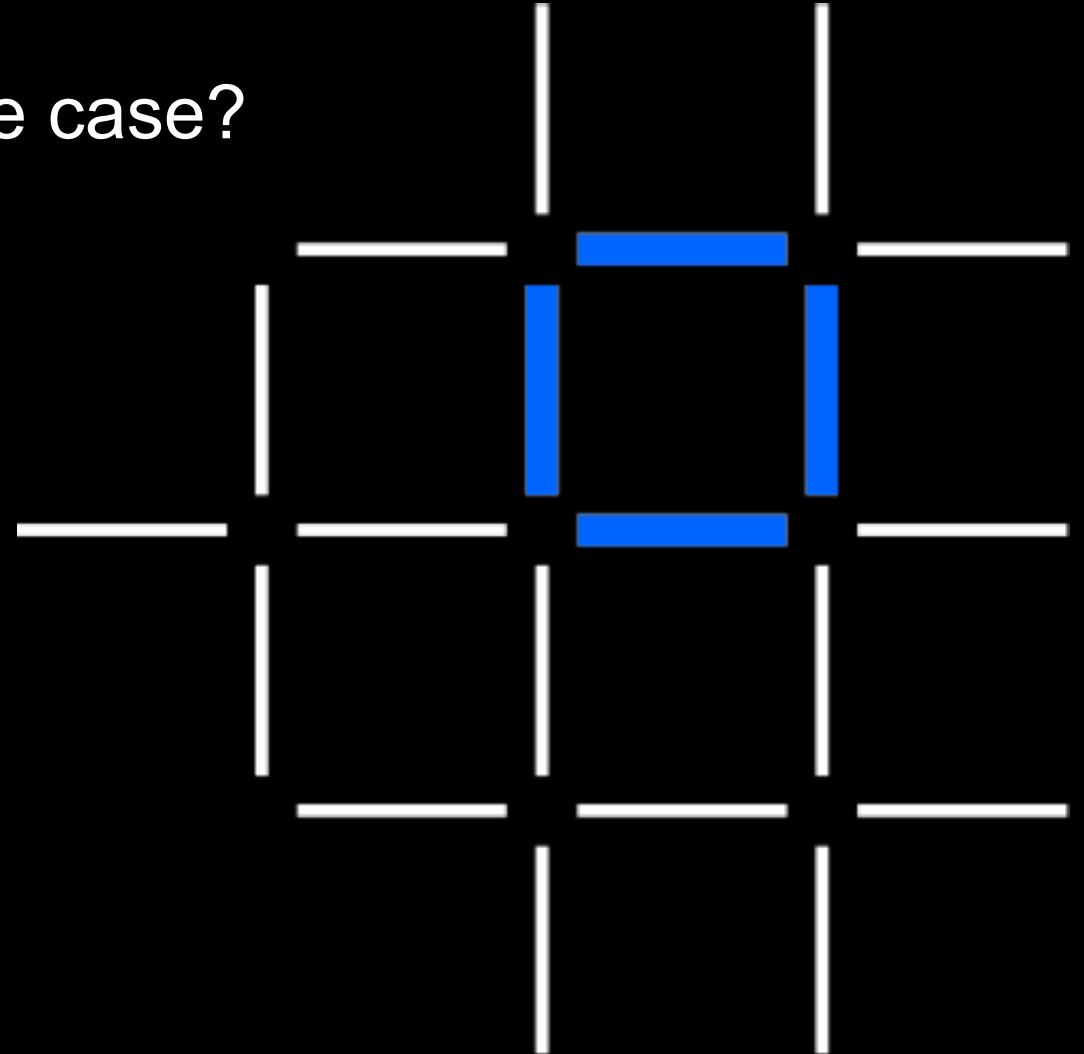


Blockchain Use Cases

- Demo
- What makes for a good blockchain use case?
- Blockchain Maturity Model

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November 2020

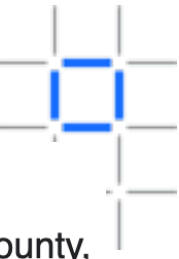
IBM Blockchain

IBM

Demo network IMMUNICchain



Child Immunization Landscape – Business Opportunity Statement

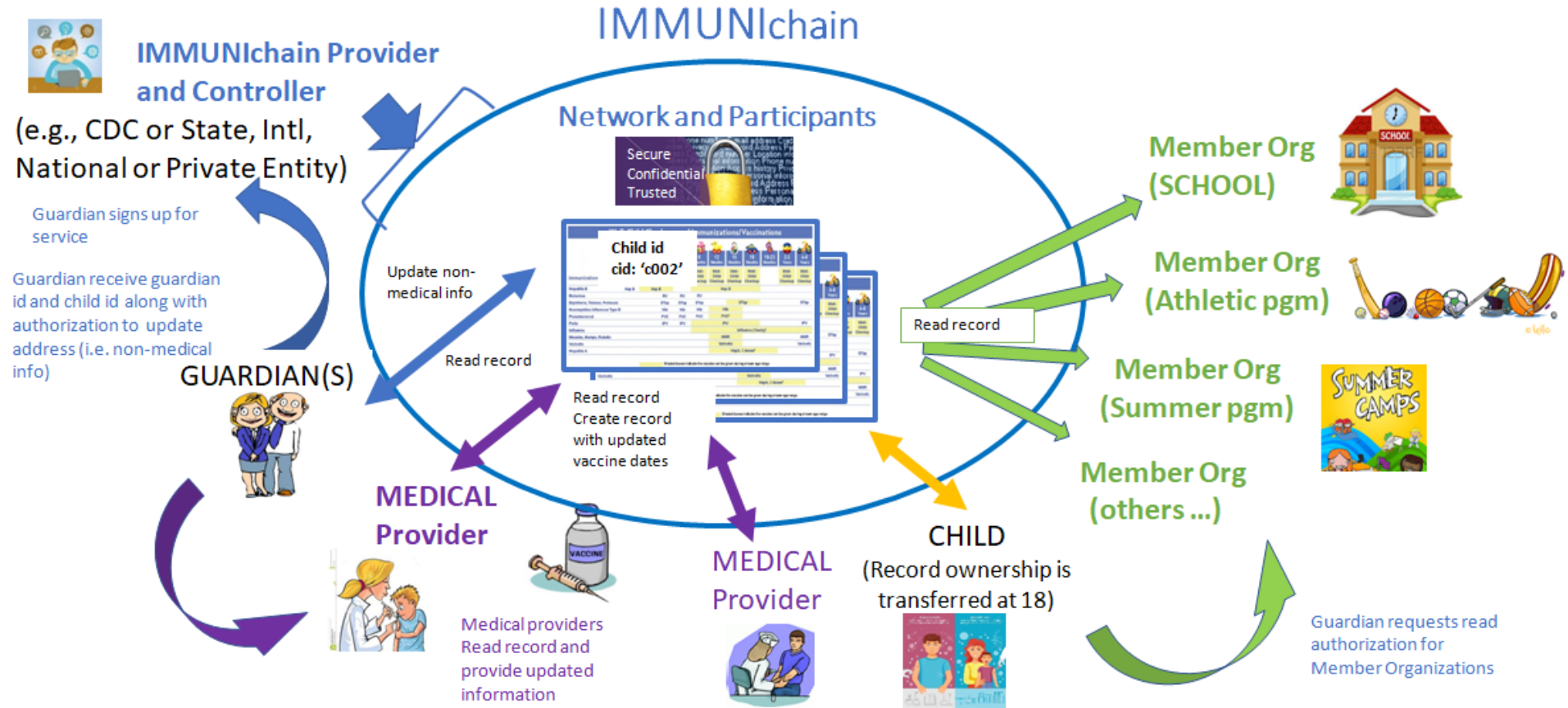
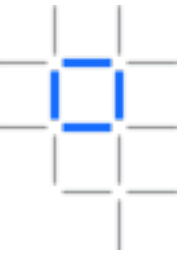


Measles outbreak that sickened 312 in Rockland County, New York, declared over

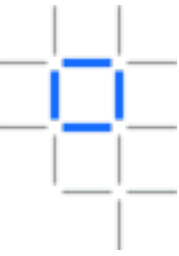
- A child's immunization record is one that:
 - Is updated and maintained (annually) only by medical providers
 - When needed, it is transferred between providers
 - Is kept by guardians who ensure that the child is immunized
 - Conforms to the requirements defined by the CDC/State/School district
 - Different states have different requirements
 - Might need to be transferred across international boundaries
 - Is requested/required by:
 - Schools on an annual basis
 - Summer camps, athletic programs, etc.
- Today, when requested, the record:
 - Must be current with the most recent updates
 - Is usually provided as a paper printout
 - Is mailed/delivered/faxed to different organizations throughout the year (could be multiple times)



