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“The UAE Blockchain strategy 2021.

"The adoption of this technology will reflect on the quality of life in the UAE and will enhance happiness levels for citizens. 50 percent of government transactions on the federal level will be conducted using Blockchain technology by 2021… This technology will save time, effort and resources and enable individuals to conduct most of their transactions in a timely manner that suits their lifestyle and work."

the adoption of Blockchain technology would support the government's preparation for future challenges and save AED 11 bln (nearly $3 bln) that the government spends on document circulation annually.

Sheikh Mohammed bin Rashid, Vice President and Prime Minister of the UAE and Ruler of Dubai,

Dubai Blockchain strategy

The Dubai Blockchain strategy is built on three pillars of government efficiency, industry creation and international leadership.

Government Efficiency

Industry Creation

International Leadership

Government Efficiency

- Enabling a paperless digital layer for all city transactions, supporting Smart Dubai initiatives in the public and private sector.

- Required documentation, such as visa applications, bill payments and license renewals, which account for over 100 million documents each year, will be transacted digitally under the new strategy.

- Blockchain technology would contribute savings of up to 114 MTons CO_2 emissions from trip reductions, and redistribute up to 25.1 million hours of economic productivity in saved document processing time.

Industry Creation

- The Dubai Blockchain Strategy will introduce a system for enabling citizens and partners to create new businesses using the technology.

- Industries that will benefit from Blockchain technology include: real estate, fin-tech and banking, healthcare, transportation, urban planning, smart energy, digital commerce and tourism.

International Leadership

- The third pillar of the Dubai Blockchain Strategy is International Leadership. In line with the third pillar, Dubai will open its Blockchain platform for global counterparts to enhance safety, security, convenience for international travelers to Dubai.

- Under the new strategy, international travelers will benefit from faster entry with pre-approved passport and security clearance and visas; easier mobility within in the city due to approved drivers licenses and car rental; guaranteed wireless connectivity; enhanced tourism and pre-authenticated temporary digital wallets & payments.


100%
TARGET RATE
Dubai government's transactions on Blockchain by 2020
1,000
NEW FIRMS
Blockchain to support 1K firms by 2020
27
COUNTRIES
Huge international participation in the travel sector
EXAMPLE
FAMILIES GENERATE
100 Million pages of documents every year
STRATEGY WILL SAVE
25.1 million hours of productivity
411 million kilometres of travel each year
SOURCE: DUBAI FUTURE FOUNDATION

"The vision."

1ST UNIVERSITY IN THE UAE AND 3RD IN THE WORLD TO ISSUE DIGITAL DEGREES USING BLOCK CHAIN TECHNOLOGY

BUiD will be the first University in the UAE to issue electronic authentication of its Degrees (Masters and Doctoral) via an online verification tool. Each certificate fingerprint has also been added to Bitcoin's blockchain, a decentralized and distributed digital ledger, offering users (e.g. potential employers) immediate, secure and digital authentication via the new verification tool on BUiD’s website.

The concept of Smart Certificates is BUiD’s way of showing its commitment towards HH Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President of UAE, and Ruler of Dubai’s Block Chain Strategy of UAE Government and other organizations going paperless by 2020. This project is a result of the collaboration of University of Nicosia and BUiD’s Dubai Centre for Risk and Innovation (DCRI).

The Background

Blockchain was created to resolve the issue of trust, confidence and double spend

1982

Introduction of the concept of cryptocurrency by David Chaum in 1982.

Blockchain is a software technology which provides a distributed system of trusted assets and transactions without the need of central trust authority

A public ledger prevents the double payment….

The architecture based on “Decentralized Trustless system

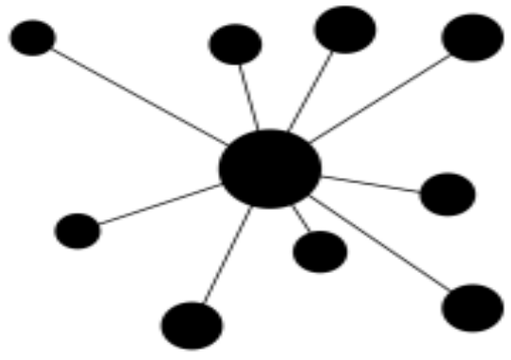
Satoshi Nakamoto proposed in 2009 the mechanism of **Blockchain,** allowing a **decentralized integrity control.** He launched the **crypto-currency Bitcoin** a few months later.

