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Smart Port Challenge 2026 Marks 10 Years of Growing Maritime Innovation

Record 586 proposals from 39 countries, with new technologies for smarter, safer and more sustainable maritime operations

The Maritime and Port Authority of Singapore (MPA) and NUSX, the entrepreneurial heart of the National University of Singapore (NUS), announced the winners of the 10th PIER71 Smart Port Challenge (SPC) at its Grand Finale today. From AI and robotics innovation for ships, to port automation and maritime cybersecurity solutions, this year's Challenge attracted a record 586 proposals from 281 start-ups across 39 countries (see **Annex A**), reflecting growing international interest in developing technology solutions for the maritime industry.

Showcasing Maritime Innovation at SPC 2026

2. Ocean Intelligence from Australia won the Top Start-up Prize for its AI-powered voyage optimisation platform that incorporates ocean currents, weather conditions and vessel characteristics to identify more fuel-efficient routes. Vueron Technology from South Korea received the Top Scale-up Prize for its AI-powered LiDAR perception solutions for autonomous mobility and industrial safety. The prizes, at S$15,000 each, were sponsored by Columbia Group and Temasek respectively. Trunk Technology (Beijing) from China was also acknowledged by the Judges with a Special Mention.

3. Four thematic prizes of S$10,000 each were also awarded: Underwater Solution from South Korea received the Digitalisation Prize, sponsored by RINA; Ocean Intelligence from Australia received the Maritime Green Technologies Prize, sponsored by OCBC; Trunk Technology (Beijing) from China received the Smart Port Prize, sponsored by PSA Singapore and PSA Ventures; and Vueron Technology from South Korea received the Smart Shipping Prize, sponsored by American Bureau of Shipping (ABS). Details of the winners are in **Annex B**.

4. The finalists and semi-finalists also demonstrated the breadth of technologies being developed for maritime operations. Robotic systems that automate cargo hold cleaning and confined-space inspections reduce the need for personnel to enter hazardous environments. AI-powered cybersecurity platforms monitor onboard IT and

operational technology networks in real time, detecting threats as they emerge. Biological sensor networks use molluscs as living sensors, giving ports early warning of oil leaks and toxic discharges. Together, these solutions point to exciting opportunities to make the maritime industry safer, greener and more secure. The full list of finalists and semi-finalists, their countries of origin and proposed solutions is in **Annex C**.

5. From this year's submissions, 21 start-ups from 11 countries were selected for the 10-week SPC Accelerate programme[1], with eight progressing to the Grand Finale. Participants worked on solutions addressing 20 innovation opportunities identified by maritime companies across digitalisation, maritime green technologies, next generation port and smart shipping. Letters of Intent were signed between participating start-ups and 28 maritime companies to explore proof-of-concept and pilot projects.

Ten Years of Growing Maritime Innovation

6. Since the first Smart Port Challenge in 2017, SPC has grown to a record 586 proposals from 281 start-ups across 39 countries this year. Over its 10 editions, the Challenge has attracted over 2,100 proposals and nurtured over 200 startups through the SPC Accelerate Programme bringing together technology companies and maritime industry partners to develop solutions for operational needs.

7. PIER71 has also supported more than 200 start-ups since 2018, which have collectively raised S$180 million in capital. Among its alumni, BeeX, an SPC 2020 winner, completed a S$10 million fundraising round this year to expand its autonomous underwater vehicle operations internationally. CRecTech, an SPC 2023 runner-up, signed a technology agreement with Pertamina NRE in 2026 to supply catalyst technology for a pilot plant in Indonesia exploring bio-methanol production.

Helping Maritime Start-ups Commercialise and Scale

8. PIER71 is extending its support beyond the development and testing of solutions to help maritime start-ups access investors and overseas markets. As part of SPC 2026, two initiatives introduced in April — Venture2Capital[2] and Ascend[3] — provide additional opportunities for start-ups to secure investment connections and pursue overseas business development.

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[1] SPC Accelerate is a 10-week programme in Singapore where start-ups are matched with maritime mentors and connected with innovation partners, companies, investors and other PIER71 alumni.
[2] Venture2Capital is an initiative connecting start-ups with investors and providing structured training and support for fundraising.
[3] Formerly Mentors-in-Residence Plus, Ascend is an initiative pairing start-ups looking to scale with experienced maritime professionals and overseas accelerator partners to support market entry and expansion.

