Blockchain and Smart Contracts

Presentation by

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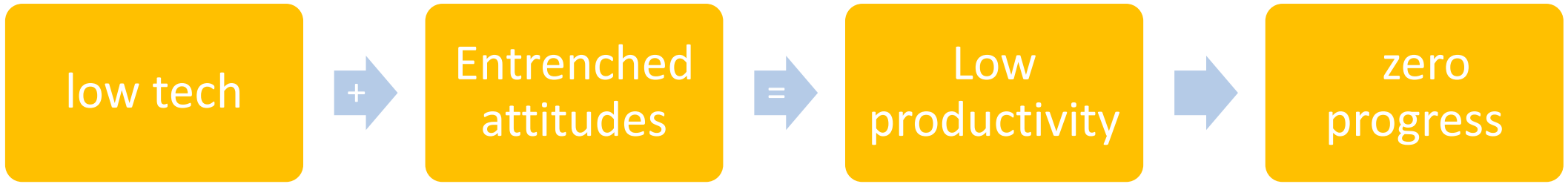
The problem (as is)



The Solution

TECHNOLOGY ENABLED

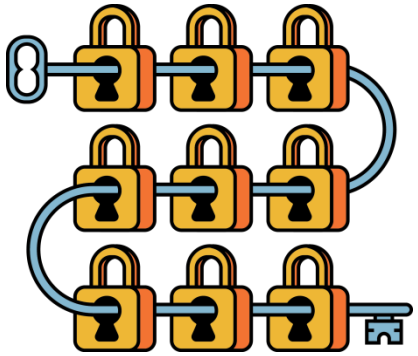
The way forward…

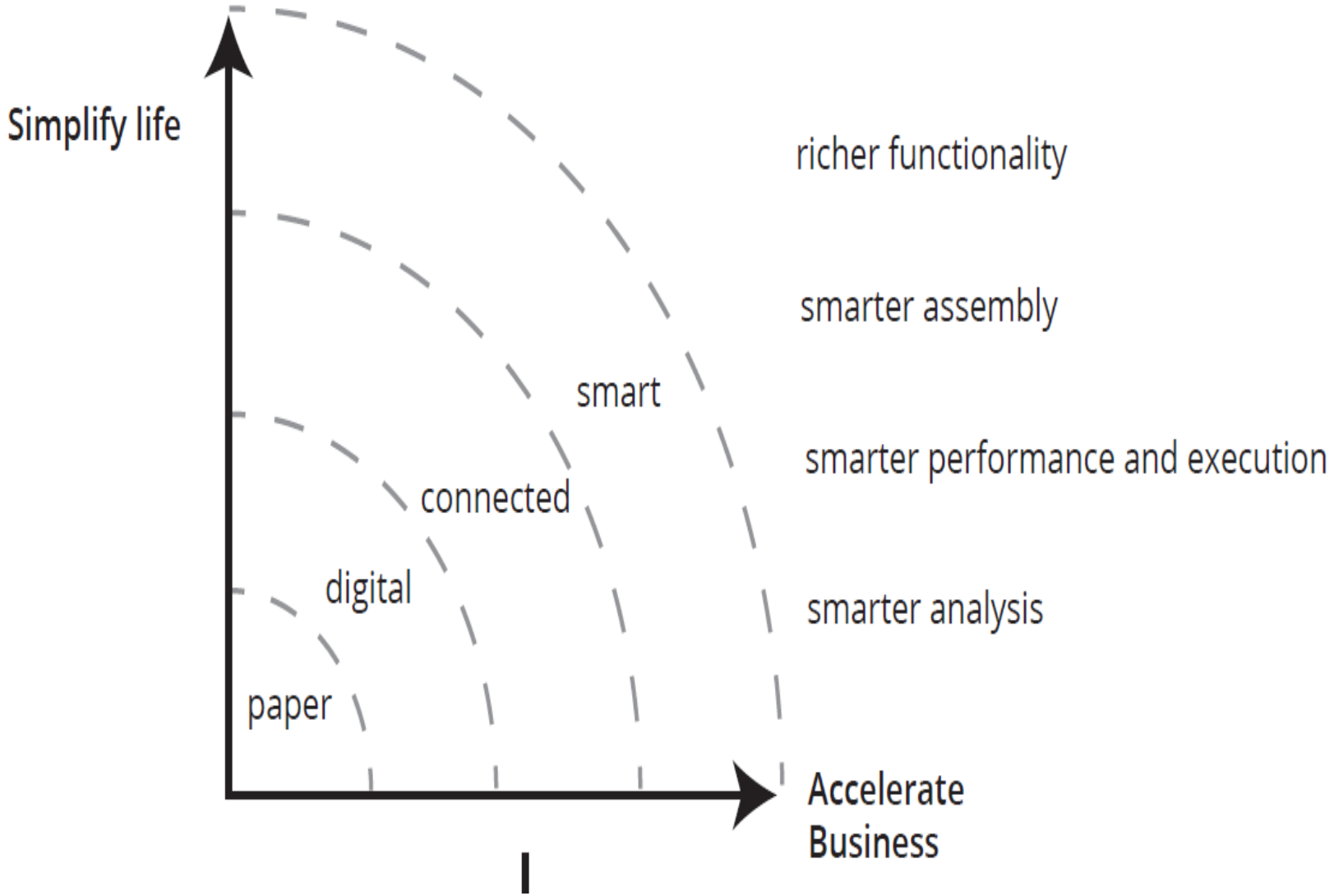
- Hadn’t we ought to try and take some toddler steps towards implementing them?