Blockchain’s infrastructure replaces the middlemen with mathematics

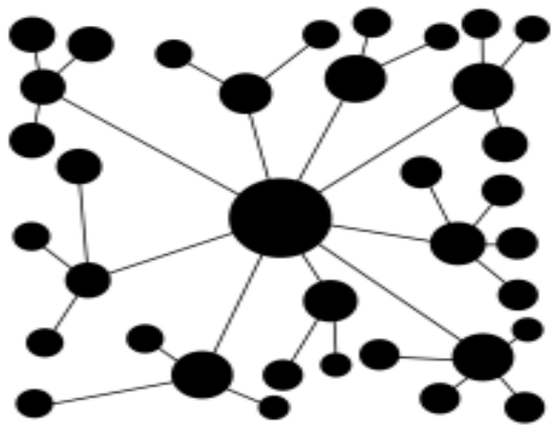
Distributed network

Distributed (peer-to-peer) network

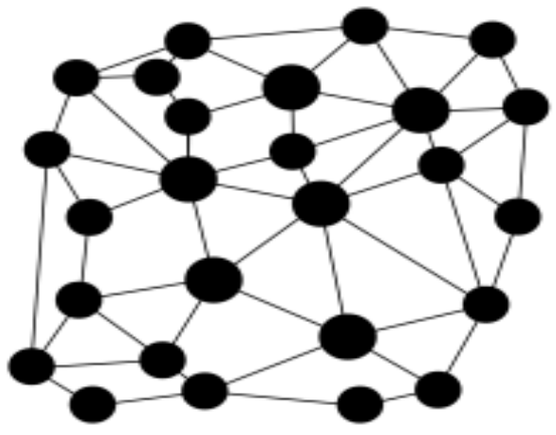
- vs. centralised network – one central server
- vs. decentralised network – several centres
- all nodes (servers) are equal – no centre(s)
- no single point of control or attack



A centralized network.



A decentralized network.

