

Polo Multimodal PECEM

Section 1: Summary

Use Case Summary			
Use Case ID:	IND-009	Use Case Type:	<i>Industry/3 and 4</i>
Submission Date:	January 4, 2019	Is Use Case supporting SDGs	<i>Yes</i>
Use Case Title:	Polo Multimodal Pecem	Domain:	<i>List 1 Appendix 1</i>
Status of Case	<i>Proof of Concept (POC)</i>	Sub-Domain	<i>Supply chain management</i>
Contact information of person submitting/managing the use-case	<i>Ingrid Barth Chief Blockchain Officer</i> <i>E-mail address: ingrid@cosmosblockchain.co</i> <i>Telephone number: 11 983615309</i> <i>Social media: https://www.linkedin.com/in/ingrid-barth-48a17b19/</i> <i>Web site: http://www.polomultimodal.com/</i>		
Proposing Organization	<i>Polo Multimodal Pecem</i> <i>Fotaleza (Ceará) - Brazil</i>		
Short Description	<p>Polo Multimodal Pecem is a project with over 20 million square meters located in the logistic corridor of Port of Pecém, in the municipality of São Gonçalo do Amarante, State of Ceará, that will create a Blockchain Lab with the intention to create Blockchain and DLT solutions to help industries inside the Polo to solve problems. The first solution will be use blockchain time stamp and immutability to track goods into the Porto do Pecem.</p>		
Long description	<p>Polo Multimodal Pecem is a project with over 20 million square meters located in the logistic corridor of Port of Pecém, in the municipality of São Gonçalo do Amarante, State of Ceará. Conceived to house both national and international companies from different sectors, the POLO MULTIMODAL PECEM was designed within the most modern and rigorous criteria of infrastructure, technology and sustainability; promoting innovation to contribute to the progress of a new industrial age. The idea is also having a Blockchain Lab inside de Polo, with the intention to create blockchain and DLT solutions for all opportunities there. The first idea, based on problems that companies are having in all Ports around the world, is create a solution in a public Blockchain to help companies register in blockchain, in a permanent way and using the time stamp, all tracking about goods, process, containers, flows, in order to bring more security, avoid losses and create new solutions for the flow. Also, other benefits as hold all data and use it for further works – provide data for insurance companies to have a best score and price.</p>		
SDG in Focus (when applicable)	<p><i>8 – Decent Work and Economic Growth</i></p> <p><i>8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation,</i></p>		

	<i>and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services</i>		
Value Transfer:	<i>Security in shipping and transportation processes, possibility to reduce costs and security for the goods.</i>	Number of Users:	<i>All companies and people involved. The Pecem Port is growing about 34% year.</i>
Types of Users:	<i>Companies, society, employees, Pecem port</i>		
Stakeholders	<i>Companies, society, employees, Pecem port</i>		
Data:	<i>Data will be basically all data involved in shipping processes: Company name, shipping documents, type of goods, date, locations, destination, serial numbers, container number, seals, employees that input data, receivers.</i>		
Identification:	<i>Full identification of all participants, like company, employees, location, destination, goods to be transported.</i>		
Predicted Outcomes:	<i>The predicted outcomes of the adopting the new process are to:</i> <ul style="list-style-type: none"> - <i>increase transparency in all supply chain scheme</i> - <i>Avoid losses and frauds during the shipping and transportation</i> - <i>More control about shipping process</i> - <i>More security in shipping process</i> - <i>Higher efficiency and consequently better companies' reputation</i> - <i>Less bureaucracy once they can certify the veracity in all infos</i> 		

Overview of the Business Problem or Opportunity
<p><i>After the Panama Canal expansion, the port of Pecém began to gain a growing importance in the international logistics scenario.</i></p> <p><i>With its 18 metres natural depth, it is on the list of the main ports in the world capable to dock large containers ships (post-panamax) and it has been attracting relevant overseas investments to the region in the last few years. Pecem port is growing about 34% per year, and the region is lacking in resources.</i></p> <p><i>Because of that, is important to consider solutions that use 4.0 technologies, as DLT/ Blockchain, that can improve process and transform the port and the region in a model abroad, showing concerns with security, losses with frauds, efficiency in shipping process, that cause millions dollar in losses.</i></p> <p><i>Supply chain is today the most important and efficiently uses cases in DLT/ Blockchain because the possibility of traceability and immutability, creating a huge transformation in supply chain process.</i></p>
Why Distributed Ledger Technology?
<p><i>DLT/ Blockchain is today one of the most exponent and sophisticated technological constructions. This is because in addition to being a decentralized and distributed database, the information once inserted and validated is immutable and with the time stamp, which creates a chain of trust in the processes where Blockchain is inserted and avoid problems with frauds and security of data.</i></p>

Another important point is that it allows the level of governance to be high since each new information registered will be validated and will only continue if most of the participants in that chain validate it.

