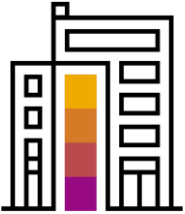




# SAP® Innovation Awards 2020 Entry Pitch Deck

SAP Blockchain for Smart Ports Logistics

Tech Mahindra



## Company Information

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<b>Headquarters</b>	Pune, Maharashtra, India
<b>Industry</b>	Telecommunications
<b>Web site</b>	<a href="https://www.techmahindra.com">https://www.techmahindra.com</a>

Tech Mahindra represents the connected world, offering innovative and customer-centric information technology experiences, enabling Enterprises, Associates and the Society to Rise™.

We have been developing unique solutions for the Maritime Practise for over a decade. We believe that comprehensive understanding of the domain is the first step towards building any solution. With this approach we have created innovative and industry leading solutions for ports. TechM has created a SMART port framework and we believe that the new age digital technology will have to the part of DNA of a future SMART port.

# SAP Blockchain for Port Logistics

Tech Mahindra



“Digital technologies will impact the way we conduct trade and logistics both now and in the future. We gather as much data in 48 hours as humans have gathered over centuries and it comes in many forms — high speed, high volume, high variety. Our opportunity is to use information to produce knowledge to produce action,”

Chairman and CEO of DP World Group

## Challenge

Need for quicker and seamless integrated operations system for clearance procedures and ports logistics operations.

## Solution

Port Logistics on blockchain solution provides a unified and collaborative platform for secure and faster clearance processes in Ports. It provides collective benefits to all the entities in the business network for port operations.

## Outcome

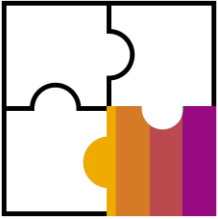
Provides single window for port community members/stakeholders to interact and exchange messages in secured way. Reduces the paper based operations and reduces the transaction time & cost in port business.



**90%** Reducing costs of data transfer.

**90%** Saving almost the costs associated with document management.

**20%** Increase in Revenue



## Participating Partner Information



### Tech Mahindra

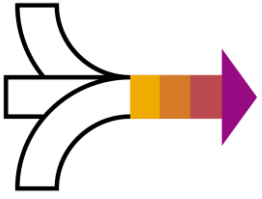
At TechM we have been developing unique solutions for the Maritime Practice for over a decade. We are working with 10 + leading customers in ports, transportation & shipping.



Maritime practice is focused on delivering innovative solutions and creating strategic differentiators for our customers. Ports are looking to adopt new technologies like Big Data, Cloud Computing, Internet of things (IOT), Mobility, Blockchain and digital devices to maintain competitiveness and create sustainable solutions for the future. To align with this, TechM has created a SMART port framework and we believe that the new age digital technology will have to be the part of DNA of a future SMART port.



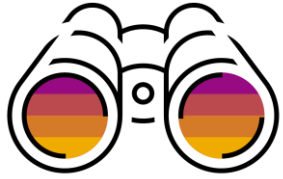
Maritime Practice Head, Tech Mahindra



## Business Challenges and Objectives

- Unified and secured platform for all clearance procedures and port logistics operations
- Traceability of all the logistics clearance requests
- Analytics for current as-is request and pending loads & additional information for faster approvals.
- Deviations reports and analysis
- Need for business process automation for procedures

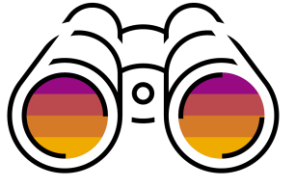
- Provide single window for port community members to interact and exchange secured transactions for logistics clearance services
- Automate backend processes using SAP Intelligent Robotic Process Automation based on transactions and approvals
- Establish ports consortium to enable quicker and transparent operations.
- Bring the robotic process automation processes enabled.



