



International  
Supply Chain  
Education Alliance

# SUPPLY CHAIN MARRIES BLOCKCHAIN

*(ISCEA PTAK PRIZE – GLOBAL SUPPLY CHAIN CASE COMPETITION)*

*(OP Jindal Global University)*

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# BLOCKCHAIN

*(An emerging technology)*

***The blockchain is an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value.- 2016, Tapscott Don, Tapscott Alex.***

## BENEFITS

1. Data Transparency
2. Security
3. Asset Management
4. Smart Contracts

## CHALLENGES

1. Industry wide adoption
2. Development of standard
3. Technology
4. Culture
5. Energy consumption

## AREA OF USE

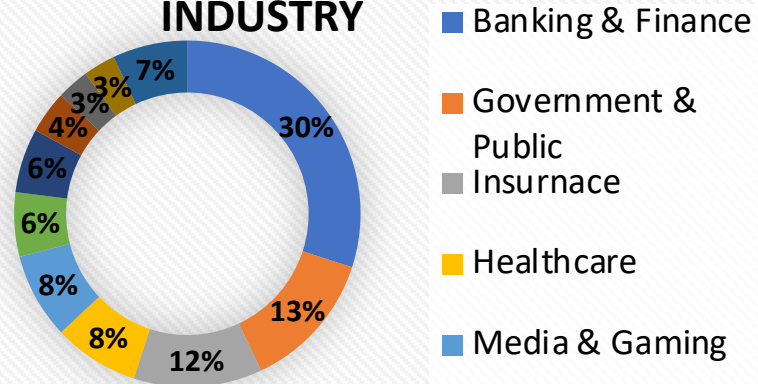
1. Retail
2. Healthcare
3. Automotive
4. Finance
5. Energy
6. Logistics

## STEPS FOR IMPLEMENTATION

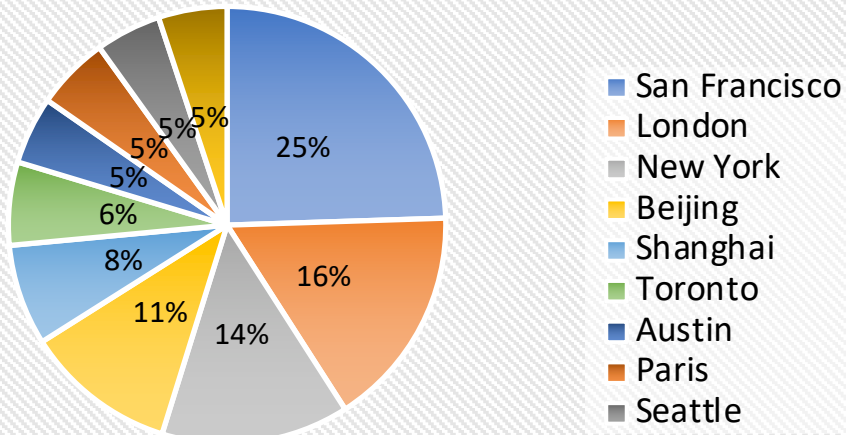
1. Strategy
2. Planning
3. Proof Of Concept
4. Launch Pilot
5. Determine Scale
6. Expansion.

# BLOCKCHAIN: GLOBAL SCENARIO

**% OF BLOCKCHAIN IN EACH  
INDUSTRY**



**% of Blockchain Users; Cities**



- 1 Distributed ledger: Peer to peer distributed network, public history of transaction, highly available and proof of the transaction existence.
- 2 Smart contracts: Commercially enforceable transaction without involvement of an intermediary.
- 3 No Intermediary: Cryptographic proof instead of trust.
- 4 Near Real Time: Real time settlement of reordered transaction, removing friction and reducing risk.
- 5 Irreversibility & Immutability: Certain and **verifiable** record of every single transaction. stops double spending fraud, abuse and manipulation of transactions.

