GBBC
Global Blockchain Business Council

The Case for Blockchain: Secure Global Supply Chains

PRESENTED BY

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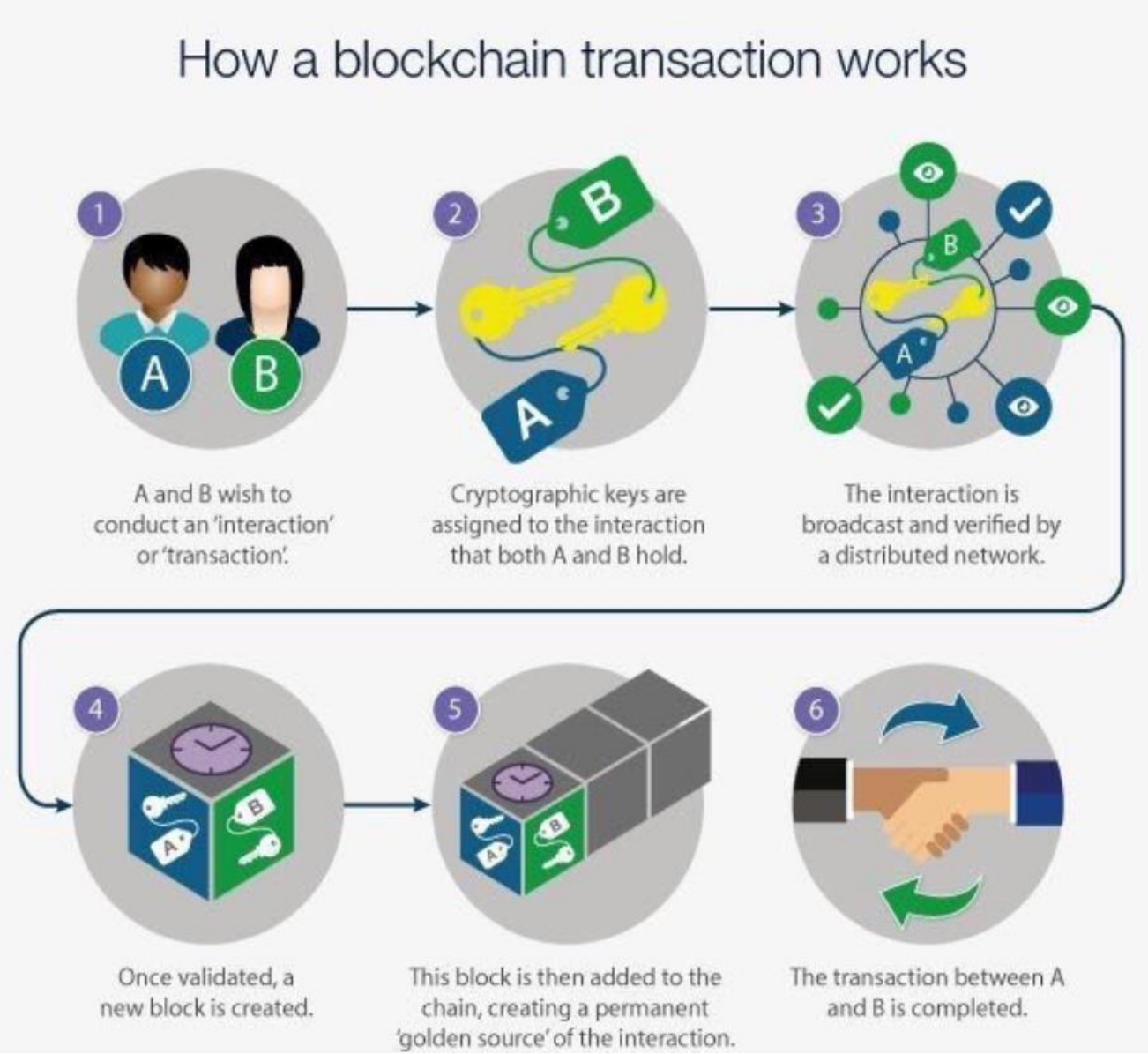