## Project or Use Case Details

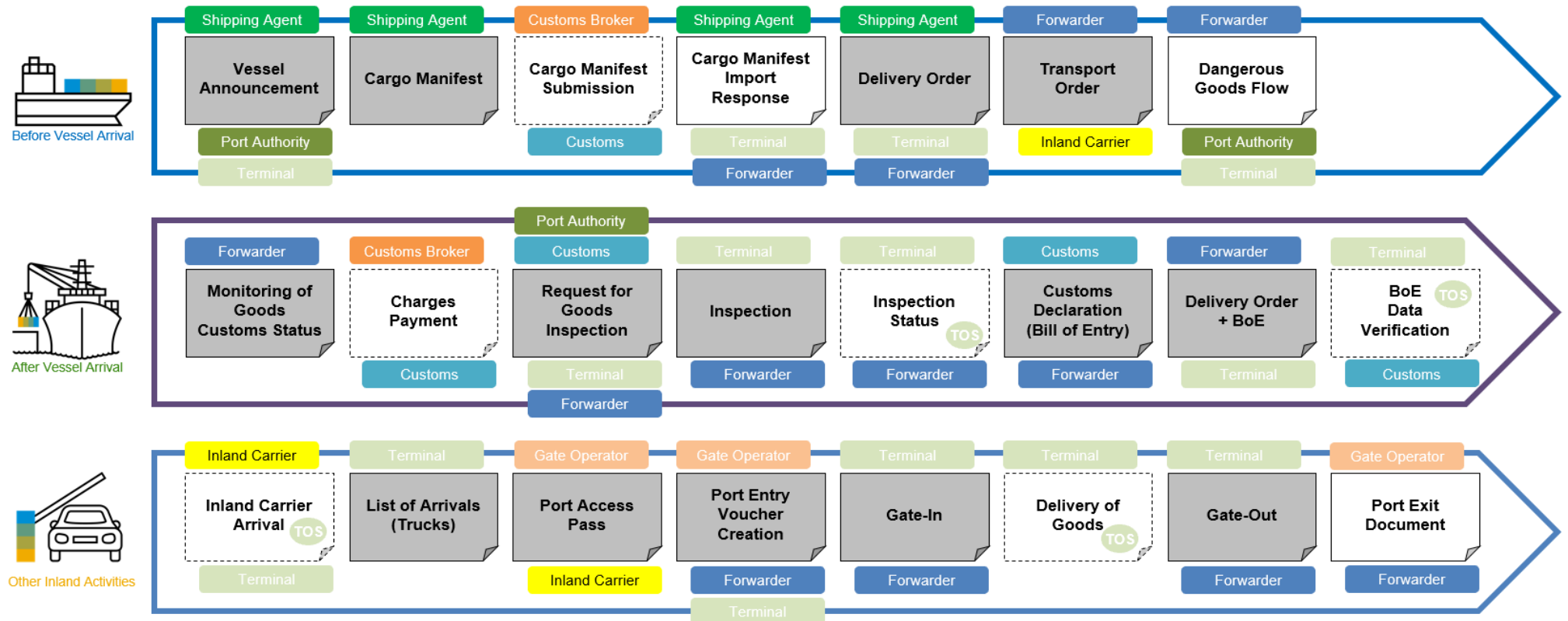
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- Port Logistics on blockchain solution provides an unified and collaborative platform for secure and faster clearance processes in Ports. It provides collective benefits to all the entities in the business network for port operations.
- This solution is an blockchain and robotic process automation solution that offers collaborative platform for all internal and external entities who are part of cargo handling & clearance and port related procedures.
- This application will act as SINGLE WINDOW, for the port community members/stakeholders to exchange messages electronically in secure fashion. This will reduces the paper based operations and reduces the transaction time & cost in port business. The solution provides easy and intuitive user interfaces for processes along with analytics.
- The solution built in collaboration with SAP Co-Innovation Lab UAE and addresses to enhance the port operations.