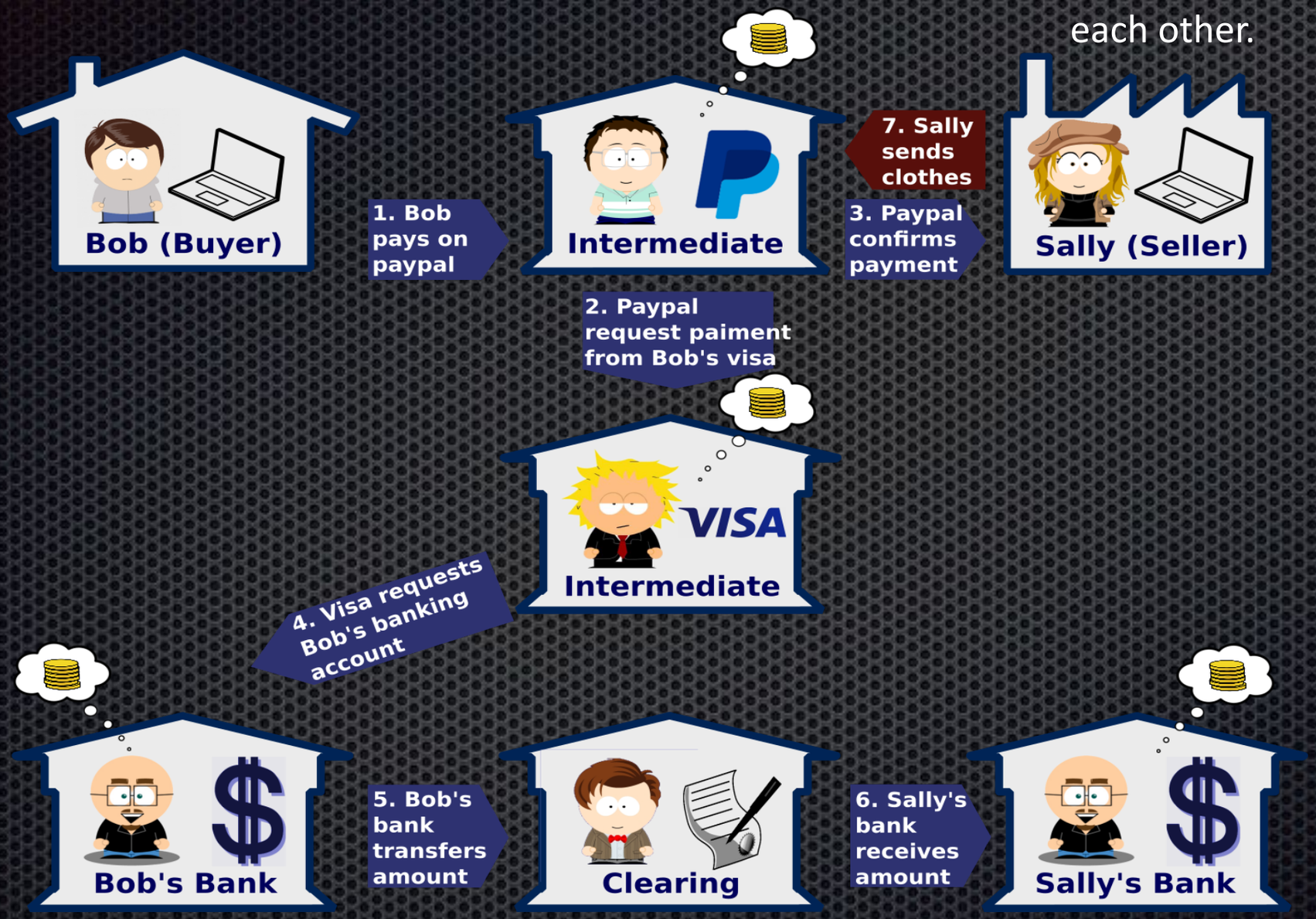


A distributed network.

Example (source: https://www.niceideas.ch/roller2/badtrash/entry/blockchain-explained-beta)

Problem: Lots of intermediaries ;
(credit cards -e.g Mastercard, Visa etc-,
Clearinghouses, Banks, etc.)

Reason for problem: Need to establish trust between two parties who do not know each other.



Example (source: https://www.niceideas.ch/roller2/badtrash/entry/blockchain-explained-beta)

Blockchain 1.0

- Blockchain 1.0 is the ***CURRENCY***, the deployment of cryptocurrencies in apps related to cash, and financial transactions
- Blockchain 1.0 is the decentralization of money and payments

Blockchain 2.0

- Blockchain 2.0 is ***CONTRACTS,*** the deployment of smart properties, digital assets, and smart contracts
- Blockchain 2.0 is the decentralization of markets
- Typical platform is ***Ethereum***

Blockchain 3.0

- Blockchain 3.0 is ***APPLICATIONS,*** in new areas of smart cities, IoT.M2M, government ,health, science, and art.
- Typical software platform is ***Solidity***

Blockchain -An Introduction

The Blocks

- Each block includes the hash of the prior block in the blockchain, linking the two. The linked blocks form a chain.

- Once a transation/record is added to the of chain, they cannot be modified;

- Transactions are validated by the network participants and recorded in chronological order (in a sequence of “blocks”);

- Transactions are protected by one-way cryptographic functions ➔ secure;

Key Risks from centralized networks

This centralized process causes risk such as:

Inefficiency – Slow transaction settlements;
High costs – Not only these third parties need to get paid, but potential disputes need additional costs to be covered for such as insurance provision;
Lack of transparency - Not all stakeholders have access to information relevant to them;
Fraud and errors – May lead to bad decision making and missed opportunities;
Delays - in transactions;
Unfairness - The bank actually owns the accounts and funds can be garnished, even frozen completely or being cut…..;
Etc….

