WHAT IS
BLOCKCHAIN

The
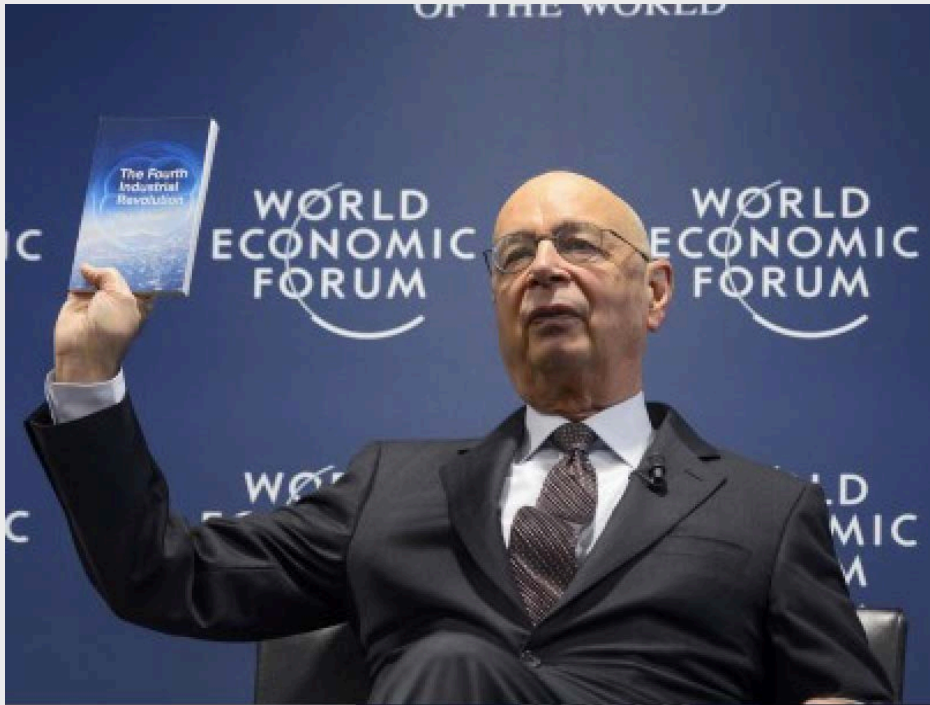**Africa Blockchain**
Conference 2018

Agenda

- An Introduction
- What is Blockchain
- Blockchain benefits & use cases
- How we can help

An Introduction

- WEF and 4th Industrial Revolution

- 1st to 4th Industrial Revolution #4IR

- #4IR in context

An Introduction

Bitcoin: A Peer-to-Peer Electronic Cash System
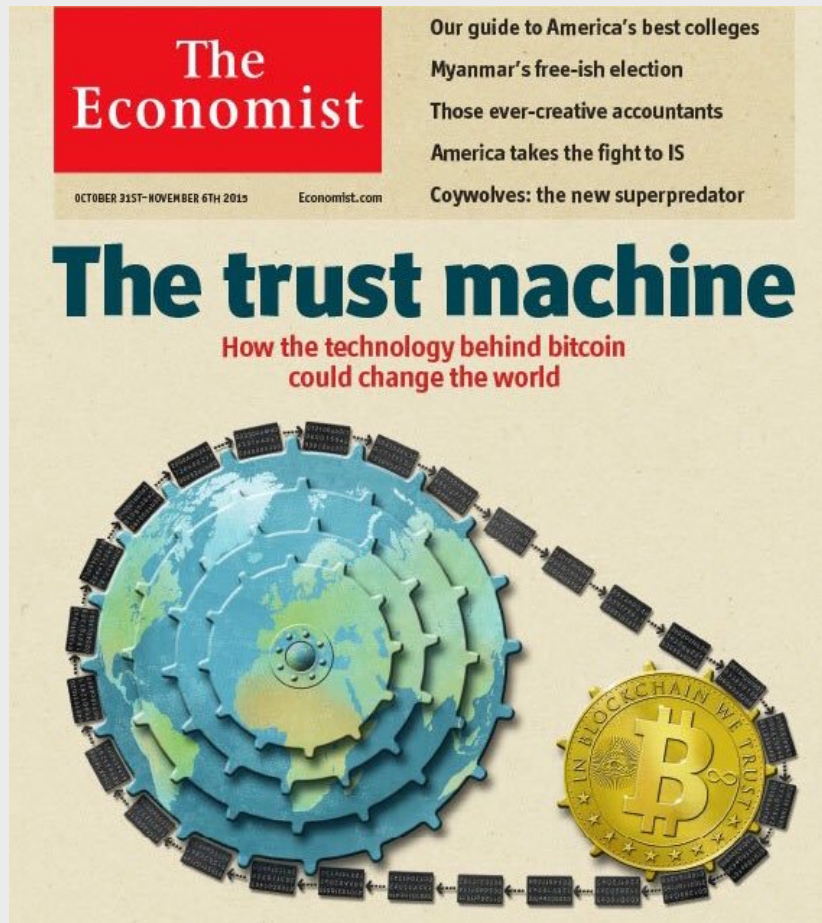
Satoshi Nakamoto
satoshin@gmx.com
www.bitcoin.org

