



Regulatory Experimentation

Community of Federal Regulators
26 November 2018

Session format

Background

Susan Ramonat – Spiritus Partners

Patricia Pledge – Treasury Board, Secretariat of
Canada

Case studies

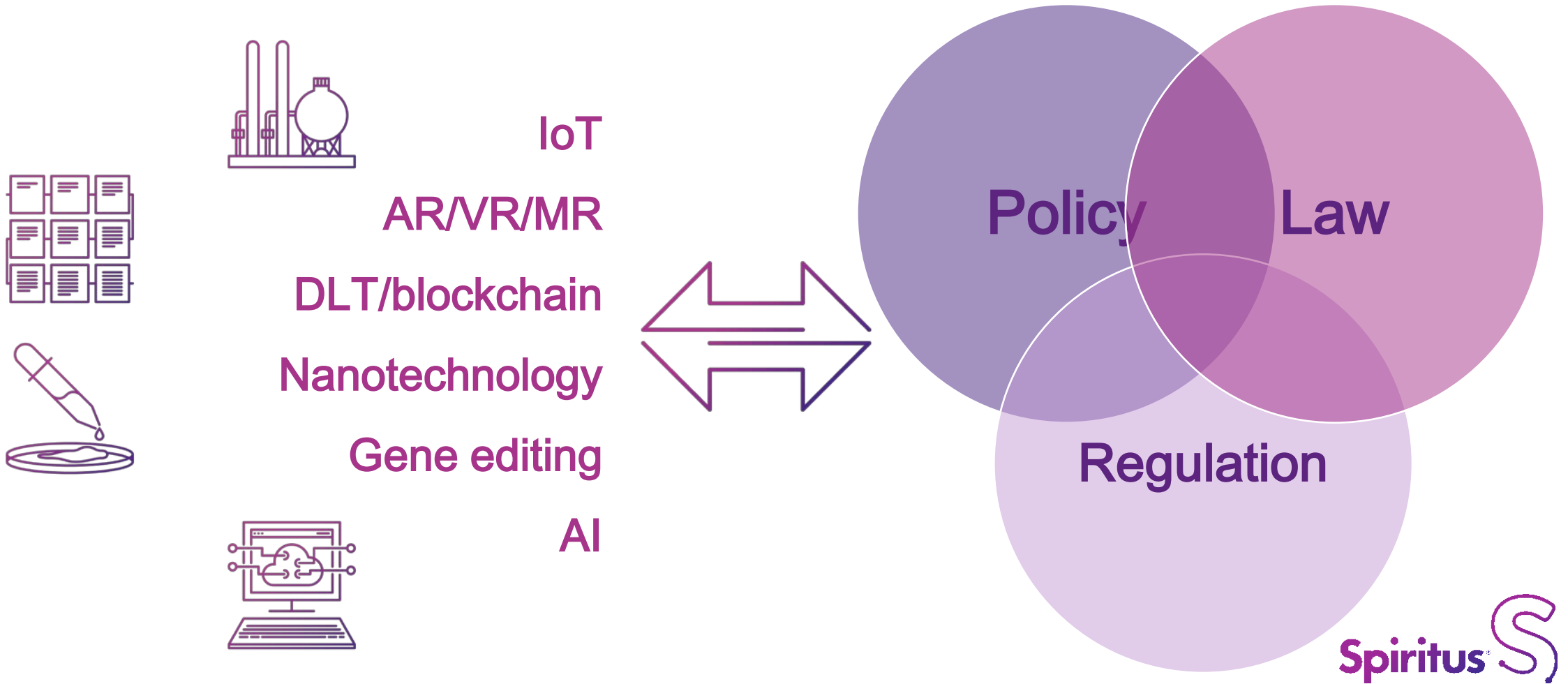
Leigh Sharpington – Food Standards Agency, UK

