



Smart thinking. **Safe hands.**

Terminal IoT Connect

Data Analytics & Terminal Connect Software



AGENDA



- **Current issues facing oil trading, terminal/logistics, and (exit of) commodity financing**
- Current Practices
- Current Market Solutions and Outlook
- Rotary's Solution
- Our technology, system architecture, user interfaces, algorithm



8 banks defrauded \$424million from forged sale and purchase contracts, as well as tax invoices



THE STRAITS TIMES

Ex-CFO of crude oil products supplier who helped defraud 8 banks of \$424m gets 9 years' jail

PUBLISHED MAY 3, 2021, 9:53 AM SGT

SINGAPORE - The former chief financial officer of a crude oil products supplier who worked with three others to dupe eight banks into disbursing about US\$320 million (S\$424 million) in loans was sentenced on Monday (May 3) to nine years' jail.

Ong Ah Huat and his alleged accomplices caused China Merchant Bank (CMB) Singapore to suffer losses totalling about US\$10 million.

The seven other banks are in Hong Kong - including Standard Chartered Bank (Hong Kong) and OCBC Limited (Hong Kong) - but court documents did not disclose the amount of their losses.

Ong agreed to continue perpetuating the scheme, which involved items such as forged sale and purchase contracts as well as tax invoices.

The DPPs added that Ong and the three others engaged in a conspiracy to cheat CMB and the seven Hong Kong banks between June 2017 and December 2018.

Hin Leong allegedly secured trade financing through forged e-mail and inter-tank certificates - \$800million losses



THE STRAITS TIMES

Former oil tycoon and Hin Leong founder O.K. Lim facing 23 more forgery-related charges

PUBLISHED MAR 29, 2021, 6:11 PM SGT

SINGAPORE - Another 23 charges of forgery-related offences are expected to be tendered against embattled Hin Leong Trading founder Lim Oon Kuin, prosecutors told the court on Monday (March 29) afternoon.

The new charges could not be tendered on Monday against the 78-year-old former oil tycoon - better known as O.K. Lim - as the Commercial Affairs Department (CAD) could not complete recording the cautioned statements as Lim had said he was unwell, Deputy Public Prosecutor Navin Naidu told the court.

Cautioned statements are made by the defendant in his defence at the time the charges are presented to him.

Mr Lim was [hit with two counts of abetment of forgery for the purpose of cheating](#) in August and September last year. Lim was accused of instigating a Hin Leong employee to forge an e-mail and another document in order to obtain more than US\$56 million (S\$77 million) in trade financing, according to the police.

Lim is accused of instructing Mr Tan to write the e-mail's subject header as "CAO - Sale of gasoil 10PPM sulphur".

The e-mail, along with a forged inter-tank transfer certificate mentioned in [the first charge brought against Lim in August 2020](#), was intended to be used to secure more than US\$56 million in trade financing, the police said.

The first charge alleged that Lim had instigated Mr Tan to make an inter-tank transfer certificate using UT Singapore Services' letterhead.

The document stated that Hin Leong transferred 1.05 million barrels of gasoil to China Aviation Oil on March 18.

It was then allegedly used to secure the trade financing, the police said.

Commodities firm defaulted \$1.5 billion of loans, obtained through overlapping bills of lading, or list of shipment goods



THE STRAITS TIMES

Collapse of Singapore commodity firm Agritrade leaves lenders exposed

UPDATED MAR 3, 2020, 11:38 AM ▼

HONG KONG (BLOOMBERG) - Lenders including ING Bank have accused a Singapore commodities firm of fraud after it defaulted on debt and left the financiers facing potential losses on hundreds of millions of dollars in their liabilities.

ING Bank alleged that Agritrade International, its chief executive officer, Mr Ng Xinwei, and his father, Mr Ng Say Peck, misrepresented the company's financial position to various bank lenders in a Feb 12 filing to a Singapore court.

Agritrade International, whose businesses span palm oil and coal mining, is the latest commodities firm to come under financial strain amid coal and oil market turmoil. Its subsidiary Agritrade Resources, which operates mines in Indonesia and China, is in default on a total of US\$244 million (S\$341 million) of loans.

A group of 15 lenders, including ING, Malayan Banking Bhd, Natixis, MUFG Bank and Commerzbank, held about US\$600 million of Agritrade International's US\$1.5 billion of liabilities, according to the ING Bank filing.

ING alleges that Agritrade issued multiple "overlapping" bills of lading, or lists of shipment goods, to obtain financing from multiple banks for the same shipment.

Commerzbank believes that shipments of coal it had financed did not exist, after it hired a coal specialist to investigate, according to a filing.

ING, MUFG, Natixis and Commerzbank declined to comment. A spokesman for Malayan Banking said the bank is unable to comment on specific clients and that it has "a stringent provisioning policy in place and takes appropriate measures as and when required to manage the asset quality of our entire credit portfolio."

Oil Trader Hontop Energy made 'suspicious deals' and transacted through "open account", owes \$610million to seven banks



THE STRAITS TIMES

CIMB alleges Singapore-based oil trader Hontop Energy made 'suspicious' deals

PUBLISHED JUL 5, 2020, 2:56 PM SGT

SINGAPORE (REUTERS) - Singapore's High Court has appointed an independent supervisor to oversee the restructuring of oil trader Hontop Energy (Singapore).

Hontop, the trading arm of Chinese independent refiner China Wanda Holding Group, is one of four commodity trading firms in Singapore which ran into financial trouble as oil prices crashed. CIMB is seeking repayment of US\$105 million (S\$146.5 million) it lent the company.

In the affidavit requesting the appointment of an independent supervisor to run Hontop's affairs, CIMB Bank detailed how it lent Hontop the money to finance two crude oil deals late last year in a section entitled "Suspicious transactions".

In total, Hontop owes nearly US\$470 million to seven banks, according to a list of creditors included in the affidavit.

The deals cited by CIMB in its affidavit involved Hontop buying cargoes from Sugih Energy International, now known as Aeternum Energy International, and telling CIMB it was reselling them to BP Singapore (BPS), a unit of BP.

In the first deal, CIMB agreed to finance Hontop's sale of Russian Espo crude onboard vessel Green Attitude to BP on an "open account" basis, where goods are shipped and delivered before payment is due, according to the affidavit.

When CIMB reached out to BP for payment in February, the oil major told the bank that the contract and payment for the cargo had been subject to a separate agreement between BP and Hontop and because it had not received payment from Hontop it was not obliged to pay Hontop or CIMB for the cargo, according to the affidavit.

BP did not specify what the agreement was about or say why it was meant to receive a payment from Hontop.

"It appears to be the case that, when applying for financing, Hontop neglected to disclose to CIMB material details about the nature of its agreement with BP," BP said in a Feb 20 letter to CIMB, a copy of which was appended to the affidavit.

In the second deal, for one million barrels of Russian Export Blend crude onboard vessel Gem No. 5, BP told CIMB in January that it did not enter into any contracts relating to this cargo.

Current Issues

- Over USD\$5 billion lost from fraudulent commodities and energy trading activities¹
- Common **malpractices** includes:
 - **Multiple Financing** in Transaction Financing
 - **Fraudulent documents** in Inventory Financing
- Lack of Reliable Data from the Commodity Asset Source (Terminals / Bunker ships / Traders) to Lenders
- Lack of Standard platform to track the transaction and its reliability.

1. <https://www.reuters.com/article/us-global-commodities-companies-scandal-idUSKBN26S00E>