## Example of complexities:

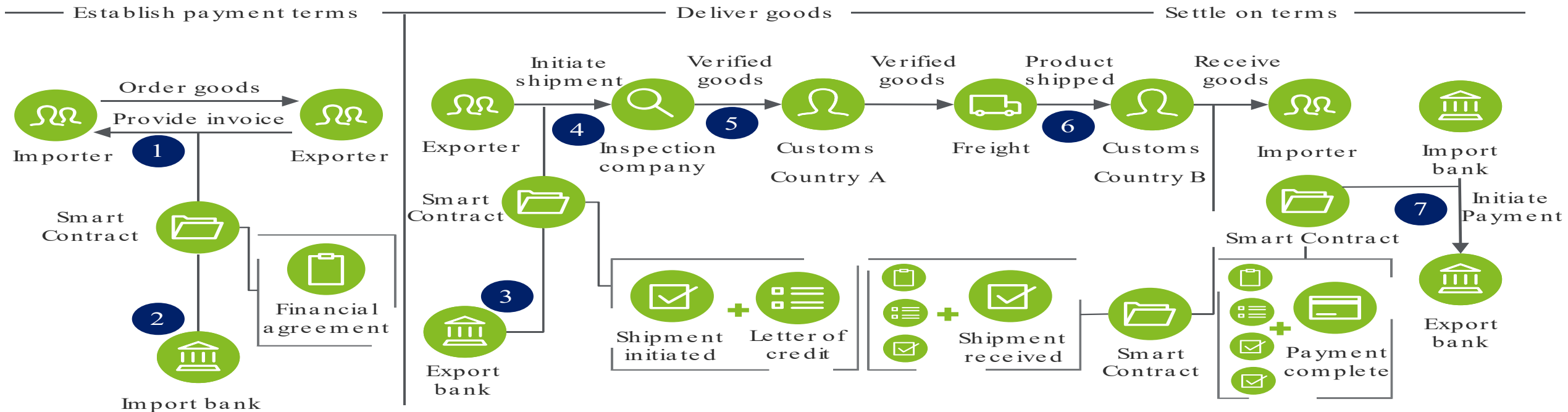
A simple shipment of refrigerated goods from East Africa to Europe goes through nearly **30** organizations, with more than **200** different interactions and communications among these parties.



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## Shipping Industry Volume:

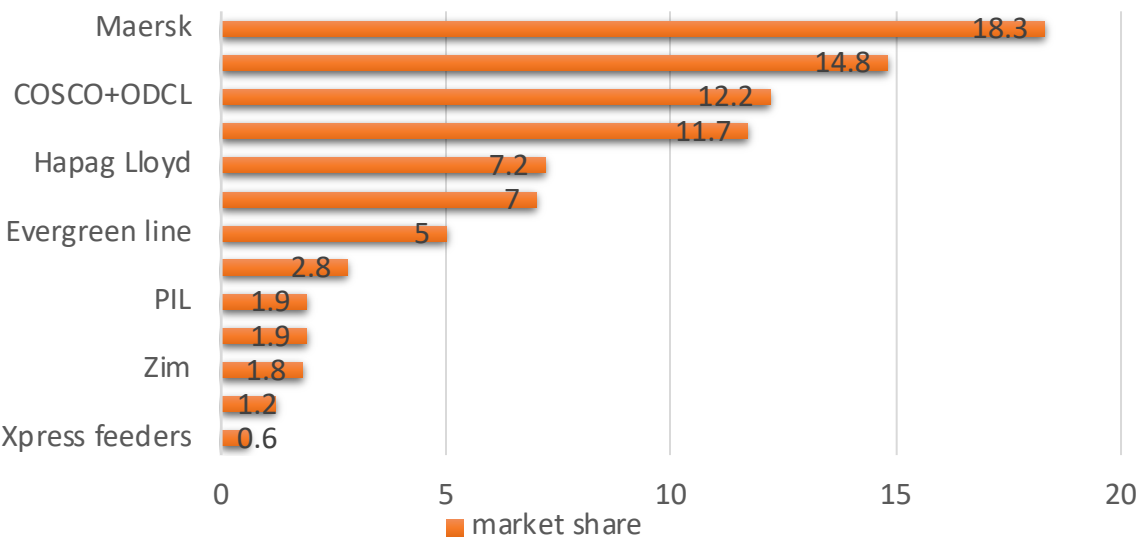
- 90% of world trade carried out by international shipping.
- Total 4 trillion goods are shipped per year.
- Reducing supply chain barrier will increase the global GDP by 15%