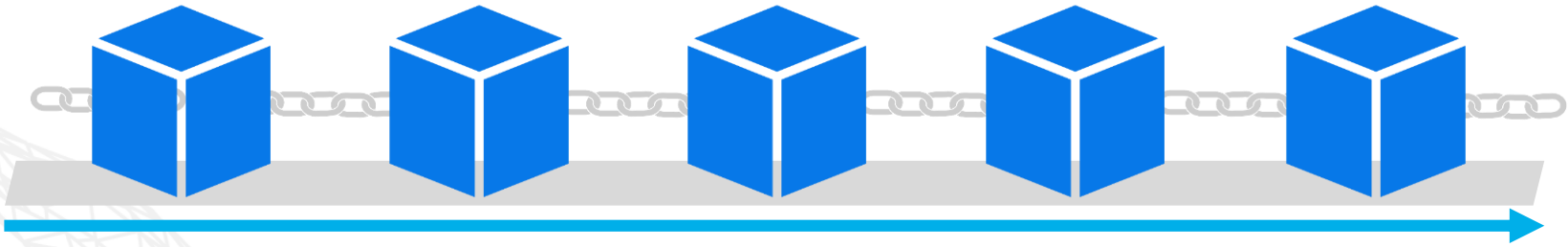
Source: Standard and Chartered

Key points on blockchains

A decentralized database that creates permanent, unchangeable records

They act like digital notaries

Can instill confidence between actors – empowering people to transact p2p



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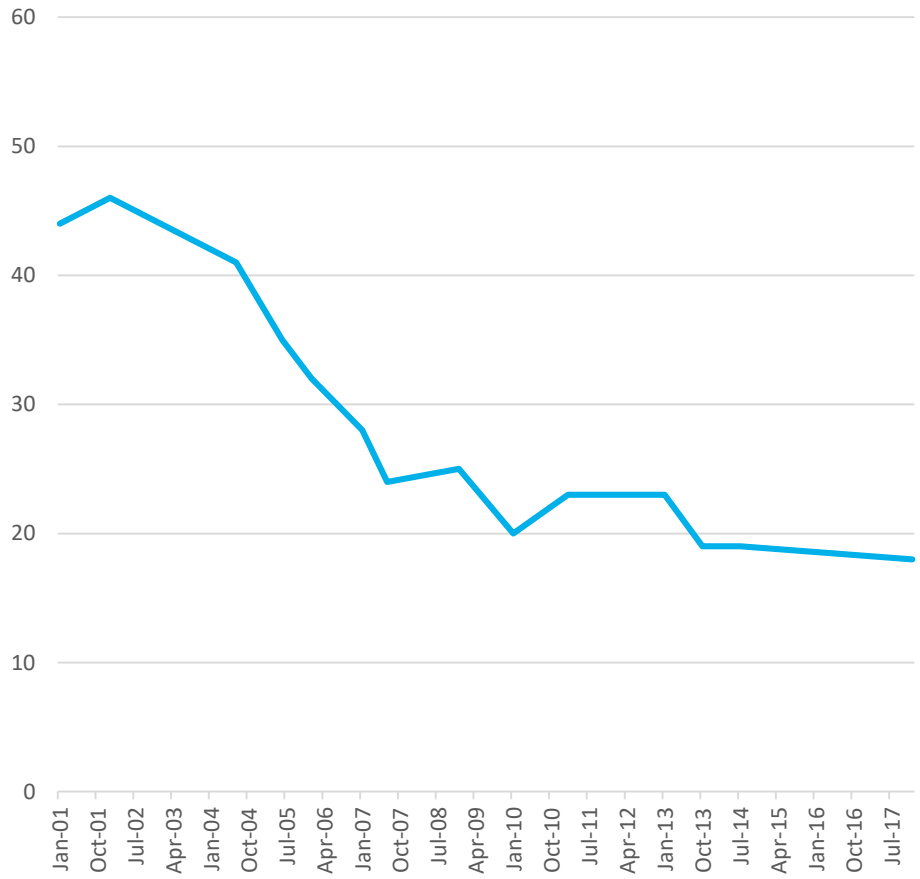
“If you want to predict the prosperity of a country, just look at its institutions.”

The World Economic Forum
Global Competitiveness Report, 2015

TRUST IN GOVERNMENT

- Worldwide, **85 percent** of people say their institutions aren't working for them
- Trust in government is at an **all-time low**



Source: Pew Charitable Trusts

EROSION OF TRUST ACROSS SECTORS & GEOGRAPHIES

- Trust in all 4 key institutions – business, government, NGOs, and media – has declined

- Institutions must step outside of their traditional roles and work toward a new, more integrated operating model that puts people at the center

GBBC
Global Blockchain Business Council

The GBBC helps maximize the benefits of Blockchain for industry and society.