Blockchain Applications beyond currency

Types	Examples
General	Bonded contracts, third-party arbitration, multiparty signature transactions
Financial Transactions	Stock, private equity, crowdfunding, mutual funds, pensions
Public records	Land and property titles, vehicle registrations, business licenses, marriage certificates, death
Identification	Drivers license, identity cards, passports
Private records	Loans, contracts, signatures, wills, trusts
Attestation	Proof of insurance, proof of ownership, notarized documents
Physical assets	Hotel, rental cars, automobile access
Intangible assets	Patents, trademarks, copyrights, domain names.

Blockchain allows a distributed recording of transactions in a decentralized, secure and auditable environment

Decentralized

The Blockchain enables parties to trade in a more reliable way, reducing the risk of default linked to a unique central database.

Speed

By automating processes and removing intermediaries, the Blockchain can shrink the timeline of transaction processing from the client's order to the effective settlement.

Reliability & Security

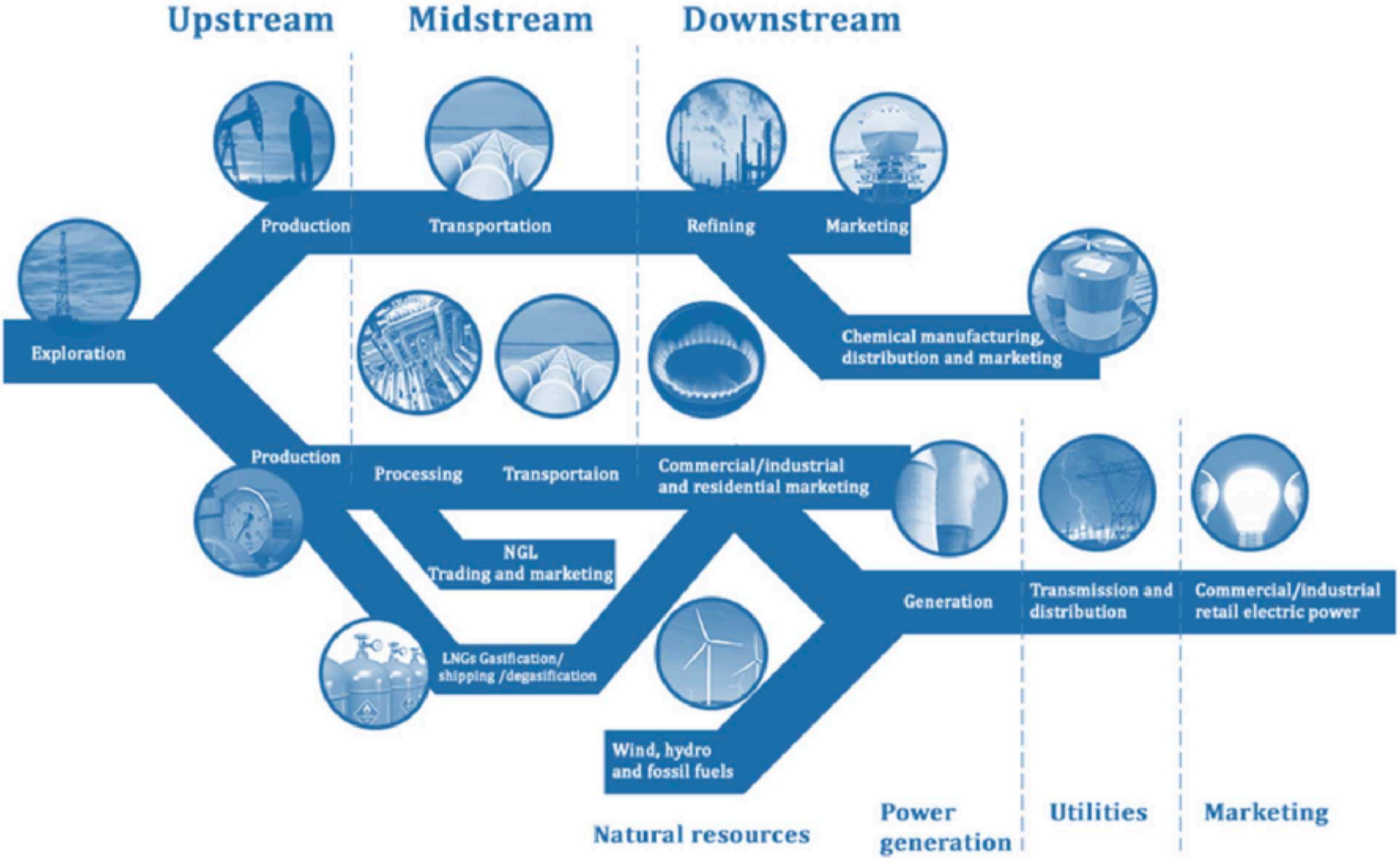
Blockchain is secure (reliability can be limited in case of more than 50% miner dominance).