# Project or Use Case Details

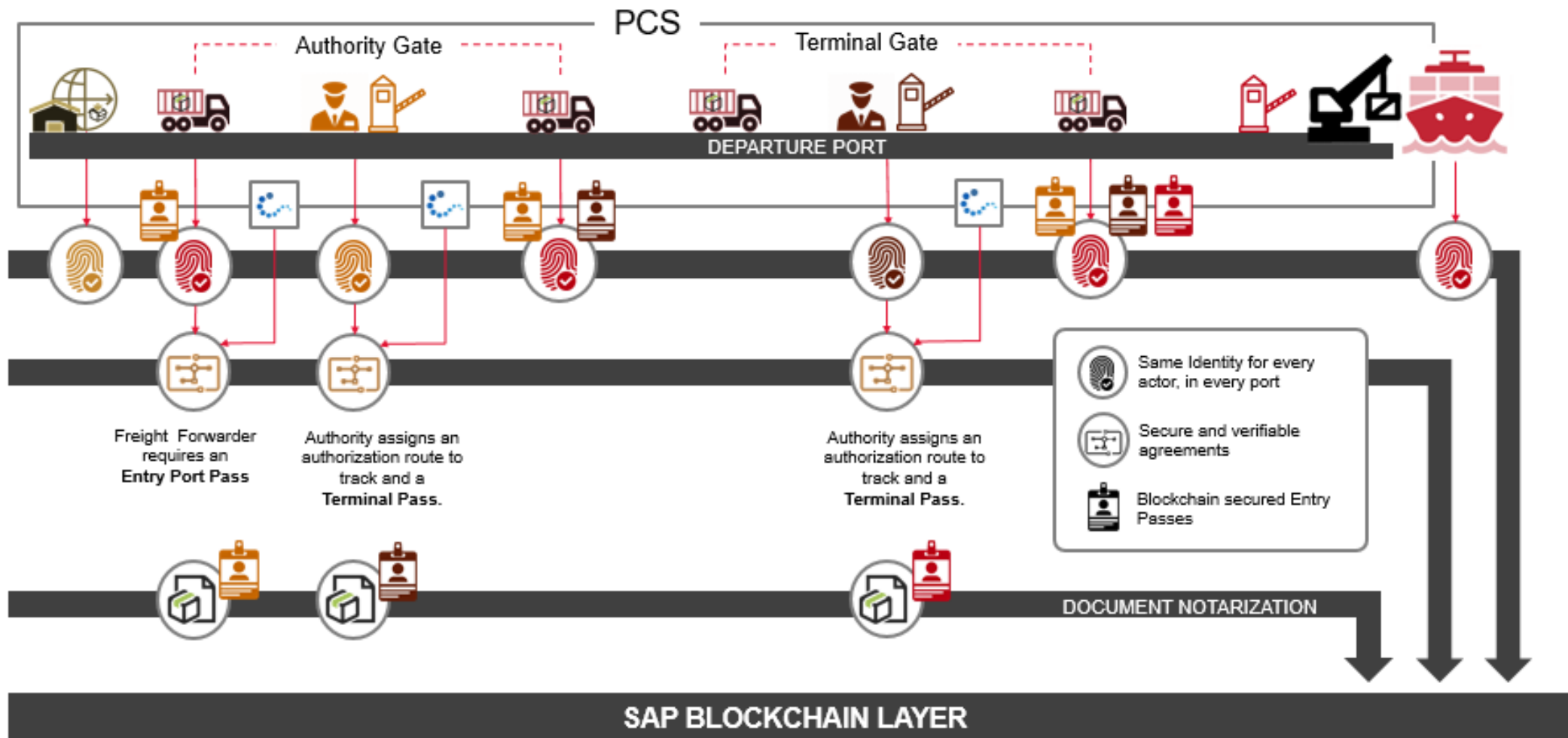
Port Control Systems are complex and follow a layered process as described below. In combination with Port Control systems already deployed, Port Logistics on blockchain offers an end to end offering.



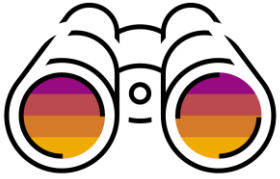


## Project or Use Case Details

Bringing all systems and parties on blockchain secured platform for clearance procedures which are authenticated, authorized and validated via underlying blockchain network.