The Global Blockchain Business Council is dedicated to furthering adoption of blockchain technology through engaging and educating regulators, business leaders, and global change makers on how to harness this groundbreaking tool to create more secure, equitable, and functional societies.

Our team

Global Blockchain Business Council (GBBC) founding advisors & leadership team represent over 50 countries across six continents.

Hernando de Soto
Chairman
INSTITUTE FOR LIBERTY AND DEMOCRACY

Bill Tai
Founder
MAI TAI GLOBAL

Jemma Green
Co-Founder
POWER LEDGER

Michael Casey
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MIT MEDIA LAB

Gigi Brisson
Co-Founder
ATTRACTOR VENTURES

Paula Guedes
Founder & CEO
ATLZ GROUP

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PROCIVIS AG

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WEAV MUSIC

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BITFURY GOUP

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BITPESA

Valery Vavivov
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BITFURY GROUP

Laurent Lamothe
Former Prime Minister
HAITI

Yew Kiat Phang
CEO
CHONG SING HOLDINGS GROUP

Eva Kaili
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Greece

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GBBC pillars

1. Education & Industry Outreach

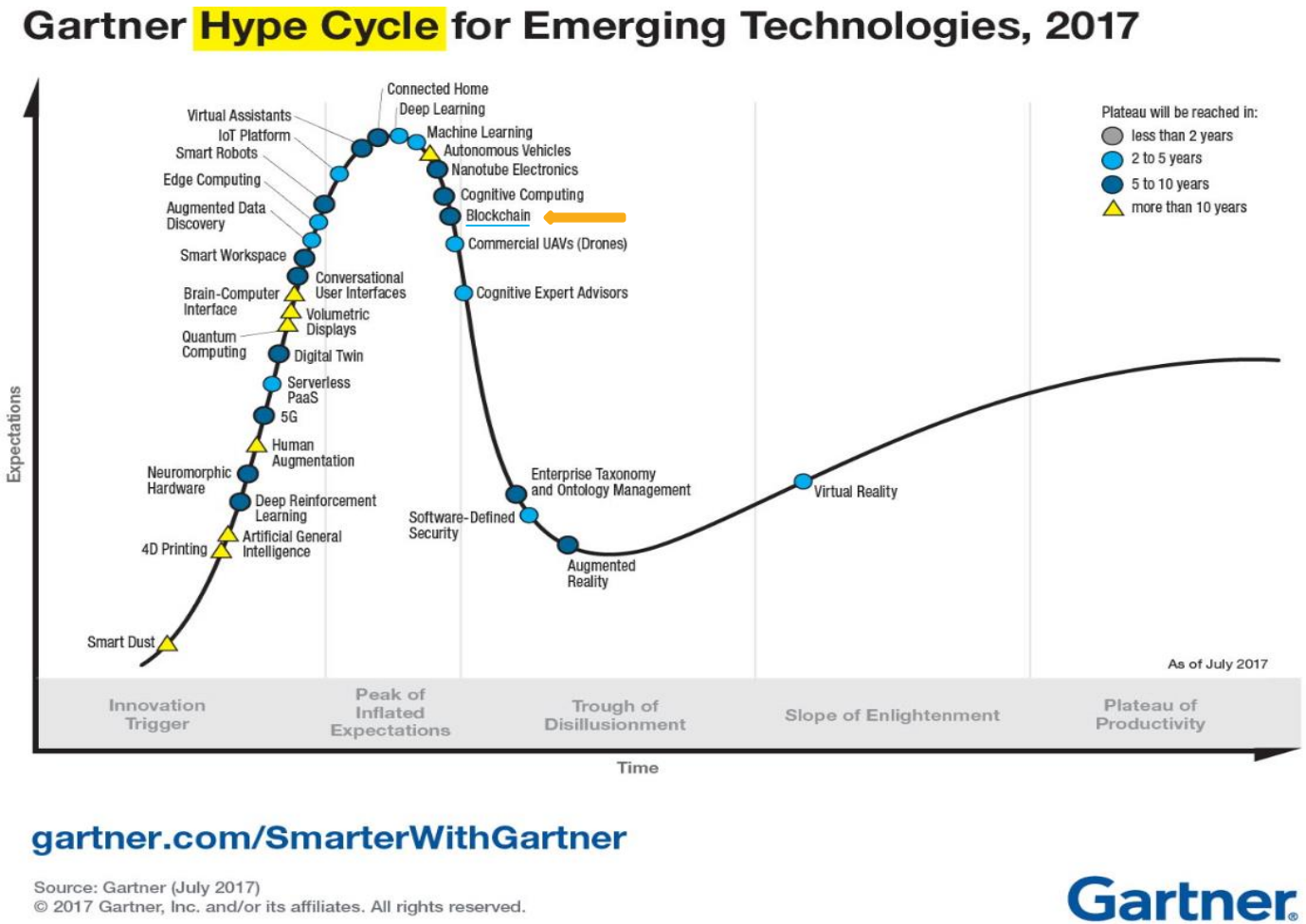
2. Advocacy

3. Partnerships & Networking

GLOBAL

TRENDS

Blockchain: Reality vs Hype



Blockchain Technology:
Where we've been + where we're going

2017

- Cryptocurrencies
- ICO Mania
- Limited real-world use cases

2018

- Commercial + Growth
- "Crypto winter"
- Infrastructure evolution
- Increase in real-world use cases
- Impact across industries and geographies

2019

- Market stability
- Regulatory movement in key jurisdictions
- Progress scaling solutions

Trends & Attitudes

BLOCKCHAIN AT 2016 ANNUAL WORLD ECONOMIC FORUM MEETING IN DAVOS

