

# Urban Sustainability R&D Symposia 2021- Built Environment

Interoperability of Robotics & Automation in Built Environment

24<sup>th</sup> September, 2021



# Agenda

- Company Overview
- Challenges facing Built Environment vs Healthcare
- Features of SMART Hospitals
- Interoperability use-case in Healthcare
- Future of On-site construction
- Interoperability Concept for Built Environment
- Benefits to Built Environment



# Company Overview



[www.hopetechnik.com](http://www.hopetechnik.com)



[www.trigenautomotive.com](http://www.trigenautomotive.com)



## MFG

[www.hopetechnik.com](http://www.hopetechnik.com)



[www.hopetechnik.com](http://www.hopetechnik.com)



[www.ellementofarming.com](http://www.ellementofarming.com)

# Challenges facing Built Environment

## BE faces **similar challenges** to Healthcare



- Heavy dependence on labour
- Inconsistent quality due to delays due to multiple vendors and parties with different capabilities and maturity
- Complex manual processes which are not easy to automate
- Safety of workers is paramount
- Unstructured, dynamic environments involving humans, equipment, robots and automation solutions
- Legacy IT systems



- Heavy dependence on nurses, porters and operational staff
- Multiple vendors for devices, IT solutions, infrastructure
- Complex manual processes which are not easy to automate
- Dynamic environment with movement of humans, beds, wheelchairs, robots
- Safety of nurses/healthcare workers is always a critical consideration
- Legacy IT systems

# Why does Interoperability Matter?

**SMART Hospitals will require process flow automations where multi-robot/multi vendor systems work seamlessly with humans, other automation systems and facility infrastructure**

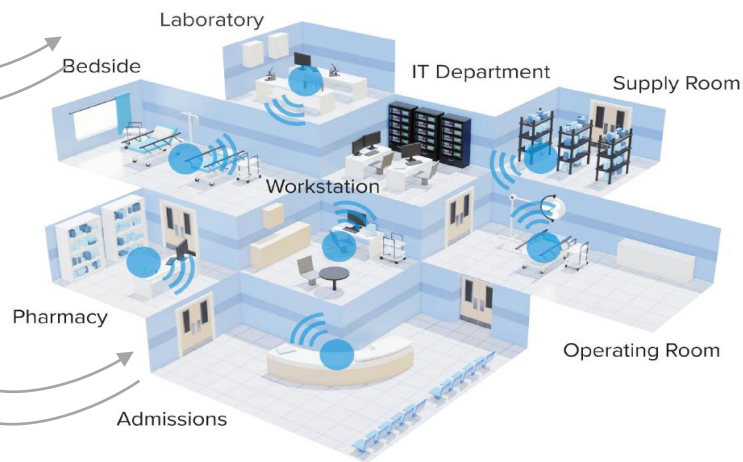
**MULTI-ROBOT SYSTEMS** are extensively being used for delivery tasks, physician interaction



**DYNAMIC HUMAN/CLINICIAN WORKFLOWS** across wards & zones is the norm



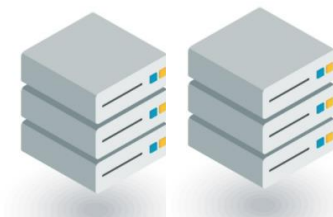
**ASSET/PATIENT TRACKING THROUGH THE HOSPITAL** is critical to better manage biomedical equipment inventory, status and track patients across zones



