Presented by Sonja Bernhardt OAM

Can Blockchain radically change our social care model?

Presentation Outline

Agenda

Definitions

Use Cases

Blockchain 101

The Issues

Sector Engagement

Summary

The Answer & Close

RADICAL CHANGE

If something changes radically it changes completely or in a way that is very noticeable.

Change that occurs relatively fast and modifies the essence of social structures or organisational practices.

SOCIAL CARE MODEL

Person centered care

Includes: individuality, rights, privacy, choice, independence, dignity, respect and partnership

Can Blockchain

radically change

our social care model?

Definitions

Can Blockchain

radically change

our **social care model?**

Definitions

Friday 7 Feb 2020

Figure 1: Share of Australian blockchain activities, by Industry
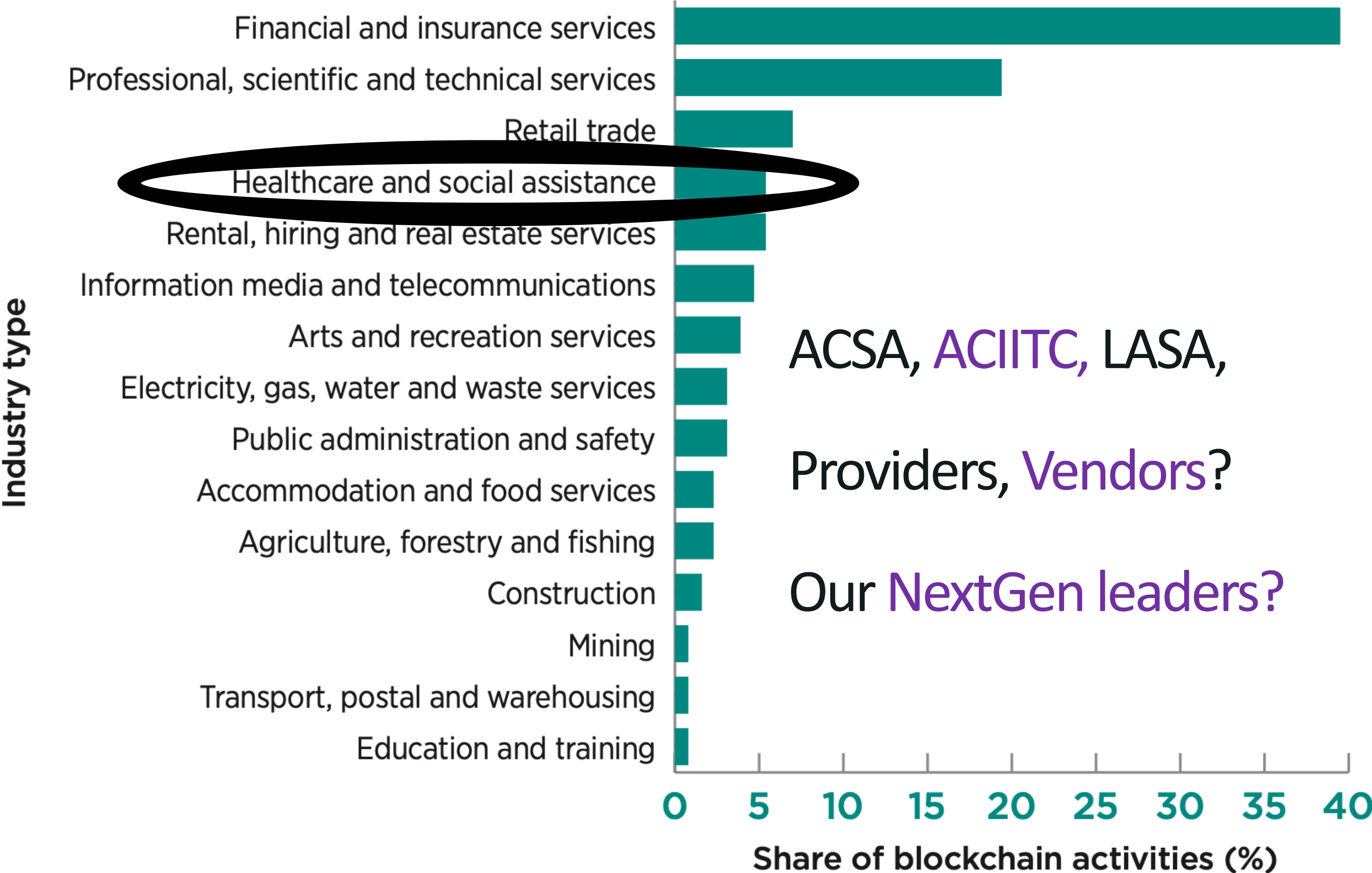
ACSA, ACIITC, LASA,

Providers, Vendors?

Our NextGen leaders?

SUPPLY CHAIN MANAGEMENT
Product tracking, non-tampering, improved transparency, isolate problems easily, authenticity and verifiability, cost reduction.

INSURANCE
Automate insurance with a faster approach, easy claims, and better information access; removes mediator to a certain extent.

HEALTHCARE
Improved health care facilitates with secure storage and retrieval; improved research efforts and insurance claim.

CRYPTOCURRENCY
A cryptocurrency is a digital asset which eliminates the middleman and facilitates peer-to-peer transactions.

ASSET TOKENIZATION
Tokenization of real-world assets with improved efficiency, less time, and access to the global market.

NOTARY
Removes the need for trust in the notary system with a decentralized approach. Also, provides proof-of-existence.

REAL ESTATE
Improved property ownership verification and transfer; safe and secure global marketplace without any middle man.

DIGITAL IDENTITY
One single identity works on multiple platforms, immune to data breaches, no physical documents needed.

SUSTAINABLE SOLUTIONS
Improve sustainability in different industries.

Funds Management re Charity and Donations

CONTENT PLATFORM
Earn without a middleman, instant payments.

RETAIL LOYALTY REWARDS PROGRAM
Maximize reach with the better reward system and flexible approach.

INTERNET OF THINGS (IoT)
Improved and secure data sharing with tokenization and cost-effective approach.

ENERGY MARKET
Improved energy market by providing cheaper energy, peer-to-peer network.

VOTING
Voting becomes more transparent with immutable, verifiable, and trustworthy votes.

DECENTRALIZED AUTONOMOUS ORGANIZATION (DAO)
DAO offers an automated approach with better decision making in an organization; handle bureaucracy and mismanagement.

FOOD SAFETY
More trustworthy and traceable food with supply chain tracking; ...er.

