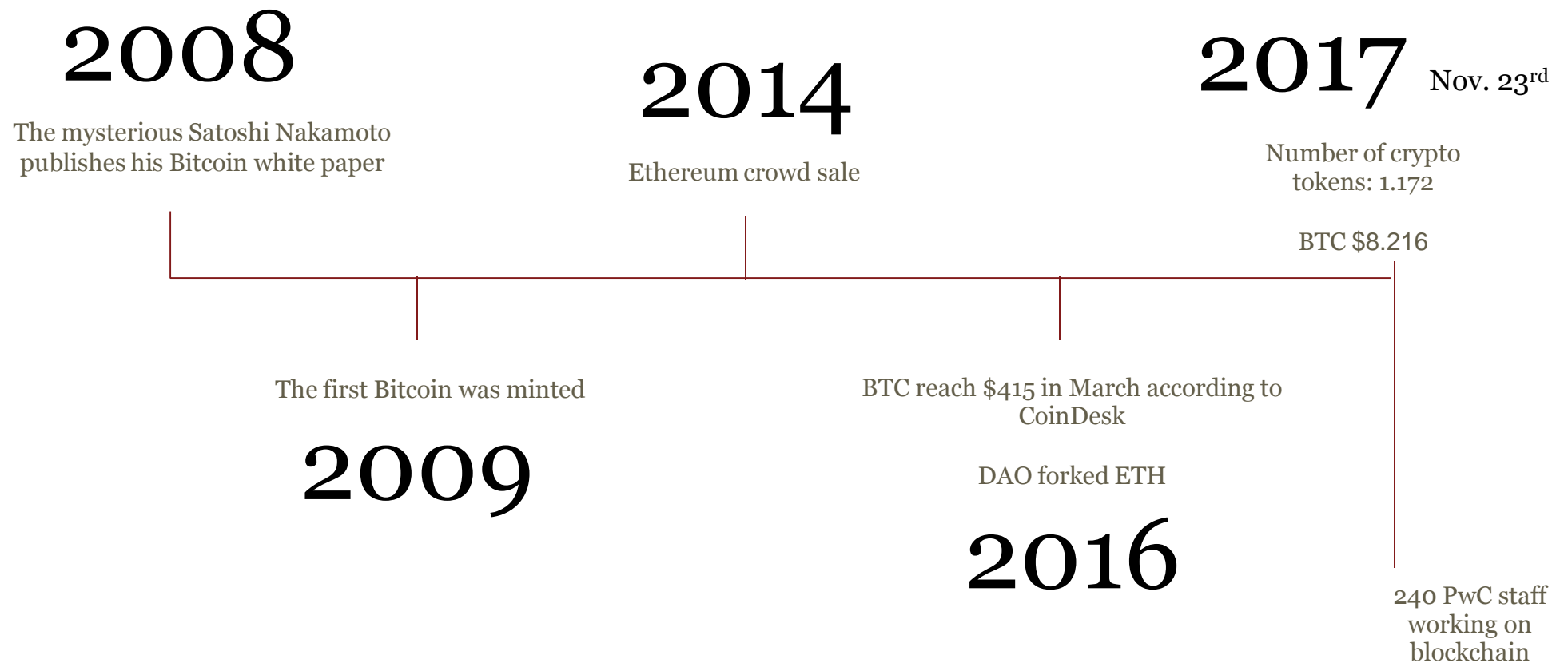
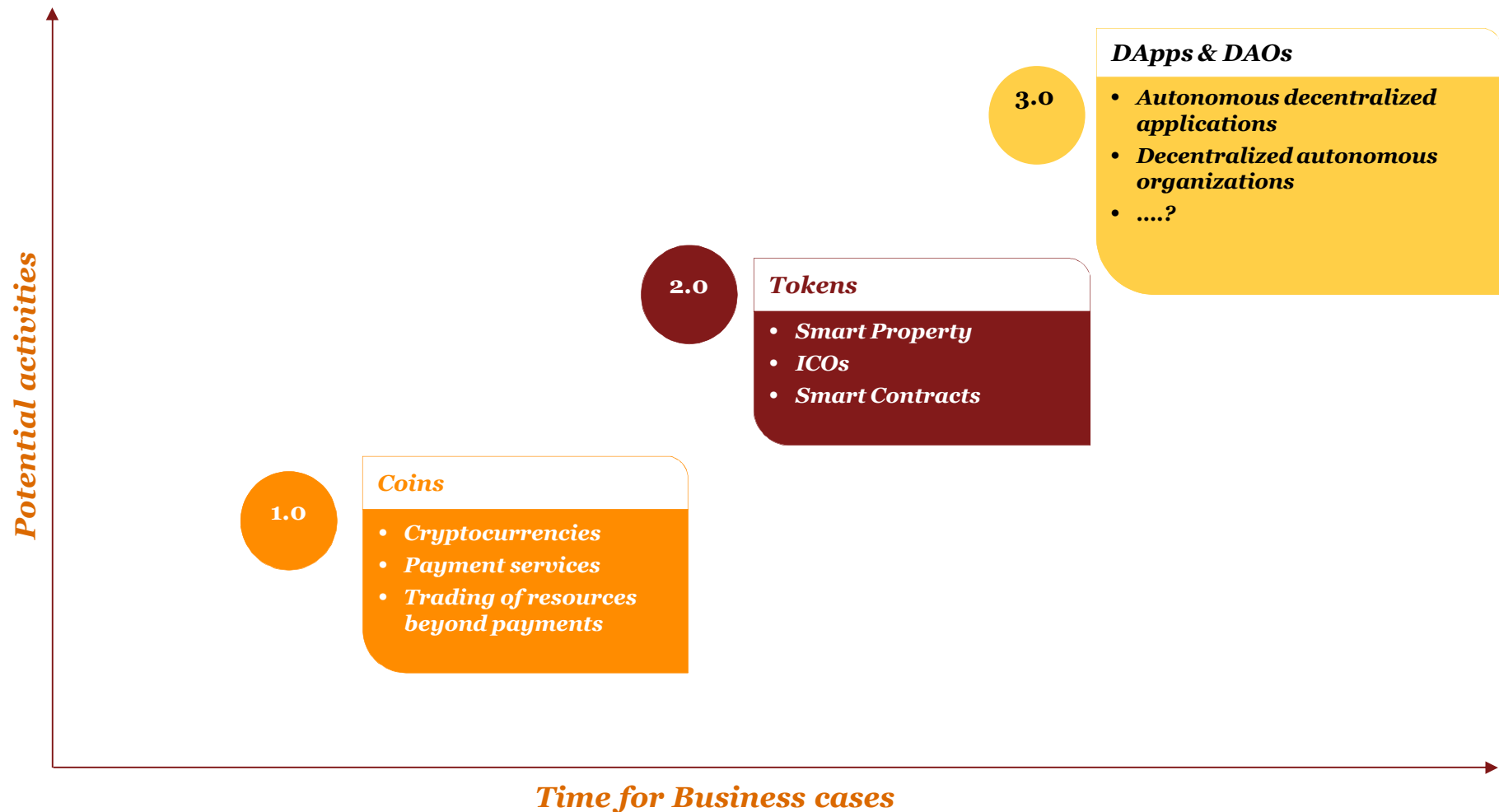