Section 2: Current process

Current Solutions

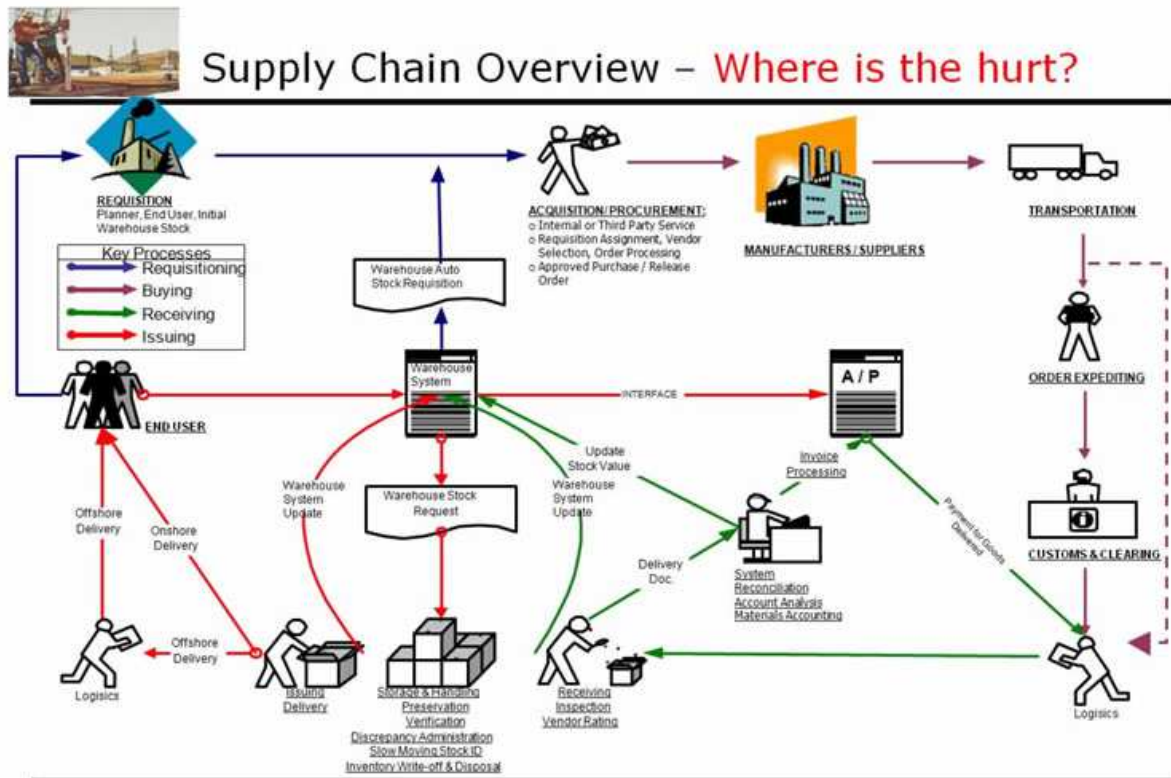
Today in supply chain a huge part of processes is manual, and companies sometimes can use their own systems to store data and other information.

There is no problem to store data inside the company, but there are a lot of fraud cases in this manual process. Also, is very difficult identify the phase that a problem happened, the number of steps is huge, so if you can register phases in an immutable DLT, for sure they can find and fix problems more quickly.

Important to mention that in all port supply chain scheme companies can have problems already described.

Existing Flow (as-is)		
Step	User Actions	System Actions
1.	Requisitioning	Create a requisition into the specific system and generate agreements that will be used in the shipping process
2.	Buying	Payments will be done by the buyer and compensated by the seller. This process also will generate documentation that will be used in the shipping process.
3.	Receiving	Receiving goods and prepare all docs and licenses to start the delivery.
4.	Issuing	Aggregate information about transactions joined with entities additional information. Company will also hire shipping enterprises that will delivery goods in the placed or country agreed. All information, documentation and licenses here should be right, or the shipping will be cancelled.

