



# SMART PORTS

Tata Communications MOVE™ - Private Network

## Industry Overview

Port industry is a major contributor to the worldwide trade. Disasters such as covid-19, which disrupt ports due to the associated supply chain issues and port congestion, inflict huge economic and social damage on a global scale. This requires ports to adopt new technologies such as driverless trucks, AGVs, OCR etc., for efficient logistics in crisis situations, before time delivery and real-time container tracking of throughout the lifecycle of a delivery.

Ports can utilize the speed and robust connectivity of private network to support complex use cases that enhance the efficiency and safety for the ports of the future. Tata Communications Smart ports solution using 5G private networks provides the required technological and domain expertise to facilitate digital transformation for a ports conveniently and effectively.

## Port Industry - Challenges

- **Inefficient asset utilisation** - The volume of shipping trade and the size of vessels is increasing, ports only have a limited amount of space and assets. It is imperative to reduce equipment failures and downtime of critical equipment like cranes.
- **Congestion** - Congestion is being compounded by increasing demand, as a growing number of vessels, trucks and trains need access to a limited space. A shortage of port pilots is also creating longer waiting times for boats to be unloaded increasing CO<sub>2</sub> emissions.
- **Working environment** - Heavy cargoes and moving equipments create a hazardous environment for port workers. According to the European Maritime Safety Agency (EMSA), ~42% of marine casualties or incidents take place in the port area.
- **Carbon footprint reduction** - Ports need to reduce their emissions. Environmental initiatives are persuading organisations to use more sustainable transport methods.

## Tata Communications MOVE™ - Private Network

An easy-to-manage, enterprise wireless connectivity solution. It delivers a robust and reliable private wireless network, with an associated digital ecosystem enablement platform to help you to achieve your digital transformation vision.

## Value Proposition

- **Automation and orchestration platform** to enable industrial applications
- **Unified view of operations** across global locations
- **Industry vertical knowledge** solving sector specific challenges and needs
- **Collaboration centre** with 5G testbed for use case testing and evaluation
- **Multi-layer security** to protect device, network, and applications
- **Comprehensive service suite** comprising network planning, deployment & management service

## Smart Ports Use Cases

USE CASE	DESCRIPTION	BENEFITS	FINANCIALS
Remote controlled ship-to-shore cranes	Remote controlled STS cranes allow crane operators to control the cranes remotely from a control room in real-time	<ul style="list-style-type: none"> <li>Reduced crane operator accidents and fatalities</li> <li>Better operator utilisation</li> <li>Low operational costs</li> </ul>	<ul style="list-style-type: none"> <li>Steady state net revenue - 4.9%</li> <li>ROI - 156%</li> <li>Payback time - 2Y</li> </ul>
Automated Rubber-Tired Gantry cranes (RTG)	Automated RTG where operator supervises automated hoist, trolley and gantry moves on stack and controls operation in the truck lane	<ul style="list-style-type: none"> <li>Safer worker environment</li> <li>Higher utilisation of RTG crane operators</li> <li>Improved productivity</li> <li>Low manual intervention</li> </ul>	<ul style="list-style-type: none"> <li>Steady state net revenue - 7.5%</li> <li>ROI - 98%</li> <li>Payback time - 3Y</li> </ul>
Automated Guided Vehicles (AGV)	AGVs as driverless material- handling vehicles which use smart 3D sensors, Edge computing and reliable 5G connectivity to navigate across the ports safely	<ul style="list-style-type: none"> <li>Reduced human resource cost</li> <li>Reduction in energy costs</li> <li>Safe work environment with less human-led collisions</li> <li>Improved productivity</li> </ul>	<ul style="list-style-type: none"> <li>Steady state net revenue - 7.1%</li> <li>ROI - 149%</li> <li>Payback time - 2Y</li> </ul>
Predictive maintenance with condition monitoring	Condition monitoring of assets to monitor factors like vibration and temperature in real time to detect abnormalities and to predict when an asset needs maintenance	<ul style="list-style-type: none"> <li>Early detection of potential failures and their causes</li> <li>Reduction in on-the-ground monitoring efforts</li> <li>Just-in-time maintenance</li> <li>Optimal technicians' utilisation</li> </ul>	<ul style="list-style-type: none"> <li>Steady state net revenue - 2.7%</li> <li>ROI - 126%</li> <li>Payback time - 2Y</li> </ul>
Drones for surveillance and deliveries	<ul style="list-style-type: none"> <li>Delivery drones used for sending documents to and from vessels</li> <li>Camera-equipped drones to collect and stream data to the Edge cloud, where analytics is used to detect theft or unpermitted access</li> </ul>	<ul style="list-style-type: none"> <li>Early detection of potential threats and thefts</li> <li>Wharf availability check</li> <li>Faster and timely deliveries of documents</li> <li>Reduction in cost and resources to deliver small items to ships</li> </ul>	<ul style="list-style-type: none"> <li>Steady state net revenue - 1.6%</li> <li>ROI - 154%</li> <li>Payback time - 2Y</li> </ul>
Remote maintenance using AR/VR	AR/VR head gears combined with analytics technologies provide a comprehensive remote technical assistance system	<ul style="list-style-type: none"> <li>Low cost of maintenance</li> <li>High asset up-time</li> <li>Higher success rate</li> <li>Higher specialists' utilisation</li> </ul>	-
Asset tracking	Connected equipment (e.g. tugboats) using private 5G network to track locations & enable machine-to-machine communication	<ul style="list-style-type: none"> <li>24*7 real time assets visibility</li> <li>Optimal resource utilisation</li> <li>Minimal waiting time for vessels needing asset assistance</li> </ul>	-

\*Data source: Ericsson's 'Connected Ports Report' published in February, 2021

## Way forward

With rapid increase of mass consumerism and e-commerce market, ports industry has to expedite their steps towards digital transformation. In today's era, advanced digital capability is not only a competitive advantage, but a necessity. **Tata Communications Smart Ports** Solution provides cutting-edge digital transformation solution specifically tailored as per ports' operational requirements.

Tata Communications also leverages its vast experience as a global network provider to offer a unified view of operations for all network requirements for ports. To collaborate with us or to know more about smart hospitals solution and POCs, Please email us at: [5Gnetwork@tatacommunications.com](mailto:5Gnetwork@tatacommunications.com)