

# Cryptomarkets: Trends, Opportunities and Risks



blockchain.**initiative.**

- 1 University of Nicosia
- 2 Blockchain Activities
- 3 Blockchain Readiness Index
- 4 MSc in Digital Currency
- 5 Massive Open Online Course (MOOC)
- 6 Blockchain Training Services
- 7 Academic Certificates on the Blockchain
- 8 The Team



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# University of Nicosia

excellence.in.education.

The University of Nicosia is the culmination of an ongoing journey which began over 30 years ago. Today, the University of Nicosia is the leading university in Cyprus - in line with our enduring motto: "Excellence in Education".

## ✓ Unique Location

Located in Nicosia, the capital of Cyprus

## ✓ Multicultural Learning Environment

Hosts students from all over the world, in a multicultural learning environment

## ✓ Erasmus University Charter

Erasmus University Charter and participant in the European Credit Transfer System (ECTS)

## ✓ Global Education Centre

At the cross-roads of three continents, the university has become a global education centre

## ✓ Our Research

Involved in European and local research projects as partner as well as coordinating institution

## ✓ Community Involvement

Involved in the community (e.g. environmental protection and fighting world hunger)





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# Blockchain Activities

overview of blockchain activities at University of Nicosia

Fall 2013

## Bitcoin Acceptance

As the first university in the world, the University of Nicosia started to accept Bitcoin for tuition payments



Spring 2014

## Global Bitcoin Hub

Submitting a comprehensive proposal, to the Cypriot Government, as to how Cyprus can become a "Global Bitcoin Hub"



Spring 2014

## Launch of MSc & MOOC

Introducing the world's first Master's Degree in Digital Currencies, including a Massive Online Open Course (MOOC) on Introduction of Digital Currencies





## Fall 2016

### Blockchain Training Series

Launching the Blockchain Training Series; a portfolio of Continuous Professional Development courses on blockchain technology to date