IMMUNChain Business Network



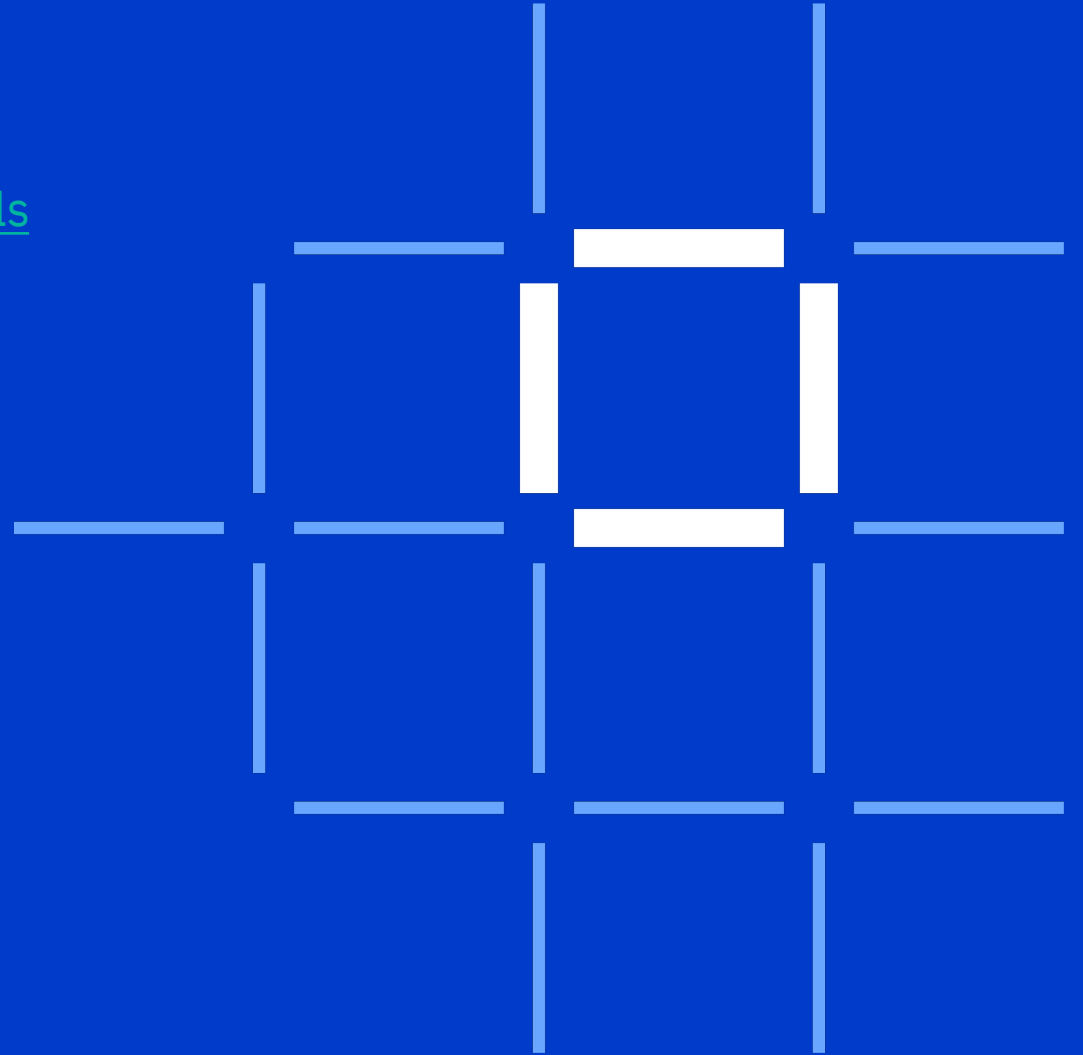
COVID-19 Use Cases




- Distribution
 - Similar to IMMUNICChain
 - Safely and accurately track who has been vaccinated
- Supply chain
 - To maintain their efficacy, vaccines must be transported and stored in temperatures below minus 70 degrees Celsius (vs 4°C for most vaccines)
 - Use sensors to log temp information on the blockchain to provably ensure vaccines are transported accordingly to requirements

