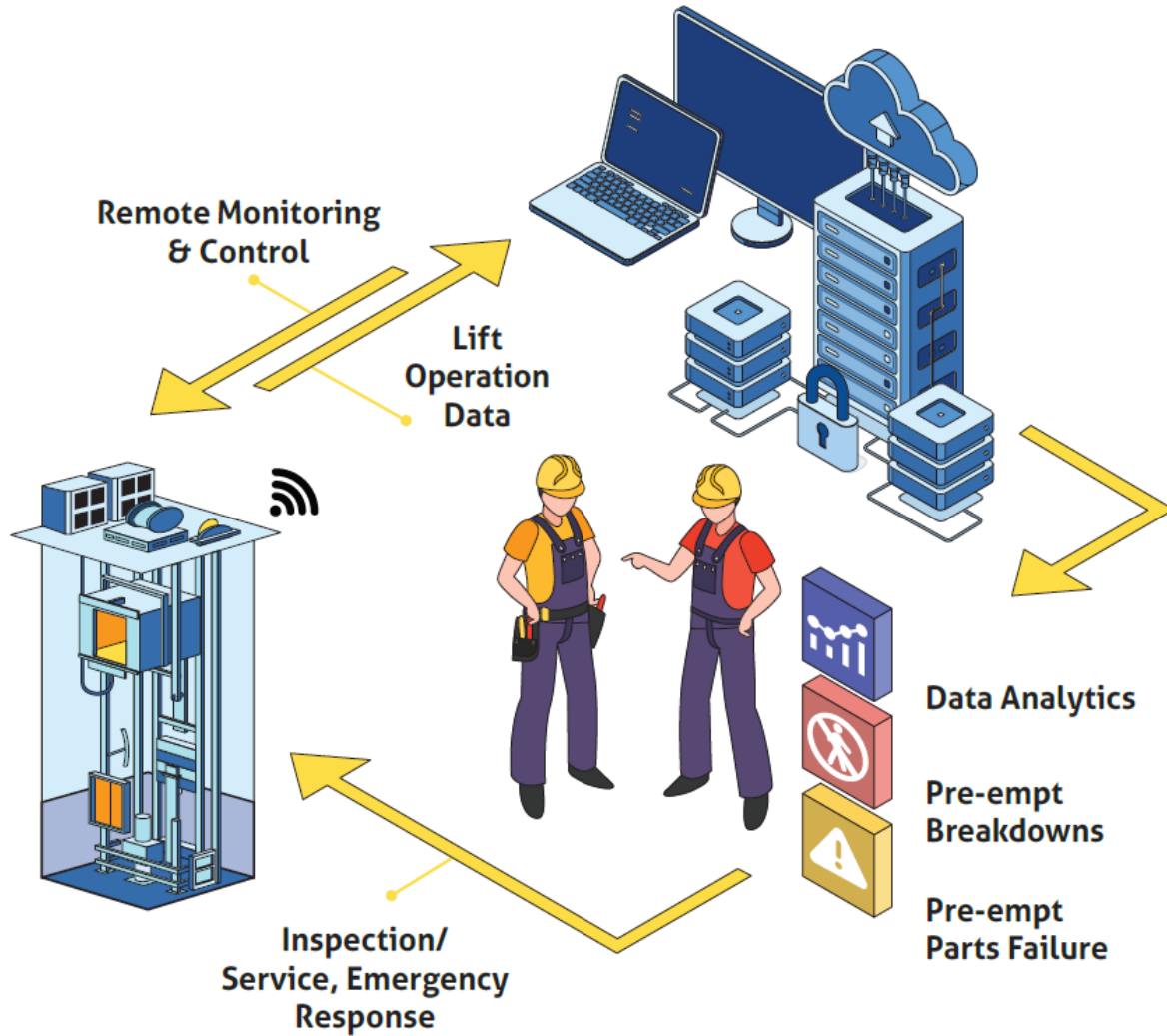
- *Real Time Monitoring*
- *Flexibility in Maintenance*
- *Guided Maintenance Schedules*
- *Prioritization of Maintenance Tasks*

Resiliency in Workforce:

- *Good Jobs for Locals*
- *Better Working Environment and Tools*
- *Digital Workforce*

Technology as key enabler – Remote Monitoring & Diagnostics





- RM&D is a technology that uses **sensors to continuously collect data** on lift operations and **analyses the data using Artificial Intelligence**
- It can improve the detection and diagnosis of lift faults, and **predict the development of such faults.**
- Adopting RM&D systems has the potential to improve lift safety and reliability, and to **raise the productivity of the lift maintenance workforce.**



Current Maintenance Regime

- **Monthly visit** by lift maintenance contractor to maintain the lifts
- **20 Maintenance Outcomes to be met**

Future Maintenance Regime ?

