

New Business Models: The Promise of DLT for HealthCare

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Chief Medical Officer, EMEA Markets
The Leader Institute Roundtable
March 11, 2020

Today

CONSENSYS
HEALTH

Intro

Digital
Health

DLT
Health

New
Business

Prediction

Intro

Digital
Health

DLT
Health

New
Business

Prediction

Healthcare



DLT

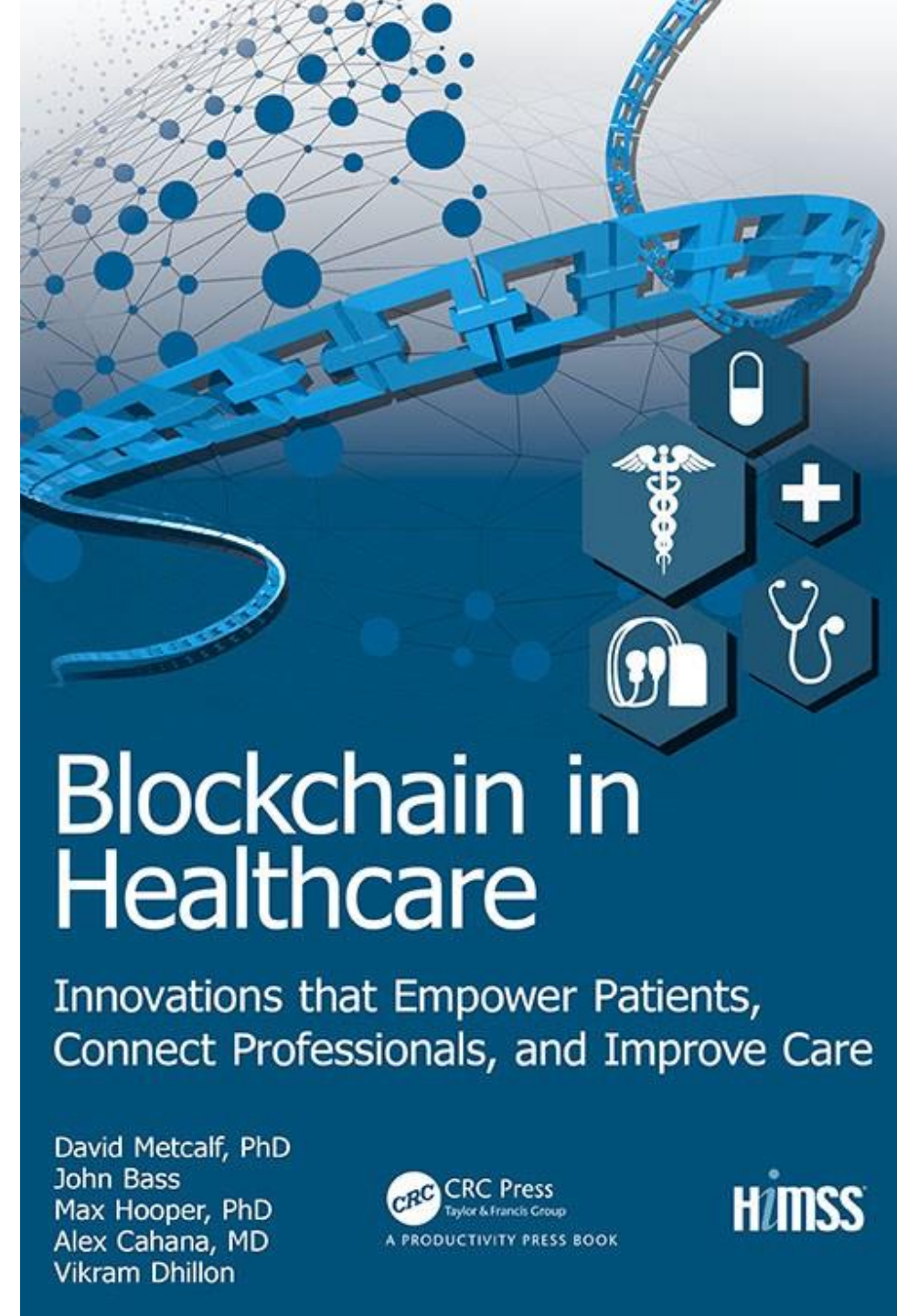
Blockchain and __

5 Editors, 50 Contributors, 500 Pages: Blockchain in Healthcare — 1st Edition



Dr. Alex Cahana
Feb 4 · 4 min read

Why a book, why now and how will blockchain change the way we think of healthcare



Significance of ConsenSys AG

#1

Blockchain Expertise

We are experts in both public and private blockchain solutions for digital assets. We have a team of industry experts, developers, and support engineers to support you through your delivery journey.

- Infrastructure components e.g. Truffle, Metamask and Kaleido
- Blockchain solutions for digital assets e.g. Trustology, Adhara, Open Law and Asset Factory
- Financial Services expertise
- Enterprise credentials

16

Countries

We have the global reach to partner with enterprise clients and help them successfully execute on their business goals from inception to monetization.

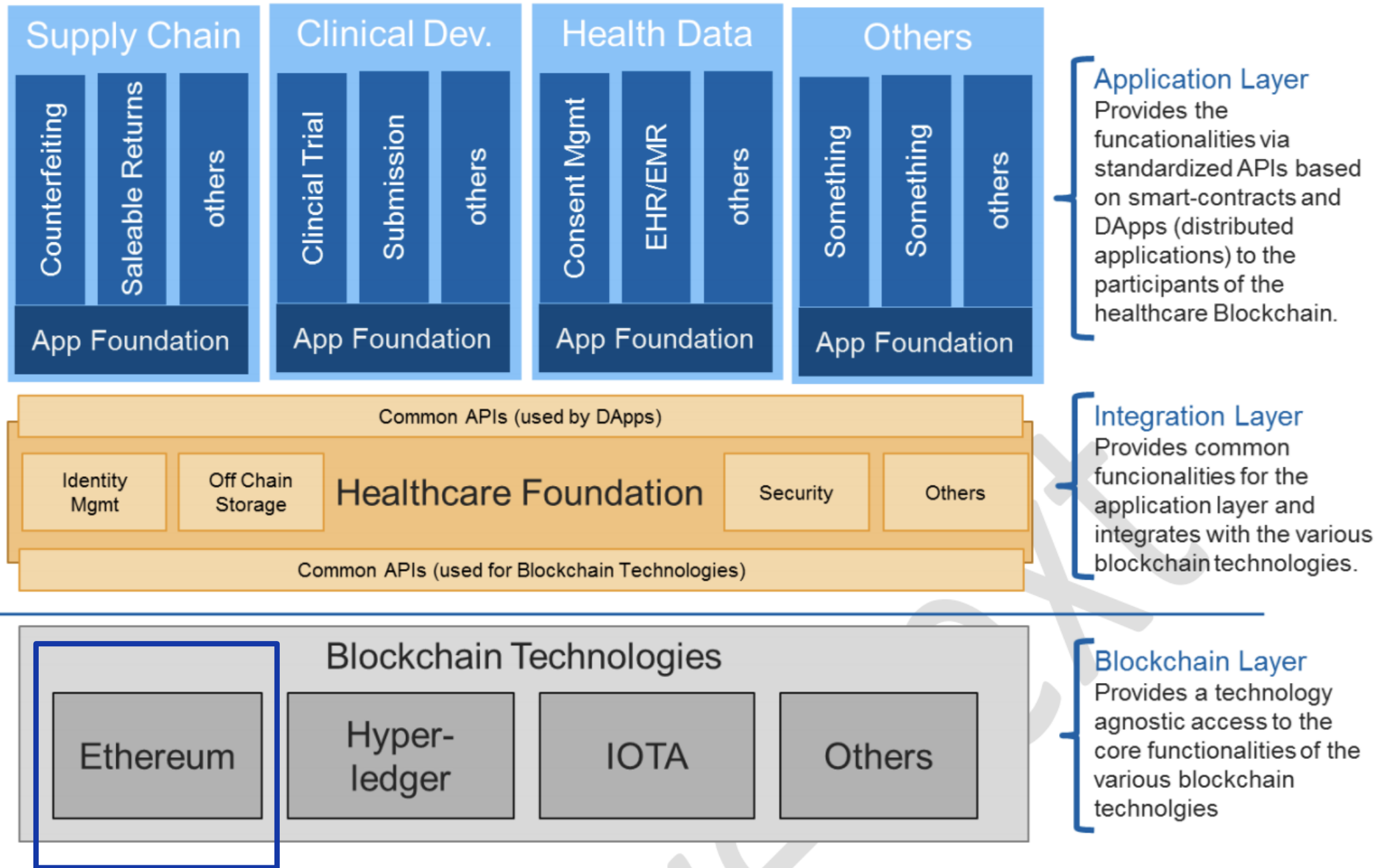
- Global footprint and scale to support institutional clients
- Full service capability - strategy, advisory, implementation and support
- Engagement with Regulatory and Policy Institutions

20+

Enterprise credentials

We are strategic advisors to some of the largest enterprise and government clients around the world and we initiated the largest enterprise blockchain consortium.