Abstract. A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third party is still required to prevent double-spending. We propose a solution to the double-spending problem using a peer-to-peer network. The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work. The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers. The network itself requires minimal structure. Messages are broadcast on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest proof-of-work chain as proof of what happened while they were gone.

1. Introduction

Commerce on the Internet has come to rely almost exclusively on financial institutions serving as trusted third parties to process electronic payments. While the system works well enough for most transactions, it still suffers from the inherent weaknesses of the trust based model. Completely non-reversible transactions are not really possible, since financial institutions cannot

- After the 2008 financial crisis a white paper was released

- A system electronic transactions of cash without relying on trust

- P2P transactions, incentives, proof of work, verifications, security etc.

An Introduction

The Economist

Our guide to America's best colleges
Myanmar's free-ish election
Those ever-creative accountants
America takes the fight to IS
Coywolves: the new superpredator

OCTOBER 31ST–NOVEMBER 6TH 2015   Economist.com

The trust machine
How the technology behind bitcoin could change the world

- Crypto study and enthusiasm rallied in the tech community

- In October 2015, it went into the public domain

- In the public it took different forms and misunderstanding

An Introduction

WHAT OTHERS SAY ABOUT BLOCKCHAIN

"**Blockchain** is perhaps the biggest innovation in computer science to date. We have experienced the first generation of the digital revolution that gave us the internet of information. This second generation which is powered by **blockchain technology** is bringing us the internet of value."

DR AMEENAH FAKIM
PRESIDENT OF MAURITIUS

WHAT OTHERS SAY ABOUT BLOCKCHAIN

"**Cryptocurrencies** may give traditional government-issued currencies a "run for their money" and it is **"not wise"** to **ignore them.** Cryptocurrencies will bring 'massive disruptions' and central banks and financial services need to **pay closer attention to the technology.**"

