



# EVENT REPORT

## PANEL DISCUSSION

ON

## AI-POWERED PORTS: REIMAGINING EFFICIENCY AND OPERATIONS

# INDIA AI IMPACT SUMMIT 2026



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Organised by **VO Chidambaranar Port, Tuticorin**

In collaboration with IGPP

17th February 2026 | 10:30-11:30 AM

West Wing Room No 4B, Bharat Mandapam New Delhi



## EXECUTIVE SUMMARY

On 17 February 2026, the V.O. Chidambaranar Port Authority (VOCPA), in collaboration with the Institute for Governance, Policies and Politics (IGPP), convened a panel discussion at Bharat Mandapam, New Delhi, titled '*AI-Powered Ports: Reimagining Efficiency and Operations*' as part of engagements during the IndiaAI Impact Summit 2026. The session focused on reimagining ports in the era of Artificial Intelligence (AI), positioning AI not merely as an operational tool but as a strategic governance capability, enabling transformation of the institutional role of ports within national trade and infrastructure systems.

The discussion built upon VOCPA's earlier pre-summit dialogue held on the 9th of February 2026 titled 'AI in Ports and Maritime Operations: Practice, Policy and Future', and marked a transition from awareness to structured implementation. The central proposition advanced during the panel was a conceptual shift from 'smart ports' to 'thinking ports.' While smart ports are characterised by automation, dashboards and real-time monitoring, thinking ports represent intelligence-driven systems capable of predictive modelling, scenario planning, integrated decision-support, and anticipatory governance.

The inaugural address emphasised that AI integration must be embedded within institutional and regulatory frameworks rather than pursued as a reactive compliance measure. The deliberations were guided by two key issues: assessing the digital readiness of Indian ports and conceptualising the operational and governance architecture required to translate AI potential into measurable transformation.

From a strategic policy perspective, it was highlighted that India's maritime sector already possesses foundational digital public infrastructure, including enterprise systems, unified digital platforms, and process consolidation initiatives. However, significant challenges remain in data integration, interoperability and overcoming siloed systems. The discussion underscored the need to move beyond technology layering toward design-led integration, where AI systems converge across operations to enable proactive planning rather than reactive management. Industry representatives reinforced the complexity of the port ecosystem, noting that nearly 95% of India's trade by volume is maritime. AI applications discussed included dynamic yard logic, vessel coordination, predictive maintenance, autonomous navigation support, ESG monitoring, fraud detection, compliance automation and cybersecurity reinforcement. A critical insight was the evolution from predictive AI anticipating disruptions to prescriptive AI recommending corrective pathways to enhance efficiency and safety. Governance considerations formed a key pillar of the discussion. The importance of explainability, accountability, vendor responsibility, audit standards and liability frameworks in AI-mediated decision-making was emphasized. In high-stakes operational environments such as berth allocation and vessel movement, algorithmic decisions must be transparent and institutionally safeguarded. The absence of a comprehensive AI regulatory framework in India was identified as an area requiring attention.



The panel also situated AI within the broader national vision of Viksit Bharat 2047. While India's maritime trade volume is substantial, capacity utilisation gaps and dwelling times remain above global benchmarks. A phased AI deployment strategy was proposed which included the immediate adoption of automation and predictive maintenance, medium-term development of digital twins, AI-driven berth optimisation and long-term establishment of fully automated terminals and a National Port Digital Twin integrated with logistics and infrastructure missions.

