



EVENT REPORT

AI in Ports and Maritime Operations: Practice, Policy, and Future

(Official Pre-Event for the India AI Impact Summit 2026)



सर्वजन हिताय | सर्वजन सुखाय
WELFARE FOR ALL | HAPPINESS OF ALL

Date: February 9, 2026

Time: 10:15 AM – 02:00 PM

Venue: Sathya Park & Resorts

Organized by: V.O. Chidambaranar Port Authority (VOCPA)

Curated by: Institute for Governance, Policies & Politics (IGPP)

Event Host: Krishna Deepthi Rallabhandi (ADSM)



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2. Executive Summary

On February 9, 2026, the V.O. Chidambaranar Port Authority (VOCPA), in strategic collaboration with the Institute for Governance, Policies & Politics (IGPP), convened a landmark consultation to define the trajectory of Artificial Intelligence in India’s maritime sector. Functioning as the official **Pre-Event for the India AI Impact Summit 2026**, titled ‘AI in Ports and Maritime Operations: Practice, Policy and Future’. The discussion moved beyond the conventional discourse of ‘digitization’ to address the structural imperatives of **‘Institutional Intelligence.’**

Against the backdrop of the *Viksit Bharat 2047* vision, the event brought together a high-level ecosystem of policymakers (MoPSW), infrastructure giants (RailTel), academic pioneers (IIT Madras, IMU), and technology leaders (CoRover AI, TuTr Hyperloop) to stress-test the sector's readiness for a digital paradigm shift.

The Core Mandate

The central resolution of the event was the necessity to transition from the static concept of ‘Smart Ports’, which merely monitor data through sensors and dashboards, to **‘Thinking Ports.’** This new architectural paradigm defines ports as anticipatory systems capable of predicting bottlenecks, optimizing resource allocation, and detecting operational anomalies before they occur. The consensus established that AI must not be treated as a mere technological upgrade, but as a **‘systems capability’** that redefines governance, safety, and national supply chain resilience.

Key Thematic Outcomes

The deliberations were structured around three critical layers of the maritime AI stack:

1. **Policy and Practice (The Operational Now):** This session audited live use cases, ranging from conversational AI (**PortGPT**) to **Anti-Drone** defense systems, distinguishing proven utility from speculative hype. A critical outcome was the focus on ‘Institutional Design’—specifically, the need for governance frameworks that manage liability in AI-mediated decisions and procurement strategies that prevent vendor lock-in, ensuring public authorities retain sovereign control over digital assets.
2. **Future of Maritime Tech Infrastructure (The Hardware):** Panelists mapped a strategic roadmap for integrating frontier technologies, including Digital Twins, IoT, and Blockchain, into a unified ‘Digital Nervous System.’ The dialogue emphasized that infrastructure planning must be driven by long-term national utility, supporting futuristic logistics solutions like



Hyperloop and automated berth optimization to position India as a Global Maritime Powerhouse.

3. **Human-AI Synergy (The Workforce):** Dismantling the narrative of displacement, the forum redefined the workforce as the essential **‘Human-in-the-Loop.’** The consensus was that as ports become more autonomous, the human role elevates that of a ‘validator’ of algorithmic quality. The session outlined a framework for capacity building and reskilling, ensuring that human capital evolves in lockstep with the complexity of the machines they govern.

Conclusion

This consultation stands as a foundational pillar for the upcoming India AI Impact Summit 2026, delivering a ‘proof of concept’ rather than just a proposal. By dissecting the ecosystem across operational, regulatory, and futuristic dimensions, VOCPA and IGPP have established a validated framework for maritime AI. Consequently, when India presents its case on the global stage, it will be backed by tangible evidence and a robust institutional blueprint, demonstrating that the transition from digital to intelligent infrastructure is already underway.



3. Introduction

On February 9, 2026, the V.O. Chidambaranar Port Authority (VOCPA), in strategic collaboration with the Institute for Governance, Policies & Politics (IGPP), convened an engaging event titled “AI in Ports and Maritime Operations: Practice, Policy, and Future.” Hosted in Tuticorin, this discussion served as the official Pre-Event for the India AI Impact Summit 2026, designed to rigorously stress-test the sector’s readiness for a digital paradigm shift.

As the global maritime logistics chain undergoes a fundamental restructuring, Artificial Intelligence has moved beyond being a buzzword to becoming the central driver of efficiency, safety, and compliance. However, the current industry discourse often collapses the distinct challenges of **Practice** (current deployment), **Policy** (governance frameworks), and **Future** (system architecture) into vague, aspirational visions of ‘Smart Ports’. This ambiguity obscures the critical institutional choices that public authorities must make today to secure tomorrow’s infrastructure.