MUSIC
Creators can sell their music with zero cuts from a centralized player, improves privacy, and provide intellectual rights protection.

GAMING
Better eSports management, improved crowdfunding for indie developers, decentralized games, and better production process.

COPYRIGHT AND ROYALTY PROTECTION
Protects creators with automated copyright and takes action automatically.

TRAVEL
Secure payments, better luggage management, identification services, and customer loyalty schemes.

BANKING
Improved KYC model, smooth international transactions, and better interbank clearing.

CYBER SECURITY
Better cybersecurity with use of decentralized data storage; no single point of attack and control over DDoS attacks.

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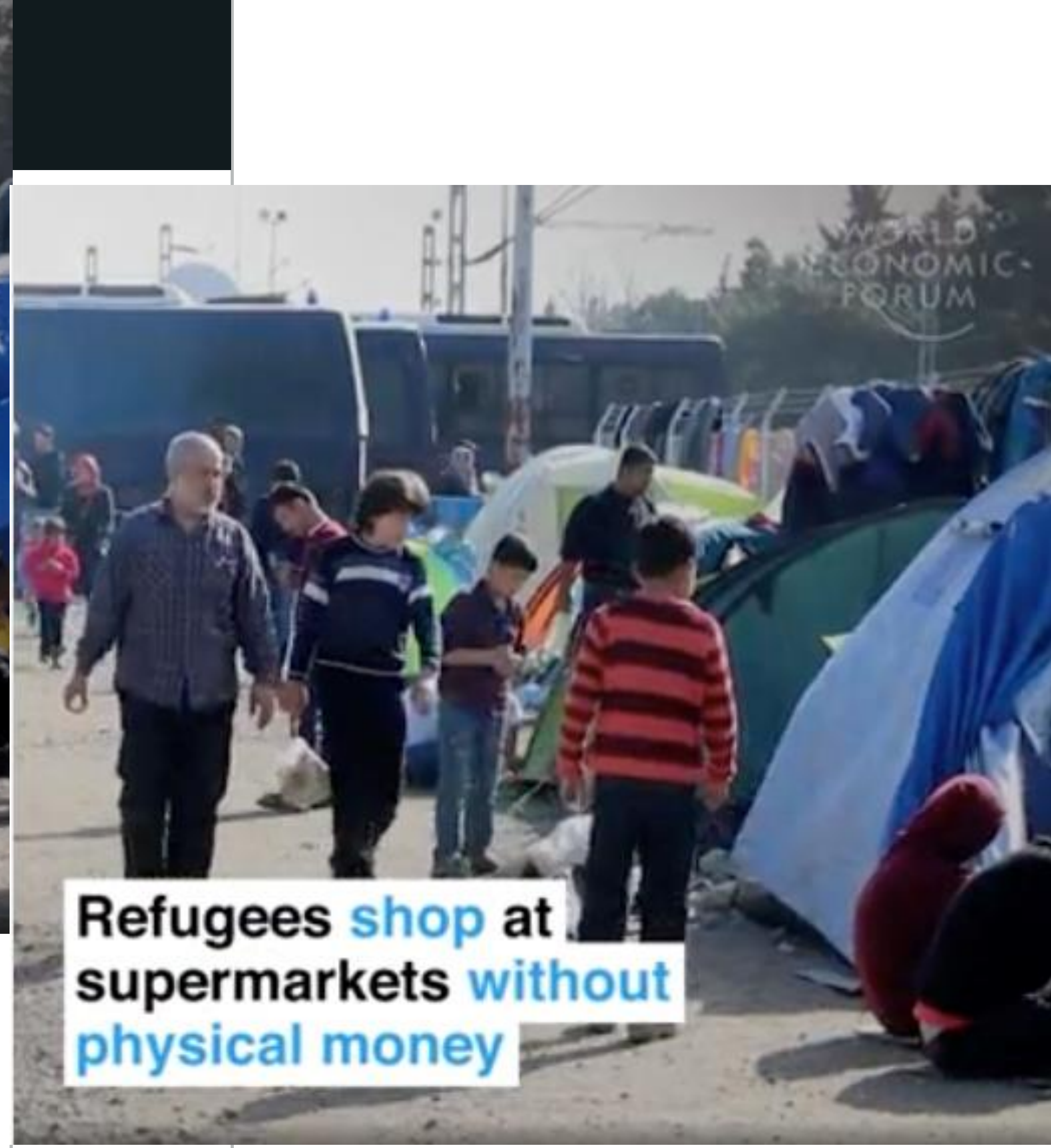
FOOD SAFETY

More trustworthy and traceable food with supply chain tracking; issues get resolved faster.

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This refugee camp runs on blockchain

Source: MIT/ World Food Programme

0:04/1:00

Jordan Refugee Camp near Syria

Refugees shop at supermarkets without physical money

To pay they look into a camera...

Jordan Refugee Camp near Syria

And the iris scanner connects to their World Food Programme accounts

Without the need
for paperwork like:
Passports
Exam certificates
Financial histories

Jordan Refugee Camp
near Syria

Which are often destroyed
during conflict...
Or seized by hostile
governments

Finland is giving refugees bank cards that use blockchain technology

Which means the government doesn't need to go through a traditional bank

It gives refugees a secure digital ID

Refugees often arrive with few possessions and papers

Without an authenticated digital identity it's difficult to get jobs and bank accounts

So new arrivals can pay bills, and receive wages

building blocks of e-estonia

e-identity

Did you know that more digital signatures have been used in Estonia than in the rest of the European Union altogether?

- ID card
- Mobile-ID
- e-Residency
- Smart-ID

LEARN MORE

interoperability services

Did you know that X-Road saves over 800 years of working time for Estonia every year?

- X-Road
- e-Land Register
- Population Registry
- Sharemind

LEARN MORE

security and safety

Did you know that scalable blockchain technology called KSI is invented by Estonian cryptographers?

- KSI Blockchain
- e-Law
- e-Court
- e-Police

LEARN MORE

healthcare

Did you know that Estonia uses blockchain technology to ensure healthcare data security?

- e-Health Records
- e-Prescription

LEARN MORE

e-governance

Did you know that 99% of public services are available to citizens as e-services?

- i-Voting
- State e-Services Portal
- e-Cabinet

LEARN MORE

mobility services

Did you know that self-driven vehicles have been allowed to drive on public roads in Estonia since 2017?

- Intelligent Transportation Systems
- Mobile Parking
- Border Queue Management

LEARN MORE

business and finance

Did you know that you can establish a company in Estonia just in 18 minutes?