- Financial: koMgo, BNP, Liquid Share, Project KhoKha
- Industrial: GSK, P&G, BHP
- Government: European Commission, Smart Dubai, SLA
- Consortiums: The EEA, The Brooklyn Project, komgo



Intro

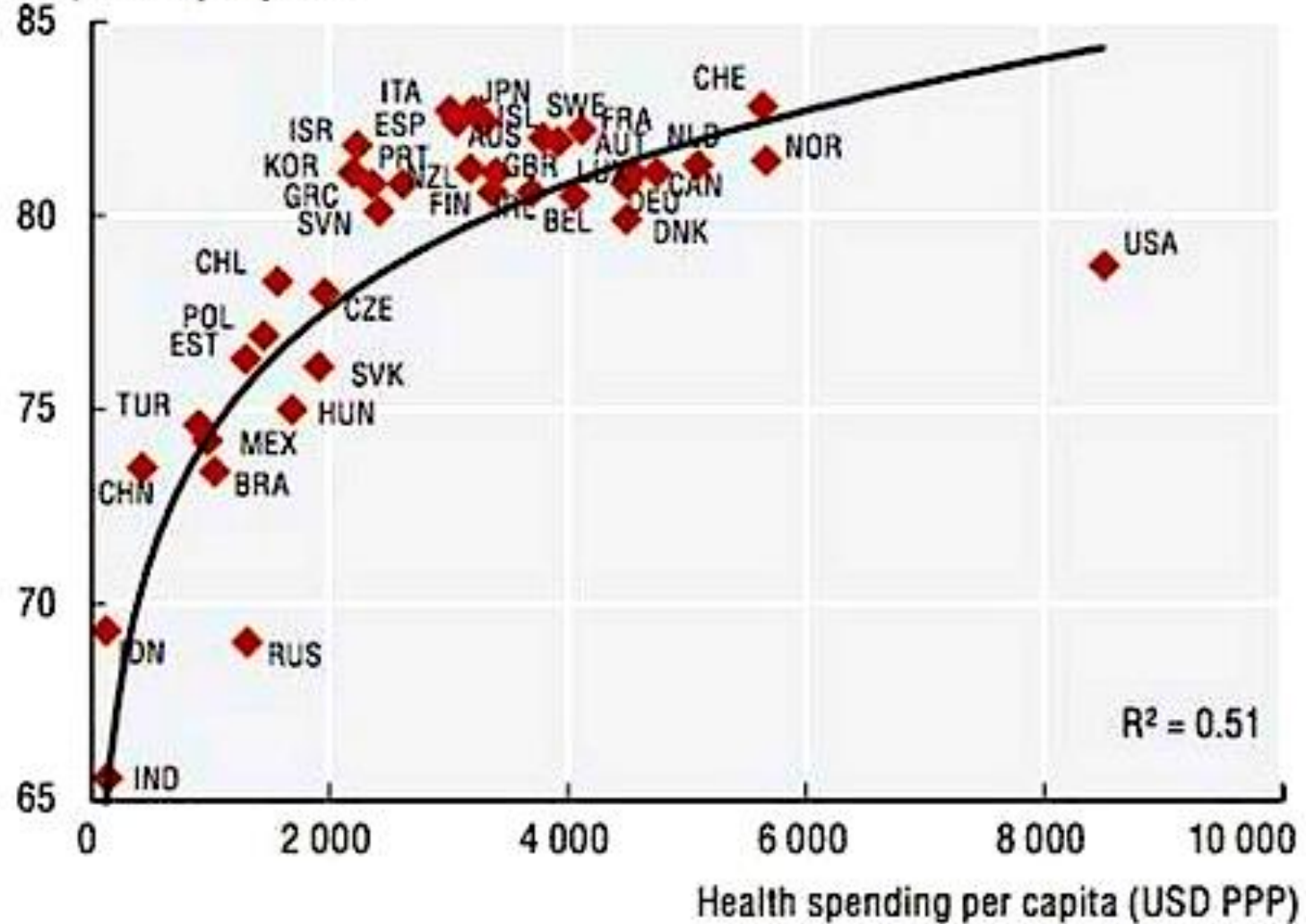
Digital
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Prediction

