

Blockchain for Insurance Industry

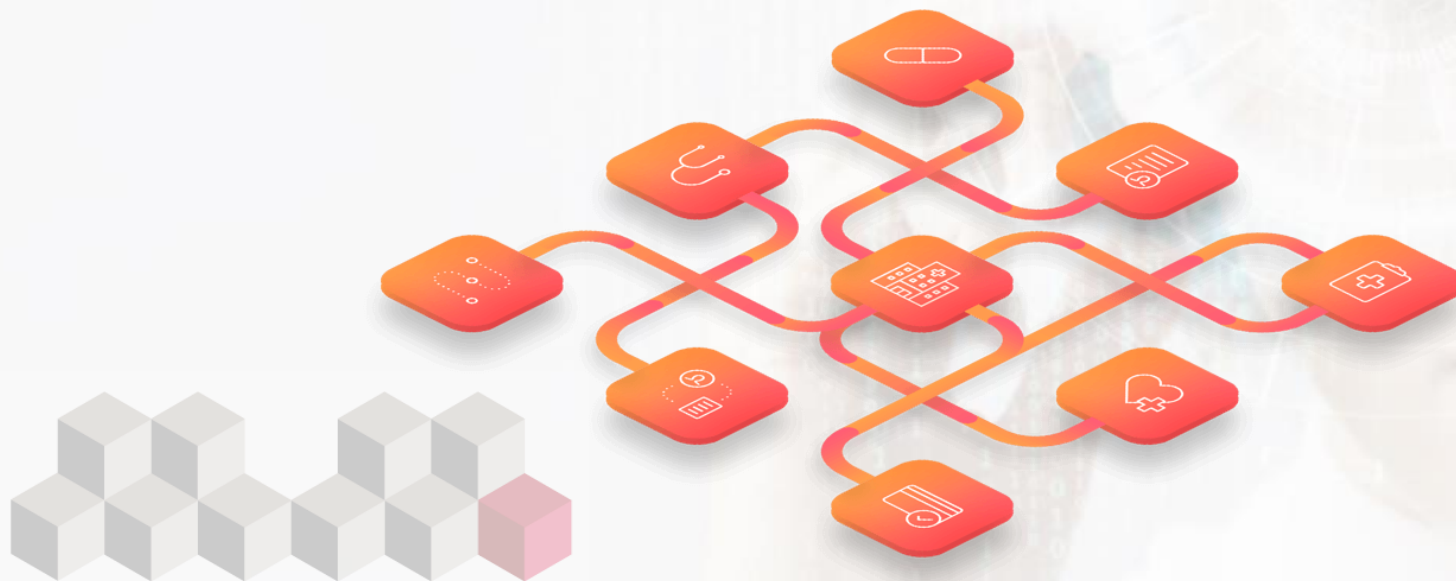
Rattakorn Poonsuph, Sc.D (NIDA)

rattakorn@nida.ac.th

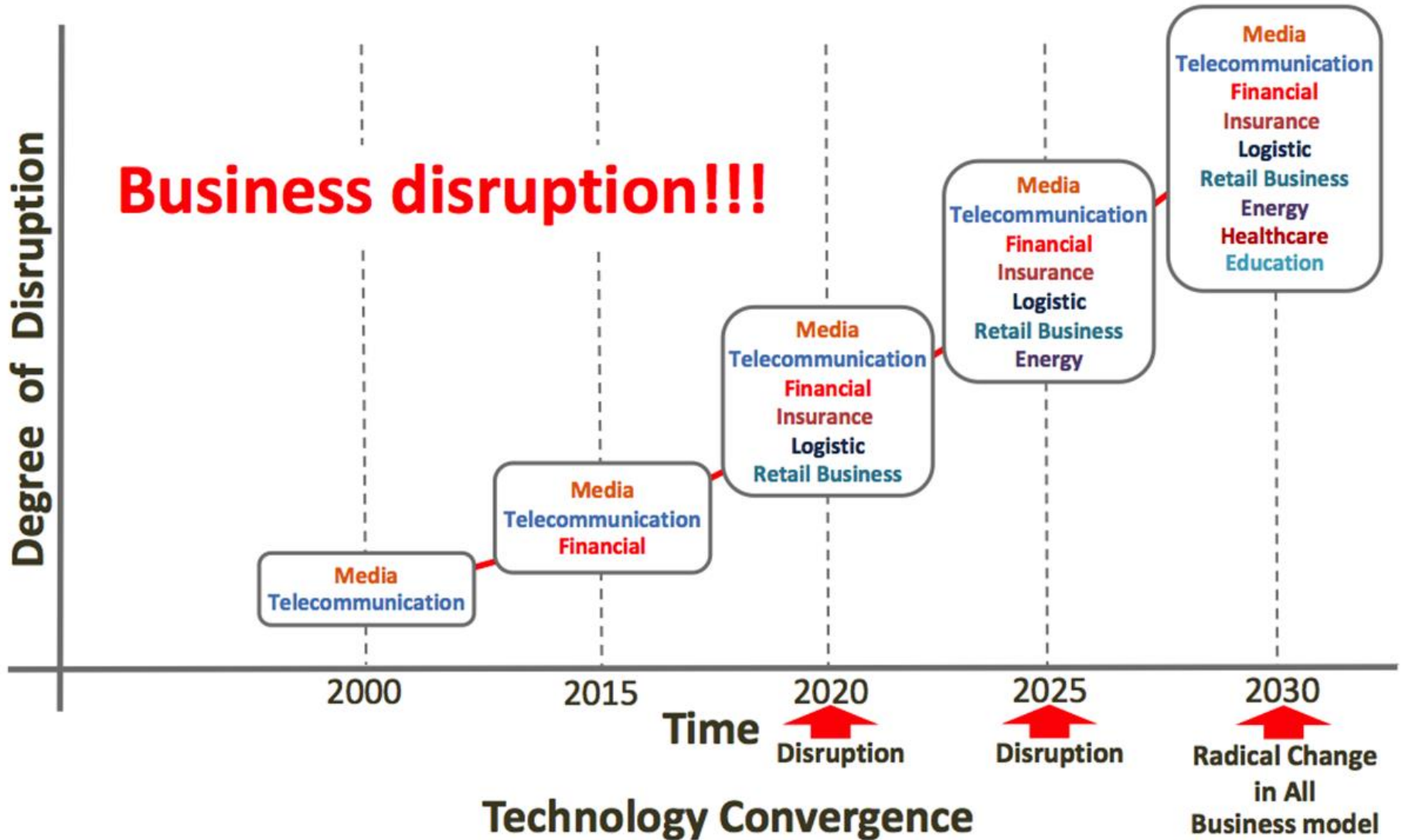


Blockchain

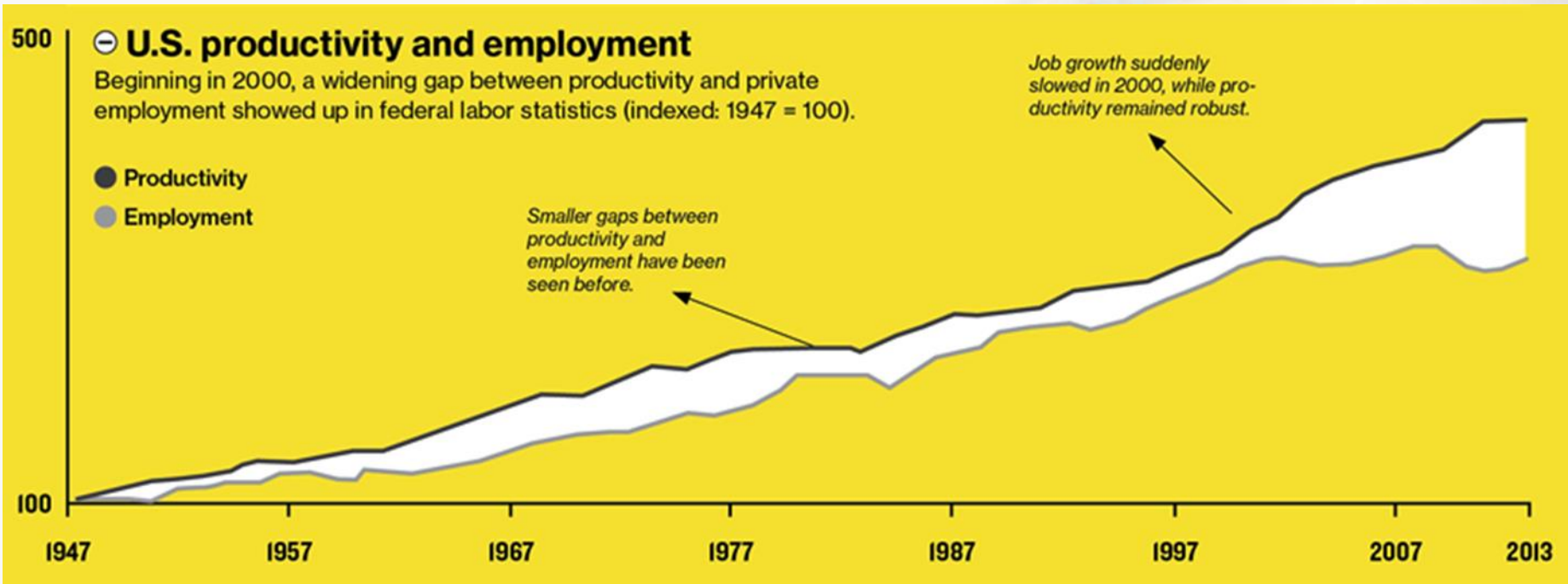
BLUEPRINT FOR A NEW ECONOMY



Wave of Digital Disruption

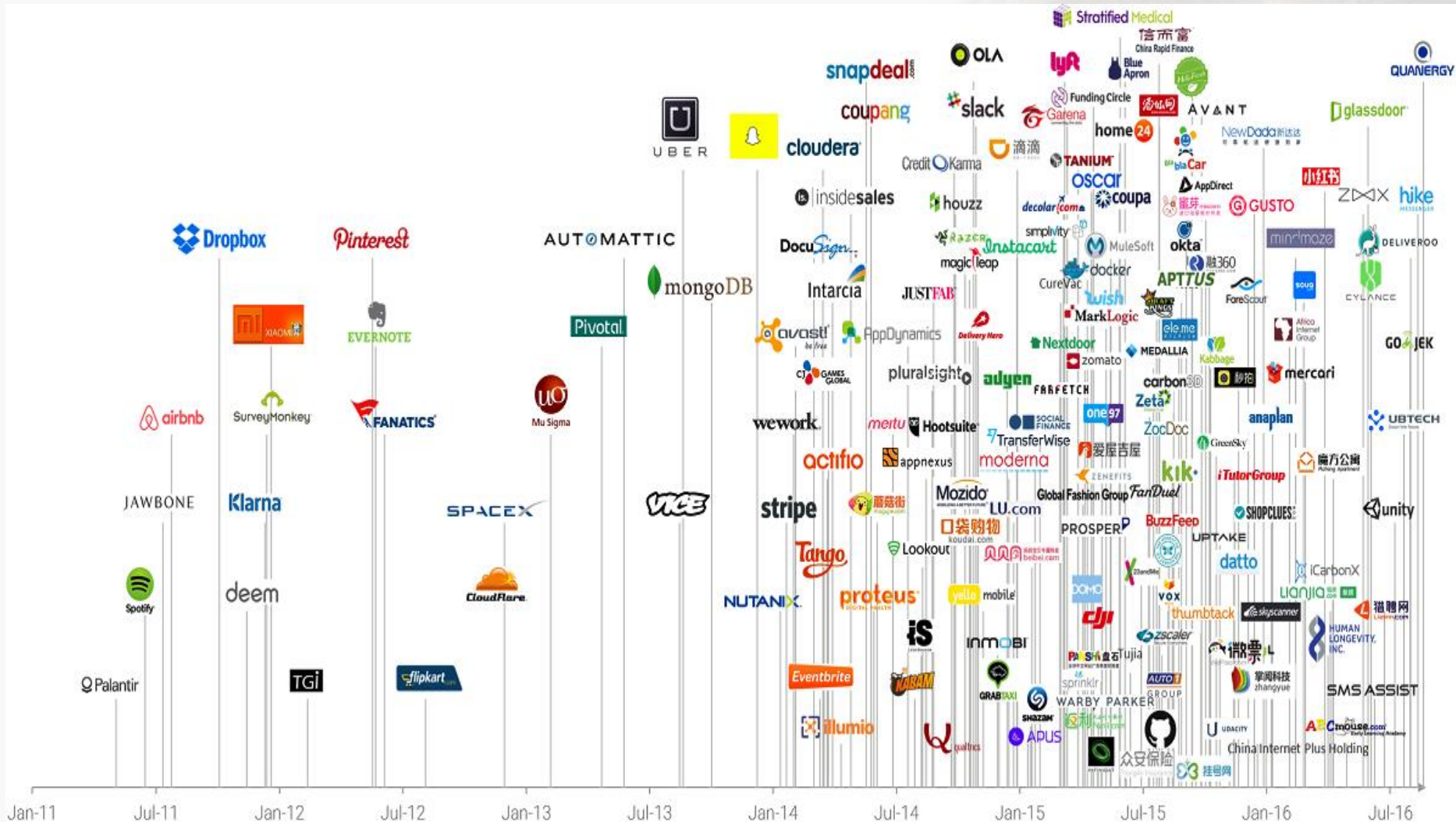


What's wrong with this statistics?