9. Venture2Capital's inaugural edition connected six SPC participating start-ups with 11 venture capital and corporate investors to present their solutions and discuss potential investment opportunities. Ascend's inaugural cohort includes BeeCharge, which develops solar-powered mobile charging solutions supported by predictive energy management software. BeeCharge has begun engaging maritime industry contacts in Europe to explore potential business partnerships.

10. PIER71 also expanded its international network this year through partnerships with Digital Hub Logistics & Commerce in Hamburg, PortXL in Rotterdam and Braid Theory in Los Angeles. These partnerships provide selected start-ups with access to overseas innovation programmes, industry networks and market-entry support in Europe and the United States. KinetixPro, an SPC 2024 alumnus whose computer vision platform uses existing CCTV infrastructure to monitor safety risks, is establishing Hamburg as a base for its European expansion through Digital Hub Logistics & Commerce's network. The new agreements add to PIER71's network of over 70 industry partners.

11. PIER71 is also attracting international technology companies to establish a presence in Singapore. Through its Landing Pad programme[4], four start-ups from Belgium, Germany, China and India incorporated businesses in Singapore this year. The programme currently has 39 active members. Among them is Belgian drone logistics company ADLC, which obtained a Civil Aviation Authority of Singapore Unmanned Aircraft Operator Permit covering beyond-visual-line-of-sight operations and the carriage of dangerous goods. On 17 August 2026, ADLC subsequently demonstrated a 13-kilometre cargo drone route between the Maritime Drone Estate and Pulau Sebarok, illustrating the potential for drone deliveries to offshore maritime facilities. See **Annex D** for details on PIER71 international partnerships and other notable community activities in 2026.

12. Mr Ang Wee Keong, Chief Executive of MPA, said, "Over the past decade, the Smart Port Challenge has brought technology start-ups and maritime companies together to develop solutions for industry needs. The range of technologies showcased this year reflects the opportunities for innovation across maritime operations. We will continue to help promising start-ups develop and commercialise their solutions, connect with investors and reach international markets, while attracting new capabilities and investments that strengthen Maritime Singapore."

13. Dr Tan Sian Wee, NUS Senior Vice President (Innovation and Enterprise), said, "Raising capital remains one of the hardest steps for deep tech founders. This is why PIER71 does more than nurture ideas. With the Smart Port Challenge and Venture2Capital, we are bringing start-ups closer to real deployment, which is what

[4] Landing Pad is a PIER71 co-working and networking programme at JTC LaunchPad @ one-north, offering guidance to international maritime technology start-ups establishing a presence in Singapore.

gives investors confidence. PIER71 start-ups have now collectively raised more than S$180 million, and we are building a clear pathway from pilot to scale for maritime innovators."

14. Mr Demetris Chrysostomou, Columbia Group Deputy Chief Executive Officer, said, "At Columbia Group, we believe in contributing to the wider maritime ecosystem by supporting initiatives that encourage innovation and entrepreneurship. The PIER71 Smart Port Challenge provides an important platform for emerging companies to develop their ideas alongside industry partners, and we are pleased to contribute our experience and support to this initiative."

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About the Maritime and Port Authority of Singapore (MPA)

MPA was established in 1996 with the mission to develop Singapore as a global hub port and international maritime centre, and to advance and safeguard Singapore's strategic maritime interests. MPA takes on multiple roles as Singapore's maritime and port regulator and planner, international maritime centre champion, national maritime representative, and champion of maritime digitalisation and decarbonisation efforts. MPA partners industry, research community and other agencies to enhance safety, security and environmental protection, facilitate maritime and port operations and growth, expand multi-domain capabilities, and support the cluster of maritime services and manpower development.

For more information, please visit www.mpa.gov.sg/

About PIER71

Founded by the Maritime and Port Authority of Singapore (MPA) and NUSX, the entrepreneurial heart of the National University of Singapore (NUS), PIER71 (Port Innovation Ecosystem Reimagined at BLOCK71) aims to grow Singapore's maritime innovation ecosystem. PIER71 boosts innovation in the maritime and maritime-related industries by attracting talents, creating opportunities for the exchange of knowledge and ideas, attracting investments into start-ups and accelerating ventures.
PIER71 designs and delivers programmes to uncover opportunities within the industry and supports entrepreneurs from ideation to acceleration of their ventures. PIER71 provides access to various markets, demand drivers, technology solution providers, investors and more. PIER71 also represents a budding and increasingly vibrant ecosystem of stakeholders who are keen to digitalise and create the next wave of maritime innovation.

