



**Arab Academy**

for Science , Technology and Maritime Transport



The International Maritime Transport  
and Logistics Conference

**“MARLOG 13”**

Towards \_\_\_\_\_  
**Smart Green Blue  
Infrastructure**

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# Digitalization Journey towards a Green and Smart Port

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# Importance of Sea Ports

Today, almost 90% of global trade by weight and 70% by value is transported by sea of which 60% is containerised

IN THE BEGINNING ..... 4,200 Years Ago



Lothal is one of the most prominent cities of the ancient Indus valley civilisation, located in the Bhāl region of the modern state of Gujarat. The port was constructed around 2200 BCE .



## Why is digitization so important?

- Improve the efficiency of a business's process, consistency, and quality.
- To reduce or eliminate pain points and challenges faced by the port community – port authorities, port operators, government agencies related to port operations and port users.
- Removing redundancies and shortening the communications chain.
- Reduce operating costs
- Ability to take advantage of analytics and real user data.

*Port digitisation is a continuous transformation journey .....*

The aim of digitalization is to achieve a smart and green port status to improve operations efficiency and reduce carbon emission by **optimizing truck-trips**, minimizing gate congestions and **just-in-time** port call



# Typical Pain Points of Port Call and Operations

## MANUAL PROCESSES

- Manual submission of port call documents and terminal operations – Vessel Declaration, Manifest, DG Declaration, Container/Cargo Discharge List, Delivery Order, etc.
- Repetitive submission of same information to multiple agencies, manually or electronically
- Many document submission and communications are via email, telephone calls, whatsapp, slips of paper

## NO COORDINATION AMONG VARIOUS STAKEHOLDERS

- The host of regulatory and compliance requirements governed by various agencies and terminal operations requirements are often not co-ordinated resulting in idle time and wastage of resources
- The service providers rendering of service requests are performed in silos each without knowing who will be providing what service at what time, resulting providers clashing of service delivery time

## SILO SYSTEMS

- No Single Platform to fully Integrate end-to-end activities in the vessel operations and logistics chain, in particular B2B communications
- No visibility of service requests and activities
- Difficulty in collating information and compiling statistics and performance reports

## LEGACY SYSTEMS

- Make-do with old technology, slow response, not-so friendly/fantastic UI/UX
- Work around with additional steps or semi-manual processes to support new business requirements
- Limitations in file size support, upload functions, types of messages supported

# TOTAL DIGITILIZATION APPROACH FOR THE COMMUNITY

- Maritime Single Window for enhancing shipping efficiency & competitiveness
- Port Community System for achieving operational efficiency and service excellence for the port and logistics community and facilitate logistics services for multi-modal transportation
- Hinterland systems for efficient operations of Depot, ICD, CFS