# EXECUTIVE SUMMARY

**OBJECTIVE:** *Cost benefit analysis projection of TRADELENS project and security cost analysis.*

## MARKET SHARE OF MAERSK



**MAERSK**



**“TRADELENS”** JV by Maersk and IBM to support the shipping industry with blockchain.

**94 members** will actively join when project is completed as per agreement.

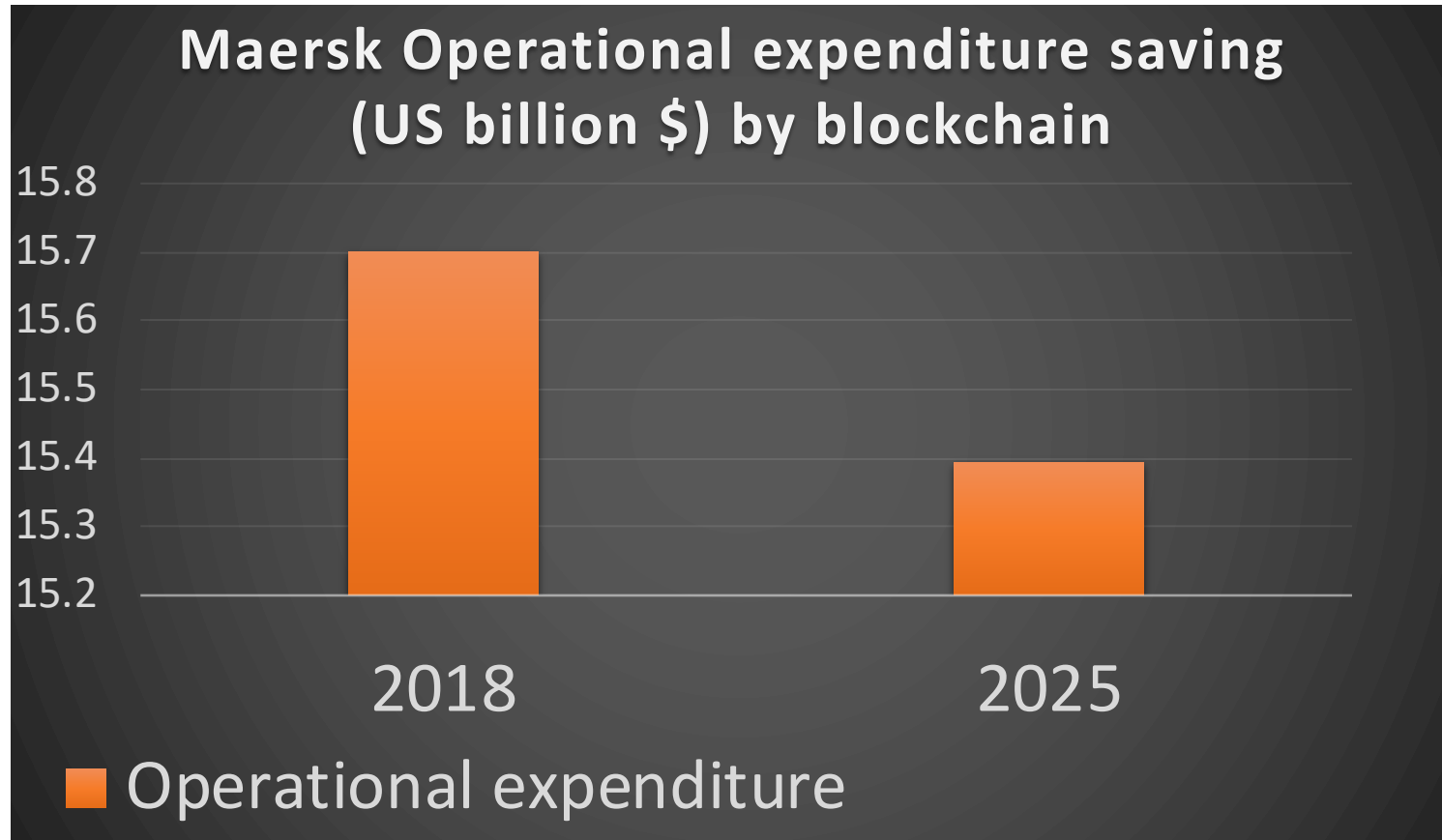
Custom authorities and custom brokers are actively participating.

More than **20 port and terminal operators** across the globe will be involved in piloting the solution.