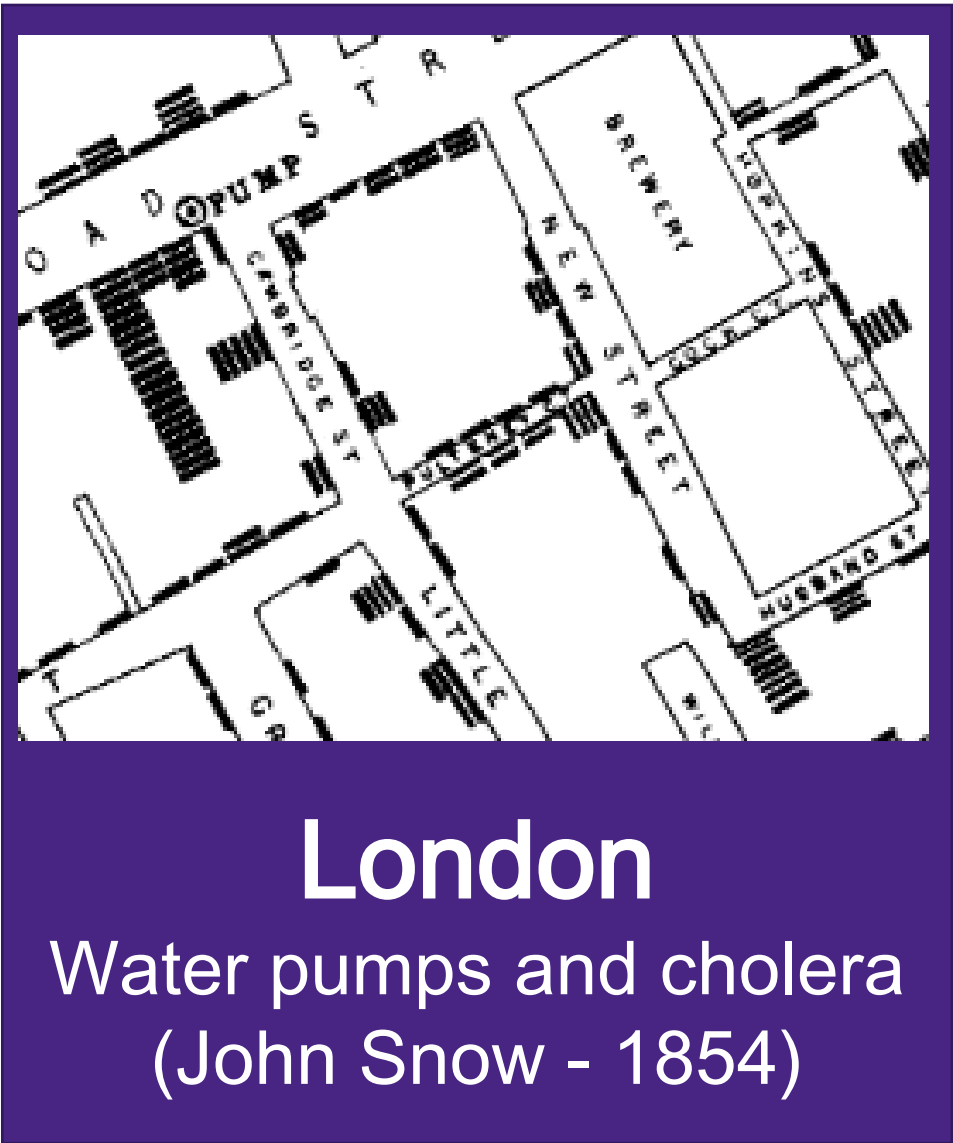
Hieu Vu – Health Canada

Panel discussion and Q&A



Inside out & outside in





Sanitary awakening

13 public wells

578 deaths

London

Water pumps and cholera (John Snow - 1854)