The dialogue situated AI integration within India's broader development trajectory. Maritime modernization is central to strengthening logistics efficiency, attracting investment, and positioning India as a competitive global trade hub. Further, the discussion emphasised that infrastructure expansion alone cannot resolve existing bottlenecks. Physical capacity must be complemented by intelligent systems capable of synchronising operations across stakeholders. Ongoing challenges such as capacity underutilisation, documentation delays, fragmented coordination, and siloed data systems require systemic, intelligence-led solutions. AI offers the potential to bridge these gaps through:

- **Unified logistics integration** across ports, customs, shipping lines, and hinterland networks
- **National port digital twin frameworks** for predictive modelling and scenario planning
- **Phased automation deployment** aligned with operational readiness and governance safeguards
- **Real-time data harmonisation** to eliminate silos and enable informed decision-making

At the same time, the transformation was acknowledged to be as much a leadership challenge as a technological one. Strategic clarity, inter-agency coordination, regulatory alignment, and disciplined, phased execution will ultimately determine whether AI delivers structural change or remains a marginal efficiency tool.

In conclusion, the discussion reaffirmed that AI's transformative potential in ports lies not in incremental optimisation, but in redefining ports as intelligent national infrastructure that is anticipatory, integrated and has governance-driven institutions at the heart of India's economic resilience and global competitiveness.



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## ABOUT THE INDIA AI IMPACT SUMMIT 2026

The India AI Impact Summit 2026, held from 16–20 February 2026 at Bharat Mandapam, New Delhi, stands as a landmark global convening on artificial intelligence. Hosted by the Government of India, it is widely recognised as the first major international AI summit of this scale to be organised in the Global South. At a time when AI governance, safety, and technological competition are reshaping geopolitical alignments, the Summit signalled India’s transition from a participant in global AI dialogues to a principal architect of them. It brought together an unprecedented coalition of stakeholders heads of state, senior ministers, over 500 global AI leaders, technology CEOs, multilateral organisations, researchers, startups, investors, and civil society representatives to deliberate on the future direction of artificial intelligence.

Anchored in the guiding principles of People, Planet, and Progress, the Summit represented a decisive shift from discussion to implementation. The focus extended beyond debates confined to safety and ethics toward actionable frameworks for inclusive growth, strengthened digital public infrastructure, equitable access to compute and data, and scalable deployment across critical sectors. As a continuation of earlier global forums such as the UK AI Safety Summit, the AI Seoul Summit, and the France AI Action Summit, India’s convening expanded the global AI discourse by foregrounding the developmental priorities and equity considerations of emerging economies.

At the heart of the Summit was the vision of democratising AI, ensuring that advanced technologies serve as instruments of public value rather than concentrated advantage. Sectoral dialogues examined AI applications in healthcare, sustainability, agriculture, logistics, governance and economic resilience, linking technological innovation directly to measurable development outcomes. The participation of leading global technology companies including Google, OpenAI, Anthropic, and Meta alongside policymakers and academic experts underscored the importance of collaborative, multi-stakeholder engagement in shaping a human-centric and globally coordinated AI future.



## INTRODUCTION

On 17 February 2026, at Bharat Mandapam, New Delhi, the V.O. Chidambaranar Port Authority (VOCPA) Tuticorin, in collaboration with the Institute for Governance, Policies and Politics (IGPP), convened a panel discussion on reimagining India's ports in the age of Artificial Intelligence (AI). This panel discussion formed part of the high-impact deliberations at the India AI Impact Summit 2026. The session transcended beyond conversations on digitisation to examine a deeper structural question: how can AI reshape ports as strategic, intelligent national infrastructure rather than merely technologically upgraded facilities?

The session opened with a recognition that ports are no longer standalone logistics assets. In a global environment shaped by complex trade networks, climate volatility, supply-chain disruptions, and deepening digital interdependence, ports have emerged as central pillars of national economic resilience, trade security and industrial competitiveness. As the backbone of global commerce, they enable production systems, energy flows and export growth. Yet, particularly in emerging economies, structural bottlenecks persist in the form of congestion, manual documentation, unpredictable vessel turnaround times, inefficient cargo handling, fragmented data ecosystems and limited real-time operational visibility. These constraints directly affect cost efficiency, reliability, and sustainability within national and global supply chains. Amidst the existing challenges, AI presents not merely a technological upgrade but a structural opportunity. AI-driven systems ranging from predictive analytics and digital twins to autonomous logistics optimisation and risk modelling are reshaping how ports allocate resources, forecast congestion, enhance safety and manage environmental performance. However, AI's true transformative potential lies beyond incremental operational gains. AI must be understood as a governance and decision-support capability that redefines the role of ports within national systems.