Recognizing this gap, the event included not just a standard conference, but visual demonstrations to unbundle these layers. The mandate was clear: to move beyond the static concept of ‘Smart Ports’, which merely monitor data, to ‘Thinking Ports’ that actively anticipate bottlenecks, optimize resource allocation, and predict operational anomalies before they occur. By grounding the discussion in the tangible reality, the event ensured that policy deliberations were not theoretical but rooted in operational ground truth.

The forum brought together a diverse ecosystem of stakeholders to bridge the gap between the ‘administrator who faces daily bottlenecks,’ the ‘tech innovator who has the solution,’ and the ‘policymaker who writes the rules.’ Leading voices from the Ministry of Ports, Shipping & Waterways, infrastructure giants like RailTel, academic pioneers from IIT Madras and IMU, and private technology leaders (including CoRover AI, DBGIT, and TuTr Hyperloop) convened to align India’s maritime technological stack with the Viksit Bharat 2047 vision.

The proceedings were structured around three critical layers:

AI in Policy and Practice

The session showcased the operational ‘now,’ auditing live use cases from PortGPT to Anti-Drone systems to distinguish proven utility from speculative hype. The discourse extended beyond mere adoption to ‘institutional design’, emphasizing the need for robust governance frameworks to manage accountability in AI-mediated decisions. Crucially, the presenters addressed the procurement of these technologies, advocating strategies that prevent vendor lock-in and ensure public authorities retain sovereign control over their digital assets.



Future of Maritime Tech Infrastructure

Shifting the lens to the future of maritime tech ecosystem, the session called for a fundamental rethinking of port architecture beyond generic 'Smart Port' models. The dialogue established a strategic roadmap for integrating frontier technologies; specifically Digital Twins, IoT, and automated berth optimization, to create AI capable of predictive foresight. This approach ensures that infrastructure planning is driven by long-term national utility, aligning technical upgrades with regulatory choices that support India's vision of becoming a Global Maritime Powerhouse.

Human-AI Synergy

The final theme redefined the workforce as the essential guarantor of system integrity and operational continuity. Far from replacing the human element, the consensus emphasized the 'human-in-the-loop' necessity, where officers act as validators of algorithmic quality and data accuracy. The session outlined a framework for workforce transformation through targeted capacity building and reskilling strategies, ensuring that technical preparedness evolves in lockstep with the complexity of autonomous systems.

This report documents the deliberations, use cases, and strategic outcomes of this pre-event. It serves as the 'homework' for the main India AI Impact Summit 2026, ensuring that when India steps onto the global stage, its maritime AI strategy is backed by proven utility and a mature governance model.



4. Inaugural Session: Setting the Vision

The event commenced with a formal welcome by the host, Ms. Krishna Deepthi Rallabhandi (ADSM), followed by the felicitation of dignitaries and the traditional lighting of the lamp.

Opening Remarks

Delivering a special video address, **Mr. Vijay Kumar, IAS (Secretary, Ministry of Ports, Shipping & Waterways)**, framed the dialogue within the national vision of *Viksit Bharat 2047*. He emphasized that AI is not merely a technological upgrade, but a core ‘systems capability’ essential for structural modernization and supply chain resilience. Highlighting the critical shift from data accumulation to ‘institutional intelligence’, he called for moving beyond conventional ‘smart ports’ to build infrastructure capable of anticipating and adapting in real-time. He affirmed that the Ministry views such practitioner-led dialogues as vital inputs for shaping a scalable national approach to AI adoption and framing future maritime standards.

Welcoming Address

Shri Susanta Kumar Purohit, Chairperson of VOC Port Authority, formally welcomed the delegates and established the operational and strategic context for the panel discussion. To demonstrate VOCPA's alignment with this national vision, he highlighted several key technological initiatives currently deployed or under development at the port:

- **Smart i-VTS:** Co-developed with IIT Madras, this system integrates radar, AIS, and meteorological data for real-time vessel tracking, supported by dedicated pilot-assistance mobile apps (*Pilot Thagaval* and *Kappal Seithi*).
- **AI-Based Surveillance:** Intelligent CCTV analytics that automate critical safety monitoring, including PPE compliance, oil spill detection, and crane operations.
- **Digital Twin:** A virtual replica of port infrastructure designed to simulate operational scenarios, forecast outcomes, and optimize cargo flows and predictive maintenance.
- **Anti-Drone Systems:** India’s first port-based defense deployment to safeguard critical maritime infrastructure against emerging aerial threats.

Recognizing that the port’s workforce brings decades of traditional experience, he stated that building trust and involving employees early ensures that AI augments human expertise rather than displacing it.



5. Session I: AI in Policy and Practice

(Port Cases Demonstrations)

This 50-minute session focused on current use cases, existing operations, deployment strategies, and policy imperatives. The session aimed to address how AI integrates with legacy port operations, its immediate performance benefits, and the governance frameworks needed for accountability in AI-mediated decisions.