CHRISTINE LAGARDE
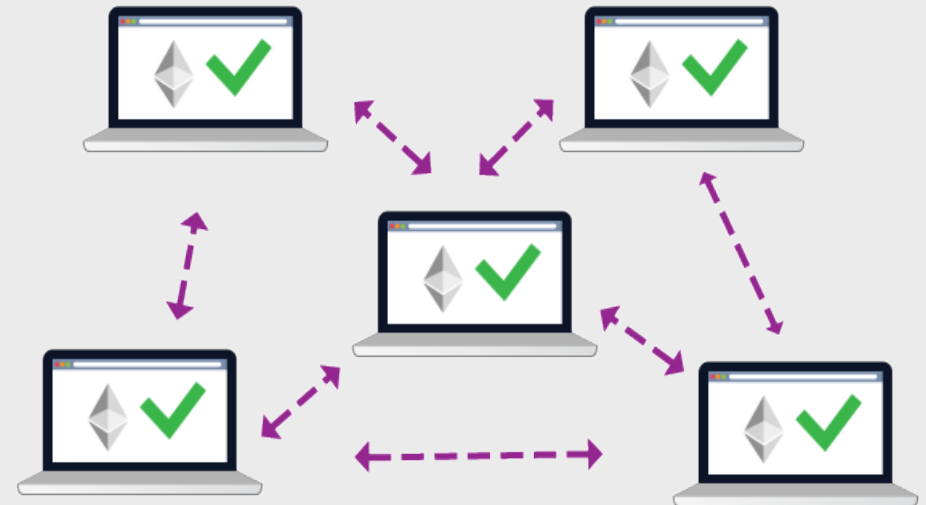MANAGING DIRECTOR,
INTERNATIONAL MONETARY FUND

What is Blockchain

Distributed Ledger

- Information stored in "blocks"
- Blocks encoded, linked to other blocks
- Record is time stamped & shared, P2P
- Each party has exact copy of the record
- That record is immutable
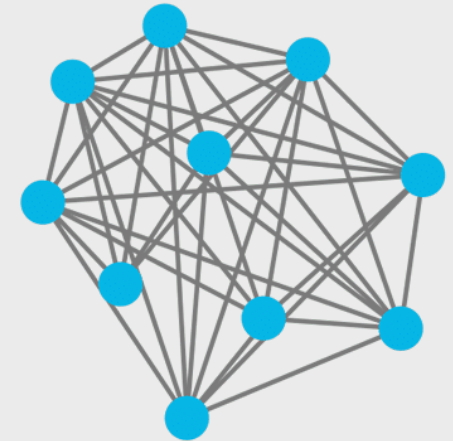- There must be consensus