For more information, please visit https://pier71.sg.

About National University of Singapore (NUS)

The National University of Singapore (NUS) is Singapore's flagship university, which offers a global approach to education, research and entrepreneurship, with a focus on Asian perspectives and expertise. We have 15 colleges, faculties and schools across three campuses in Singapore, with more than 40,000 students from 100 countries enriching our vibrant and diverse campus community. We have also established about 15 NUS Overseas Colleges entrepreneurial hubs around the world.

Our multidisciplinary and real-world approach to education, research and entrepreneurship enables us to work closely with industry, governments and academia to address crucial and complex issues relevant to Asia and the world. Researchers in our faculties, research centres of excellence, corporate labs and more than 30 university-level research institutes focus on themes that include energy; environmental

and urban sustainability; treatment and prevention of diseases; active ageing; advanced materials; risk management and resilience of financial systems; Asian studies; and Smart Nation capabilities such as artificial intelligence, data science, operations research and cybersecurity.

For more information on NUS, please visit www.nus.edu.sg.

About NUSX

NUSX is the entrepreneurial heart of the National University of Singapore (NUS), where breakthroughs become advantage. As NUS' integrated venture-building and research commercialisation platform, NUSX forges entrepreneurial talent, creates market-ready opportunities in the field and extends its reach through global outposts. Together, these capabilities help turn discoveries into ventures and connect them to the industry, capital and markets needed to scale.

Since 2001, NUSX (formerly NUS Enterprise) has nurtured 5,500 students and built an ecosystem of over 3,000 start-ups, including 10 unicorns such as Patsnap and Carousell. Its flagship programmes take entrepreneurs global: NUS Overseas Colleges (NOC) places students in 15 innovation hubs, and B71 (formerly BLOCK71) connects start-ups to talent, markets and capital across 11 cities. NUSX's ambition is to build ventures that create lasting economic and societal impact, improving the lives of one billion people by 2035.

For more information on NUSX, please visit nusx.edu.sg.

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Annex A: Submissions to SPC from 2024–2026.

SPC Year	Submissions Received	From countries
2024	196	35
2025	288	35
2026	586	39

Annex B: SPC 2026 Prize Winners

Company Name	Country	Prize	Corporate Prize Sponsor
Vueron Technology	South Korea	Top Scale-up	Temasek
Ocean Intelligence	Australia	Top Start-up	Columbia Group
Trunk Technology (Beijing)	China	Special Mention	-
Underwater Solution	South Korea	Digitalisation	RINA
Ocean Intelligence	Australia	Maritime Green Technologies	OCBC
Trunk Technology (Beijing)	China	Smart Port	PSA Singapore and PSA Ventures
Vueron Technology	South Korea	Smart Shipping	American Bureau of Shipping (ABS)

Annex C: SPC 2026 Finalists and Semi-finalists

Position	Company Name	Country	Thematic Category	Company Description
Finalist	Marine Weather Intelligence (MWI)	France	Smart Shipping	Marine Weather Intelligence (MWI) combines weather, oceanographic and vessel data with AI to support safer and more efficient maritime operations. Drawing on expertise in offshore weather routing, its platform helps operators optimise voyage routes, anticipate weather-related risks and identify suitable operating windows, particularly for offshore energy projects and

				specialised marine transport.
Finalist	MPEmbed Virtual	Canada	Digitalisation	MPEmbed Virtual combines 3D digital twins, immersive learning and cognitive science to improve maritime training and operational readiness. Its platform recreates complex vessel environments and connects procedures, equipment and safety information to their physical locations, helping seafarers improve knowledge retention, situational awareness and workplace safety.
Finalist	Ocean Intelligence	Australia	Digitalisation	Ocean Intelligence develops an AI-powered voyage optimisation platform that incorporates ocean currents, weather conditions and vessel characteristics to identify more fuel-efficient routes. Integrating with existing navigation systems without additional onboard hardware, the solution helps shipping companies reduce fuel consumption, operating costs and carbon emissions while maintaining voyage schedules.
Finalist	Seamind	United States	Smart Shipping	Seamind develops an AI-powered ship management platform that integrates crew information, vessel documentation, training and regulatory compliance into a unified system. Its AI capabilities help ship managers streamline administrative workflows, retrieve operational information and maintain records for vessel inspections and