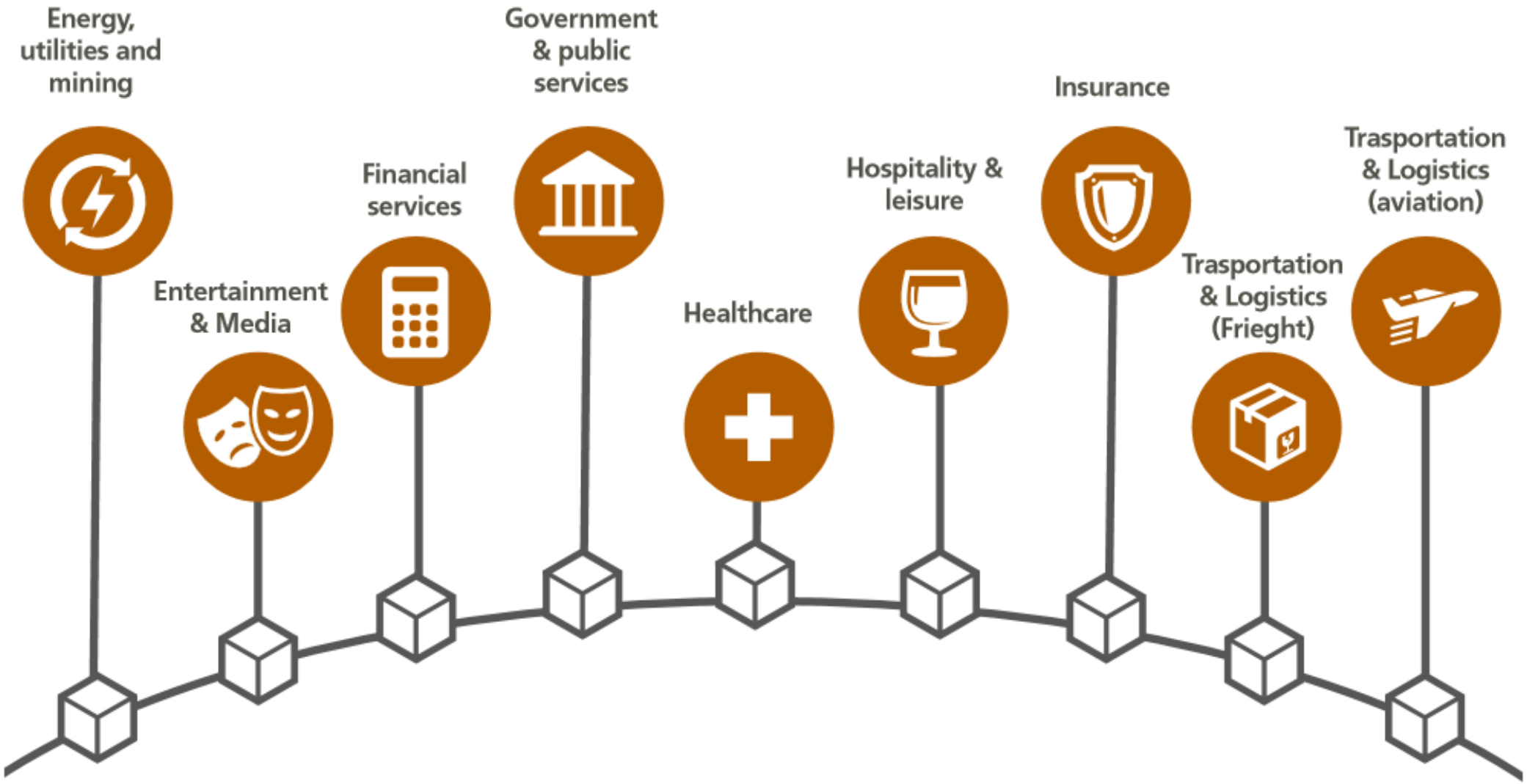
Towards Standardisation through ISO 23455:2019

