

Blockchain in the Marine Industry



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AGENDA

- Introduction
- Blockchain Technology
- Real benefits of Blockchain
- Blockchain project applications
- Conclusions



SG Smart Tech

Building Smart Digital Solutions for the Marine Industry



- Launched 1st app-based for passenger launches in S'pore (Beta version)

- Conceptualization of Block Chain based e-Chandling platform

- SeaCabbie is Launched. Over 200 trips committed every month.

- Awarded MPA (MINT) fund of S\$XXX for Block Chain based e-Chandling platform

- POC with Shipmgt. company on e-Chandling platform

- Awarded "Top 6 Finalists" at Smart Port Challenge 2017

- First transaction on e-bunkering platform

- Arrange seed capital for funding development phase

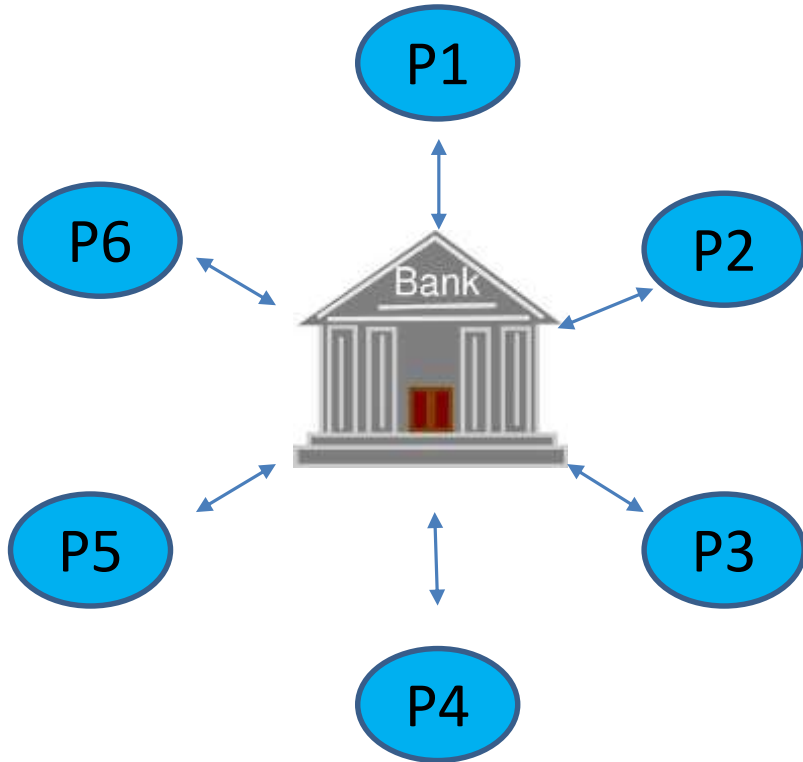
- BunkerChat App

Blockchain Technology

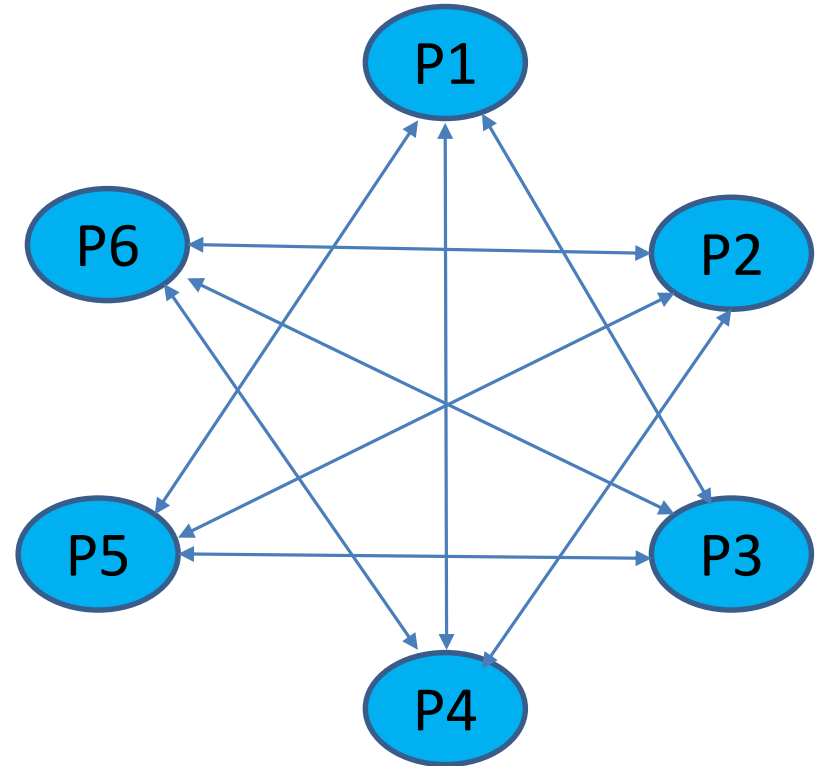
- **Blockchain is a decentralised ledger of all transactions across a peer to peer network.**
- **Participants can confirm transactions without the need for a central certifying authority**
- **Initially used in the financial industry without the need for any intermediary eg Banks**
- **Potential applications include fund transfers, settling trades, voting and others**

The Blockchain Technology

Centralized Operator



De-Centralized Operators



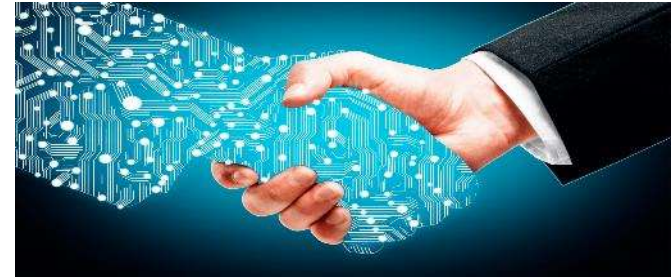
Problems with centralized operator:

- **Single point of Failure**
- **Mutability / Forgery of Records**

Blockchain Technology

- **Smart Contracts**

These are contracts in the form of computer program which is run and self executed in blockchain and automatically implement the terms and conditions