It is in this context that VOCPA proposed a deliberate conceptual shift by shifting the discussion away from the conventional language of the 'smart port', which focuses primarily on sensors, dashboards, automation and digital monitoring, towards the idea of the 'thinking port'. A thinking port goes beyond observing events to modelling scenarios. It integrates data across operational, environmental, financial and trade dimensions, embeds AI within planning, resilience and governance functions and supports human decision-makers with structured intelligence rather than raw information. This vocabulary shift reflects a policy repositioning. By reframing ports as intelligence-driven, anticipatory, cyber-physical systems, AI becomes a transformational layer that enables ports to anticipate risk, manage systemic complexity and function as embedded components of national trade and logistics architecture.

The core purpose of the panel, therefore, was not to discuss AI adoption in ports as a technological trend, but to interrogate how AI redefines what ports are and who defines the next maritime system. The discussion sought to situate ports within a broader national framework of intelligent public infrastructure, where trade efficiency, resilience planning, regulatory oversight, cybersecurity and sustainability are interwoven.



The key themes during the deliberations include:

- Defining ports as intelligent national infrastructure while positioning AI as resilience and risk-management architecture rather than merely an efficiency tool;
- Addressing the human dimension of automation through skills development, institutional capacity building, and adaptive leadership;
- Strengthening policy, regulatory and security frameworks to ensure responsible AI deployment in critical maritime systems; and
- Examining data interoperability, digital public infrastructure, ESG integration and the alignment of AI-enabled port governance with India's long-term economic and strategic ambitions.

Through this dialogue, VOCPA sought to contribute to a forward-looking policy narrative that recognises ports not as static physical assets, but as dynamic, intelligence-enabled institutions at the heart of India's trade resilience and maritime future.



## PROCEEDINGS OF THE PANEL DISCUSSION

The panel discussion at Bharat Mandapam unfolded as a structured and forward-looking conversation that moved seamlessly from institutional vision to policy architecture, operational strategy, governance safeguards and national ambition. The session reflected a rare convergence of administrative leadership, industry expertise, regulatory insight and developmental vision, each reinforcing the central proposition that AI is redefining what ports are and how they function within national systems.

### Institutional Vision and Framing

The session was inaugurated by **Shri Susanta Purohit, Chairperson of the V.O. Chidambaranar Port Authority**. In his opening remarks, he welcomed the distinguished speakers and participants and situated the discussion within a broader institutional journey. Reflecting on VOC Port's earlier hosting of the pre-event to the India AI Impact Summit 2026 on 9 February 2026, he described the present dialogue as a natural progression from awareness and aspiration toward structured implementation. He underscored that VOC Port's approach to AI is not reactive or compliance-driven. Rather than treating AI as a technological add-on, VOCPA views it as a strategic capability that must be embedded within institutional frameworks. AI adoption, he emphasised, requires anticipatory policy design taking into account regulatory implications, operational transformation, workforce adaptation, and long-term governance considerations. In doing so, he set the tone for a discussion that would extend far beyond automation and efficiency into the realm of institutional redesign.



Moderating the session, **Dr. Manish Tiwari, Director at the Institute for Governance, Policies and Politics (IGPP)**, framed the deliberations around



two central guiding questions: How digitally ready are India's ports and what is the true capacity of AI to transform trade and logistics? Another equally important question posed was how should these changes be conceptualised and operationalised within the port ecosystem? He cautioned against viewing technological transformation in isolation. Digital maturity must evolve alongside governance maturity, human capability and institutional readiness. AI should not be seen as a force of displacement but of augmentation strengthening



human decision-making, enhancing predictability, and enabling greater systemic efficiency. This framing ensured that the conversation remained grounded in realism while aspiring toward structural transformation.