## Spring 2016

### First graduates MSc programme

The first class of the MSc in Digital Currency graduated in June 2016



## Fall 2016

### Blockchain Research Center

Launch of the Blockchain Research Center



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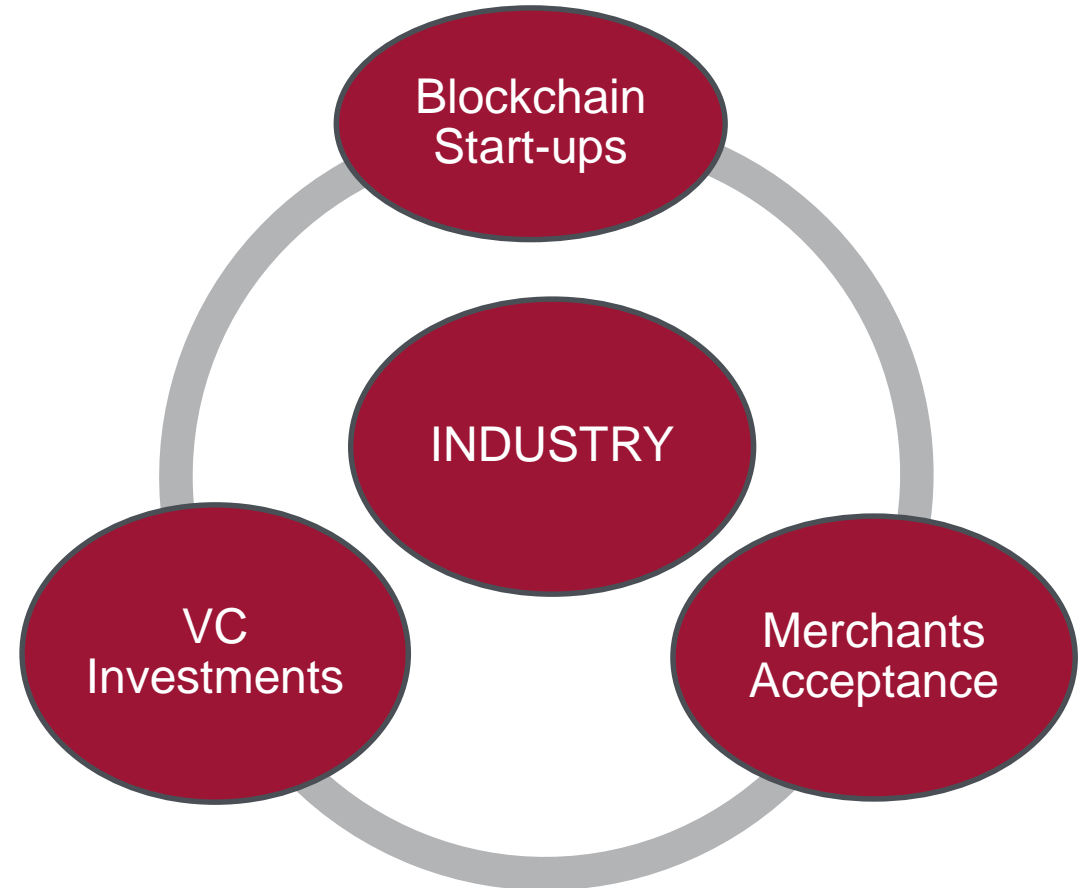
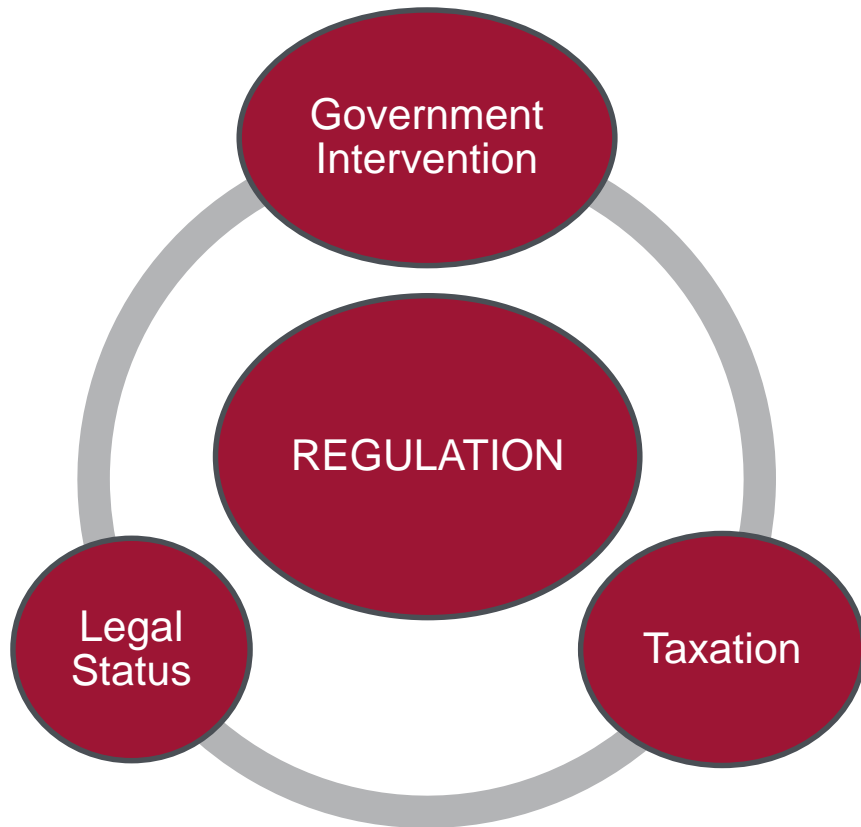
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# Blockchain Readiness Index