- **Cryptocurrency**

Introduced in 2008 is the first digital currency / payment system eg Bitcoin, Ethereum, Litecoin, Ripple



Blockchain Technology

How it can revolutionise the Marine Industry

- **Blockchain could turn the whole ship chartering into a paperless paradise**
- **All related parties such as sellers/buyers of cargo, shipowner, charterer, banks, agents, customs, port authorities, flag states, class societies, etc, can come in contact with one another.**
- **Perform physical transactions, exchange and store information in encrypted format, perform their contractual obligations, give & accept instructions & securely exchange payments**

***..... All the above enabled by Blockchain,
cryptocurrencies, Smart Contracts***

Real Benefits of Blockchain Technology

- ✓ Quick Processing Time and Real time updates
- ✓ Higher accuracy due to automation
- ✓ Full Transparency
- ✓ Increased Security
- ✓ Cost Savings
- ✓ Easier access to the Market





Shipping of Flowers



Shipping flowers overseas: the journey from grower to retailer is complex



The value of the global flower trade industry is nearly

USD 105 billion.



700,000

metric tons of cut flowers are shipped each year.

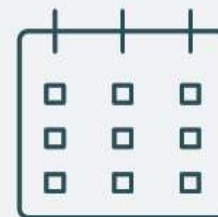
Shipping information must pass through many hands, increasing potential for delays in transport.



One shipment can require sign-off from **30 unique organizations** and up to **200 communications**.



One **lost form or late approval** could leave the container stuck in port.



The entire process can take more than one month.