- e-Tax
- e-Banking
- e-Business Register
- Industry 4.0

LEARN MORE

education

Did you know that twice as many students pursue IT careers in Estonia than the average in other OECD countries?

- e-School
- DreamApply
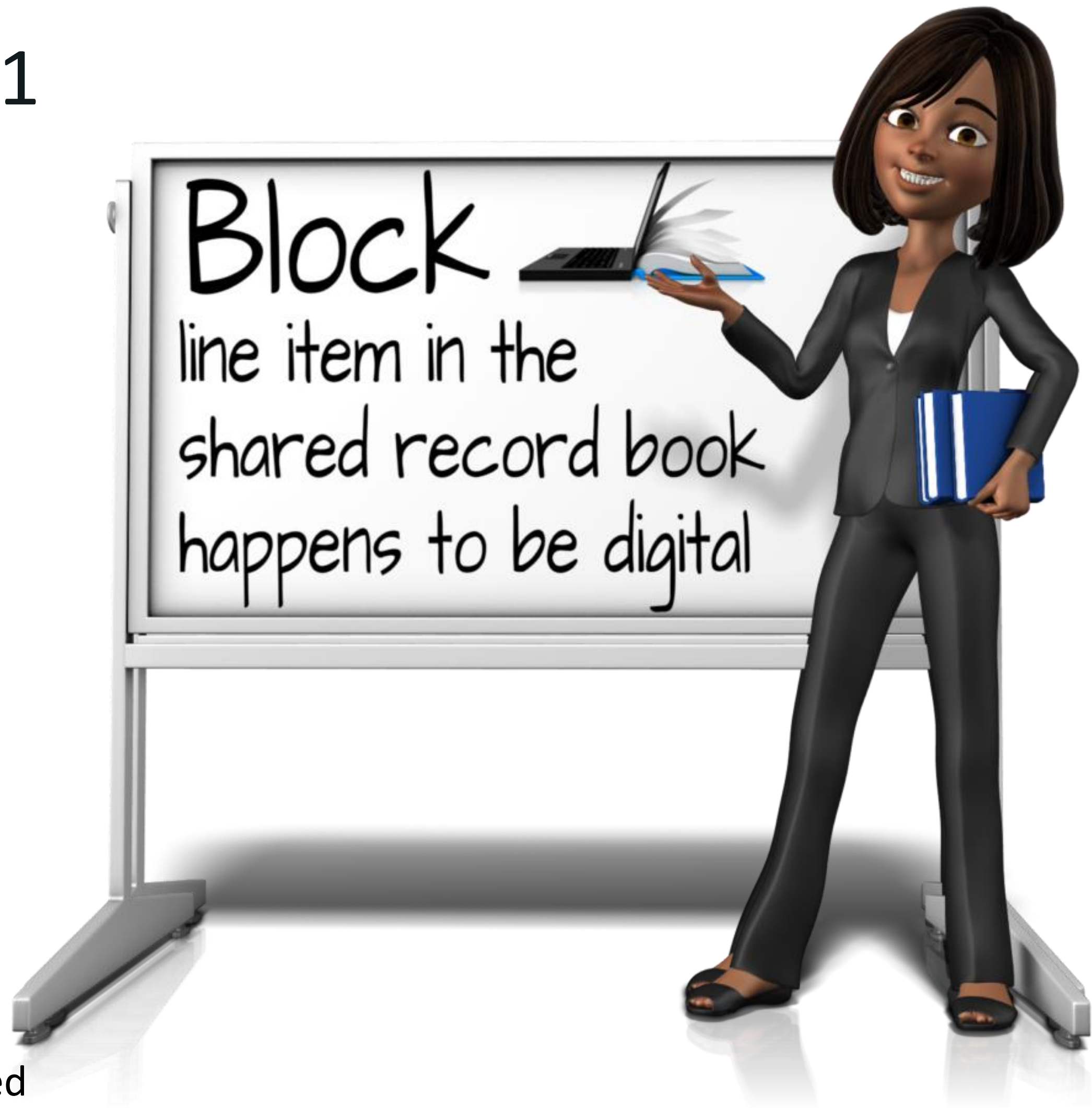- Estonian Education Information System
- Eliis