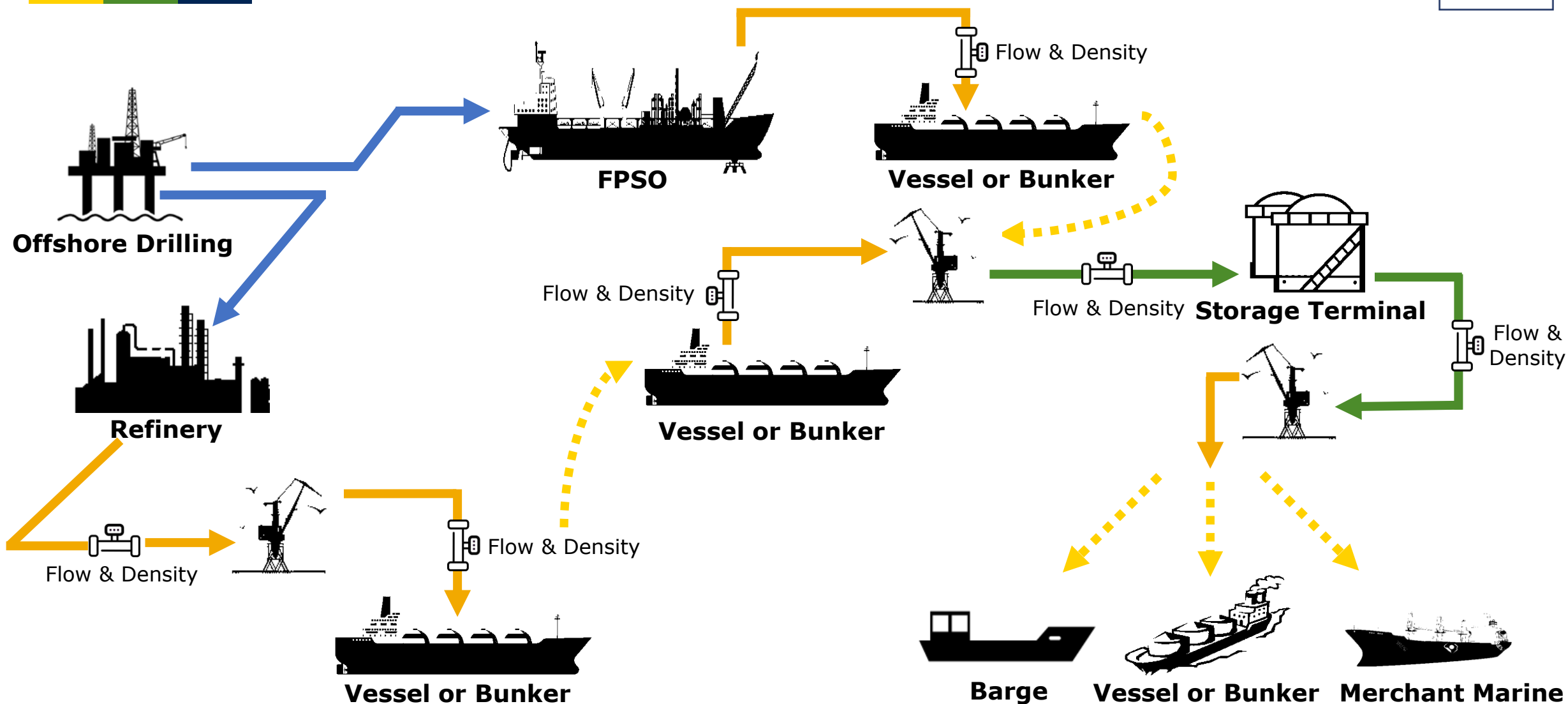
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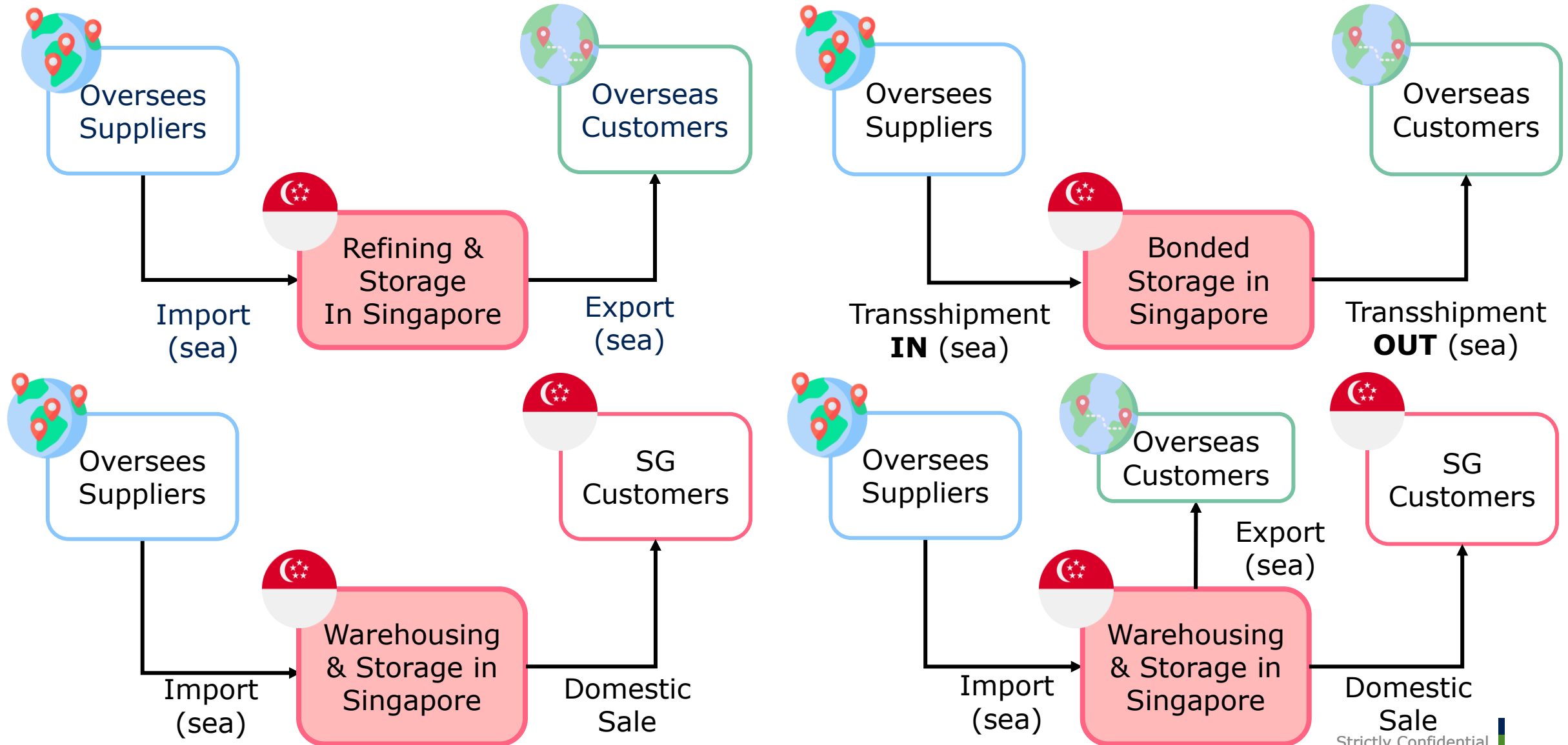
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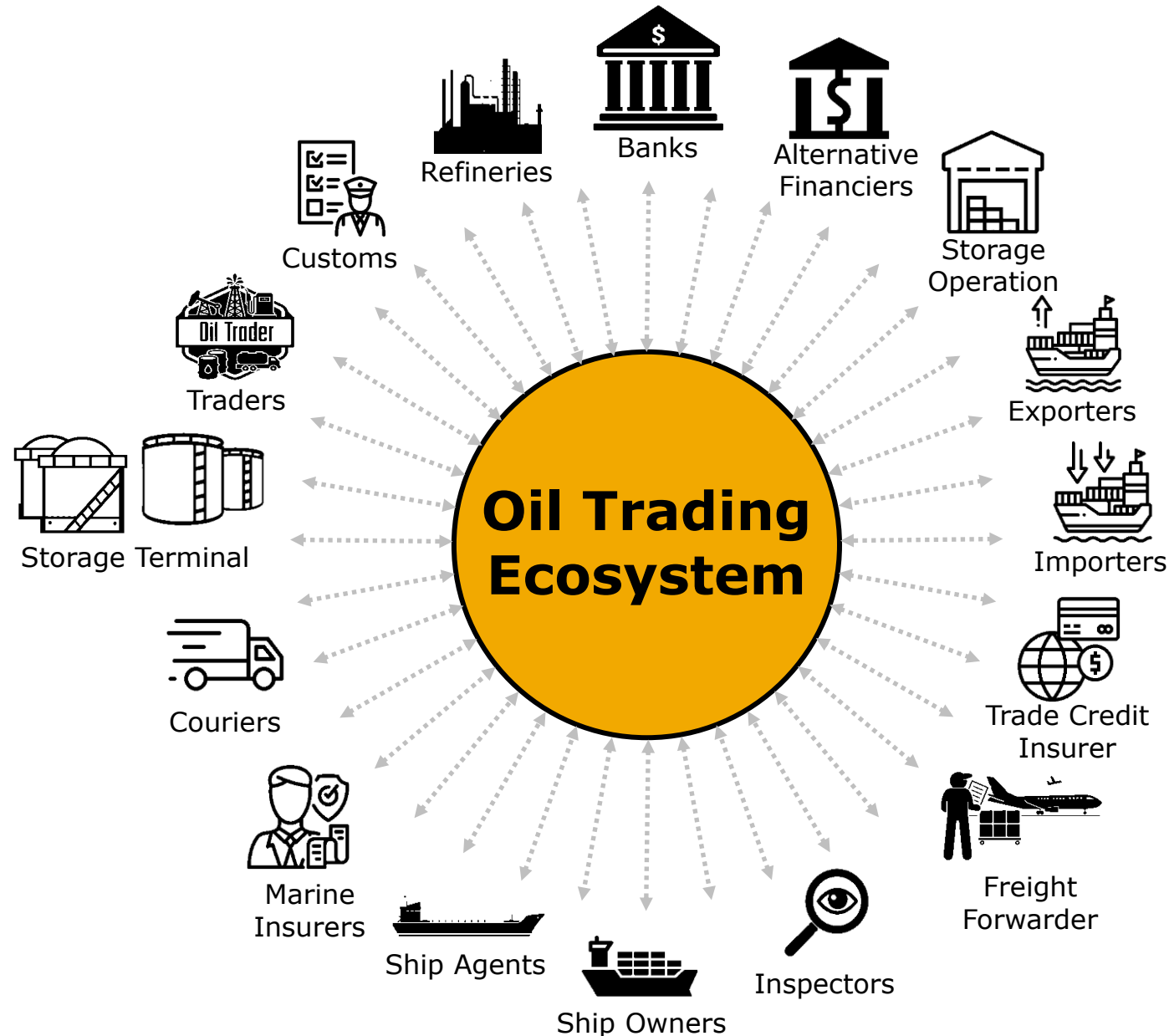
Storage and logistics play a key role in oil industry value chain: terminals, barges, break-bulking