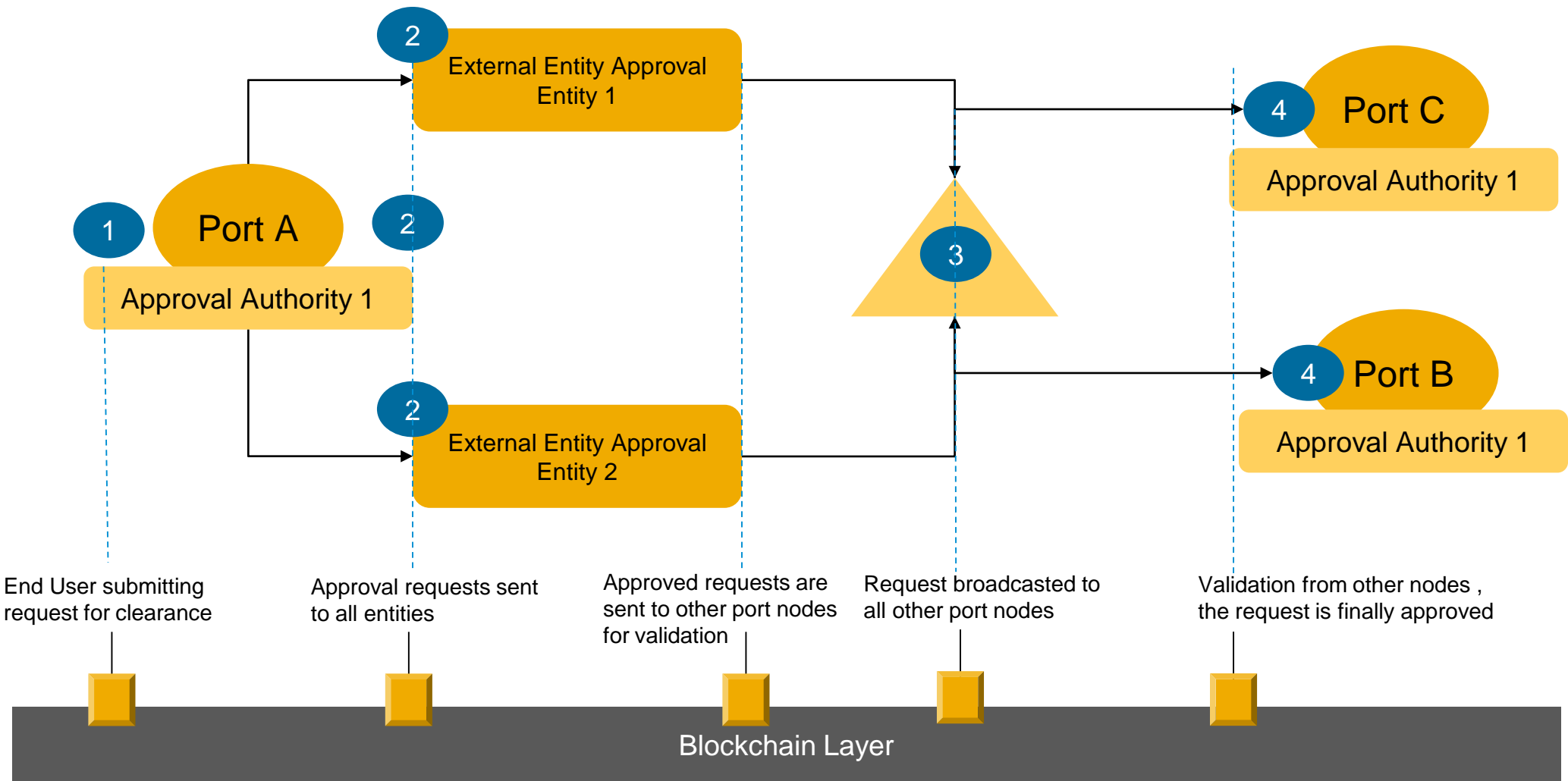


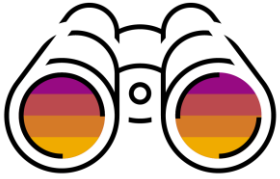




# Project or Use Case Details

Entities and Peers on the blockchain network for communication.





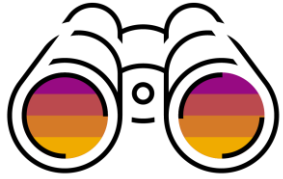
# Project or Use Case Details

## Personas for Gate Pass Entry Use Case :

Visitors / Contractors /Clients	Govt Entities – National Security	Govt Entities – Police	Ports Security Management
<ul style="list-style-type: none"><li>Submits Requests for Approval</li><li>View the current status</li><li>Mobile enabled application for approved gate pass</li></ul>	<ul style="list-style-type: none"><li>Individual User Group receives the request along with blockchain validated information</li><li>Approves/ Rejects Request</li><li>Requests details for re-verification</li><li>Views updates and history of requestor</li><li>View updates and alerts from smart contracts and other port nodes updates</li><li>Information broadcasted to other port nodes</li></ul>		

### Key Considerations

- 3 different types of users (Visitors, Contractors, Clients)
- Processing for different type of passes.
- Document validation and verification from ports management and government entities.
- Integrate and updates from PCS systems in Ports.



# Project or Use Case Details

## Personas for Vessel Pre-arrival Clearance Procedures:

### Shipping Company/ Shipping Agency

- Submits Requests for pre-vessel arrival clearance
- Check the validity of documents from blockchain platform
- Check for any alerts for the clearance activities

### Ports Security Management

- View the requests for clearances
- Verify the updates and alerts from blockchain and other peer nodes for any issues
- Interacts with Shipping Agencies / Company for any collaboration/ communication via conversational AI bots
- Linked with 3<sup>rd</sup> party systems to receive real time information on the vessels
- Blockchain validation and authenticity check of all the documents of the vessel. Smart contracts to perform authenticity check across all records and history.