**Beneficial cargo owners (BCOs)** will play an active role. Standards discussions underway.

**Inclusive of the participation of 234 marine gateways.**

## ESTIMATED COST SAVING IN TRADELENS

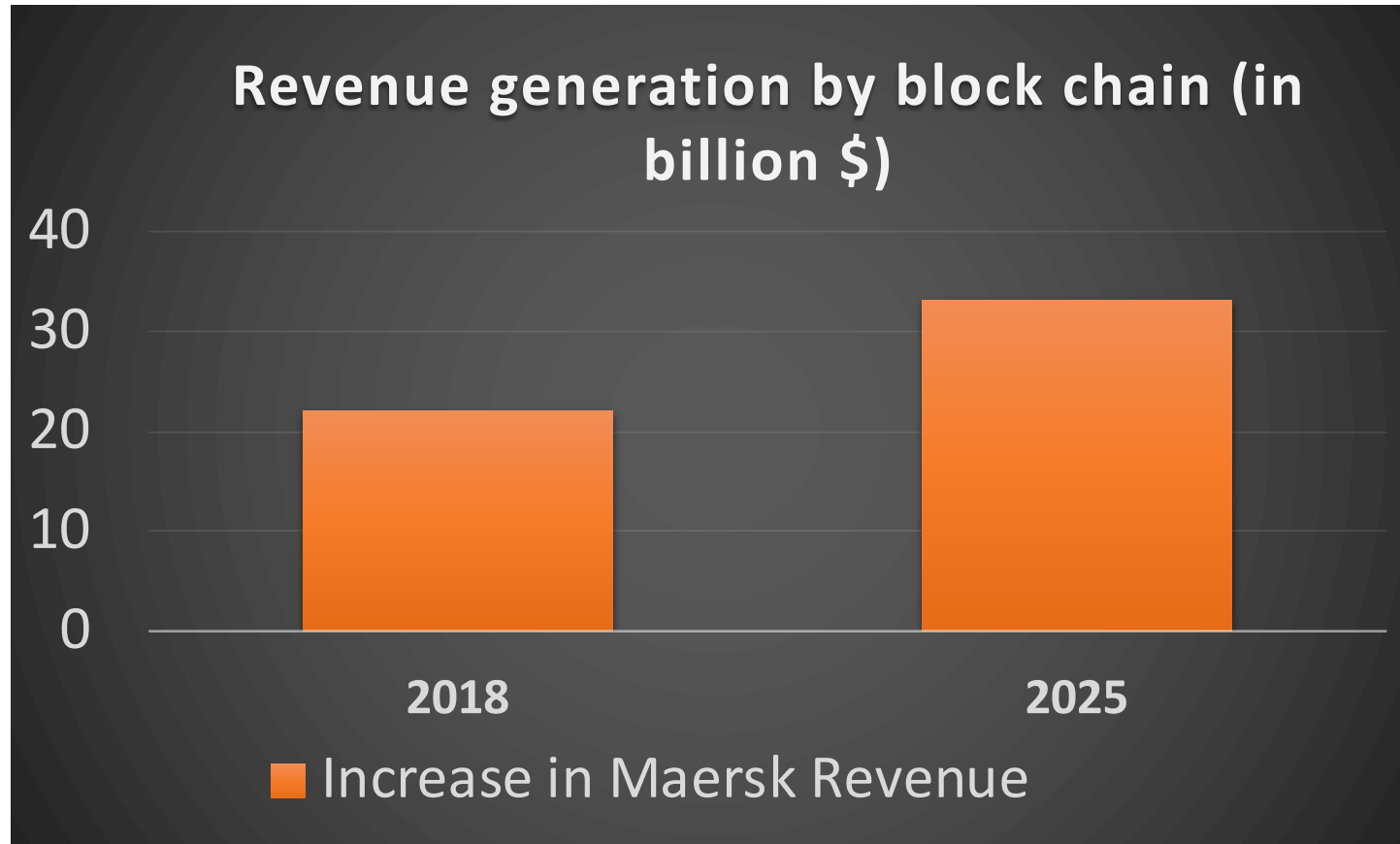


### Assumptions:-

- ✓ 15.3% of total cost of shipping industry will reduce after block chain implementation.
- ✓ To include all 94 members total 8 years will be required adding 12 members each year.

