INTERVIEW

Technological Advances changing the landscape of Indian maritime sector

Indian Ports Association (IPA), a Think Tank for the Ministry of Shipping, also rightly hailed as the Centre of Excellence (CoE) help major ports achieve eminence in their operations and management, thus contributing to the growth of the economy and the country at large. Dr Abhijit Singh, Executive Director, IPA in an exclusive interaction with Ritika Arora Bhola talks about how technological advances are transforming the ports sector and government policies boosting cargo volumes and capacity at the ports. Edited Excerpts:

Technology has literally revolutionised the Indian maritime industry. Kindly tell us about advanced digital technologies being used at ports that has the capacity to transform the landscape of Indian ports sector?

Number of measures like modernisation, mechanisation, process improvement, policy intervention and digital transformation has been taken to reduce time and cost in EXIM trade. A game changer initiative by Government of India to make high impact in Ease of Doing Business is the operationalising of centralised web-based Port Community System (PCS) across all major ports which enables seamless data flow between various stakeholders through common interface. The main objectives of the PCS are:

- Develop a centralised web-based application, which act as SINGLE WINDOW for the port community members/stakeholders to exchange messages electronically in secured fashion.
- Reduce transaction time and cost in port business.
- Achieve paperless regime in the ports sector.
- Data Repository for research and analysis.

To move towards complete paperless regime, e-DO (Electronic Delivery Order) through PCS is made mandatory along with e-invoicing and e-payment. An upgraded version, PCS1x was launched in December 2018, 24 out of 27 stakeholders are on board. PCS1x which has value-added services, latch-on facility and can integrate with all other trade partner portals to facilitate end-to-end trade activities. Under new mandate, PCS1x should strive to evolve as National Logistic Portal which will also cater requirements of multimodal transportation such as rail, aviation, road, inland waterways and coastal movements. It will also have unique feature of e-market place which will facilitate trade and logistics to ultimately reduce transaction time of EXIM trade apart from being online.

In addition, an Enterprise Business System (EBS) is being implemented at 5 major ports (Mumbai, Chennai, Deendayal, Paradip, Kolkata (including Haldia) with project cost of approx. 320 crore) to provide a digital port ecosystem that will adopt leading international practices without losing its alignment to existing local needs. A total of 2474 processes were rational-

ised, harmonised, optimised and standardised to arrive at a final re engineered process count of 162 processes. EBS would tightly integrate with PCS and other retained applications of ports like POS/TOS (PCS) etc. This will completely digitise most processes at ports thus making ports better trade facilitators.

What technological upgradation initiatives according to you are more relevant to Indian ports and should be taken for improving ports operational efficiency?

Some of the measures taken up which are catalyst to improving operational efficiencies in addition to PCS and EBS are installation of highly efficient container scanners, gate automation, RFID system, automatic berth allocation, plot/yard planning, linking of rail booking with port systems, implementation of Logistics Data Bank Service for enabling track and trace movement of EXIM containers. Gateway Terminals India (GTI) at JNPT has deployed 14 new Rubber Tyred Gantry Cranes (RTGCs) thereby easing the congestion at the ports and reducing overall time to handle the shipments at ports.

IT and automation are playing a major role in controlling and monitoring multiple port operations. At ports, IT adoption has already begun with daily use of port operating system. However, the primary utility of the systems currently is to record all the observations, data facts etc post facto – primarily for billing purposes, rather than increasing operational efficiency. As discussed earlier, EBS will tightly integrate with POS/TOS & PCS 1x, have scope of all these analytic features, and data inputs will be fed on real-time basis into the system to give real time – operations improvement centric outputs. Mundra port has introduced digital navigation for internal container movement, Auto-Position Detection System, real time liquid tanks visibility, online container documentation, RFID based fuel management system, Work-Force Management System, and e-Clearances for dry and liquid cargos from customs. Krishnapatnam Port has installed an automatic fertiliser handling system which has reduced the time taken from 2-3 days to a mere six to eight hours.

What emerging technologies are relevant to Indian ports to adopt in the near future?

Untapped advanced technologies like Machine Learning and Artificial Intelligence can help ports make more sense of the data and get better insights for improving efficiencies and driving down the cost. The Blockchain technology and Smart Contracts can resolve issue of trust among various stakeholders and make information sharing and transactions secure and faster. These innovations and technological adoptions will help in transforming the Indian ports sector on par with leading international ports.

For improving the efficiency and productivity of India's major ports, 116 initiatives have been identified, which will unlock 100 MTPA of capacity at these ports.

Further, ports are also considering on adopting few emerging maritime technologies, such as:

- Dynamic Under Keel Clearance.
- Moor Master.
- Tracking Crane Operations using Sensor Technology.
- Tools such as Vessel Arrival Prediction, Vehicle Booking systems, Hinterland Truck Marketplace, etc., that can significantly help in streamlining port operations and, increase transparency.
- Advanced and under development technologies such as Hyperloop, 3D printing of spare parts for vessel repair.
- Shore-to-ship power supply
- Best in class Port Operating Systems (POS).

Major ports capacity has been re-rated with respect to global benchmarks. Please throw light on the current capacity at ports in India and global benchmarks on capacity which the country needs to achieve.

The cargo handling capacity of all Indian ports is 2316.14 MTPA. Out of this, capacity available at major ports is 1452.64 MTPA and non-major ports is 863.50 MTPA. Globally ports follow the practice that cargo handling capacity should be 30 per cent more than the projected traffic to ensure that the pre-berthing detention of ships is minimised. It is important that planning for each commodity group should be promoted as each require different facilities and capacity. During 2018-19, total traffic handled at all major ports was 699.10 million tonnes against the available capacity of 1452.64 MTPA. It is observed that while capacity utilisation of ports like Mumbai (80%) and Haldia (79%) are still relatively high, other major ports such as Ennore (Kamarajar), Chennai and Cochin are utilising less than 40 per cent of their available capacity. Even Kandla (Deendayal) and Paradip port, which handle the most amount of traffic have an utilisation rate of 43 per cent each in 2017-18. This is on account of the shift in cargo traffic handled towards non-major ports. Many non-major ports, such as Pipavav and Mundra in Gujarat are absorbing the excess cargo traffic. Inference is that sufficient capacity is available at major ports to cater future traffic even if it grows at 10 per cent rate for next 4-5 years. Two new major Greenfield ports are proposed to be developed at Vadhavan (Maharashtra) and Paradip Outer Harbour (Odhisha), which will also help in increasing capacity of the ports sector to handle India's EXIM traffic. Focus of government is to execute and implement all strategic initiatives at ports in timely manner. A monitoring framework for the same has also been developed by the Ministry by using digital technology for updates on each infrastructure project. Further, the government is also planning to bring unused non-operational and non-major ports into mainstream of country requirement.

Emphasis currently is on implementation of well-conceived infrastructure development projects, increasing the efficiency of port operations through the implementation of a package of recommendations to cut time and cost, digitisation of processes to reduce and finally eliminate human interface and to strongly address environment-related concerns. CC