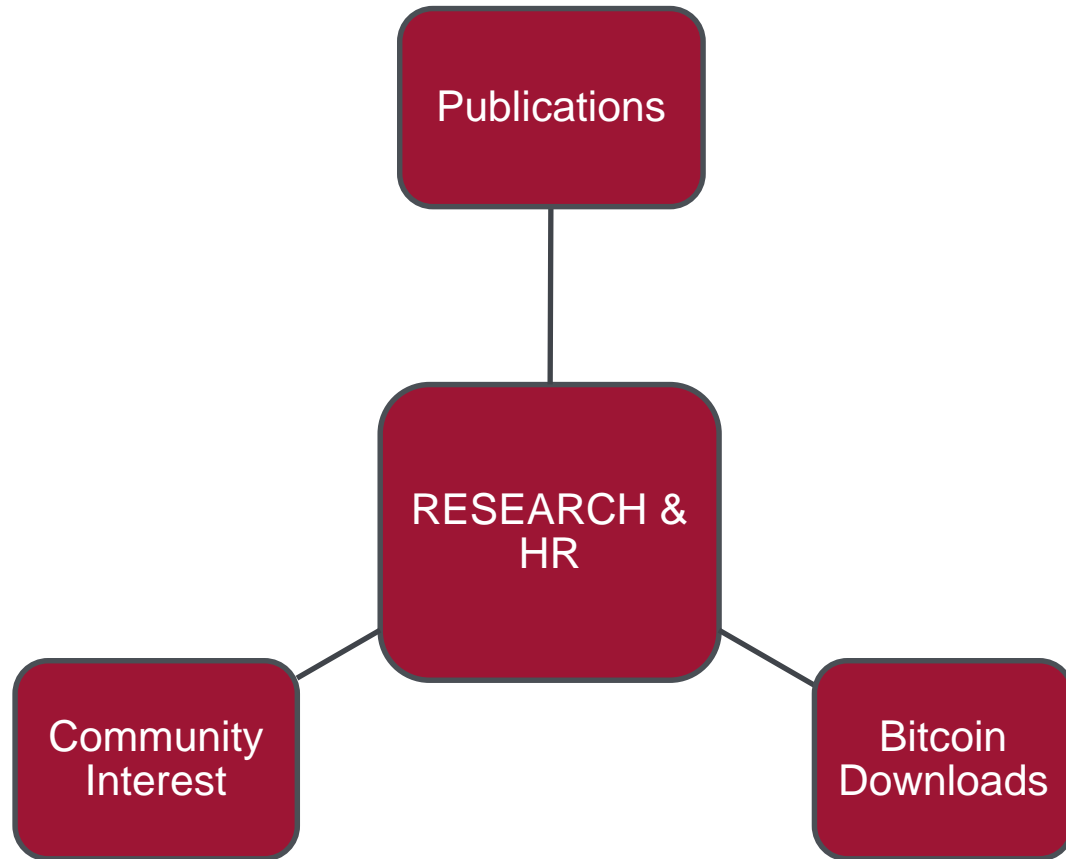
The first ever country-based index on Blockchain adaptability and engagement

The Digital Currency Team is currently in the process of conducting extensive research on Blockchain adaptability worldwide and is gathering reliable data and statistics related on different nations that contribute towards forming an accurate conclusion. Each country's score is calculated by assessing various indicators covering a wide range of capabilities.



# Blockchain Readiness Index

The first ever country-based index on Blockchain adaptability and engagement





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# MSc in Digital Currency

pioneering blockchain education

The University of Nicosia has launched the first Master of Science degree in Digital Currency that is offered to students worldwide through an online format. The programme bridges the gap in specialist and generalist knowledge in this multidisciplinary field, and positions the university as a leader in Bitcoin and Blockchain technology education globally.

01

## Worldwide coverage

World's first Master's Degree – offered online to students around the world.

02

## Bridge the gap

Seeks to fill the gap between the supply of and demand for academic knowledge in the area of digital currency

03

## Multidisciplinary

Addressed to merchants, consumers, professionals (accountants, auditors, bankers, lawyers, economists, journalists etc.), civil servants, regulatory authorities, supervisors etc.

04

## Broad curriculum

The Master of Science degree consists of nine courses (including the MOOC)

05

## International Programme

Students hail from more than 80 countries around the world.

06

## World-Renowned Faculty

Courses are taught by world-known blockchain experts

# MSc in Digital Currency

Courses: Bitcoin's strengths and weaknesses

01

Introduction to Digital Currencies (the MOOC)

02

Money & Banking

03

International Currency Markets

04

Financial markets and alternative investments

05

Regulation and Digital Currencies

Our aim is to present students with a spherical reflection of this emerging landscape with a critical eye to the future

# MSc in Digital Currency

Courses: Conventional systems and how fintech can be changed by the blockchain technology

01

Open Financial Systems

02

Principles of Disruptive Innovation

03

Blockchain Technology and Applications

04

Cryptographic Systems Security

05

Digital Currency Programming

06

Digital Currencies in the Developing World

07

Digital Currency Information Systems and Resources

08

Project/Theses option

Our aim is to present students with a spherical reflection of this emerging landscape with a critical eye to the future