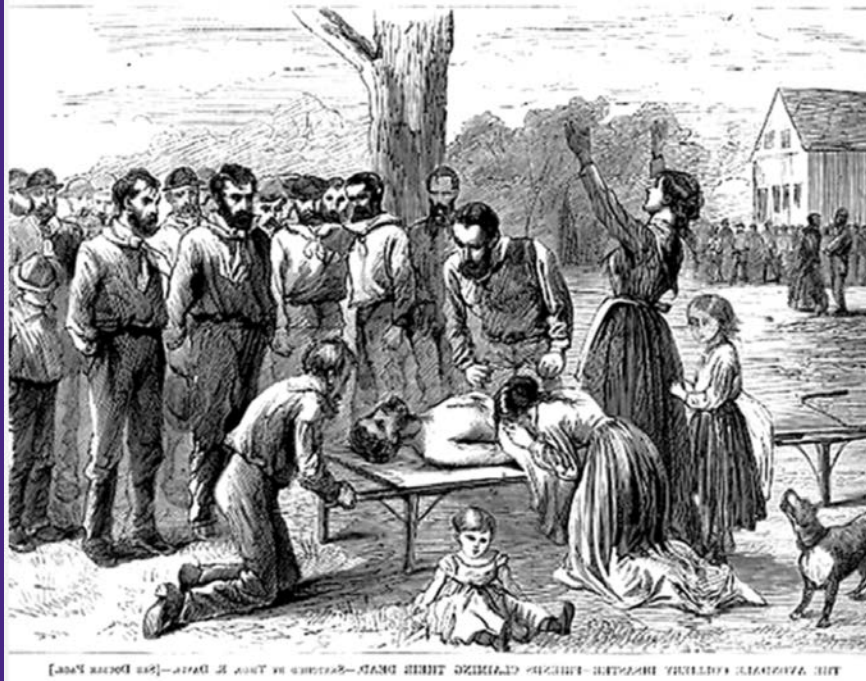


Canada

British North America Act
(1867)

Marine & fisheries

- Seacoast & inland fisheries
- Beacons & buoys
- Lights & lighthouses
- Harbours, ports & piers
- Vessel classification & inspection
- Certificates for masters & mates



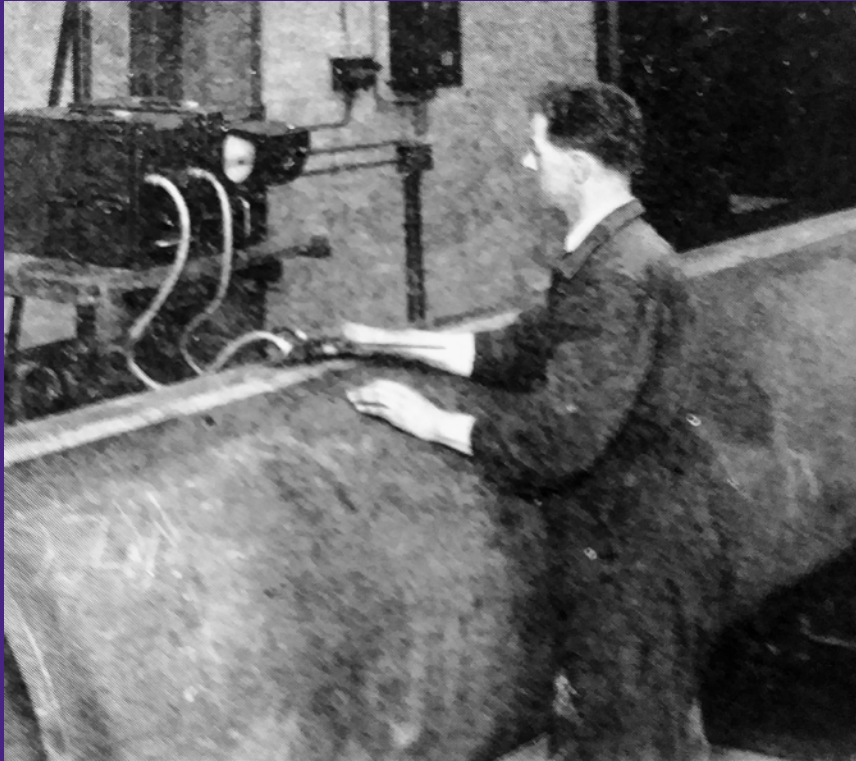
Avondale Colliery

Mining disaster
(Plymouth, PA 1869)

Coal mining deaths

110 Avondale

918 18 disasters
(1907)