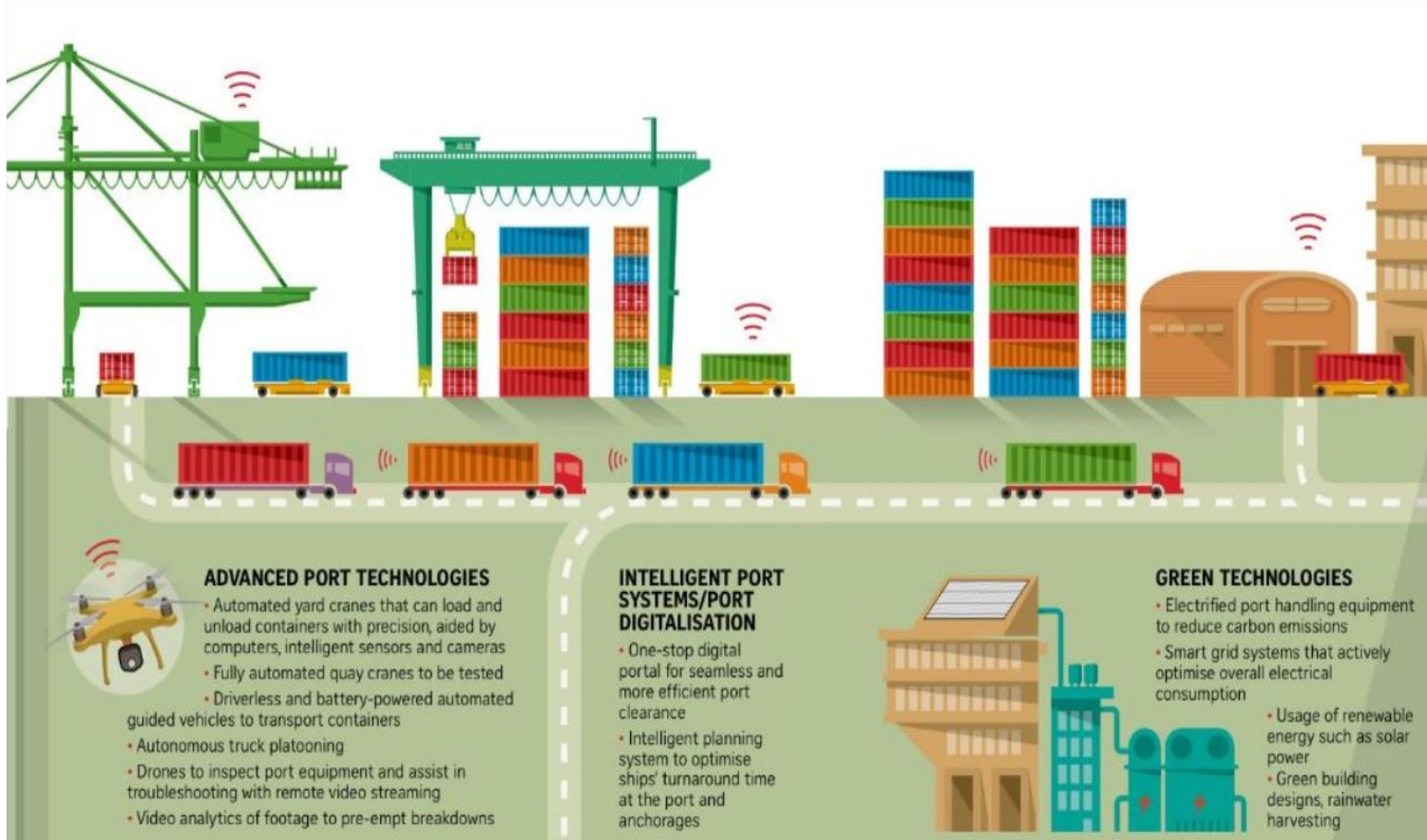
## The Singapore Mode – 3 separate but integrated platforms:

- PORTNET® - Port Community System
- Marinet - Maritime Single Window
- TradeNet - Trade Single Window

- Has served the island-state well in the last 30 over years.
- A key pillar to the economic growth and modernization of the country.
- Each of the platform is focused in serving its stakeholders and fulfilling its mission

PCS	MSW	TRADE SW
	<b>Product Name</b>	
<b>PORTNET®</b>	<b>Marinet</b>	<b>TradeNet</b>
	<b>Owner</b>	
<b>PSA (port operator)</b>	<b>Maritime and Port Authority</b>	<b>Singapore Customs</b>
	<b>Funding</b>	
<b>Initially funded and developed by PSA as a Port Authority, currently owned and maintained by PSA International as the port operator</b>	<b>Maritime and Port Authority</b>	<b>PPP – government appointed agencies invested to set up a Special Purpose Vehicle to develop, maintain and operate</b>

# The Singapore Tuas Port – A Smarter and Greener Port







Paper-based port call reports continue to burden ship operators and agents, increasing cost, delays impacting vessel emission output, and reducing the competitiveness of maritime transport.





A port call is an important event and a potential bottleneck in the entire chain. The benefits of 'just-in-time' arrival in terms of emission savings would potentially be significant, as it would allow smart routing and steaming

Port call optimization is not only related to the 'ship-to-port' communication but also seeks to improve hinterland connections and ultimately the entire logistical chain

# The IMO FAL Convention

**Mandatory requirements** for the electronic exchange of information on cargo, crew and passengers as part of a revised and modernized annex to the Convention on Facilitation of International Maritime Traffic (FAL).