Key Presentations:

- **Mr. Pavan Teja (Assistant Director - Strategic Management, VOCPA):** Presented the current AI use cases actively deployed within the V.O.Chidambaranar Port. His segment grounded the session in operational reality, detailing how diverse AI systems are currently being integrated with legacy port infrastructure to yield immediate and measurable performance benefits.
- **Mr. Ankush Sabharwal (CEO, CoRover AI):** Demonstrated the implementation of conversational AI models, specifically PortGPT and BharatGPT, alongside Digital Twin technology. He illustrated how these tools democratize access to complex operational data for ground-level personnel and allow administrators to simulate scenarios for predictive decision-making.
- **Mr. Sandeep Kumar (Executive Director, RailTel):** Highlighted the foundational role of the Internet of Things (IoT) in port modernization. He emphasized that robust, high-speed IoT networks act as the essential "digital nervous system" required for any advanced AI or autonomous applications to function effectively at scale.
- **Mr. Amit Sharma (Senior Manager, Central Electronics Ltd):** Addressed the critical security dimensions of port digitization by presenting AI-powered Anti-Drone technology. He detailed how safeguarding strategic maritime airspace against emerging aerial threats is a non-negotiable component of the future port ecosystem.
- **Mr. Varun (Partner, Grant Thornton):** Concluded the segment by providing a comparative global perspective on best practices for AI and digital technologies in the maritime sector. He focused on international governance frameworks necessary to manage accountability, liability, and agile procurement strategies.



The session concluded with a strong consensus that while AI offers immediate operational benefits, its successful integration depends on sound institutional design. Ultimately, the discussions provided stakeholders with actionable insights into structuring smart procurement strategies to prevent vendor lock-in, ensuring that today's policy choices secure sovereign institutional control over the digital infrastructure of tomorrow's ports. The segment formally closed with **Shri Susanta Kumar Purohit, Chairperson, VOCPA** presenting mementoes to the speakers in appreciation of their contributions.

6. Session II: Future of Maritime Tech Infrastructure

Following a networking tea break, the focus shifted from current operational practices to the architectural blueprint of tomorrow. This 40-minute panel explores how the modernization of maritime infrastructure demands a fundamental rethinking of port design, moving beyond incremental upgrades to integrate frontier technologies. The dialogue established a strategic roadmap for creating high-tech infrastructure driven by long-term national utility rather than short-term technological trends.

Moderator: Mr. Aditya Khakse (Business Lead, TuTr Hyperloop)

Key Deliberations and Panelist Contributions:

- **Dr. P. Raveendran, IRTS (Principal Advisor, VOCPA):** Set the strategic tone by addressing the critical regulatory choices required to shape high-tech infrastructure. He emphasized that physical and digital infrastructure planning must be inextricably aligned with India's long-term maritime modernization and sustainability goals.
- **Mr. Aditya Khakse (Business Lead, TuTr Hyperloop):** Expanded the horizon by introducing frontier concepts in cargo mobility. He discussed the potential integration of hyperloop technology as a futuristic layer of the logistics supply chain, challenging stakeholders to envision connectivity that transcends traditional rail and road constraints.
- **Mr. Ashwin Padmanabha (Head of Information Technology, DBGT):** Provided the private terminal operator's perspective, focusing heavily on operational resilience. He detailed the critical role of AI sensors in enabling predictive maintenance—shifting equipment



management from reactive repairs to proactive health monitoring—and the use of AI for automated berth optimization to reduce vessel turnaround times.

- **Mr. Bhaskar Choudhuri (Executive Director, PWC India) & Mr. Dhaval Joshi (Chief Executive Officer, Sahana System Limited):** Jointly addressed the digital and data backbone required to support these advanced systems. They detailed the convergence of Digital Twins, Blockchain, and the Internet of Things (IoT) in creating secure, transparent, and highly connected port ecosystems. Their insights highlighted how Blockchain ensures tamper-proof documentation while IoT serves as the central nervous system feeding real-time data to AI models.

Session Conclusion

The panel successfully mapped out the convergence of forward-looking approach and advanced hardware required for the next generation of India’s maritime logistics. The segment formally closed with **Shri Susanta Kumar Purohit, Chairperson, VOCPA** presenting mementoes to the speakers in appreciation of their contributions.

7. Session III: Human-AI Synergy

Moderating the final session, **Dr. Manish Tiwari (IGPP)** set the context by shifting the focus from ‘technology deployment’ to ‘people readiness.’ He emphasized that as digital systems become integral to maritime operations, the priority is ensuring that humans and machines work together to strengthen trust and resilience rather than replacing human judgment. He argued that rather than displacing the workforce, advanced technology increases the need for domain expertise, ethical oversight, and operational awareness. The session’s objective was defined as identifying how to prepare the workforce to lead this transition with confidence.

