

# BLOCKCHAIN

FOR

## STREAMLINING OF SHIPPING PORTS

MOVE  
HACK  
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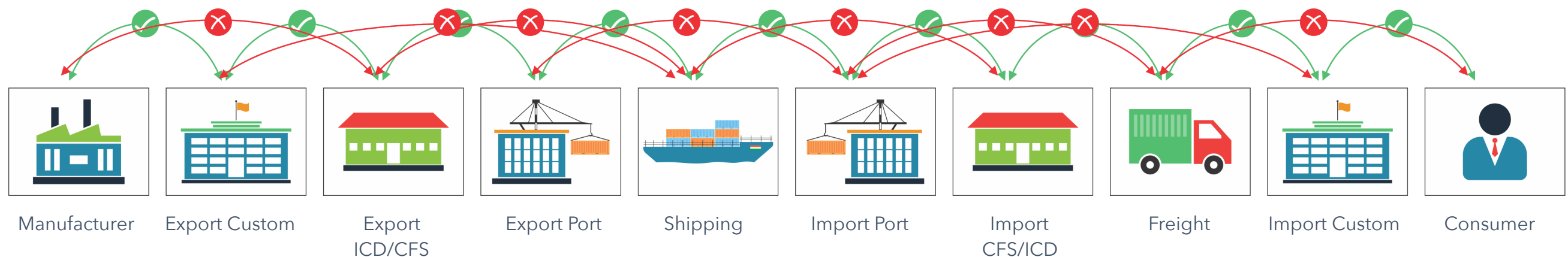
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# ISSUES WITH PORT MANAGEMENT AND FREIGHT HANDLING

One of the most crucial indicators for ease of doing business is TAB (Trading Across Border). One of the major factors affecting TAB is TAT(Turn around Time) and average dwell time. India has enormous potential to improve upon these factors. There are many factors for these inefficiencies. Some of them are listed below :

- **Lack of Transparency** : The failures of transparency in the process are mainly due to poor data handling practices or worse, due to parties being incentivised not to share accurate data of shipment. Often, for protecting the exclusivity of their arrangements.
- **Poor Tracking** : Poor tracking in Trading Across Border is one of the main reasons for inefficiency and mis-management. It is the result of lack of communication between different departments and carelessness.
- **Organised crime** : Organised crime is a result of lack of transparency and poor tracking. The fact that keeping eye on every single trade is very hard provides motivation for lawbreakers and criminals to get involved in organised crime.
- **Middlemen engagement** : Many forwarders and brokers often act carelessly to cause hoax in logistics chain event though they charge ample amount of money to their customers. Often middlemen are high maintenance, are cause of increase in cost of goods and reasons for breaking up the system.



**CURRENT SUPPLY CHAIN HAVE MANY DRAWBACKS : SOMETIMES IT WORKS; SOMETIME IT DOESN'T**

# BLOCKCHAIN FOR STREAMLINING OF SHIPPING PORTS

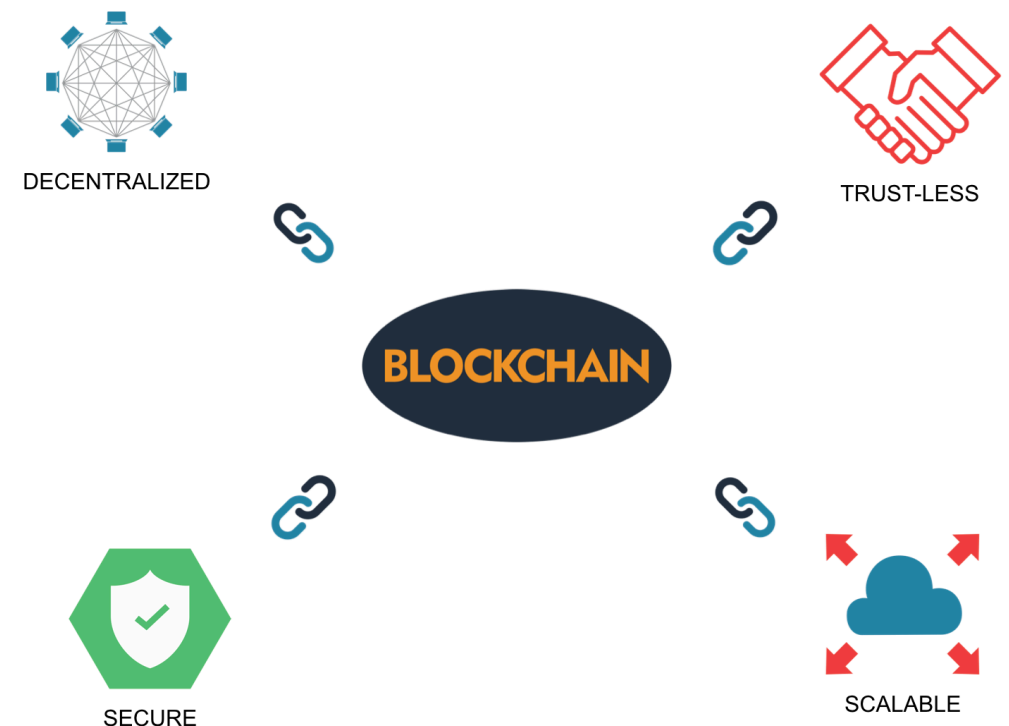
## WHAT IS BLOCKCHAIN ?