Singapore Commodity Flow



Oil traders, shippers, import/exporters and their banks rely on logistics service providers to extend financing and credit



However, current trading and financing market practices are not rigorous and rely on people/trusts



Lenders rely on borrowers based on trust and available documents

Transaction Financing

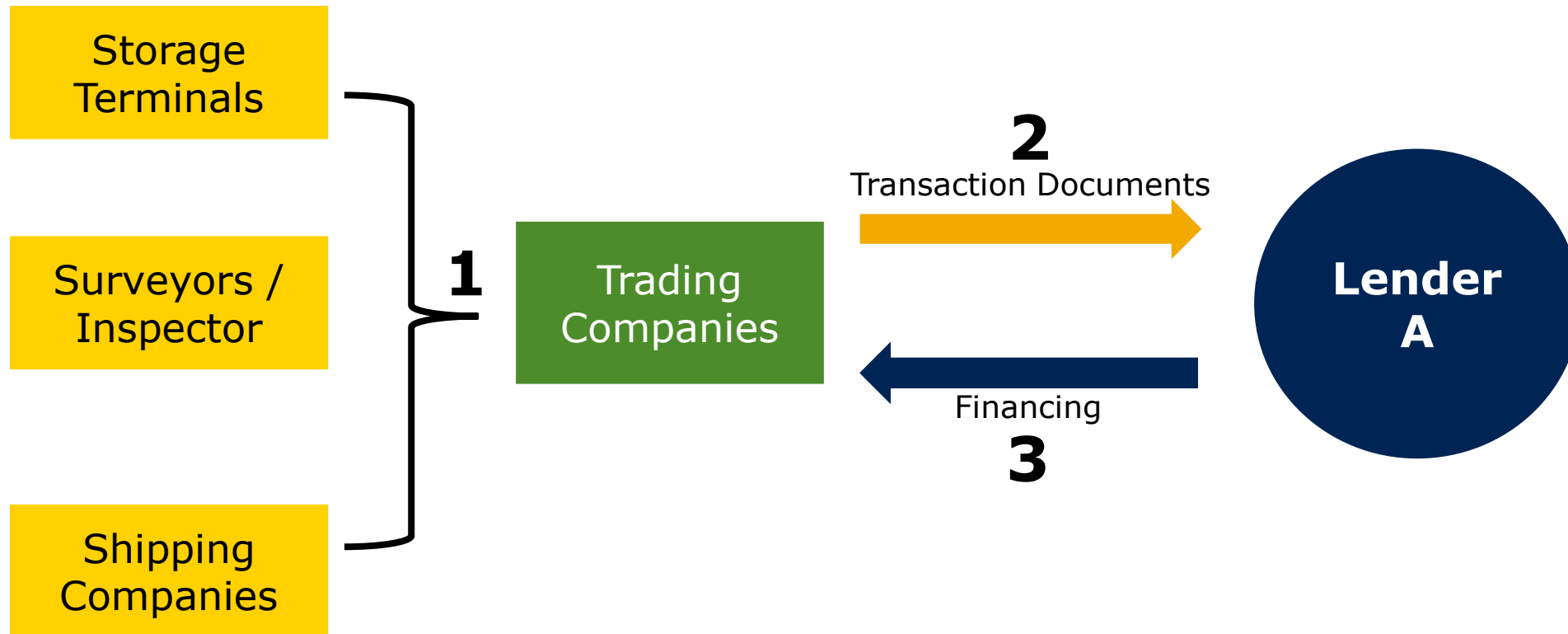
- Seller's contract is used to administer
- Validation requires buyer's confirmation
- Mostly physical oil business are rarely signed and proceeds with confirmations
- Unlike gas and power markets, master agreements make up a small portion of the business

Inventory Financing

- **Borrowing Base:**
Borrower provides the inventory documents and necessary backup of reporting assets.
- **Bilateral:**
Transactions are not commonly verified by Lenders by engaging a 3rd party.

1. Deals are silo-ed with one bank, however there is a potential for **multiple financings of same assets.**
2. Reconciliation of the documents provided by the borrower is a responsibility of the lender.
3. Inherent opacity in commodity financing exposes lenders to a high degree of fraud risk: **unable to verify physical oil cargo movement; non real-time info**

Current industry practices are not digitalised and not validated: rely on emails, manual intervention



1. The documents are emailed to the trading company by 3rd Party

2. The documents are filtered and sent to Lenders

3. Based on the validation from borrowers the finances are arranged by lenders for inventories and transactions

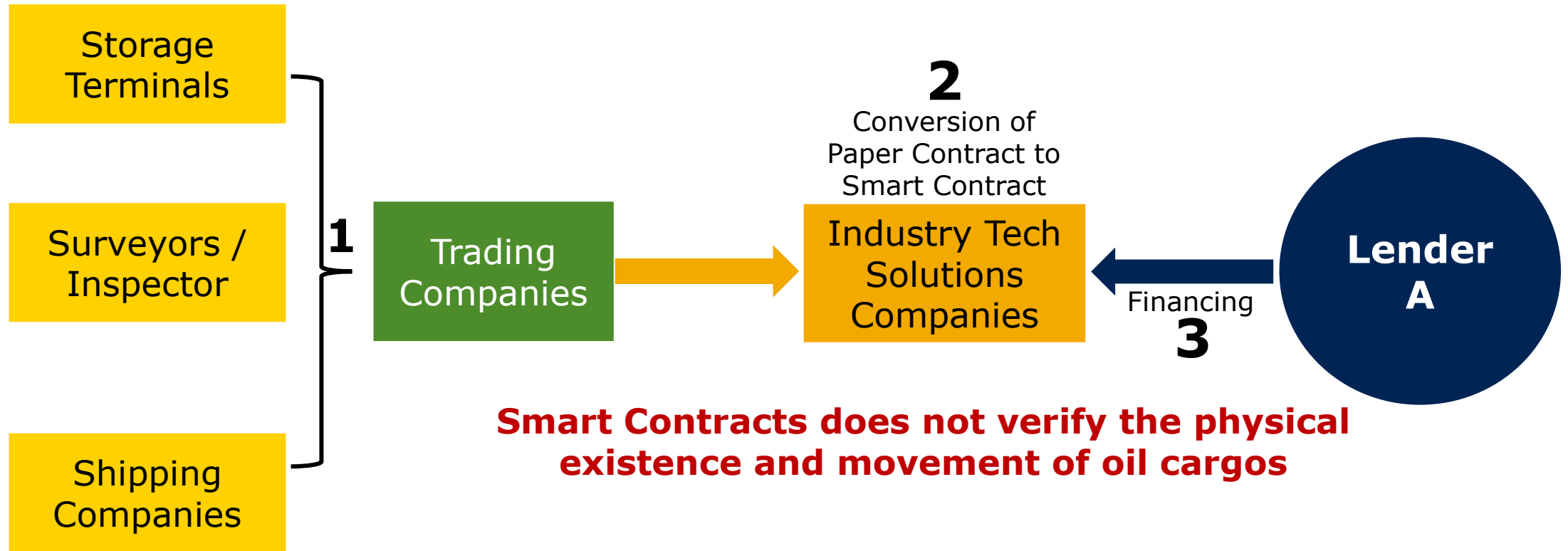
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Existing industry solutions are limited: efforts by tech start-ups to digitize documents into smart contracts



1. The documents are emailed to the trading company by 3rd Party

2. The documents are filtered but still **No Validation** and sent to Tech Solution Companies

3. Based on the Smart Contracts the finances are arranged by lenders for inventories and transactions

Existing solutions use API/block chain to prevent record changes, but cannot check authenticity of actual physical cargo



Digital solutions available but it **is NOT standardised** for all users to implement.



The Digital Platform either use **REST API or Blockchain Concept** for this solution.



The Data from the Asset Sources are still **manually transmitted to the lenders**, where the authenticity of the records are questionable.