A brief history of blockchains



The Blockchain Revolution!?



Key concepts of blockchain



(Distributed) ledger

Every participant in the network has simultaneous access to a view of the information



Cryptography

Integrity and security of the information on the blockchain are ensured with cryptographic functions



Consensus

Verification is achieved by participants confirming changes with one another, replacing the need for a third party to authorise transactions

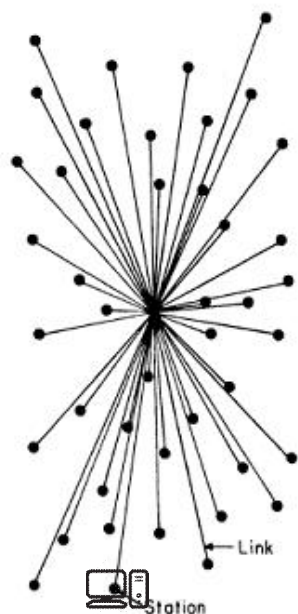


Smart contracts

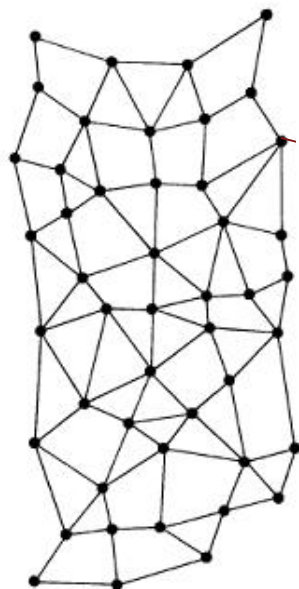
Additional business logic can be embedded in the blockchain



All transactions are distributed in blocks and all nodes hold all transactions.