Process scheme (as-is)



Data and information (as-is)

Data	Type	Description
1	Documents	<p>Common export/ import docs:</p> <p>Commercial invoices</p> <p>Export/ Import packing list</p> <p>Pro form invoice</p> <p>Bill of landing</p> <p>Export licenses</p> <p>Generic certificate of Origin</p> <p>Insurance certificate</p> <p>Shipper's letter if instruction</p>
2	Payment transactions	<p>Payments should be done in a several ways: through bank loans, money transfer, prorated.</p> <p>In this case the most important is receive the ok from the seller and the buyer, or in same cases from the bank involved.</p>

Participants and their roles (as-is)		
Actor	Type/Role	Description
1	<i>Buyer</i>	People or company that want to buy the goods. Can be inside the country, in other city, or other country.
2	<i>Seller</i>	Entity who sells a product or service to the buyer
3	<i>Bank</i>	Financial institution to provide transfer/payment between parts
4	<i>Shipping companies</i>	Companies that provide shipping services
5	<i>Insurance companies</i>	Companies that provide insurance for goods to be transported.

Other Notes
<i>Important the remind that process described above is the very basic one. Depending on the goods, countries involved, companies and banks, will be necessary to increase docs and processes.</i>

Section 3: Expected process

Expected Flow (to-be)		
Step	User Actions	System Actions
1.	Requisitioning	Create a requisition into the specific system and generate agreements that will be used in the shipping process
2.	Buying	Payments will be done by the buyer and compensated by the seller. This process also will generate documentation that will be used in the shipping process.
3.	Receiving	Receiving goods and prepare all docs and licenses to start the delivery.
4.	Issuing	Aggregate information about transactions joined with entities additional information. Company will also hire shipping enterprises that will deliver goods in the placed or country agreed. All information, documentation and licenses here should be right, or the shipping will be cancelled.

Process scheme (to-be)
The main shipping process will basically be the same, the difference here will be that all docs and related information will be registered in DLT/ Blockchain technology for all participants involved, and the time stamp (via hash) will be generated, to create the security that info was not changed. This hash should be included in docs.

Participants and their roles		
Actor	Type/Role	Description
1	<i>Buyer</i>	People or company that want to buy the goods. Can be inside the country, in other city, or other country.
2	<i>Seller</i>	Entity who sells a product or service to the buyer
3	<i>Bank</i>	Financial institution to provide transfer/payment between parts
4	<i>Shipping companies</i>	Companies that provide shipping services
5	<i>Insurance companies</i>	Companies that provide insurance for goods to be transported.

Data and information		
Data	Type	Description
1	<i>Documents</i>	<p>Common export/ import docs:</p> <p>Commercial invoices - hash</p> <p>Export/ Import packing list – hash</p> <p>Pro form invoice - hash</p> <p>Bill of landing - hash</p> <p>Export licenses - hash</p> <p>Generic certificate of Origin -hash</p> <p>Insurance certificate - hash</p> <p>Shipper's letter if instruction - hash</p>
2	<i>Payment transactions</i>	<p>Payments should be done in a several ways: through bank loans, money transfer, prorated.</p> <p>In this case the most important is receive the ok from the seller and the buyer, or in some cases from the bank involved.</p>

Security and privacy
<ol style="list-style-type: none"> 1. Information will be encrypted, DLT/ Blockchain system will not keeping any type of docs, the only think that the DLT/ Blockchain will do is provide a existence prove and time stamp that will certify the veracity of information. 2. Since transparency is the main requirement, the ideal information visibility is public; 3. If business privacy prevent public visibility, this critical subset of data can be encrypted or protected; 4. DLT system should be able to provide mechanisms of DLT data integrity control; 5. DLT data and related services (System Actions) should be available in 24/7/365 mode; 6. The entity identity solution should prevent identity fraud. 7. The products and services type identification solution should prevent fraud. (Future Vision only)

Main Success Scenario + expected time line
<p>Registration process to avoid frauds or improve logistics problems.</p> <p>benefits data published without human intervention.</p> <p>Expected time line – End of 2019</p>

Conditions (pre- or post-)
<ol style="list-style-type: none"> 1. Process should be accepted for all participants involved. 2. All parties are connected to DLT Network

Performance needs

1. *Transactions processing near real time;*
2. *24/7/365 availability;*
3. *API integration to the DLT Network*

Legal considerations

Changes in the original process should be consider in a legal perspective

Risks

1. *Legal risks, including regulation of DLT uses and taxation;*
2. *Security risks;*
3. *Sellers do not accept new process;*
4. *Buyers do not want new process;*
5. *Risks related to DLT immaturity.*
6. *Data security*

Special Requirements

N/A

External References and Miscellaneous

<http://www.polomultimodal.com/blockchain-lab-en>

https://build.export.gov/main/logistics/eg_main_018121

<https://www.ibm.com/blockchain/industries/supply-chain>

https://www.supplychain247.com/article/why_blockchain_is_a_game_changer_for_the_supply_chain

Other Notes

N/A