				audits, reducing manual effort and improving operational oversight.
Finalist	Seatrick Innovations	Singapore	Smart Shipping	Seatrick Innovations develops Sailorfy, a digital platform connecting seafarers, maritime training institutions, shipping companies and regulatory authorities. The platform supports digital identity, credential verification, certification management and career development, helping streamline administrative processes and improve trust and transparency across the seafarer employment lifecycle.
Finalist	Trunk Technology (Beijing)	China	Next Generation Ports	Trunk Technology develops autonomous driving and intelligent fleet management solutions for ports and logistics operations. Combining multi-sensor positioning, AI-powered scheduling and navigation technologies, its systems support more accurate prime mover movements, improved equipment utilisation and greater automation of container terminal operations.
Finalist	Vueron Technology	South Korea	Smart Shipping	Vueron Technology develops AI-powered LiDAR perception solutions for autonomous mobility and industrial safety. Its Lookout platform uses 3D sensing to monitor workers, vehicles and equipment in ports and shipyards, detecting unsafe proximity, potential collisions and restricted-area intrusions while supporting privacy-

				conscious safety monitoring.
Finalist	WhizHack Technologies	India	Digitalisation	WhizHack Technologies develops ZeroHack, a maritime cybersecurity platform that provides continuous monitoring and threat detection across onboard IT, operational technology (OT) and connected devices. Integrating network intrusion detection, endpoint protection and deception technologies, the platform helps shipping companies identify cyber threats, strengthen vessel resilience and support maritime cybersecurity compliance.
Semi-Finalist	AlbatrosDigital	The Netherlands	Smart Shipping	AlbatrosDigital develops physics-informed AI digital twins to analyse and benchmark vessel performance under different operating and environmental conditions. Its technology helps shipowners assess fuel efficiency, identify hull degradation and evaluate the effectiveness of energy-saving technologies, supporting more informed maintenance, retrofit and operational decisions.
Semi-Finalist	Amphitrite	France	Smart Shipping	Amphitrite combines satellite observations, oceanographic modelling and AI to deliver high-resolution ocean intelligence. Its technology provides detailed information on ocean currents and marine conditions, supporting more accurate voyage planning, fuel-efficient routing and offshore operations

				without requiring additional onboard hardware.
Semi-Finalist	Beijing Gongzhi Technology (GSmart)	China	Next Generation Ports	GSmart develops AI-powered video analytics solutions that transform existing port surveillance systems into proactive safety and security monitoring platforms. Using edge AI and computer vision, its technology detects near-miss incidents, unsafe interactions between workers and vehicles, restricted-area intrusions and potential perimeter security threats.
Semi-Finalist	BOTIX	China	Smart Shipping	BOTIX develops AI-powered maritime situational awareness and autonomous navigation technologies to enhance vessel safety. Integrating advanced sensors, radar and computer vision with existing bridge systems, its solutions help detect navigation hazards, improve visibility in challenging conditions and support safer vessel operations.
Semi-Finalist	ContainerGrid	Germany	Maritime Green Technologies	ContainerGrid develops a digital platform for circular supply chains and ship recycling. Its technology creates traceable digital records of materials recovered from end-of-life vessels and helps connect them with suitable reuse, refurbishment and recycling channels, enabling improved material recovery, regulatory compliance and resource value optimisation.
Semi-Finalist	Dtyle.Ai	India	Smart Shipping	Dtyle.AI develops an onboard video analytics

				platform that uses edge AI to detect potential safety hazards in real time. Integrating with existing vessel cameras, the solution identifies fire and smoke, personal protective equipment non-compliance and unauthorised access to restricted spaces, enabling faster alerts and improved safety oversight even without internet connectivity.
Semi-Finalist	Fuelture Tech	Singapore	Smart Shipping	Fuelture Tech combines AI forecasting with advanced mathematical and quantum-inspired optimisation to support maritime fuel procurement decisions. Its platform analyses fuel prices, vessel schedules and operational requirements to help shipping companies optimise bunkering locations, timing and quantities while balancing costs, risks and emissions.
Semi-Finalist	Maritime Procurement Services (MPS)	Mexico	Maritime Green Technologies	Maritime Procurement Services develops SeaSustain, a digital platform for tracking and managing ship-generated waste throughout its collection, transportation, treatment and disposal. Drawing on its maritime waste management experience, the platform improves waste traceability and supports environmental compliance, circular economy initiatives and sustainability reporting.
Semi-Finalist	molluSCAN-eye	France	Next Generation Ports	molluSCAN-eye develops biological water monitoring technology using connected molluscs