## **Strategic Policy Perspective: From Digital Infrastructure to Intelligent Infrastructure**

**Shri T.K. Ramachandran, Former Secretary MoPSW**, provided a comprehensive policy-level perspective, describing AI as the next ‘wave’ in a maritime sector historically shaped by waves both literal and technological. He highlighted that India’s maritime ecosystem is not beginning from a blank slate. Foundational digital public infrastructure already exists across major ports in the form of Enterprise Business Systems, NLP Marine platforms, the Sagar Setu platform, the e-Samudra portal, and the Ministry’s ‘One Nation, One Process’ initiative aimed at consolidating multiple procedural checklists into unified digital channels.



These initiatives, he noted, collectively represent a robust digital base. However, the challenge now lies in deepening digitalisation and ensuring integration across platforms. Many existing systems operate in silos, resulting in fragmented data flows and inefficiencies. Vendor lock-in further complicates interoperability, prompting the need to explore open-source approaches and common data standards. In a pivotal conceptual contribution, Shri Ramachandran articulated the transition from the ‘Smart Port’ to the ‘Thinking Port’. A smart port, he explained, is technology-led, automation-focused and oriented toward real-time monitoring. A thinking port, by contrast, is design-led, decision-support enabled and predictive in nature. It moves from siloed systems to integrated frameworks; from reactive management to proactive planning; from repetitive processes to learning systems.

He argued the future does not lie in layering additional technology; instead, AI must be embedded within standardised, efficient and accountable operational frameworks. Autonomous Guided Vehicles (AGVs), drones, environmental sensors and predictive analytics tools must converge into unified systems capable of modelling scenarios, forecasting risks and optimising resource allocation in advance. The objective is not more data but better decisions.

## **Industry Insights: Complexity, Coordination and Measurable Impact**

Bringing an industry lens to the discussion, **Mr. Subrat Tripathy, President Business Development, APSEZ**, emphasised the immense complexity of the port ecosystem. Nearly 95%



of India's trade by volume is maritime, making ports critical industrial ecosystems rather than mere transit points. They operate at the intersection of rail networks, road corridors, customs processes, warehousing systems, and global shipping routes. AI integration, he argued, must be incorporated at the design and planning stage rather than retrofitted as a digital overlay. Drawing from international examples such as Rotterdam's reduction in vessel waiting times and Singapore's algorithm-driven maritime coordination, he highlighted that predictability is the ultimate currency of efficiency.

He discussed AI applications in dynamic yard logic, vessel coordination, autonomous navigation assistance, multi-terminal integration platforms, predictive risk management, and continuous quality improvement through analytics. The central takeaway was clear: fragmented experimentation must give way to strategic deployment with measurable operational outcomes. Technology must be judged not by novelty, but by its ability to reduce turnaround time, improve safety, and enhance systemic reliability.

Complementing this operational perspective, **Mr. Manish Jaiswal, CTO at JM Baxi Group**, described AI as a transformative force already embedded in daily life and increasingly central to port ecosystems. He outlined practical use cases currently emerging including vessel arrival forecasting, yard optimisation, ESG monitoring, AI-based detection of unsafe behaviours, fraud detection in trade documentation, sanctions compliance monitoring and strengthened cybersecurity frameworks layered over automated systems.



Importantly, he highlighted the evolution from predictive AI to prescriptive AI. The next frontier, he suggested, is not merely anticipating potential failures, but recommending corrective action pathways enabling decision-makers to act with greater clarity and speed. In high-volume, high-stakes port environments, this shift can dramatically reduce risk exposure and operational uncertainty.

## **Governance, Accountability and Risk Architecture**

The discussion took a crucial turn with **Ms. Aparajita Rana's** governance-centric intervention. She cautioned that AI systems are only as reliable as the data and oversight mechanisms underpinning them. In a sector, where operational decisions such as berth allocation or vessel



movement carry significant financial and safety implications, attribution and liability become complex when mediated by algorithms.

