WHAT BLOCKCHAIN IS NOT...
Ridiculously ambiguous

Ten minutes into a discussion with a group of blockchain experts, one CFO shook his head. “This is ridiculously ambiguous,” he complained. It didn’t take long for everyone to agree.
Blockchain is to **VALUE**, what the Internet is to **INFORMATION** → Hence, the **Internet of Value**

A **distributed ledger** which allows **digital assets** to be transacted in **real time**, **immutable** manner

**digital asset**: something represented in a digital form that has an intrinsic or acquired value e.g., land, house, currency, vote, goods, certificates, identity, rewards etc.

**No single ownership, Multiple contributors, No 3rd party**

**Transparent, Secure, Irreversible**

- **Low Friction**
  - Near real time settlement of recorded transactions
- **Cryptography** (Public & Private Keys)
- Verifiable record of every transaction
Most Treasurers are still firmly in the **EDUCATION PHASE** when it comes to understanding Blockchain and how it will work for them.
This survey was commissioned by Deloitte Consulting LLP and conducted online between March 26 and April 5, 2018. The survey polled a sample of 1,053 senior executives in seven countries (Canada, China, France, Germany, Mexico, United Kingdom, and the United States) at companies with $500 million or more in annual revenue. Respondents had at least a broad understanding of blockchain and were familiar with and able to comment on their organizations’ blockchain investment plans.
**DELOITTE 2018 GLOBAL BLOCKCHAIN SURVEY**

**Attitudes on Blockchain and its adoption**

**Q: What is your level of agreement or disagreement with each of the following statements regarding blockchain technology?**

- Blockchain technology is broadly scalable and will eventually achieve mainstream adoption: 84%
- Suppliers, customers, and/or competitors are discussing or working on blockchain solutions to address challenges in the value chain: 77%
- Executive team believes there is a compelling business case for use of blockchain technology: 74%
- Planning to replace current systems of record (e.g., financial ledgers, CRM and ERP modules, inventory tracking systems, etc.) with blockchain: 69%
- Will lose a competitive advantage if we don’t adopt blockchain technology: 68%
- Blockchain technology will disrupt our industry: 59%
- Blockchain is overhyped: 39%

Percent of respondents who somewhat/strongly agree with the statements.
Perceived disruption of Blockchain

Q: Blockchain technology will disrupt my organization’s industry – What is your level of agreement or disagreement with this statement regarding blockchain technology?

- Financial Services: 64%
- Oil & Gas: 72%
- Consumer Products & Manufacturing: 56%

Percent of respondents who somewhat/strongly agree with the statements
Percent of respondents who somewhat/strongly disagree with the statements
WHAT IS BLOCKCHAIN?

What the Internet is to INFORMATION, Blockchain is to VALUE

Dr Henry Edward Roberts

Tim Berners Lee

Satoshi Nakamoto

Blockchain
2008+

Internet
1990s

Personal computer
1970s
WHAT IS BLOCKCHAIN?

A technology becomes truly disruptive based on the impact it has on core underlying economic attributes.

- **Internet**...Reduces cost of Search
- **Semiconductors**...Reduces cost of Computation
- **Machine Learning**...Reduces cost of Prediction
- **Blockchain**...Reduces cost of Trust

In the real business operations today, we need intermediaries to validate and establish trust between parties...Blockchain replaces that using technology & math.
KEY BLOCKCHAIN CAPABILITIES

Blockchain possesses a few **UNIQUE** and **TRANSFORMATIVE** capabilities that have the potential to disrupt all industries

**Transparency & Auditability**
Blockchain participants are able to view data added to the chain, data is immutable & censorship resistant; some implementations allow privacy

**Disintermediation**
By enabling transparency and trust, the blockchain can fulfill the roles that intermediaries traditionally provide

**Trust**
Connected data blocks and distributed validation structure establish trust between participants without them having to know one another

**Automation / Smart Contracts**
Protocol is programmable to trigger transfer of value and information under certain conditions, providing an advanced automation framework
KEY BLOCKCHAIN CAPABILITIES

Blockchain does not solve everything

There are several requirements that, when met in part or in full, indicate that blockchain may be a good possible solution:

- Shared Data
- Opportunity for Disintermediation
- Multiple Writers
- Absence of Trust
- Transaction Dependency
DIFFERENT TYPES OF BLOCKCHAIN

Blockchain can be **PUBLIC, PERMISSIONED**, or **PRIVATE**, referring primarily to the accessibility and permissions of the network.