Life expectancy in years



Intro

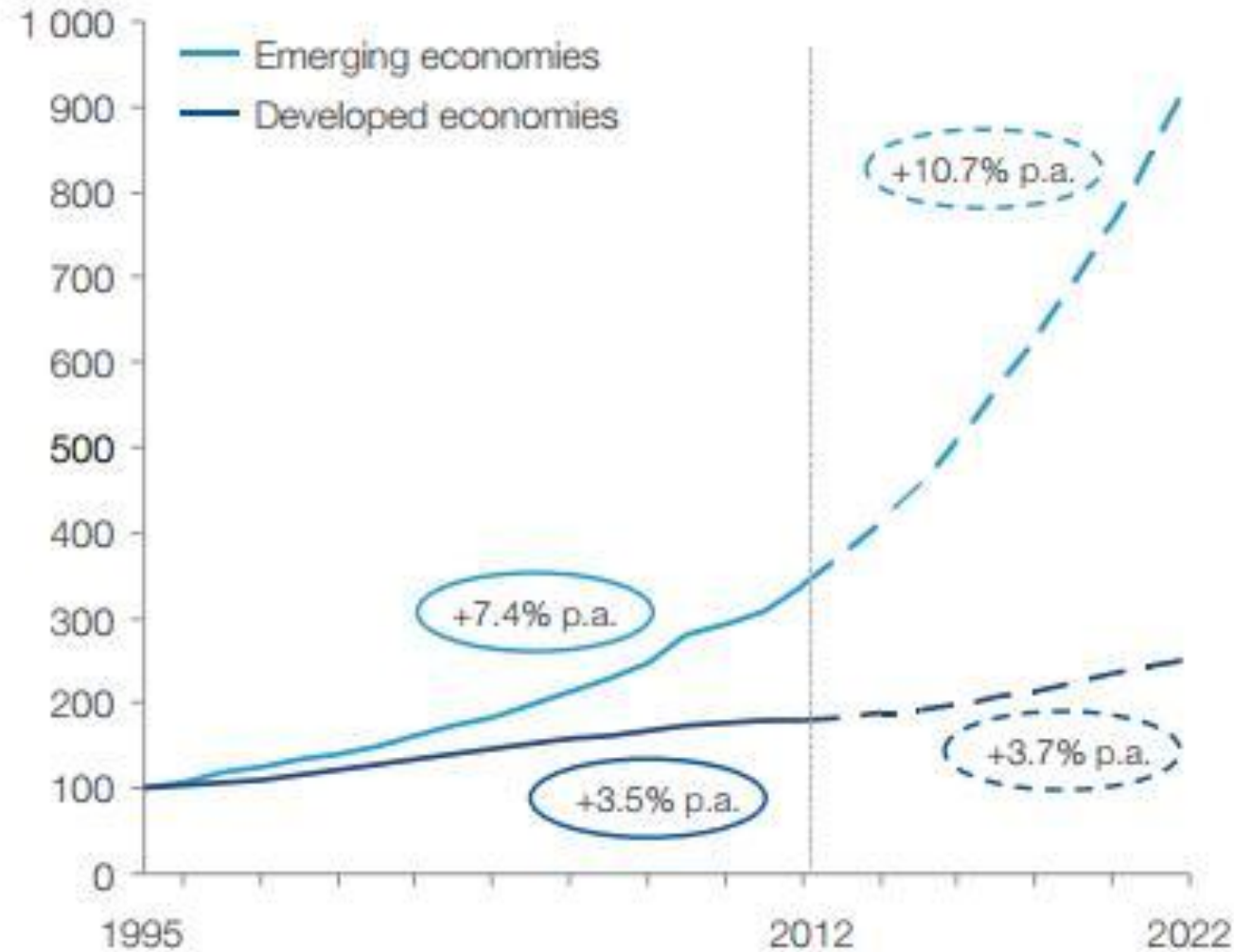
Digital
Health

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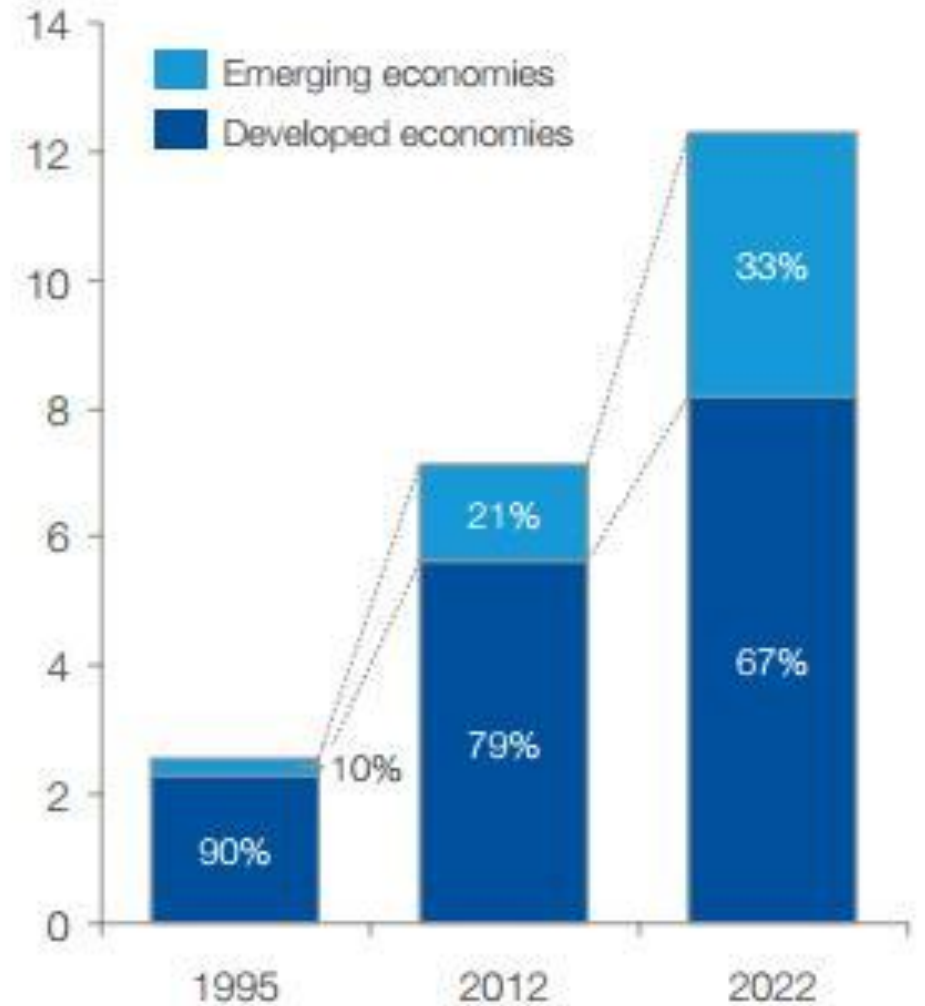
New
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Prediction

Health expenditure (Index: 1995 = 100)



Global health expenditure (trillion US\$)



Current Approach



Optimization – AI / ML / DL / RL / DRL



Innovation – Digiceuticals / \$\$ Pharmaceuticals

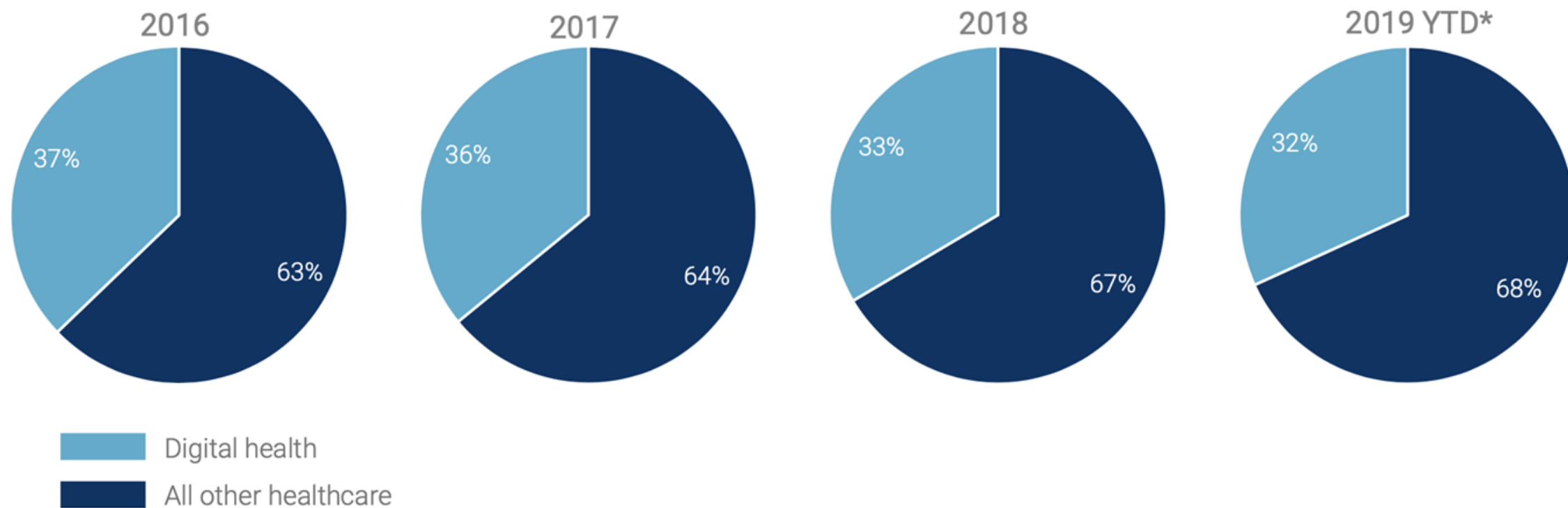


Access – Telehealth / Consolidation / Centralization

DIGITAL HEALTH TAKING A SMALLER PIECE OF THE PIE

Digital health represents 32% of healthcare deals as pharma accounts for growing proportion of deal share

Annual global healthcare deals, 2016 – Q2'19



Socioeconomic and Behavioral Data

acxiom experian mastercard IRI fiserv ObituaryData.com LexisNexis LiveRamp SAFEGraph dynato 451

Registries and Consortia

UNIC

AAOS

AMA

Corrona

ASCO CancerIQ

Frame Health

Cancer Consortium

Better Angels

FGI

THE NATCH

AACR

FARE

Quality Improvement
in Oncology

Services for Biopharmaceuticals

Trial Recruitment	Trial Design	Real World Evidence	Commercial Development	Pharmaco-vigilance
 clinicaltrials	 AMPLION	 variancemed	 AKTANA	 ORI
 TEMPUS	 equipharmics	 COTA	 CROSSIX	 CUMMANTICA
 TriNetX	 PRODIGEAL	 HEALTHCIRE	 Evaluate	 ATRIA
 ToucanData	 BIOCINCA	 pcon	 BioSpectrum	 Symonix
 FlatlineCov	 Petalogix	 TARGET	 parexel	 MEDIDATA
 TrialsSpark	 Concerto	 holmusk	 SHFT	 ORACLE
 DEEP AI	 evolution	 Clinikos	 profil	 Linguistics
 ELLIGO	 Premier	 Model N	 SMS	
 antidote	 Empire	 CARBON	 SMB-CORPOR	
 reify	 BioPharm	 BIO-ORTES	 Cael Inc	
 Clara	 OPTUM	 hioser	 Cytel	
 trialbee	 OWIN	 IBM	 Clarify	
 SubjectM	 AETION	 flatiron	 veeva	
 Science	 OMI	 fitabase	 prognos	
 Droica Labs	 Andamio	 wovon	 selleck	
 CLINERION		 PARADIGM	 bioskin	

FIGURE 9

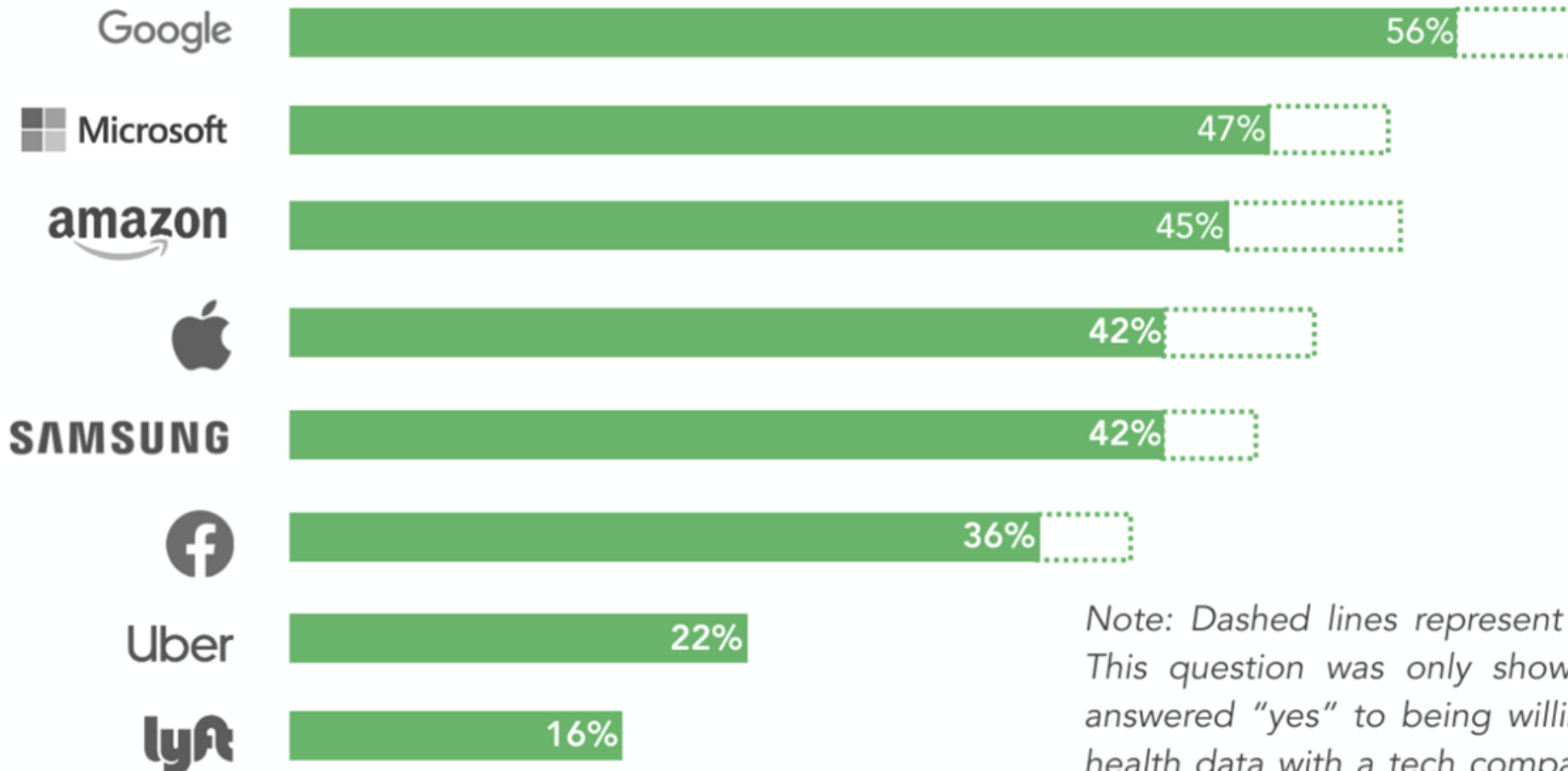
WILLINGNESS TO SHARE HEALTH DATA WITH TECH COMPANIES¹
2019