**Sources:** - Maersk Annual report 2017.  
Forbes.com 9<sup>th</sup> August 2018.

## ESTIMATED REVENUE GENERATION IN TRADELENS

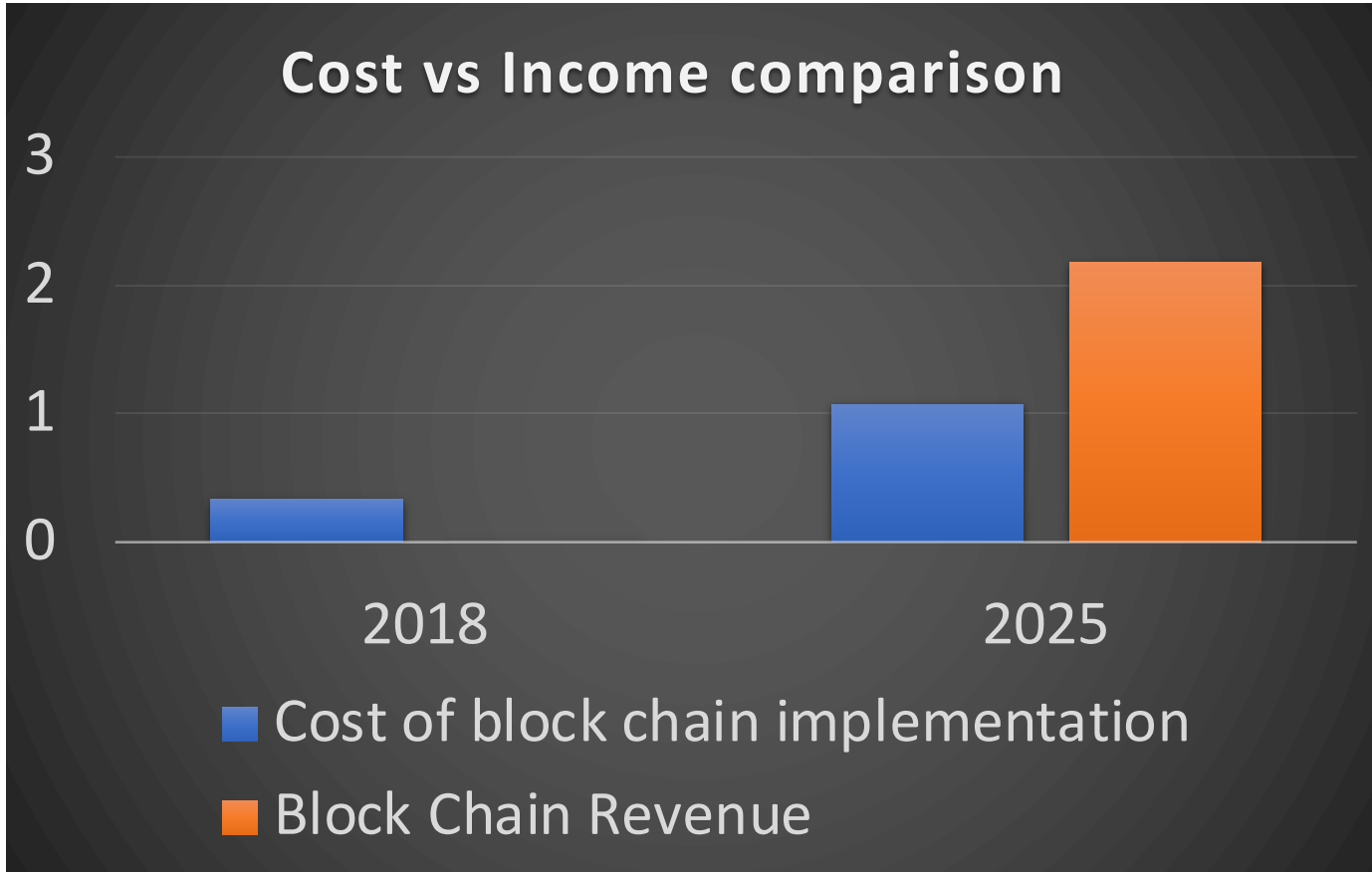


### Assumptions:-

- ✓ 35% of total traffic will increase after block chain implementation.
- ✓ To include all 94 members total 8 years will be required adding 12 members each year.
- ✓ Revenue generation includes: -
  - **Membership revenue**
  - **Transaction revenue**
  - **Increased sales.**

**Sources:** - Maersk Annual report 2017.  
 Forbes.com 9<sup>th</sup> August 2018.  
 Forrester emerging technology projection.