Global visibility

Verifying and tracking information is easier with Blockchain time- stamped information. Blockchain allows users to share all the information.

Supply Chain oil and Gas blockchain Benefits

Domain appreciation of blockchain in oil and gas - the energy value chain



Blockchain in SCM (Supply Chain Management)

Digitizing Global Trade

1 **Digitizing processes**

Immutable records

Ease of validation

2 **Automating checks and balances**

Smart Contracts as deterministic agreements

Trade financing via digital assets as a trade facilitator

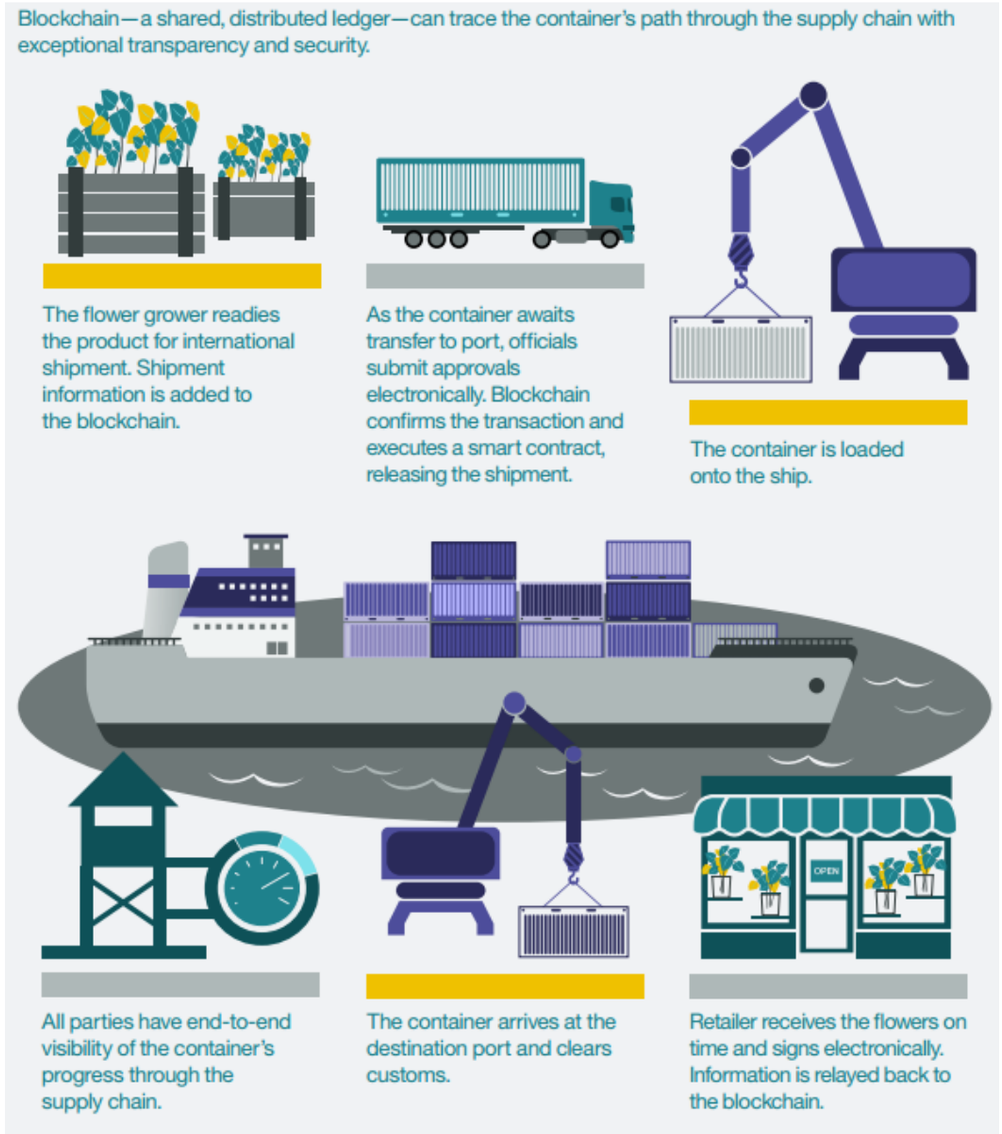
Foul Proof provenance or origin, delivery and conditions in between