Unicorn

“unicorns”—private companies valued at \$1 billion or more.



The billion-dollar technology startup was once the stuff of myth

Technology startups are entering all insurance business lines

Automotive*
(107 Companies)

Employee Benefits
(40 Companies)

Enterprise/Commercial
(94 Companies)

Health/Travel*
(99 Companies)

Data/Intelligence*
(88 Companies)

Consumer Management
(51 Companies)

Insurance Technology

974 companies across 14 categories from 53 countries with \$16.5B in funding

Comparison/Marketplace
(242 Companies)

Education/Resources
(30 Companies)

Infrastructure/Backend
(196 Companies)

User Acquisition
(61 Companies)

Life, Home, P&C*
(90 Companies)

P2P Insurance
(29 Companies)

Product
(23 Companies)

Reinsurance
(29 Companies)

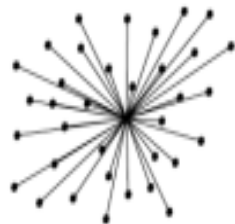


Blockchain

BLUEPRINT FOR A NEW ECONOMY

Business Section





PAST



PRESENT



FUTURE

Blockchain Startups

Top Blockchain startups disrupting non-financial markets



Venture Radar



Cloud storage



Filecoin



STORJ.IO



TIERION

Smart Contracts



appliedblockchain

THE WALL STREET JOURNAL



THE TIMES



HM Government



Social Networking



GEMS

Digital Identity

ONENAME



Art & Ownership

VERISART



Bitproof.io

MONEGRAPH



Anti-Counterfeiting



BLOCKVERIFY

Supply Chain

Tradle



thingchain

Prediction Markets



Internet of Things



FILAMENT



Governance

OTONOMOS



Swarm

followmyvote



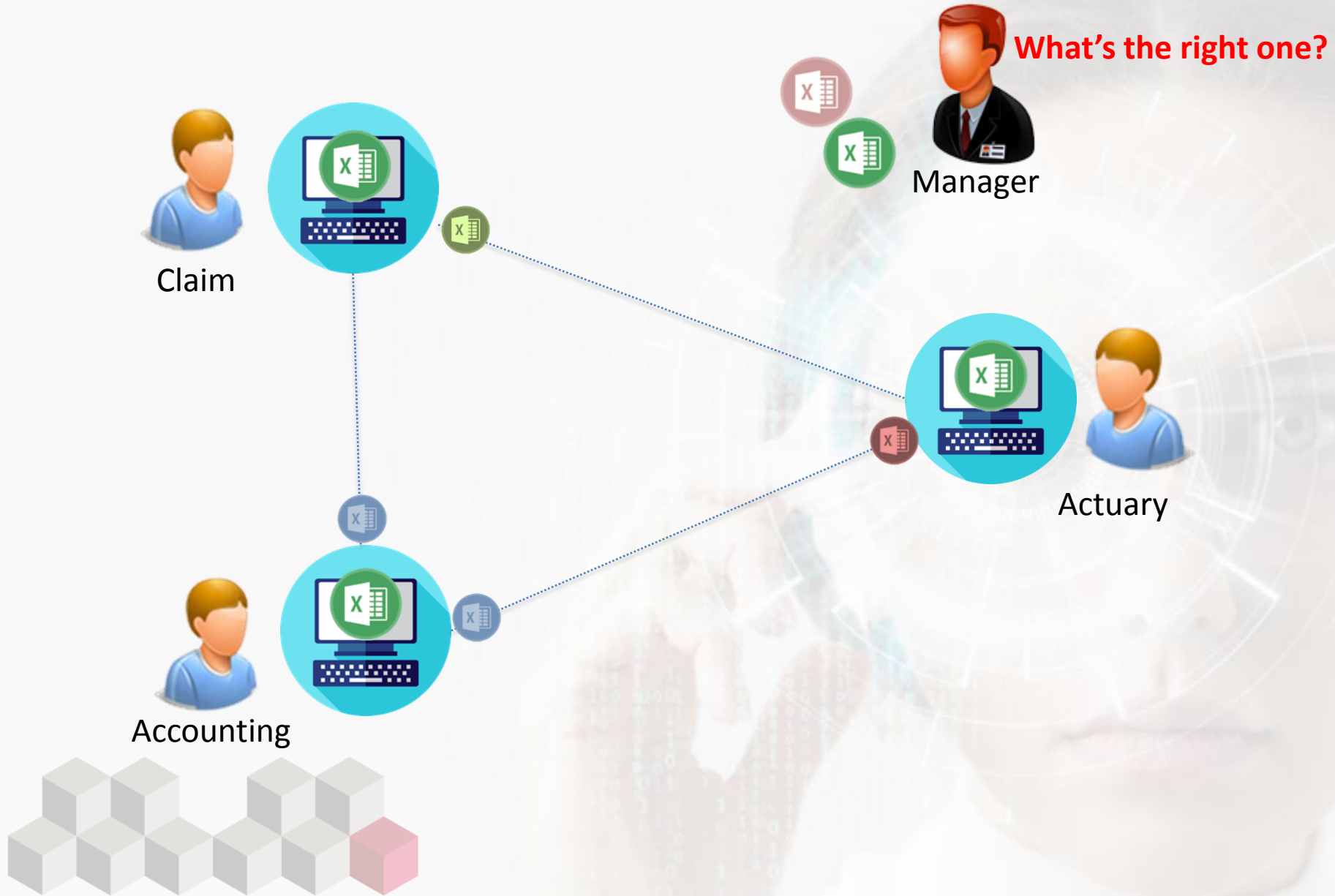
BITNATION GOVERNANCE ED

More: <https://www.ventureradar.com/>

“

- **Blockchain** is a very special kind of distributed Database
- **Peer network node data stores** are systems allowing users to replicate and share files across a network

Update data concurrently



Google Sheet



Claim



Manager



Accounting



Actuary

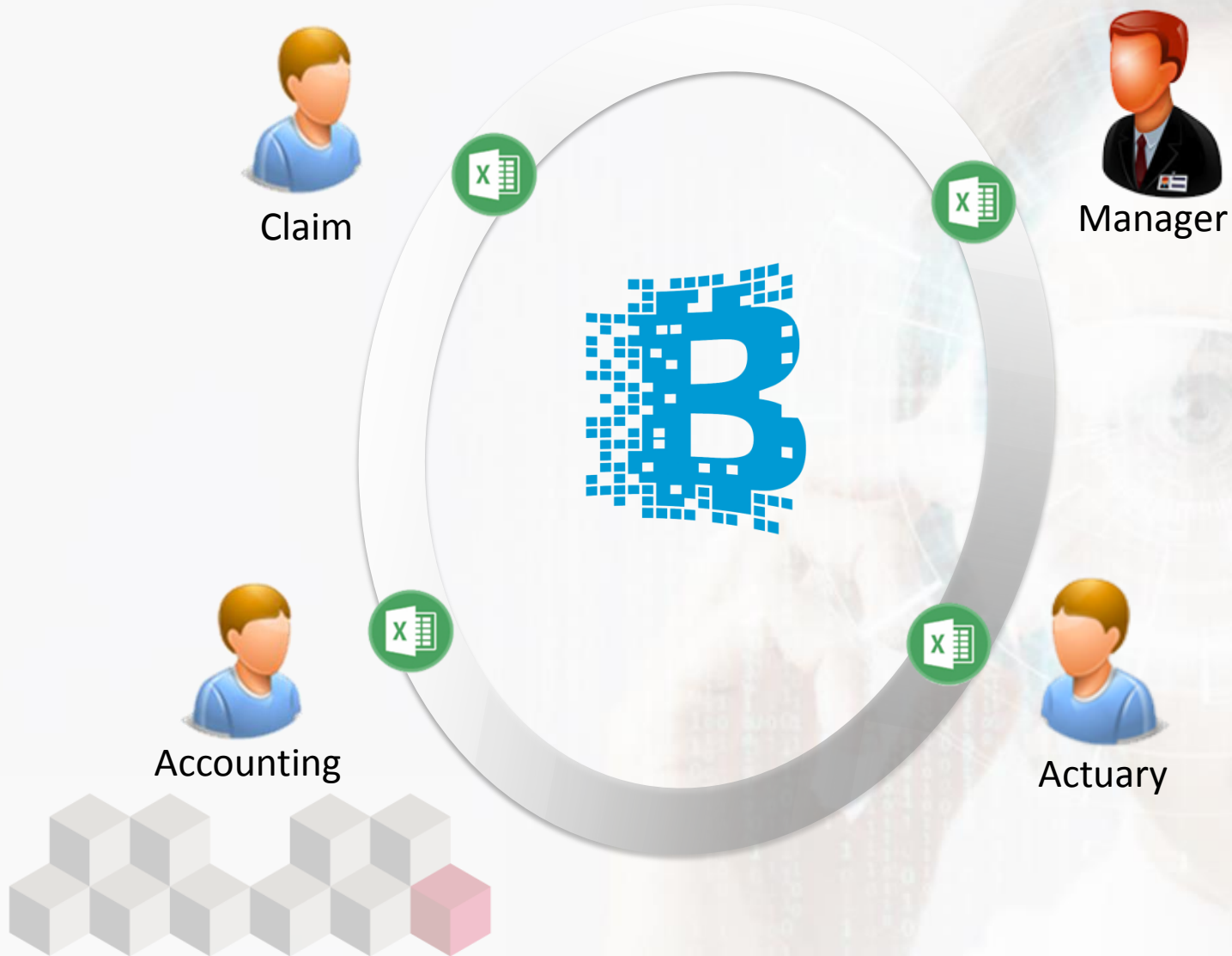


- On cloud services
- Public View
- Trusted Networks
- Overridden Content
- Unauthorized Update
- No Tracking version
- Controlled by a single entity.
- Single point of failure.

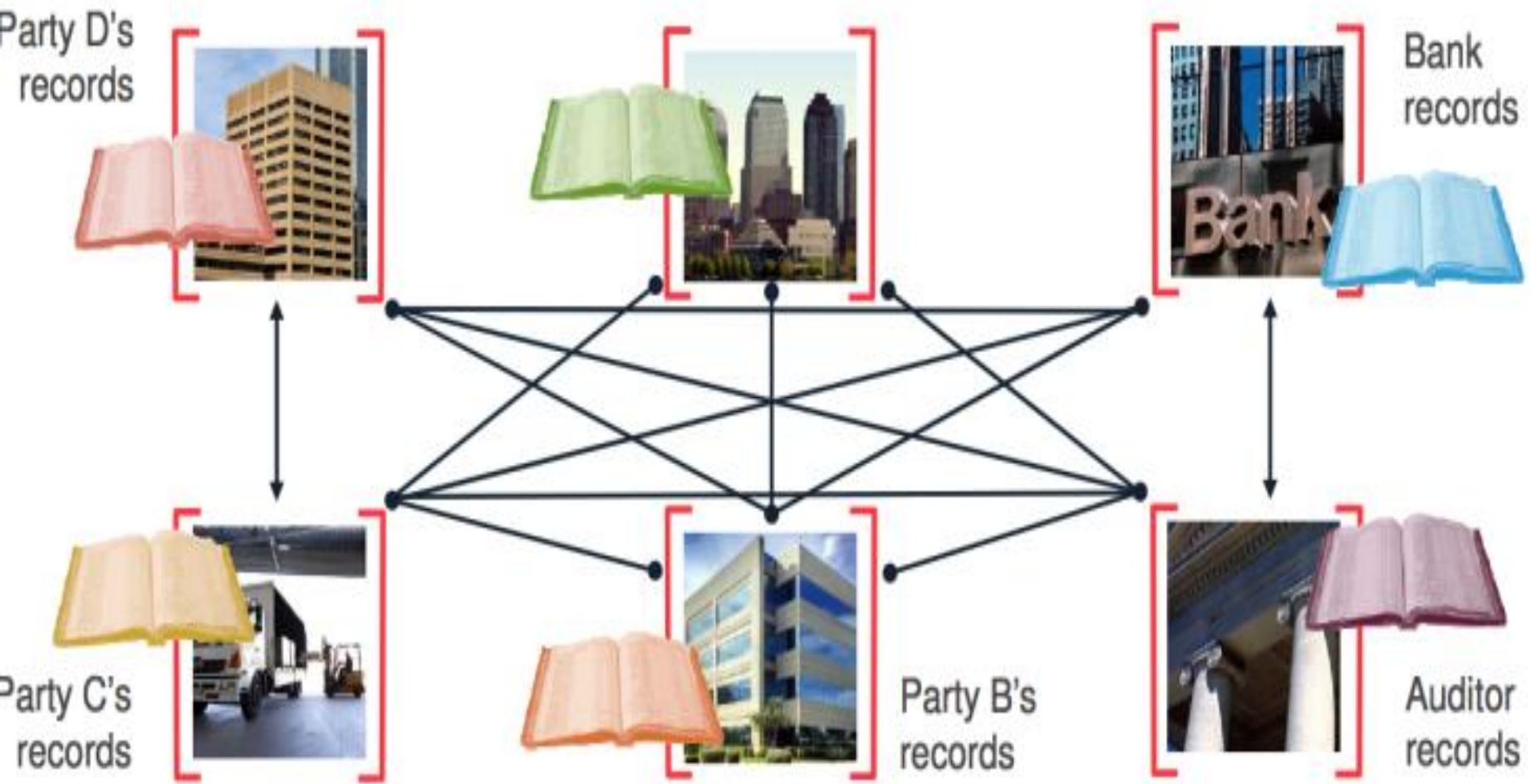
“

- **Blockchain** is leverage cryptography to provide a decentralized multi-version concurrency control mechanism and to maintain consensus about the existence and status of shared facts in trustless environments

