

ITU-UN-Habitat-UNDP Forum on “Smart sustainable cities: technological trends, success stories and future prospects” (Minsk, Belarus, 26-27 February 2019)

# Trustworthiness in Data Processing and Management for IoT and Smart Cities

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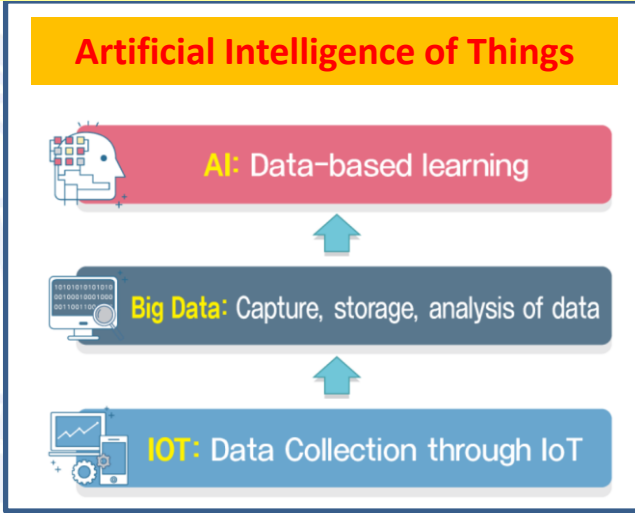
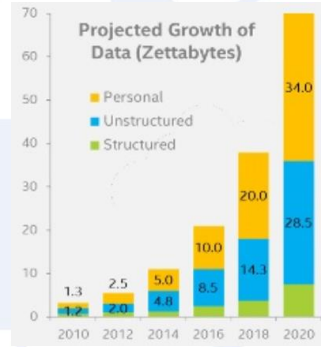
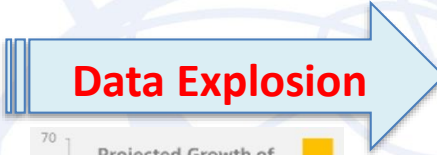
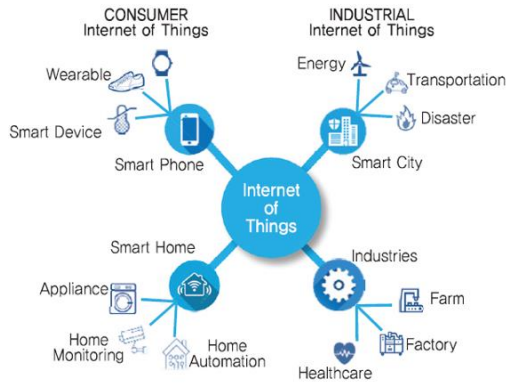
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# IoT and Data

