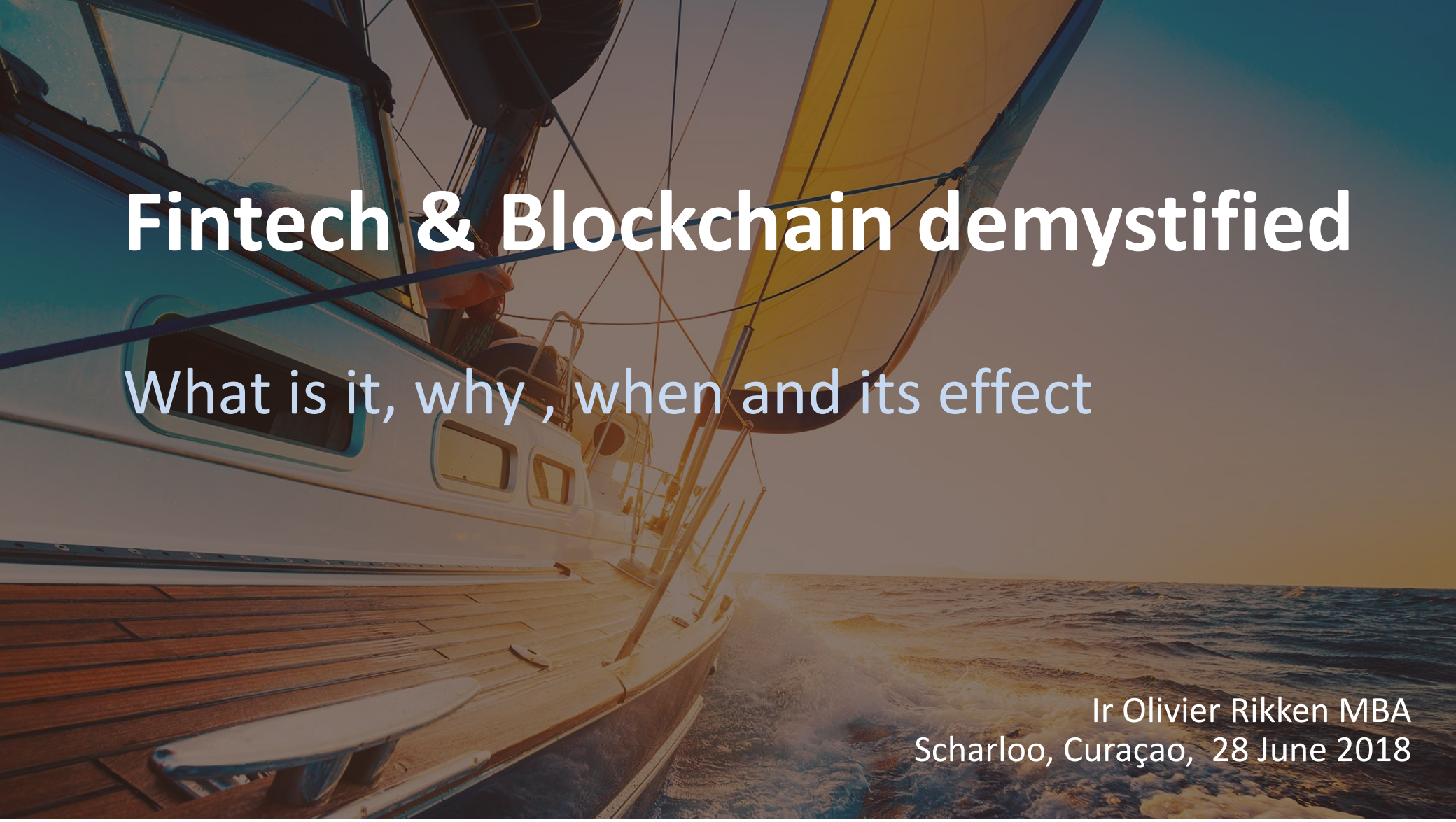

Fintech & Blockchain demystified

What is it, why , when and its effect

Ir Olivier Rikken MBA

Scharloo, Curaçao, 28 June 2018

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Improving performance, managing risk.

CENTRALE BANK VAN CURAÇAO EN SINT MAARTEN
CENTRALE BANK
VOORHEEN
CURAÇAOSCHE BANK
OPGERICHT
1828

Fintech, is it changing powerplay Financial sector?

Adyen gaat klant krediet verlenen

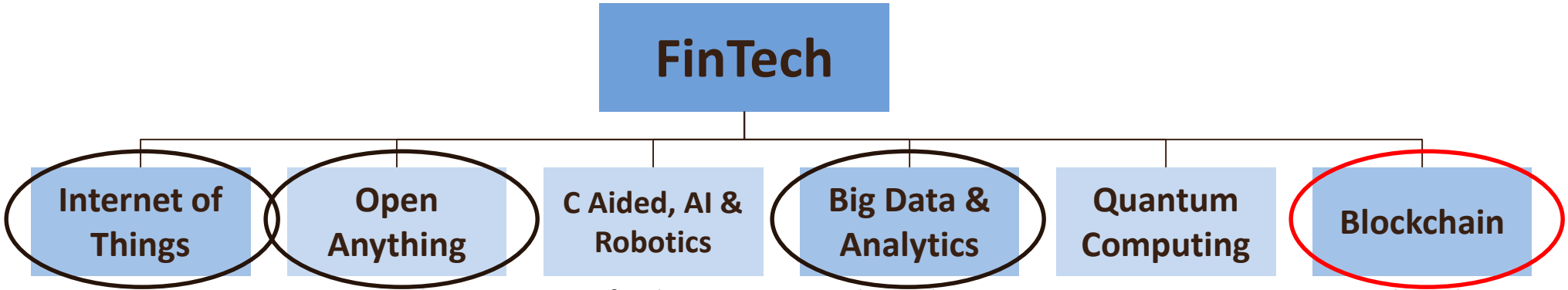
Het Nederlandse betaalbedrijf Adyen gaat kortlopende kredieten verstrekken aan zijn klanten. Hiermee gaat het fintechbedrijf de concurrentie aan met traditionele banken.