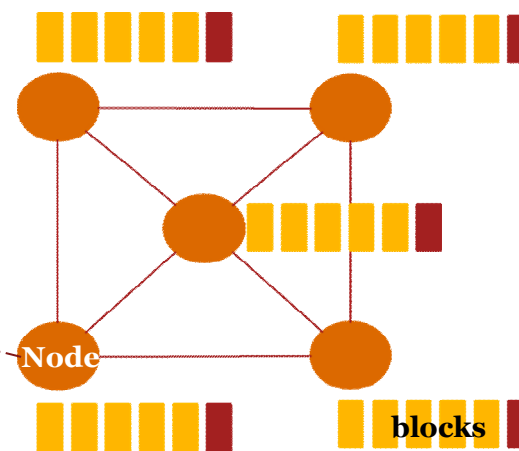
centralized



distributed ledger

shared ledger

- Chain of transactions without blocks
- Centralized golden copy of data





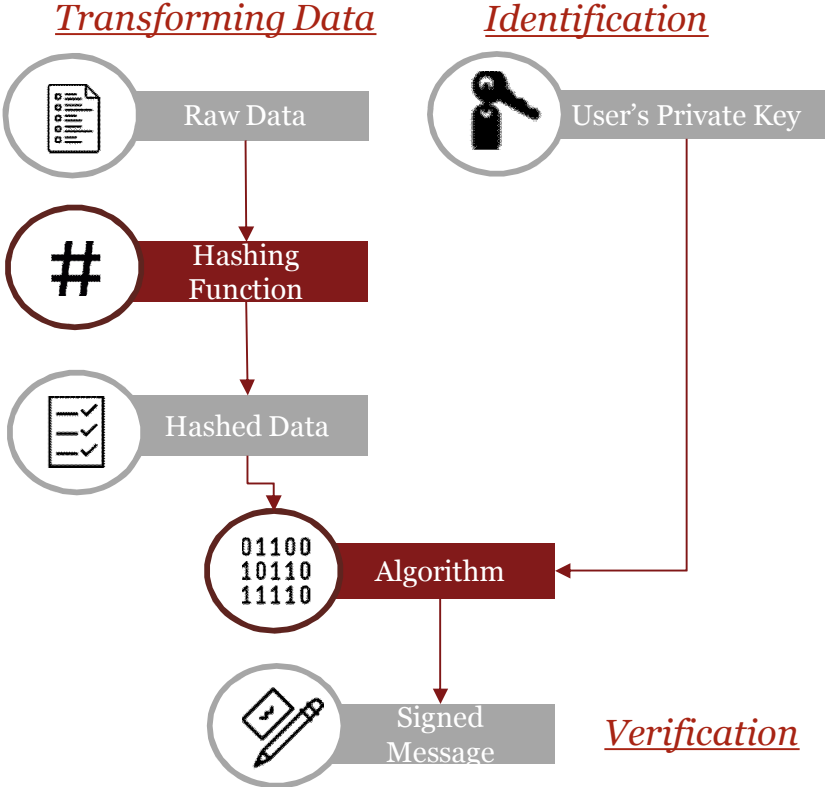
Data has to be “signed” and to be “hashed” to the ledger by the proper party.