Key Deliberations and Panelist Contributions:

- **Dr. Nandakrishnan S L (Assistant Professor, Indian Maritime University):** Addressed the foundational layer of technical preparedness. He emphasized the urgent need to reform traditional maritime curricula, advocating for a shift toward ‘data fluency.’ His insights underscored that the next generation of maritime professionals must be equipped not just to operate machinery, but to interpret and manage complex AI-driven systems.



- **Dr. Kumaran Raju (Principal Scientist, NTCPWC, IIT Madras):** Focused on the critical role of human intervention in maintaining system integrity. He argued that while AI excels at processing vast amounts of data, human experts remain the ultimate guarantors of data accuracy and quality. He positioned the workforce as essential ‘validators’ who provide the contextual judgment that algorithms lack.
- **Mr. Prajith Nair (Founder & CEO, Docker Vision):** Brought an entrepreneurial and technological perspective to the table. He shared industry-level realities of integrating AI tools (like computer vision) alongside existing port operators, highlighting that the goal is to create an ‘augmented expert’ rather than replacing the human operator entirely.
- **Mr. Gaurav Saxena (Director, PWC India):** Outlined actionable strategies for capacity building and institutional change management. He discussed comprehensive reskilling frameworks required to ensure that mid-career professionals are smoothly transitioned into this new digital paradigm, fostering a workforce that is adaptable, confident, and technically prepared.

Session Conclusion

The panel successfully produced a cohesive framework for workforce transformation, affirming that human oversight is the ultimate fail-safe for autonomous port systems. The 35-minute deliberation was followed by a highly engaging 10-minute Q&A session, allowing the audience, comprising port administrators and academic heads to delve deeper into reskilling challenges. The segment formally closed with **Shri Susanta Kumar Purohit, Chairperson, VOCPA** presenting mementoes to the speakers in appreciation of their contributions.



8. Way Forward: Charting the Course to 2047

To ensure that the deliberations of this event translate into tangible outcomes for the **India AI Impact Summit 2026** and the broader **Viksit Bharat 2047** vision, the following strategic roadmap has been established:

- **Establishment of an AI Sandbox:** VOCPA will position itself as a ‘living lab’ for maritime AI, allowing indigenous startups and tech majors to pilot ‘Thinking Port’ solutions (such as PortGPT and predictive Digital Twins) in a controlled, live operational environment before national scale-up.
- **Drafting the Maritime AI Governance Framework:** Based on the session findings, a working group comprising policymakers, legal experts, and port administrators may draft a preliminary ‘Standard Operating Procedure’ (SOP) regarding data sovereignty, algorithmic liability, and vendor-neutral procurement.
- **Curriculum Integration:** Collaboration with academic partners like the Indian Maritime University (IMU) and IIT Madras will be intensified to introduce ‘Digital Fluency’ and ‘AI-Human Teaming’ modules into maritime education, ensuring the workforce is future-ready.
- **Preparation of the ‘Blue Economy AI Blueprint’:** The insights, use cases, and policy recommendations from this pre-event will be consolidated into a comprehensive outlook. This document will serve as India’s official sectoral submission at the India AI Impact Summit 2026, presenting a validated model for intelligent maritime infrastructure.



9. Concluding Remarks & Vote of Thanks

The event concluded with a formal synthesis of the day’s deliberations delivered by Mr. Sanjay Padmanabhan, Technical Advisor to CPA. In his concluding remarks, Mr. Padmanabhan summarized the key strategic takeaways from the three thematic sessions, reiterating the consensus to move beyond the static concept of ‘Smart Ports’ toward the dynamic, anticipatory model of **Thinking Ports**.

He emphasized that this pre-event served as the essential ‘homework’ for the upcoming **IndiaAI Impact Summit 2026**. By rigorously debating the hard questions of Practice, Policy, and Future now, VOCPA has ensured that India’s maritime narrative at the global summit will be grounded in proven utility and mature governance models rather than theoretical speculation.

Mr. Sanjay extended a formal Vote of Thanks to the dignitaries, including **Shri Vijay Kumar, IAS, Secretary, Ministry of Ports, Shipping & Waterways Secretary, MoPSW**, and Shri Susanta Kumar Purohit, Chairperson, VOCPA, for their visionary leadership. He acknowledged the invaluable contributions of the expert panelists from industry and academia, the curatorial support of the **Institute for Governance, Policies & Politics (IGPP)**, and the engaged audience.

The program officially closed with an invitation to a networking lunch, encouraging participants to continue the dialogue and forge the partnerships necessary to build India’s intelligent maritime future.