LEARN MORE

Blockchain 101

LEDGER

Block
line item in the
shared record book
happens to be digital

Decentralised, Distributed

Blockchain 101

BITCOIN MINER

Blockchain 101

Hash – Algorithm: (input string any length – output fixed length (max

Immutable, Transparent and Tamper Free
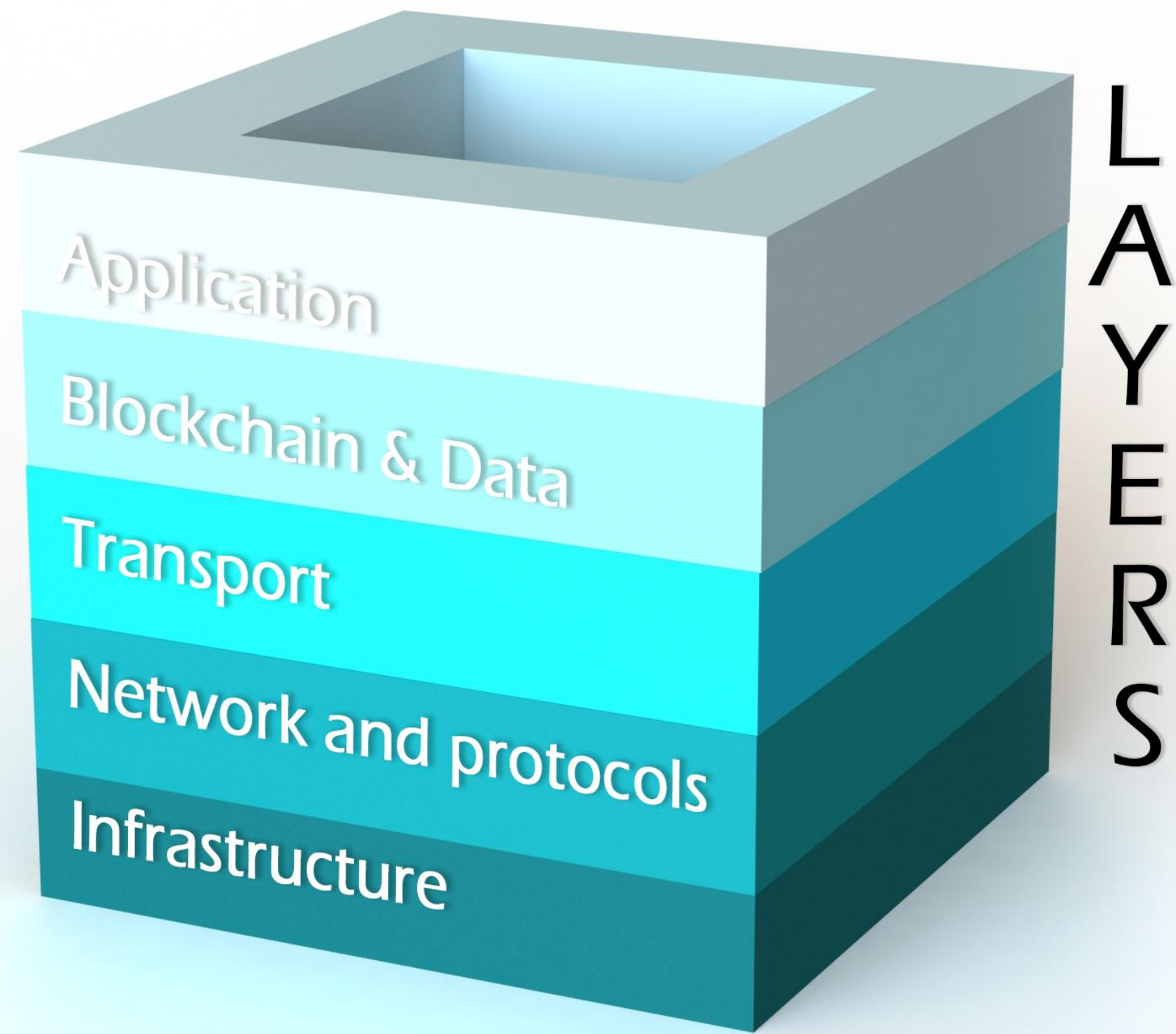
Nonce – random string
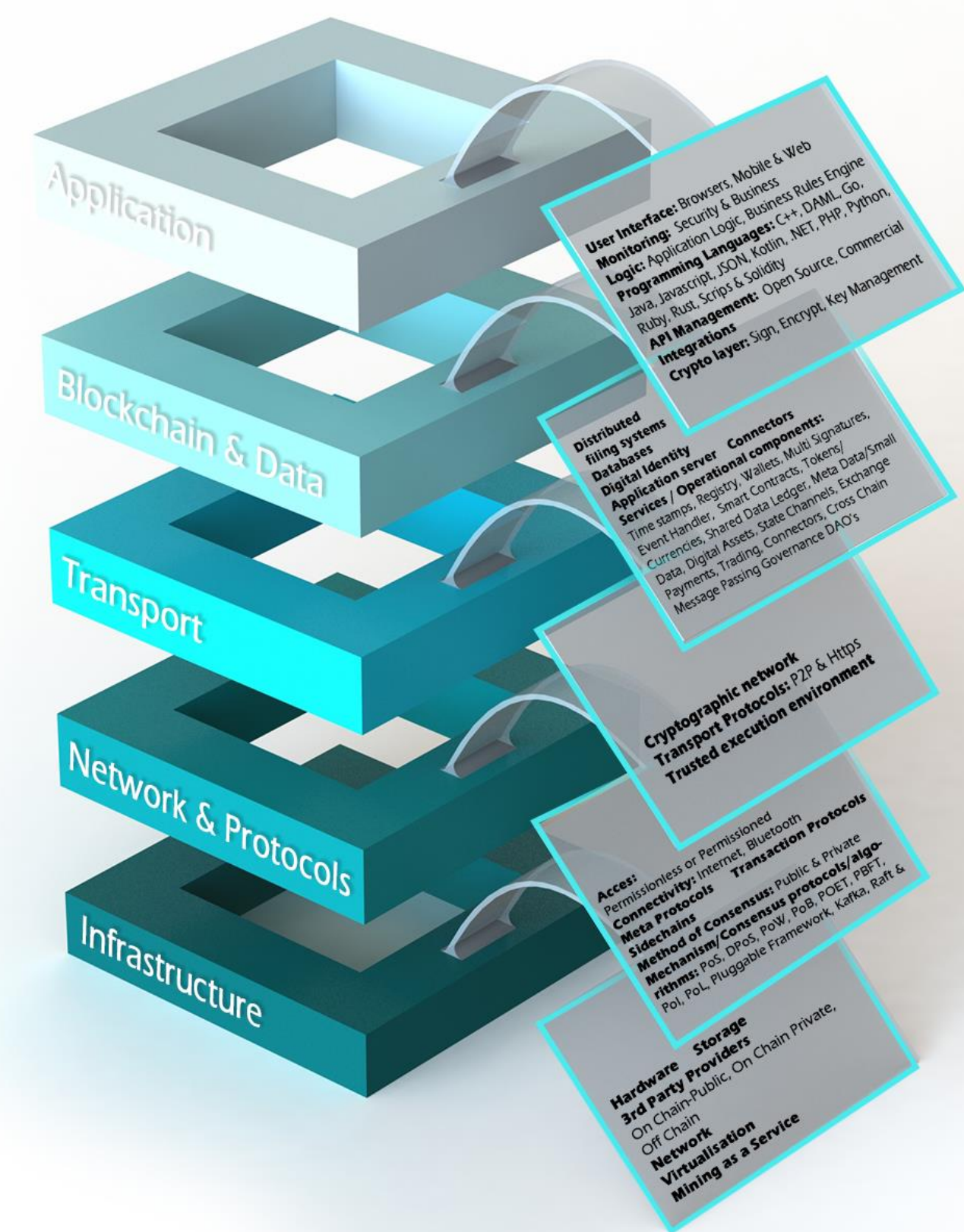
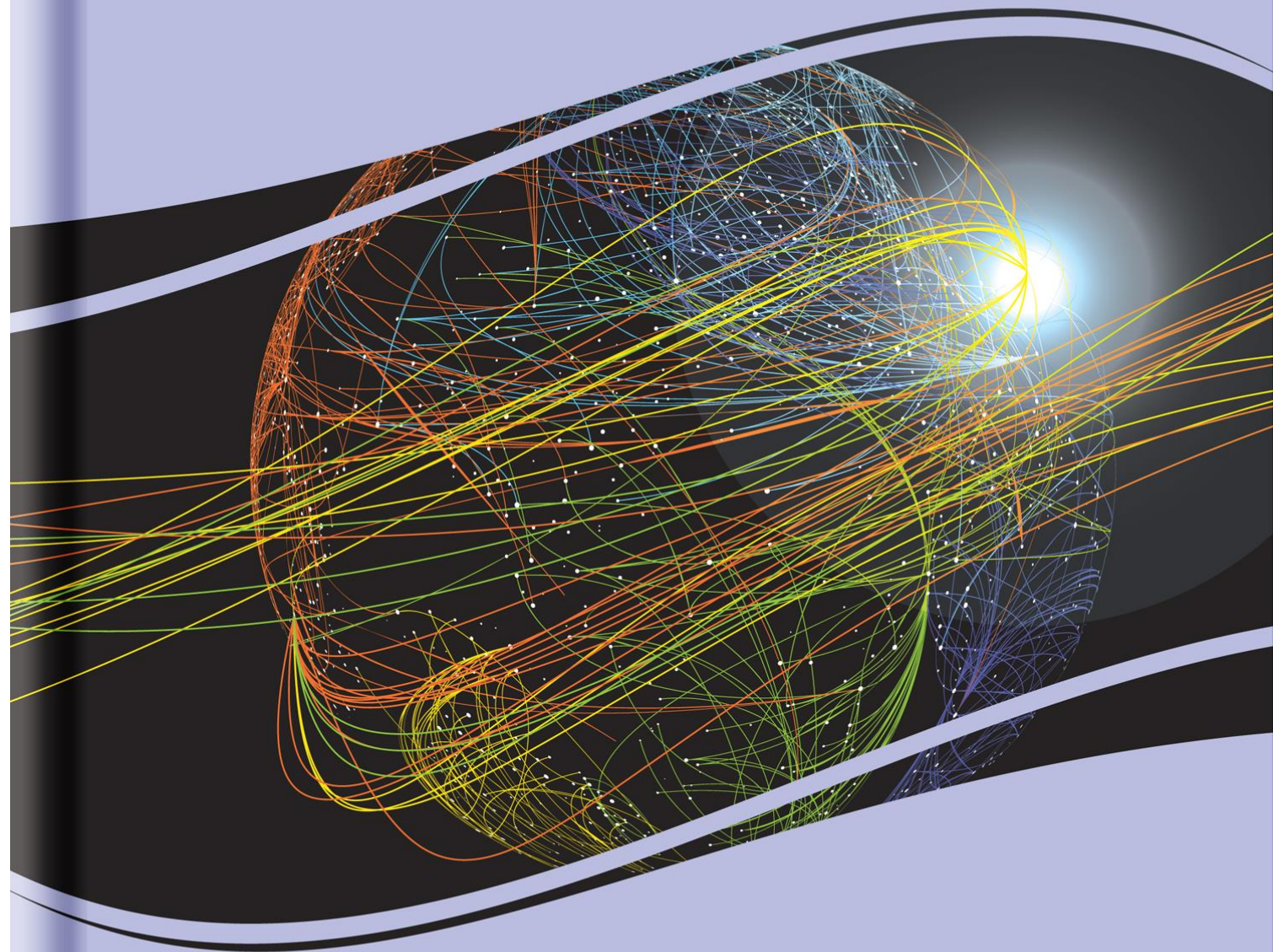Merkle Root – the starting (node) of a tree