Technology Solutions available are:

1. Web-based Post Trade blockchain
2. KYC & Digital Letter of Credit through Blockchain
3. Web-based Multi-bank trade finance

Disparate new tech solutions that offer digitisation and triangulation of documents are in the market



Platform to digitises trade operations, finance and logistics.



Platform to digitise the global commodities trading industry, creating a secure, trusted ecosystem, powered by block chain, smart contracts and machine learning.



Digital Platform enables faster and more efficient processing of Trade finance instruments and ensures a smooth flow of authenticated, secure communication.



All-in-one Konsole streamlines communications between corporate and their banks, to generate speed and efficiency in trade finance operations.



Analyses, maps and reconciles data from a multitude of internal and external sources. It enables users to consume data in any format, from any provider, resulting in significant efficiencies and reduced operational risk.

Existing industry solutions may only address **40%** of oil trading and financing Pain Points

Need for a targeted solution to authenticate the documents and real time physical cargo tracking



- While market Participants have recognised the problem, current solutions underway are **complex**
- Solutions have yet to address a simplified way to capture data from a range of third-party solutions, normalise, organise, and reconcile the data, and make the process transparent to lenders
- The initiatives also require an order of magnitude change to established workflows by all industry participants
- The solutions are targeting to digitise the document



Government led industry alliances were created for supply chain digitalization, but mainly to create a secured data sharing highway

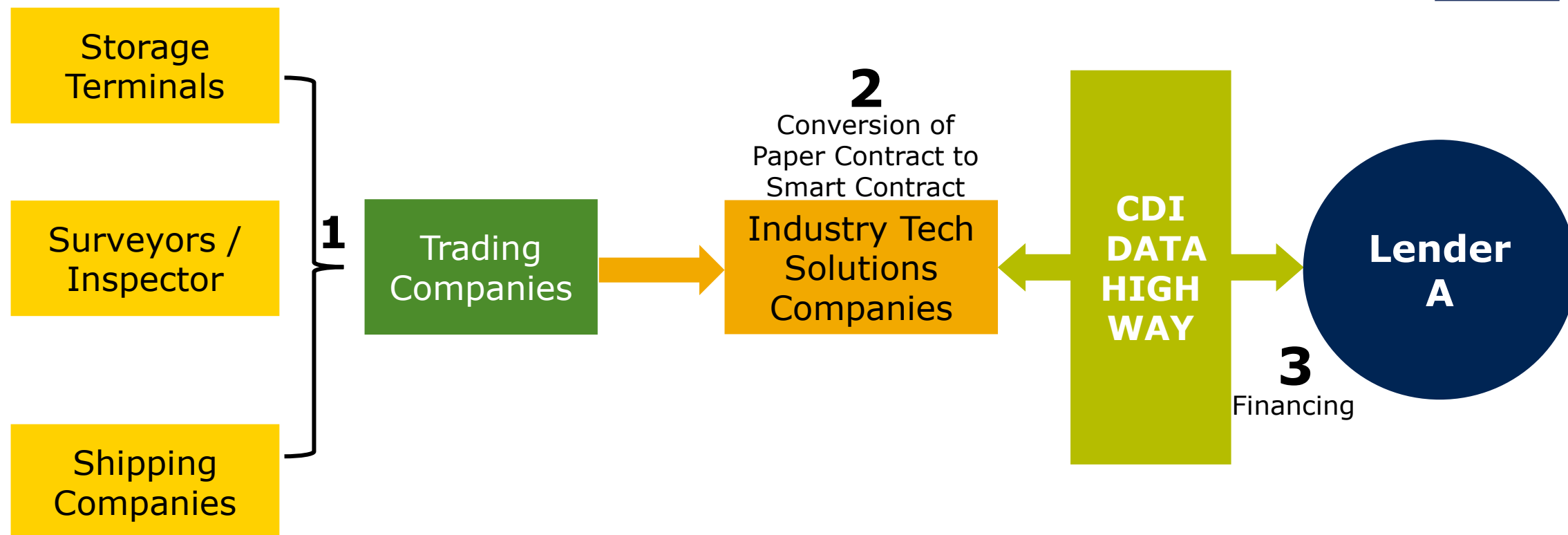


- These **Singapore Together Alliances for Action** - partnerships between industry players and the Government - aim to rapidly:
 - Seize new opportunities in the aftermath of the coronavirus pandemic
 - Prototype new ideas in a bid to grow the country's economy
- **Several industry-led alliances** were set up: robotics, e-commerce, environmental sustainability, **digitalisation of supply chains** and the built environment, education technology as well as enabling safe travel and tourism
- **Modus operandi** for those Alliances for Action:
 - Consulting widely, and involving people from a wide spectrum of society ...
 - ... while putting ideas into action quickly i.e. speed and agility with successful projects to become new shoots of growth, and generate new jobs



Source : AFA

AFA's Common Data Infrastructure (CDI) Solution: govt encourages players to plug in and exchange documents

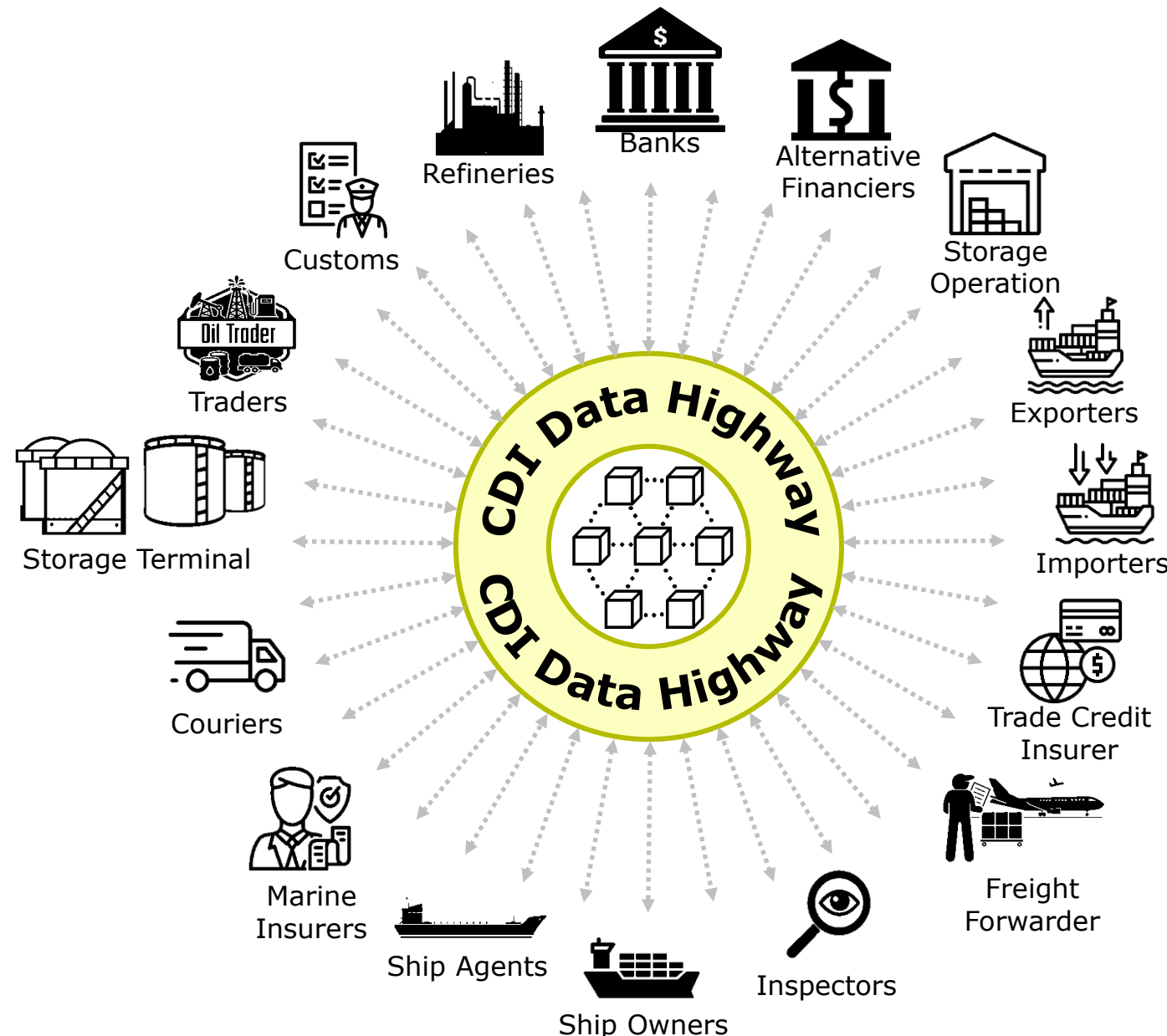


1. The documents are emailed to the trading company by 3rd Party

2. The documents are filtered but NOT validated. Only send to Tech Solution Companies or Directly to CDI to match and triangulate