Symbiotic relationship between smart contracts and blockchain

Blockchain/Distributed Ledgers

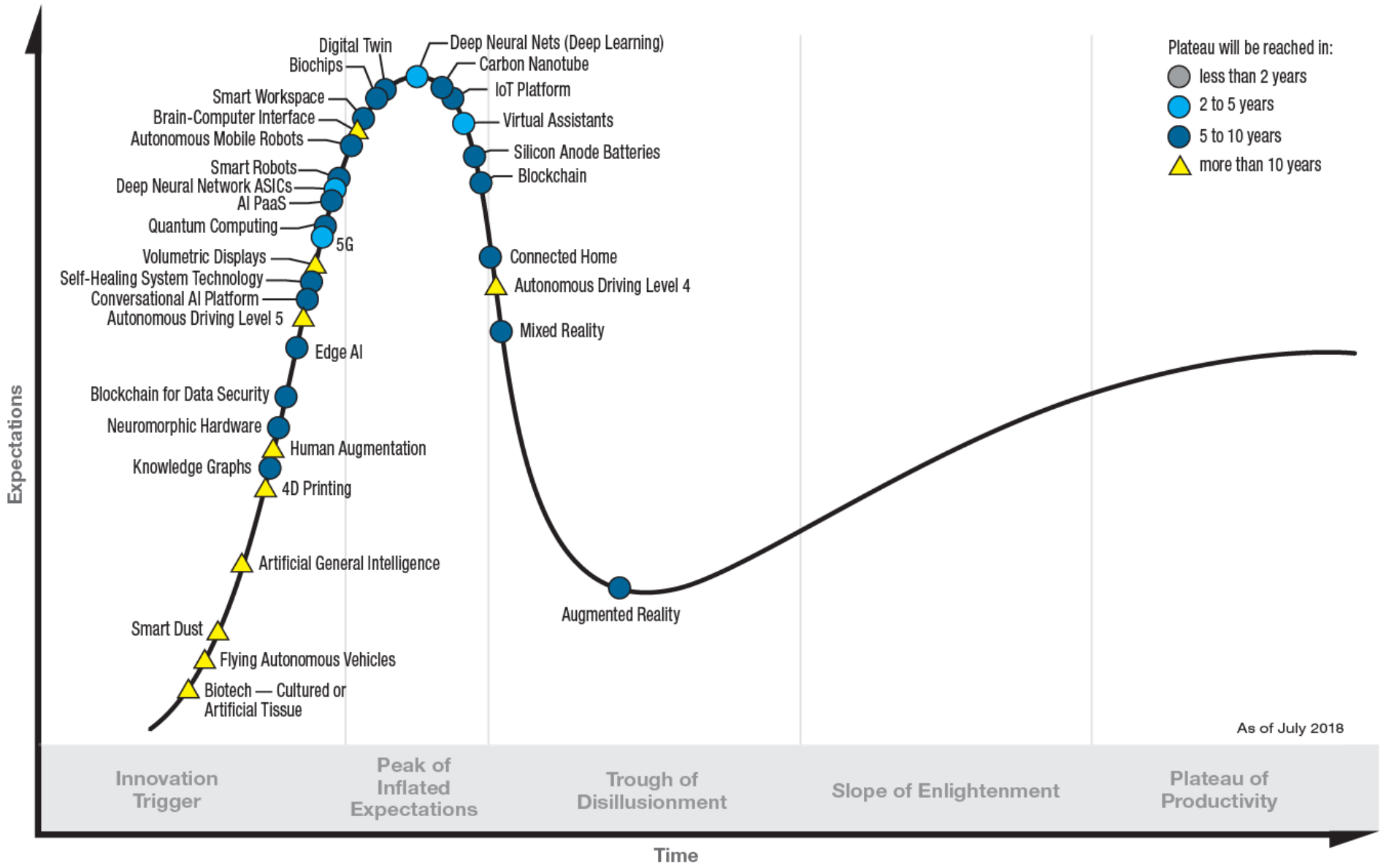


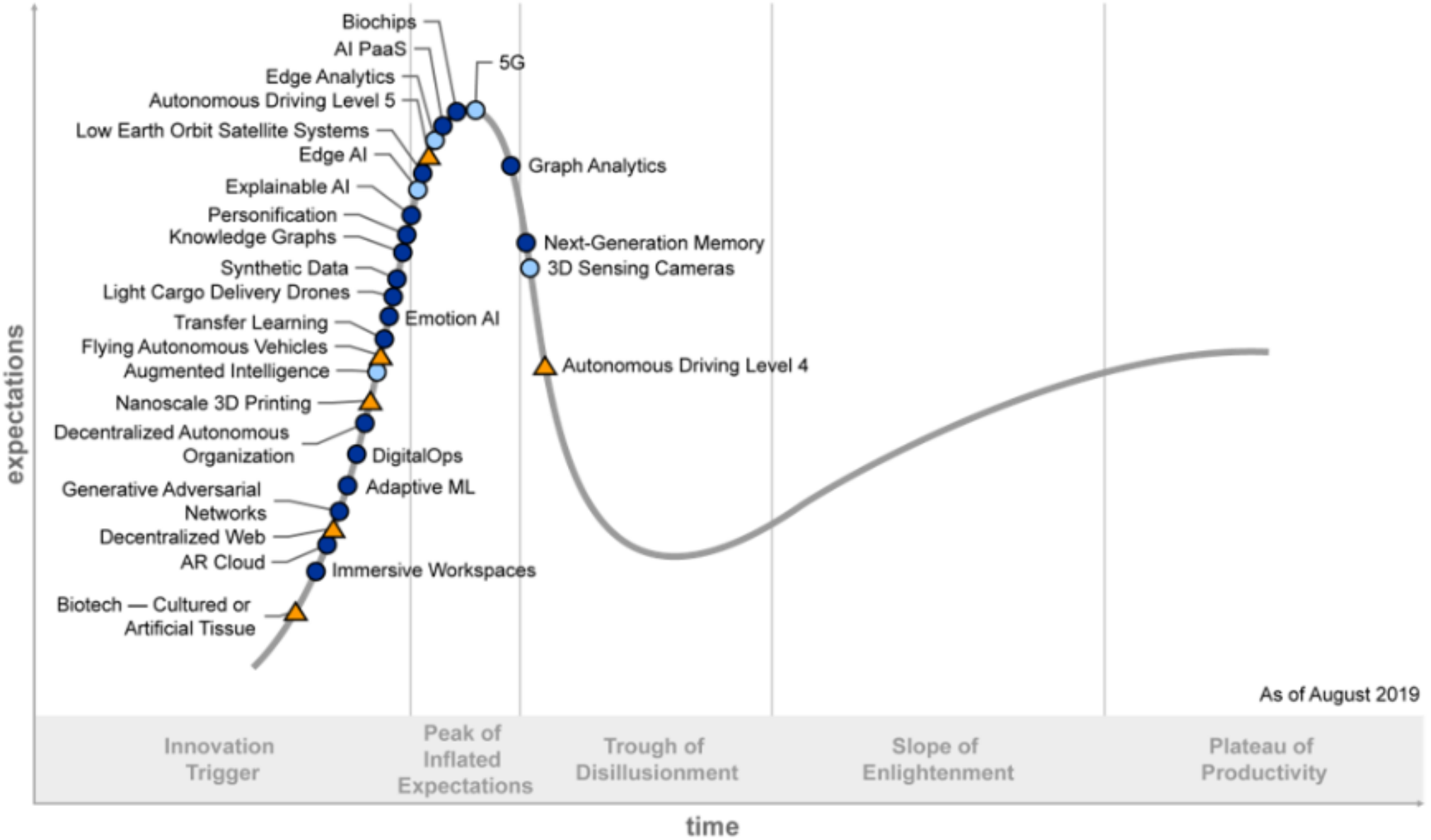

Simplify life
richer functionality