Auto-Sync with Trusted

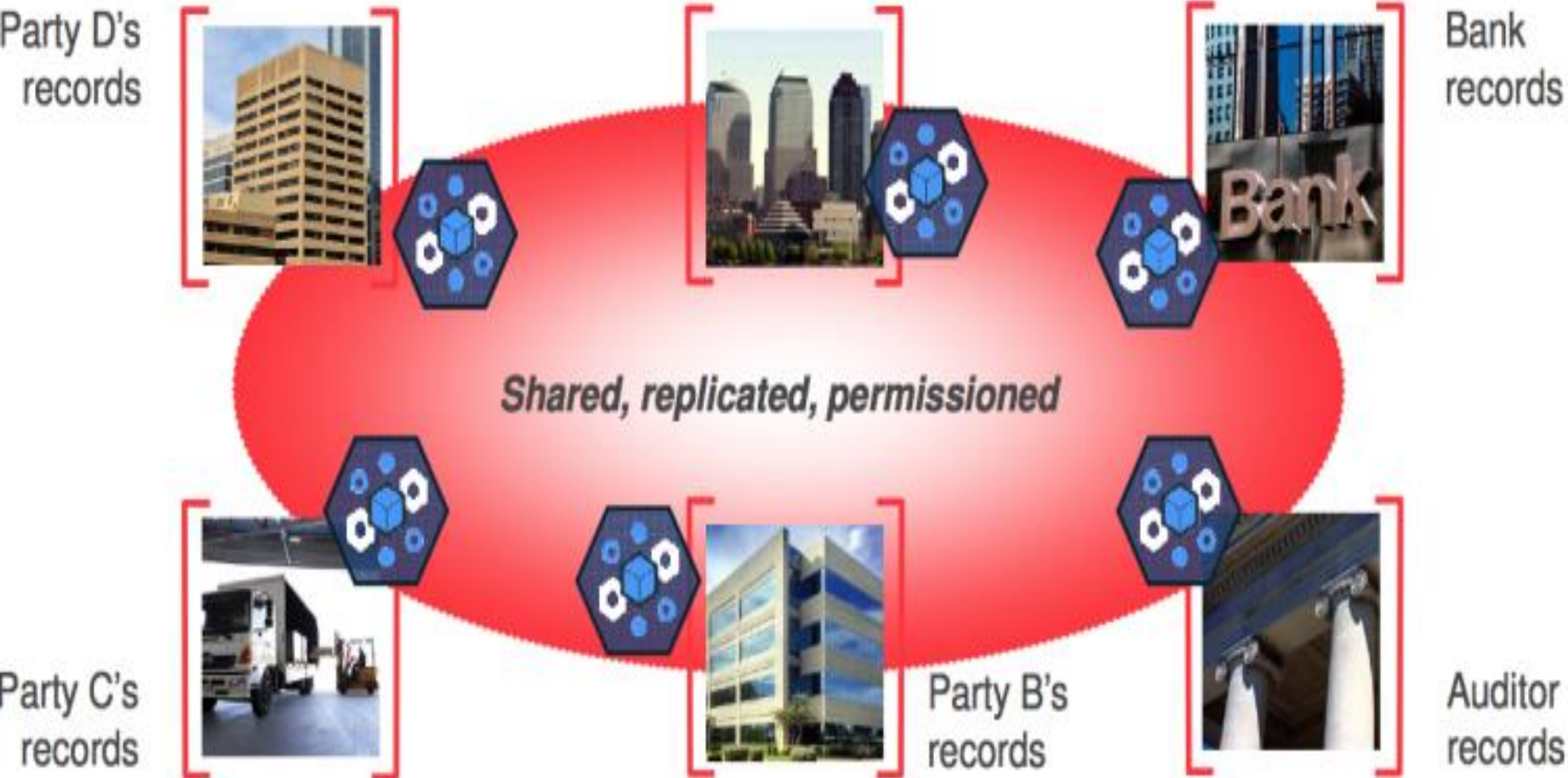


Problem ...



... Inefficient, expensive, vulnerable

Solution ...



... Consensus, provenance, immutability, finality

How blockchain work?

How a blockchain works

1

A wants to send money to B



2

The transaction is represented online as a 'block'



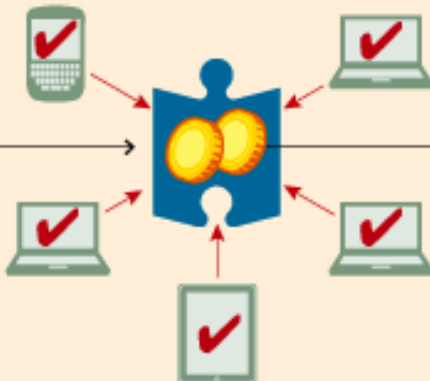
3

The block is broadcast to every party in the network



4

Those in the network approve the transaction is valid



5

The block then can be added to the chain, which provides an indelible and transparent record of transactions



6

The money moves from A to B



Why is blockchain unique? Four technologies in one

Distributed Ledger

- Decentralized, peer-to-peer network
- Append-only distributed database
- Replicated to all participant on the network
- Shows current status as well as status over time

Cryptography

- Ensures that transactions are secure, authenticated & verifiable
- Verifies participants' privacy while the ledger is shared

Consensus

- Consensus is the process by which transactions are verified
- Decentralized consensus ensures agreement on "single-version-of-the-truth" (allows for consistency among distributed ledger)

Smart Contracts

- Programmable contracts which contain the business logic that is automatically executed when pre-defined conditions are met
- Ideal for arrangements that are: tailored, verifiable, signed, self-executing, embedded in blockchain networks





CHANGE THE WORLD

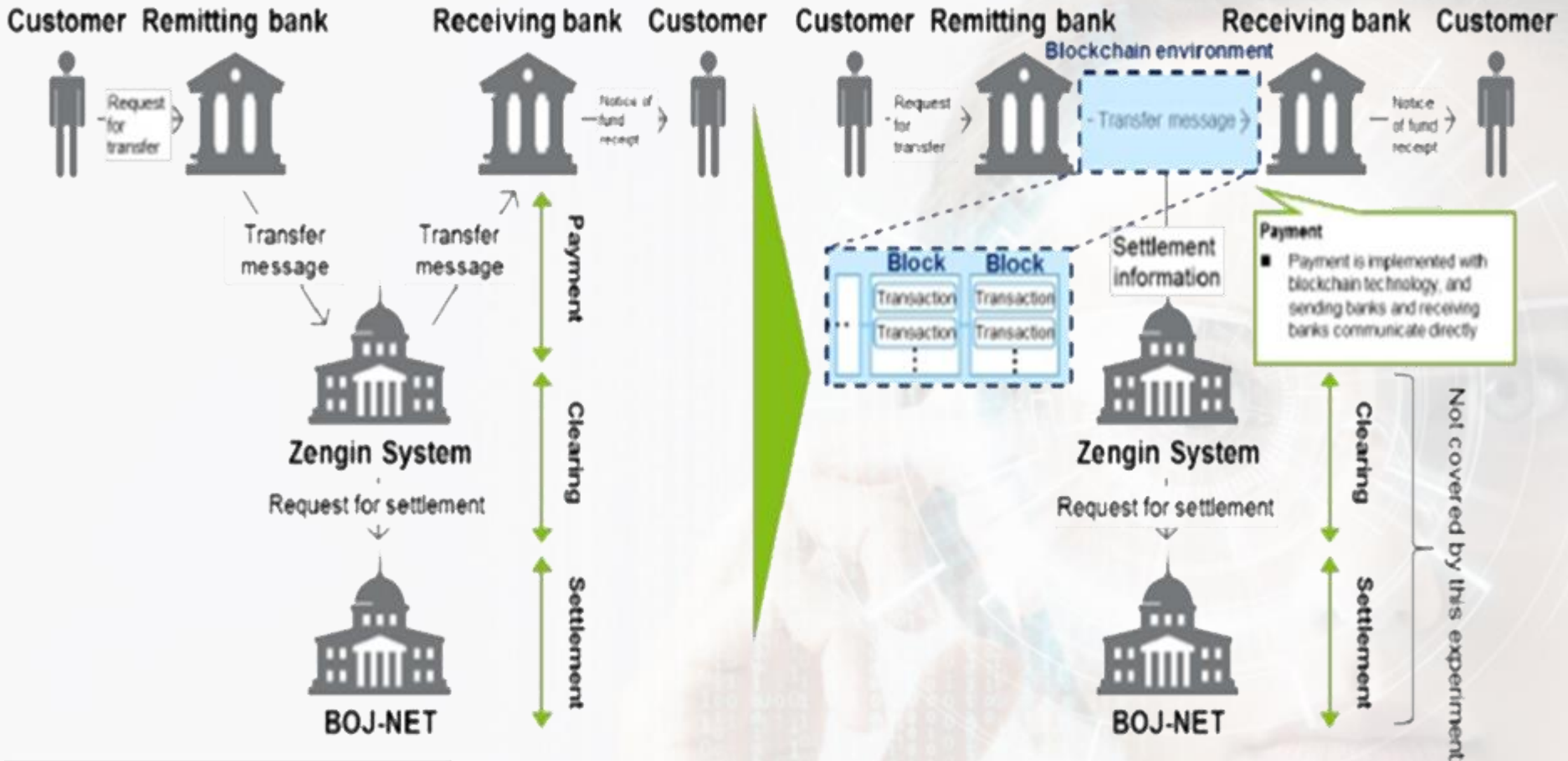
Shared public database without any central authority or party responsible for its maintenance and improvement.



Interbank Payment Operations

Current payment and settlement system

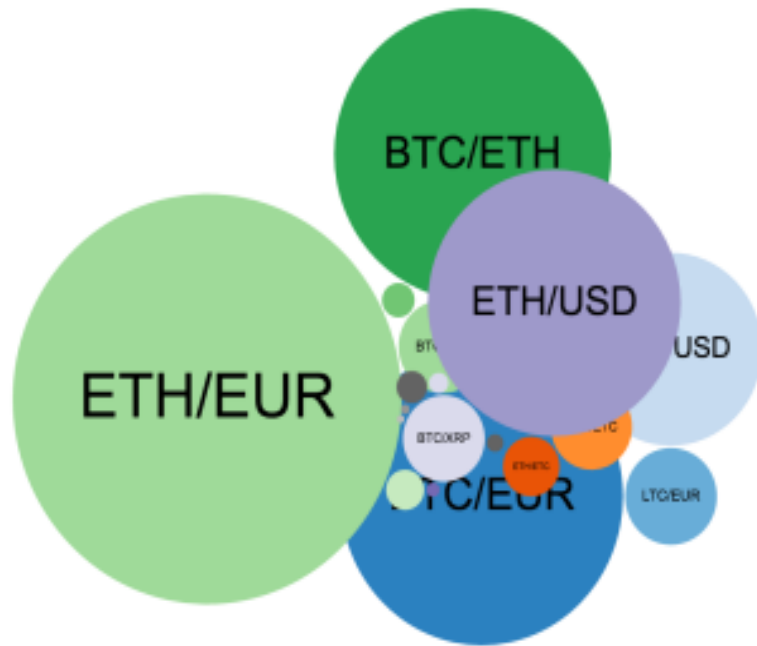
Scope of practical experiment



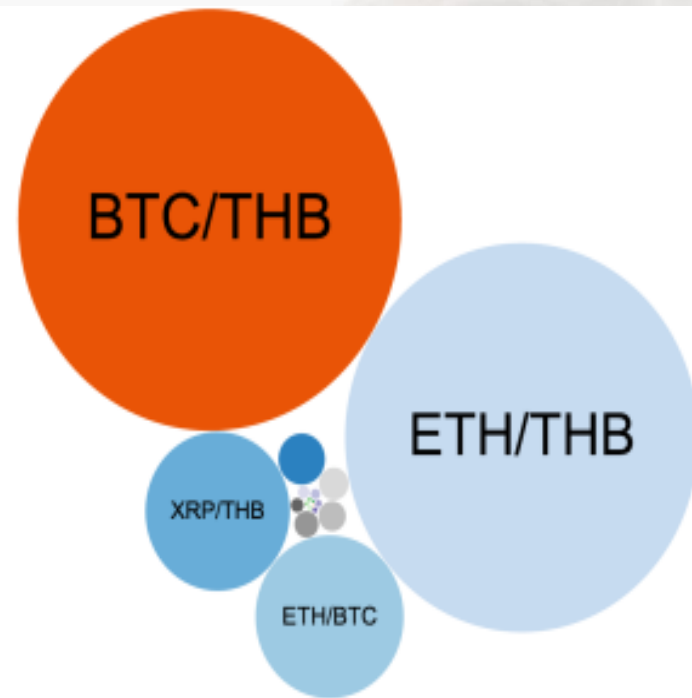
(1)