### Key Considerations

- Integrate shipping companies / agencies and ports on single platform for vessel related procedures.
- All transactions broadcasted and approved by all port nodes for validation.
- Document validation, preprocessing, authenticity check handled in blockchain.
- Alerts from blockchain for any discrepancies.



# Project or Use Case Details

## Login Details

Tech MahindraSAP

SAP Blockchain for Ports Community System

Ports Community Login

Username

Hussain Sharif

Password

\*\*\*\*\*

New User?

Forgot Password?

Login

SAP Co-Innovation Lab

## Ports Community Portal

## Launchpad

Tech MahindraSAP

SAP Blockchain for Port Community System

Who we areWhat we doSmart Trade

GATE ENTRY PASS

VISA APPLICATION

FOR VESSELS

NOTIFICATIONS

Create Gate Entry Pass

Entry pass for ports

Create New

Track Entry Pass

Track your status

Start Tracking

Visa Application

ApplyforVisa

Online processing

Track Visa Request

Track status

SAP Co-Innovation Lab



# Project or Use Case Details



## Gate Pass Entry Request

Tech Mahindra

SAP

SAP Blockchain for Port Community System - Create Gate Entry Pass

Welcome Hussain!

Welcome to Ports Community Portal.

Pass application form must be completed in full and supplied atleast 24 hours prior to entry in to a port.

Port:\*

Saqr Port

Category:\*

Visitor

Pass Type:\*

☒ Daily

☐ Temporary

☐ Annual

ID Type:\*

Passport

ID No:\*

E23423434

Validate

Photo:\*

Basic Details

Passport

Residence Details

Visa

Attachments

Contact Details

Purpose of Visit

Full Name:\*

Hussain Sharif

Family Name:\*

Al Maktoum

Place of Birth:\*

UAE

Date of Birth:\*

Mar 26, 1985

Present Nationality:\*

UAE

Previous Nationality:\*

UAE

Religion:

Sect:

Post of Entry:\*

Al Jeer Port

Present Sponsor:

Xpress Shipping

Profession:\*

Business Person

Tel No:\*

+971 4 512 5158

Bank:

Salary:

Save

Submit

Reset



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# Project or Use Case Details

## Vessel pre-arrival clearance request – Shipping Agency

[<](#) [Home](#) **Tech Mahindra** **SAP**

SAP Blockchain for Port Community System - Create Pre-arrival Request

Welcome Hussain!

IMO No.:

IMO7165795

Type of Ship:

Container Ship

Marine Agent:

Port Name:

Name of the Ship:

EMIRATES HANA

ETA:

15:45

Vessel/Tug /Combination (Tug & Barge) Name:

EMIRATES HANA

Security Information

Checklist Verification

Ship Certificate Status

Ship and Contact Details

Port Facility Information

SOLAS regulation

Last 10 Calls

Checklist

INMARSAT/GSM No. Of the ship:

12345

Gross Tonnage:

66280

Registered Flag State:

Liberia

Call Sign:

D5BM8

Port of Registry:

Liberia

Name and 24-hour contact details of the Company Security Officer:

Philipp Bentrott / +44-1624-649649

Save

Submit





 SAP Blockchain for Port Community System - Vessel Pre-arrival Security Clearance
  Welcome Hussain!

Vessel Pre-arrival Clearance

↕

🔍

☰

Create

IMO NO	Port	Vessel Name	Type	Status
IMO9135399	RAKP	EMIRATES HANA	Cargo	Approved
IMO6551460		EMIRATES HANA	Cargo	Open
IMO2089412	AJZP	EMIRATES HANA	Cargo	Open
IMO4633621	AJZP	EMIRATES HANA	Cargo	Open
IMO9803684		EMIRATES HANA	Cargo	Open