smarter assembly
smart
smarter performance and execution
connected
digital
smarter analysis
paper
Accelerate
Business



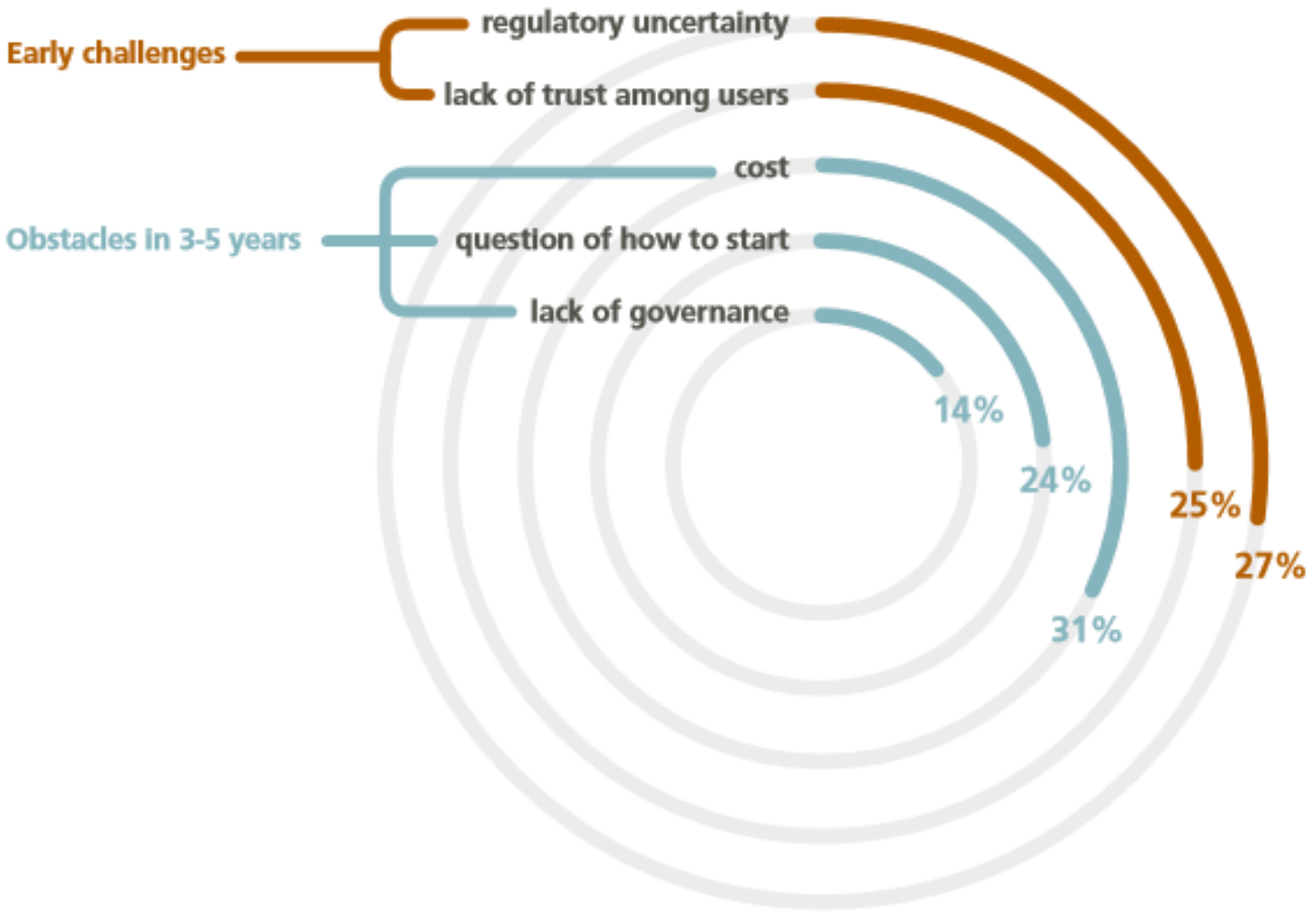
Existing Applications for blockchain…and smart contracts