Stanford
MEDICINE

Center for
Digital Health

ROCK
HEALTH



Note: Dashed lines represent 2018 responses. This question was only shown to those who answered “yes” to being willing to share their health data with a tech company at all (10% of total respondents in 2019, 11% in 2018).

DLT is designed to solve the social problem of



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Resistant:

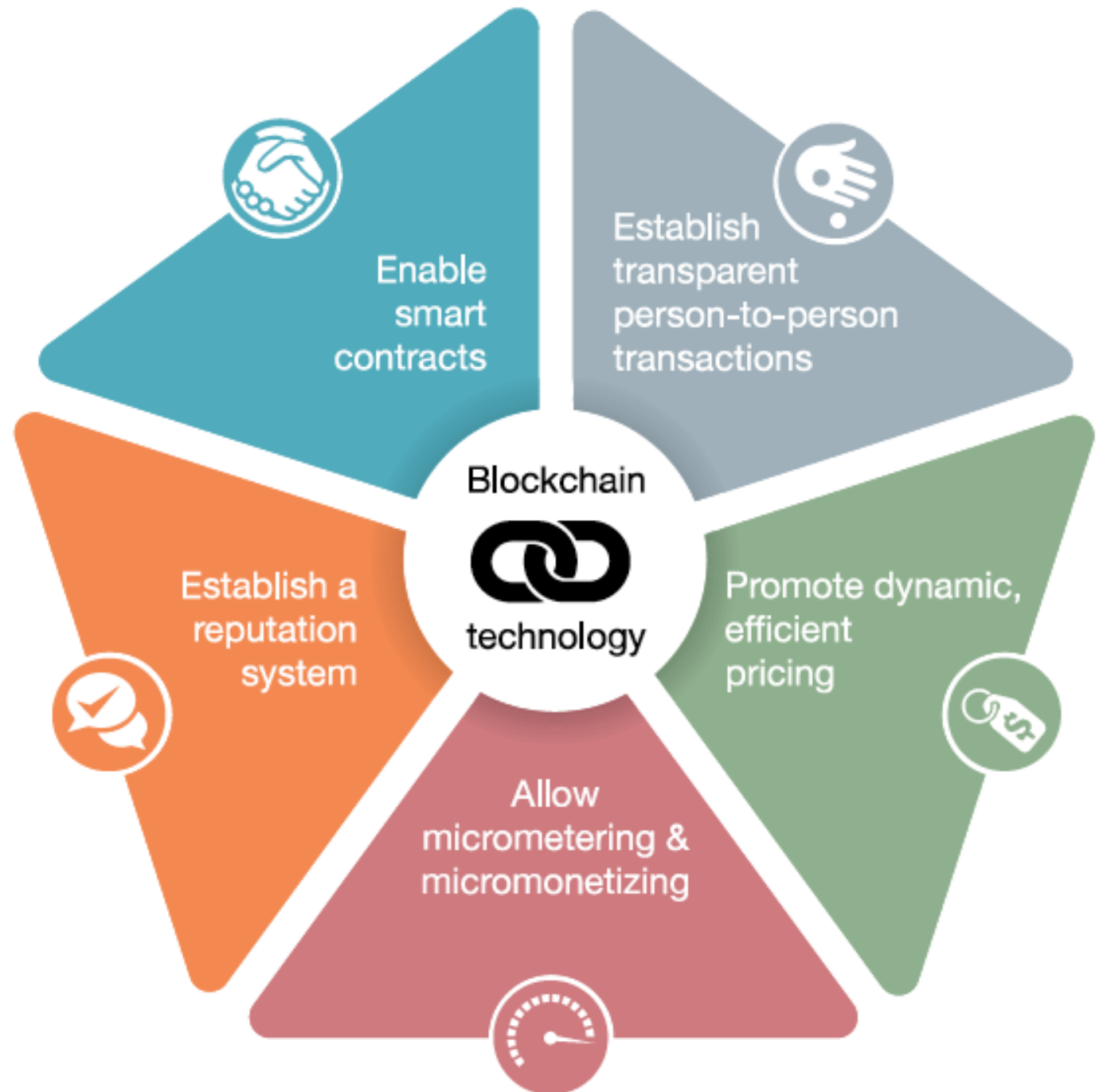
Attack

Censorship

Collusion



Computational Trust



*McKinsey, October
2018*

DLT / Cryptocurrency / Blockchain

Technology

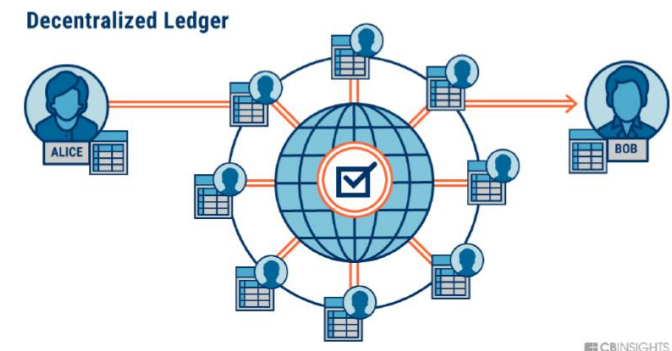
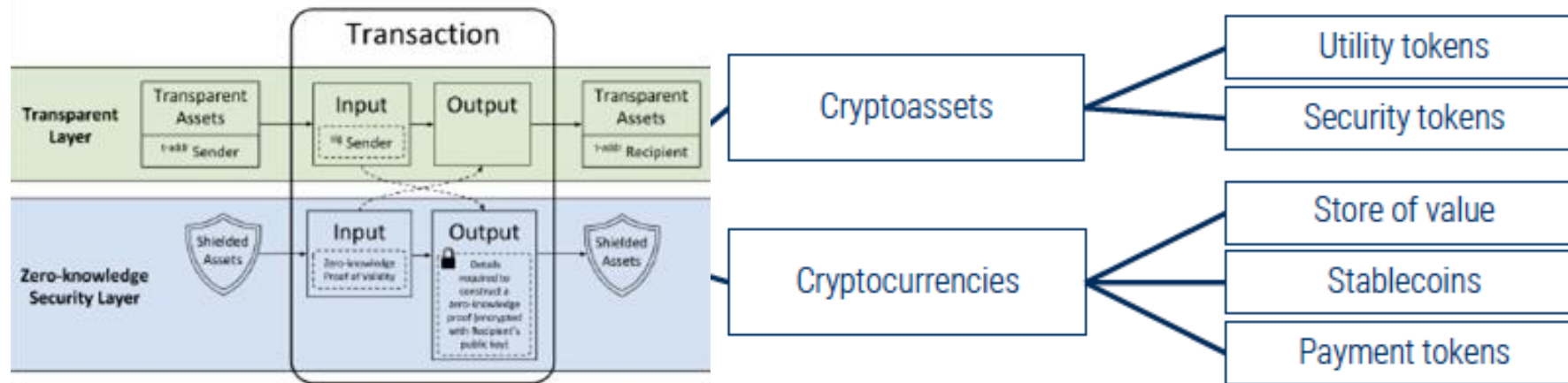
ZKP, multi-sig