支付宝
ALIPAY

1/ Binance continues to blow my mind: "@binance's quarterly profits are 36% higher than the ones of @DeutscheBank bank and it only has 0.2% of the DB's employees."

BINANCE

But what is Fintech (or RegTech, InsureTech etc)



Connecting everything to internet
- Sensoring
- Connected devices

Resulting in almost unlimited data and process optimisation possibilities
- Digital Identity (non human?)

Open Banking, Source and API's
- Open banking information to 3rd parties
- Development outside, no influence
- Loss of services to 3rd parties

Artificial Intelligence
- *Weak* AI (algorithm optimisation)
- *Strong* AI
- Robotics
- Computer aided processes

Analysing large scale and fast moving data
- Structured and unstructured data analytics
- Prescriptive analytics
- Cognitive analytics

Next step in computing using Qbits instead of bits.
- Can have super state calculations
- 1 and 0 simultaneously
- Highly increasing calculation speed

Distributed ledger technologies removing the need for a trusted 3rd party
- Crypto currencies
- Distributed immutable data storage
- Smart Contracts

But also AR and VR, Wearables & Drones, crowdfunding, P2P and sharing economy

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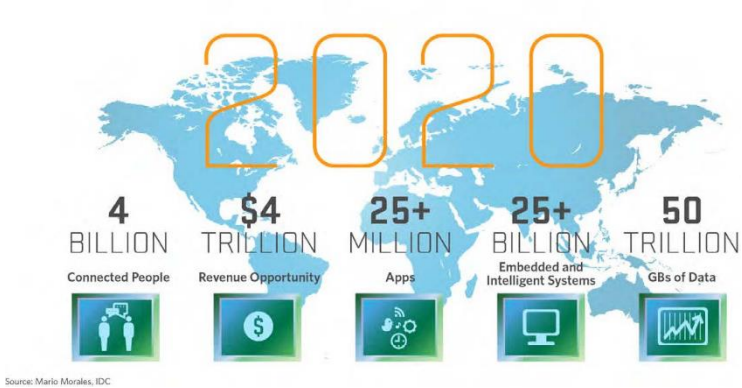
Internet of Things - IoT

The Internet of Things (IoT) is the network of physical objects that are enabled to collect and exchange data.

It is basically connecting any device with an on and off switch to the Internet and each other.



As a result: almost unlimited amount of data creating tons of analysis and intelligence possibilities. The interaction can improve processes and highly influence our daily way of living.

Big data analytics

Big data analytics - often confused with Big data - is the analytics of the Big data, can be categorized in following categories:

1. Statistics – averages, past trends etc,
2. Predictive analytics – extrapoling trends of the past to future on single behaviour
3. De- or Pre- scriptive analytics - descriptive models identify many different relationships.
4. Cognitive analytics (Artificial Intelligence) intelligence exhibited by machines or software based on very complex data analysis

OpenBanking

Open APIs - enable third party developers to build applications and services around the financial institution.

Greater financial transparency options for account holders ranging from Open Data to private data.

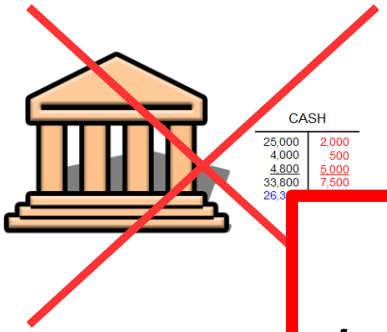
Payment Services Directive (PSD2)

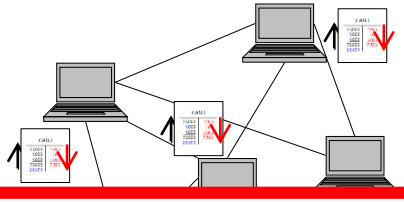
Blockchain – the theory

Blockchain - Bitcoin - bitcoin

What is blockchain

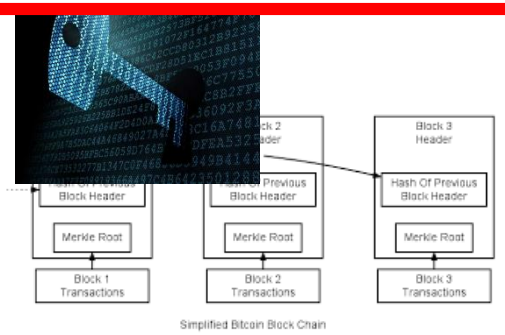
Most widely known for bitcoin  but,





In essence, blockchain is a (very special kind of) database

It is a decentralized ledger of all transactions that have taken place. The distributed data is shared and maintained by all nodes (computers) that participate in the network.



Is a technology that provides an electronic public transaction record of integrity ral/single authority.

of double spending and duplicate transactions and ledger integrity insurance is provided by transparancy and cryptographic problem-solving block validation, without the requirement of a central authority of trusted 3rd party.