## COST INCURRED IN TRADELENS PROJECT



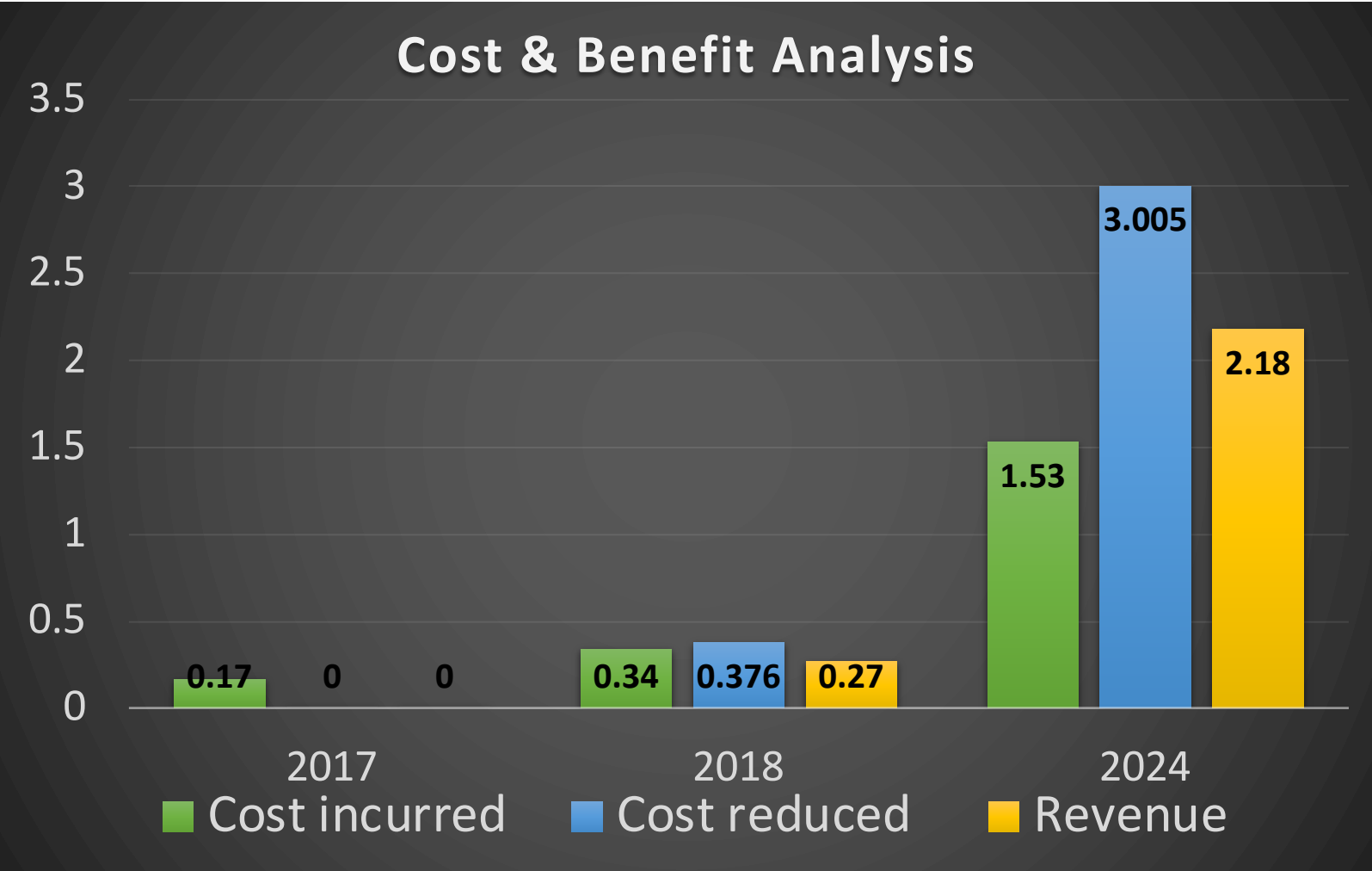
### Assumptions:-

- ✓ Minimum return on investment is 43%.
- ✓ To include all 94 members total 8 years will be required adding 12 members each year.

**Sources:** - Maersk Annual report 2017.  
Forrester emerging technology projection.



# COST BENEFIT ANALYSIS *of TRDAELENs*



**Sources:** - Maersk Annual report 2017.  
Forbes.com 9<sup>th</sup> August 2018.  
Forrester emerging technology projection.