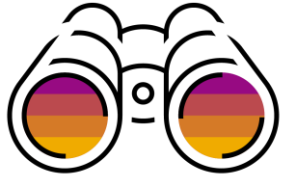
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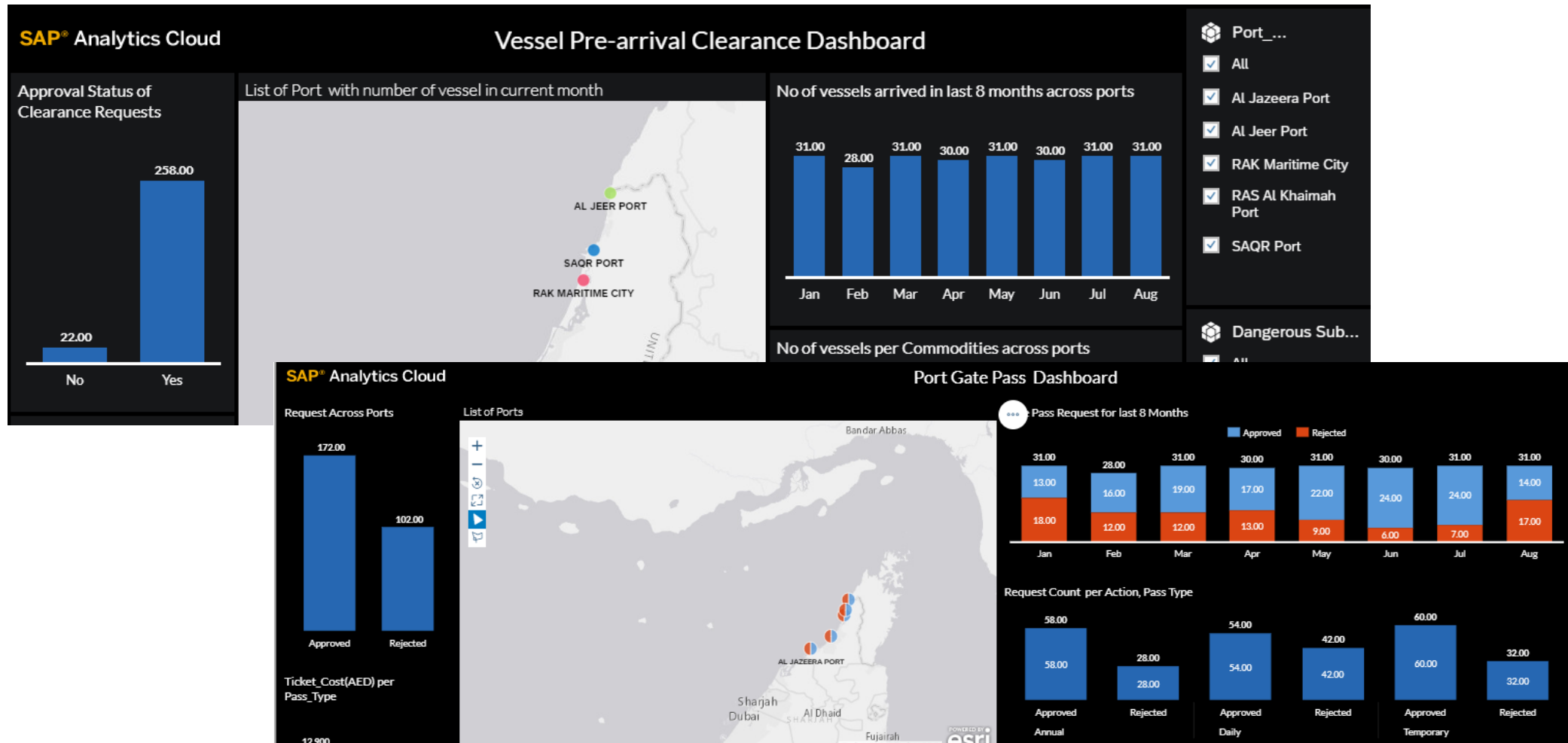
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# Project or Use Case Details

## Dashboards for Ports Authority Management





# Benefits and Outcomes

## Business or Social

- ❑ Establishing a network of ports for sharing information that will provide transparent and easy access for port operations
- ❑ Saves time in checking and cross verifying all the information for each clearance process requirements.
- ❑ Time-saver and convenience for repeated registrations for blue collar workers