**Public**
A public Blockchain (ex: the Bitcoin Blockchain) is a Blockchain that anyone in the world can read, transact on, and validate through a consensus process.

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**Consortium**
A consortium (or permissioned) Blockchain is a Blockchain that requires special permissions to read, access, and write information on them. The intrinsic configuration of such Blockchains controls the participants’ transactions and defines their roles in which each participant can access and contribute to the blockchain. It may also include maintaining the identity of each blockchain participant on the network.

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**Private**
A fully private Blockchain is a Blockchain where write permissions are kept centralized to one organization. Read permissions may be public or restricted to an arbitrary extent.

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.jetbrains of Corp. Solutions
Live Dashboard Link

Do you really need blockchain?
Two companies wish to transact. Because they use disparate systems of record they may rely on a trusted 3rd party to transact.

WHAT IS BLOCKCHAIN?

How companies transact TODAY

Current Model

Company A

Company B

Reconciled and Shared Data

Trusted Third Party

(Clearing Houses, Transfer Agents, Managed Services, Banks, Realtors)
WHAT IS BLOCKCHAIN?

How companies transact in a **BLOCKCHAIN WORLD**

Two companies wish to transact. Using distributed ledger technology they have no need for a trusted 3rd party to transact.
THE EVOLUTION OF BLOCKCHAIN

It is here **NOW**
**BLOCKCHAIN APPLICATIONS & USE CASES**

It is not just hype...from **PROTOTYPE** to **COMMERCIAL TRANSACTING**

<table>
<thead>
<tr>
<th>Supermajors</th>
<th>Independent Traders</th>
<th>Banks</th>
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<tr>
<td>bp</td>
<td>Gunvor</td>
<td>ABN·AMRO</td>
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<td>Shell</td>
<td>Koch</td>
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<td>Statoil</td>
<td>Mercuria</td>
<td>Societe Generale</td>
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</table>
BLOCKCHAIN APPLICATIONS & USE CASES

VAKT – Phase 1: Marine Supply Chain *(Commercial Q4 2018 BFOE)*

- **Deal proposed**
- **Supplier/Vessel Needed**
- **Deal Agreed**
- **Vessel Nominated**
- **Vessel Ready**
- **Vessel Departed**
- **Vessel Loaded**
- **Invoice issued**
- **Invoice paid**
- **Vessel Discharged**
- **Vessel Arrived**
- **Delivery and Payment Complete**

**Roles:**
- Seller
- Terminal Operator
- Transport Operator
- Vessel Master
- Inspection Specialist
- Buyer

**Figures:**
- VAKT – Phase 1: Marine Supply Chain
- Commercial Q4 2018 BFOE
Each application serves as the foundation for more sophisticated uses

**Smart Contracts**

A Blockchain solution transforms how contracts are executed
- Protocol is programmable to trigger transfer of value and information under certain conditions
- Smart contracts can be developed, exchanged, and automatically executed on decentralized systems

**Transfer of Value**

A Blockchain solution enables secure, near real-time, low-cost transfer of value without an intermediary
- Allows transfer of records and value between parties, removing the need for a trusted intermediary

**Record Keeping**

A Blockchain solution can offer automated, high-fidelity and low-cost mechanisms for record keeping
- Requires user-specific encryption keys – records are kept in the ledger but only accessible by authorized users

**Examples**

- Digital cheques / IOUs
- Automatic Financial Instruments
- Auditing Accounting Records
- KYC Utilities
- Domestic & International Remittance
- Internal Payments Settlement
- Clearing & Settlement of Securities
- Exchange of Low Liquidity Assets
- Direct Foreign Exchange
- Digital Certificate of Ownership for Physical Assets
- Transaction Validation of Digital Assets
- Financial Account History
- Invoicing / Accounts Receivable
### OTHER BLOCKCHAIN APPLICATIONS DRIVING VALUE FOR TREASURY