3. Based on the Smart Contracts / Data from CDI the finances are arranged by lenders

CDI proposed commodity trade ecosystem: limited to creating assured platform for value chain players to exchange documents



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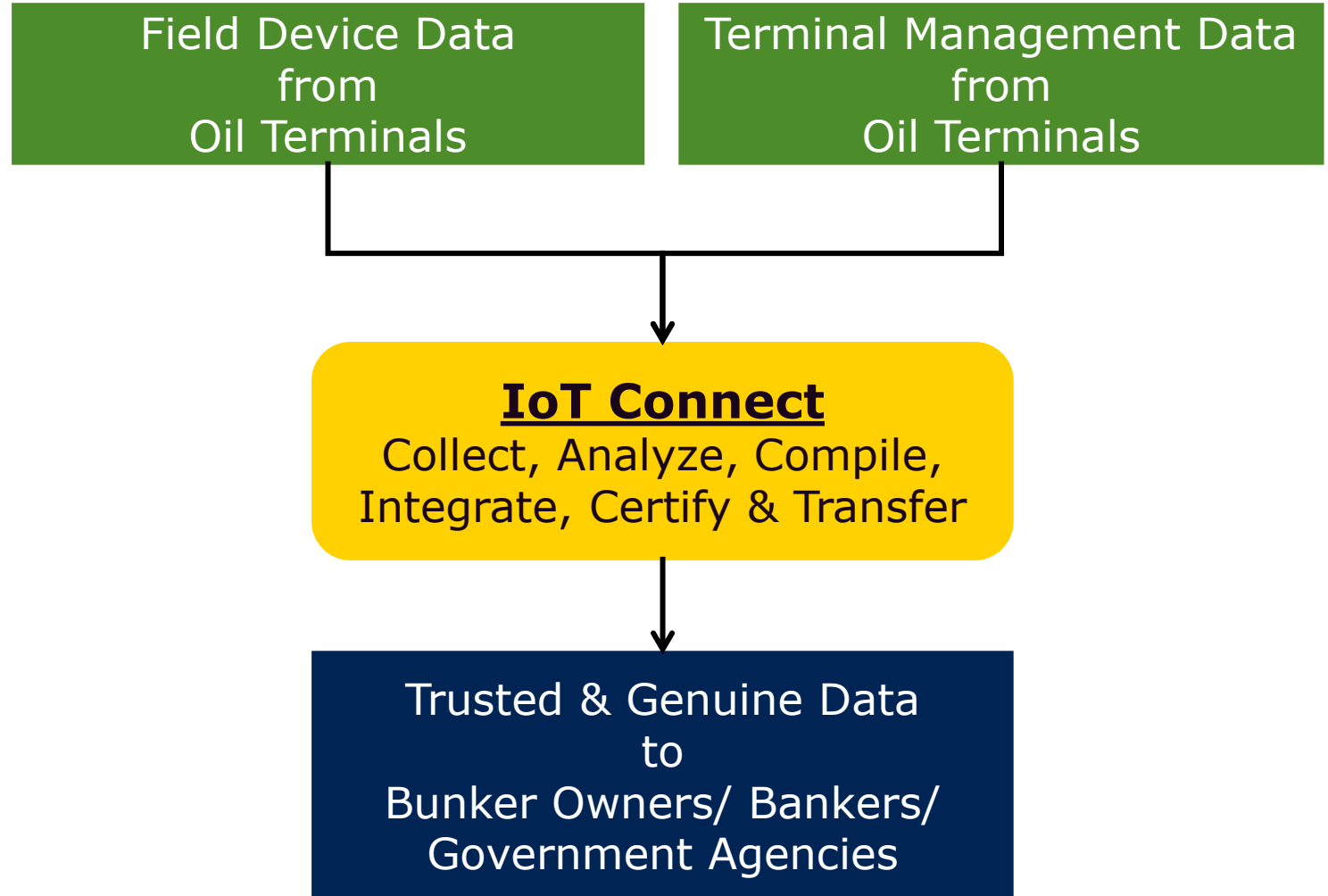
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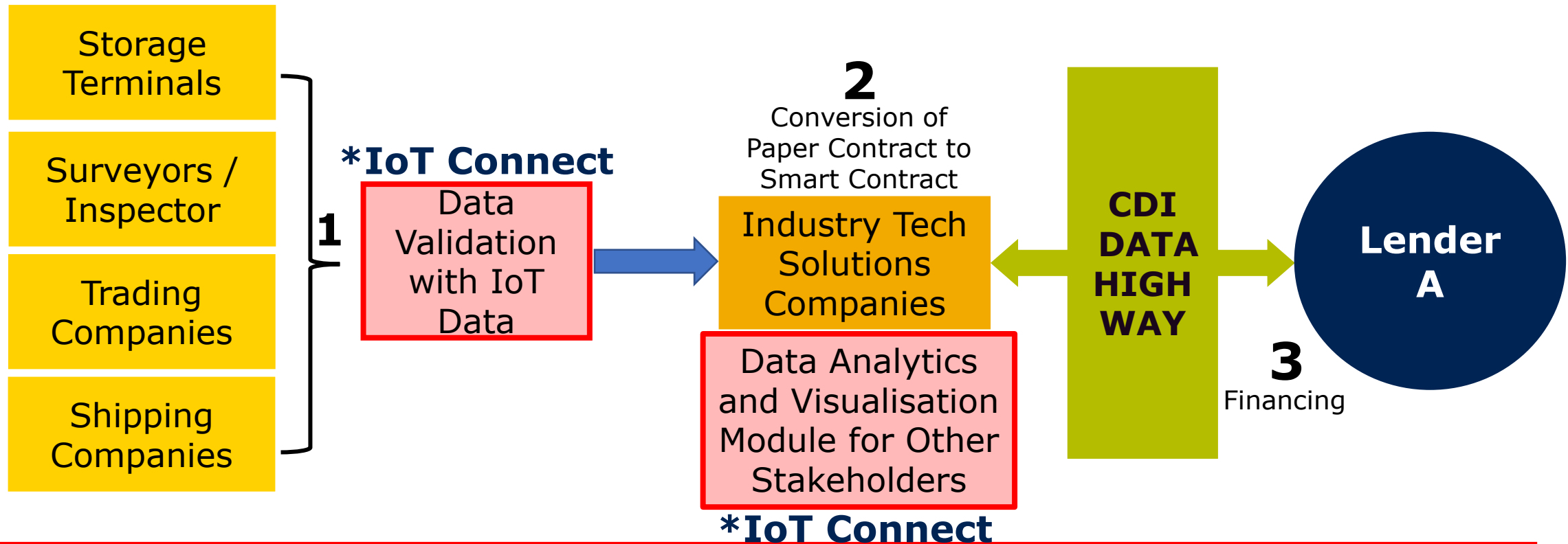
How does our “Terminal IoT Connect” Solution Work: providing physical oil cargo tracking on real time basis



1. We **collect data from oil terminals, tankers, barges to ensure real time tracking** of oil cargo, preventing manipulation or forgery of ITT documents, and inventory status.
2. Real time oil cargo information avails to **terminal operator** who can extend info to **oil traders/oil majors**, who can extend to their **banks**