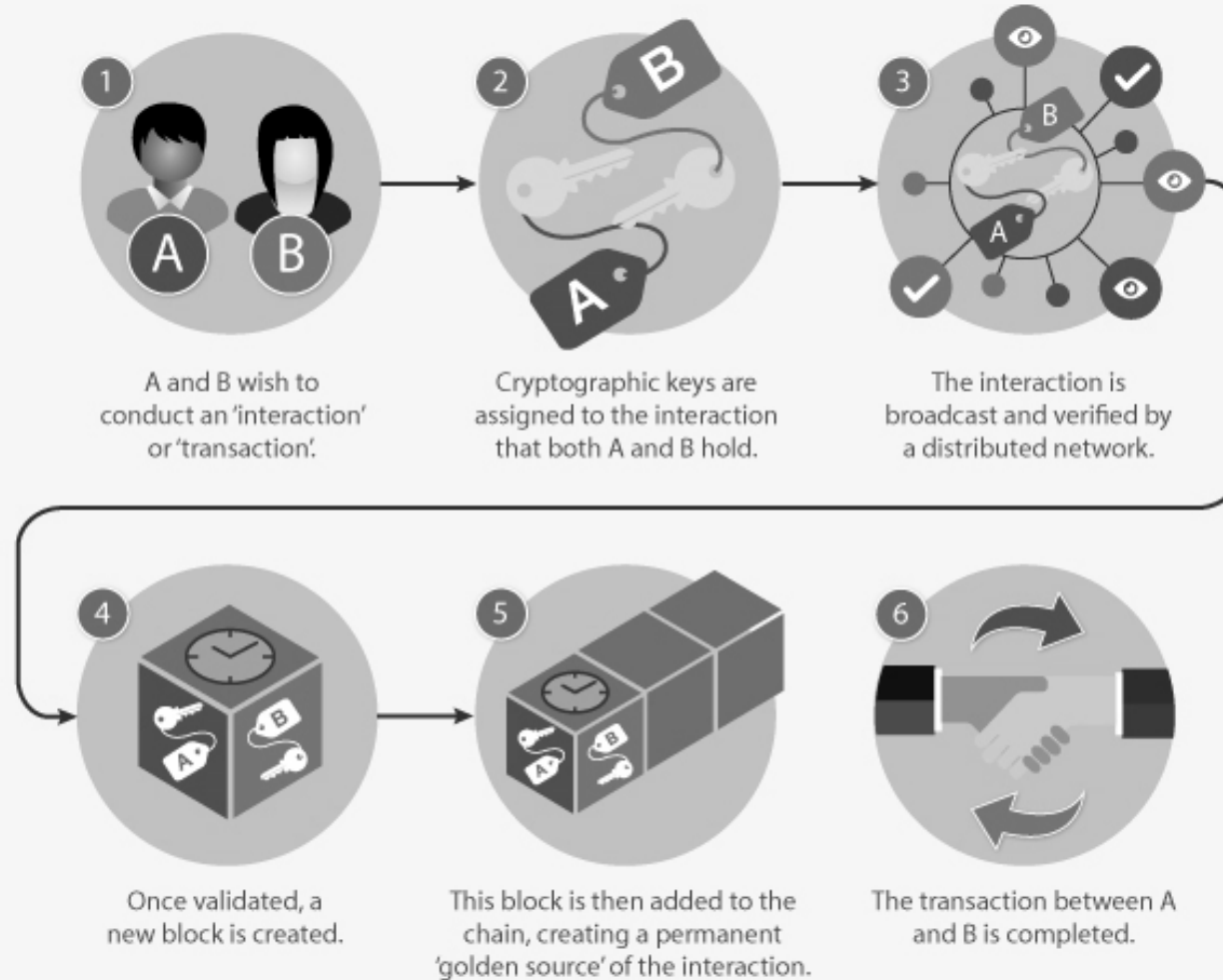
Glasgow

Babcock & Wilcox, Ltd.
(1950)

