

Annex B: Past GIC projects

No	Challenge	Company/Country	Description
GIC 1			
1	Automated Earth Control Measure Submission Evaluator	Zühlke Engineering, Switzerland 	A Switzerland company, which provides bespoke digital solutions, is developing a solution to automate the review of earth control measure submissions by using optical character and text recognition to pick up key aspects of the submissions and check them against a set of rules. Has a team based in Singapore.
2	Automated Identification and Enumeration of Midge Populations	Orinno Technology, Singapore 	A local company known for innovative solutions in mosquito mass rearing automation, Orinno is leveraging their patented smart sensor technology to develop a solution for identifying adult midges, and is developing another solution to identify midge larvae through machine learning.
3	Automated Identification and Enumeration of Midge Populations	Newcastle Research & Innovation Institute, Singapore 	A local research facility that is developing a low-cost prototype with 3D printed parts to identify and count adult midges collected on oily boards by capturing high resolution images and using machine learning.
4	Real-Time Detection of Taste and Odour Compounds in Water	Flexisolve Technology, Singapore 	A local company partnering with TOFWERK from Switzerland to develop a portable time-of-flight mass spectrometer that can be deployed on site for PUB to monitor taste and odour issues in our water plants and out in the field.

5	Robotics for Tank Washing	Watertight Robotics, Australia 	An Australian company that provides water tank cleaning services for utilities using a robot designed for cleaning to be carried out with minimal impact on water quality while the tank is still in service. Has track record in providing similar services for Water Corporation and Hunter Water in Australia.
6	Robotics for Tank Washing	Deep Trekker, Canada 	A company from Canada that designs, manufactures, and supplies remotely operated vehicles (ROVs) for industrial tank cleaning operations to 90 countries worldwide and has a ROV (Caviblast) for tank wall cleaning using high pressure air and water.
7	Sensor Data Integrity Monitoring	Mott MacDonald, United Kingdom 	A UK-based engineering and consultancy firm with a Singapore team that is combining water treatment process modelling with sensor analytics, data science and machine learning to develop a solution to detect sensor drifts. Has track record in delivering live sensor monitoring solutions for several utilities globally, including Anglian Water and Thames Water in the UK.
8	Seamless Coagulation Control	Jacobs, United States 	A global full-service engineering and consultancy firm, developing an AI-based model to emulate jar test results and predict an optimum coagulant dose by using real-time UV-visible spectroscopy data, results from actual jar tests, raw water quality data and machine learning algorithm. Has track record providing similar solution for Creek and Winneke WTP in Australia and Woodland Davies in the US.

9	Seamless Coagulation Control	Envirosuite, Australia 	An Australian company with expertise in water treatment and environmental intelligence solutions that is developing a solution using various chemical and process models with simulation of raw water quality to forecast coagulant dose.
GIC 2			
10	Cost-effective rainfall monitoring	Hydroinformatics Institute (H2i), Singapore 	A local consultancy and solution services provider that combines state-of-the-art computing with machine learning and artificial intelligence to realise the potential of Big Water Data for all aspects of water management. Analysis of attenuation of cellular signals will be used for low-cost, real-time rainfall monitoring to complement traditional in-situ measurement devices (rain gauges) and remote sensors (e.g, weather radars, satellites).
11	Innovative solutions for coastal protection measures	Delta Marine Consultants, The Netherlands / Singapore  Delta Marine Consultants	An international engineering consultancy firm specialising in coastal, marine, and civil infrastructure, headquartered in The Netherlands with a Singapore office. For the challenge, an innovative modular coastal protection system will be developed for Singapore, based on proven XblocPlus solution, tailored to suit Singapore's wave climate and local site condition.
12	Mapping of underground utilities	Leica Geosystems, Singapore 	A Switzerland-based company providing an array of technological solutions for surveying and geographical measurements. Ground penetration radar (GPR) & electromagnetic locators (EML) will be used in combination to detect all underground services under multiple conditions.

13	Real-time identification of prohibited organic compounds in sewers	GDS Instruments, Singapore 	A local company with manufacturing and R&D expertise in gas detection instrumentation based on photoionization detectors, is developing a solution using ion mobility spectrometry to identify the prohibited organic compounds based on characteristic velocities related to size, shape and charge of ions.
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