## IT

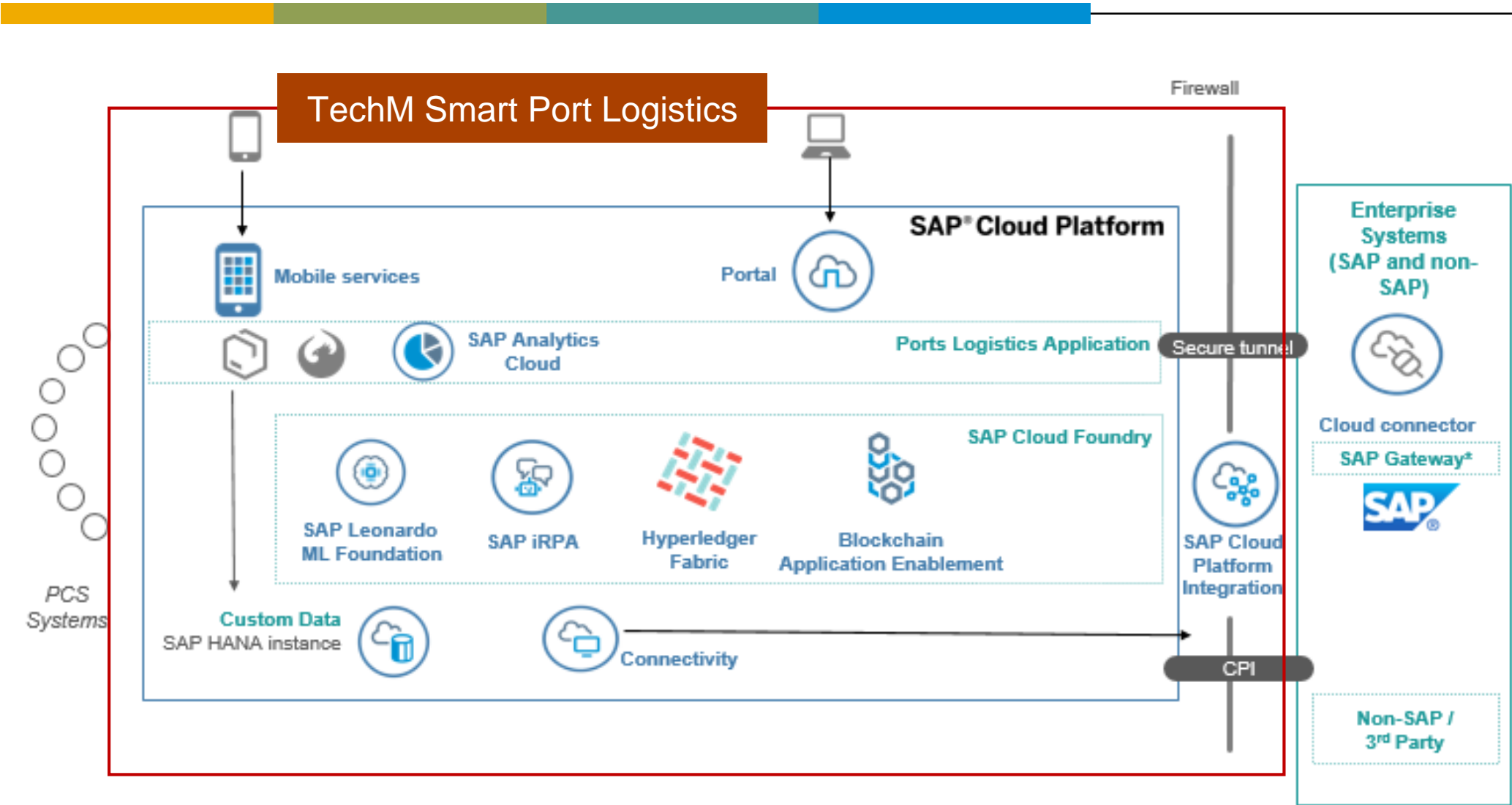
- ❑ Digitization of processes which are currently manual
- ❑ Brings internal and external entities to operate of single platform
- ❑ Aligned with the local government vision to go paperless by 2020.

## Human Empowerment

- ❑ Improved customer experience.
- ❑ All relevant stake holder connect and transact.
- ❑ Smooth information flow across all the entities of the supply chain.
- ❑ Real time information for analysis and quick decisions
- ❑ AI for document verification and enterprise processes automation.