Decentralised, Distributed
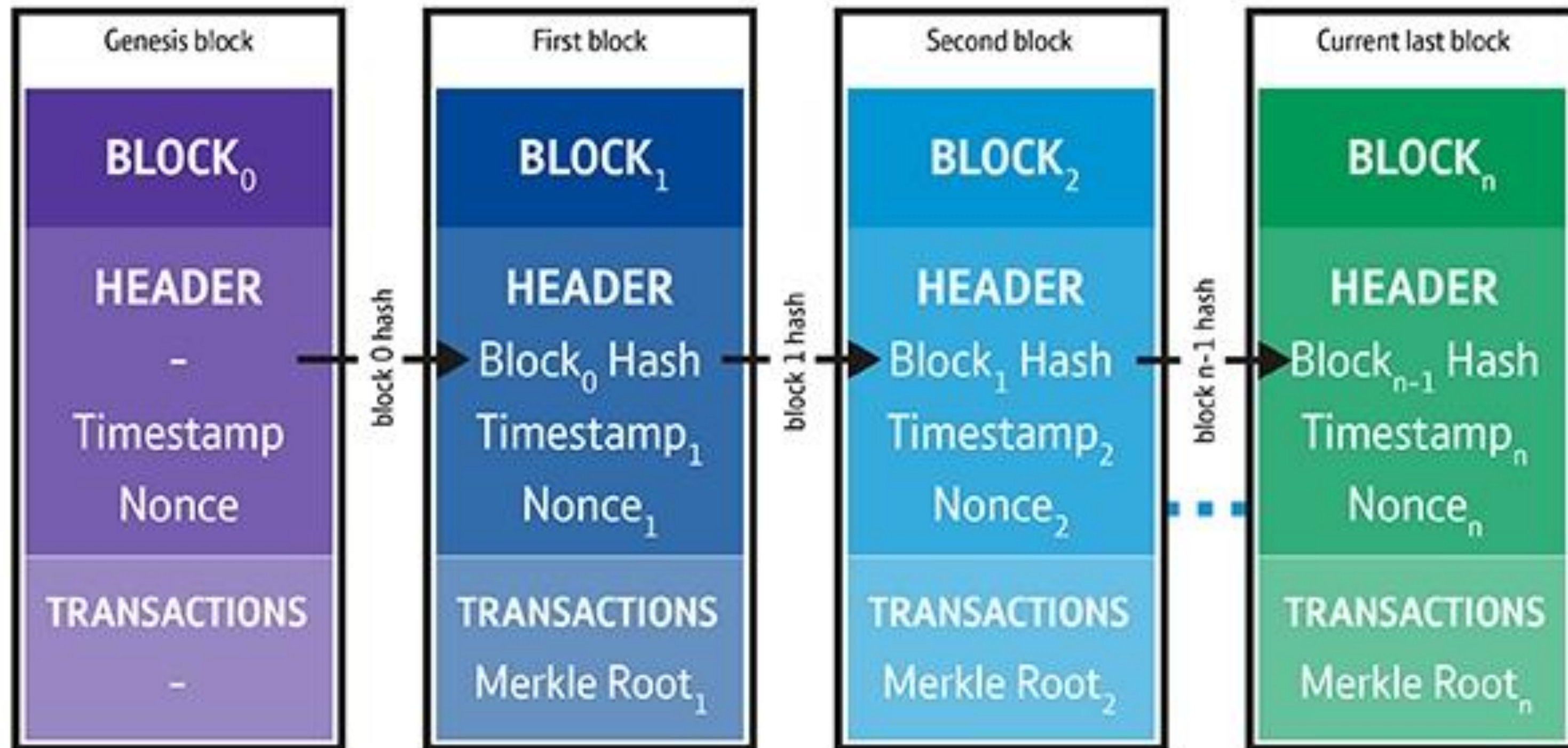
Blockchain Technical Stack: Summary