Leverage **the massive amount of data**

## Extension of IoT Applications

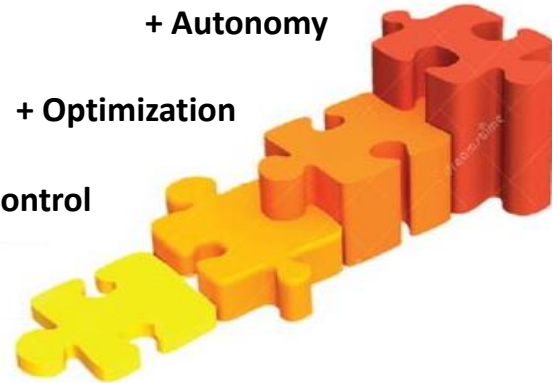


From Connecting Devices to **Creating Value**

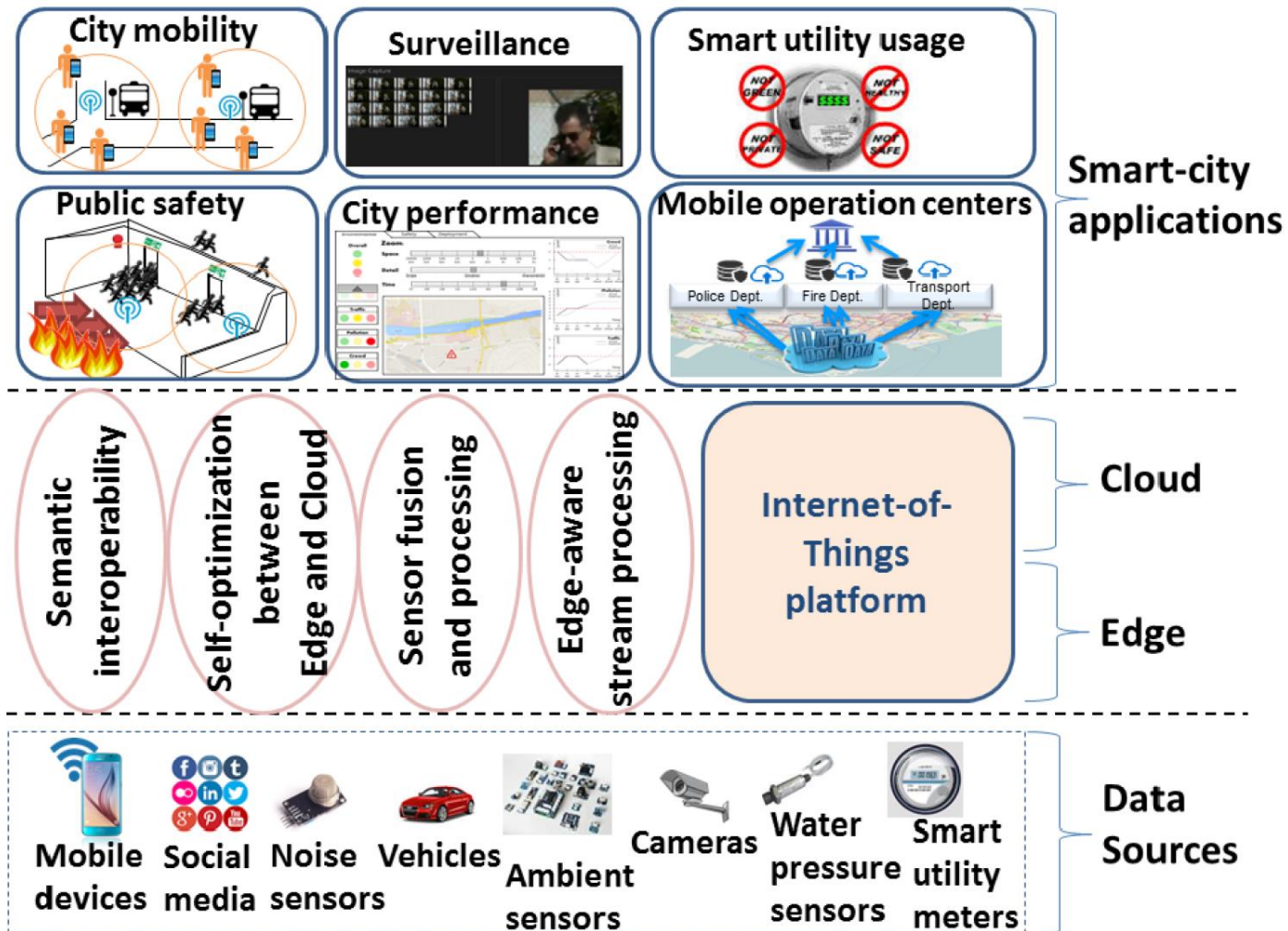


Identification/Sensing

+ Remote Control  
+ Optimization  
+ Autonomy



# Smart City Optimization



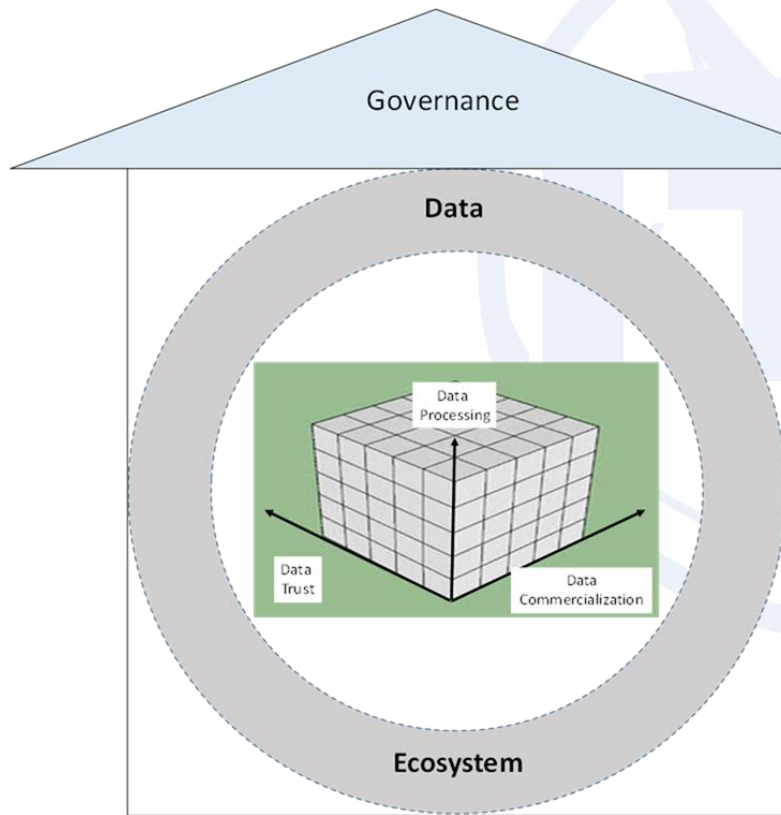
# ITU-T FG-DPM

- **Parent study group:** ITU-T SG20 (IoT and SC&C)