Digital Currency Market



Name	Price	Volume		
ETH/EUR	292.901 EUR	226,826.53 ETH	63,243,464.50 EUR	27,879.60 BTC
BTC/EUR	2,417.7 EUR	14,700.75 BTC	35,004,756.23 EUR	14,700.75 BTC
BTC/ETH	8.23968 ETH	14,135.75 BTC	120,355.07 ETH	14,135.75 BTC
ETH/USD	326.500 USD	103,010.40 ETH	32,040,611.63 USD	11,783.90 BTC



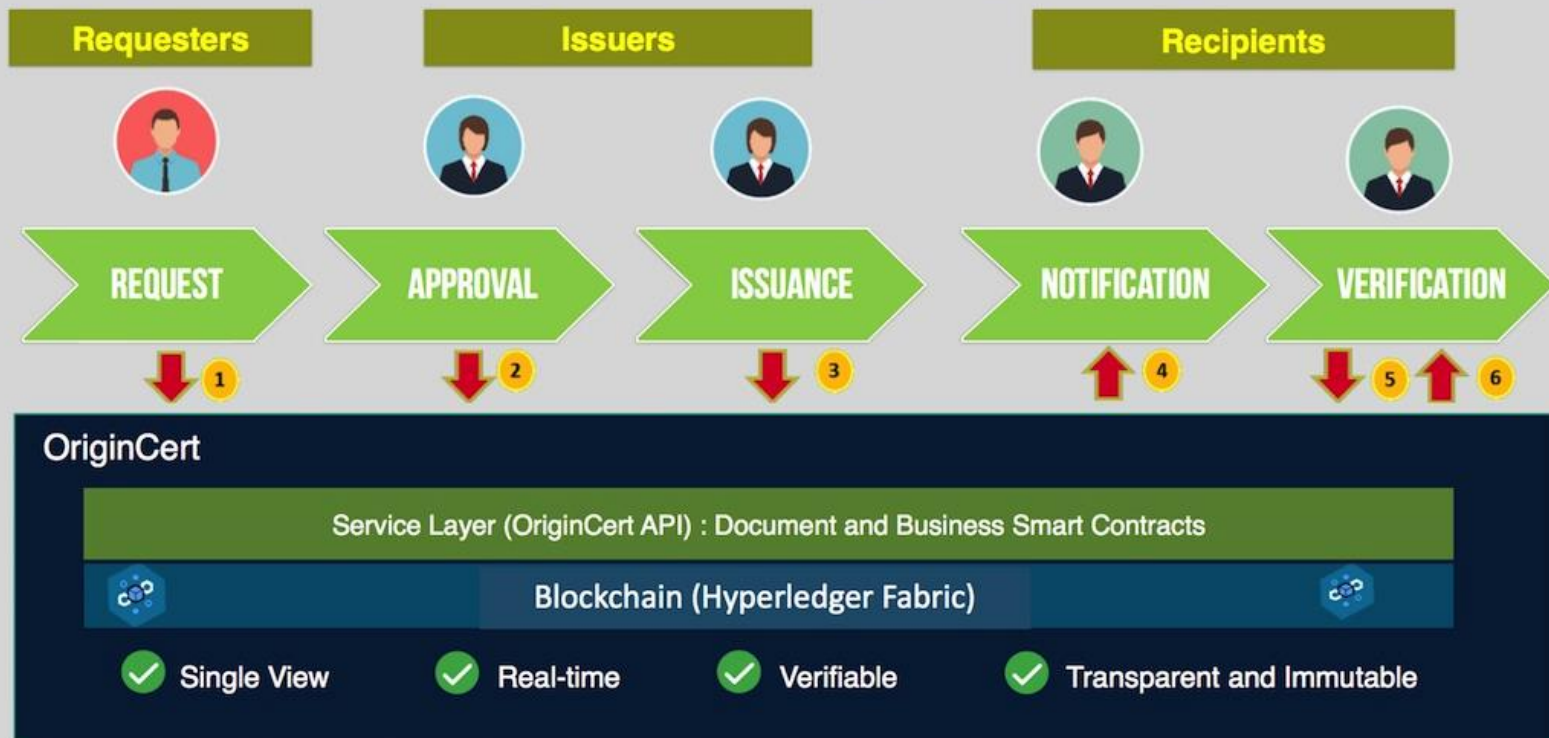
Name	Price	Volume		
BTC/THB	96,399 THB	236.74 BTC	22,778,397.34 THB	236.74 BTC
ETH/THB	11,832 THB	1,637.90 ETH	20,405,688.59 THB	201.49 BTC
ETH/BTC	0.12160 BTC	276.75 ETH	35.41 BTC	35.41 BTC



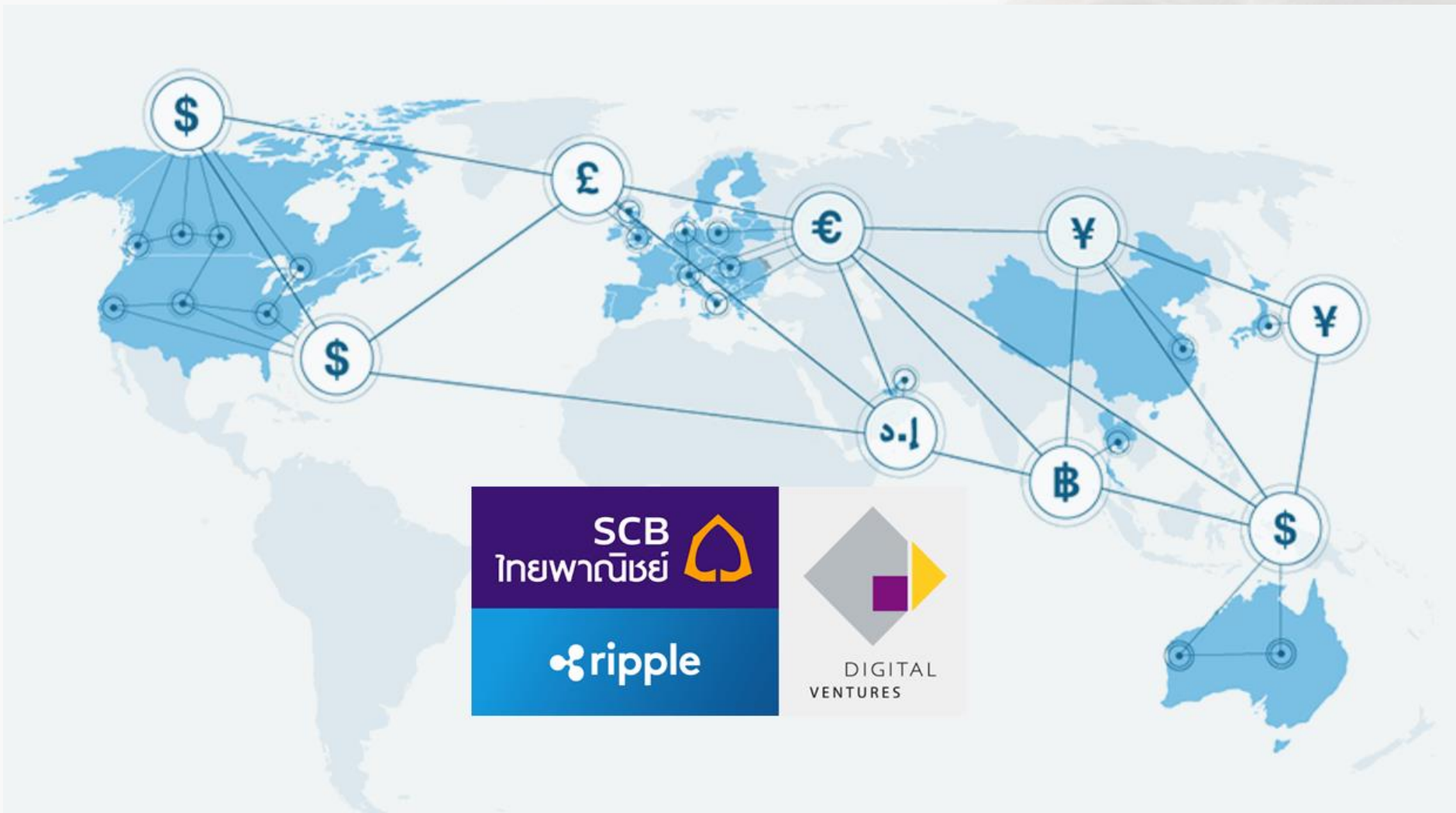
Enterprise Letter of Guarantee on Blockchain



ORIGINCERT SOLUTION



SCB invests in blockchain tech leader, Ripple





Counterfeit Products

A product that is already in possession and is determined to be counterfeit



Diverted Goods

The system is able to identify if a product was diverted from its original destination



Stolen Merchandise

The system can easily trace and locate stolen merchandise



Fraudulent Transactions

Block Verify can track fraudulent transactions of any type throughout the system

BLOCKVERIFY

Use Cases



Pharmaceuticals

Solution to track pharmaceuticals throughout the supply chain and to ensure the consumers receive an authentic product



Luxury Items

We work directly with luxury manufacturers to build a system of verifying luxury goods. This will provide quality assurance for all parties



Diamonds

We created a system that can enhance trust in diamonds certificates and prevent fraud



Electronics

We work directly with manufacturers to make sure that customers are getting original equipment

How Blockverify Works

The process a product goes through to ensure authenticity

Product Labelling

Each product is labelled with Block Verify tag

Verified Supply

Each product is verified along the supply line.
Supply chain becomes transparent to the extent
we want it to be

Consumer Verified

When the consumer purchases a product
he/she is able to verify that the product is
genuine and activate it



Anti-corruptible

We ensure that each product is validated and
recorded prevent even companies from
counterfeiting their own goods

Retail Verification

Retail locations can use mobile devices for
verification. They can be assured that the goods
they receive are genuine

Block Verified

Each product has a recorded history
permanently recorded in the blockchain. We can
provide verified history for each product



