THE NEXT WAVE

The Blockchain Technology

WHO ARE YOU?

- BA Student in Government, Diplomacy and Strategy
 - Soon to be Masters Student in CyberSecurity
- Fraud and Security Analyst
- Student fellow at the Zvi Meitar Institute of Technology
 - Analyzing the ethical, legal and social implications on Wave and the blockchain technology



CONTENT

- Bitcoin
- The Good the Bad and the In Between
- Disadvantages
- Blockchain
- The Bill of Lading
- Attempts at electronic Bills of Lading
- Wave
- Ethical Legal and Social Implications on Wave
- Governance

BITCOIN

- Peer to Peer transactions (unlike PayPal)
- Send a complete stranger money
- Digital currency
- Each Bitcoin and user is encrypted with a unique identity, the hash
- No counterfeit money, can't spend the same money twice
- The public or distributed ledger or...blockchain
- Special users known as miners user cryptographic techniques to gather blocks of new transactions and compete to verify the transactions are valid
- 2011- US Dollars, Weed, Socks



THE GOOD, THE BAD, AND THE IN BETWEEN

- Less expensive for users: No fees
- Simple: Scan a code, see an amount, accept
- No chargebacks!
- Help governments collect taxes
- Amazon in the third world?
- No more identity theft

- Illegal trade (India)
- No governance regulating the supply of Bitcoins
- Complicated
- Bugs in the system

- Publicly Accessible
- Removal of government from monetary system

DISADVANTAGES

- Wallets can be lost
- Constant fluctuates
- No buyer protection
- Unknown technical flaws
- No Physical Form (Bitcoin Wallet?)
- Valuation Drop
- Not widely accepted

But Bitcoin, was never successfully hacked.





BLOCKCHAIN

Blocks of data...chained together using cryptographic signatures

- Technology backbone
- Transfer system with no central authority of malicious third party who can tamper with the data
- All transactions are signed with a private key or seed
 - Confirmed within 10 minutes and handled by bitcoin miners
- Similar to the technology of a database. Only difference is that the "header" is public
- Store any data on the block where anyone can verify that you've placed the data, only you (or a program) can unlock the block because you hold the private keys to that data
- Public Visibility with private inspection
- Lego

So what else can we do with Blockchain?

- Receipt: records the fact that the cargo has been loaded on the vessel- states quantity of goods, condition
- Contact of Carriage: terms in which the shipper will be entitled to use the carrier's ship
- Document of Title: who can demand the goods at the discharge port
- 90% of goods traded internationally are transported by sea
- Traced back to the 14th century

THE BILL OF LADING

THE BILL OF LADING

- Issued by the carriers to the shipper as a contract of goods, a receipt
- Proof of ownership or title of the cargo
- Only once goods arrive at the receiver, is the bill of lading sent to release the goods from the port
- Only one copy of the bill is applicable to collect the goods from the port
- Banks as mediators with the BOL
- Delay in transportation
- Fraudulent bills

ATTEMPTS AT THE ELECTRONIC BILL OF LADING

- SeaDocs- First attempt was based on paper and electronic did not make it through the trial period. It was expensive, and could lead to fraud
- TradeCard- 1990 prone to fraud and malicious users
- Bolero- 1998 no confidentiality in exchanging messages. Encryption was optional
- APL Ltd.- allowed parties to print their own copy of the BOL
- A large issue behind changing the BOL method, is banking.

WAVE

Other electronic forms of BOL weren't based on the blockchain technology

- In blockchain, all payments or in our case documents have to be approved by all parties involved, and any changes made along the way are detected immediately
- The key needed to access the bill of lading, is the blockchains combination of numbers and letters that only the owner of the bill knows
- Secure and transparent- It cannot be forged because every change that is made will be seen by everyone and be seen as invalid
- The electronic BOL will show where the bill is at all times, just as the ledger does on bitcoin
- In October 2015, Barclays signed with Wave about facilitating trade finance through the ledger technology

ETHICAL LEGAL AND SOCIAL IMPLICATIONS

- Faulty receipt for goods
- Banks and the old school ways, the big leap
- Rotterdam (2009): Article 8 provides that "(a) Anything that is to be in or on a transport document under this Convention may be recorded in an electronic transport record, provided the issuance and subsequent use of an electronic transport record is with the consent of the carrier and the shipper"
- International community 25 signed and only 3 ratified
- Eco Friendly
- Possibly removing jobs- By 2020, blockchain is said to save banks \$20 billion a year
- Uber, Airbnb, Record Label Companies...

GOVERNANCE

"The blockchain creates incentive for participants to work honestly, where rules are applied to all equally."

- Proof of work, no way of 'undoing' work on the system- voting, the music industry, art... etc.
- Blockchains will challenge governance and centrally controlled ways of enforcing transactions.
- Banks have recently decided to work with it rather then fight it although it puts them at risk
- Wave as the 'middle man'
 - User friendly, no confusing algorithms
 - Technical group
 - Don't plan on removing banks or carriers

Zvi Meitar Institute for Legal Implications of Emerging Technologies

THANK YOU

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