Rotary's "IoT Connect" can layer with CDI and other market tech solutions

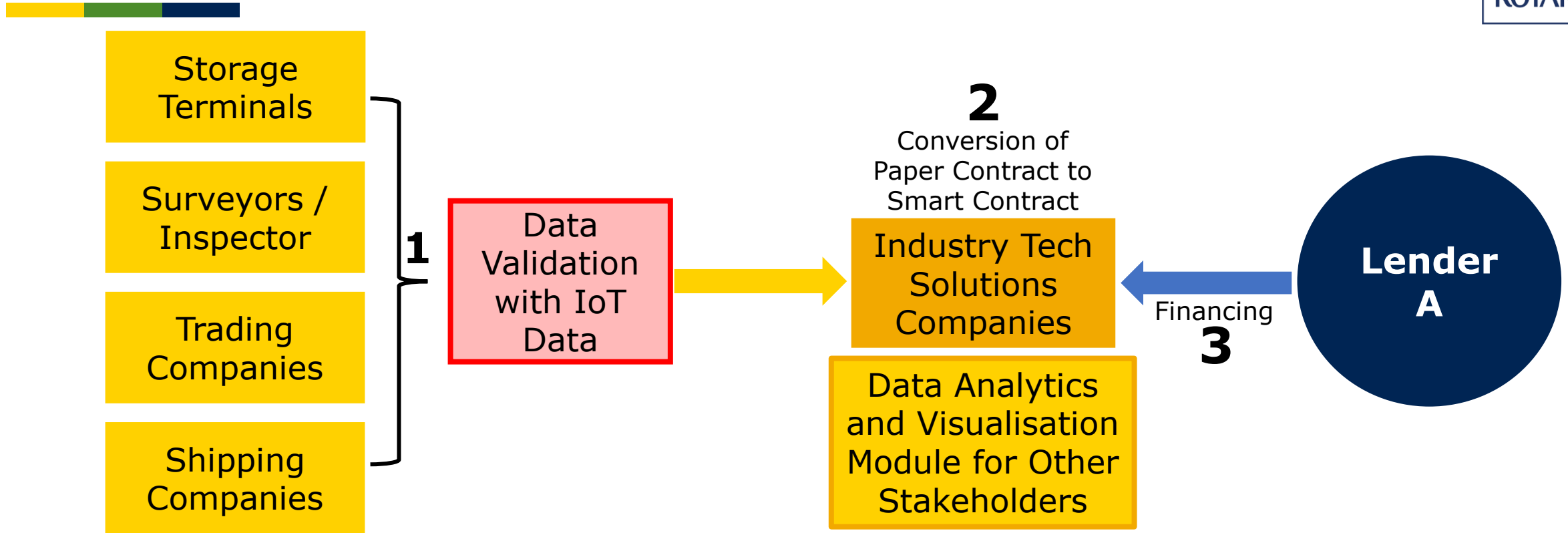


1. Transactions from the Terminal are Validated with the IoT Data our solution

2. Validated Contract/ Transaction to Smart Contract with additional Analytics and Visualisation modules

3. Based on the Smart Contracts the finances are arranged by lenders for inventories and transactions

Our IoT Solution without CDI: we can operate independent of CDI too

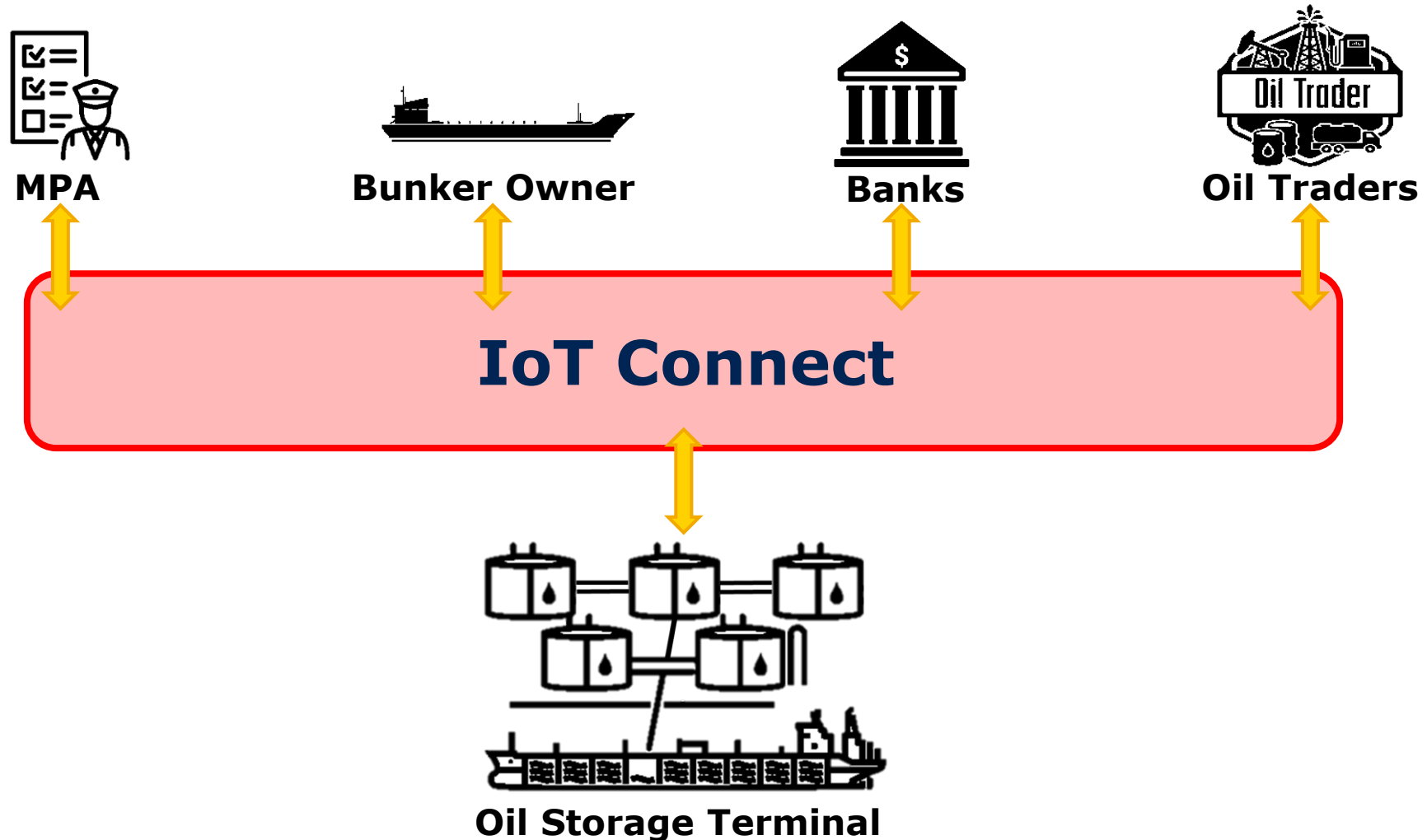


1. Transactions from the Terminal are **Validated** with the IoT Data by our solution

2. Validated Contract/ Transaction to Smart Contract with additional Analytics and Visualisation modules

3. Based on the Smart Contracts the finances are arranged by lenders for inventories and transactions

Our Proposed Connectivity to CDI Data Highway

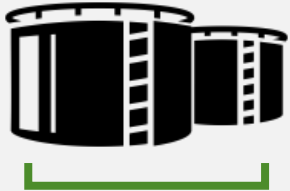


Value For Stakeholders: greatly reduce risk of oil cargo/trade fraud, and reduce cost of financing



Oil Terminals	<ul style="list-style-type: none"> Digitised documents allows transactions to be recorded and traced Provides real time data dashboard to monitor all transactions, providing traceability (<i>In, Out, Inter-tank</i>) Improved predictability of storage demand and scheduling Reduced risk related to bonded goods Standard Platform to bring Lenders and Traders onboard, improving transparency and communication Terminal recognised in industry as transparent and verified storage space - draws confidence from lenders when products are stored here. Increased volume of storage booking
Traders	<ul style="list-style-type: none"> Increased volume of trade Credible, traceable, and presentable data allows easier access to trade financing and faster processing Traceable data and track records allows access to more financing options Visibility of data improves trade predictability and ability to plan trade volume Controls Operation Risks by ensuring products are loaded, stored and offloaded appropriately
Lenders	<ul style="list-style-type: none"> Increased volume of financing with confidence from transparent and validated data (<i>Contract vs Physical Cargo Movement</i>) Increased efficiency in processing trade financing with digitised data/ document Detection and Mitigation of fraudulent transactions through real time, validated cargo movements
Logistics	<ul style="list-style-type: none"> Traceability of goods loaded, stored, and unloading Reduced risk with digitised permissions management through Trade Management Data module in place of Letter of Indemnity
Authorities	<p>Maritime and Port Authority</p> <ul style="list-style-type: none"> Detection and Mitigation of fraudulent transactions through the availability of real time data <p>Ministry of Trade and Industry</p> <ul style="list-style-type: none"> Improved image of oil terminals and trading hub, draws investments. <p>Alliance for Action</p> <ul style="list-style-type: none"> Able to bring onto CDI validated and safe data, readily available for all.

Why Rotary?



We Build Terminals

Having close to 50 years of experience in the oil and gas industry, Rotary knows a terminal inside-out. We acknowledge the different level of maturity in each terminal and are able to enable a seamless integration of our solution to your terminal.



Our Solution is Brand Neutral/ Plug and Play System

Our Solution is able to be adopted and integrated with **any** terminal management system. (e.g. Honeywell, ABB, Rockwell, Yokogawa etc.) Being a terminal builder, we have worked with various brands and are able to integrate IoT connect with all terminal management systems.



Data Validation through Algorithms

With our Terminal process expertise and industry operation know-hows, data collected from the control system are validated through algorithm to detect any mismatch in movement and scheduled operations.