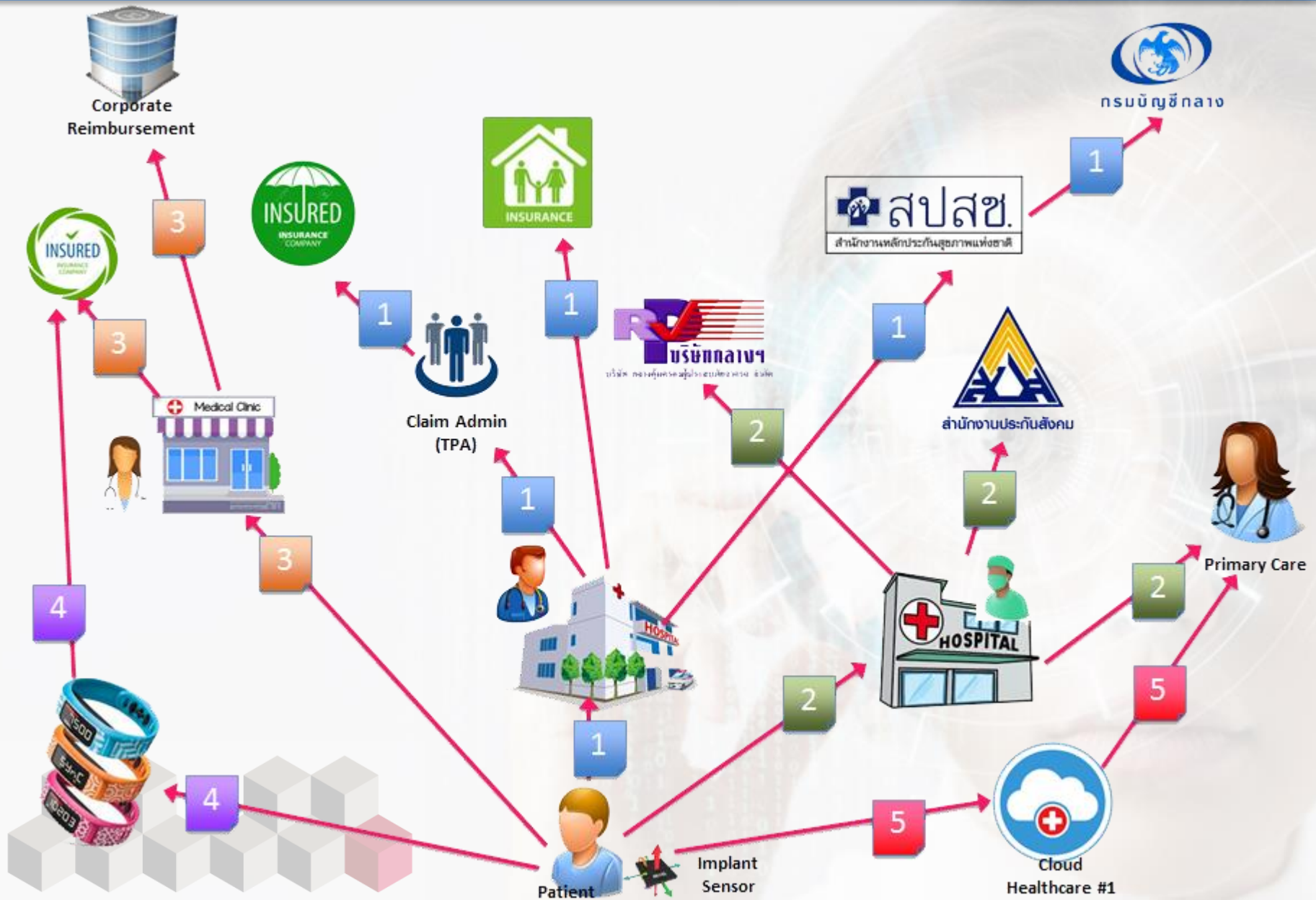


Case Study

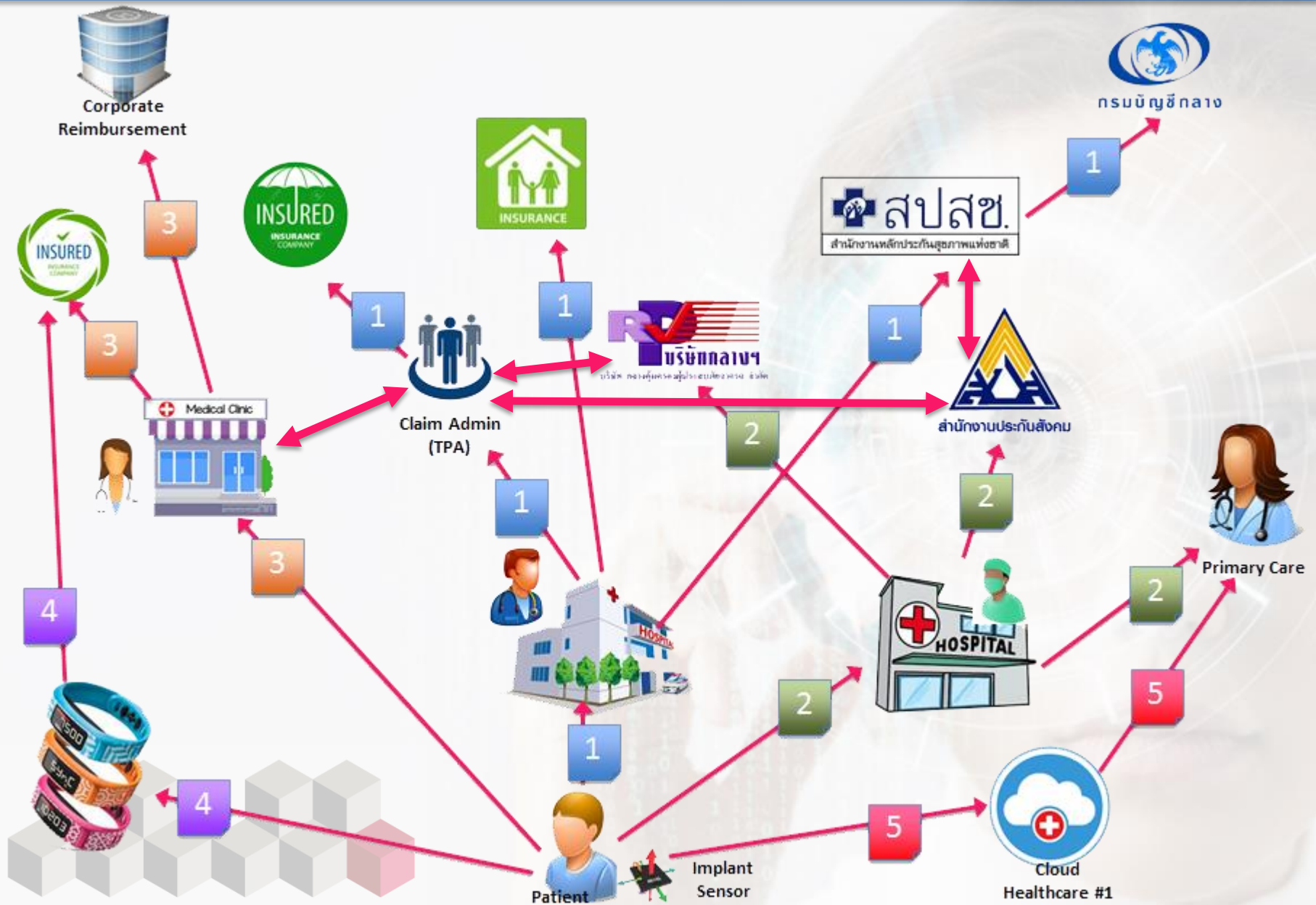
Thailand National Health Services



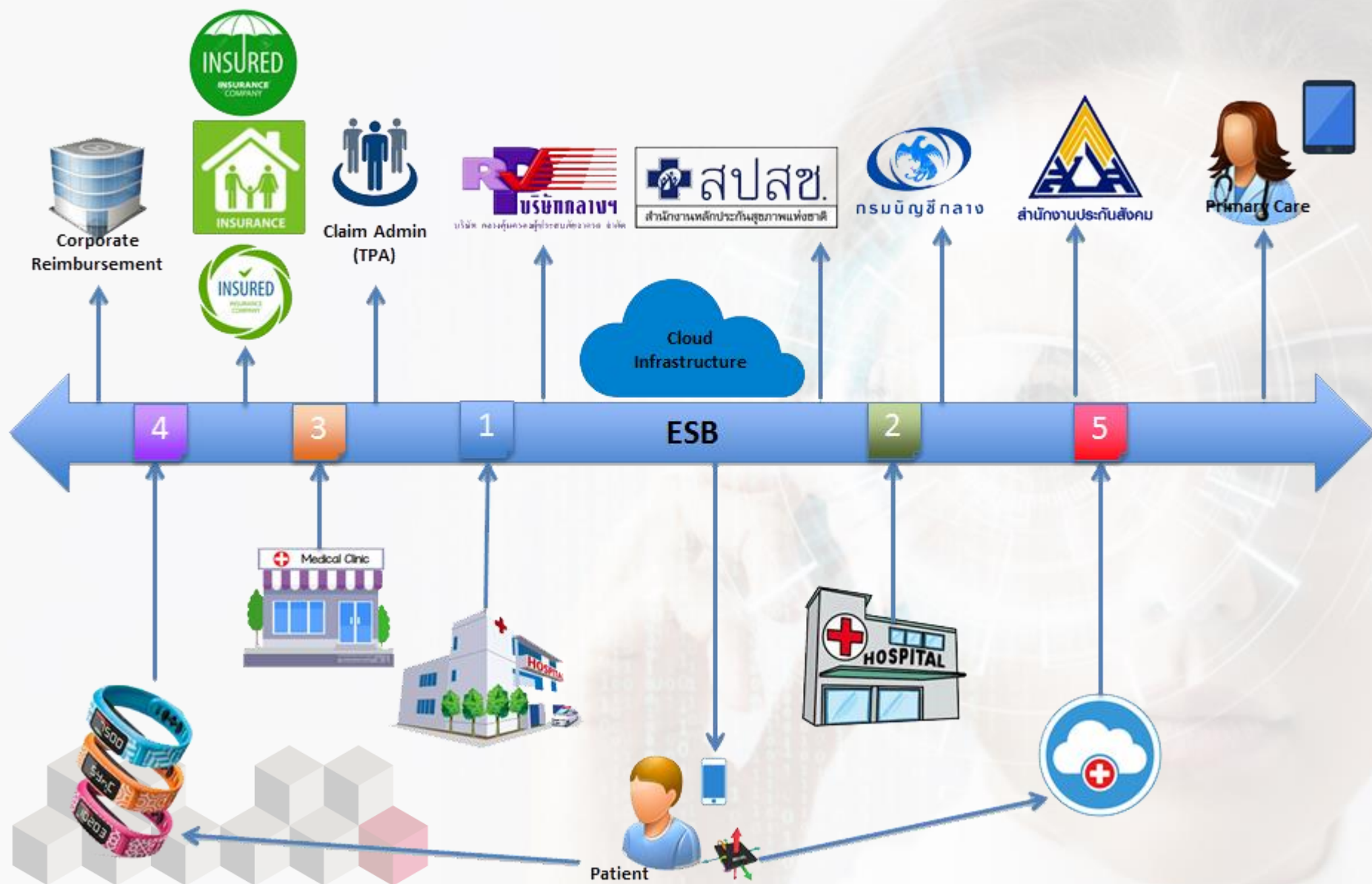
Current EMR Architecture



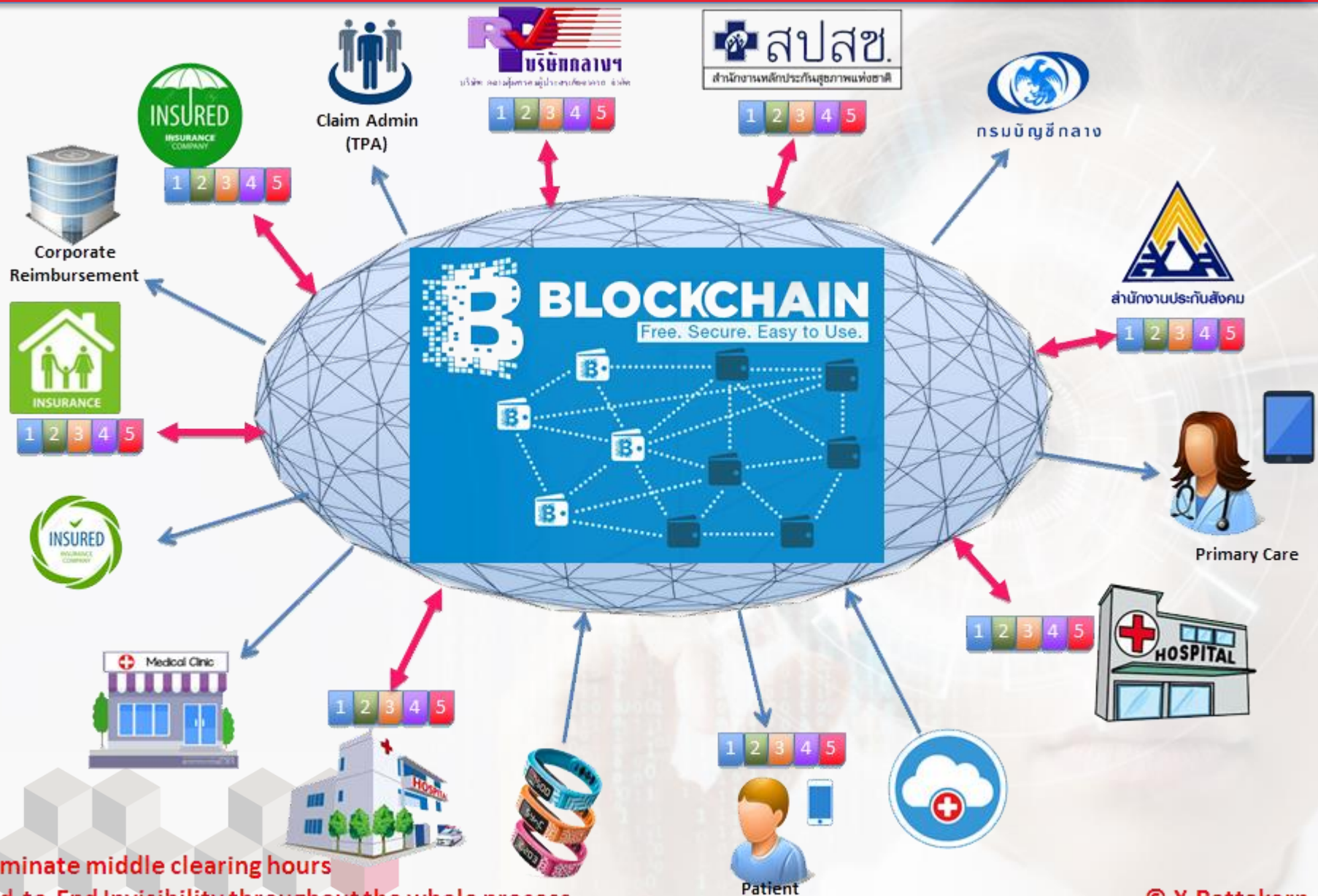
Current EMR Architecture



EMR : Solution #2 : Enterprise Service Bus



EMR : Solution #3 : Blockchain





Global Insurance

With Blockchain





Insurers and reinsurers launch Blockchain initiative B3i

A new digital milestone for the insurance industry – Blockchain technology could change business and customer service.

> BLOCKCHAIN

If Blockchain technology proves viable, it could well streamline paper work and reconciliations for (re-) insurance contracts and accelerate information and money flows, while greatly improving auditability.

Blockchain offers huge potential for enabling digital contracts and transactions amongst multiple parties to be executed in a secure, transparent and auditable way.

Streamlining communication and transactions would subsequently improve industry processes and provide better insurance services to customers



B3i

B3i – A true industry collaboration



Benefits B3i

- Platform Solution to exchange (re-) insurance information
- Standardize & Compliance
- Distributed ledger (Block chain)
 - Smart Contract
 - Payment
 - Cryptography (secure and private)
- Covers the major elements of the Property Cat XL reinsurance contract life cycle (i.e. smart contract setup, premium settlement and claim settlement).

B3i

The logo for B3i features the letters 'B3i' in a bold, green, sans-serif font. To the right of the 'i' is a network diagram consisting of three green circular nodes connected by thin green lines, suggesting a distributed ledger or blockchain technology.