Blockchain Technical Stack: Detail

Blockchain Technology for Global Social Change

Jane Thomason, Sonja Bernhardt,
Tia Kansara, and Nichola Cooper

IGI Global
DISSEMINATOR OF KNOWLEDGE

Blockchain Technology for Global Social Change

Emerging technologies continue to affect a variety of industries, making processes more effective and efficient. However, they also impact society by promoting opportunities to encourage social change and socioeconomic advancement. Blockchain is one that is already influencing third world countries and disrupting the globe.

Blockchain Technology for Global Social Change is an essential research publication that provides insight into advancements being made in blockchain and some potential applications of the technology that can improve the lives of individuals in emerging markets. This publication covers a range of topics such as digital government, health systems, and urbanization and is ideal for policymakers, academicians, researchers, sociologists, government officials, economists, and financial experts seeking current and relevant research on evolving blockchain technologies.

Topics Covered

- Artificial Intelligence
- Big Data
- Blockchain
- Digital Government
- Frontier Technologies
- Global Finance
- Health Systems
- Refugees
- Socioeconomic Inequality
- Sustainable Development
- Urbanization
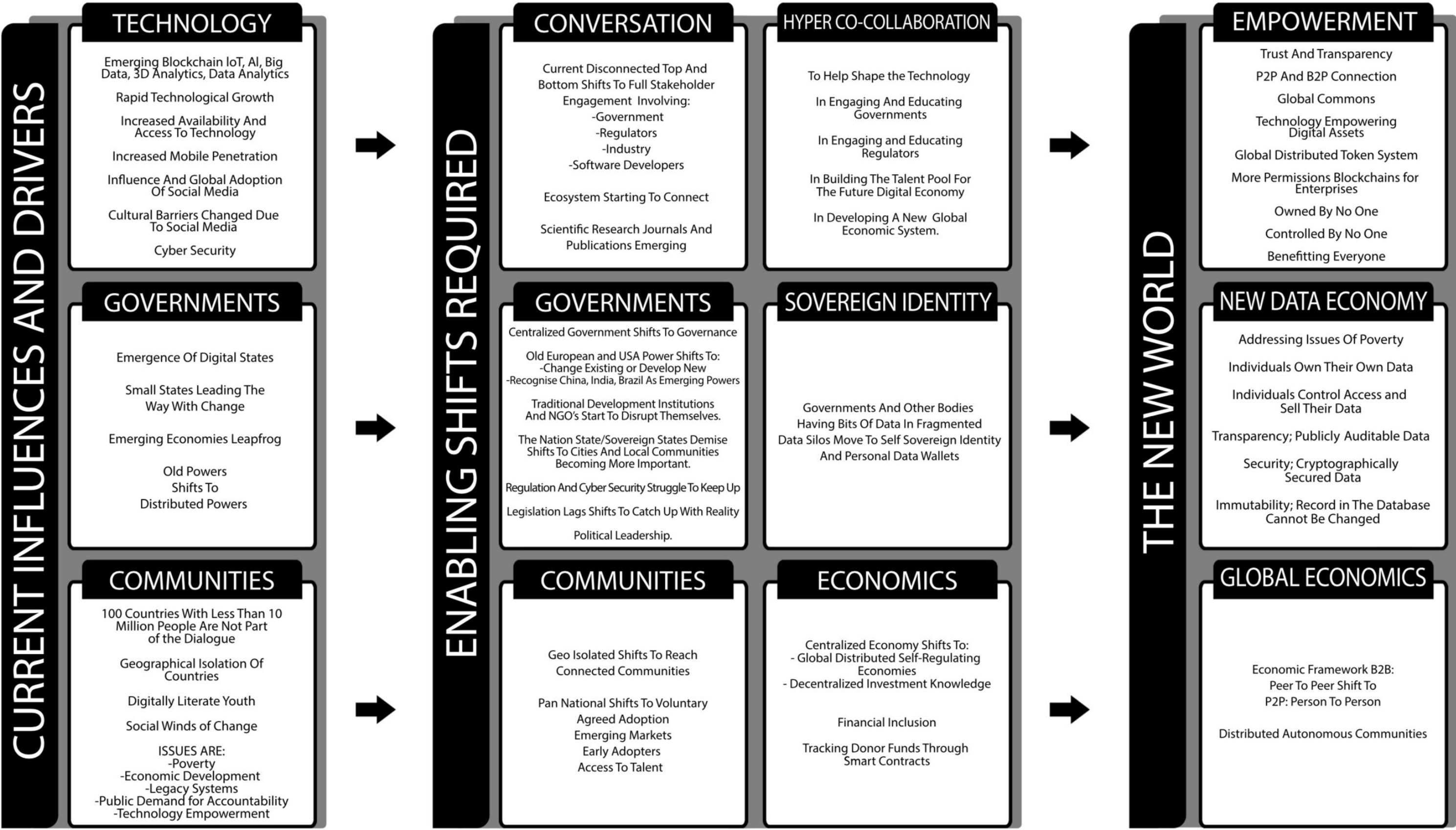
The Issues

Blockchain is best suited for use cases requiring at least three of the following: data redundancy; information transparency; data immutability; and a consensus mechanism. If only one or two are required then blockchain may work, but there are likely simpler or cheaper ways to solve the problem.[9]

Biggest issue: Blockchain scalability and size not at database level – YET!