A **mandatory requirement** for national governments to introduce electronic information exchange between ships and ports comes into effect from 8 April 2019.

## Aim

Make cross-border trade simpler and the logistics chain more efficient, for more than 10 billion tons of goods which are traded by sea annually across the globe

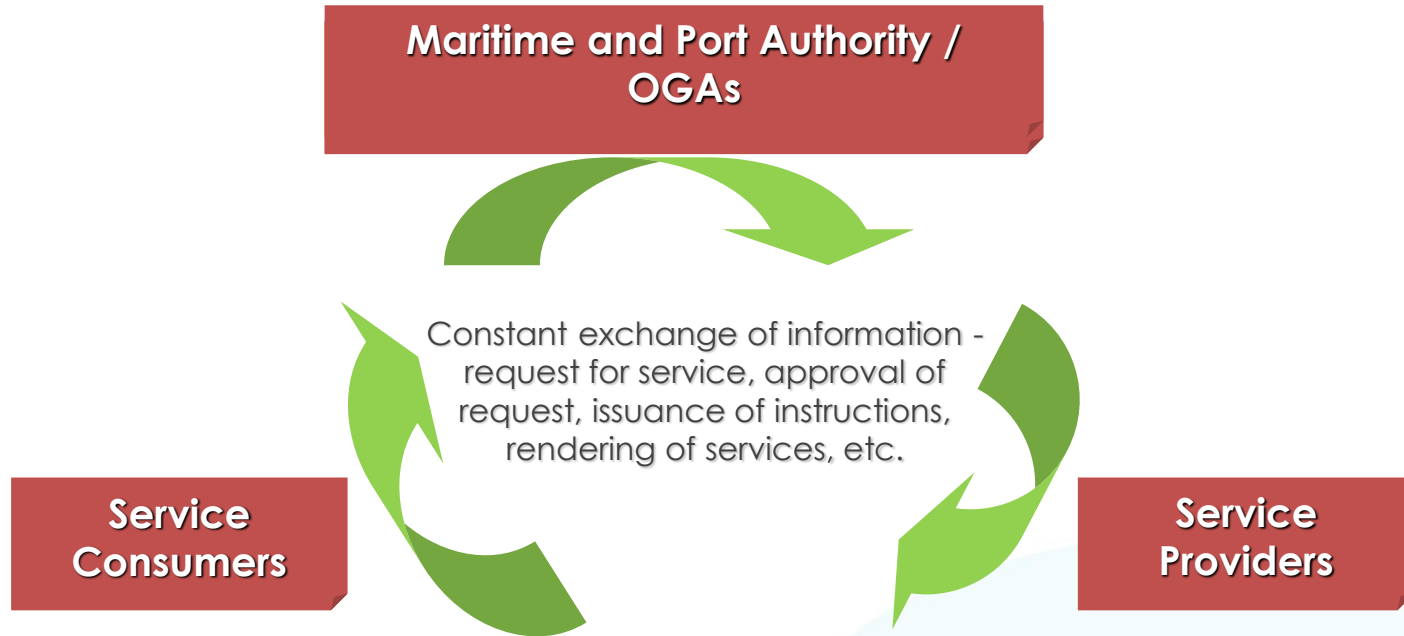
## Result

- Information can be retrieved and presented with minimal inconsistencies
- Support data harmonization that is integral for building accurate risk assessment of cargoes & border management



# Maritime Single Window – In compliance with IMO FAL Convention

A Single Portal Access to Document Submission For Port Clearance



# Maritime Single Window - Towards a JIT environment

Measurement and Analysis of Service KPIs for Service Providers

Data Analytics of maritime services for service providers

Integration with related Sea and Land Logistics – trucks, launches, warehouses, etc.