Rotary's IoT Solution in a snapshot



Complete
Digitalisation



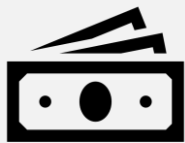
Machine
Learning



Transparent



Traceable



Genuine
Transactions



Certified &
Genuine Data

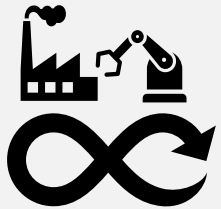


Common
Platform



Efficient
Communication

Advantages of Rotary's IoT Solution



Can be
incorporated
at any level



Uniting all
Levels of
Transactions



Reduces the
gap among
Stakeholders



Monitor &
Certify
Transactions



Safety &
Security

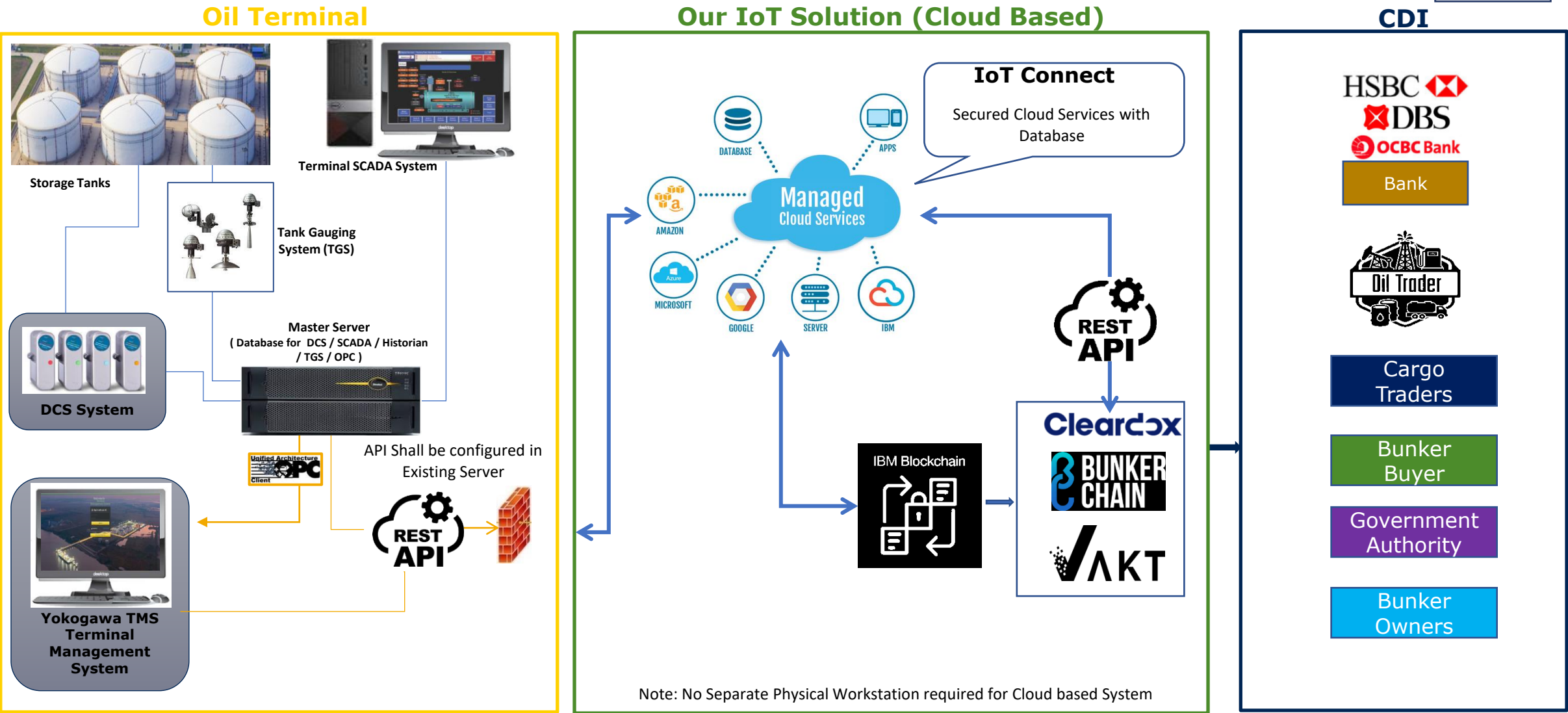
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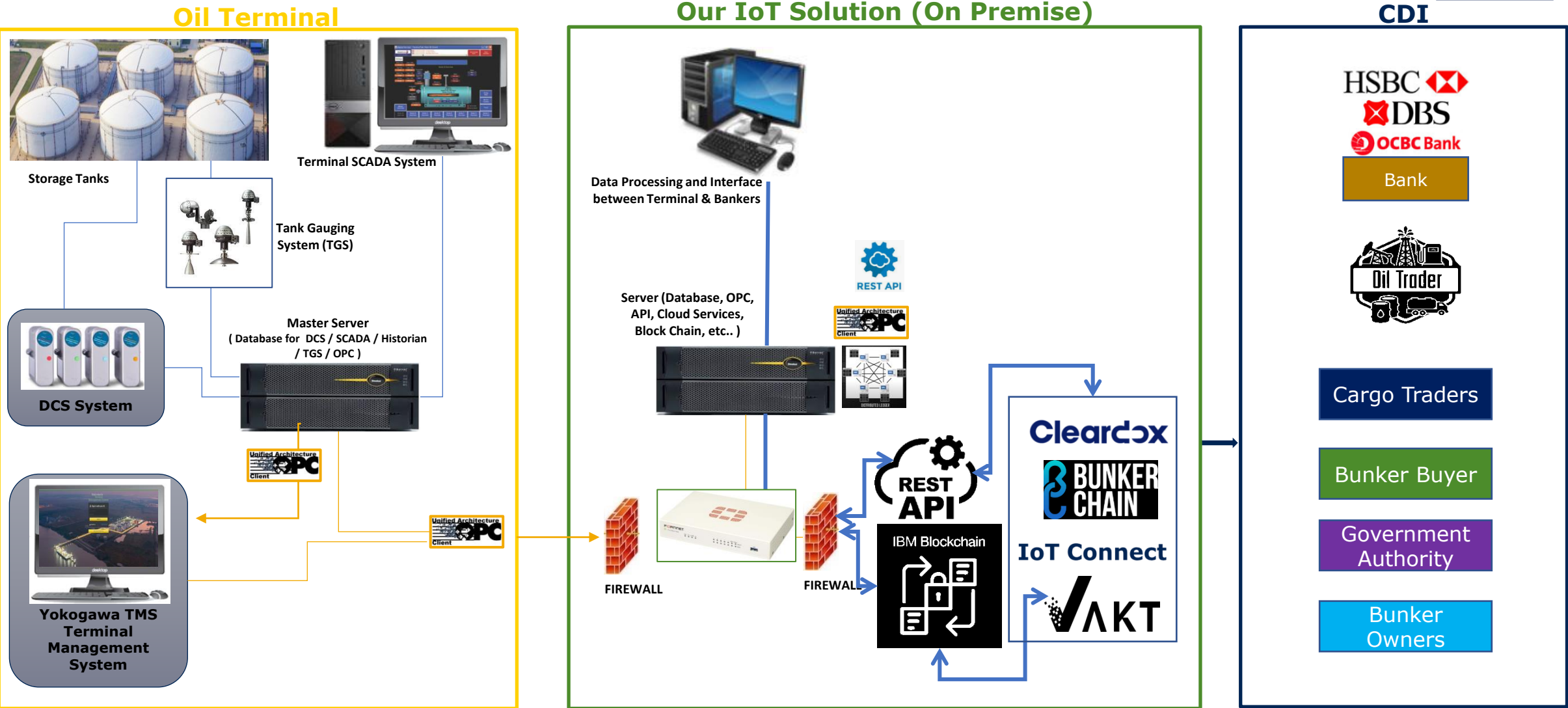
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Overall Architecture - Cloud Based



Overall Architecture – On Premise



Data Security enabled system ensures protection of data through encryption and blockchain technology.



Controlled, traceable, credible data are **secured**

- Data of one terminal is **NOT** shared with another
- Data are **stored and managed locally** in Singapore. Each data owner maintains a **unique set of data** in their terminal ecosystem.
- Data stored are protected through **encryption of data** with block-chain technology.



Shared data is consistent and **real time**

- Data can be stored on cloud with **persistent protection** that travels with the data when it is shared across stakeholders.
- Data sharing and actions are **recorded** on blockchain creating a **verifiable audit trail**, reducing data modification or loss.



Customised data sharing to selected stakeholders

- Authorisation with **Key Management System (KMS)** or managing own encryption keys with **CloudHSM (Hardware Security Module)** using FIPS 140-2 Level 3 validated HSMs enables cross-stakeholder data sharing while consistently maintaining clear ownership and privacy.
- **Transport Layer Security (TLS)** breaks down information to smaller sizes and **shares specific data** to relevant stakeholders.