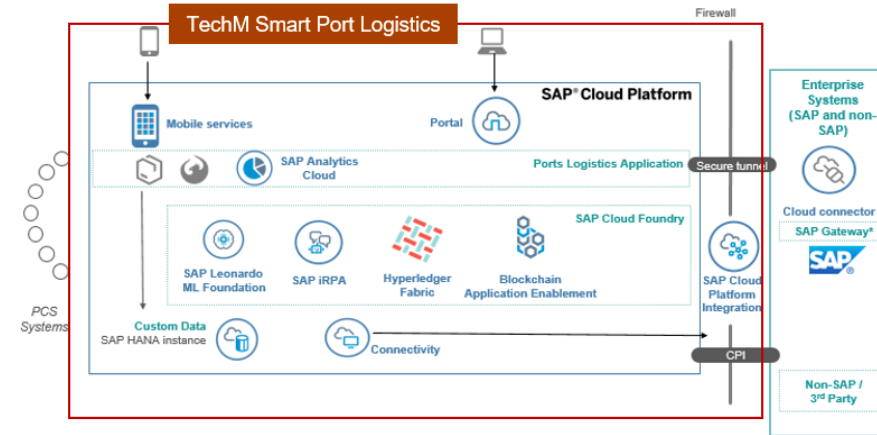
# Architecture





# Architecture

## Key Technical Components



- ❑ **SAP UI5** application for internal and external users from SAP Cloud Platform Portal
- ❑ Requests interacting with **SAP Leonardo Blockchain** and **SAP HANA** for clearance procedures transactions. Approved requests updated in SAP ERP for further processes via blockchain enablement services
- ❑ **SAP Conversational AI** for collaboration among all the entities during the approval processes execution
- ❑ **SAP Intelligent Robotic Process Automation** to trigger the ML OCR Validation and business processes execution in SAP S/4HANA
- ❑ **SAP Leonardo Machine Learning Foundation** for document pre processing and OCR verification



# Deployment

Deployment status

PoC

Date

Oct 2019

Number of users

Approx. 1000

## SAP technologies used:

	SAP product	Deployment status (live or poc)	Contribution to project
1	SAP Leonardo Machine Learning Foundation	POC	OCR for Document Validation and pre-processing.
2	Ports Community Systems	Live	PCS System in Ports
3	SAP Leonardo Blockchain	POC	Hyperledger Fabric smart contracts for process and document authenticity and traceability of the users, trunks and vessels clearance requests.
4	SAP Analytics Cloud	POC	Analytical view of all the requests and transactions for ports logistics operations.

If you have used one of the services or support offerings from SAP Digital Business Services during the implementation or deployment phase, please select with ☒ one or more of the following offerings:

- ☐ SAP MaxAttention™
- ☐ SAP ActiveAttention™
- ☐ SAP Advanced Deployment
- ☐ SAP Value Assurance
- ☐ SAP Model Company
- ☐ Others:
- ☐ SAP Innovation Services
- ☐ SAP Innovative Business Solutions



# Deployment

Deployment status

PoC

Date

Oct 2019

Number of users

Approx. 1000

## SAP technologies used:

	SAP product	Deployment status (live or poc )	Contribution to project
5	SAP Intelligent Robotic Process Automation	POC	Business process automation for IT Operations, CT Operations, Finance(Revenue Reconciliation), HR (Passport Movement Automation).
6	SAP Conversational AI	POC	Bots for collaboration between entities before approving / rejecting requests.

If you have used one of the services or support offerings from SAP Digital Business Services during the implementation or deployment phase, please select with ☒ one or more of the following offerings:

SAP MaxAttention™

SAP ActiveAttention™

SAP Advanced Deployment

SAP Value Assurance

SAP Model Company

Others:

SAP Innovation Services

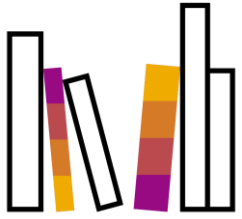
SAP Innovative Business Solutions



# Advanced Technologies

The following **advanced technologies** were part of the project.

	Technology or use case	Yes or No	Contribution to project
1	3D printing		
2	Blockchain	Yes	Secured internal external parties transactions during port clearance procedures
3	Internet of Things (IoT)		
4	Machine learning or AI	Yes	OCR for Document Validation
5	Conversational AI	Yes	Collaboration between multiple stakeholders during process execution
6	Robotic process automation	Yes	Process Automation to ERP for HR, Finance and -- processes
7	Data anonymization		
8	Augmented analytics	Yes	Analytics for Port Logistics Clearance procedures



## Additional Information

- ❑ Developed in co-operation with SAP Co-Innovation Lab UAE
- ❑ Current Pilot discussions with 3 UAE customers
- ❑ Showcased at GITEX 2019 , Dubai , UAE in 2 booths for UAE and Bahrain Ports