- **Established:** ITU-T SG20 meeting (Dubai, 22 March 2017)
  - 1<sup>st</sup> Forum on Data Management (Transforming data into value)



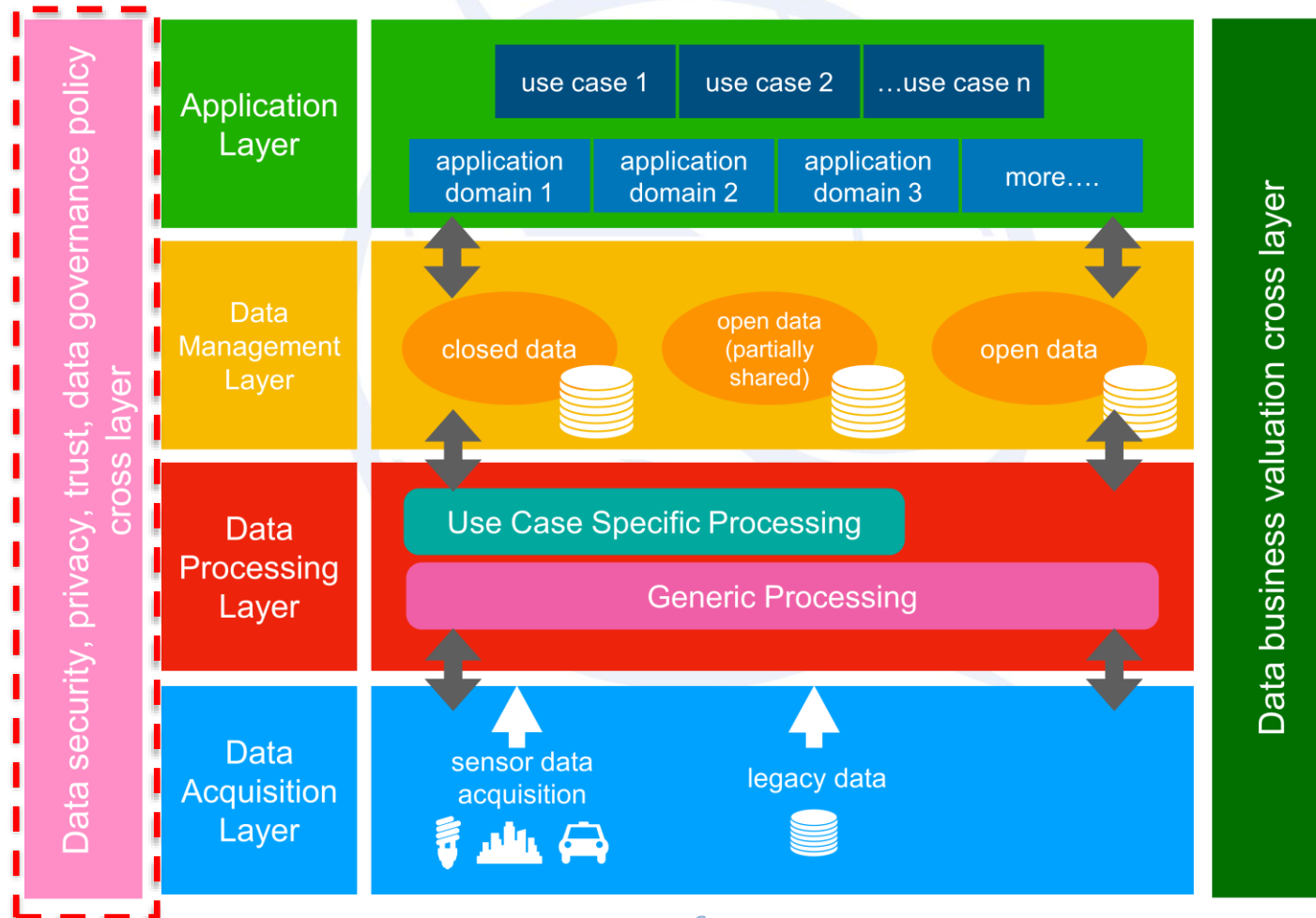
- **Open to all stakeholders** (ITU members & non-members)
- **Overall objectives:**
  - promote the establishment of trust-based data management frameworks for IoT and SC&C
  - investigate existing and emerging technologies
  - Identify and address standardization gaps and challenges