**Co-ordinated operations** – ETA/ETB, Pilot, Tug, Bunker, Water supplies, ship supplies, crew disembarkation, immigration, etc

Measurement and Analysis of Service KPIs for Agencies

Data Analytics of maritime services for Maritime Authority

Approval for service requests, onboard vessel activities, vessel & crew movements etc

**JIT Operations** – minimize unproductive waiting time and wastage, improve operational efficiency



# Port Community System



# WHAT IS A PCS?

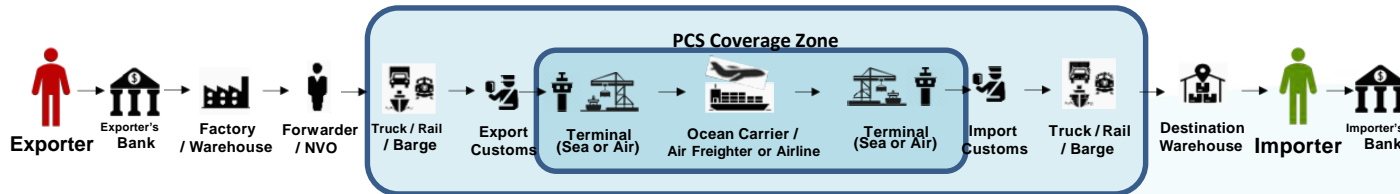
## Port Community System (PCS)

A 'Port Single Window' that digitally facilitates end-to-end data flow

between port users, trade and logistics businesses and government agencies

Achieve operational efficiency and service excellence for the port / logistics community and to facilitate multi-modal, inter-modal, and transit logistics services

Provides a single source of truth which encapsulates the entire process flow, whilst ensuring data integrity and eliminating data duplication



# WHO BENEFITS FROM PCS?

## The Port & Logistics Community

### Business

- Shipping line/Agent
- Freight Forwarders/Transporters
- Depots / Warehouses
- Shippers / Consignees
- Stevedores
- Pilot / Tug
- Bunker/water suppliers

### Government

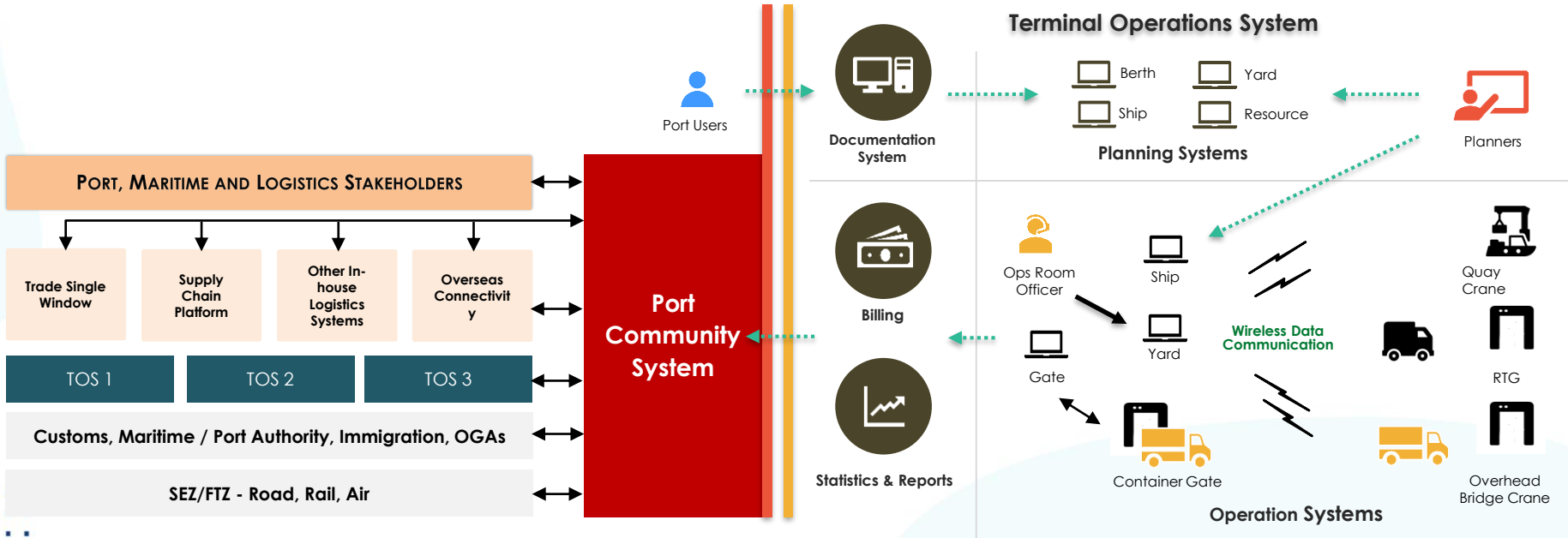
- Port Authority
- Customs
- OGAs
- Port / Airport operators
- Rail operators
- Free trade zones
- Bonded warehouses