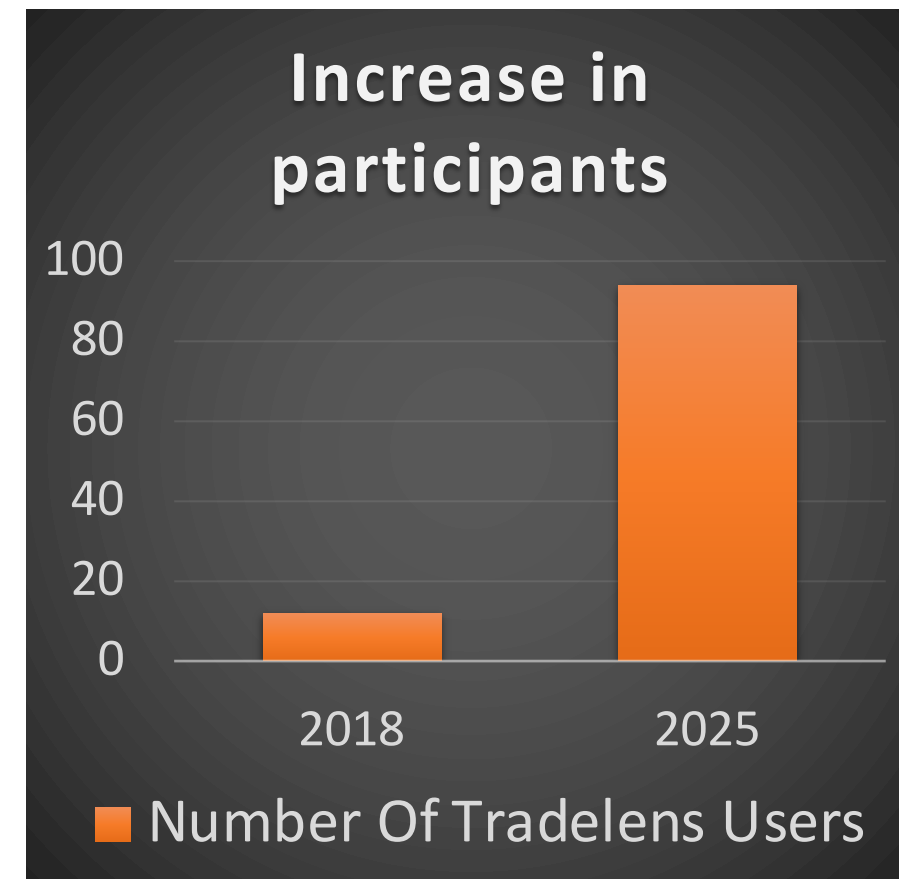
**Assumptions:-**

- ✓ 35% of total traffic will increase after block chain implementation.
- ✓ To include all 94 members total 8 years will be required adding 12 members each year.
- ✓ 15.3% of total cost of shipping industry will reduce after block chain implementation.
- ✓ Extra Revenue generation excluded.

## TRADELENS: Projected Facts & Figures

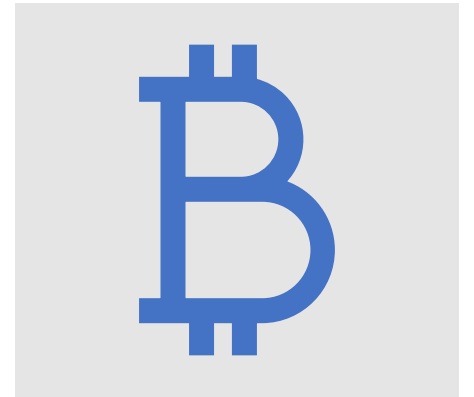
| Maersk Financial 2017 | Billion US \$ |
|-----------------------|---------------|
| Total Revenue         | 22            |
| CAPEX                 | 3.6           |
| EBIDTA                | 2.7           |
| OPEX                  | 15.7          |

| After Block Chain Implementation                       | Estimated Data |
|--|----------------|
| Number of User (No)                                    | 94             |
| Revenue generation due to increased Traffic (Bn US \$) | 8.92           |
| Cost Reduction Due to Block Chain (Bn US \$)           | 3.05           |
| Revenue from Block Chain (Bn US \$)                    | 2.81           |
| Cost of Block Chain implementation (Bn US \$)          | 1.53           |



## BLOCKCHAIN SECURITY COST

1. Securer than others network due to its decentralized structure.
2. Hackers need to corrupt 51% of nodes of a blockchain to hack the system.
3. Unexplorable threats; as a new technology.
4. Per reports, 13.7% of IT cost should be invested in security (for big businesses).
5. Total projected infrastructural cost of setting up block chain in IBM Maersk is \$1.34 billion i.e. maintenance, set up, and IT expenses @13.7% (1.13+0.21)