7 In Insurance, blockchains have potential for impact across the entire value chain

NOT EXHAUSTIVE



Potential	Product development and distribution	Pricing/underwriting	Payment & collections	Claims	Policy/administration and back offices	Risk capital & investment management
Potential use cases		<ul style="list-style-type: none"> Use blockchain as a reliable registry for on-demand / usage-based insurance or micro-insurances 	<ul style="list-style-type: none"> Using blockchain as payment infrastructure (especially across multiple countries) 	<ul style="list-style-type: none"> Leverage blockchain for information about insured goods and events in order to fight fraud 	<ul style="list-style-type: none"> Use blockchain for onboarding of new customers or verification of policy-holder identity 	<ul style="list-style-type: none"> Make data available for re-insurers or other parties in a controlled way
Potential use cases with smart contracts	<ul style="list-style-type: none"> Offer P2P insurance via blockchain for customer to customer promotion and sales, and automated ops with smart contracts 	<ul style="list-style-type: none"> Use blockchain for P2P insurance underwriting, include external data, smart contracts and peers (humans) to determine tariff 	<ul style="list-style-type: none"> Automate payments through smart contracts evaluating conditions for paying out claims 	<ul style="list-style-type: none"> Automate claims triggering and handling with smart contracts, and e.g., with sensors (IOT) 		<ul style="list-style-type: none"> Use smart contracts to automatically determine payouts – e.g. triggering process of catastrophe swaps and bonds
Key benefits	<ul style="list-style-type: none"> Reduce cost related to commission and sales and operations Increase trust of customers due to open, distributed system 	<ul style="list-style-type: none"> Reduce cost of operations Reuse platform for other types of insurances Include external data for (semi-) automatic pricing 	<ul style="list-style-type: none"> Reduce cost and increase speed for payments 	<ul style="list-style-type: none"> Reduce average claims cost related to <ul style="list-style-type: none"> Claims administration Damage from fraud and fraud detection Improve identification of claim events 	<ul style="list-style-type: none"> Reduced admin cost and speed-up process for onboarding 	<ul style="list-style-type: none"> Reduce admin costs Automate and increase reliability, auditability and speed for financial instruments transactions based on defined events

Examples¹

1 Not all insurance-specific



Incumbent insurers and insTech startups beginning to see and test the value of blockchain



AXA Strategic Ventures invested in Blockstream, a company that develops hybrid blockchain platforms that connect public and permissioned chains



Everledger is developing a permanent ledger for diamond certification and transaction history, used by insurance companies and others to combat fraud



PWC Whole sale Reinsurance PoC - Placement and contract life cycle documentation



Dynamis is a peer-to-peer mutual, offering unemployment insurance, built on a blockchain and relying entirely on smart contracts for claims



Allianz Cat bond – Natural catastrophe risk trade on the blockchain for smoother facilitation and accelerated triggering of cat swaps & bonds



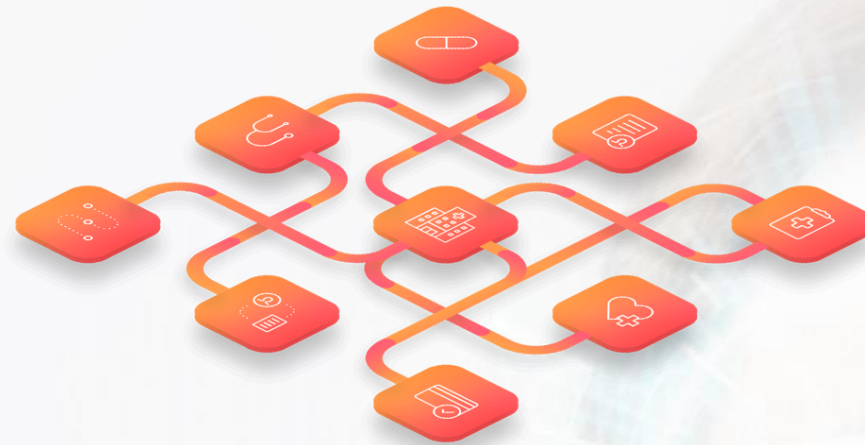
Commercial insurance placing platform -ChainThat's decentralized application platform allows brokers and carriers to place commercial and specialty risks in the insurance market.



SafeShare launched first blockchain-based insurance solution for the sharing economy