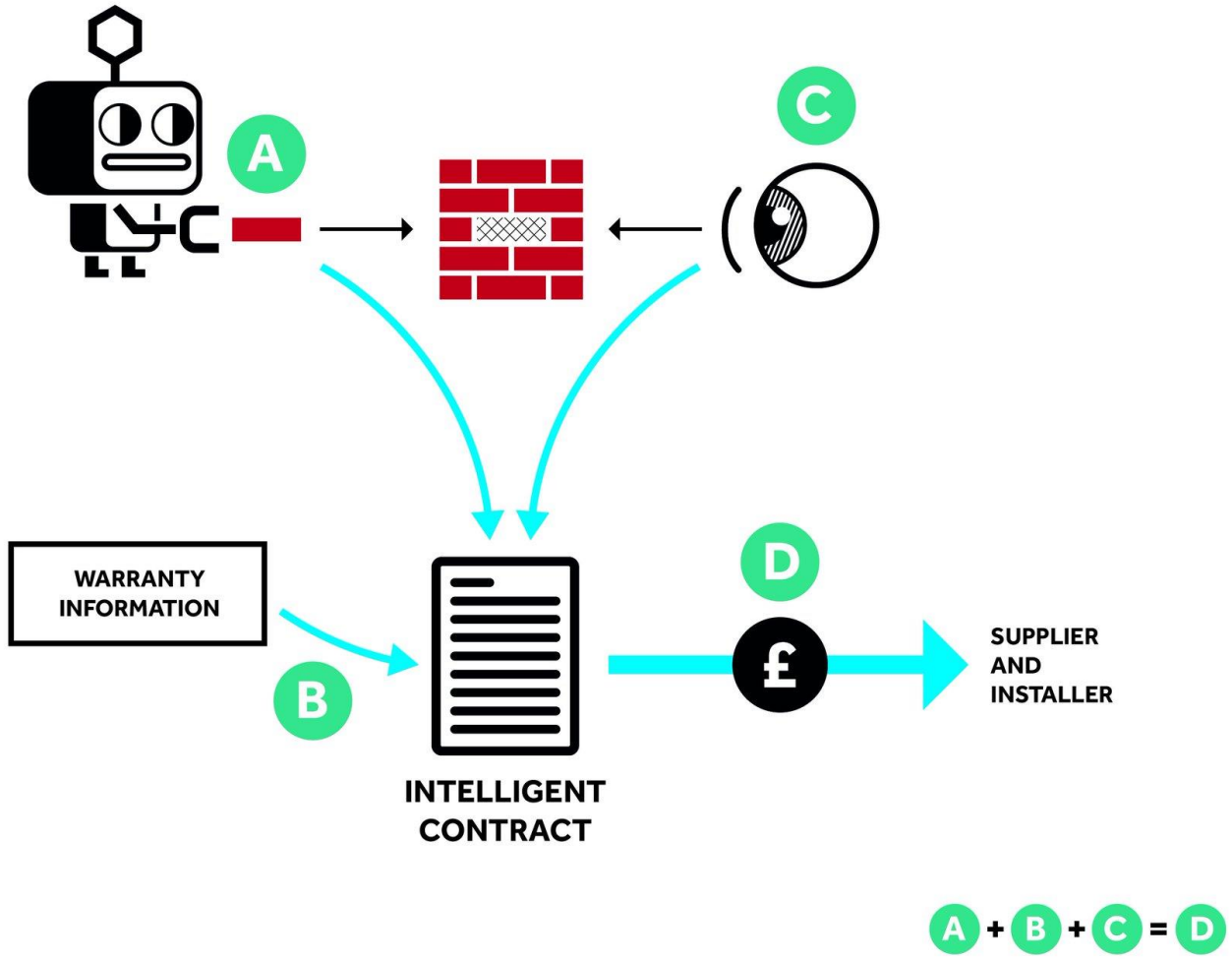
Hype Cycle for Emerging Technologies, 2018




Biochips
AI PaaS
Edge Analytics
Autonomous Driving Level 5
Low Earth Orbit Satellite Systems
Edge AI
Explainable AI
Personification
Knowledge Graphs
Synthetic Data
Light Cargo Delivery Drones
Transfer Learning
Flying Autonomous Vehicles
Augmented Intelligence
Nanoscale 3D Printing
Decentralized Autonomous Organization
Generative Adversarial Networks
Decentralized Web
AR Cloud
Biotech — Cultured or Artificial Tissue
5G
Graph Analytics
Next-Generation Memory
3D Sensing Cameras
Emotion AI
Autonomous Driving Level 4
DigitalOps
Adaptive ML
Immersive Workspaces
expectations
As of August 2019
Innovation Trigger
Peak of Inflated Expectations
Trough of Disillusionment
Slope of Enlightenment
Plateau of Productivity
time
Plateau will be reached:
less than 2 years
2 to 5 years
5 to 10 years
more than 10 years
obsolete before plateau