Finance

Crypto assets

Governance

DAO, DAC, CONE



CB Insight, 2019

Intro

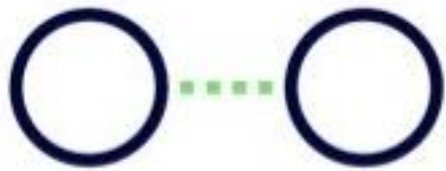
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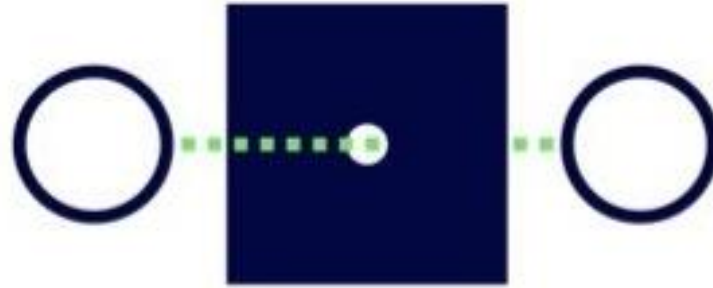
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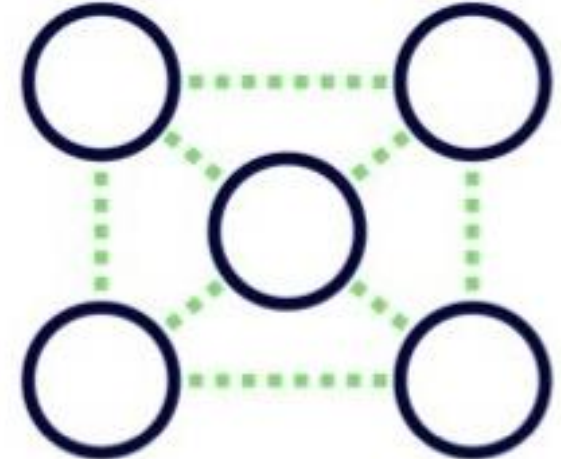
EVOLUTION OF TRUST