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Why blockchain?

Transparency – full history of transaction is visible/retrievable

Irreversability / immutability – Once in the blockchain it can't be changed (SC's the code)

Permanence and immortality – the data is permanent and can never be externally deleted

Robust as result of decentralisation (no single point of failure, no single point of control, no bottleneck)

Provenance (SC's) – you can always check who send the message (e.g. could be important in audit trails!)

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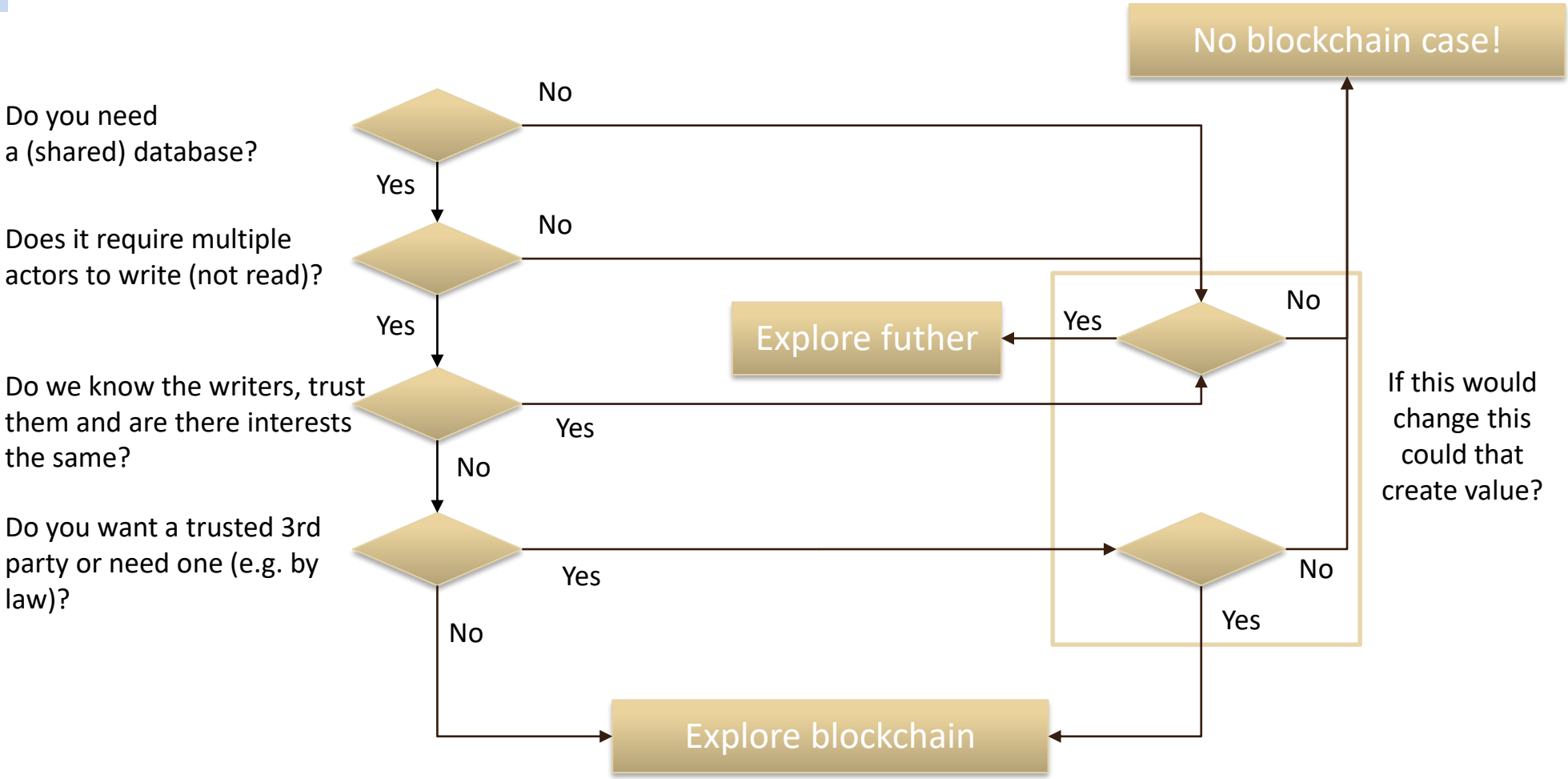
When blockchain?



(partially based on a model by Bart Suichies 2015)