Institute and Faculty of Actuaries

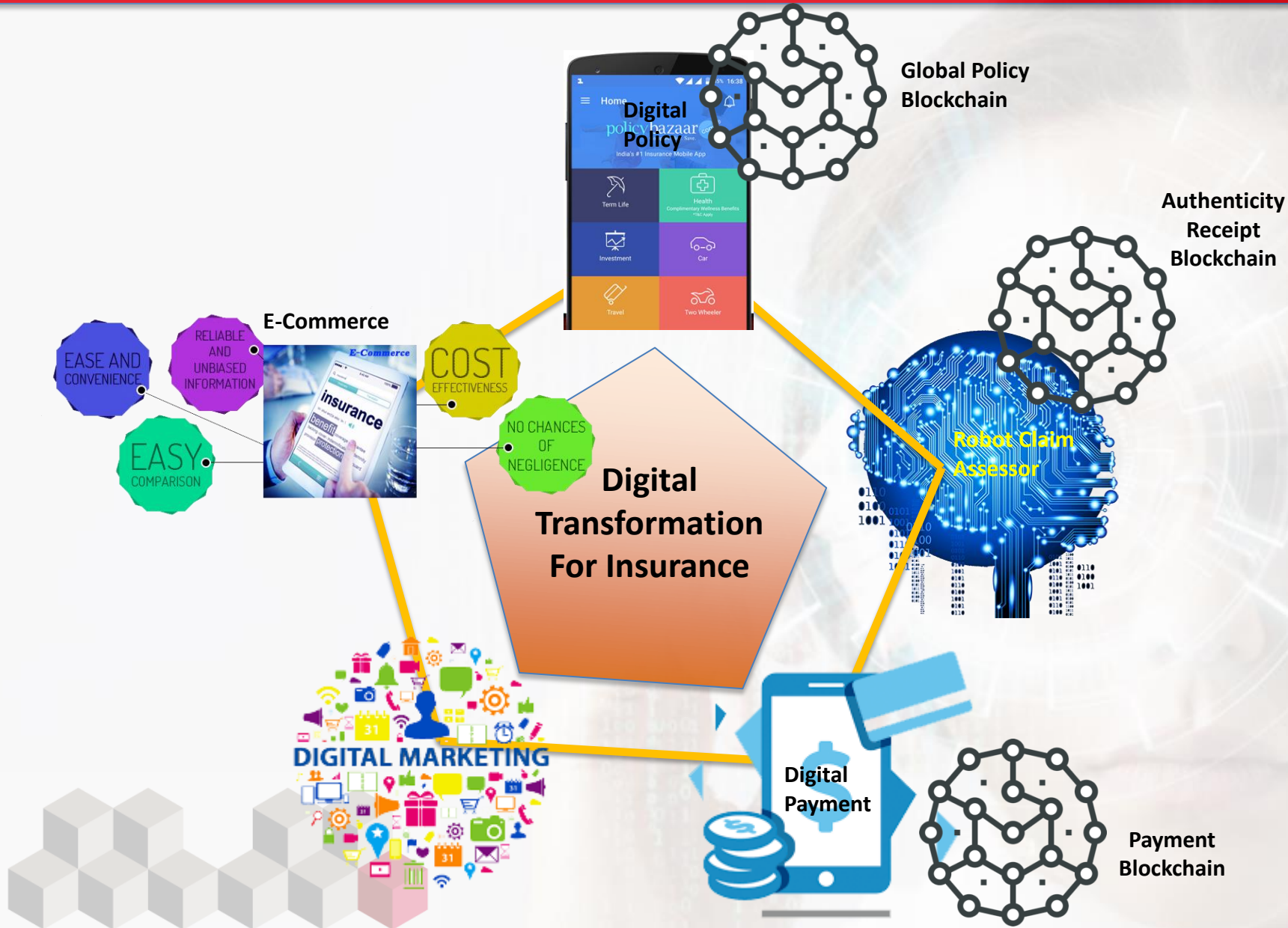


Blockchain

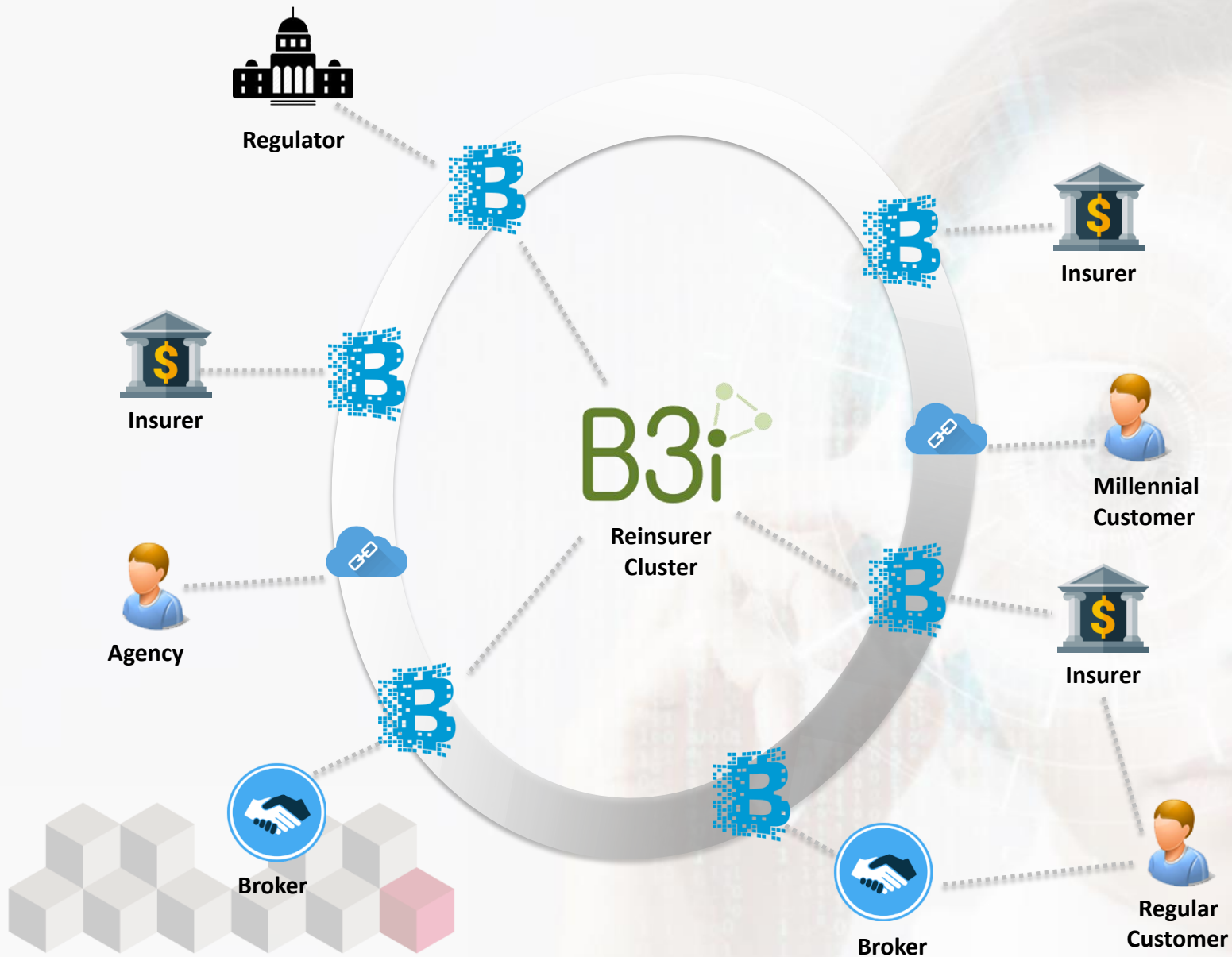
InsurTech



Insurance: Digital Transformation



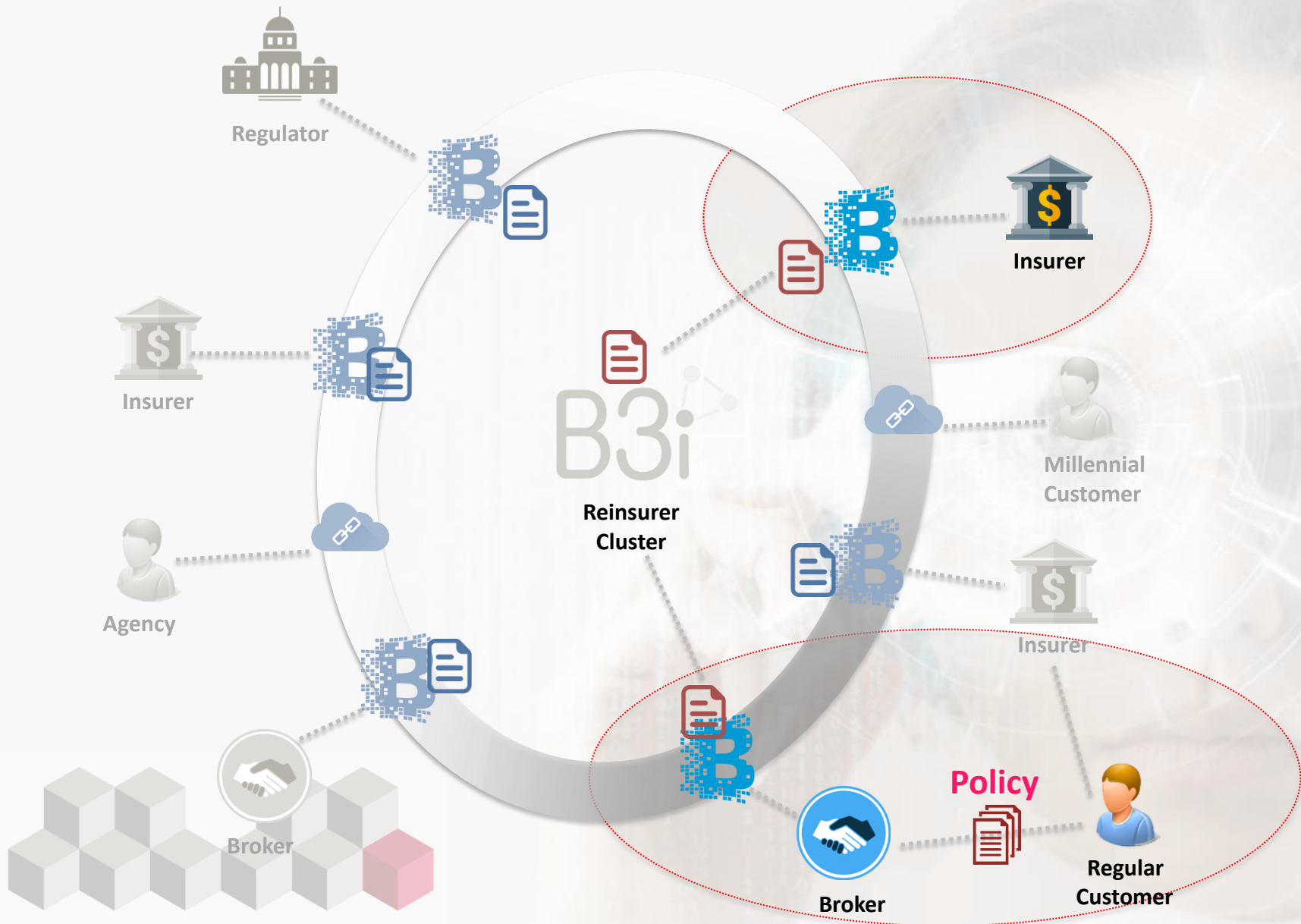
Insurance Policy's Block Chain



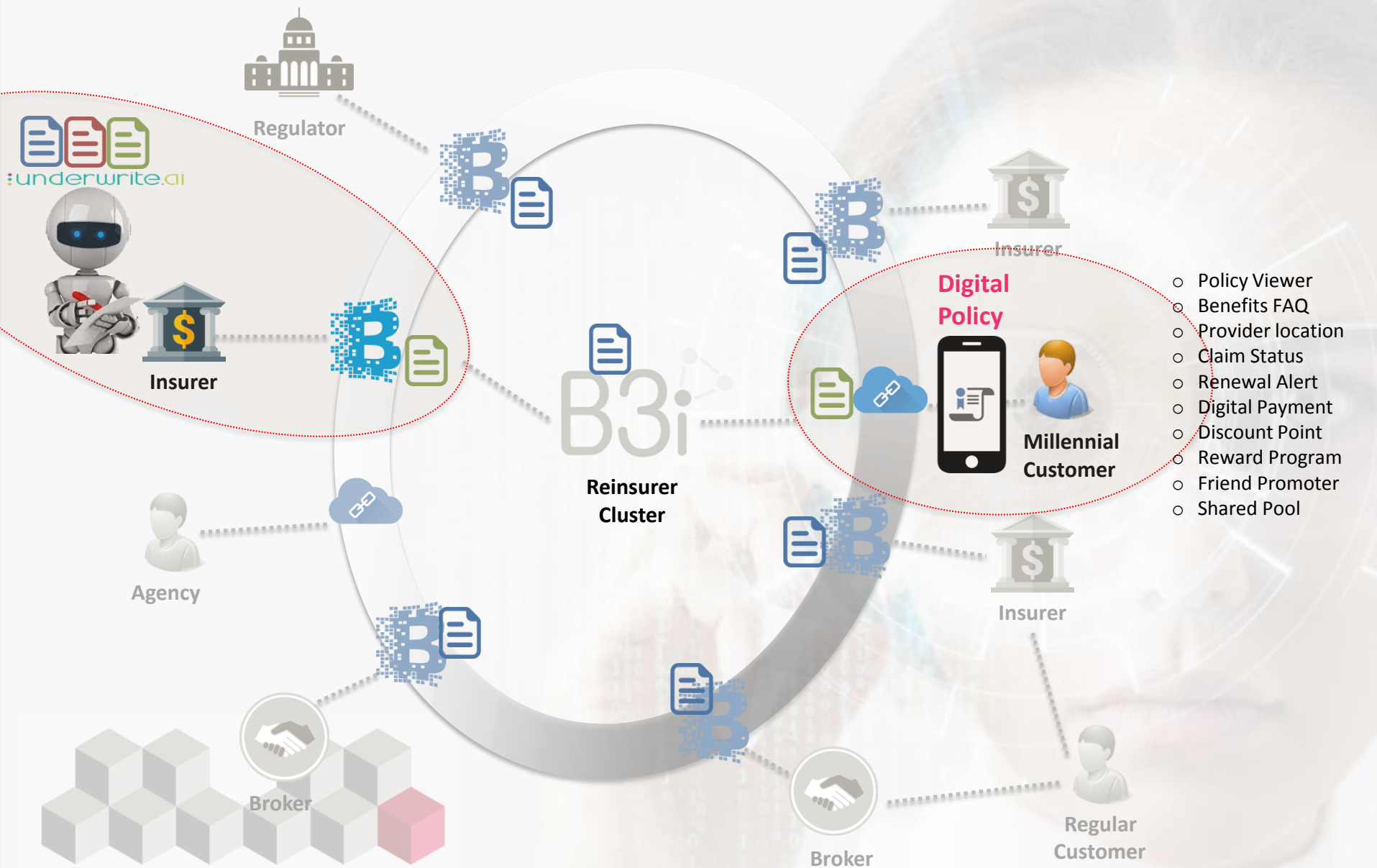
Blockchain Insurance Policy



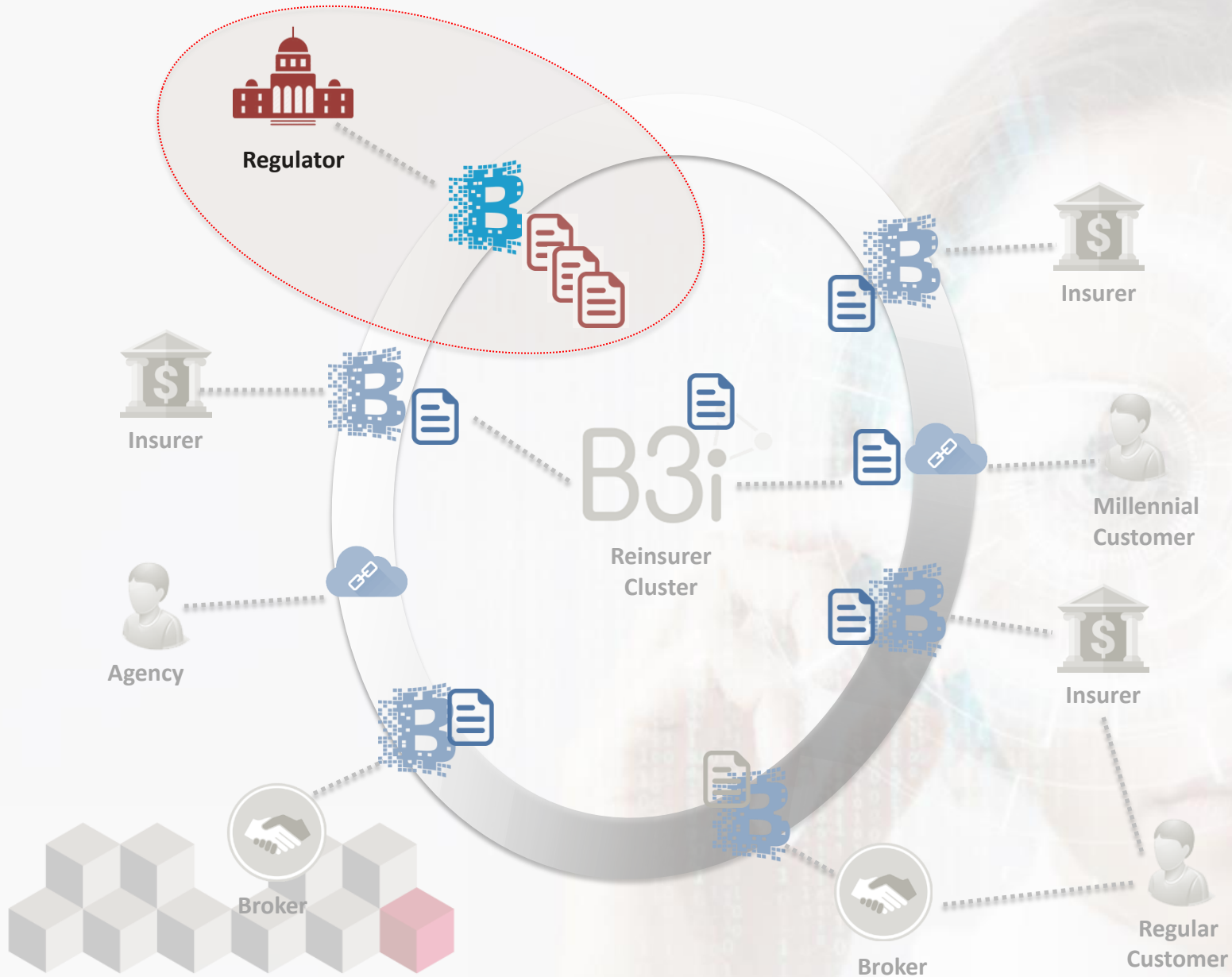
Replication of Traditional Policy



Replication of Digital Policy



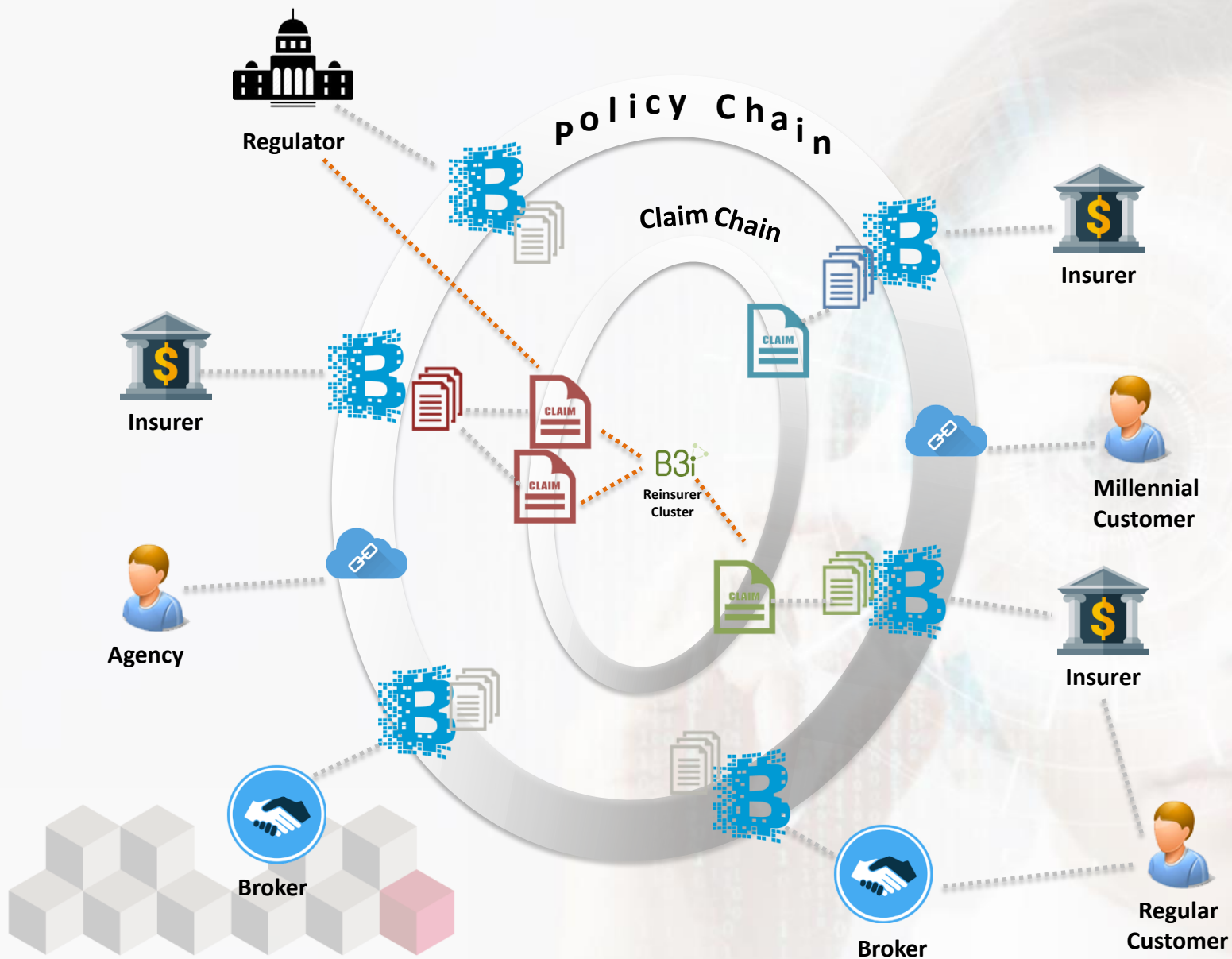
Regulator Audits & Research



Reinsurer Risk Accumulation & XL Stat.