- Maintenance frequency and tasks to progressively be **guided by RM&D systems**
- Requirements on **compliance to Code of Practice on Design and Performance of RM&D Solution for Lifts**



Media Release: 29 July 2022

SENSORS, BIG DATA AND AI TO ENABLE REMOTE MONITORING & DIAGNOSTICS AND PREDICTIVE MAINTENANCE REGIME FOR LIFTS

- *Predictive maintenance regime for lifts in Singapore now possible with Remote Monitoring & Diagnostics (RM&D) solutions for lifts and first in the world Code of Practice for RM&D*
- *Benefits of adopting RM&D solutions for lifts include reducing lift downtime, increasing reliability of lifts, and improving safety*
- *Pilot trials conducted by JTC using RM&D solutions saw a 25% improvement in manpower productivity.*

For more information, please go to the <https://go.gov.sg/bca-pr-rmnd>

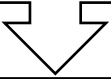


From 1 August 2022

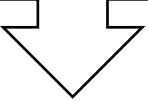
Regulatory Sandbox

Alternative Maintenance Regime for RM&D lifts

Trial the RM&D Solutions - complies with the COP (minimum 6 months)

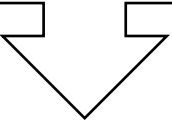


Apply to BCA for longer maintenance frequency (of 3 months) for RM&D lifts



Submit the following during application:

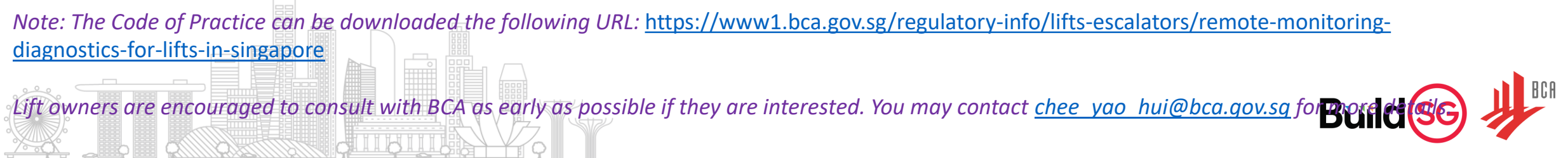
- Performance data of lifts (past 6 months)
- Documentation demonstrating compliance to COP



Maintain lifts with longer maintenance frequency of 3 months if approved

Note: The Code of Practice can be downloaded the following URL: <https://www1.bca.gov.sg/regulatory-info/lifts-escalators/remote-monitoring-diagnostics-for-lifts-in-singapore>

Lift owners are encouraged to consult with BCA as early as possible if they are interested. You may contact chee_yao_hui@bca.gov.sg for more details.



Updates on Regulatory Sandbox for RM&D lifts



- List of RM&D solutions approved by BCA (and undergoing trials) for a reduced maintenance regime can be found on BCA's website
- Interested parties (Building Owners, FM companies) can the information provided on the website once it is available

List of RM&D solutions approved for Reduced Maintenance Frequency

Name of RM&D Solution Provider	Name of RM&D solution
KONE Elevators Singapore	Kone 24/7 Connected Services
Schindler Lifts Singapore	Schindler Ahead



Remote Monitoring & Diagnostics for Lifts in Singapore

Home > Regulatory Info > Lifts & Escalators > [Remote Monitoring & Diagnostics for Lifts in Singapore](#)

Remote Monitoring and Diagnostics (RM&D) for Lifts in Singapore

To support the implementation of RM&D in the industry, BCA has made changes to the regulations ([Building Maintenance and Strata Management \(Lift, Escalator and Building Maintenance\) Regulations 2016](#)) and developed a Code of Practice for Design and Performance of Remote Monitoring and Diagnostics Solution for Lifts ("COP") in Singapore.

