

**IMDA awards three new 5G use-cases:
Creating new businesses opportunities, enhancing safety, and redesigning jobs**

Background

1. The Singapore Government has set aside S\$70 million since 2019 to drive the development of Singapore's 5G Innovation ecosystem. First tranche of funding support was introduced in 2019 and six 5G use-cases were trialled:

- a. IMDA, PSA, Singtel, M1: 5G enabled Automated Guided Vehicles and Automated Rubber Tyred Rubber Tyred Gantry Cranes.
- b. IMDA, Airbus, M1: *Urban Air Mobility Operations for Maritime Operations*
- c. IMDA, IBM, Samsung: *Singapore's first Industry 4.0 5G trial*
- d. IMDA, Razer, SingTel: *Singapore's first 5G Cloud Gaming Trial*
- e. IMDA, Continental, M1: *Autonomous transport systems for Autonomous Mobile Robots*
- f. IMDA, Capitaland, Navinfo, TPG: *Singapore's largest 5G smart estate trial*

2. Under the second tranche of support, IMDA launched the S\$30million 5G Innovation Programme¹ in 2021 to accelerate the adoption and commercialisation of enterprise 5G solutions. To date, IMDA has awarded seven 5G projects:

- a. IMDA, Keppel Offshore & Marine: *Southeast Asia's first maritime 5G AR/VR Smart Glasses Solution*
- b. IMDA, Infinite Studios: *First outdoor mass 5G-enabled cinematic quality AR experience in the region*
- c. IMDA, National University Health System: *Asia Pacific's first 5G mobile edge computing for Mixed Reality and Holomedicine capabilities in health tech*
- d. IMDA, Gammon: *5G-enabled Mixed Reality for Construction*
- e. **[New]** IMDA, Hyundai: *World's first 5G-enabled Built-To-Order Electric Vehicle factory*
- f. **[New]** IMDA, Weston: *ASEAN's first 5G-enabled electric unmanned surface vessel for river cleaning and inspection*
- g. **[New]** IMDA, Mind PointEye: *Reskilling Security Guards with 5G and AI*

3. Last year, IMDA partnered the Maritime and Port Authority of Singapore (MPA) to extend public 5G standalone coverage to sea for maritime operations making Singapore the first country in the world² to do so. Singapore will achieve full 5G standalone (SA) coverage over our anchorages, fairways, terminals, and boarding grounds by mid-2025.

¹ <https://www.imda.gov.sg/Content-and-News/Press-Releases-and-Speeches/Press-Releases/2021/Singapore-accelerates-5G-adoption-and-commercialisation-with-new-30m-fund>

² <https://www.imda.gov.sg/Content-and-News/Press-Releases-and-Speeches/Press-Releases/2022/Singapore-the-first-country-to-extend-public-5G-standalone-coverage-to-sea-for-maritime-operations>

[New] The World's First 5G-enabled Built-To-Order (BTO) Electric Vehicle factory

4. IMDA is partnering Hyundai to deploy over 100 5G-enabled robots across the factory floor of the Hyundai Motor Group Innovation Centre in Singapore (HMGICS) to simultaneously transport material required for vehicle manufacturing to the manufacturing cells. HMGICS will feature the Hyundai Motor Group's first deployment of a 5G network in vehicle manufacturing, leveraging 5G for a cloud-based centralized mobile robot management solution through enhanced quality control in manufacturing operations, presenting a vision of the human-centered intelligent manufacturing.

5. 5G will allow for real-time data transmission between the automated control system and the automated guided vehicles. The new concept of manufacturing will reduce labour-intensive activity for workers, enhance their safety, and allow them to take on higher value roles. The more agile manufacturing process also will allow Hyundai to develop Singapore's very own Built-To-Order Electric Vehicles. More details to be shared during the launch of HMGICS later this year.

[New] ASEAN's First 5G-enabled Electric Unmanned Surface Vessel for River Cleaning and Inspection



(Photo credit: Weston Robot Pte Ltd)

6. River cleaning services are currently done by gasoline-fuelled boat that can produce as much as 20 tonnes of carbon per year³. Each gasoline boat also requires high yearly maintenance cost that

³ A typical passenger vehicle emits about 4.6 metric tons of carbon dioxide per year according to the [US Environmental Protection Agency](#)

ranges from S\$6,000 to S\$12,000 per annum. Cleaning up our rivers are labour intensive and done manually. 5G-enabled Unmanned Surface Vessel (eUSV) will enable the following:

- **Improved safety and Transforming Job Roles:** Reduce the risk of man overboard and laboriously long hours under the sun. Will transform the nature of the job scope as a single operator stationed at the command centre can now pilot multiple eUSVs. The vessels will be able run autonomously using video analytics to detect and clean rubbish outside of its pre-programmed path.
- **Eco-Friendly:** eUSVs are electric and will reduce current carbon emission of each gasoline boat by 80%.

7. This partnership with Weston will look to propel the usage of electric vessels and video analytics technology for rubbish detection in Singapore and around the region. The project will commence in 2023 and eUSVs will also help cleaning services companies to alleviate manpower crunch in this sector.

[New] Transforming and Reskilling Security Guards with 5G and AI



(Photo credit: Mind PointEye Pte Ltd)

8. IMDA has awarded to Mind PointEye to develop and commercialise a 5G AI-enabled security surveillance solution with sentry robots and patrolling vehicles for indoor and outdoor environments. Currently, security guarding surveillance requires laborious manual patrolling. Absence of a security personnel at specific locations makes it difficult to deal with security breaches. Today's security guarding surveillance also relies heavily on fixed cameras that requires wired connectivity which leads to a costly cabling infrastructure.

9. Tapping on emerging technologies, this 5G AI-enabled will enable the following:

- **Job Redesign and upskilling:** Allows security guarding personnel's job to be transformed from one that is manually laborious to one that is tech-driven. Security guarding personnel can now monitor locations remotely using an AI-powered video analytics providing real-time push notifications for threat detection once anomalies are detected. Robots and

patrolling vehicles can also be controlled remotely by personnel for enhanced security event handling.

- **Enhanced efficiency through automation and remote teleoperations:** Sentry robots and patrolling vehicles with built-in cameras and hybrid video analytics platform will leverage on high-bandwidth, reliable and low latency of 5G connectivity to power video analytics (AI) and remote teleoperations. When potential security threat is detected through video analytics, security personnel can remotely control (via an application) a sentry robot/patrolling car that is in close proximity to move to the impacted location for closer inspection and anomaly detection through remote live video stream and video analytics.

10. The project will commence in 2023.