				as living sensors to detect changes in water quality. Its system continuously monitors biological responses to potential pollutants, providing early warnings of contamination and helping ports and industrial operators strengthen environmental monitoring and incident response.
Semi-Finalist	MONA	South Korea	Digitalisation	MONA develops AI-powered battery diagnostic technology using electrochemical impedance spectroscopy to assess battery health and detect internal abnormalities. Its non-invasive monitoring approach supports predictive maintenance and early fault detection, with potential applications in improving the safety and reliability of marine battery and energy storage systems.
Semi-Finalist	Sparsh Aerobotics	Singapore	Digitalisation	Sparsh Aerobotics develops drone and robotic solutions for vessel cleaning, inspection and maintenance. Its technology supports high-pressure cargo hold cleaning, remote visual inspections and access to confined or hard-to-reach areas, helping reduce manual labour, personnel exposure to hazardous environments and vessel maintenance downtime.
Semi-Finalist	Synovate Technologies	China	Smart Shipping	Synovate Technologies develops AI-powered machinery monitoring and diagnostic solutions to support predictive maintenance. Combining machine sensing,

				operational data and physics-informed AI models, its platform helps vessel operators detect early equipment faults, assess machinery condition and reduce unplanned downtime and maintenance costs.
Semi-Finalist	Underwater Solution	South Korea	Smart Shipping	Underwater Solution develops remotely operated underwater robotic systems for vessel inspection, cleaning and maintenance. Combining robotic inspection capabilities with AI-powered hull condition assessment, its technology helps shipowners detect damage and biofouling, monitor underwater assets and make more informed maintenance decisions while reducing reliance on divers.

Annex D: PIER71 International Partnerships and Notable Community Activities in 2026.

Since becoming a member of PIER71's Landing Pad programme, four international startups have established offices in Singapore – ADLC (Belgium), Fehrmann MaterialsX (Germany), DealFeng (China) and Troology (India).

PIER71 start-ups achieved other key commercial and operational milestones across the maritime sector, including:

1. **AliciaBots (PIER71 SPC 2021 participant)**

AliciaBots was among six partners selected by MPA from 19 proposals across nine countries to develop and trial in-water robotic hull inspection and cleaning solutions in Singapore's port waters. Backed by MINT Fund co-funding, the 18-month trials will commence in the second half of 2026 to support vessel efficiency and maritime decarbonisation.

Headquartered in Singapore, AliciaBots counts BW Epic Kosan, International Seaways, and Lomar Shipping among its key clients.

2. **KinetixPro (PIER71 SPC 2024 alumni)**

Singapore-headquartered KinetixPro applies AI and computer vision to improve safety and security in ports, terminals and industrial sites. The company is working with the Port of Esbjerg in Denmark to deploy AI-powered intrusion detection along port perimeters and tailgating detection at vehicle access points. Early results indicate over 50× greater visibility

into potential security events, enabling port operators to identify threats that might otherwise go undetected and respond faster.

KinetixPro has deployed its solutions across more than 10 countries, including Petronas in the energy sector, and is expanding into Europe and North America.

3. **Nexus Ocean AI (PIER71 SPC 2024 alumni)**

Following a three-month pilot of SAM, its agentic AI platform, Nexus Ocean AI has secured an annual contract with Allianz Bulk Carriers (ABC) for two commercial operations personas, SAM Chartering and SAM CommOps. The company is also piloting AI technical manager personas with Pacific International Lines (PIL) and Steamships, extending SAM into safety-critical technical management across bulk, container and regional shipping.

Nexus Ocean AI was founded in 2023 and is headquartered in Singapore.

4. **Planys Technologies (PIER71 SPC 2024 alumni)**

Planys Technologies uses marine robotics, advanced non-destructive testing, and intuitive AI-leveraged data analytics to deliver a safer, more reliable, more efficient and data-rich alternative for underwater inspections. Since 2024, it has completed three jetty steel pile inspection projects for ExxonMobil in Singapore besides serving the Singaporean power sector.

Founded in 2015, Planys has served more than 120 clients in 12 countries across Europe, the Middle East and Southeast Asia.