Blockchain is an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way. Although at first blockchain was only used as a cryptocurrency, due to its exceptional properties like decentralization, tamper-evident structure, scalability and trust-less management, Blockchain can provide enormous benefits. The sectors interested in testing and deploying blockchain for their products and services range from Social Networking, Logistics, Healthcare, Entertainment, Finance to Governments and many more.

## Blockchain for Shipping Ports and Freight Handling

For shipping ports and freight handling, blockchain can be harnessed in following key ways :

- **Increasing Efficiency** : Blockchain has a potential to hugely reduce paperwork and bureaucracy by creating automated channels storing information in tamper evident digital format.
- **Increasing Transparency** : Tamper evident block structure of Blockchain gives huge advantage in increasing transparency, decreasing organised crime and corruption. Any attempt of tampering with records will be immediately visible.
- **Reducing Middlemen Engagement** : Blockchain provides trust-less solutions for logistics chain, which will reduce engagement of middlemen, who are often the reason for inefficiency and increased price of service.
- **Multi-model Freight handling** : Digital certificates, permits, identities and much more can be introduced through use of blockchain to further strengthen the ecosystem. This will lead to creation of new business models.



**BLOCKCHAIN HAS EXCEPTIONAL PROPERTIES**



# DISHA PLATFORM

## DECENTRALIZED AND INTEGRATED SHIPPING PORTS ADMINISTRATION

*DISHA* is a blockchain platform prototype built for MOVEHACK 2018 competition. *DISHA* completely transforms the process of port management and freight handling by complete decentralization of the process. Built on Ethereum Blockchain, the soul of *DISHA* lies in **Smart Contracts**.

### Working of DISHA

- Once a trade chain is initialised by a third-party, it automatically generates a **Unique ID** which can be used till the end of trade chain.
- All of the information provided is stored safely and securely in tamper-evident Ethereum Blockchain and used for streamlining of process. For e.g **allocating the resources for multi-modal transport, predicting future traffic and understanding needs for infrastructure.**
- This information then can be accessed by authorized parties and government officials such as custom officers from provided Unique ID.



- These officials, after inspecting and verifying the commodity, can digitally sign the same contract by logging into their Ethereum accounts.

- Different documents such as 'Import General Manifest', 'Bill of Entry', 'Certificate of Compliance', 'Bill of Lading' are merged into one single **Smart Document** reducing the paperwork drastically without compromising the security and rules & regulations.

- Different permits and certificates such as 'Import Permit', 'Export Permit', 'Weight certificates' can be converted into **Smart Digital Certificates** and attached to the Smart Contract using Unique ID.

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UNIQUE ID IS GENERATED BY SMART CONTRACT WHICH  
CAN BE USED TO STREAMLINE THE PROCESS



# TECHNICAL DETAILS OF DISHA PLATFORM

## DECENTRALIZED AND INTEGRATED SHIPPING PORTS ADMINISTRATION

*DISHA* is built on **Ethereum** blockchain, which is open-source, public, blockchain-based distributed computing platform and operating system featuring smart contract functionality. The technical details of architecture are as follows :