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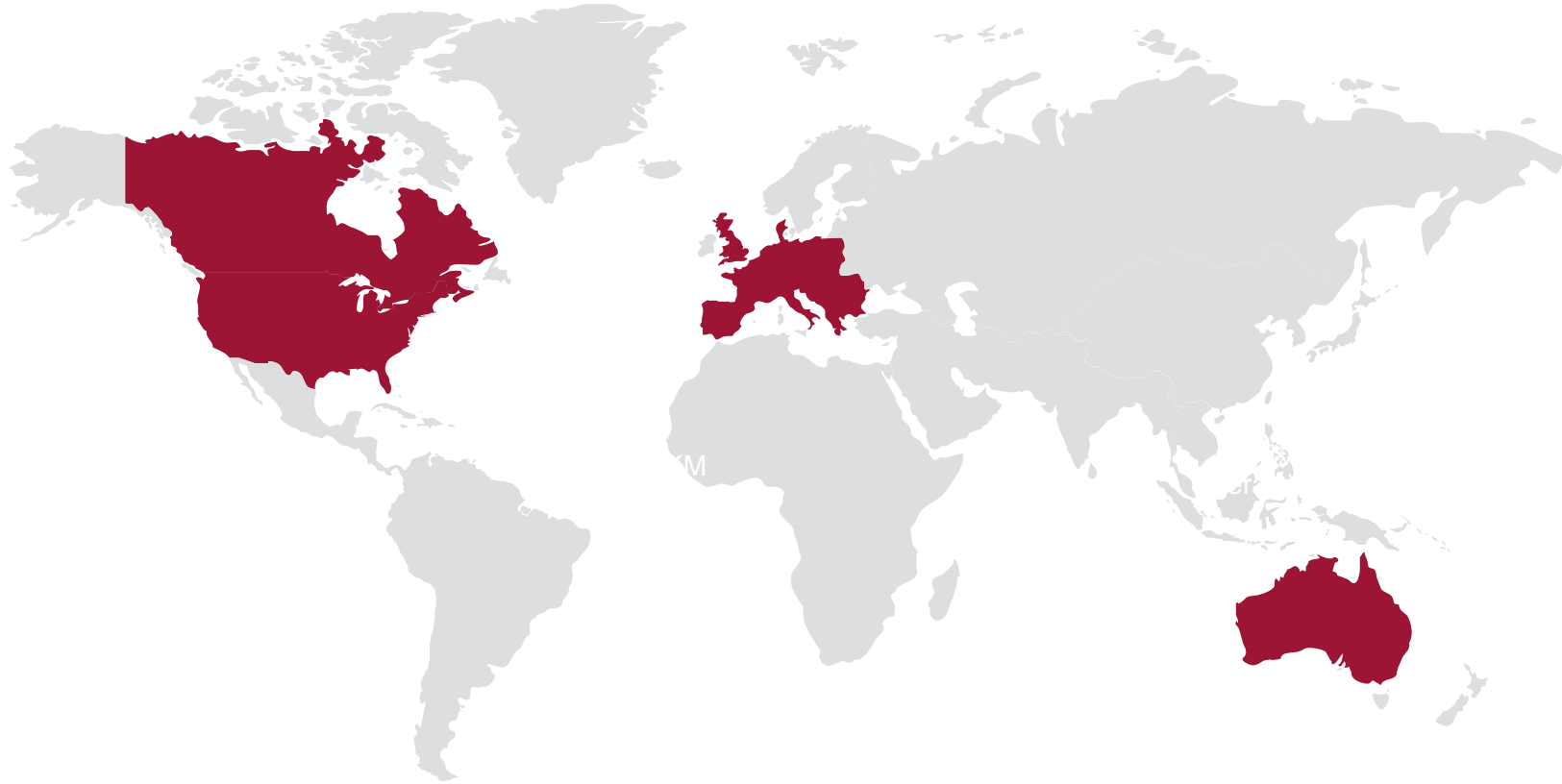
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# The Massive Online Open Course (MOOC)

Introduction to Digital Currencies

The first MOOC on cryptocurrency with currently more than 4000 enrolled students from over 80 countries, with a majority of students from:



- 1 United States
- 2 Canada
- 3 United Kingdom
- 4 Spain
- 5 Cyprus
- 6 The Netherlands
- 7 Germany
- 8 Australia



# The Massive Online Open Course (MOOC)

Introduction to Digital Currencies



## 17% Completion Rate

At the completion rate of 17%, the “Introduction to Digital Currencies” performs 2-4 times better than the average MOOC

Issued and signed, using blockchain technology!  
All MOOC completion certificates are issued and signed on top of the Bitcoin blockchain!



On average, 90% male students and 10% female students.

90%

Male participants

10%

Female participants

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# Blockchain Training Series

leading the way in professional education

1

The largest portfolio of Continuous Professional Development courses on blockchains to date

2

Along with Globaltraining, the professional education arm of UNIC and a leading professional training organisation globally.