She raised concerns regarding vendor accountability, hallucination risks in generative AI systems, the absence of a comprehensive AI law in India, explainability standards, audit mechanisms, and data-sharing protocols among multiple stakeholders. Without structured governance frameworks, AI deployment could create new layers of operational and reputational risk. Her remarks reinforced that AI adoption in ports must be carefully institutionalised.

Governance safeguards, transparency standards, and accountability structures must evolve in parallel with technological capability. Ports, as critical public infrastructure, cannot afford opaque decision-making systems.

## AI and the National Development Vision

Concluding the thematic arc of the discussion, **Mr. Gaurav Vallabh Sharma**, Member of the Economic Advisory Council to the Prime Minister, situated the conversation within the larger developmental vision of *Viksit Bharat 2047*. He underscored the strategic centrality of the maritime sector to India's growth trajectory, noting that nearly **95% of India's trade by volume** moves through sea routes. Yet, despite this scale, structural inefficiencies persist. He highlighted that capacity utilisation across Indian ports averages around **50%**, while parameters such as cargo dwell time and vessel turnaround time continue to lag behind leading global benchmarks. These inefficiencies, he observed, directly constrain competitiveness and elevate logistics costs, thereby impacting India's trade efficiency and industrial performance.



To address this gap, Mr. Sharma proposed a structured and action-oriented roadmap for AI integration, organised around what he termed the framework of the **“Eight AIs”**—a practical governance lens for meaningful implementation. These include:

- **Available Infrastructure** – evaluating current physical and digital assets;
- **Assessment Index** – establishing measurable performance benchmarks;
- **Actual Impediments** – identifying operational bottlenecks;



- **Authentic Integration** – ensuring interoperable and secure system design;
- **Automated Initiatives** – prioritising deployable automation solutions;
- **Actual Investment** – mobilising targeted capital allocation;
- **Avenues in India** – leveraging domestic innovation ecosystems; and
- **Accelerated Initiatives** – ensuring time-bound execution and scaling.

He articulated a phased implementation strategy. In the immediate term, ports should prioritise automated gate systems and predictive maintenance pilots to yield quick operational gains. The medium term would focus on the deployment of digital twins and AI-driven berth optimisation systems to improve planning precision and asset utilisation. The long-term vision envisages fully automated terminals and the creation of a National Port Digital Twin capable of modelling trade flows, infrastructure stress points, and risk scenarios at a systemic level. Importantly, he stressed that AI adoption must align with existing national initiatives such as Sagarmala, the National Logistics Policy, and unified logistics platforms including PCS and Sagar Setu. Emerging greenfield ports such as Vizhinjam, Vadhavan, and Greater Nicobar were identified as strategic opportunities to embed intelligence at the design stage rather than retrofitting legacy infrastructure.

His concluding message was clear and resolute: AI-driven transformation in ports is not a speculative ambition, it is already underway. The decisive variables are no longer technology or feasibility, but leadership, coordination, and disciplined execution. With policy acceleration and institutional alignment, AI-enabled optimisation can significantly reduce logistics costs, enhance vessel turnaround times, and strengthen India's position within global trade networks.

### Valedictory Remarks

The panel discussion concluded with closing remarks by **Shri Rajesh Soundararajan, Deputy**



**Chairperson of the V.O. Chidambaranar Port Authority**, who reflected on the depth, clarity, and strategic maturity of the deliberations. He observed that the session had moved beyond abstract discussions of technological adoption and instead articulated a coherent and nationally relevant narrative for India's maritime transformation. The exchange of perspectives ranging from digital infrastructure and operational complexity to governance safeguards and national development had collectively charted a clear course for AI-enabled transformation in the port sector. Describing the

discussion as both timely and consequential, Shri Soundararajan emphasised that the conversation had successfully aligned institutional vision with national priorities. The shift from 'smart' to 'thinking' ports, he noted, represents a deeper reorientation toward anticipatory



governance, integrated intelligence systems and resilient trade architecture. He affirmed VOC Port's commitment to sustaining this journey.