LOCAL

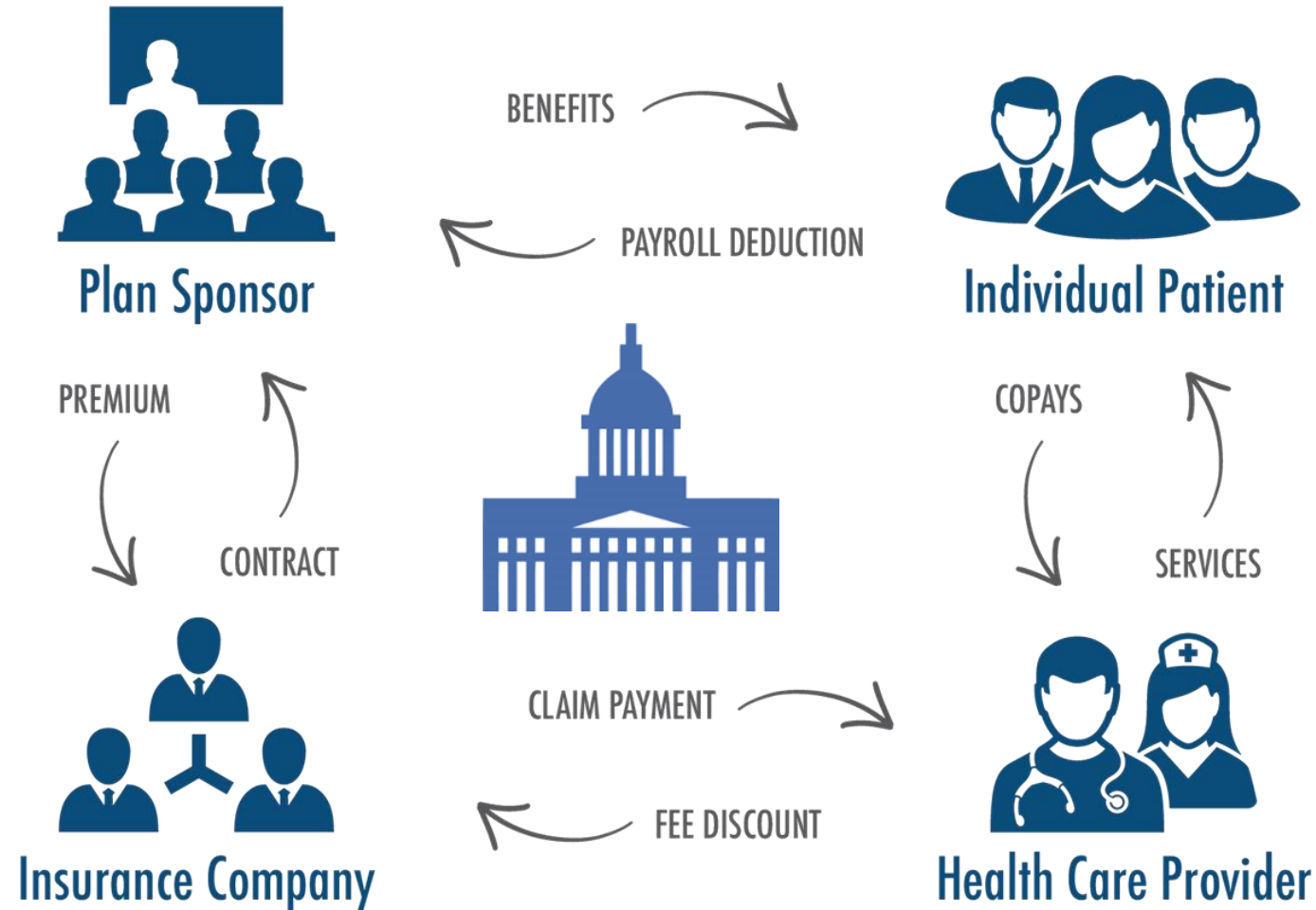


INSTITUTIONAL

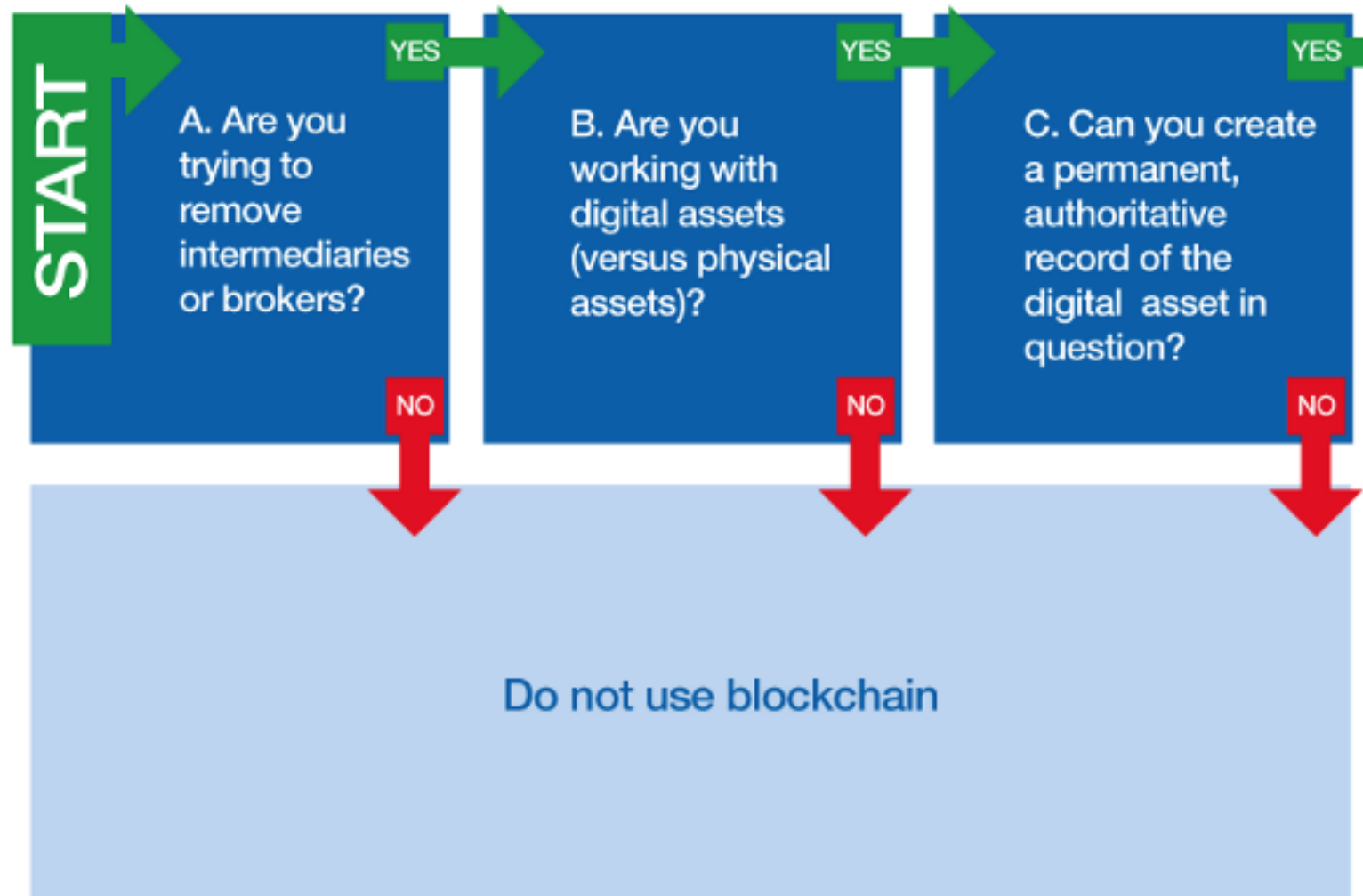


DISTRIBUTED

The Trust Problem

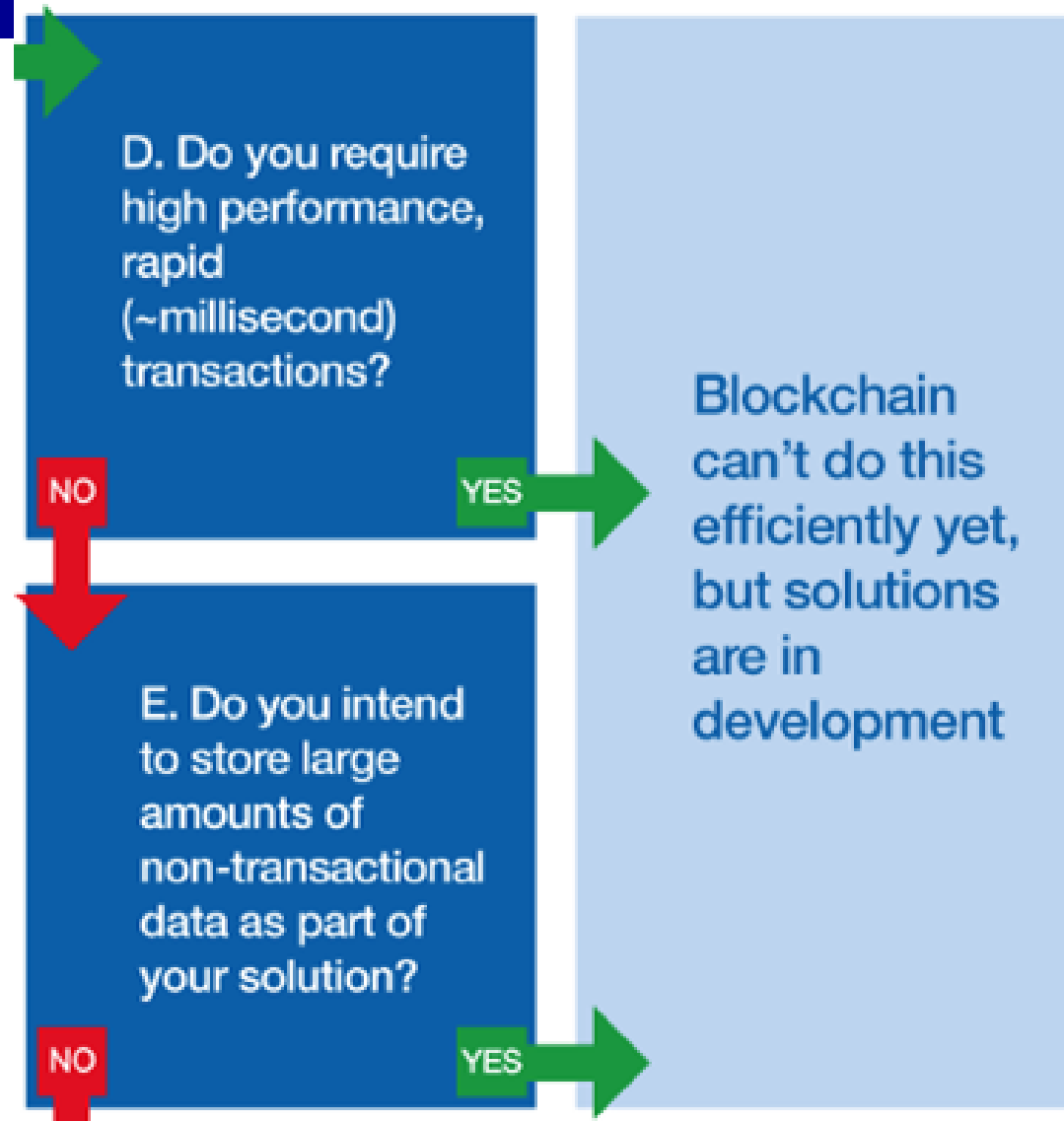


DLT Integration

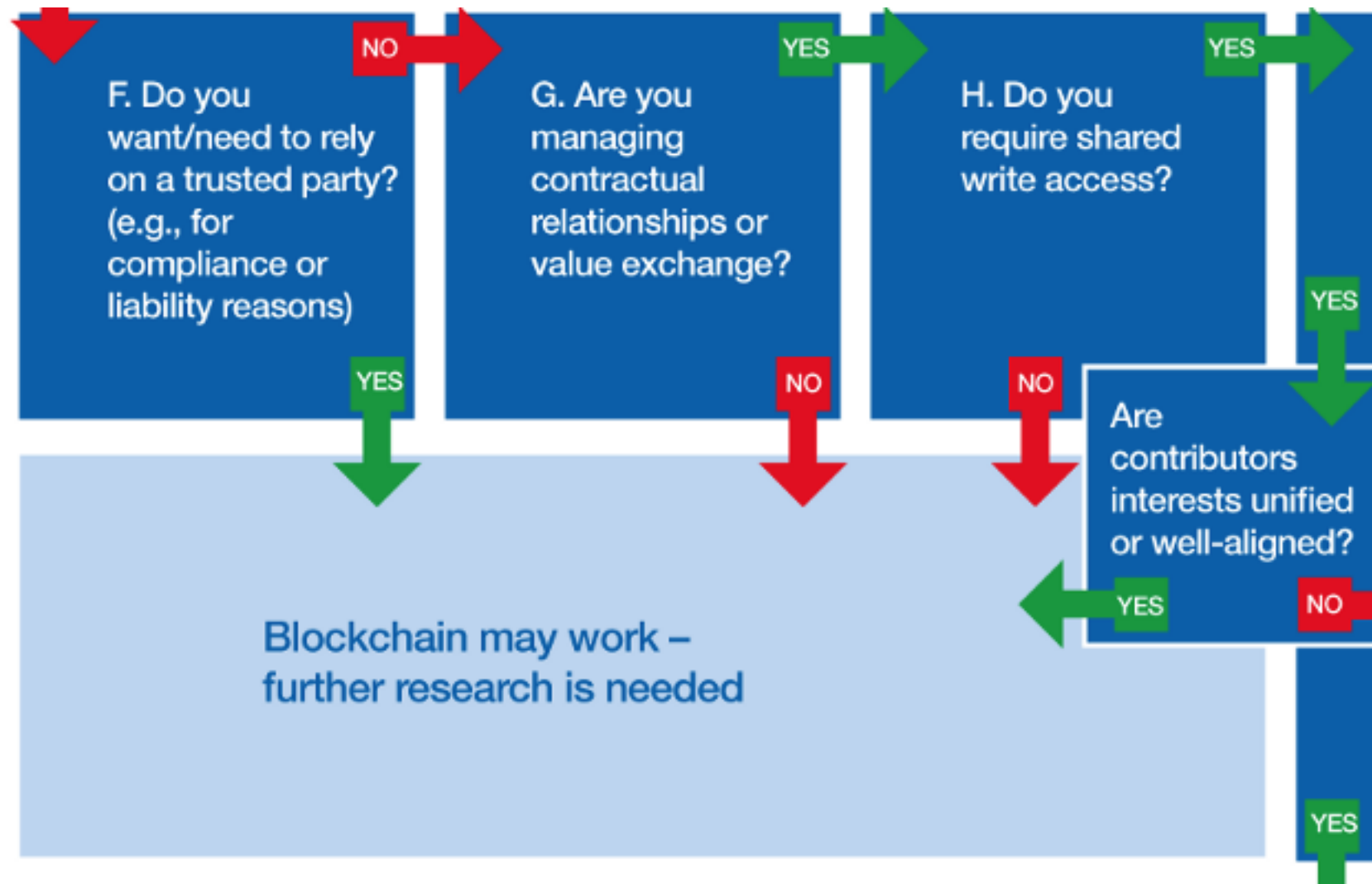


WEF, April
2018

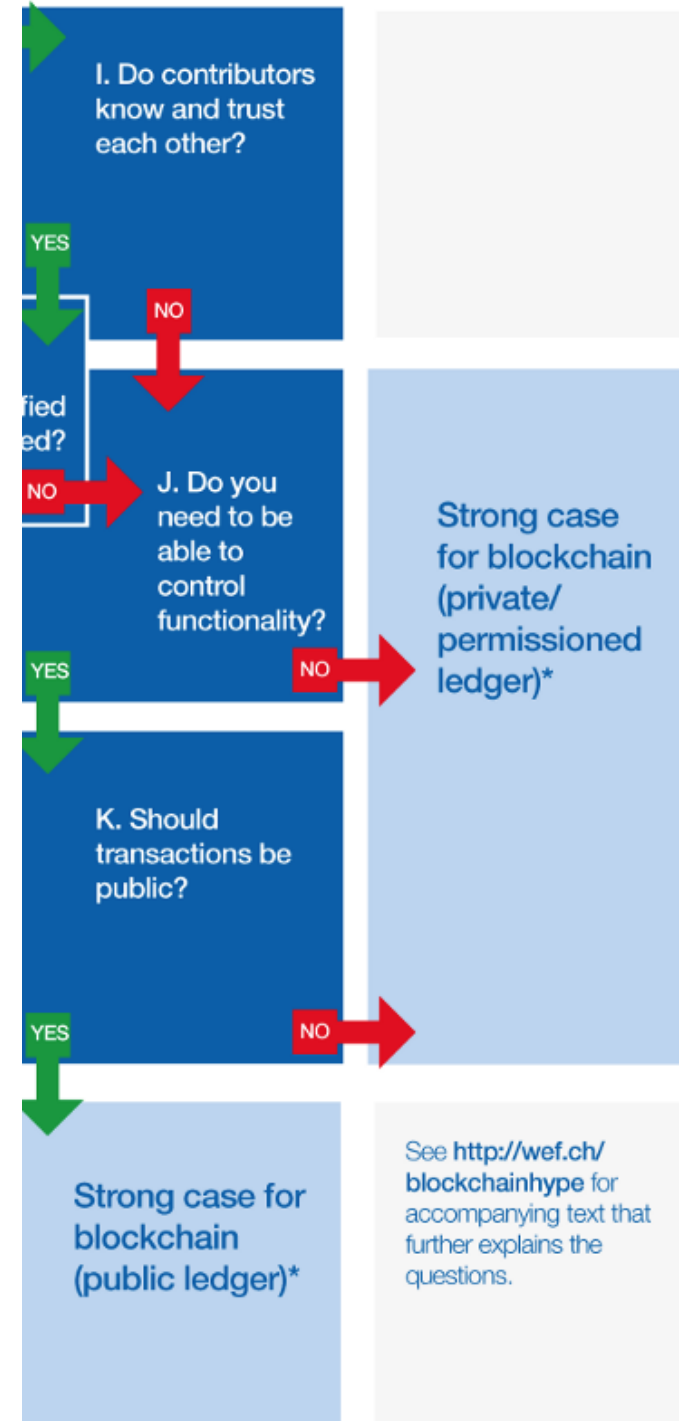
DLT Integration



DLT Integration



DLT Integration





Shared repository

A shared repository of information is used by multiple parties



Multiple writers

More than one entity generates transactions that require modifications to the shared repository



Minimal trust

A level of mistrust exists between entities that generate transactions



Intermediaries

One (or multiple) intermediary or a central gatekeeper is present to enforce trust



Transaction dependencies

Interaction or dependency between transactions is created by different entities

minimal data sets

- Name*
- Address*
- Time At Address
- Date of Birth
- Utility Bills

m-KYC Attested (8)



- Name
- Home Town
- email Address
- Phone Number
- Social Media Handle

m-Contact Info (4)



- Exercise Activity - Month
- Calories Burned - Month
- Steps Taken - Month
- Distance Covered - Month

m-Exercise (2)



- Income
- Outgoings
- Savings
- Credit card balances
- Loans
- email address

m-Budget (7)



- Purchases
- Bill Payments
- Direct Debits
- Standing Orders
- Charges
- Loan payments

m-Spend (7)



- Car Lease/HP Payments
- Car Insurance Payments
- Car Service Payments
- Fuel & Parking Payments
- Ride Share Payments