**Cash Management & Liquidity**
- Embed balancing debit/credit transactions, with increased auditability of transactions
- Providing a robust and secure framework for identifying integrated cash-flows within the company
- Address concerns regarding foreign exchange payment fees and settlement times

**Clearing & Settlement**
- Reduce overall technology and operational costs through bilateral peer-to-peer execution of clearing & settlement business processes using smart contracts
- Reduce the costs of reconciliation between independent book of records maintained by the participants / entities

**Transfer Pricing & Reconciliation**
- Establish trusted record of transactions, which provide arms-length principles between related entities
- Ensure compliance with multiple regional regulations and enable ease of real-time reporting
- Enable real-time cash pooling arrangements for better excess spread management

### BENEFITS

<table>
<thead>
<tr>
<th>Cash Management &amp; Liquidity</th>
<th>Clearing &amp; Settlement</th>
<th>Transfer Pricing &amp; Reconciliation</th>
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<tbody>
<tr>
<td>Improved cash management</td>
<td>Reduced infrastructure requirements</td>
<td>Fee Transparency</td>
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<tr>
<td>Capitalize on potential investment opportunities</td>
<td>Improved regulatory compliance</td>
<td>Increased working capital</td>
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<tr>
<td>Better tracking of contracts</td>
<td>Constant validation of customer identity</td>
<td>Enhanced Transparency</td>
</tr>
<tr>
<td>End to End payment tracking</td>
<td>Reduce fraud</td>
<td>Improved Liquidity</td>
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<td>Lower operational costs</td>
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**BLOCKCHAIN APPLICATIONS & USE CASES**

**High Potential Use Case: PAYMENT SETTLEMENT**

**CROSS BORDER PAYMENTS**
Facilitate direct payments, eliminating intermediaries involvement

**Business Issue**
Cross border payments volume is on the rise ($155B market). With current setup, sending money cross border takes time (2-7 days average~11.2% transaction costs) and does not provide the ability to share rich meta-data and end-to-end traceability

**POC Solution**
- Payments on Blockchain can be quick, cheap, data rich, transparent and secure
- Deloitte built a working prototype as part of the Digital Bank on top of Blockchain rails where customers can send money cross-borders just by knowing the receivers phone number or email

**Value Proposition**
Elimination of value transmission latency across international borders increases efficiency, cuts cost and provides immutable traceability

**Traditional Model**
- Sender
- Sender Bank
- Recipient Bank
- Recipient
- Secure Messaging
- FX Market
- ACH/Intermediary
- 1-4 days

**Blockchain**
- Sender
- Sender Bank
- Recipient Bank
- Recipient
- Decentralized system
- 3-6 seconds
High Potential Use Case: **SMART CONTRACTS**

**Business Issue**
Clients have to produce and send paper documents and this process is repeated for every application. Financial institutions associate KYC with high cost and low automation for a non-revenue generating activity.

**POC Solution**
- Deloitte built a KYC Utility which reduces the amount of KYC checks that a single FI by sharing results with other FI’s, reducing FTE workload and overall costs.
- Customer sends multiple digital documents to just one FI that performs the required KYC and stores the results in a shared platform.

**Value Proposition**
A reduction in KYC and due diligence costs as all entities on the platform will share the burden of checks and therefore less FTE’s focused on a non-value add activity.
DO NOT FORGET THE RISKS
...BLOCKCHAIN IS ONE OF SEVERAL TECHNOLOGIES

A new UNIVERSE OF RISKS is being created from enabling technologies
THE BLOCKCHAIN CHECKLIST

If you are going to start......THINK BIG......but start small

- Develop a reading list that includes both skeptics and evangelists. Blockchain is moving fast. Keep up.
- Assign a team to stay on top of blockchain developments in Finance. Include both technical and business people.
- Monitor what leaders are doing in your industry.
- Meet with a few of your major trading partners to find out how they’re thinking about blockchain opportunities.
- Make sure your Chief Risk Officer is tracking regulatory and compliance issues related to blockchain.
- Identify a handful of opportunities where the efficiency gains of blockchain are obvious. Assess the business case for each.
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