**FACILITY INFRASTRUCTURE INTEGRATION** to allow robots/humans to share lifts/doors/common spaces is essential

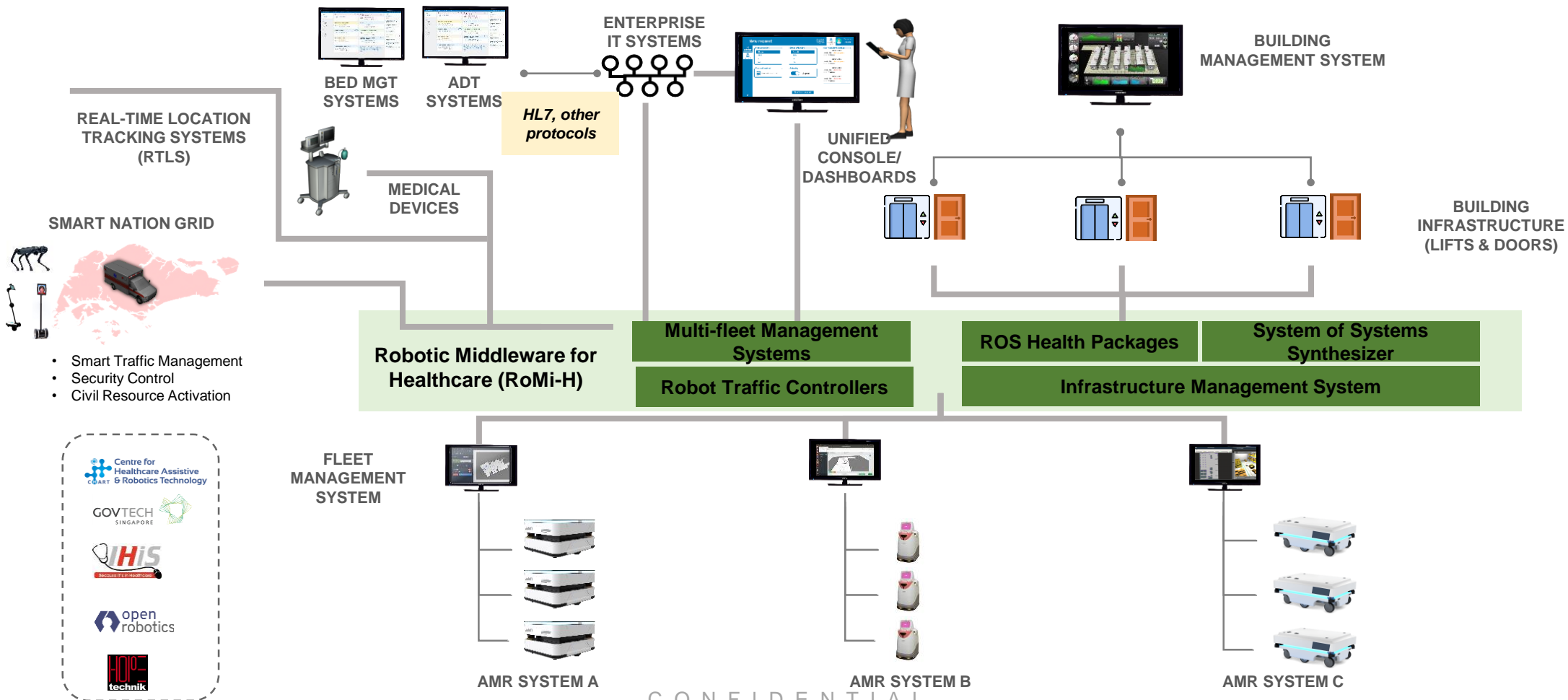


**Integration to ENTERPRISE IT SYSTEMS** is critical to enable sharing of operations, clinical data



# Interoperability concept from Healthcare: The foundation to scale robotics & automation

RoMi-H: Interoperability layer that enables high performance hospitals through **intrahospital logistics using robotics, asset/patient tracking and efficient resource management**