- **1 session** on blockchain

BLOCKCHAIN AT 2017 ANNUAL WORLD ECONOMIC FORUM MEETING IN DAVOS

- **8 sessions** on blockchain

BLOCKCHAIN AT 2018 WORLD ECONOMIC FORUM MEETING IN DAVOS

- **Word "Blockchain" appears more times in official WEF program than words "United States" or "European Union"**

BLOCKCHAIN DURING 2018 + 2019 G20 MEETINGS

- Blockchain technology & cryptocurrencies key themes of G20 meetings in Buenos Aires and Osaka

BLOCKCHAIN ON CAPITOL HILL

- Announcement of Libra leads to increased scrutiny across U.S. and abroad

WORLD ECONOMIC FORUM

G20

UNITED STATES CONGRESS

Collaborating

- Congressional Blockchain Caucus
- Enterprise Ethereum Alliance (EEA)
- EU Blockchain Observatory and For
- Global Digital Finance (GDF)
- Hyperledger
- Post Trade Distributed Ledger Group (PTDL)
- Legal and Regulatory Group (LRG)
- Open Learning Forum (OLF)

Congressional Blockchain Caucus

EU Blockchain Observatory and Forum

ENTERPRISE ETHEREUM ALLIANCE

HYPERLEDGER

GDF

Is blockchain technology the right solution?

What to ask before exploring blockchain solutions

- What's wrong with the existing solutions?
- Who or what is maintaining the status quo?
- How will this technology address that?
- Why doesn't any existing technology do so?
- What's the deployment strategy?
- What change are we asking of users?

Advantages of blockchain technology

Increased Confidence
Trust is built into the very framework of the technology

Ease of Audit
Audits can be conducted by any member of the network –simple, inexpensive verification

Increased Security
Once verified, data recorded in the Blockchain cannot be changed

Greater Efficiency
Eliminates intermediaries, reduces transaction costs, and mitigates risk

How blockchain is being used today

BUSINESS PROCESSES & PAYMENTS

Payments

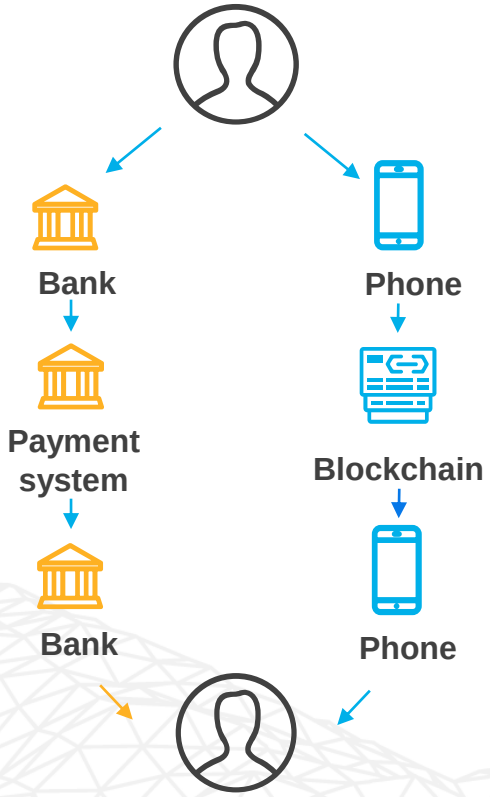
How can we make financial transactions more efficient & secure?