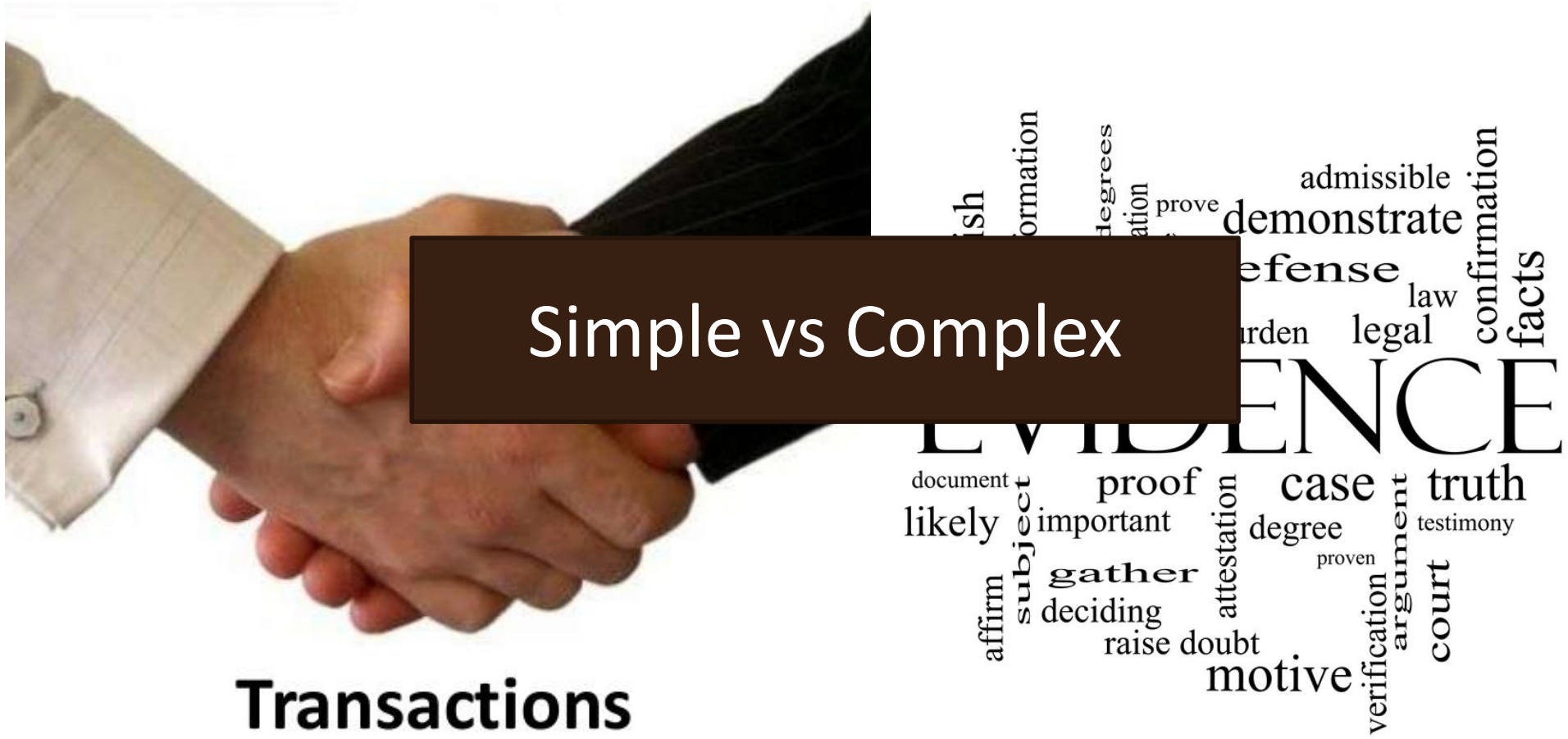
So what kind of blockchain?