Lift owners, together with their lift service contractor and RM&D solution provider, may apply to BCA for their lifts outfitted with a compliant RM&D Solution to be allowed a longer maintenance interval of three months.

To obtain BCA's approval, the RM&D solution provider would have to demonstrate that the RM&D solution is able to meet the requirements under the COP. You may refer to the set of [Guidelines \(Approval Process for Remote Monitoring and Diagnostics Solution for Lifts\)](#) below for more information and help on the approval process of RM&D equipped lifts. The approval process consists of 2 stages as indicated below:

Stage 1: Consultation and Pre-Approval Trials:

The applicant can first contact BCA via <https://www.bca.gov.sg/feedbackform/> for a consultation to evaluate the capabilities of their proposed RM&D solutions under the current monthly maintenance regime. The RM&D solutions will be trialled under the monthly maintenance regime to ensure that they are capable of monitoring and predicting issues with lift operations in accordance with the COP. This phase is expected to take at least 6 months.

Stage 2: Application Process:

If Stage 1 is deemed successful by BCA, the applicant may then prepare the necessary documents and forms and apply to the Commissioner of Buildings (COB) under the Building Maintenance and Strata Management (Lift, Escalator and Building Maintenance) Regulations 2016 for his lifts to be allowed to be maintained at three-monthly intervals.

Relevant documents of the application are available below:

[Guidelines - Approval Process for RM&D lifts](#)

[Code of Practice for Design and Performance of RM&D Solution for Lifts](#)

[Main Application Form \(EMEG-RM&D1\)](#)

[Form A](#)

[Form B](#)

[Form C \(Template for RM&D Maintenance Findings\)](#)

[Form D](#)

- BCA has prepared a guidebook on the application process.
- It can be downloaded from BCA's website.

<https://www1.bca.gov.sg/regulatory-info/lifts-escalators/remote-monitoring-diagnostics-for-lifts-in-singapore>

- The application forms and Code of Practice are also available in the same URL.



Q1: How do I get approval for my lifts to be on the reduced maintenance regime if I would like to

- a) install RM&D solutions approved by BCA**
- b) install RM&D solutions that are undergoing trials with BCA**

For (a) (installing RM&D solutions that are approved by BCA) - the lift owner can contact the RM&D solution provider from the information provided on BCA's website to find out more about the eligibility of their lifts and to jointly put up an application to BCA.

For (b) (RM&D solutions undergoing trials) - the lift owner can contact the RM&D solution provider from the information provided on BCA's website if you have the intention to participate in the pre-approval trials. Through the trials, owners will be able take the opportunity to observe how RM&D can be beneficial for their lifts' operations. It would also help the RM&D solution provider to collect sufficient data to support their RM&D solution's application to BCA.

Alternatively, you may contact BCA at the following email chee_yao_hui@bca.gov.sg or fu_yixuan@bca.gov.sg so that we could help to link up with the RM&D solution provider and arrange for discussions if required.

Q2: I am a RM&D solution provider. How can I get my RM&D solution approved?

BCA would like to encourage RM&D solution providers to come forward to test their RM&D solutions. For an RM&D solution, any number of lifts with same/different lift models can be placed on the Pre-Approval Trials with the approval of the lift owner. More lifts can be added during the period of this trial.

The period of the trial would minimally be 6 months. BCA would need to assess 6 months of performance data for at least 50 lifts for a particular RM&D solution before the RM&D solution provider can apply for their RM&D solution to be approved.



Q3: What are the documents needed for the application?

BCA would require the following information as part of the Application process:

- a) Performance data of the lifts (including maintenance findings detected by the RM&D Solution and servicing records) for at least 6 months.
- b) Documentation demonstrating compliance to the Code of Practice for Design and Performance of Remote Monitoring & Diagnostics Solution for Lifts (COP).

Upon written approval of the application, the lift service contractor may carry out maintenance works at a frequency lower than the required monthly maintenance, subject to conditions imposed by BCA.



Thank you



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