IoT Connect Modules

IoT Connect Modules



IoT Data Management

Trade Data Management

Transaction Trade Validation

Validation Reports

Post Trade Management

User Management

IoT Data Management



Real time
Monitoring



Pictorial
Representation



Trend
Monitoring



Archiving
Facilities

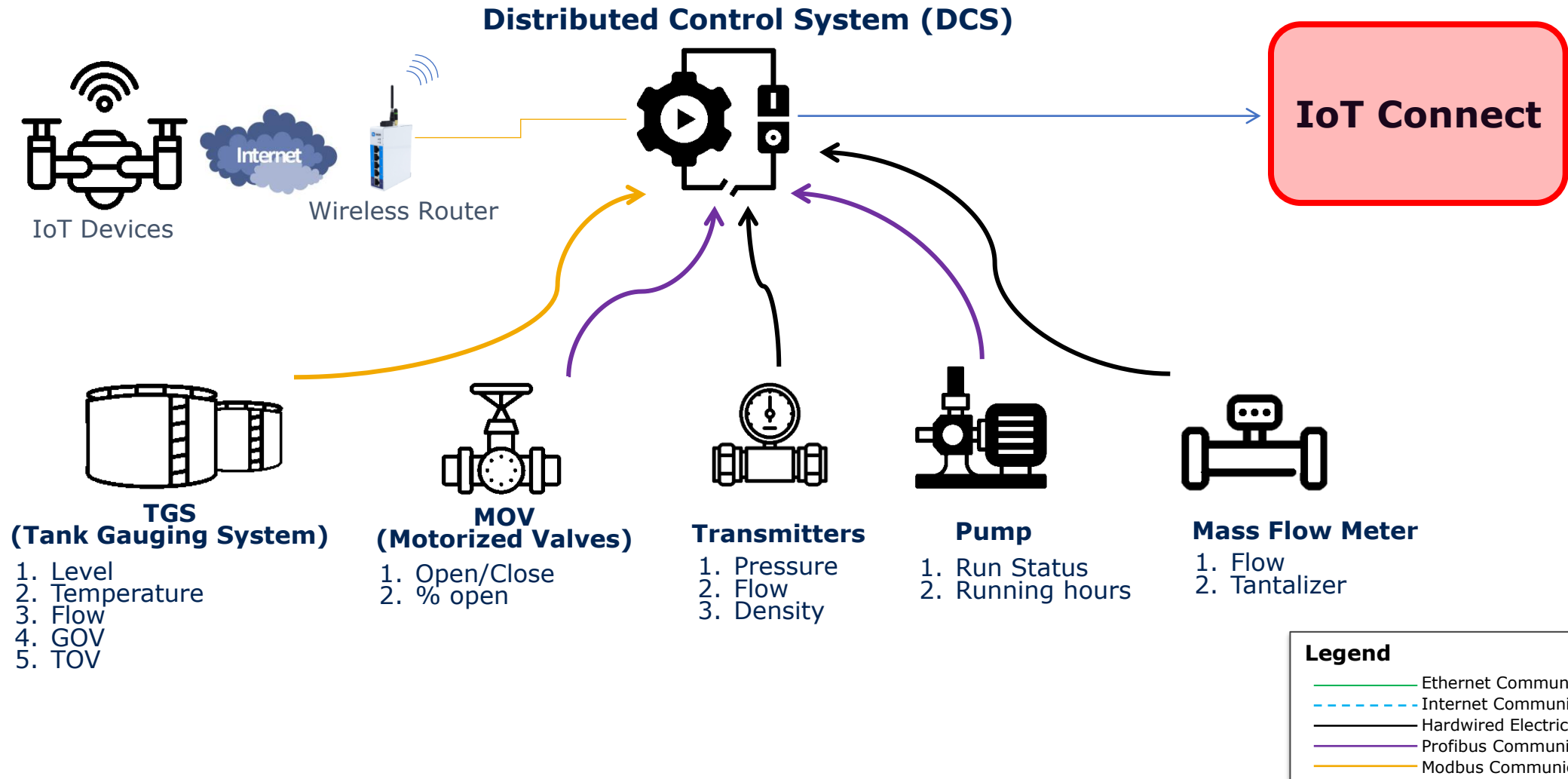


Alerts & Alarms



Data log
Services

Field Devices in Terminal



Trade Data Management



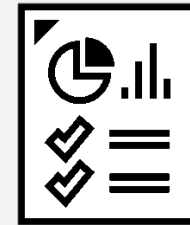
Contracts



Completed
Orders



Inventory

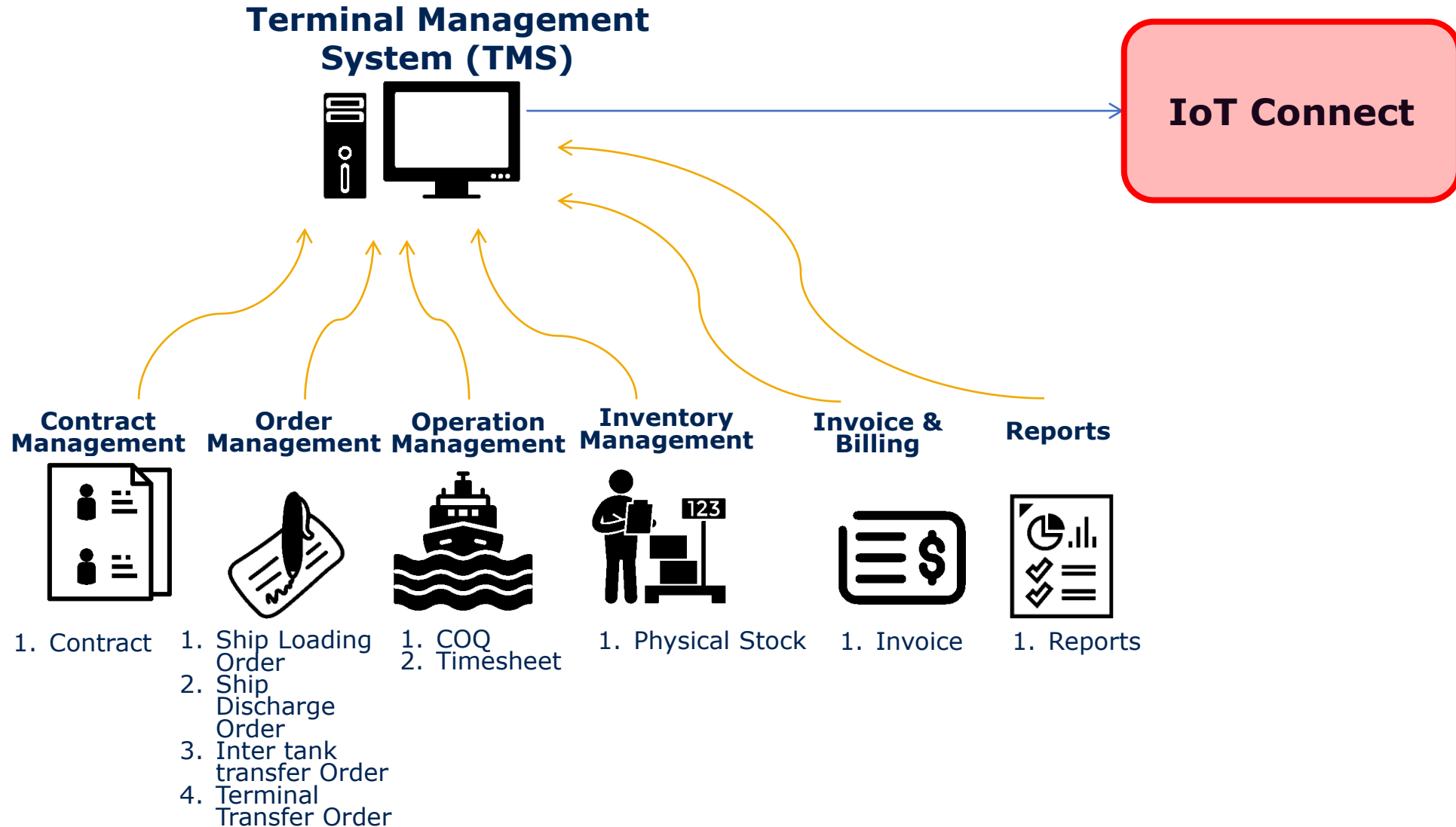


Logistics

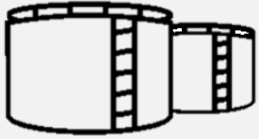


Trading
Documents
(COQ, Invoice,
Timesheet, etc..)

Terminal Management System (TMS)



Transaction Trade Validation



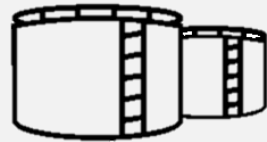
Inter Tank
Transfer



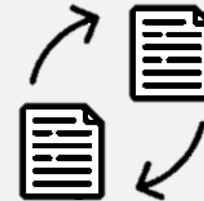
Ship Discharge



Ship Loading



Inter Terminal



Paper Stock
transfer

Post Trade Management



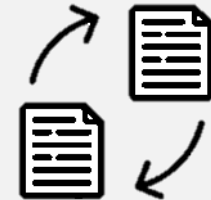
Data
Encryption



Reports



Digitizing the
Trade data



Data transfer

User Management Module



User Account
Management



Account
Activity Log



ROTARY

Smart thinking. **Safe hands.**

Rotary Terminal IoT Connect

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