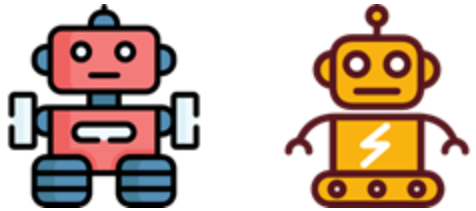
Robotics Middleware For Healthcare (RoMi-H) Empanelment Program 2025

Centre for Healthcare Assistive & Robotics Technology

Changi General Hospital
SingHealth

Challenges in Multi-Fleet deployments in Healthcare



Lack of interoperability

Lack of communication and integration between robots, medical devices, building infrastructure and health IT systems

Infrastructure constraints

Need to interface with lifts and doors

Dynamic environments

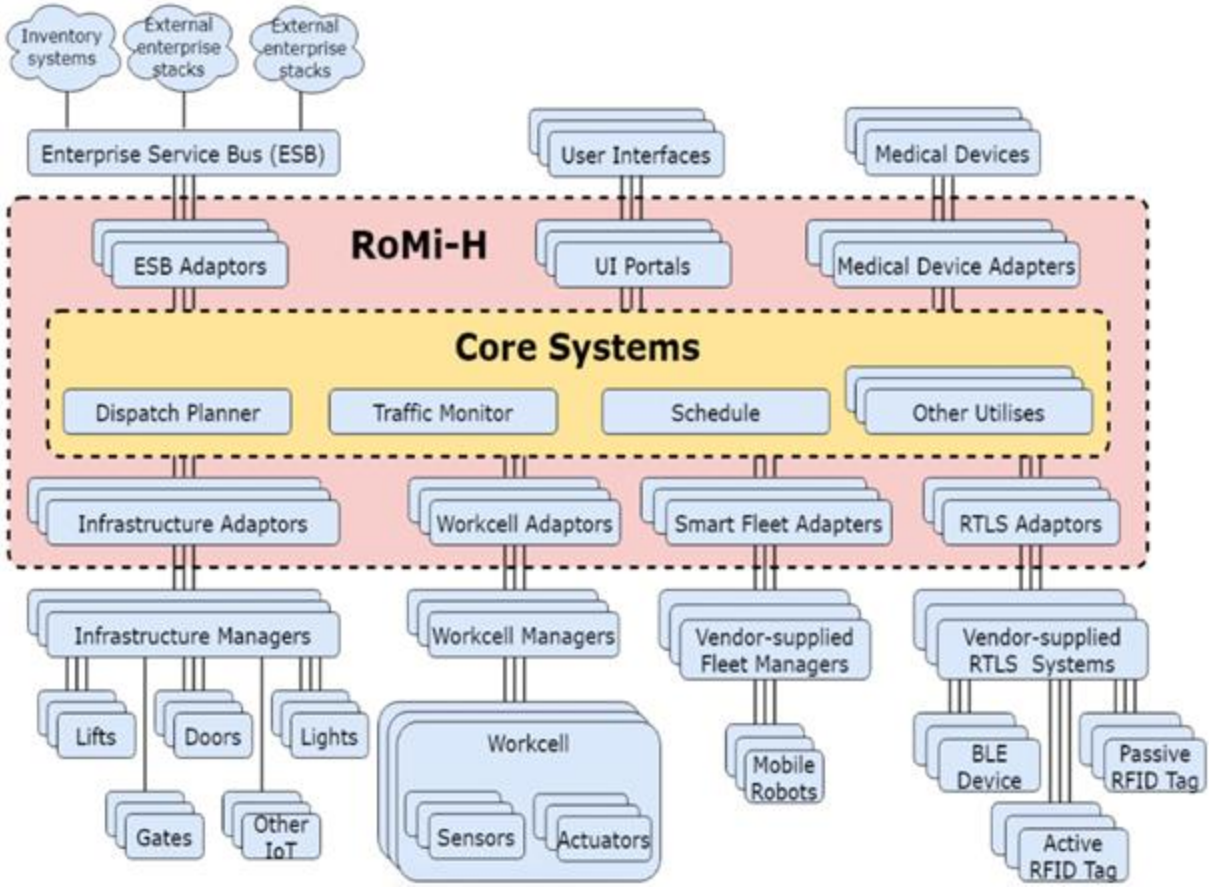
Dynamic human traffic and crowds

Cybersecurity concerns

Increased reliance on network for data transmission

What is Robotics Middleware for Healthcare (RoMi-H)

- A collection of libraries and tools that facilitates interoperability among different robotic fleets, infrastructures, sensors and automation systems
- Provides visibility of status of interconnected systems
- Adds intelligence to the overall interconnected system through resource allocation and de-conflict shared resources



RoMi-H System Integrators' role

Develop adapters (lifts, doors, fleets, and other IoT or robotic devices)

Develop application systems containing business logics based on user workflows

Develop configurable UI, visualization tools, and dashboards

RoMi-H Empanelment

Objective

To assess system integrators' capabilities for possessing the required skills and level of understanding to deploy RoMi-H