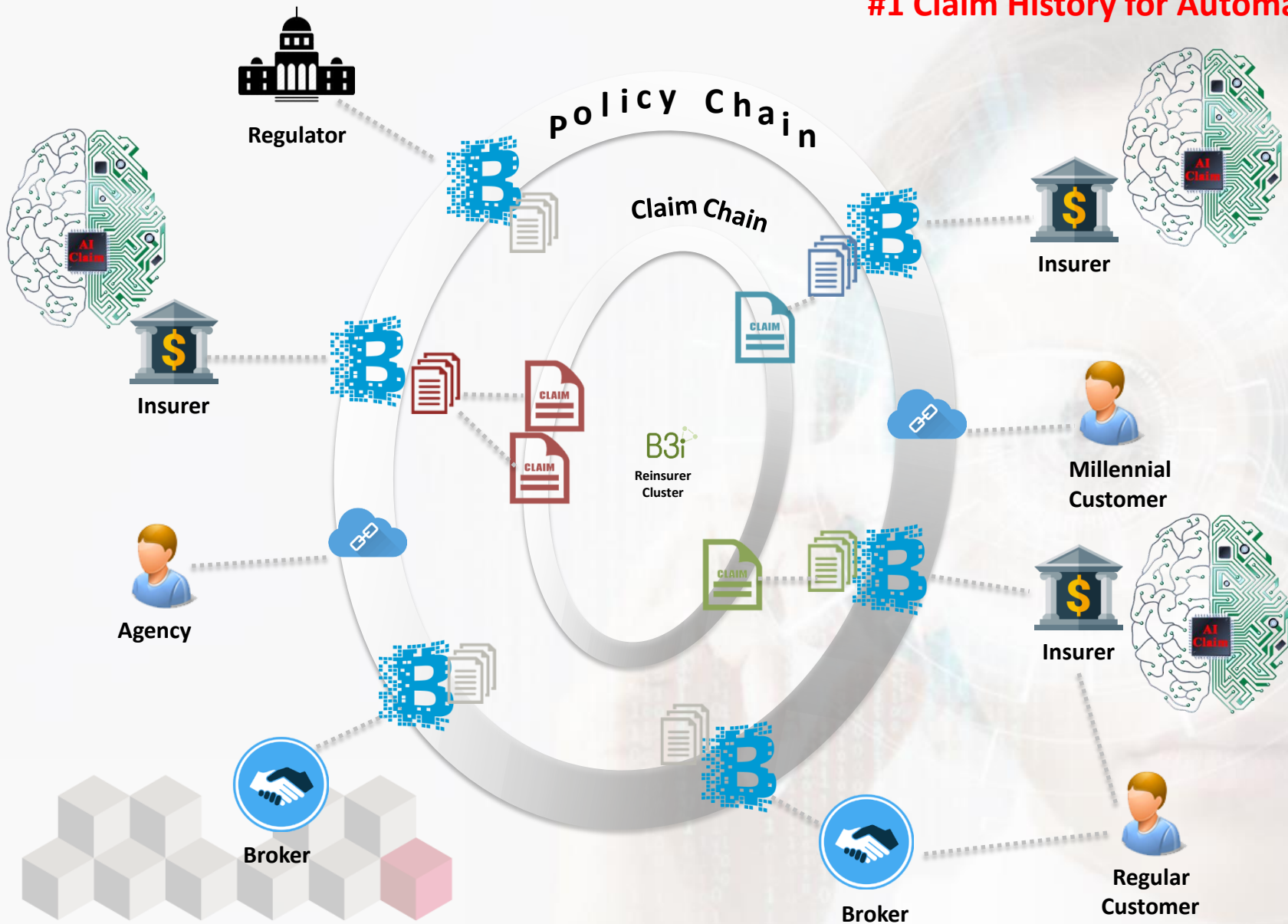


Insurance Claim's Block Chain



AI Claim

#1 Claim History for Automate Claim



Payment Platform (Cashless)

Ecommerce



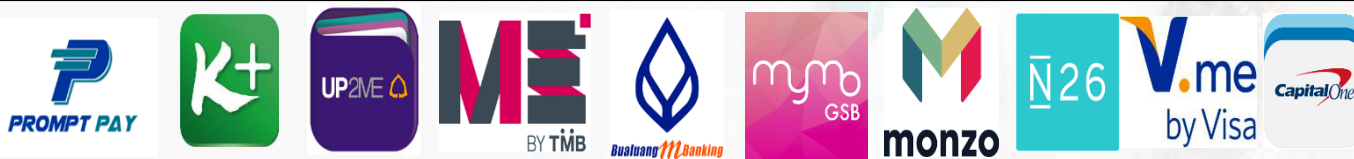
Mobile



Telecom



Digital Bank



Digital Currency



Social/Chat



Startup/ Others



Bank of Thailand: QR Code Standard

สแกนปั๊บ จ่ายปั๊บ ไม่ต้อง掏เงินสด

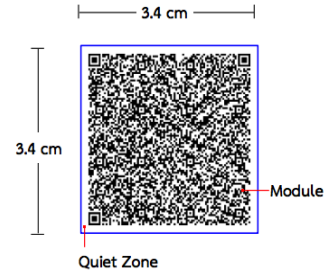
ฉ้อฉล
QR Code!



Bank of Thailand



ยิ่ง **ปั๊บ** จ่าย **ปั๊บ**
จ่ายด้วย QR ไม่ต้องใช้เงินสด
ไม่ต้องกดเลขบัญชี
ผ่าน **K PLUS**
ง่าย ใครก็ใช้



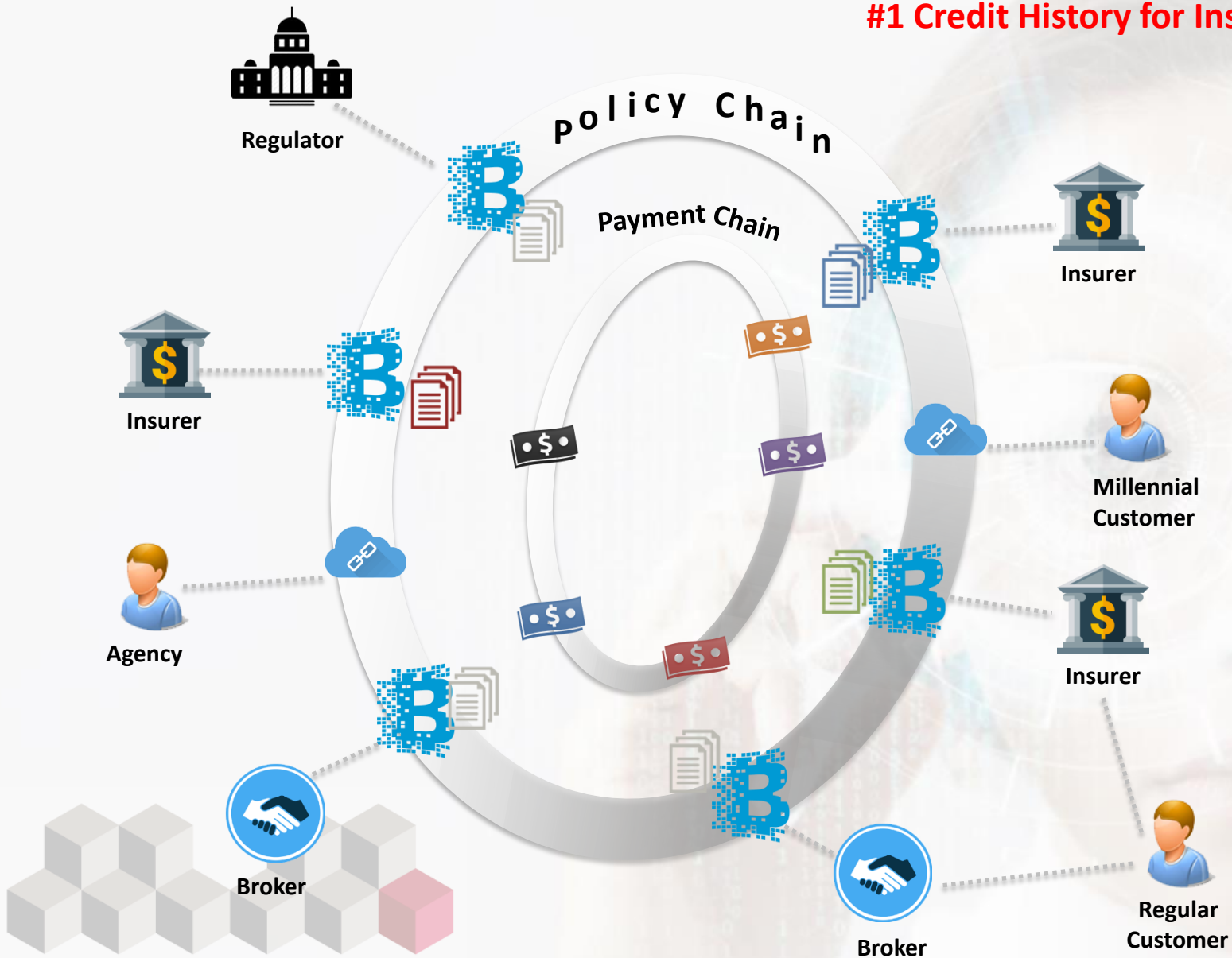
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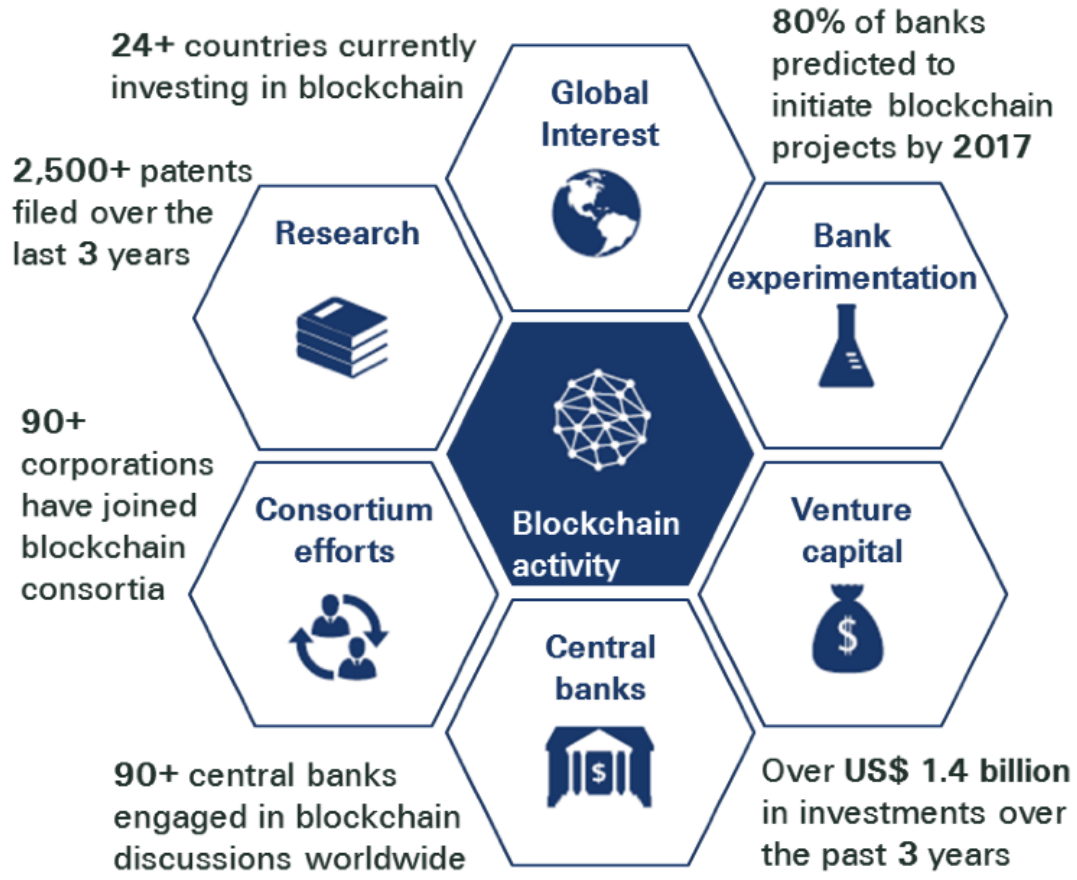
รูปที่ 2 ขนาด QR Code ที่บรรจุข้อมูล 62 ตัวอักษร

Payment' Block chain







#1 Credit History for Insurance Lending



Significant hype, early promises



Top Challenges

-  Regulatory environment
-  Collective standardization
-  Legal Framework
-  Confidentiality/Privacy
-  Systems integration
-  Scalability

Source: World Economic Forum

Blockchain Technology – Promising Use Cases for Healthcare Industry