Pressure vessel welding

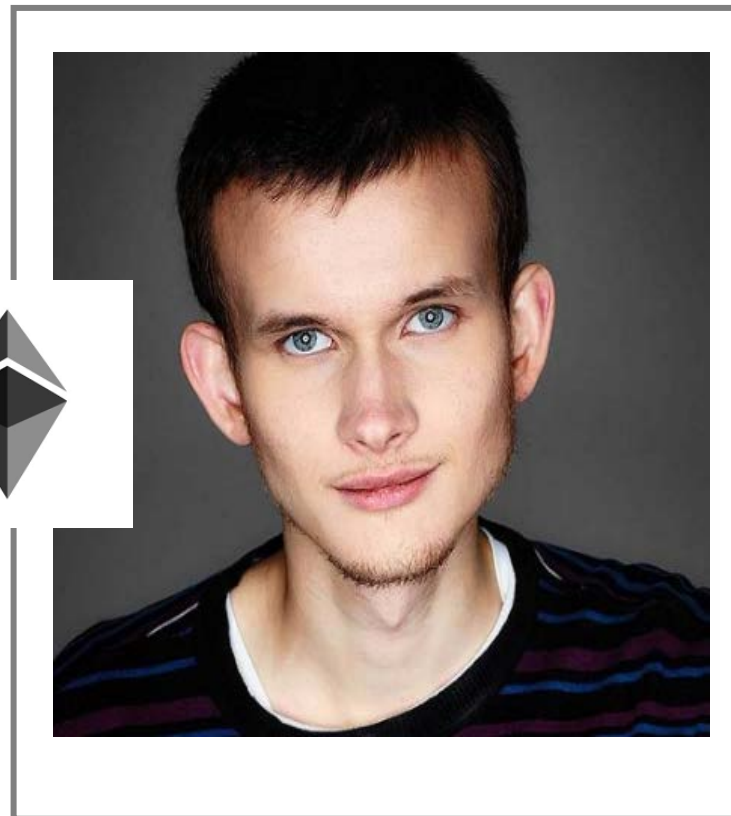
- Inspection standards & methods
- Defects:
 - Inches per mile
 - Direction of weld seam
 - Welding vs metal properties
- X-ray vs. supersonic exam

