


BLOCKCHAIN SOLUTION FOR US CRUDE OIL MARKET

Arnaud Stevens - March 2018



BLOCKCHAIN IN COMMODITY TRADE FINANCE

SOLUTION FOR THE US CRUDE OIL MARKET

Natixis, IBM and Trafigura have pioneered **a blockchain solution for commodity trade finance** for crude oil transactions in the U.S.



The distributed ledger platform, built on the Linux Foundation open source Hyperledger Fabric, allows **major steps in a crude oil transaction to be digitized on the blockchain**, ensuring improved transparency, enhanced security, and optimized efficiency.

We want to use blockchain **to optimize the antiquated arena of commodity trade finance**. The current process is paper and labor intensive, we have multiple friction points with high processing costs and limited automation. Distributed ledger technology brings some much-needed innovation into our industry.

BIG
PURPLE
TRADE

Role

Trader A



Username

Max

Password



Login



WORKFLOW ANALYSIS OF CRUDE OIL TRANSACTIONS

Natixis, Trafigura and IBM have analyzed the workflow of crude oil transactions in the US, detailing the different steps of a transaction, the interactions with the financial institutions and the documents exchanged among the various parties.

We have run **blockchain simulations using Trafigura's existing crude oil deals**, including all the relevant documents exchanged.






By having the buyer, seller and their respective banks all on the same ledger, **all parties can simultaneously view and share data on the status of a transaction**, from the time a new trade is confirmed and validated, to when the crude oil is inspected, to its final delivery and cancellation of the letter of credit. 14 major steps have been identified.

In a second phase, we want **to expand the platform to allow all parties in the transaction to enter data directly onto the blockchain**. For example, the shipping company, pipeline operator, inspector or warehouse can provide real-time status updates via the blockchain on the crude oil transaction.



Trade List

[+ Create Trade](#)

ID ▾	Status	Deal Size	Counterparty	Buyer's Bank	Seller's Bank	Date	
0067890	Approved	10,000,000	Party B	Bank X	Bank Y	12/12/2016	
0012345	Initiated	6,000,000	Party C	N/A	N/A	15/12/2016	
0098765	In-transit	12,000,000	Party C	Bank Y	Bank W	13/12/2016	
0023456	Initiated	5,000,000	Party C	N/A	N/A	14/12/2016	
0034567	Pending Approval	4,600,000	Party A	Bank Y	Bank Z	14/12/2016	

Rows per page: 5 ▾ 1 - 5 of 10 < >

TO STREAMLINE THE US CRUDE OIL WORKFLOW

The new platform allows trade documents, shipment updates, delivery and payment status to be shared across a single shared ledger,

helping to reduce transaction time, duplication of documents and authentication processes among all trading partners.

Big Purple Trade

Trade List

STATUS: TRADE APPROVED

Trade 0012345 | USD 6,000,000 - Jack Taner

CREATION DATE: DECEMBER 02, 2016

RECENTLY VIEWED

- Trade 0012345
- Trade 0056789
- Trade 0098765
- Trade 0023456
- Trade 0087654
- Trade 0034567

Recent Activity

- New Trade Confirmation (December 05, 2016, 03:12pm)
- Trade Validation (December 05, 2016, 04:12pm)
- L/C Application Request (December 05, 2016, 05:12pm)
- L/C Application Approval (December 05, 2016, 05:12pm)
- L/C Issuance (December 05, 2016, 06:12pm)
- L/C Confirmation from Seller (December 05, 2016, 07:12pm)
- Guarantee Validation (December 05, 2016, 08:12pm)
- Transportation & Inspection (December 05, 2016, 09:12pm)
- Transportation Details Validation (December 05, 2016, 10:12pm) ⚠
- Delivery Inspection
- Final Invoice Issuance
- Final Invoice Validation
- LC Payment Issuance
- LC Cancellation

Transportation & Inspection Details

- Reference# 12232324
- Quality High Sulphur
- Quantity 45,000 BBL
- Loading Date 18/12/2016
- Delivery Location Seattle

Transport Order.pdf
December 18, 2016

 Quality Report.pdf
December 18, 2016

Approve Reject

BLOCKCHAIN IS A DISRUPTIVE DATA SOLUTION

Blockchain technology will challenge commodity trading partners to fundamentally re-imagine their data sharing processes.

The goal is to replace paper-heavy manual processes with blockchain-based workflows to improve transparency and data sharing.