Product and Services

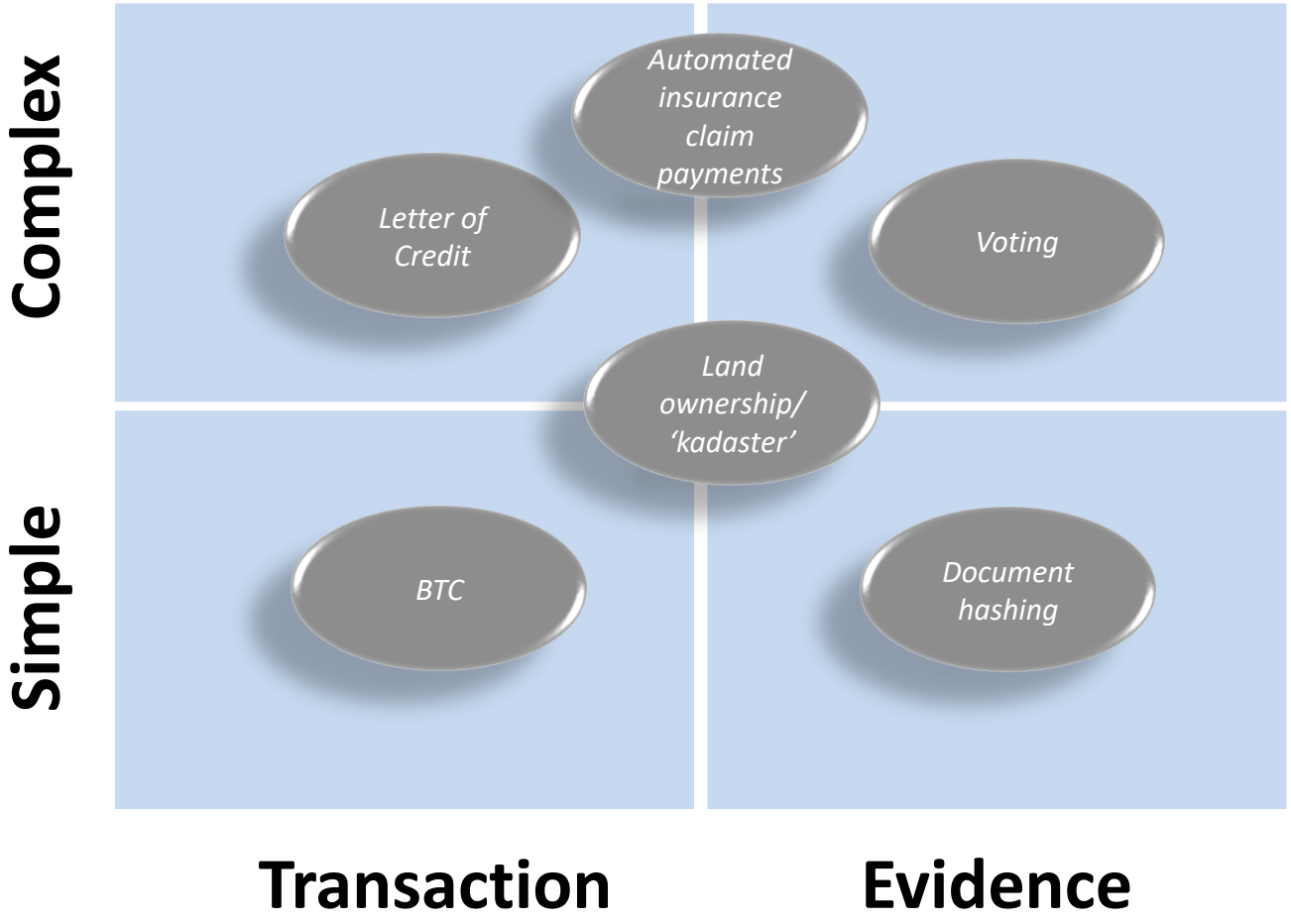
What can I do with blockchain

What is the potential use of blockchain

Blockchain can be used to virtually change everything to peer-to-peer. In high level you can use is for:



Features of blockchain use cases



Cryptocurrencies vs tokens

Native (or inherent) currencies vs issued assets

More than 750 blockchains with native currency. Used to:

- Put a costprice to a transaction
- Reward miners to secure the network
- Are always related to that 1 blockchain
- Value is related to the value of that blockchain

100's of assets are created on top of existing blockchains as:

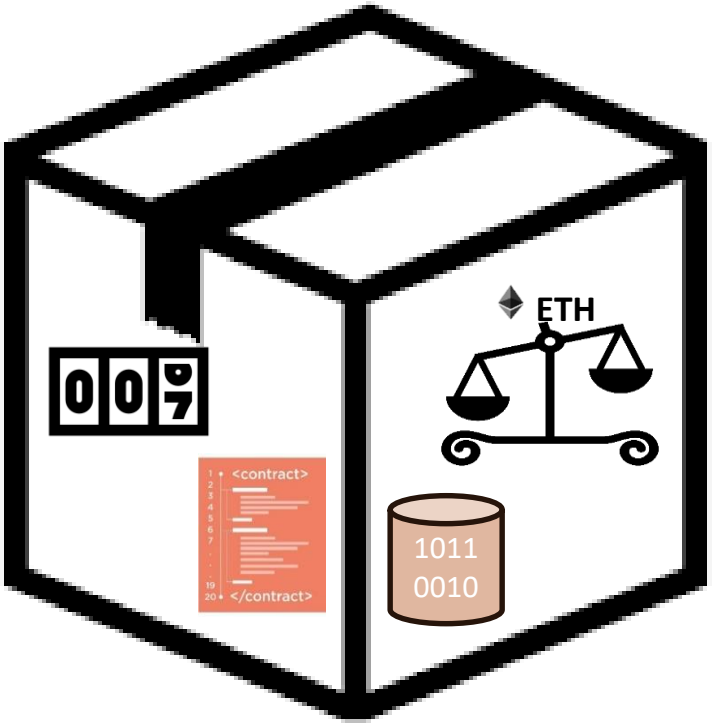
- Colored coins or ERC20-tokens
- Can be created as:
  - Usage token (currency)
  - Work token (e.g. voting right)
- Value related to issuer of that token

ICO's mostly use issues assets, but an ICO can be done with a native currency as well

Elements of smart contracts

A smart contract (or better, contract account) can be seen as a “box” that has the following elements:

- The nonce, a counter used to make sure each transaction can only be processed once
- The account's current ether balance
- ***The account's contract code,***
- The account's storage (empty by default)*



each account having a 20-byte address e.g.:

0xa8323F5fBcf1980B2093a633cF03020900B81d53

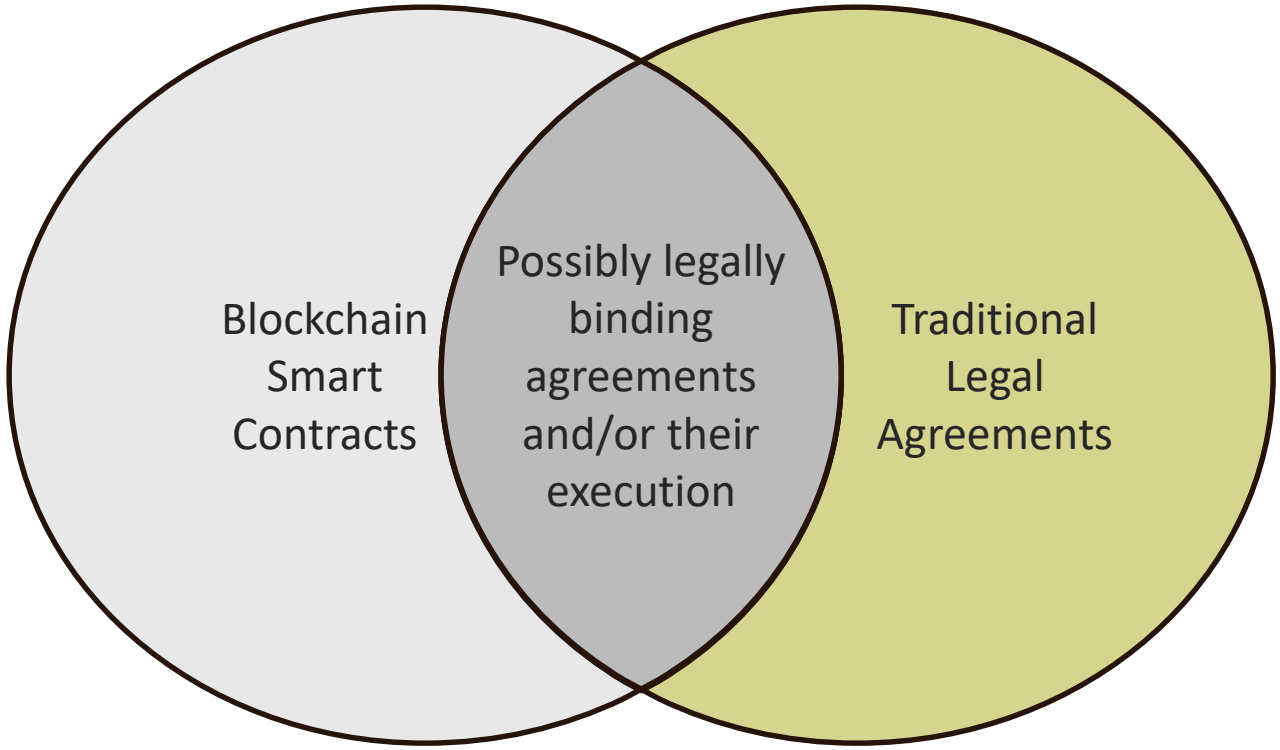
State transitions being direct transfers of value and/or information between accounts.

*Data is stored in 3 spaces within Ethereum: Stack, Memory and Storage. The first two are resetted after computation.

Smart Contracts vs Legal Contracts

a deterministic computer program deployed on a blockchain.

can have legal meaning, but not necessarily.



where transformation is suitable, recommended only for execution.

not all judgement is suitable for transformation into coding.

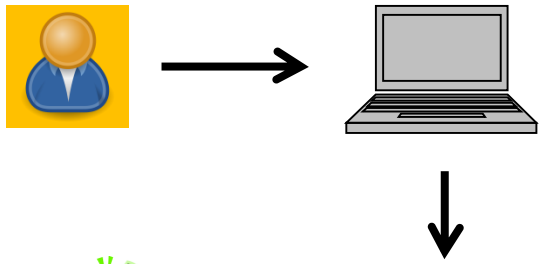
Blockchain in practice

Products and services on a blockchain
Practical use cases

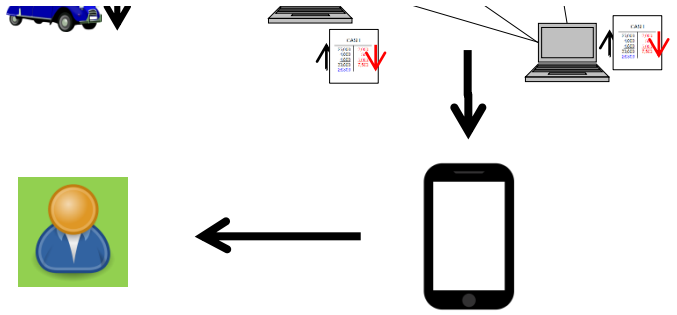
How does it work (in practice)