In concluding the session, he reiterated that the future of Indian ports lies in combining technological sophistication with administrative responsibility. By embedding AI within accountable governance frameworks and aligning it with national logistics and infrastructure strategies, ports can evolve into intelligence-enabled institutions that strengthen India's economic resilience and global competitiveness. With this affirmation, the session formally closed marking not the end of a discussion, but the consolidation of a strategic direction for the maritime sector in the age of AI.

## CONCLUSION

The panel discussion on “AI-Powered Ports: Reimagining Efficiency and Operations”, at the India AI Summit 2026 marked a pivotal moment in aligning India's maritime strategy with the country's accelerating artificial intelligence agenda. The session deliberated on the structural transformation of ports in the AI era. More than a technology-focused conversation, the dialogue elevated the discourse to one of institutional redesign and strategic governance.

At its core, the discussion crystallised a forward-looking consensus: the future of ports will not be shaped by incremental digitisation, but by the integration of AI as a strategic governance capability. The transition from 'smart ports' to 'thinking ports' emerged as the defining conceptual shift. While smart ports emphasise sensors, dashboards, and digital monitoring, thinking ports embed intelligence into decision-making systems anticipating risk, modelling scenarios, optimising trade flows and strengthening resilience across interconnected national architectures. In this framing, AI is not an add-on layer of automation, it becomes the cognitive infrastructure of the port ecosystem.

The deliberations identified several foundational imperatives necessary to realise this transformation. First, India already possesses a substantial digital base across its maritime ecosystem through platforms such as Sagar Setu and broader logistics digitisation efforts. The present challenge is not digitisation per se, but integration: achieving interoperability, eliminating data silos, and ensuring coherent, real-time data exchange across agencies and stakeholders. Second, AI must be embedded at the design and planning stage of infrastructure development, particularly in emerging ports, rather than retrofitted onto fragmented legacy systems. Integration must precede automation. Third, governance mechanisms must evolve in parallel with technological deployment. The questions of accountability, explainability, auditability, cybersecurity, vendor lock-in and liability in autonomous decision-making cannot remain secondary considerations in a high-stakes maritime domain. Finally, the success of AI integration will ultimately depend on leadership and disciplined execution, whether AI remains a marginal efficiency tool or becomes the backbone of trade optimisation and systemic resilience.



Furthermore, the economic and strategic rationale for this transformation is compelling. With nearly 95% of India's trade by volume moving through maritime routes, performance inefficiencies ranging from vessel turnaround times to crane productivity gaps directly affect national competitiveness. AI-enabled optimisation holds significant potential to reduce logistics costs, enhance operational throughput and strengthen supply-chain predictability. In doing so, ports become central to national objectives by lowering logistics expenditure, supporting energy transition corridors, enhancing export competitiveness and advancing the broader vision of Viksit Bharat 2047. Ports, therefore, are not peripheral logistics assets instead they are strategic nodes of economic sovereignty and industrial growth.

In this context, the VOC Port Authority has emerged as a proactive and catalytic stakeholder in this transformation. By convening this first-of-its-kind national dialogue and building upon its earlier pre-summit engagement in Tuticorin, VOC Port has positioned itself not merely as an implementing authority but as a thought leader shaping the governance narrative around AI in maritime India. Through demonstrated initiatives such as digital twins, predictive maintenance pilots and integrated operational systems, VOC has already signalled readiness to function as a leader for responsible, scalable and human-centric AI adoption.

To conclude, this panel discussion went far beyond examining the implementation of AI as a technological upgrade rather it articulated a roadmap for redefining the future of ports. It established that infrastructure and intelligence must evolve together and that India's maritime sector stands at the threshold of a structural shift. The momentum generated by this dialogue now calls for coordinated, time-bound action to translate vision into implementation, ensuring that India's ports evolve into intelligent, anticipatory ecosystems at the forefront of national resilience and global competitiveness.