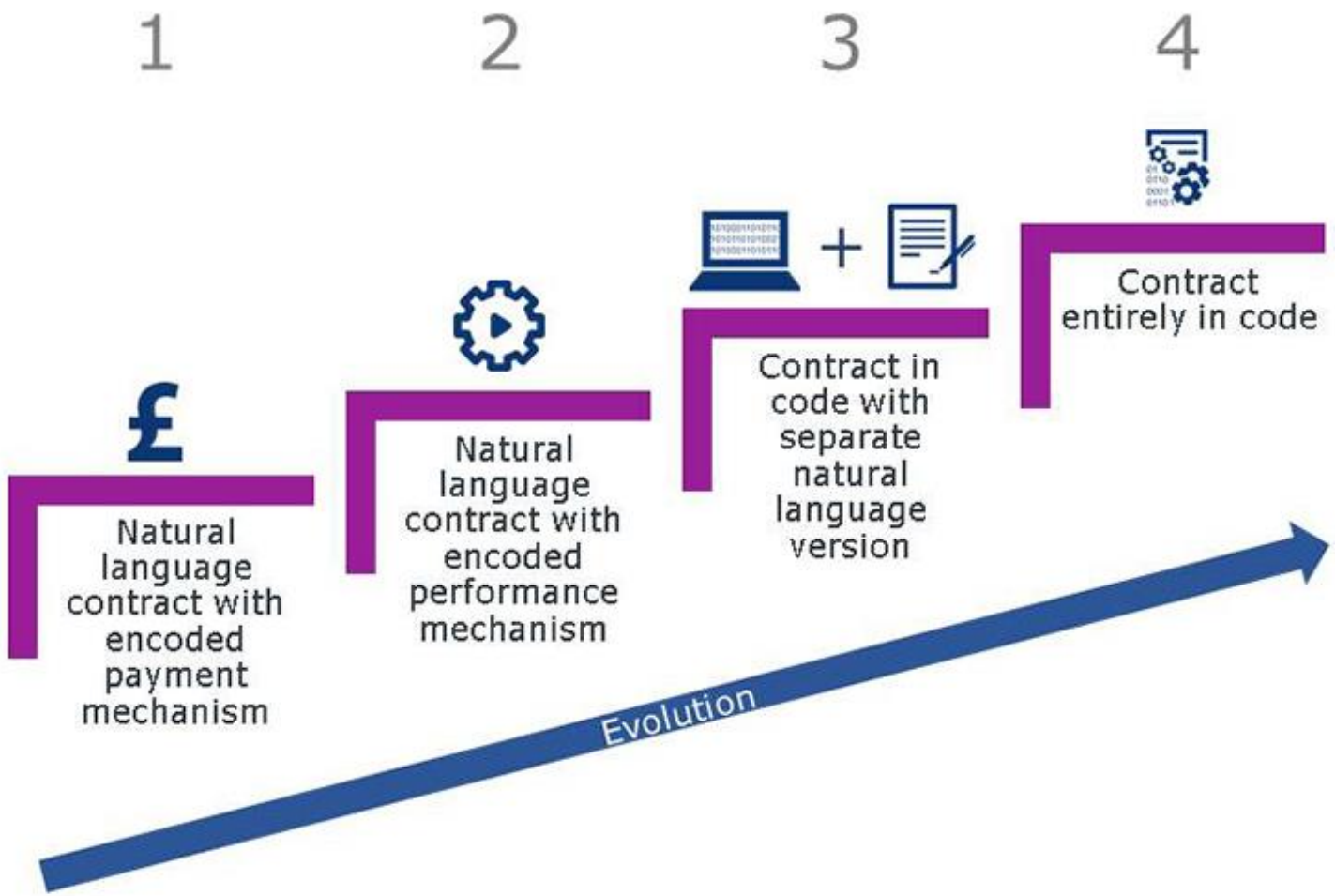
Main barriers to blockchain adoption identified by industry leaders





Upload D onto ledger

Smart Contract Evolution



Stage 4 – why not?

- The infrastructure is now available to allow smart contracts to be written in fully-fledged programming languages, to communicate and interact with each other as well as with external resources, and to transparently keep track of their current state of execution.