- Taxi Payments

m-Mobility Spend (3)



- Savings
- Shares
- Crypto
- ISA
- Pension
- Investment profile

m-Investments (7)



- Name
- Age
- Profession
- Post Code
- Medical conditions
- Wellbeing scores

m-Health Insurance (7)



- Post code
- Home type
- Marital status
- Family status/size
- Attested assets value
- Non attested assets value
- Purchases

m-Content Insurance (6)



- Gender
- Age Group/Range
- Profession
- Marital Status
- Location
- Health Risks

m-Archetype (4)



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Blockchain is Web 3.0

Web 1.0: Internet of Data (Experts)

Web 2.0: Internet of Social Media (Influencers)

Web 3.0: Internet of Value (Wealth)

Cybersecurity

Privacy

Ownership



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Reactive Health

1. Consumer seeks health services when feeling ill
2. Sorts through different care options
3. Data is then captured to confirm diagnosis

Proactive Health

1. Data is captured passively via medical-grade wearables
2. A provider, nurse, or PA reaches out if there is an anomaly
3. Provider already has historical dataset of relevant biomarkers and genetic predispositions

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Digital
Identity
Management



Health
Supply Chain
Management



Financials,
Insurance &
Records



Clinical
Research &
Data Access/
Monetization

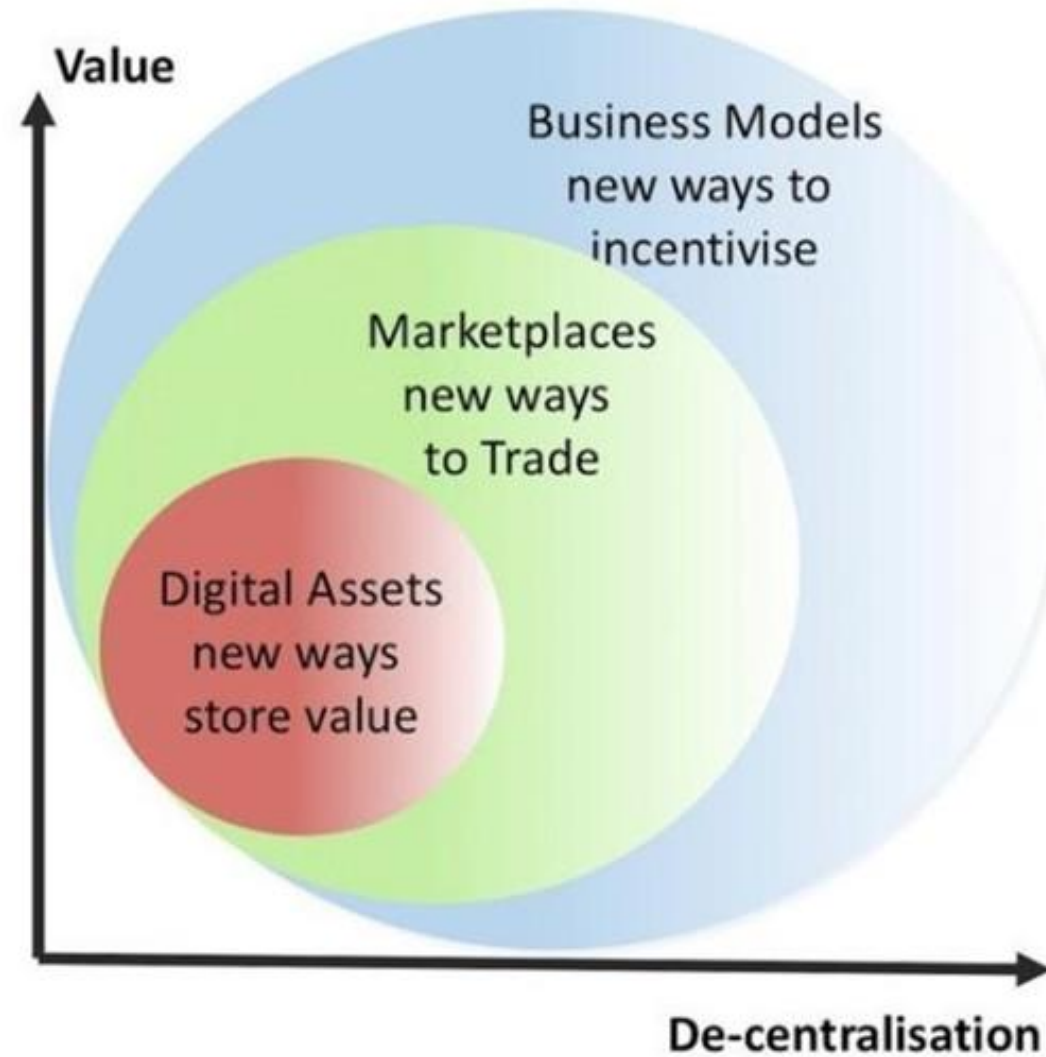
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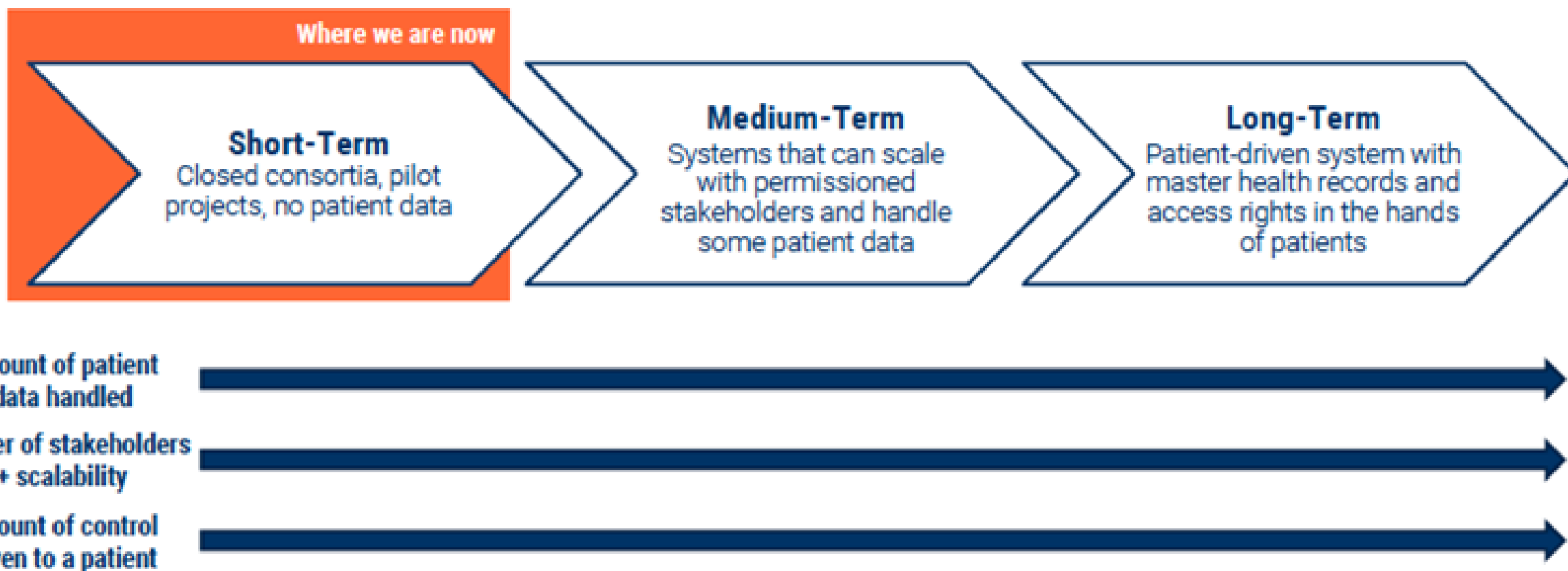
Prediction