Example of a standard credit transaction

Blockchain transactions



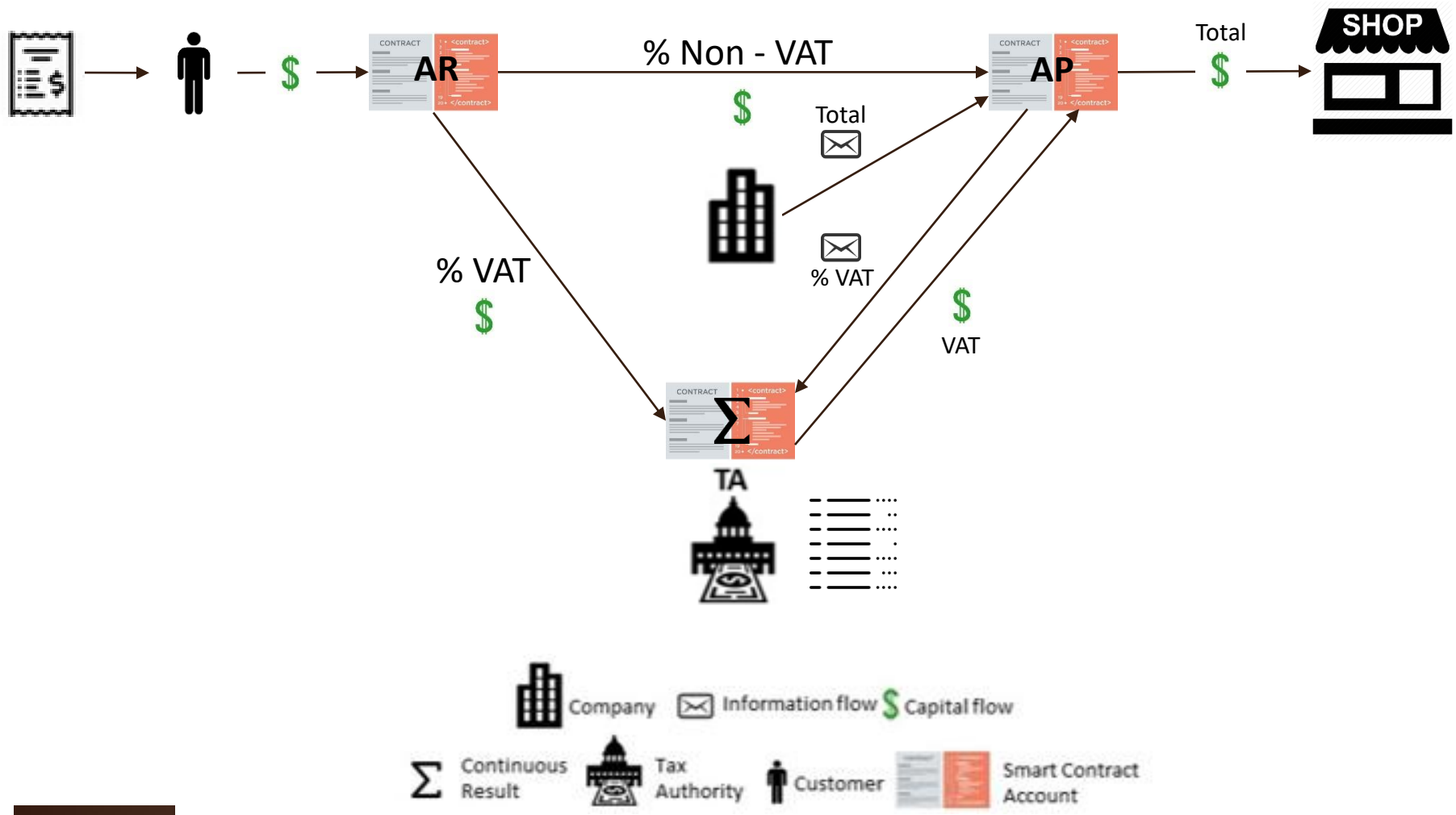
Example was for credit transaction but is applicable for any area where a trusted third part is used nowadays, security transactions, (commodity) trade finance, trade reporting Escrow, depository receipts etc, etc...