CONFIDENTIAL

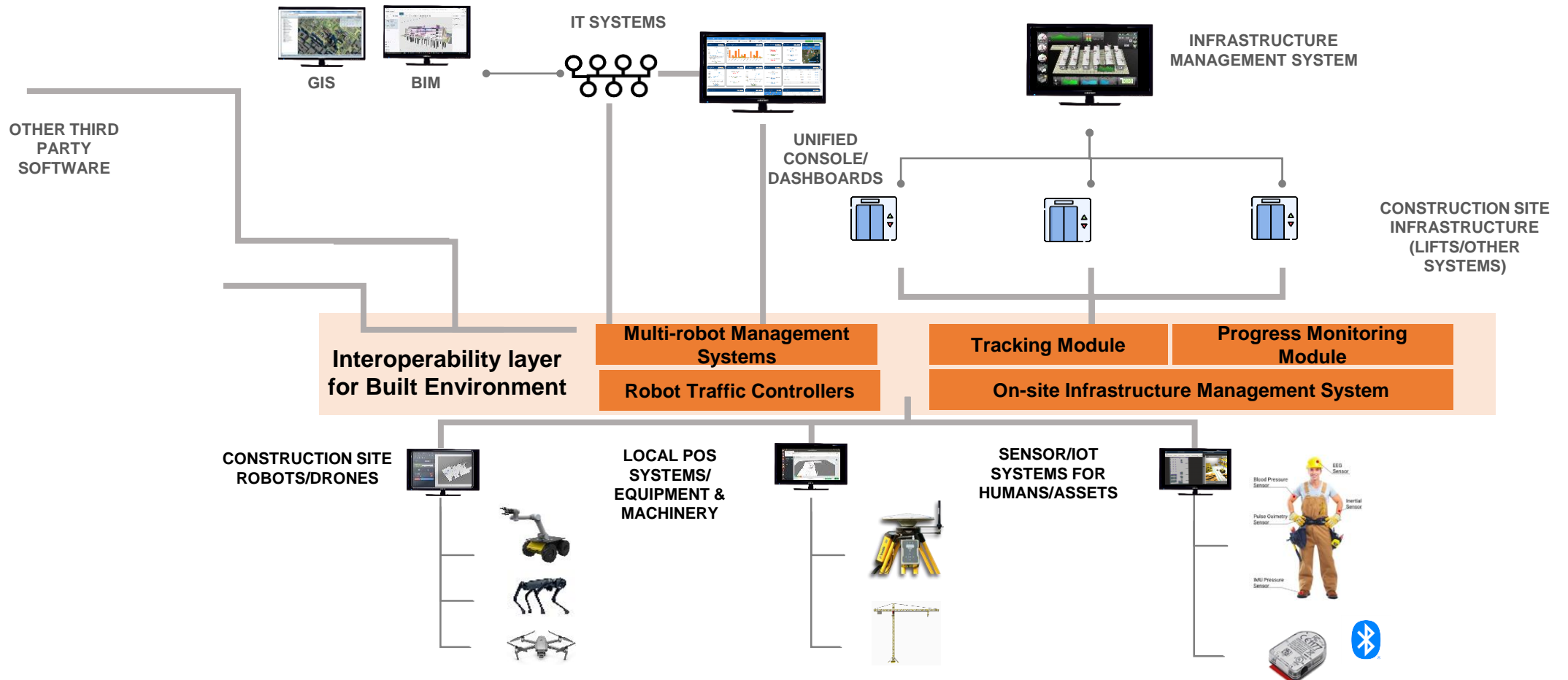
# Future of On-site Construction

Robotics & automation will become a feature of BE – especially on-site construction & Facilities Management for use-cases like **safe & intuitive tele-operation, material handling, inspection/surveillance, asset/human tracking and safety**



# Interoperability Concept for Built Environment

We envision the creation of a library of tools and plugins that enables interoperability of robotic assets, on-site equipment, sensors, BIM, GIS tools used in onsite construction

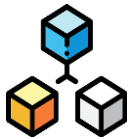




# Benefits to Built Environment

The interoperability layer can become the **standard baseline infrastructure** for all on-site construction solutions

## Optimization



Ability to interoperate robot assets with other equipment, software will improve utilization and help planning

## Visibility



Construction project managers/operators have better visibility on assets /resources and can plan better

## Cost Savings



Reduce cost of onsite systems integration due to the presence of several standardized plug-ins and common library of tools

## Scalability



The interoperability platform allows scalability across a range of robotics, sensor and automation platforms

# Q&A



INNOVATE | ENGINEER | DELIVER