# DPM Framework Components



- Data processing
  - Data processing core activities
  - Data processing support activities
- Data trust (security, privacy, trust including ethics, etc.)
- Data commercialization
- Data ecosystem
- Governance

# Initial diagram of DPM Framework



Source: FG-DPM Seoul meeting (January 2019)

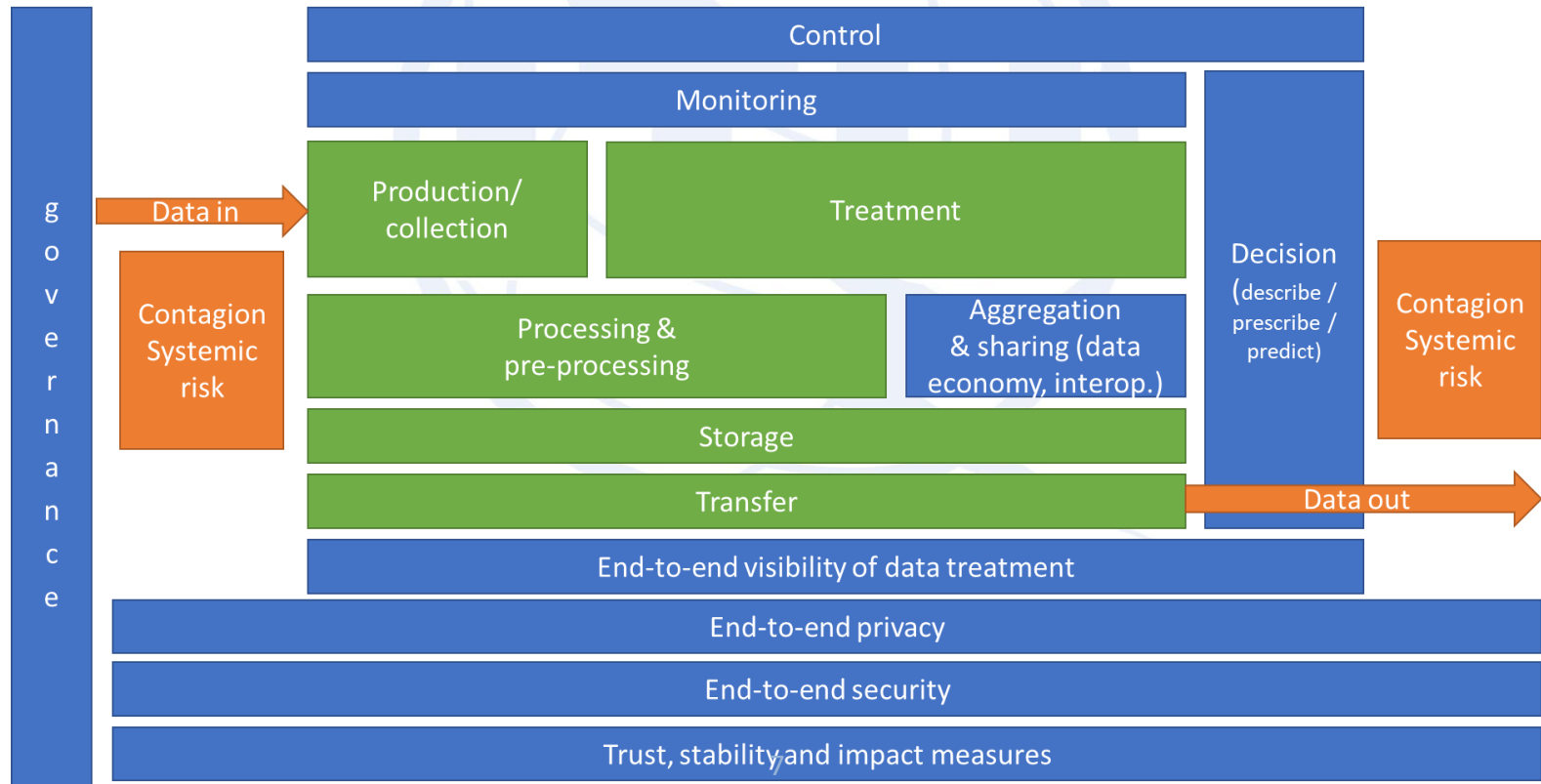


# Trustworthiness in IoT



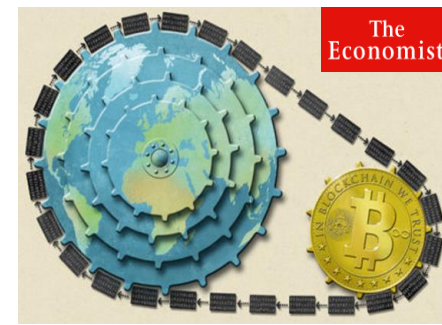
**Trust** is an essential element in Big Data and Analytics for **Intelligence**.

Trustworthiness encompasses the concerns of **security, privacy, safety, reliability and resilience**, which are too often addressed separately and in isolation in risk management approaches. (NIST CPS Framework)