Benefits of smart contracts

- Reduce transaction costs
- Make third party services obsolete

- Reduce risk
- Significantly reduce room for misinterpretation
- accelerate processes
- Re-usable precedents libraries (e-procurement)
- Baked in collaboration, transparency and traceability

Drawbacks of DLT/smart contracts

- Limited scalability
- Low performance (shared networks)
- Lack of privacy/security
- Interaction with the wider world requiring the support of trusted entities
- Immutability – once distributed there is not single “plug to pull” for stopping
- Coding errors are unavoidable
- Cost can be variable

How it works – public online ledger

- Deployment
- Invocation
- Operation

How it works – private off-line ledger

- Install
- Instantiation
- Invocation

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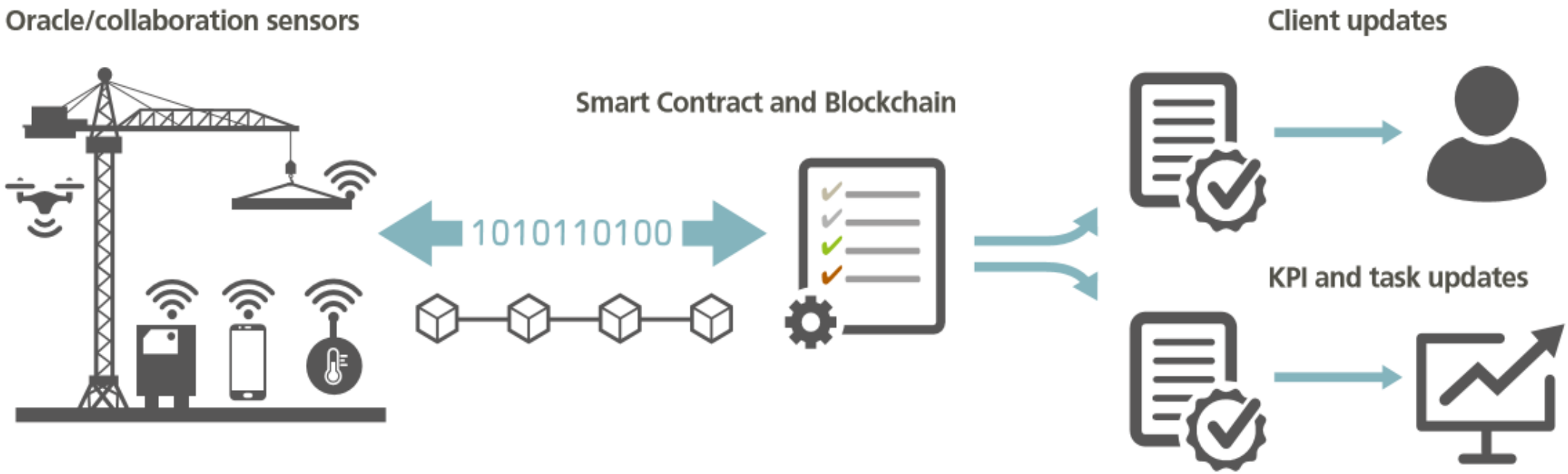
Providers of Smart Contracts- Accord Project

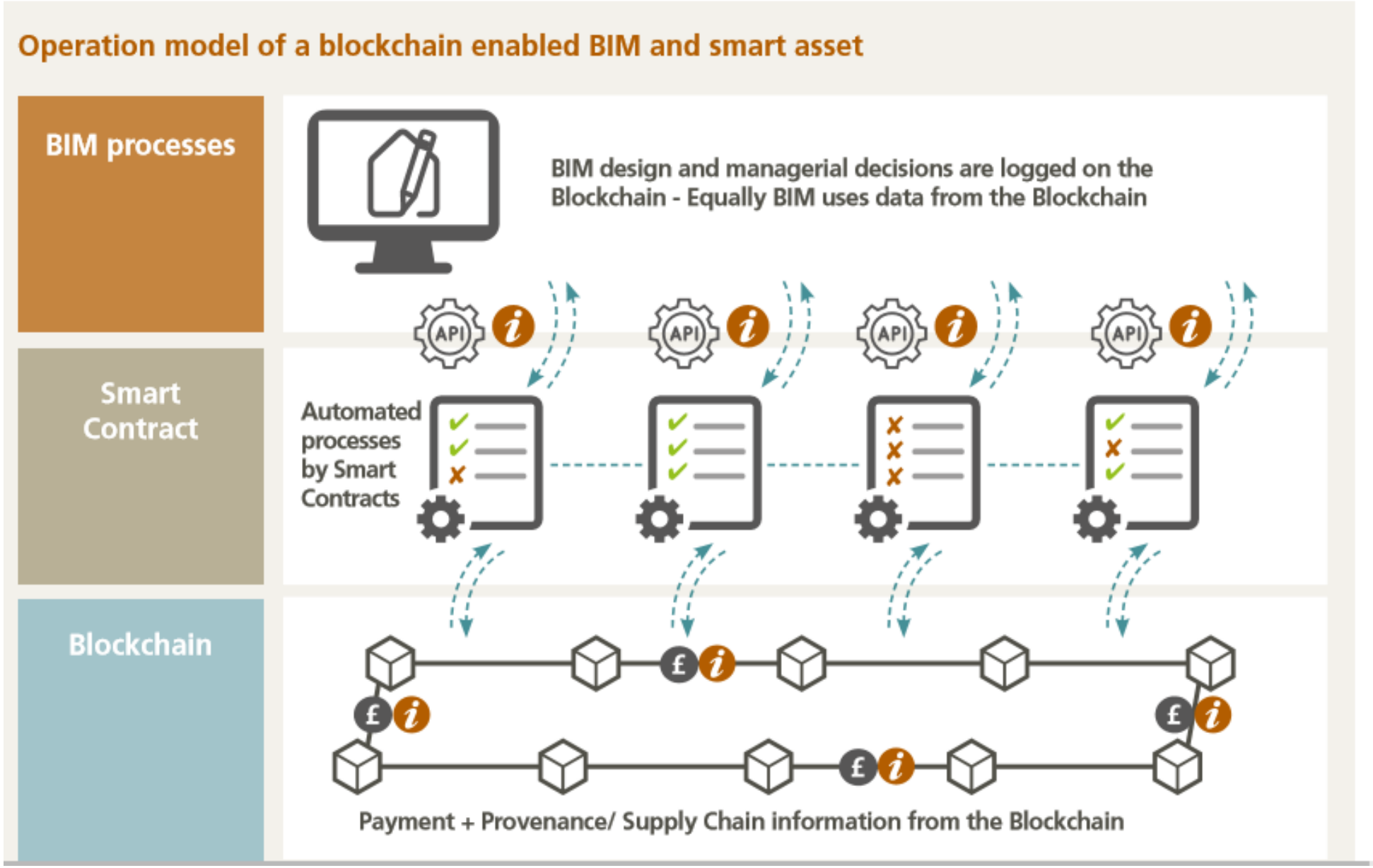
- 40 + of the leading law firms worldwide
- Industry bodies and corporations, e.g. Docusign
- Templating system – Cicero
- Domain specific language – Ergo
- Runtime environment for execution
- Platform agnostic