The screenshot displays the 'Big Purple Trade' interface. At the top, it shows 'Big Purple Trade' and a user profile. The main header indicates 'STATUS: GOODS DELIVERED' and 'Trade 0012345 | USD 6,000,000 - John Doe'. A 'RECENTLY VIEWED' list on the left includes Trade 0012345, Trade 0056789, Trade 0098765, Trade 0023456, Trade 0087654, and Trade 0034567. The 'Recent Activity' section shows a vertical timeline of steps: New Trade Confirmation (Dec 05, 2016, 03:12pm), Trade Validation (Dec 05, 2016, 04:12pm), L/C Application Request (Dec 05, 2016, 05:12pm), L/C Application Approval (Dec 05, 2016, 05:12pm), L/C Issuance (Dec 05, 2016, 06:12pm), L/C Confirmation from Seller (Dec 05, 2016, 07:12pm), Guarantee Validation (Dec 05, 2016, 08:12pm), Transportation & Inspection (Dec 05, 2016, 09:12pm), Transportation Details Validation (Dec 05, 2016, 10:12pm), Delivery Inspection (Dec 06, 2016, 09:12am), Final Invoice Issuance (Dec 06, 2016, 10:12am) with a warning icon, Final Invoice Validation, LC Payment Issuance, and LC Cancellation. On the right, the 'Invoice Details' form includes fields for Invoice Number, Invoice Date, Quality, Quantity, Unit, Value, Payment Date, Banking Instructions, Beneficiary Account, Beneficiary Bank Name, ABA Number, SWIFT, and Intermediate Bank. There is an 'Upload Document' button and a 'Submit' button at the bottom.


Big Purple Trade


Trade List

ID ▾	Status	Deal Size	Counterparty	Buyer's Bank	Seller's
0067890	Approved	10,000,000	Party B	Bank X	Bank
0012345	Initiated	6,000,000	Party C	N/A	N/A
0098765	In-transit	12,000,000	Party C	Bank Y	Bank
0023456	Initiated	5,000,000	Party C	N/A	N/A
0034567	Pending Approval	4,600,000	Party A	Bank Y	Bank

Rows per page: 5 ▾

 NOTIFICATIONS

Trade 0012345 
New Trade Confirmation

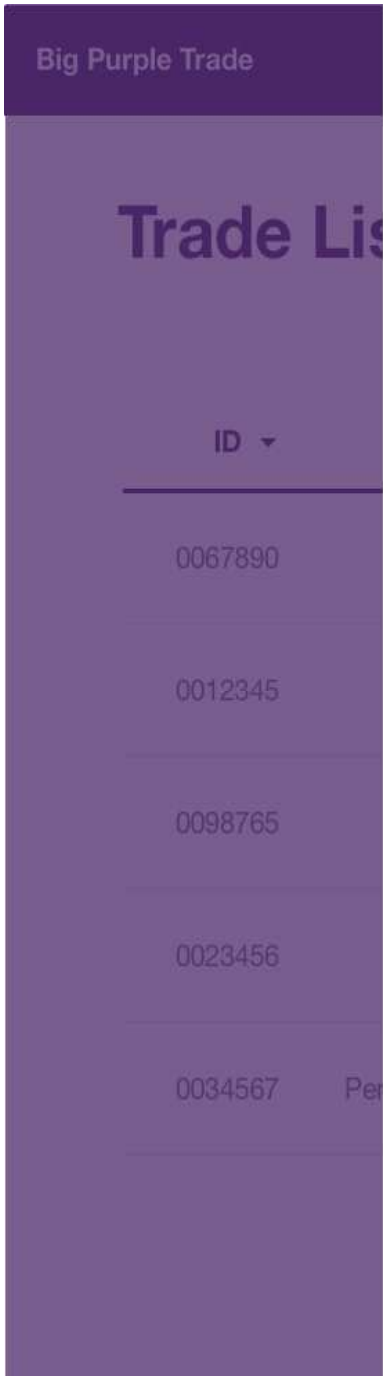
Trade 0023456 
New Trade Confirmation

With the distributed ledger technology, all transaction participants in the network are **updated simultaneously with a record that cannot be altered or tampered with.**

Each change or new transaction immediately creates a new record in the shared ledger.

Blockchain allows the **contract for asset transfer to be embedded in the transaction data base.**

Once a contract is validated and deployed, its **execution is guaranteed.**



Search Trade

ID	Status ▾
Deal Size	Counterparty
Bank	Date of Trade

Search



KEY BENEFITS OF THE BLOCKCHAIN SOLUTION



- ▶ **Reduced cash cycle times**, transaction time from days to near instantaneous
- ▶ **Improved efficiency** via lower overhead costs and fewer cost intermediaries
- ▶ **Real time access** to trade documents on the blockchain
- ▶ Increased transaction visibility to help **reduce the threat of tampering, fraud and cyber-crime**
- ▶ Creation of **transparent transactions** by using shared processes and recordkeeping.

Adoption of blockchain technology should enable faster, permissioned, immutable, transparent and auditable business-to-business interactions among companies and their business partners in the energy and commodity industry.



BLOCKCHAIN IS A TEAM SPORT CREATION OF AN INDUSTRY SPECIFIC PLATFORM

Distributed ledger technology drives substantial efficiency, fraud prevention and cost take out.

Key obstacles to broad implementation include performance, scalability, and absence of regulatory and legal frameworks.

The distributed ledger technology represents **a new frontier of innovation and will dramatically improve the way we do business in the energy and commodity industry.** Digitization is radically reshaping the industry.

Blockchain is a team sport, it's about operating a business network, and we work with the key players in the commodity trading space to create an industry specific platform.

Standardization is the next step.

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