Live network example: Learning Credential Network

<https://www.ibm.com/blockchain/solutions/learning-credentials>



The IBM Learning Credential blockchain will focus on six core functions, with an initial focus on three

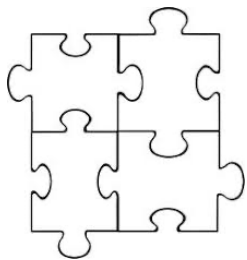


Issue Credential: Streamline the issuance of credentials that demonstrate skill mastery.


- Degree, certificate, course, badge
- Credential data mgmt; on-chain and off-chain



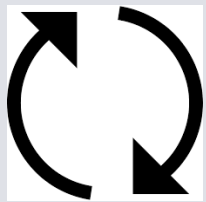
Search Credentials: Look inside an individual's skill-wallet and find credential matches for job candidates, school admission, projects, etc. ("the job will find me").



Manage Credentials: Update, revoke, and aggregate credentials from multiple sources



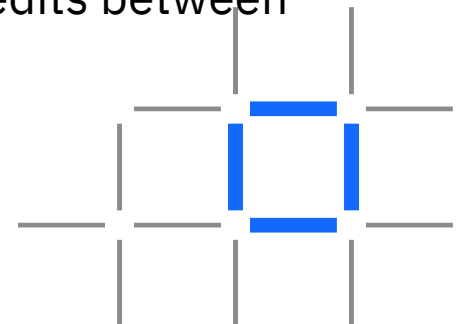
Verify Credential: Instant verification by issuer that a learner credential is authentic.



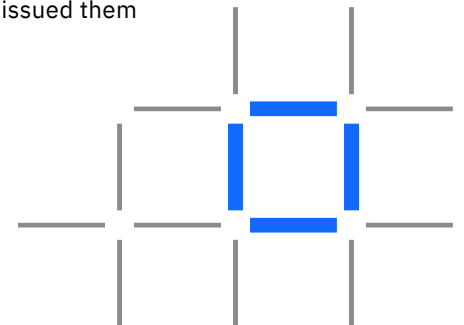
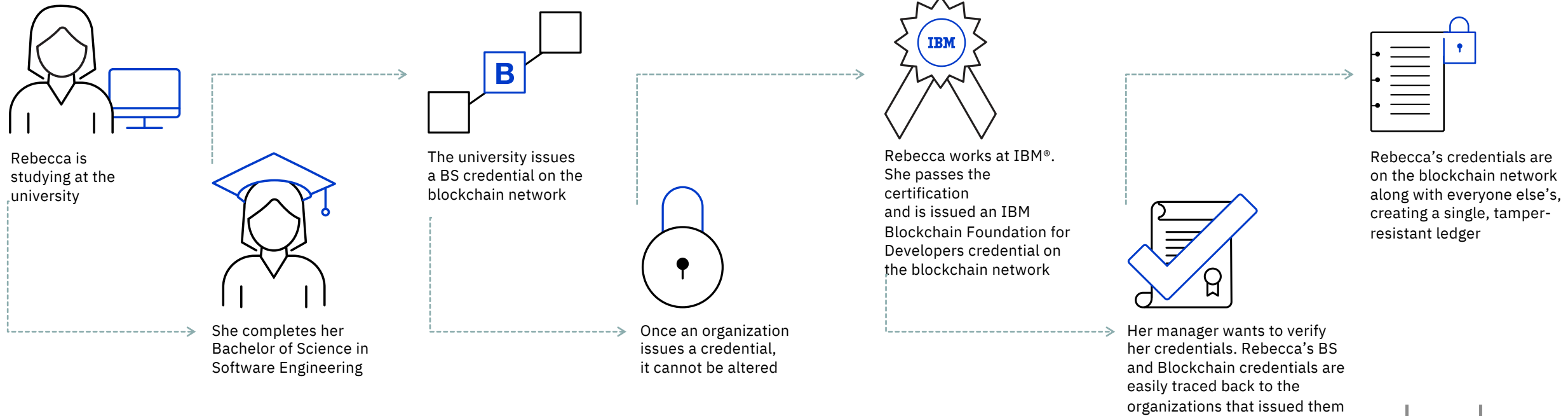
Exchange Credential: Share *MY* credentials with others for jobs, admissions, certifications, etc.