Hashing Function



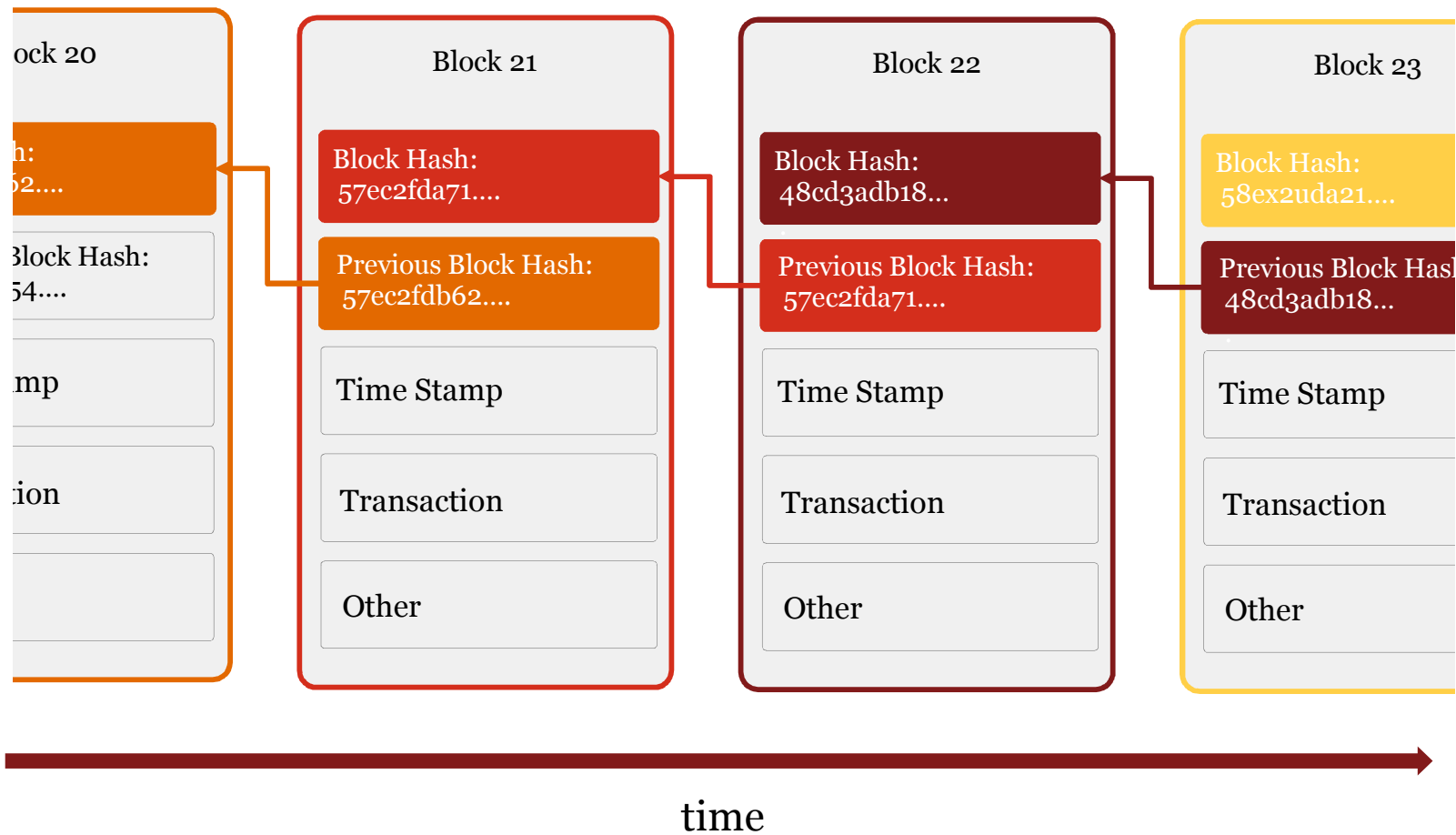
transforms data of any size to a new fixed size