3 **Decreasing costs**

Decreased Paperwork

Increased protection against fraud

Digital signatures as a replacement of bureaucracy



Key industry challenges in oil and gas

Cost and Time: Complex energy transactions involve a wide range of orders and documents such as purchase invoices, shipping documents, bank release funds etc. They add to the complexity of the process

Transparency: Companies invest time and effort to ensure all documents are in place and accessible to all stakeholders. It includes compliance documents, audits, and associated paperwork.

Supply Chain: Oil and gas supply chains are complex, involving shippers, suppliers, and customers. It demands large administrative overheads and creates the potential for error.

Payments: Typically, oil and gas contracts involve complex payment structures. They also involve cross-border transactions, which require intermediaries and additional costs

Blockchain benefits in supply chain

- Benefits of blockchain
  - Saves time – from days to instants =>financial transactions are performed faster than in the traditional financial systems
  - Streamlines administrative processes and reduces costs (from overheads and intermediaries)
  - Increases trust – through shared processes and record keeping
  - Reduces risk – tampering, fraud and cybercrime
  - Enables traceability of environmental and other incidents
  - Empower the consumer and the retailer

Blocks of paper barrels	Bridging the gap between paper trades and the real-world movement of barrels is often a laborious task. The adoption of a blockchain system for payment could speed up the process significantly and cut costs at the same time. In addition, with blockchain, there is a significant increase in the transparency of data. Finality is maintained between the parties in the futures trade as only a single source of truth will be presented to all participating traders.
Oil-based digital currency	In addition to the improvements that blockchain could make to traditional oil and gas operations, some are looking to the world's most important commodity as a baseline for digital money. A cryptocurrency based on the commodity can be introduced to make payments even faster.
Enhancing compliance	Whether onshore or offshore, the oil and gas industry is heavily regulated, with protocols deriving from multiple sources and covering everything from the environment to tax. Data contained in a blockchain can be shared with regulators in real time to maximize visibility and eliminate the fines meted out for non-compliance. Collaborative interactions can also be improved through blockchain. Joint venture partnerships, which may involve several companies collaborating on the same project, are common within the oil and gas marketplace. With blockchain, every transaction is replicated to all nodes in an immutable way for regulators to monitor.
Transparency in operations	In the energy trading operation of natural gas, there are multiple parties involved in operations from upstream to downstream, such as energy producer, shipper, supplier, transporter, regulator and settlement provider. So there is a lack of trust between these stakeholders, lack of visibility or data, and legal disputes and settlement delays. Using blockchain, all these groups can be brought on to a single platform for enhanced visibility. Also, by using smart contracts, a majority of the operations can be automated. Integrity of data will be maintained throughout the supply chain of natural gas.

Conclusion

Blockchain is not a complicated system: 80% is the process and the 20% is the development of the technology (infosys, 2017)

Key Challenges

Regulation
scalability

Key Questions

Who manages the technology?
How ERM should react in this technology innovation? some people call it the 4rt revolutions?
Should we be proactive instead of reactive?
How we can embrace new technology to make better use of the risk data?

Is the energy sector ready for a reshape?

Thank You