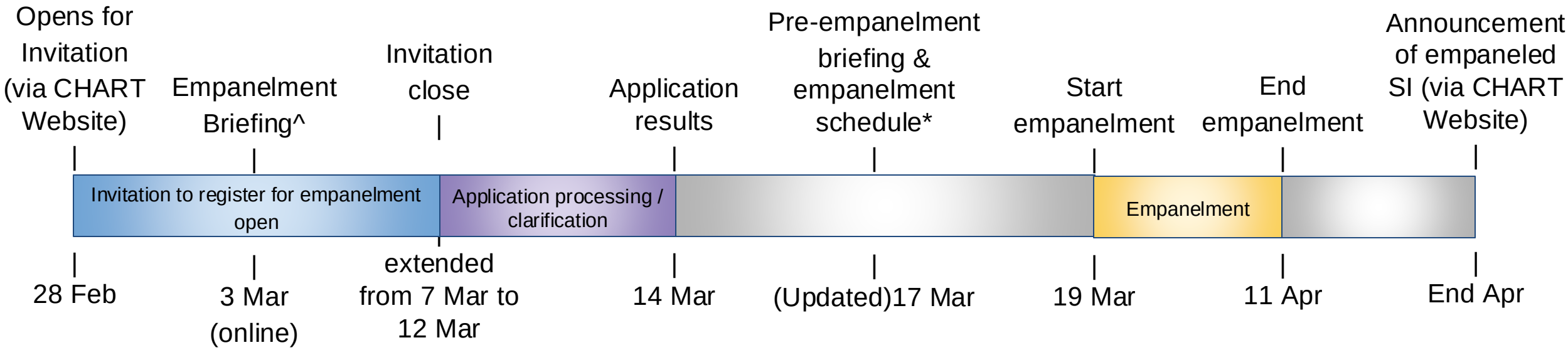
Previous empanelment program

- Held in 2019 to meet 2019 Smart Nursing Ward (SNW) Open Request-For-Proposal (RFP)
- Covers very basic usage of OpenRMF(e.g. writing adapters and running an instance of OpenRMF)
- Validity of empanelment was set to be 2 years

Empanelment program 2025 (updated on 7 Mar 2025)

To re verify existing empaneled system integrators (SIs) and to extend invitations to new SIs to be empaneled to support the ecosystem

Key dates



The closing date for application submission has been extended to **12 Mar 2025** with corresponding adjustments to the subsequent milestones.

^ Virtual session with potential empanelment candidates with Q & A / clarification opportunity

* For down-selected vendors only. On-site tour of assessment site can be arranged (max 2 representative from each SI)

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Empanelment program 2025

For this empanelment, OpenRMF will be used as the baseline to evaluate the SIs' capability to deploy RoMi-H

Down-selection of Applicants

Applicants' relevant experiences and track records will be used to assess suitability of applicants to go to next stage

- Familiarisation with ROS and OpenRMF
- SIs with record of *operational* deployment of OpenRMF

Day 1 - Competency test (all applicants, on site- CHART@CGH)

Covers basics of OpenRMF features and understanding of the middleware with simulation

Day 2 - Scenario test (applicants with record of operational deployment of OpenRMF exempted; on site CHART@CGH)

Focuses on re-creating a given scenarios and working with real systems/ devices

Down Selection of Applicant

Objective

- To assess all applicants based on initial familiarity of OpenRMF and integration work, via submission of relevant information in the application form.

- To expedite empanelment processes for SI with records of operational deployment of OpenRMF

Relevant information

- Good company track record of robotics deployment and integration

- Relevant experience in deployment of RoMi-H is an advantage
  - Or any other robotics middleware, please specify

- Relevant robotics experience and skill sets
  - ROS / ROS2 proficiency and experience
  - Projects on development and/or integration of robotic hardwares / AMR / AGV

Competency test (successful / down selected applicants)

General requirements

- Demonstrate proficiency in creating simulations using OpenRMF/ Gazebo.
- Showcase comprehensive understanding of OpenRMF's features and functionalities through simulations.
- Demonstrate troubleshooting skills to identify potential issues related to OpenRMF.
- Able to present a well-thought-out deployment architecture with OpenRMF as its central component.
- Exhibit a solid grasp of robotic deployment techniques and a deep understanding of the technical aspects of OpenRMF

Scenario test (exempted for applicants with record of operational deployment of OpenRMF)

General requirements

- Demonstrate the ability to write adapters to integrate different systems to OpenRMF
- Able to influence the navigational behaviour of OpenRMF in runtime
- Able to influence OpenRMF to responses to emergencies
- Able to call custom APIs using OpenRMF

Why get empaneled

- Recognised by industry (both commercial and public sectors) as RoMi-H System Integrator (SI)
- Eligibility to submit Technical Proposals as System Integrator (SI) for Robotics and Automation (R&A) implementation via RoMi-H in Public Health Institutions (PHIs)

Empanelment fees

Registration - Free

Empanelment Fees (for successful applicants/ down-selected for empanelment)

- S$2,000 (excl GST) - applicants with record of operational deployment of OpenRMF
  - S$2,180 (incl GST)
- S$4,000 (excl GST) - New SIs
  - S$4,360 (incl GST)

Official Channels

- Announcements and details regarding the empanelment can be found on the **CHART** website

Contact

Website: https://www.cgh.com.sg/Chart

Email: chart@cgh.com.sg

References

RoMi-H: https://www.cgh.com.sg/Chart/Pages/sharp/romi-h.aspx

OpenRMF: https://www.open-rmf.org/

Thank you