Shipping of Flowers

Imagine if the same process were digitized and using blockchain technology

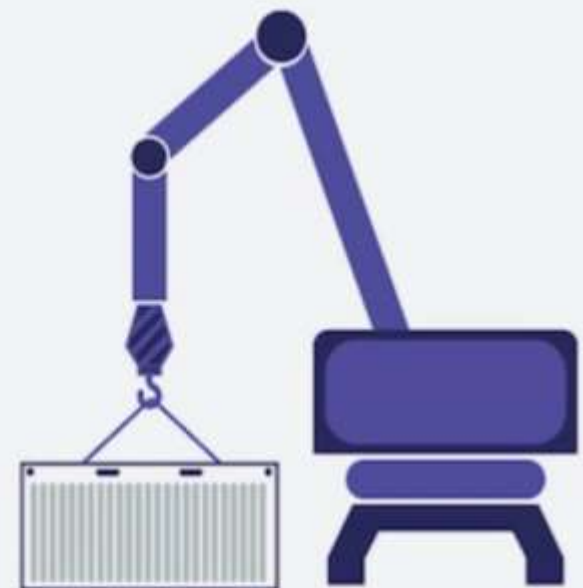
Blockchain—a shared, distributed ledger—can trace the container's path through the supply chain with exceptional transparency and security.



The flower grower readies the product for international shipment. Shipment information is added to the blockchain.



As the container awaits transfer to port, officials submit approvals electronically. Blockchain confirms the transaction and executes a smart contract, releasing the shipment.



The container is loaded onto the ship.

Shipping of Flowers



All parties have end-to-end visibility of the container's progress through the supply chain.

The container arrives at the destination port and clears customs.

Retailer receives the flowers on time and signs electronically. Information is relayed back to the blockchain.

With blockchain, delays will be reduced, resulting in significant cost savings for all parties.

Some Challenges of Blockchain Technology

- **Special Contractual Terms**
- **Global Adoption – common platform**
- **Sharing of data unreservedly still makes some companies feel apprehensive**
- **Scalability – speed of the protocols**
- **Care must be given not to create social economic issues eg automation replaces human intervention**



Who has started the use of Blockchain Technology

- **Mercuria, ING & Societe Generale - A shipping & trading platform**
- **Maersk, IBM - Container Market to manage and track shipping containers**
- **Marine insurance – EY, ACORD, Lloyd’s Insurers, Maersk**
- **Wave BL – Sharing of Bill of Lading data**
- **SKUChain – Trade Finance using Smart Contracts**

Blockchain projects by SGST





Uberization of Launch Boat services

Singtel 12:08 PM 91%

Advance Booking

Owner Nick

Journey Date
2016-08-08 12:00:00

Zone
WESTERN (West Coast Pier) EASTERN (Marina South Pier)

Location Type
 Single Location
 Multiple Location

MSP ACBTH

p1

Golden Stena

Abhinav

Hand carry parcel

Additional Boatman

Booking For
 Self
 Employee

75% 14:18

Trips

- Manage account
- PROFILE
- MY BOATS
- MY CARTANS
- MY COORDINATORS
- MY CONTRACTS
- TARIFF TABLES
- MY BOOKINGS
- MY WORKING HOURS
- REPORTS
- TRIPS
- COLLECTIONS
- BILLING STATEMENT

My Boats : Map View

The map displays the Singapore region with several red location pins. The pins are located near the islands of Jurong, Sentosa, and the southern coast. Labels on the map include Nanyang Technological University, National University of Singapore, Singapore Botanic Gardens, and various islands like Jurong Island, Sentosa, and Semakau Island.