- Is it a contract?
- Seems so – ERC-721 token in Ethereum
- Token offered to the public by offeror
- Consideration exists when offeree willingly exchanges cryptocurrency for the token
- Acceptance occurs when the network confirms the transaction and propagates it across the ledgers

Sensors and collaborators on site informing smart contract



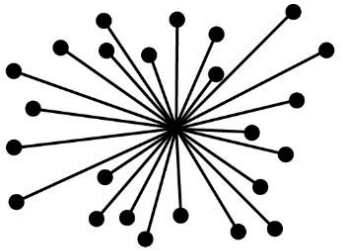
Operation model of a blockchain enabled BIM and smart asset



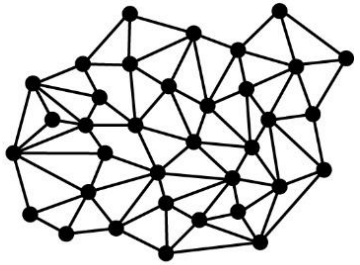
Enablers of smart contracts

- FAC-1 2 Stage Open Book
- Multi-party contracts in the future?
- Interoperability
- Big data 25 billion sensors in 2020
- Project Bank Accounts
- Project insurance?

Linear



Hub and Spoke



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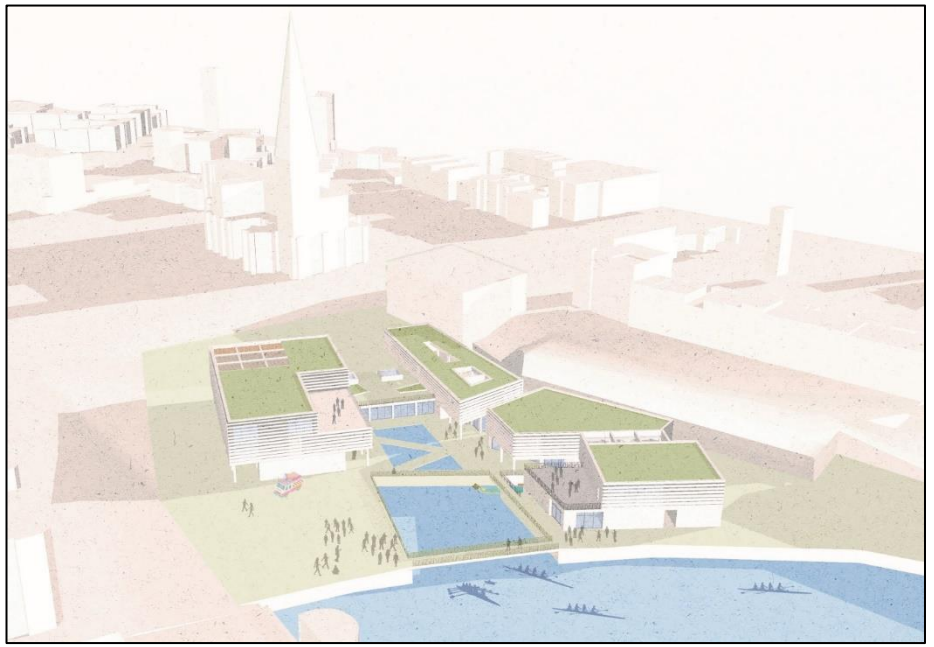
How to progress?

- Investigate which contract processes could be optimised through automation while achieving confidence in the process.
- The curiosity within the industry for new innovation has definitely increased.
- Tech is reaching out to construction as never before – open source solutions and new approaches
- Is construction listening? Or do small margins and zero R&D investment prevent engagement?

Thanks for Taking Part

- Any questions?



Forthcoming book:
Innovation in Construction Law, Jim Mason