BLOCKCHAIN FOR SOCIAL CHANGE MODEL

CURRENT INFLUENCES AND DRIVERS

TECHNOLOGY

Emerging Blockchain IoT, AI, Big Data, 3D Analytics, Data Analytics

Rapid Technological Growth

Increased Availability And Access To Technology

Increased Mobile Penetration

Influence And Global Adoption Of Social Media

Cultural Barriers Changed Due To Social Media

Cyber Security

GOVERNMENTS

Emergence Of Digital States

Small States Leading The Way With Change

Emerging Economies Leapfrog

Old Powers
Shifts To
Distributed Powers

COMMUNITIES

100 Countries With Less Than 10 Million People Are Not Part of the Dialogue

Geographical Isolation Of Countries

Digitally Literate Youth

Social Winds of Change

ISSUES ARE:
-Poverty
-Economic Development
-Legacy Systems
-Public Demand for Accountability
-Technology Empowerment

ENABLING SHIFTS REQUIRED

CONVERSATION

Current Disconnected Top And Bottom Shifts To Full Stakeholder Engagement Involving:
-Government
-Regulators
-Industry
-Software Developers

Ecosystem Starting To Connect

Scientific Research Journals And Publications Emerging

GOVERNMENTS

Centralized Government Shifts To Governance

Old European and USA Power Shifts To:
-Change Existing or Develop New
-Recognise China, India, Brazil As Emerging Powers

Traditional Development Institutions And NGO's Start To Disrupt Themselves.

The Nation State/Sovereign States Demise Shifts To Cities And Local Communities Becoming More Important.

Regulation And Cyber Security Struggle To Keep Up

Legislation Lags Shifts To Catch Up With Reality

Political Leadership.

COMMUNITIES

Geo Isolated Shifts To Reach Connected Communities

Pan National Shifts To Voluntary
Agreed Adoption
Emerging Markets
Early Adopters
Access To Talent

HYPER CO-COLLABORATION

To Help Shape the Technology

In Engaging And Educating Governments

In Engaging and Educating Regulators

In Building The Talent Pool For The Future Digital Economy

In Developing A New Global Economic System.

SOVEREIGN IDENTITY

Governments And Other Bodies Having Bits Of Data In Fragmented Data Silos Move To Self Sovereign Identity And Personal Data Wallets

ECONOMICS

Centralized Economy Shifts To:
- Global Distributed Self-Regulating Economies
- Decentralized Investment Knowledge

Financial Inclusion

Tracking Donor Funds Through Smart Contracts

THE NEW WORLD

EMPOWERMENT

Trust And Transparency

P2P And B2P Connection

Global Commons

Technology Empowering Digital Assets

Global Distributed Token System

More Permissions Blockchains for Enterprises

Owned By No One

Controlled By No One

Benefitting Everyone

NEW DATA ECONOMY

Addressing Issues Of Poverty

Individuals Own Their Own Data

Individuals Control Access and Sell Their Data

Transparency; Publicly Auditable Data

Security; Cryptographically Secured Data

Immutability; Record in The Database Cannot Be Changed

GLOBAL ECONOMICS

Economic Framework B2B:
Peer To Peer Shift To
P2P: Person To Person

Distributed Autonomous Communities

GALVANISING CRY OF THE BLOCKCHAIN EXPERIMENT

CONNECT WITH REAL UNDERSTANDING OF HOW AND WHAT

BARRIERS:

Philosophical Opposition To Private Empowerment

Clinging To Past Traditions And Ways

Fear Of Eroding Power Bases

Legacy Systems

Incumbent Power Structures

Lack Of Awareness

Poor Reputation Of Crypto Currencies And Bad Actors

Clinging to past traditions and ways

Fear of eroding power bases

Incumbent power structures

Legacy systems

Lack of awareness

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Lack Of Awareness   Poor Reputation Of Crypto Currencies And Bad Actors

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CONVERSATION

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Engagement Involving:
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Data Silos Move To Self Sovereign Identity
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To Help Shape the Technology

In Engaging And Educating
Governments

In Engaging and Educating
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In Building The Talent Pool For
The Future Digital Economy

In Developing A New Global
Economic System.

COMMUNITIES: Geo Location shifts to reach (and include) connected communities

ECONOMICS: Tracking Donor Funds Through Smart Contracts

GOVERNMENTS: Legislation lags shifts to catch up with reality

SOVEREIGN IDENTITY: Govts and other bodies have bits of data in fragmented data silos shifts to self sovereign identity and personal data wallets

CONVERSATION: Current disconnected top and bottom shifts to full stakeholder engagement involving:

- Government
- Regulators
- Industry
- Software Developers
- Care providers
- Suppliers
- Care Recipients

Dr Jane Thomason · 1st

Author Blockchain for Global Social Change-Editor "Frontiers in Blockchain" & "China Global Health Journal"

Brisbane, Australia · **500+ connections** · **Contact info**

Jane Thomason discusses blockchain for social impact at a recent hackathon   JANE THOMASON

What happens when an academic's ambitions to address global poverty and inequality collide head on with her teenage son's otherworldly fascinations with video gaming and crazy new technologies?

The answer is that you get Dr. Jane Thomason, the Australian international development researcher and practitioner who has become a leading evangelist for blockchain and cryptocurrencies on the global stage.

HYPER CO-COLLABORATION

To Help Shape the Technology

In Engaging And Educating Governments

In Engaging and Educating Regulators

In Building The Talent Pool For The Future Digital Economy

In Developing A New Global Economic System

Sector Engagement

Summary: Blockchain in health care key aspects
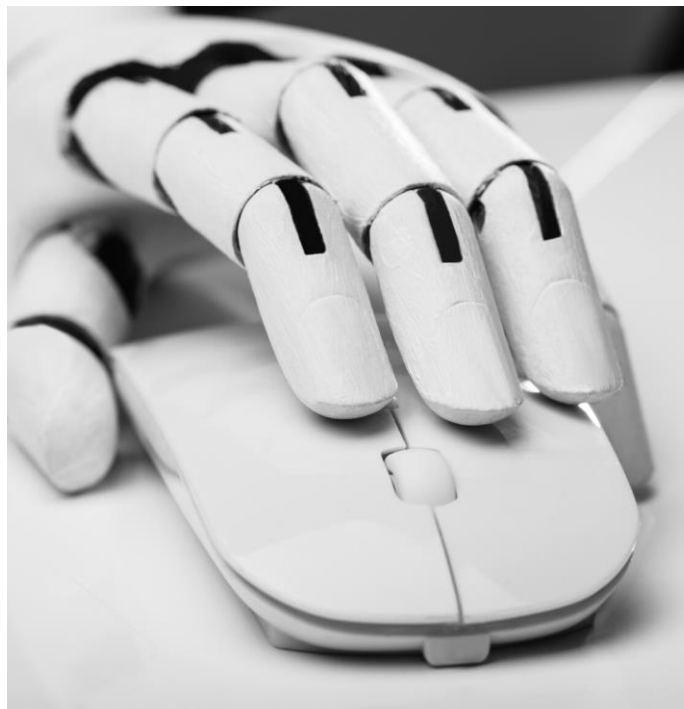
Health and Care Records

Identity management and complete individual record/ledger

Maintain the integrity and interoperability

Information sharing marketplace

Managing Permissions

Consent forms, DNR's, tamper free, transparent and accessible

Smart Contracts: re insurance and health cover

Managing Payments

Care plan: appointments, health indicators, suppliers, payments

Move to a Trustless Community

Historically we have moved from from trusting individuals to trusting centralised institutes as the intermediary, now need to shift away from 'trusted' gatekeepers to direct via technology

Consensys mechanism
Can't be public blockchain, need to be private/permissioned but WHO form that?