Auxiliary facts on Blockchain Security Breach:

**2018, CoinDesk** - a bitcoin marketplace lost USD 2 Mn, 20 people got arrested.

**2017, Nice Hash**, lost USD 60 Mn due to hacking.

**2016, Ethereum** lost USD 80 Mn.

## CONCLUSIONS:

- Success of Maersk-IBM Tradelens project expected to promote Blockchain in shipping Industry.
- Industry wide implementation will increase Revenue by **USD 42Bn.**
- Industry wide adaptation of Blockchain will reduce Cost by **USD 16Bn.\***
- Blockchain will reduce time of **logistics by 40%. \*\***

*\*Data extrapolated from IBM-Maersk Tradelens project.*

*Assumptions: - Maersk has 18.3% market share.*

*Global Shipping revenue USD 122Bn.*

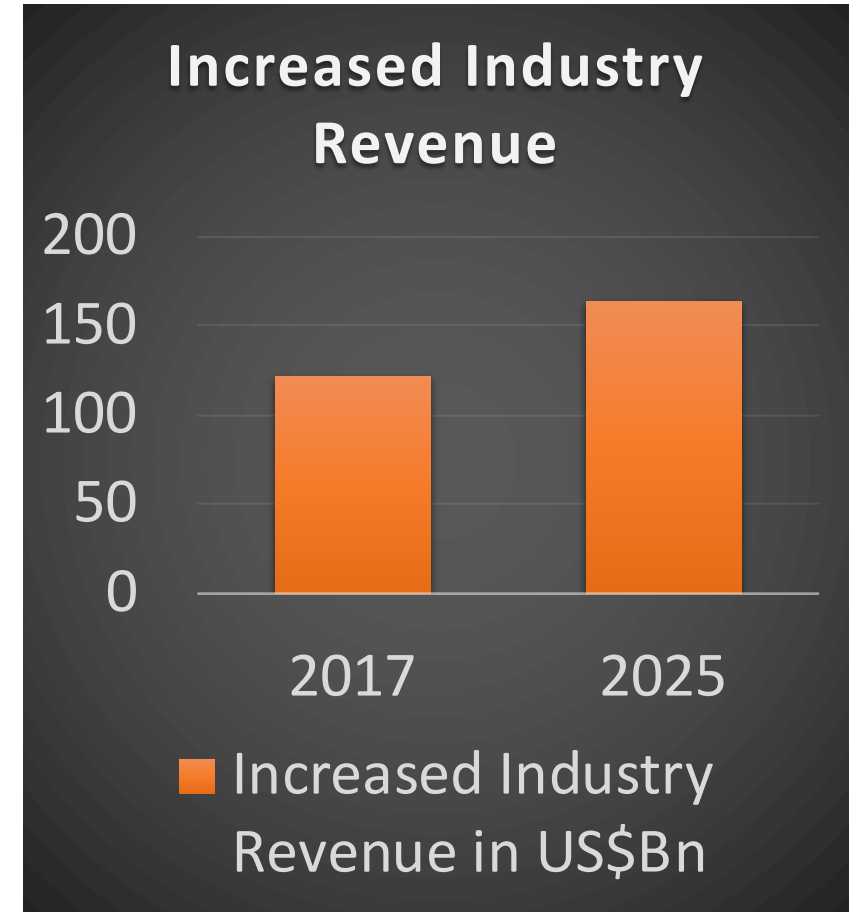
*Removing trade barrier will increase 35% traffic.*

*Blockchain will reduce 15.3% logistics costs.*

*Sources: - Maersk Annual report 2017.*

*Forbes.com 9<sup>th</sup> August 2018.*

*Forrester emerging technology projection*



*\*\* Forbes.com 9<sup>th</sup> August 2018.*

# Reference

1. <http://investor.maersk.com/static-files/34778880-4ea8-49c0-890c-24487a7a856f>
2. <https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=79017679USEN>
3. <https://www.reuters.com/article/us-shipping-blockchain-maersk-ibm/maersk-ibm-say-94-organizations-have-joined-blockchain-trade-platform-idUSKBN1KU1LM?feedType=RSS&feedName=technologyNews>
4. <https://www.forbes.com/sites/michaeldelcastillo/2018/08/09/ibm-maersk-blockchain-platform-adds-92-clients-as-part-of-global-launch-1/#d53f13a68a4a>



*Thank you*