WHAT DOES TOMORROW LOOK LIKE?

Blockchain + Healthcare: A Potential Roadmap

Use cases for blockchain will start in small projects that reduce duplicative work but can eventually shift to a system where patient's control access rights to their data



Blockchain Business Networks (BBNs)

MELLODDY

Health Utility Network

COALESCENCESM
HEALTH ALLIANCE



aetna[®]

Anthem⁺

Cigna[®]

Blue Cross
Blue Shield
of Michigan

EXPRESS SCRIPTS[®]

HCSC
Health Care Service Corporation

IBM

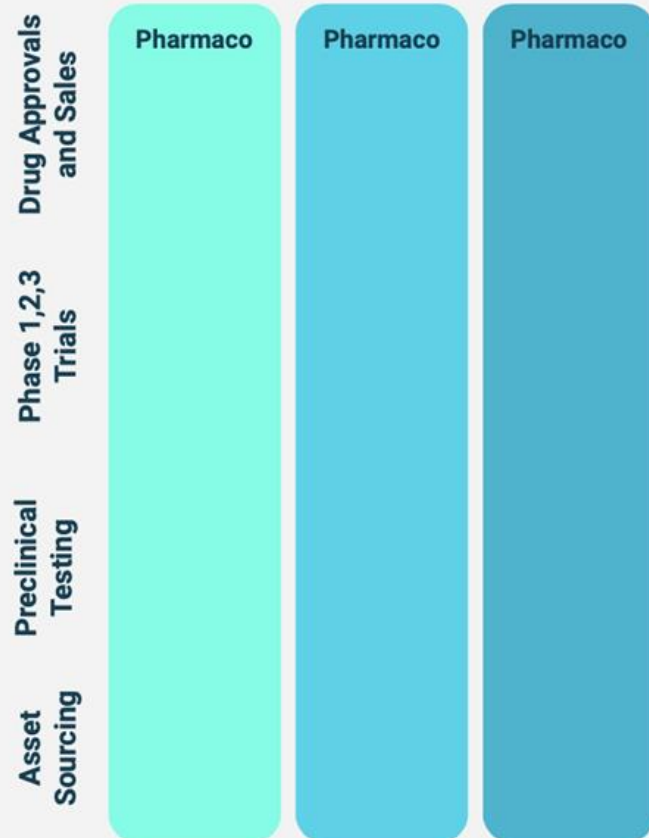
PNC

SENTARA[®]
HEALTHCARE

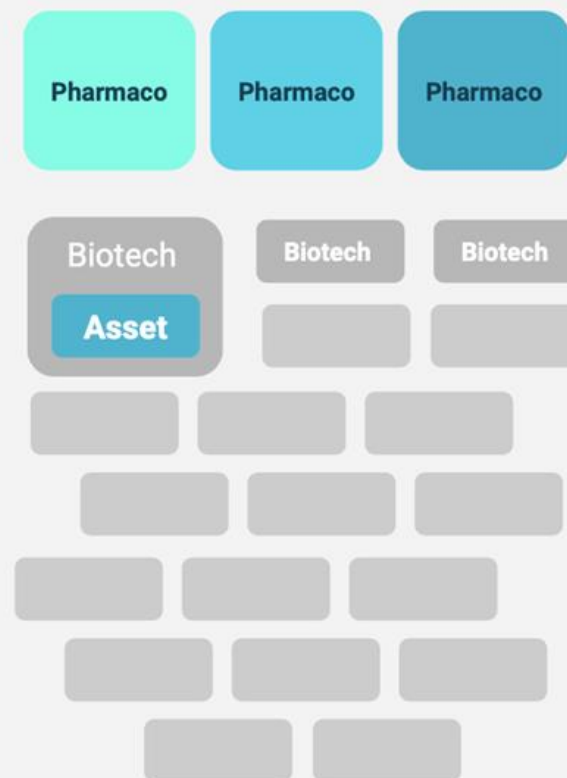
MASSACHUSETTS

Enterprise Value

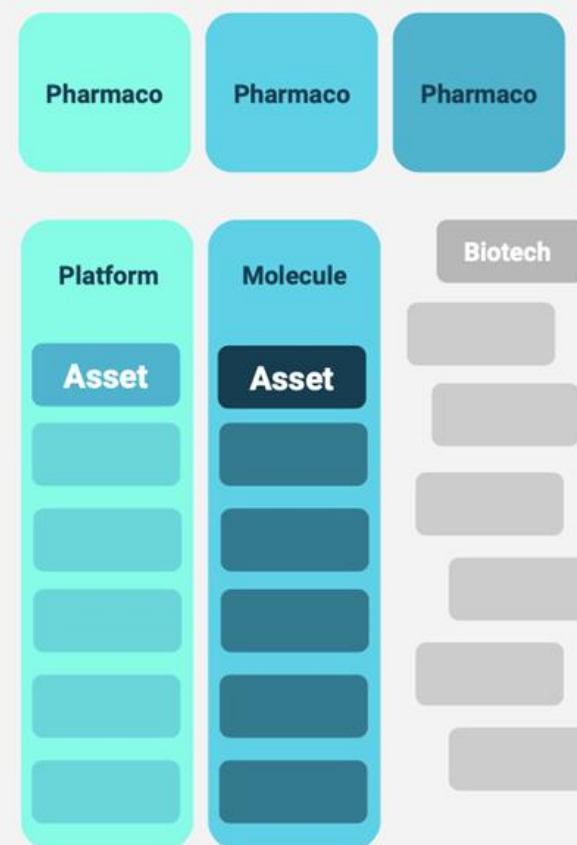
Drug development and sales
used to be completely vertically
integrated from 1950 - 2000.



Recently, the R&D portion has
fractured into an ecosystem where
M&A drives pharma innovation by
acquiring assets.



The next phase of this development is
for assets to be unbundled into
distributed R&D platforms that
remove inefficiencies and enable new
financing and partnerships models.



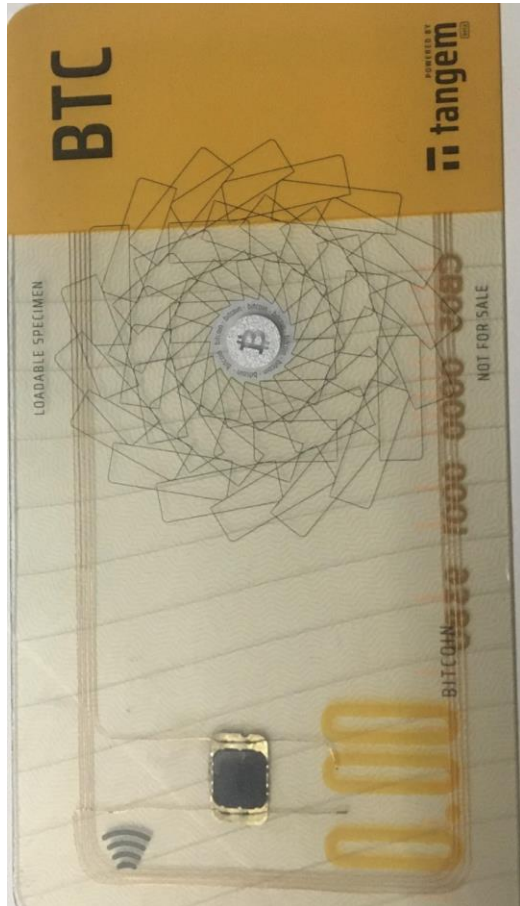
Self Sovereign Redemptive Economy



Produce Health and Wealth



SSID



That is SECSI !!!



SECURITY



EFFICIENCY



CONFIDENTIALITY



SCALABILITY



INTEROPERABILITY

Questions?

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+1 206 605 8968