Digital Signature Process



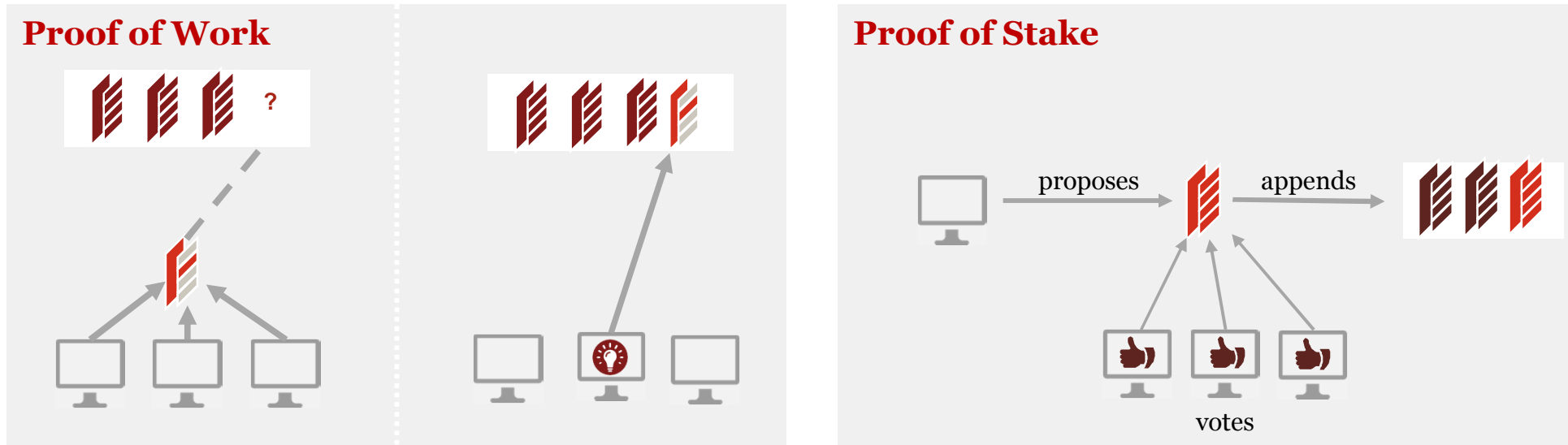


Each block contains a validated pointer to the previous block. This 'chains' each block to the previous one.





Nodes have to agree on a single source of history.



Trade-off decisions:



Energy Consumption



Network Resilience



Timing



A Smart contract is a business logic that can be assigned to transactions.

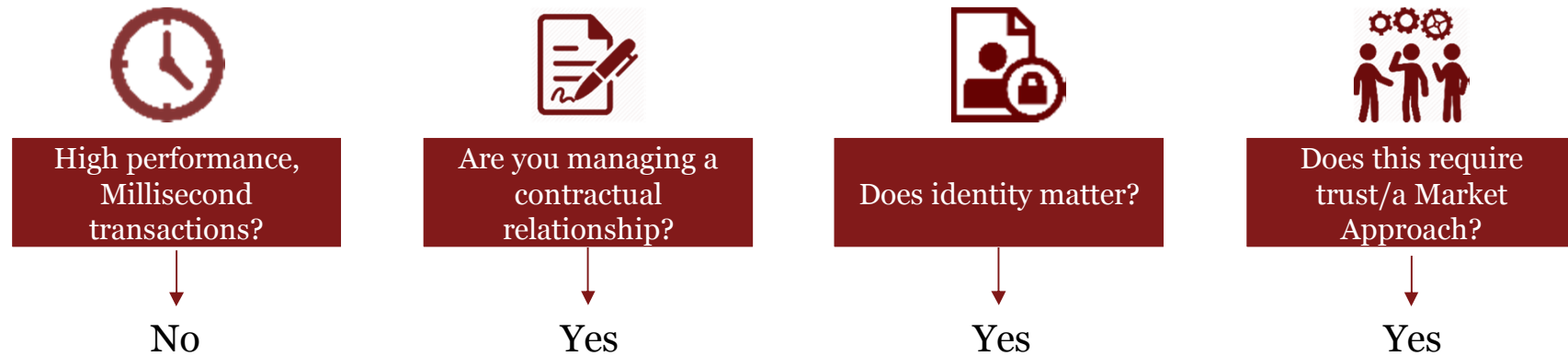


A contract between parties is written as code in the blockchain.
Individuals are anonymous but contract is in the public ledger.



A triggering event (e.g. expiration date) is hit.
Contract executes itself according to coded terms.

Is blockchain technology right for you?



Key factors for the future of blockchain



Inter-operability

- Standardisation
- Messages
- Consensus
- API's



Scalability

- Volumes
- Response times



Vulnerability

- Attacks
- Confidentiality



Regulatory

- Issuance of assets
- Compliance rules
- Oversight

PwC blockchain propositions



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Business Modelling

Prototyping

Proof of Concept
Code Review

Consortium buildout

Architecture