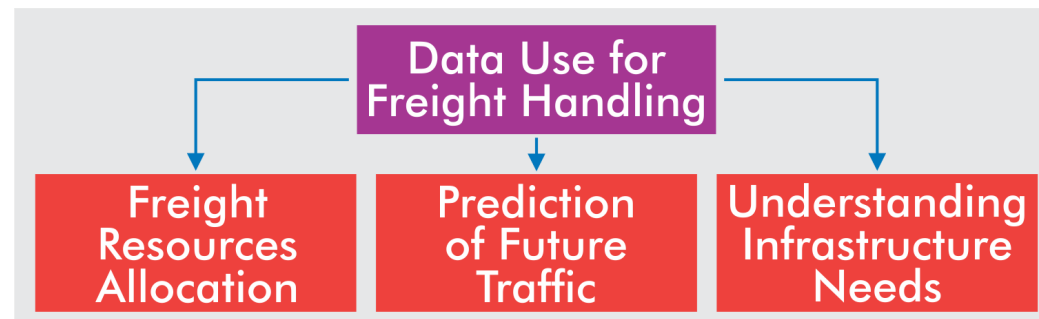
*DISHA* has three main components in it's architecture :

**Authority** : Authority is responsible for giving permissions to various third-parties and port officials to perform specific tasks. For eg. Giving permission to custom officers to verify different documents.

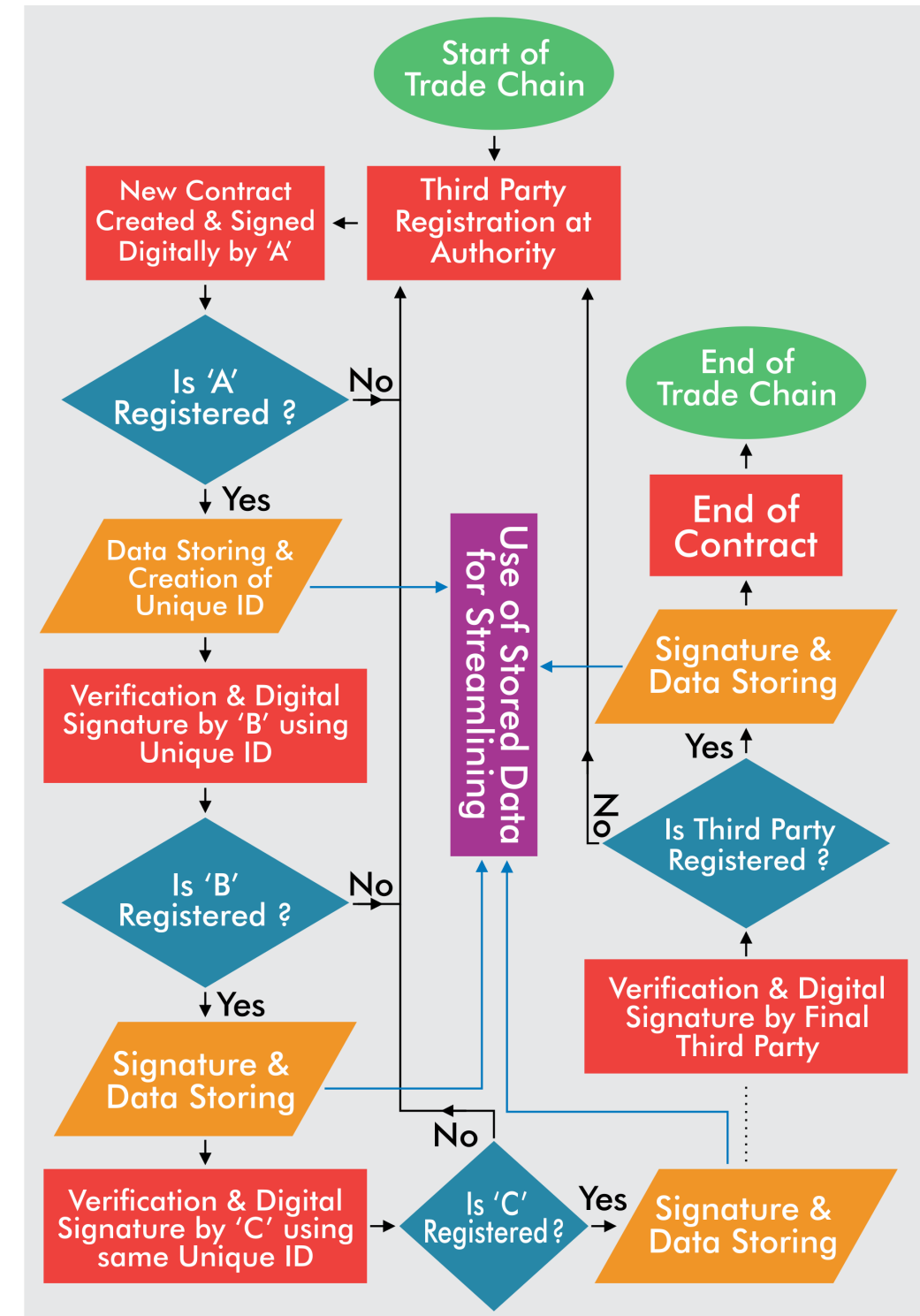
**Trade Chain** : Trade chain is where various third-parties like exporter, importer, port administration etc. create and sign the Smart Contracts digitally.