What is Blockchain
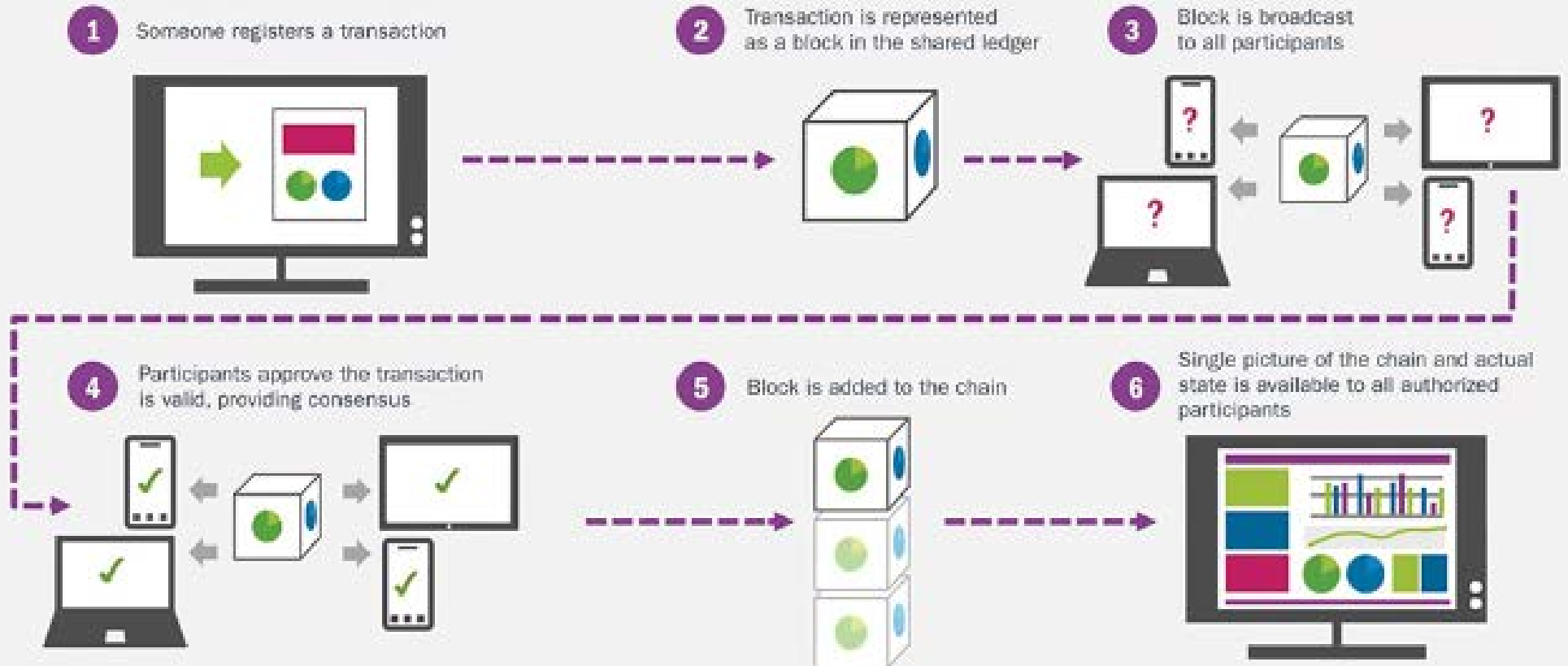
Centralized

Decentralized

Distributed Ledgers

What is Blockchain

1. Someone registers a transaction
2. Transaction is represented as a block in the shared ledger
3. Block is broadcast to all participants
4. Participants approve the transaction is valid, providing consensus
5. Block is added to the chain
6. Single picture of the chain and actual state is available to all authorized participants