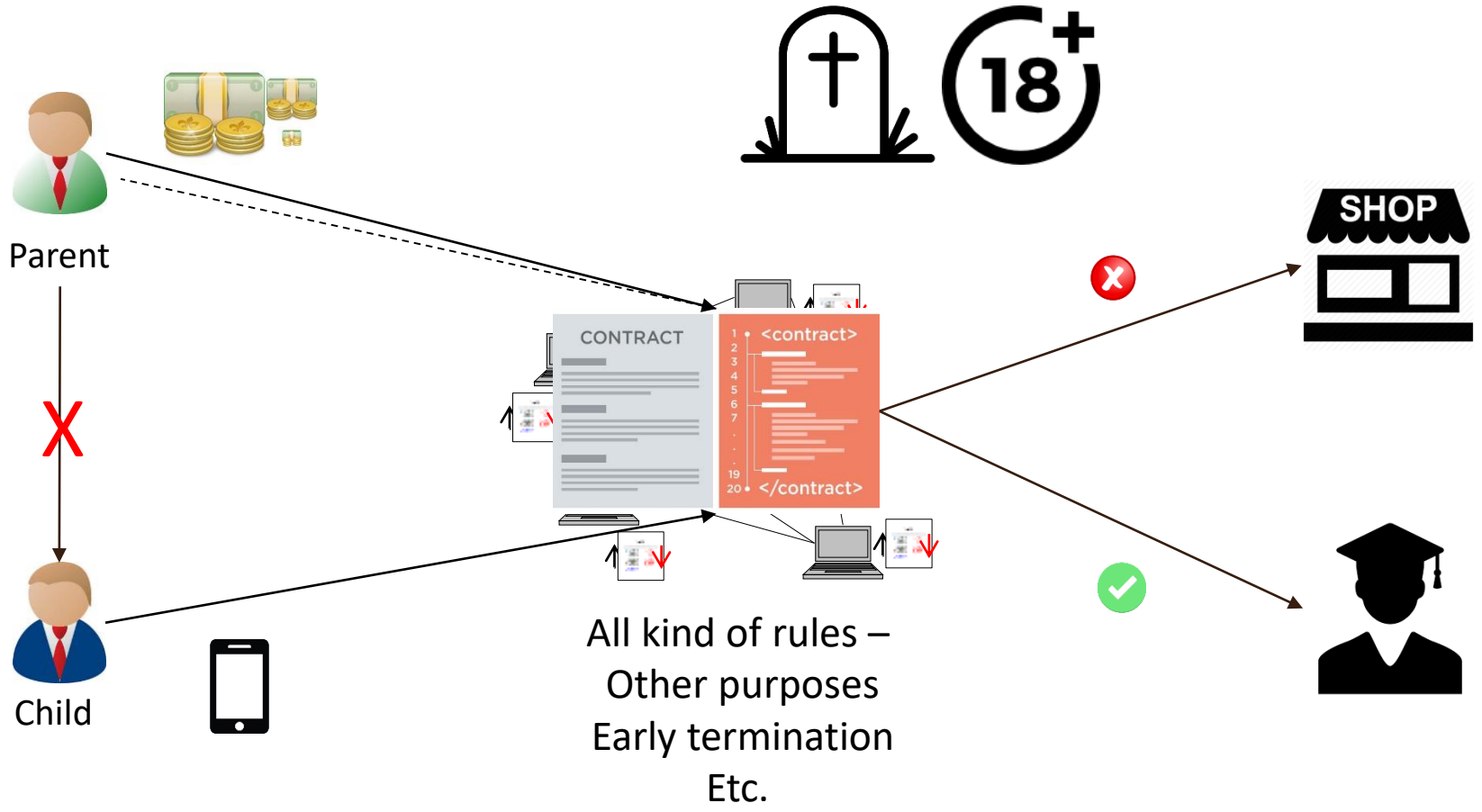
Settlement securities T+2 days

Blockchain transactiontime ~ 10 min

Blockchain/Smart Contract Real Time VAT

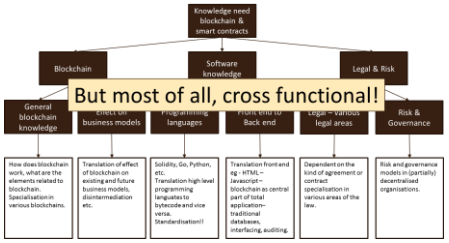


Personal Trust smart contract example



Blockchain, challenges and timelines

General Challenges



Educational

Not the right skills and people yet. New skills required

Business

Critical mass end users
Separate ecosystems
“IT-nerd”
GRC?

Technical

Various – embryotic stage

Legal

Unclear
Scattered (also) Geographically
-Crypto’s, ICO’s, Smart Contracts, Etc.

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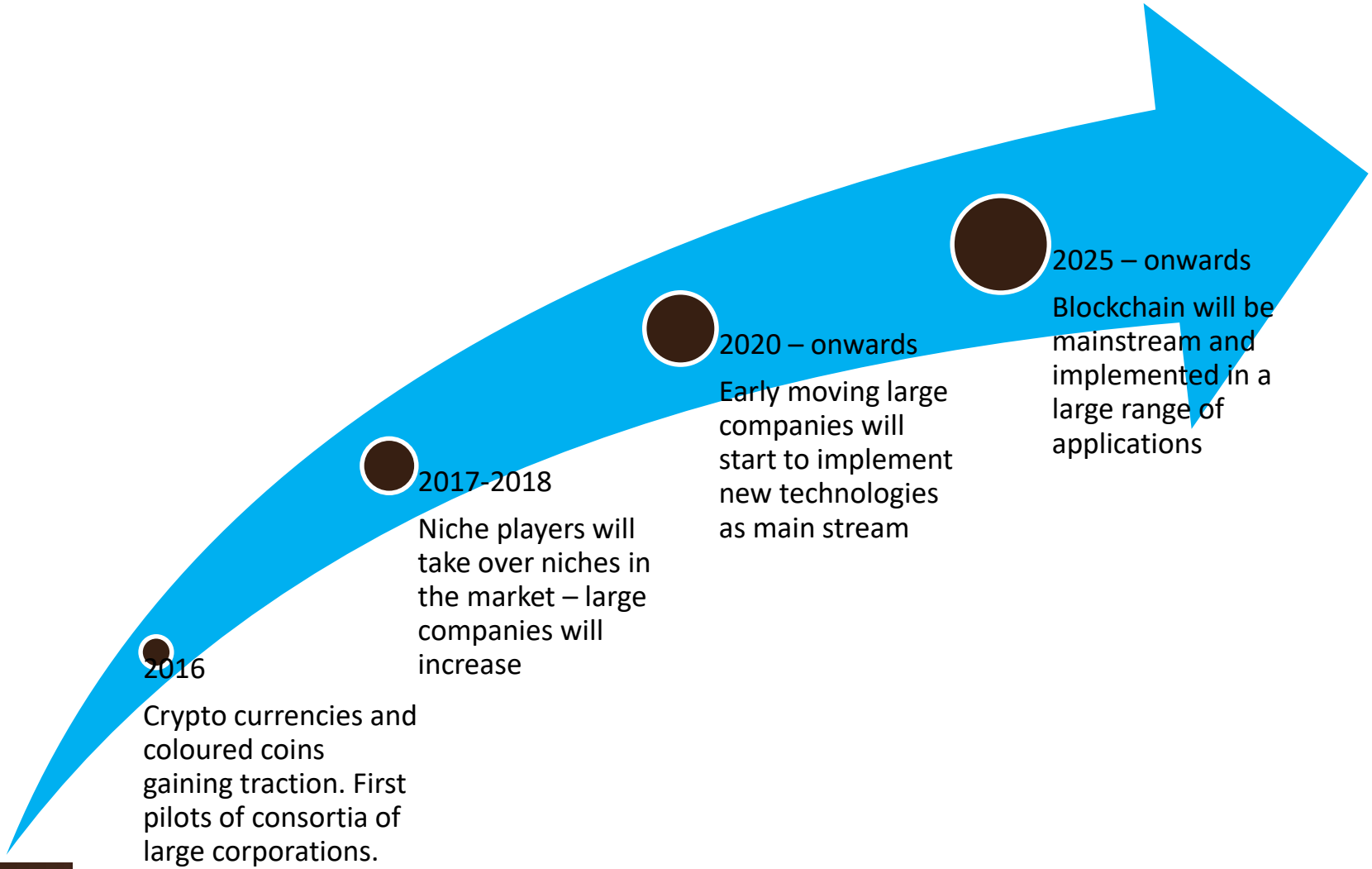
Speed of change – Going Forward – expectations at the moment.



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The End!

Questions?

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