Current System – 2 days

Client
Slow transactions due to compliance (KYC / AML)

Bank
Dependence on intermediaries costs users

Regulator
Inefficient and ineffective mechanisms for monitoring



Blockchain System – 10 minutes

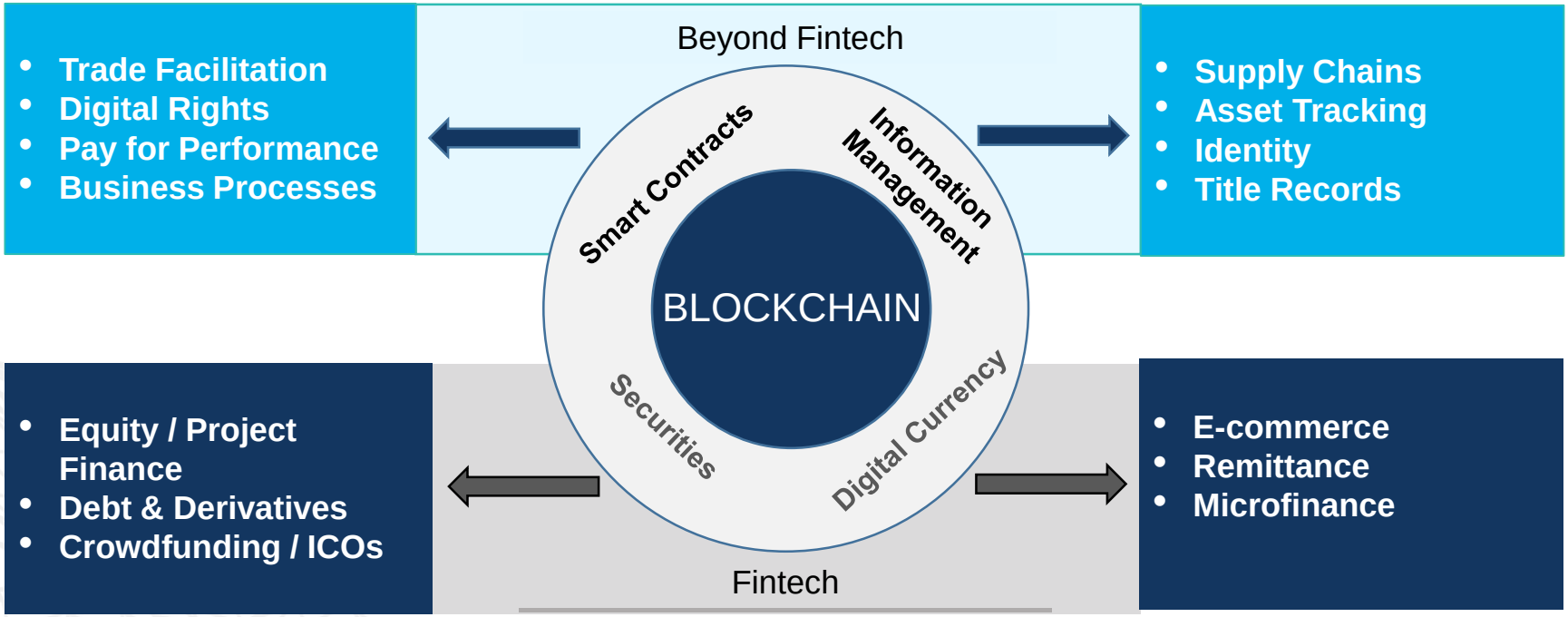
Client
Built-in data privacy and minimal fees