Destination : AEBA

e-Bunkering Platform



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[SUPPLIERS](#)

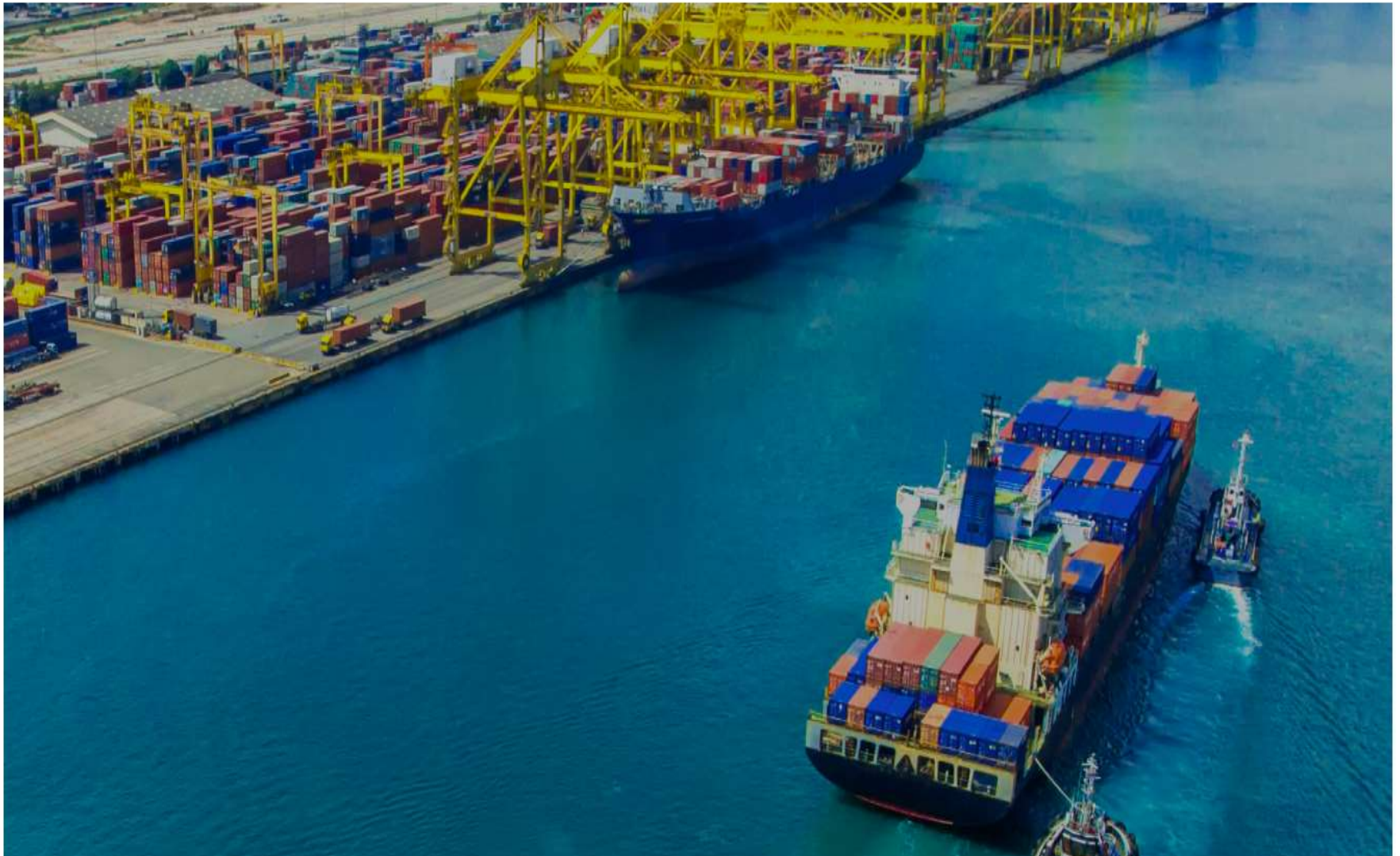
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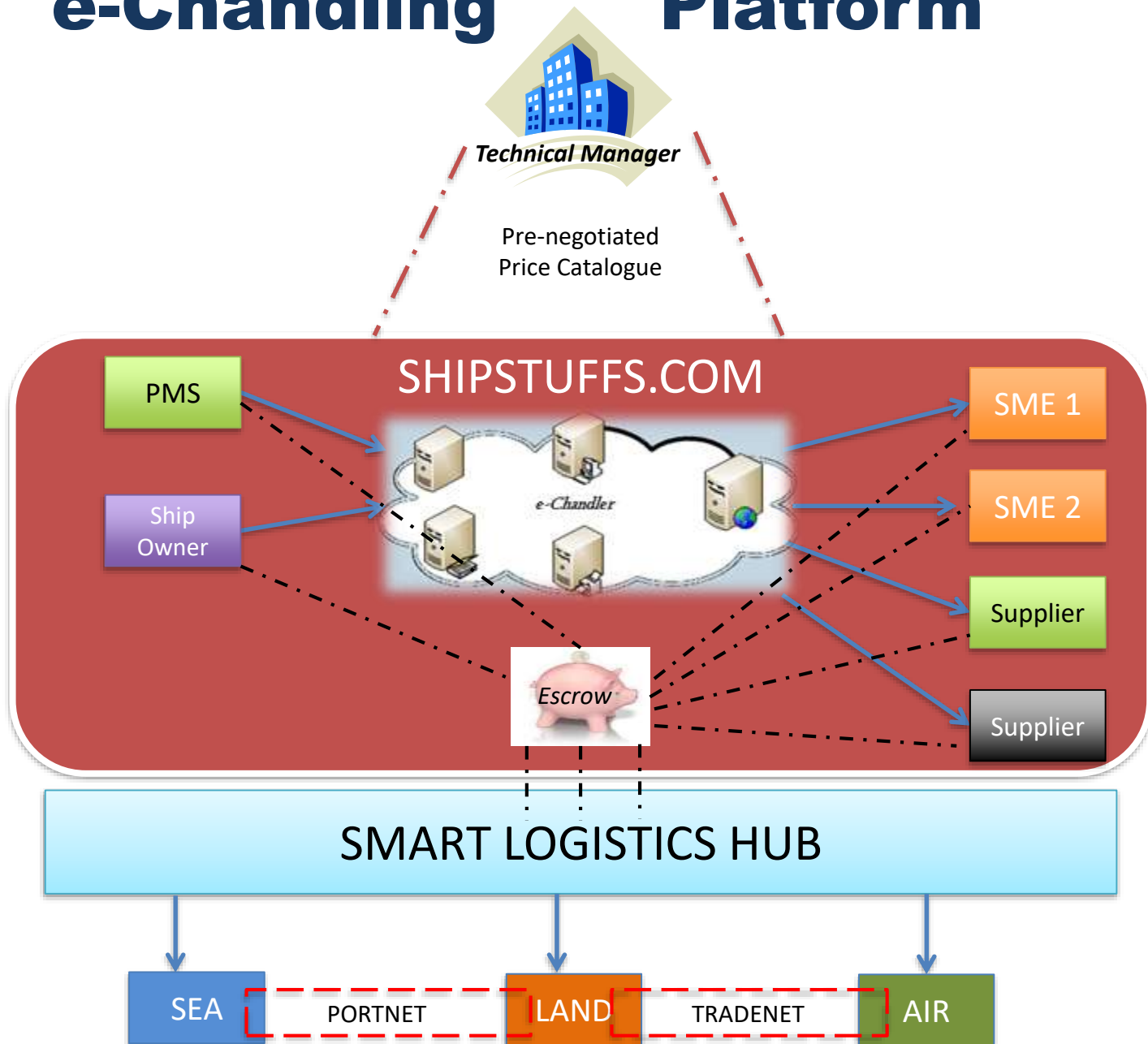
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e-Chandling Platform



CONCLUSIONS

- **Blockchain application in shipping still in early stages**
- **Still need to be fully understood and proven**
- **Sharing of data unreservedly ???**
- **Challenges still remain but the benefits seems to be speaking for themselves**



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