# BLOCKCHAIN - Internet of Value

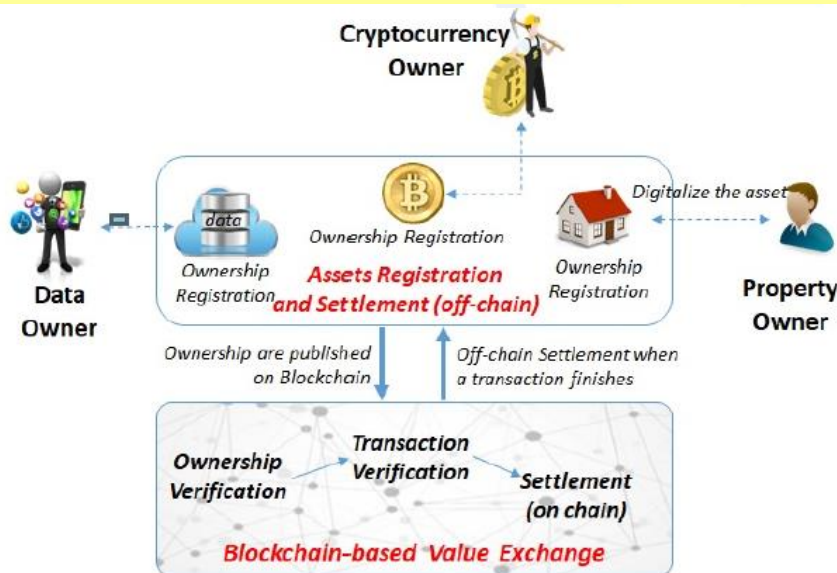
## A machine for creating trust



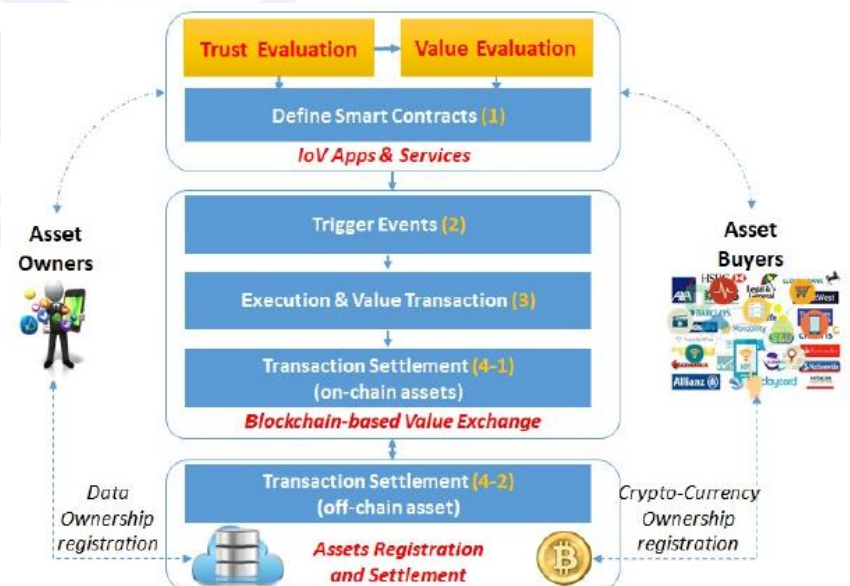
The Economist

- The currency in the Internet is **data**.
- Revolutionizes how transactions are recorded
  - a **decentralized digital ledger** that records transactions
  - builds **trust** with **accountability** and **transparency**

The **IoV** is as a platform of the next generation Internet that enables various types of assets to be digitalized and represented as digital value using **Blockchain**.