Bank
Adoption of blockchain platform reduces operating costs significantly

Regulator
Real-time regulation and streamlined, automatic auditing

Blockchain applications beyond fintech

Blockchain delivers: **Transparency, Accountability, Security and Efficiency**



SUPPLY CHAIN AND SECURITY

Supply chain management

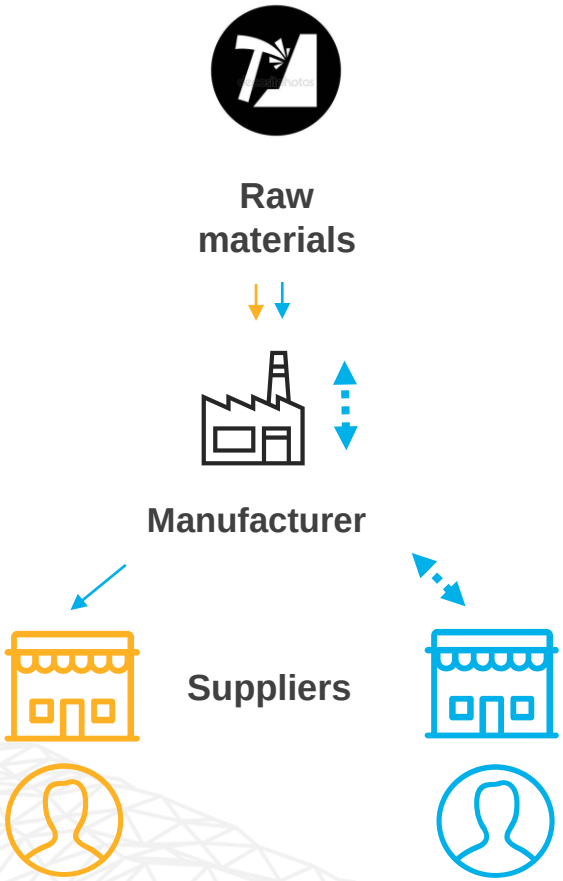
How can we secure the safety of supply chains?

Current System

Manufacturer
Opacity surrounding origin of goods and materials shipped by manufacturers

Intermediaries
Introduce complexity and additional points of failure in the system

Client
Clients must prepay



Blockchain System

Manufacturer
Transparent audit on the blockchain mitigates risk

Intermediaries
Smart contracts outline responsibilities of each participant in the chain using unambiguous language

Client
Payment is transferred when goods are received and recorded

Department of Health and Human Services (HHS)

IT asset and supply chain management:

patents, trademarks and copyrights; and identity management

HHS Accelerate aims to save the agency time and money by providing greater access to secure, standardized data while significantly reducing administrative processing time. This efficiency will be applied to acquisition, with HHS using blockchain to combine procurement data sets in a secure cloud to identify cost savings and streamline contract formation.

Department of Treasury, Army, & Department of Defense…

Aviation and potential blockchain applications:

PEOPLE

- **Identity Management** (customers, employees, suppliers, partners)
- **Tokenisation** - Loyalty Miles as Digital Money and Gaming
- **Bundled Services Management** – Improve customer experience; mitigate overbooking issues

SUPPLY CHAINS & LOGISTICS

- **Identity / Credentials Management** - Identify & verify 'credentials' of people and institutions)
- **'Real Time Track & Trace'** – Counterfeiting / Fraud Mitigation, Increase Transparency
- **Data Analytics** – Improve information sharing for regulatory & ROI benefits
- **Aircraft Leasing / Insurance**

SAFETY, SECURITY & REGULATIONS

- **Flight Records Systems Security** – e.g. Malaysia Airlines Flight 370 March 2014
- **Data Sharing & Analytics** – Enables faster info flow across agencies & stakeholders – 'BUREAUCRACY KILLER'?
- **Insurance & Financing** - Integrated digital financial services to improve risk analysis; fraudulent claims reduction

Risks and benefits for the aerospace industry

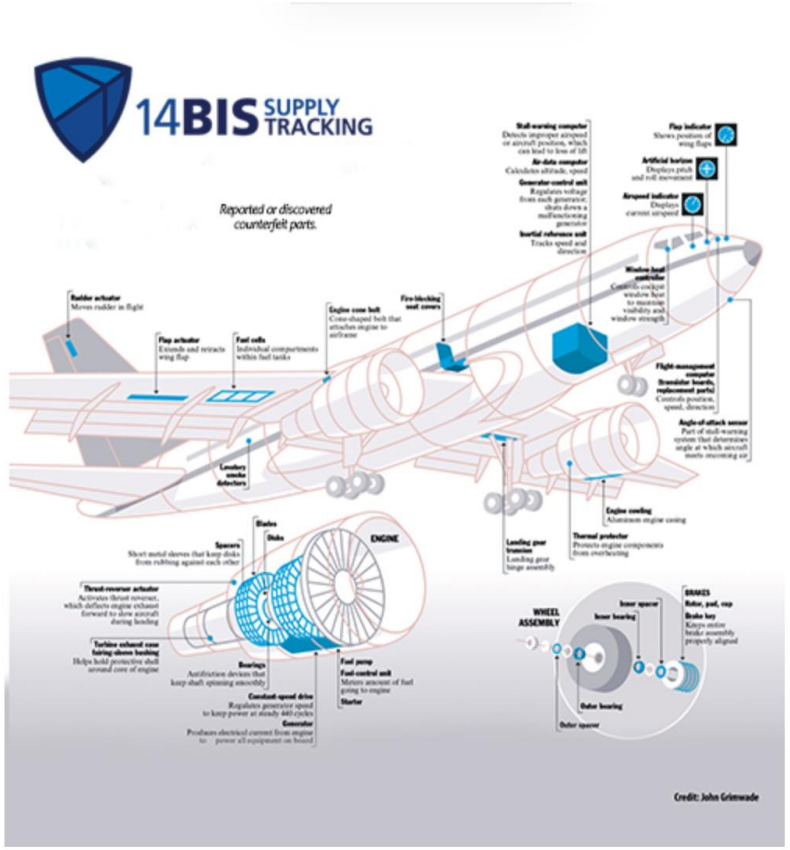
Potential Benefits:

- Non-siloed Information Sharing
- Increased Data Security
- Transparency
- Fraud Mitigation
- Cost Reduction
- Payment Efficiency
- Enhanced Customer & Provider information
- Predictive, Proactive Decision Making

Potential Risks:

- Multiple Blockchains' Interoperability Issues
- Regulations & Jurisdictional Arbitrage (similar to financial services)
- Technology Convergence Implications (AI, IoT, Quantum Computing, Robotics, Blockchain)
- New Technology Leapfrogs Blockchain
- Too Much Hype, Not Enough Doing!
- We Recreate GAFAA World

Aerospace and blockchain technology



Tomorrow's Technology, Today.

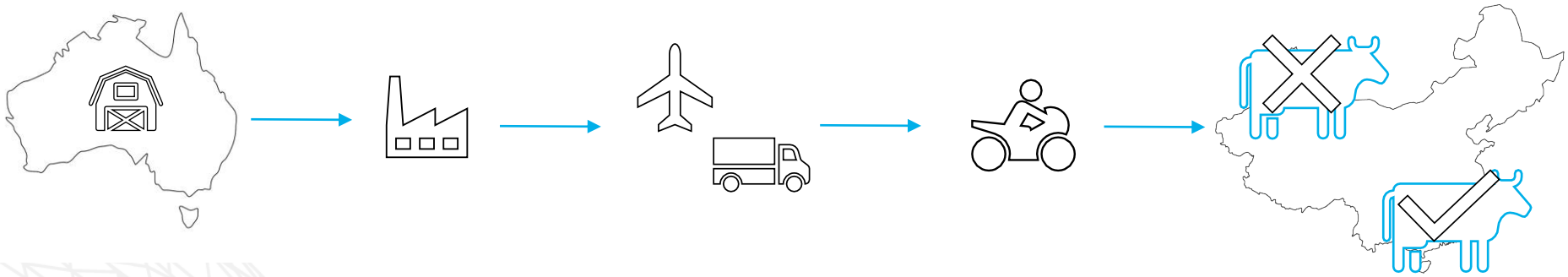
- Aerospace demand growth in the USA is estimated at 2.1% annually.
- **At least 2%** of parts in circulation are **Known** to be counterfeit.
- A conservative estimate of the North American aerospace counterfeit market is **$1.92 bn/year, money lost for OEMs/airlines/governments**.

14BIS SUPPLY TRACKING

Provenance: Australian Beef (Latitude 28°)

How can we verify the authenticity of products?

Australian branded agricultural products are highly sought after in China for their quality and safe reputation. The high price tag for Australian beef has created a lucrative Chinese **counterfeit beef** business, estimated at **$2 billion a year**.



Latitude 28 is creating a closed loop business-to-consumer export model using blockchain technology enabling "**processors**, **producers all the way through** to **third party logistics**, **airlines**, the tiny little **scooter delivering product to consumers [to] independently authenticating our product**"

Walmart and IBM launched a similar blockchain-based pilot to increase transparency along Chinese pork supply chains.

What can cyber security learn from blockchains?