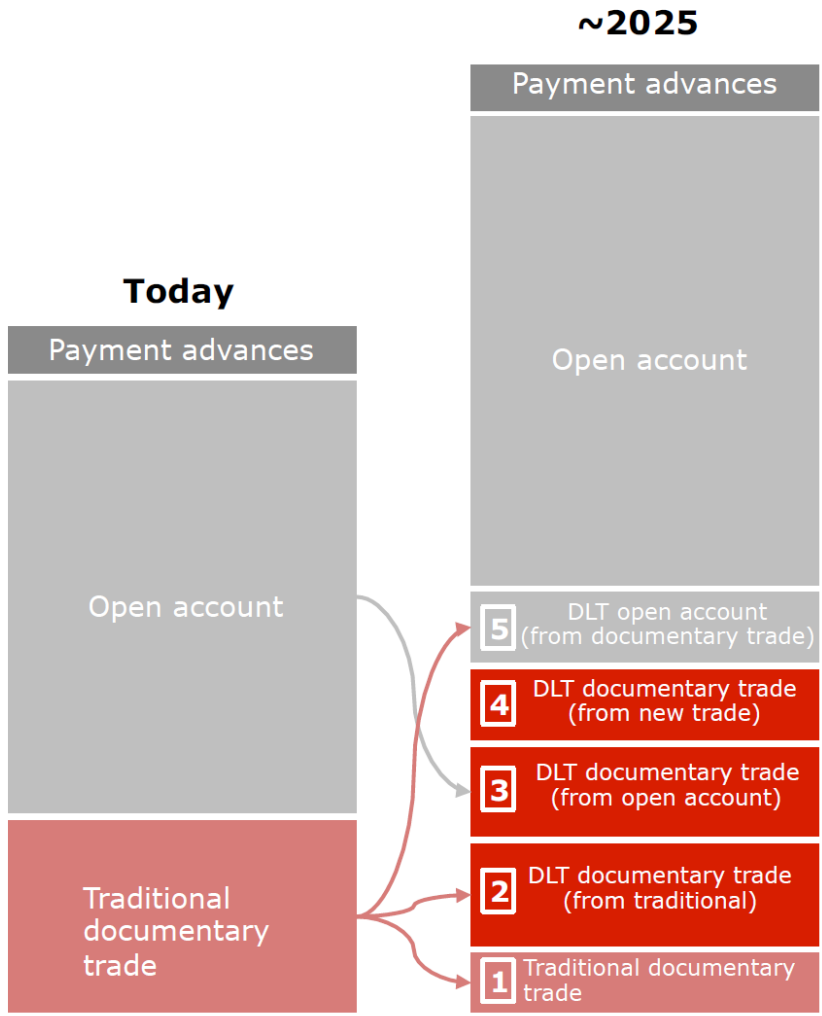The Africa Blockchain Conference 2018

Blockchain in Logistics

- Technological disruption isn't new for the global trade system.
  - The steam power revolution connected the world like never before: The invention of shipping containers laid the foundation for globalization.
  - More recently, technologies such as **Optical Character Recognition (OCR)** to read container numbers, **Radio Frequency Identification (RFID)** and **QR codes** to identify and trace shipments, and basic digitization of trade documents have improved the reliability and efficiencies of the international trade.

Benefits

Global trade merchandise volume (not drawn to scale)

~2025

Payment advances

Open account

5 | DLT open account (from documentary trade)

4 | DLT documentary trade (from new trade)

3 | DLT documentary trade (from open account)

2 | DLT documentary trade (from traditional)

1 | Traditional documentary trade

Today

Payment advances

Open account

Traditional documentary trade

5 Traditional will continue to migrate to open account due to greater trust and visibility

4 ~30% or $1.1 trillion of new trade volume will result due to DLT removing barriers

3 Small portion of open account will move to DLT for enhanced risk mitigation and cheaper financing

2 ~40% or $0.9 trillion of traditional will move to DLT for better service levels and lower fees

**1** ~40% or $0.9 trillion of traditional will remain

Source: Bain & Company analysis

New technologies	Pre-transaction		Transaction processing			After transaction	
	Product selection	Data entry	Workflow management	Document check	Compliance check	Problem resolution	Client mgmt. information system
Optical character recognition (OCR)		**Text recognition** from trade documents to minimize data entry		**Check for completeness of documents** based on transaction/product type	**Scrape documents** for AML keyword hit		
Artificial intelligence (AI)	**Intelligent** and **personalized marketing**: Offer new product sales or client promotions based on insights on clients' needs and behaviors	**Populate fields** with text extracted from documents **(integrate OCR with transaction process)**		**Validate/remediate data** with cross-references, machine learning	**Contextual filtering:** Identify suspicious or unusual activity and block suspicious transactions based on predictive indicators	**Intelligent problem resolution:** Track individual error rates and flag users in need of remediation	
Advanced analytics (AA)		**Enhanced KYC** (e.g., web scrape)	Efficient process and productivity **monitoring, and** predictive analytics to **detect patterns**				Reports enable enhanced **operational and strategic decisions**
Robotic process automation (RPA)			**Bridge data flow and communication:** Integrate data from different systems into single interface				
Internet of things (IoT)			**Ease of tracking** goods and documents; **dynamic pricing and financing** triggered by shipment events; **automated payments release** based on "smart contracts"			**Track document locations:** Track goods (location, volume, quality)	
Distributed ledger technology (DLT)	Create smart letter or credit as **smart contract** on distributed ledger - auto notifications	Replace documentation, checks, data entry, validation, with **single digital record**	Real time **verification and reconciliation;** workflow executed as per smart contract conditions; replace payment and funds transfer with **cryptocurrency**				