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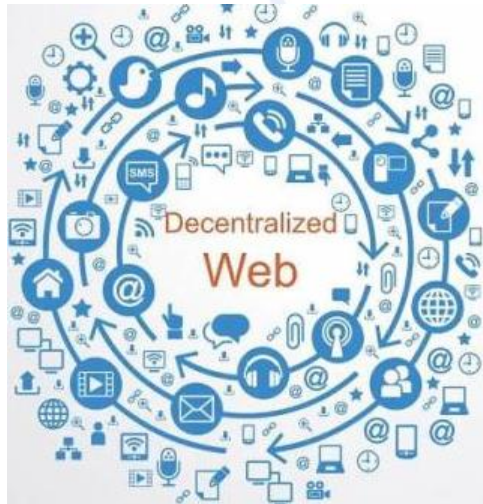




# Toward Decentralization

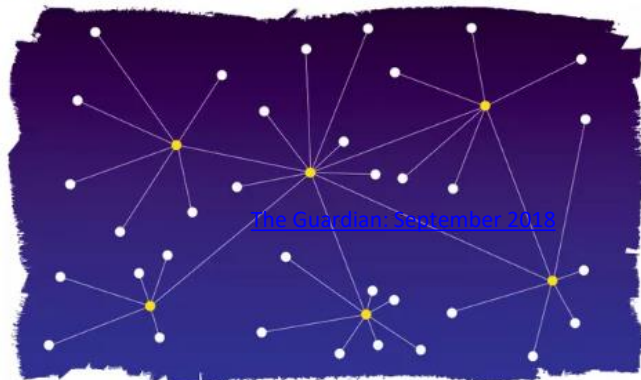


Tim Berners-Lee



## Decentralisation: the next big step for the world wide web

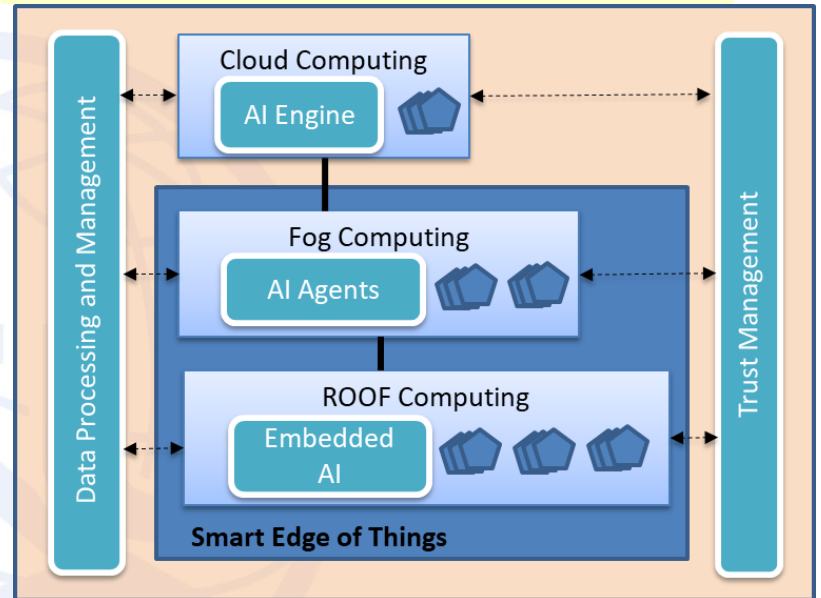
The decentralised web, or DWeb, could be a chance to take control of our data back from the big tech firms. So how does it work and when will it be here?



The Guardian, September 2018

▲ Illustration: James Melaugh

## Distributed Computing - Edge Intelligence



NOTE - ROOF: Real-time Onsite Operations Facilitation



# Concluding Remark

## Secure Decentralized Artificial Intelligence of Things (AI + Blockchain + IoT)