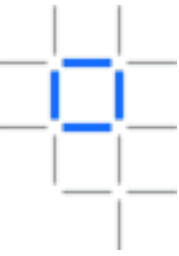
Articulation agreements: Automatically move credits between organizations.



Credentialing with blockchain reduces paper processes, speeding up transaction times and increasing efficiency.



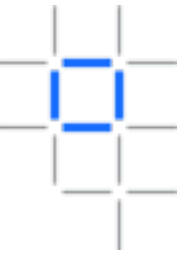
What makes a good blockchain use case?



- Identifying a good blockchain use-case is not always easy!
- However there should always be:

1. A **business problem** to be solved
 - That cannot be more efficiently solved with other technologies
2. An identifiable **business network**
 - With Participants, Assets and Transactions
3. A need for **trust**
 - Consensus, Immutability, Finality or Provenance

What makes a good first blockchain use case?

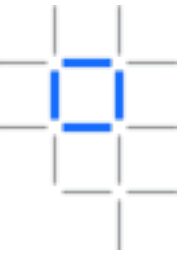


– First use-cases are even more difficult to identify!

1. A **limited scope**, but still solves a real business problem
 - Minimum Viable Product in a few weeks of effort
2. A smaller **business network**
 - Usually without requiring regulators and consortia
3. Allows for **scaling with more participants and scenarios**
 - Consider shadow chains to mitigate risks

Start small, succeed and grow fast!

Assessing Business Value



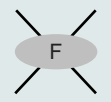
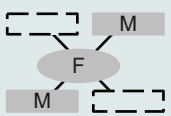
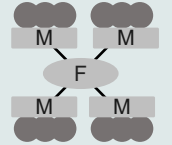
- It can be difficult to accurately quantify investment case for blockchain
- Things to consider:
 - Existing Pain Points
 - Scope – participants, assets, transactions
 - Benefits: baseline, minimum viable ecosystem (MVE) & mature network
 - Blockchain Design Points
 - References

Blockchain Value Design (BVD) activity will help elaborate these items!

Template – example only (Cross Border Supply Chain)

Problem	90% of goods in global trade are carried by the ocean shipping industry each year. Costs associated with trade documentation processing and administration are estimated to be up to 20% the actual physical transportation costs.
Solution	Manage and track the paper trail of tens of millions of shipping containers across the world by digitizing the supply chain process
Participants	Supplier, couriers (*2), customs (*2), ports (*2), shipper and retailer
Asset & Trust	Need for trust around paperwork associated with a container
Transactions	Supplier prepares to ship, release container to courier, load to ship, clear customs, retailer receipt

Pain Points
<ul style="list-style-type: none"> • Transport remains highly dependant on a flood of paper that is never digitised • 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.. • Fraudulent changes may be made to the Bill of Lading

Benefits benchmarks - Value Tree		Baseline	Phase 1	Phase 2-3	Blockchain : Design Points	References
KPI's (e.g.)						
New revenue	# new value propositions	-	-	1 to 3	<ul style="list-style-type: none"> • Find new value propositions to exploit the network effect between members 	
Improve client experience	Increase in customer satisfaction	-	5%	10%	<ul style="list-style-type: none"> • Securely and transparently trace the container's path through the supply chain on the blockchain • Add trust (Immutability and Provenance) around the Bill of Lading and other container paperwork • Automate the transit and shipping process with Smart Contracts reducing cycle times and delays • No reconciliation or matching of documentation with near instant updates - eliminates the need for audit and verification • Removes paper and intermediaries 	ANO -1
	Increase in trade volumes	-	+5%	+15%		
	Cycle times (transit & shipping)	30 days	25 days	10 days		
Reduce transport costs	Waste as % of total shipped	6%	5%	1%		ANO -2
	Fraud and errors as % of total costs	5%	4%	0.5%		
	Documentation admin. as % of total costs	20%	15%	5%		

Blockchain Maturity Model