Benefits of Blockchain

- Security
- Cost
- Transparency
- Speed
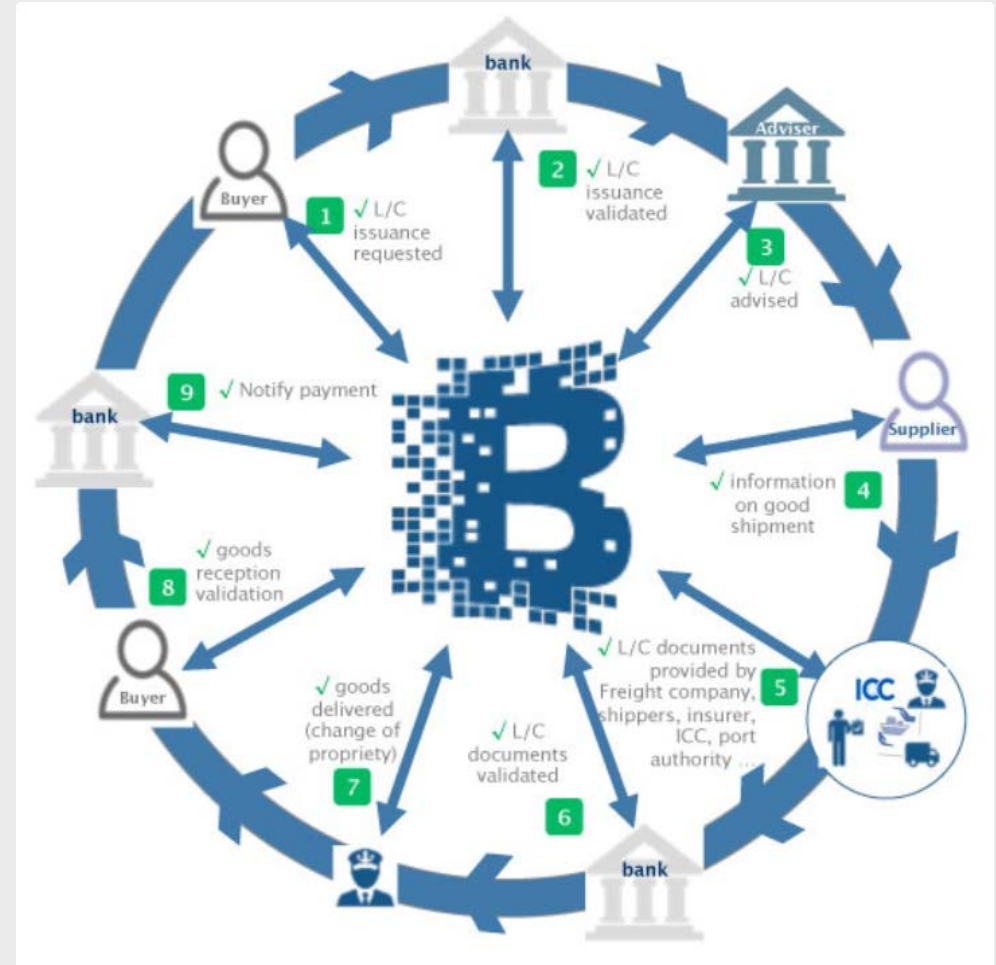
Use Cases

- **Banks** are exploring several options to replace paper with digital approaches, ranging from partnerships with platform providers and accounting firms to using APIs to ensure their customers are connected with other key providers.

- **Large corporations** are digitalizing their extended supply chains and, in some cases, directly investing in their own blockchain technology platforms to provide financing to suppliers and others along the chain

Use Cases

- **Accounting, enterprise resource planning and other large information-technology (IT) infrastructure providers** are building the data platforms for supply chains to provide corporate customers with rich data that help to inform better financing decisions.

- **Logistics, transport and freight forwarding companies** are investing in digitalizing their operations and partnering with distributed ledger infrastructure providers to experiment with test cases.

Use Cases

- **Governments** are pushing to digitally connect the trade ecosystem.
- Initiatives such as
  - the Singapore National Trade Platform,
  - Dubai Blockchain
  - Trade Receivables e-Discounting System in India
- These efforts aim to bring together the major stakeholders.

How can we help

- Blockchain Awareness
- Build Private & Public Blockchains
- Developer Training
- Business Development Consulting

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THANK YOU