- Regulated authority
- Consortium (organisations/individuals/associations)

Imagine a near future where the people in our care are truly the centre of their care ecosystem. Where identity management is as easy as instant unique recognition of the individual, where all services delivered were authenticated as the right service, by the right people to the right person via smart contracts, and where funds were linked to individual wallets and automatically transferred.
That is the world that blockchain may be able to bring to us and our sector.

What is needed is a hearty sector debate considering both the potential and the challenges around establishing sector-specific permissioned blockchains – where permissioned implies permitting entities to sign off on the blocks created, with a consensus scheme to ensure that the resulting chain of blocks represents a true consensus between the entities.

Articles in Ageing Agenda 2018 (Aug and Oct)

ITAC 2020 Presentation
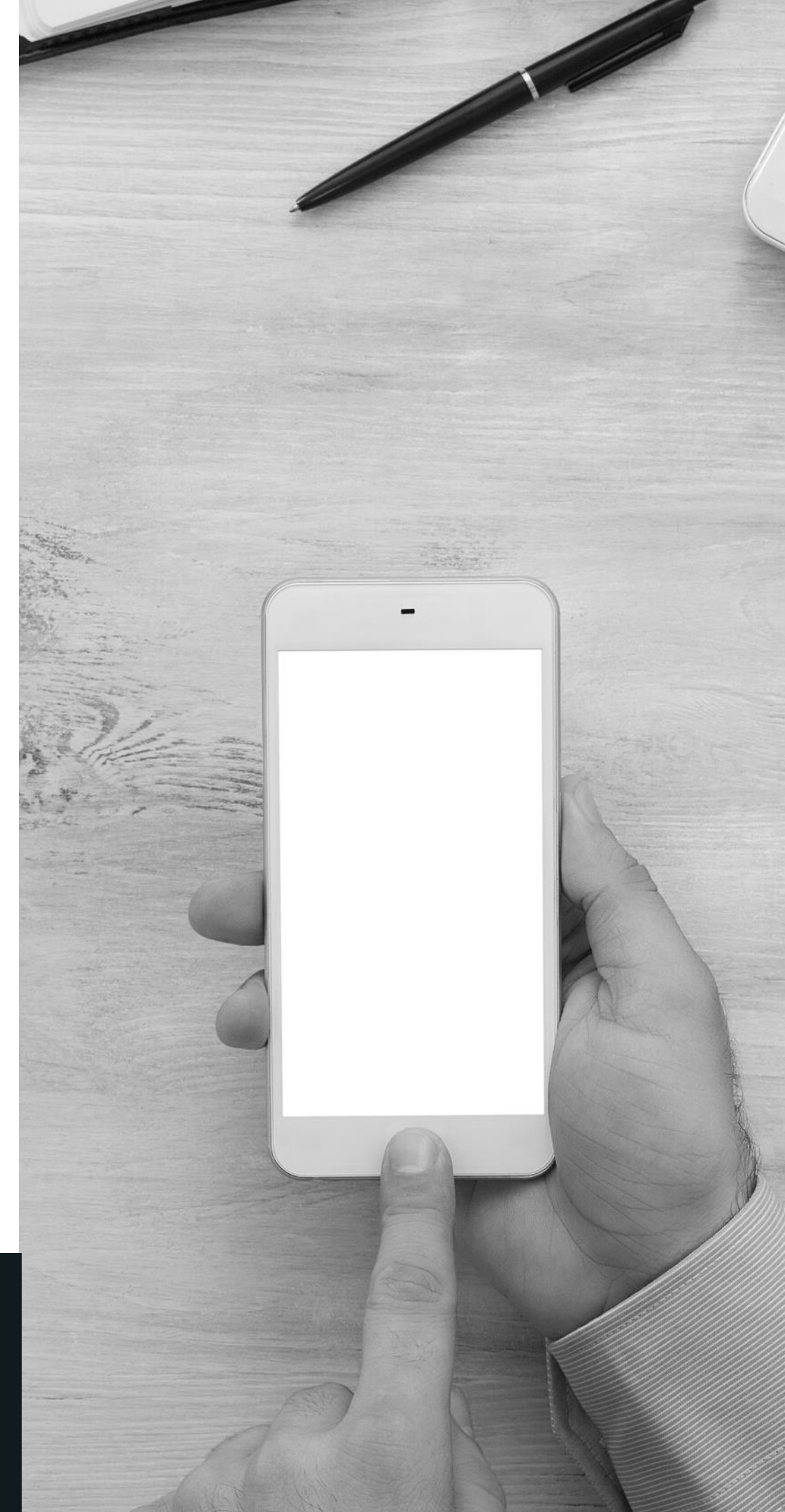
RADICAL CHANGE

YES BUT……

SOCIAL CARE MODEL

More about assisting to align with:
Person centered care
Includes: individuality, rights, privacy, choice,
independence, dignity, respect and partnership

BUT……

We need radical change in ourselves
and organisations to address the
enabling shifts required

Can Blockchain

radically change

our social care model?

The Answer
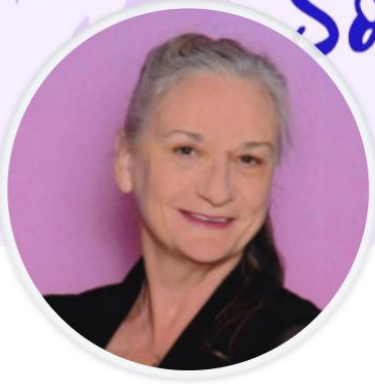
Call to Action

BLOCKCHAIN
TECHNOLOGY

ITAC 2020 Presentation

Contact Details

Sonja Bernhardt OAM

Technologist, Speaker, Advocate

Add profile section   More...

ThoughtWare Australia Pty Ltd

QUT (Queensland University of Technology)

Sonja Bernhardt OAM

Technologist: Governance & Risk. Heath sectors, Presenter (AI, IoT, VR, Blockchain...), Vintage Women in Tech Advocate

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BOOTHS 41 and 42