- Trust No Single Node: assume you have bad actors
- Apply the ‘Village’ Model: everyone in a village knows each other
- Be a Starfish*: Distributed, decentralized networks are harder to ‘break’ / destroy
- Data as a utility: ‘everyone owns the data’; shared economy
- Interact with hackers and malevolent actors

Concept credit to The Starfish and the Spider, Ori Brafman and Rod A Beckstrom

Cyber security trends today

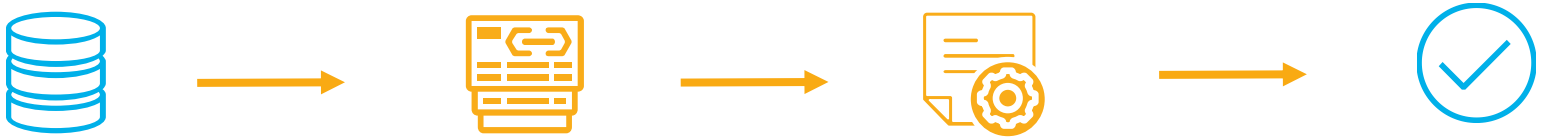
- The phishing landscape is changing, though email still ranks as the biggest
- Increasing use of mobile as an attack vector
- Targeting of local governments and enterprises via ransomware attacks
- Increasing emphasis on data privacy, sovereignty, and compliance
- Increasing investments in cyber security automation
- Cyber security spending will continue to increase
- The growing impact of AI and ML on cyber security
- Cyber attacks on utilities and public infrastructure will continue to increase

Source: https://www.thesslstore.com/blog/the-top-cyber-security-trends-in-2019-and-what-to-expect-in-2020/ by Casey Crane

Coca Cola + U.S. State Department: Labor Rights

How can we protect the labor rights of the workers along the supply chain?

In March 2018, the Blockchain Trust Accelerator announced a new project aimed at creating a **secure digital labor contract registry** for The Coca-Cola Company and their suppliers using blockchain's validation and digital notary capabilities. This blockchain-based solution could become a best practice for corporations to ensure the **protection of labor rights of workers along their supply chains.**



New interoperable blockchain-based registry of employment contracts

Recording data on a blockchain based system leads to increased efficiency and security

Blockchain technology protects the registry and its users from contract-switching and related abuse by malicious actors

Coca Cola will be able to closely monitor the labor recruitment practices of subcontractors and ensure transparency along their labor supply chain.

Blockchain use cases in the headlines

Walmart and IBM Are Partnering to Put Chinese Pork on a Blockchain

Australia becomes World's First to Move Stock Exchange to A Blockchain

EU Politician Pushes Parliament to Test Blockchain Identity for Refugees

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THE ARC OF HISTORY BENDS TOWARD DECENTRALIZATION

ADDITIONAL READING

Satoshi Nakamoto's White Paper: https://bitcoin.org/bitcoin.pdf

Andreas Antonopoulos' videos and Internet of Money (Vol 1 & 2), Mastering Bitcoin (editions 1 & 2) books

Chris Burniske & Jack Tatar, CryptoAssets book (valuation and basic of crypto trading)

Michael Casey & Paul Vigna's Age of Cryptocurrency & The Trust Machine books

CoinCenter.org resources on crypto currencies https://coincenter.org/

Global Blockchain Business Council https://www.gbbcouncil.org/ (curated content to be available)

John Hargrave, Navroop Sahdev, Olga Feldmeier paper on crypto value creation (I still need to read this) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3146191

Universities with crypto thought leadership: MIT Media Lab/DCI, Berkeley, Cornell, Imperial, Cambridge

BASIC BLOCKCHAIN TERMINOLOGY

- Consensus Algorithm: a process used to achieve agreement regarding a certain set of data and its validity across a distributed network
- Distributed Autonomous Organization (DAO): an organization that is run through rules encoded as computer programs called smart contracts
- Digital Signature: a code attached to an electronic document to verify its contents and the sender ID
- Genesis Block: the first block of data in a chain
- Hard Fork: is a permanent divergence from the previous version of the blockchain requiring miners and nodes to upgrade protocol software to newest/latest version of the blockchain
- Hash Function: a cryptographic mechanism used to verify and authenticate the integrity of information by producing a value for a specific object
- Node: A point in a network where there is an intersection (e.g. a computer connected to the network that ideally performs a function)
- Oracle: a bridge between the outside world and blockchain which verifies real world information and submits it to the blockchain
- Permissioned / Permissionless: types of blockchains which are private or publicly accessible
- Private Key: A form of cryptography that provides access, similar to a password
- Smart Contracts: code that are executed by a network of computers, which facilitates the self execution of previously agreed upon conditions
- Smart Laws: a concept which allows human logic to intervene in smart contract execution where necessary
- tps: transactions per second: the speed at which a network can record data

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