**Data Handling** : The data created is used here for various purposes like Freight Handling, Traffic Prediction and Building new infrastructure. Machine learning and Artificial Intelligence can be used here to improve the data handling (ML & AI are not yet implemented).

**Packages/  
Software**  
: Ethereum  
Blockchain,  
Web3.js, Truffle  
Framework,  
Ganache



DATA USE FOR FREIGHT HANDLING



FLOWCHART EXPLAINING TRADE CHAIN BUILT IN DISHA





# SUMMARY

## DECENTRALIZED AND INTEGRATED SHIPPING PORTS ADMINISTRATION



### COMPLETE ECOSYSTEM

DISHA's already strong ecosystem can further be expanded. Digital certificates, permits, identities and much more can be introduced through use of blockchain. For example, different documents in India like **Aadhar card**, **PAN card**, **Passport**, **Voter ID** and many more can be combined in one **Smart Digital Document**.

**A prototype of DISHA is ready to test!**

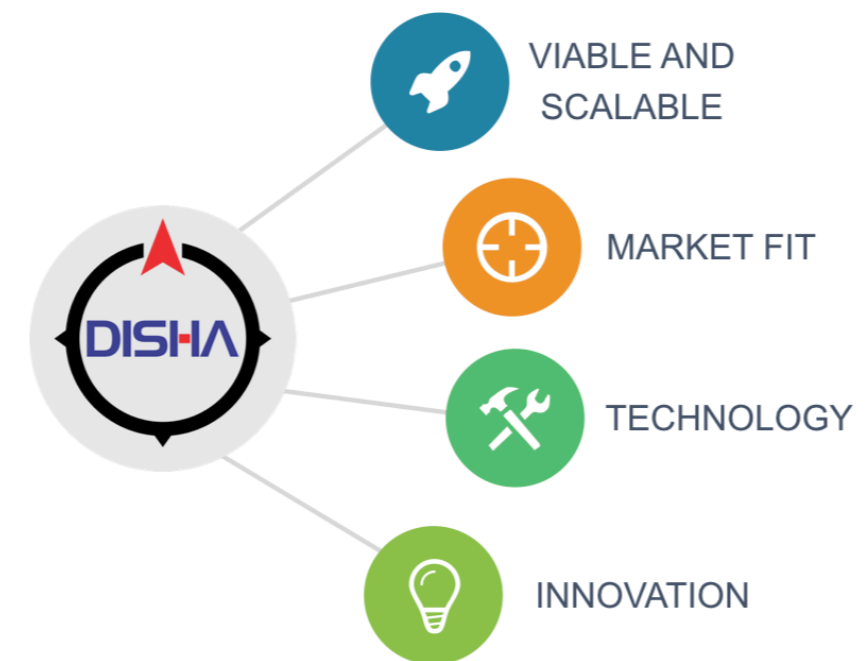
Project Code : <https://github.com/kk9393/DISHA>

Video Demo : <https://youtu.be/UA3OA3mc6Ug>

### DISHA CREATES COMPLETE STREAMLINED ECOSYSTEM

DISHA is built based on following parameter considerations :

- **Innovation & Technology** : DISHA is built on the latest blockchain technology which provide unique innovative solutions.
- **Market Fit** : Currently there is an explosion in various sectors who are building Blockchain based solutions. Since blockchain is still in testing phase, it is the perfect time for India to adopt the technology.
- **Viability and Scalability** : The platform is very easy to implement but have a potential to create enormous benefits. The platform, when integrated with different blockchain platforms, can further scale up.



**THANK YOU!**

**DISHA IS BUILT BASED ON THESE PARAMETERS**