How a blockchain transaction works



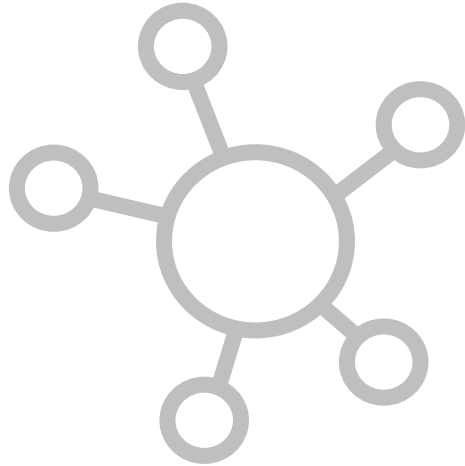


Satoshi Nakamoto
Bitcoin

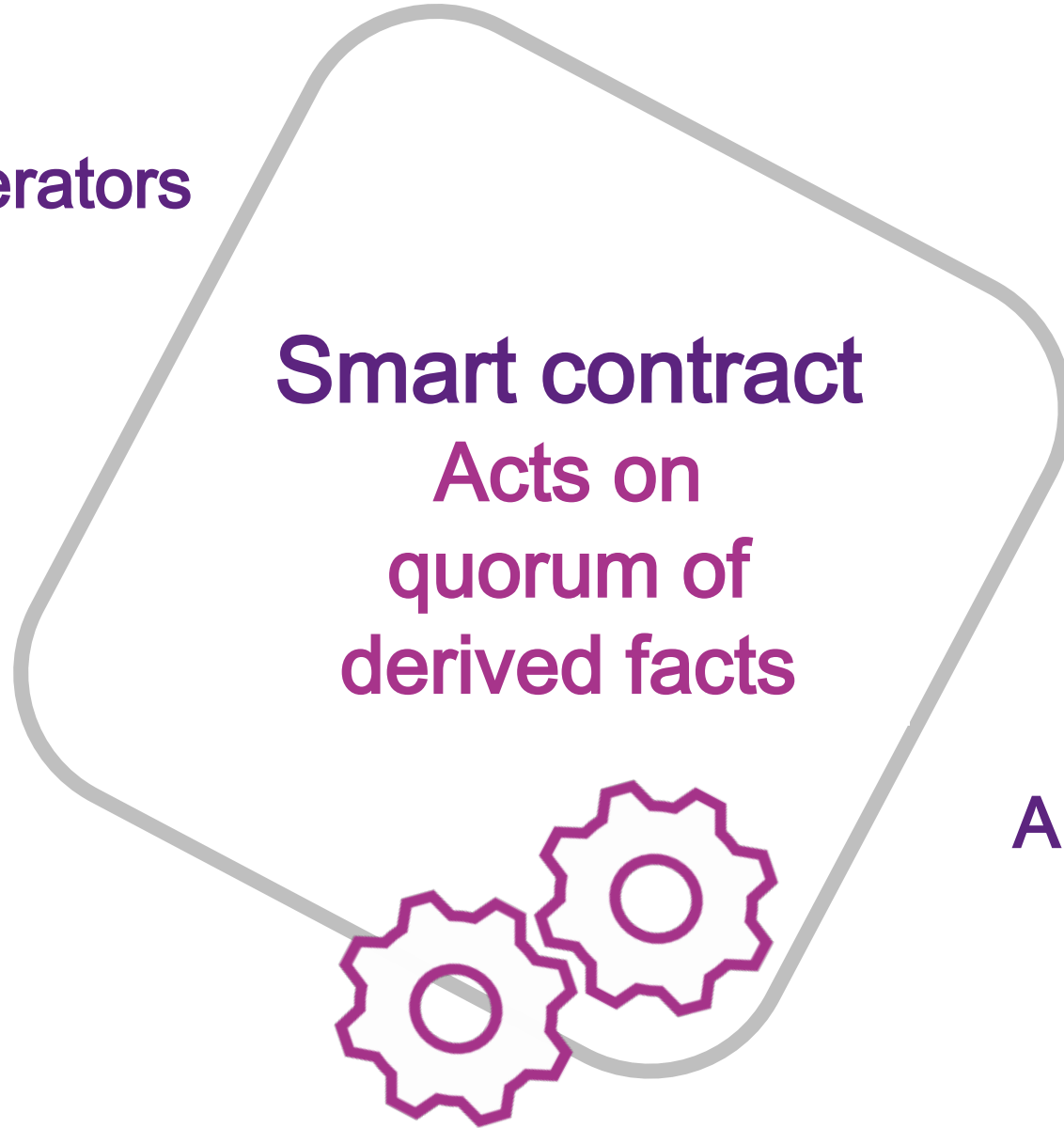


Vitalik Buterin
Ethereum

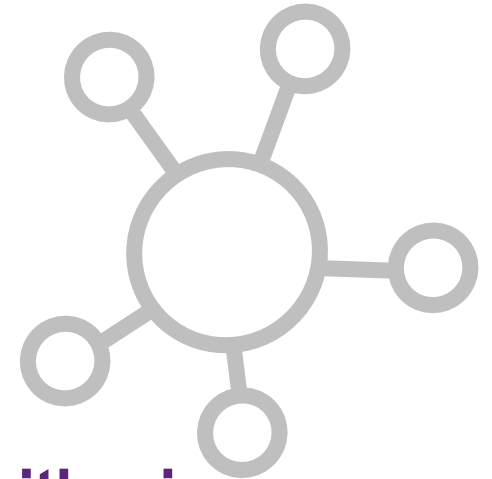
**Fact
Generators**



Smart contract
Acts on
quorum of
derived facts



**Algorithmic
Verifiers**



Spiritus 

Permissioned Ledgers

SHARED LEDGER

Append-only distributed
“system of record”
shared across a
permissioned network



CONSENSUS

All parties agree to
network verified
transaction



PRIVACY

Ensure appropriate
visibility; transactions are
secure, authenticated &
verifiable



SMART CONTRACT

Rules embedded in
transaction database;
executed with
transactions



Source: “Making Blockchain Real for Business,” IBM
(July 2016)

Application	Description	Examples
Underlying Infrastructure	Underlying protocols, decentralized application ecosystems, IoT architecture.	<i>Ethereum Blockstack, IoTa</i>
Currency	Payment services, internal currencies and utility tokens.	<i>Bitcoin, Dash, Kin</i>
Financial Services	Asset management, investment trading, and crowdfunding.	<i>Ripple OpenLedger Swarmfund</i>
Proof-as-a-service	Notaries, registers and attestation, supply-chain management.	<i>Blocknotary Chronicled, Everledger</i>
Property and Ownership	Digital rights management, copyright and ticketing services.	<i>Creative Chain Blockphase Aventus</i>
Identity Management	Self-sovereign digital identity, and authentication.	<i>Civic, Blockchain Helix, Bitnation</i>
Governance	Voting services, distributed autonomous organisations (DAO's).	<i>Followmyvote, Backfeed Crowdjury</i>