# HOW DOES PCS WORK?

A FULLY-INTEGRATED

'PORT SINGLE WINDOW'



# KEY COMPONENTS OF PCS

## Submission Of Operations Documents

- Container Vessel Bay Plan
- Stowage Instructions
- Export Shipping Note
- Second Carrier Nomination
- Delivery Order
- Gate Appointment
- Pre-gate information
- etc

## Request for Services

- Berth Application
- Order for pilot, tugs
- Request for water, bunkers, ship supplies
- Request for stuffing / unstuffing service
- Request for Reefer PTI
- Request for Reefer Pre-cooling
- Container Repair
- etc

## Information Services

- Vessel Arrival / Departure
- Vessel in Port
- Vessel Schedule
- Berthing Schedule
- Container/Cargo Tracking
- Container Activities
- Gate Schedule
- Performance Reports
- Dwell Time Report
- Reefer Monitoring Report
- etc

**B2B Communications - channel among various parties in the shipping and logistics industry – shipping lines /airlines, freight forwarders, truckers, depot operators, shippers, consignees, NVOCCs, cargo handling agent, etc.**

- Delivery Order • Storing Order / Release Order • Transport Order

# Global Portnet – Based on proven PORTNET in Singapore

Beibuwan Implementation for whole Guangxi province, China

Digitalising **4 Container Terminals** and **3 Conventional Terminals (2019 – 2020)**

Positive Outcomes for the Guangxi Beibuwan Region:



# DIGITAL SOLUTIONS FOR HINTERLAND OPERATIONS

Depot Management

Inland Container Depot / CFS  
Dry Port Management

Free Trade Zone / Special  
Economic Zone Management

Gate Scheduling and Gate  
Booking

Truck and Truck-Trips  
Optimization

Integration with Terminals and  
other stakeholder systems





**CrimsonLogic**, part of the PSA Group, is a global technology company that digitalizes and simplifies global trade for businesses and governments around the world through intuitive and delightful solutions.

With over 35 years of experience advancing trade facilitation, compliance, port operations, government services and logistics, we push the boundaries of technology with insightful innovation and deep domain expertise of global trade driven by customer-centricity at our core.

Having pioneered the world's first single-window trade facilitation system, we continue to drive the digital transformation of global trade in over 40 countries with sustainable, impactful solutions for a more seamlessly connected world.

Our Shareholders:



# CrimsonLogic At A Glance



Started in  
**1988**



**20** Countries with offices



**>60** Projects implemented worldwide



**27** Nationalities within our workforce



**>40** Countries with digital solutions implemented



**1200** Employees



Products & services strategies

## Asia Pacific

- Brunei
- Cambodia
- China
- Fiji
- Kazakhstan
- Malaysia
- Philippines
- Singapore
- Vietnam

## Americas

- Anguilla
- Bahamas
- Bolivia
- British Virgin Island
- Canada
- Chile
- Mexico
- Pacific Alliance
- Panama
- Peru
- St Lucia
- Suriname
- Trinidad & Tobago
- USA

## Europe, Middle East Africa and South Asia

- Bahrain
- Bhutan
- Botswana
- Djibouti
- Ghana
- India
- Ivory Coast
- Kenya
- Madagascar
- Mauritius
- Mozambique
- Namibia
- Oman
- Qatar
- Rwanda
- Saudi Arabia
- Sri Lanka
- Tanzania
- UAE

### Type of projects done

- Trade
- Digital Govt
- Legal
- CrimsonLogic Office



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*Thank You*