3

Constantly updated to keep pace with developments Blockchain technology

4

Gives the opportunity to professionals to fully understand the impact in their sector before others, while the solutions are being developed

5

An actionable professional course that will give individuals specific tools to assess the importance of their business sector

# Blockchain Training Series

staying competitive is a matter of vigilance and vision

The four axes of the Blockchain Training Series



## Fundamentals

how the technology works, why is it considered so revolutionary, major current and future applications

## Governmental

the legal treatment of digital currencies and smart contracts, implications and emerging new regulations in different jurisdictions

## Technical

developments in Bitcoin, security implications and solutions associated with public and private blockchains

## Accounting & Finance

how accountants, auditors, bankers and tax professionals should treat digital currency assets and transactions

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# Academic Certificates on the Blockchain

innovation in certificate issuance

01

## MOOC Certificates on the Blockchain

Immutable records  
Ease of validation

02

## First Issued in 2014

Mechanism improved since then  
More program certificates to be certified on the blockchain

03

## PDF Certificates Self-contained Files

Self Contained Files  
Independently Verified



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# Our Team

about.university.of.nicosia.



**Antonis Polemitis**  
CEO MSc Digital Currency



**Andreas Antonopoulos**  
Bitcoin Expert



**Dr. Ghassan Karamé**  
Bitcoin cryptography researcher



**Dr. Charles W. Evans**  
Financial Cryptography Consultant



**Adam Hayes**  
Co-Founder & CEO at ChainLink



**Ioannis Menelaou**  
Blockchain Investment Advisor



**Dr. Dmitry Apraksin**  
Head of Computer Centre UNIC



**Mark Toohey**  
Financial Cryptography Consultant



**Gregor Borosa**  
Software Engineer



# Our Team

about.university.of.nicosia.



**Dr. Soulla Louca**

Coordinator



**Dr. George Giaglis**

Scientific Coordinator



**George Papageorgiou, MBA**



**Dr. Kostas Karasavva, PhD**



**Andreas Vlachos, MSc**



**Irene Patrikios, BA**



**Kyriacos Anastasiou,  
BA (May 2017)**



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## Get in Touch

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 @MScDigital

Cryptomarkets:

# Trends, Opportunities and Risks

# Internet of Everything (IoE)



# Internet Of Everything

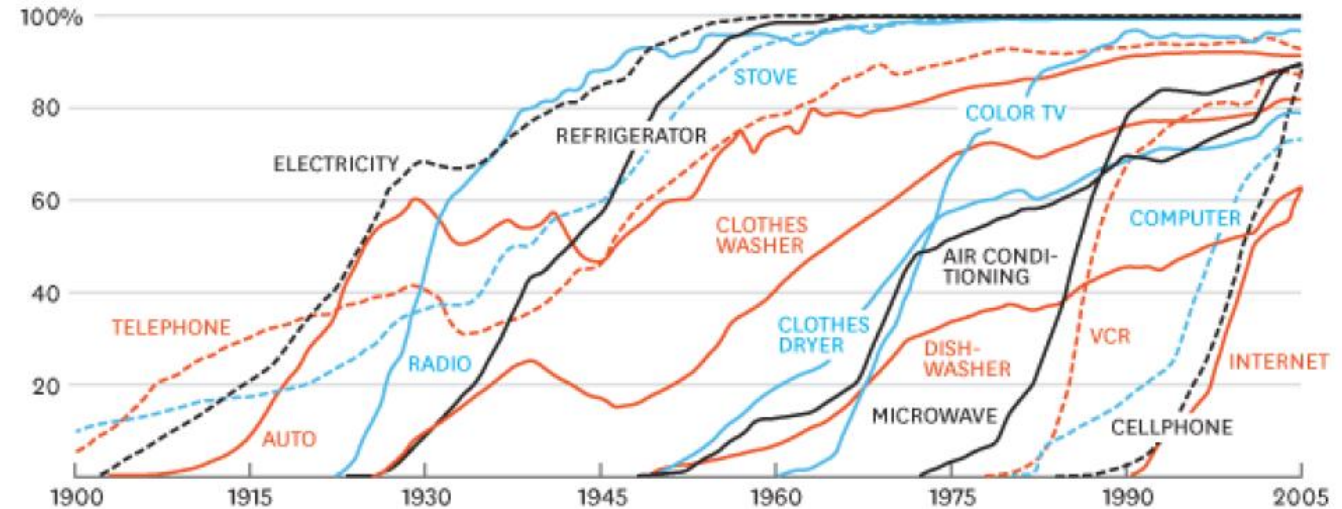


Technology adoption continues to get faster and faster

**Technology Adoption:**  
Comparison between  
market trends

## CONSUMPTION SPREADS FASTER TODAY

PERCENT OF U.S. HOUSEHOLDS



SOURCE MICHAEL FELTON, THE NEW YORK TIMES

HBR.ORG

© GfK July 12, 2016 | Innovation, Fintech and the Future of Banking

2

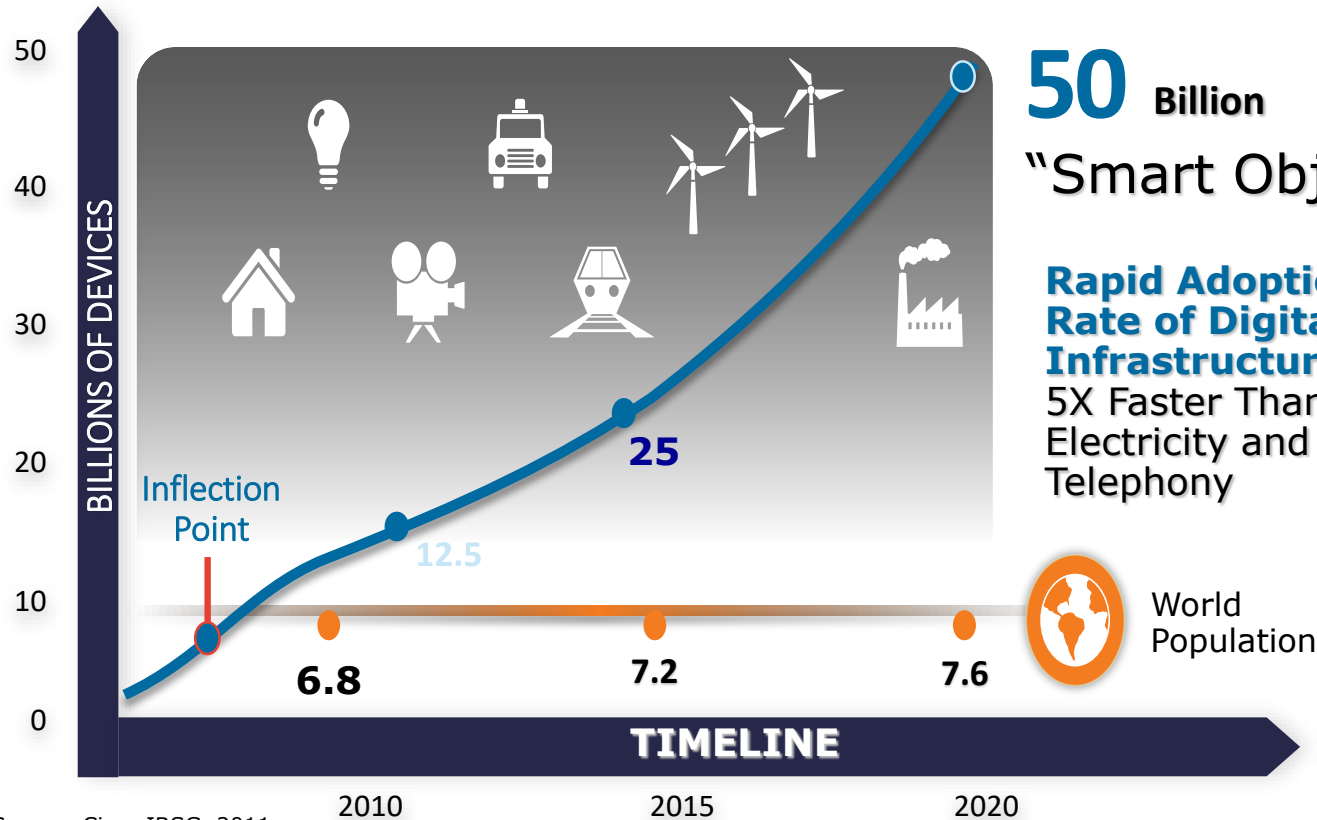
# Internet Of Everything

The Internet of Things (IoT) is the network of physical objects-devices, vehicles, building and other items embedded with electronics, software and network connectivity; that enables these object to collect and exchange information.

IoT can be described with other “names” like:

- “Internet of Everything (**IoE**)” (CISCO)
- “World Size Web” (Bruce Schneier)
- “Machine to Machine (**M2M**)”
- “Skynet”
- ...

# Internet Of Everything



**50 Billion**  
"Smart Objects"

**Rapid Adoption Rate of Digital Infrastructure:**  
5X Faster Than Electricity and Telephony



World Population

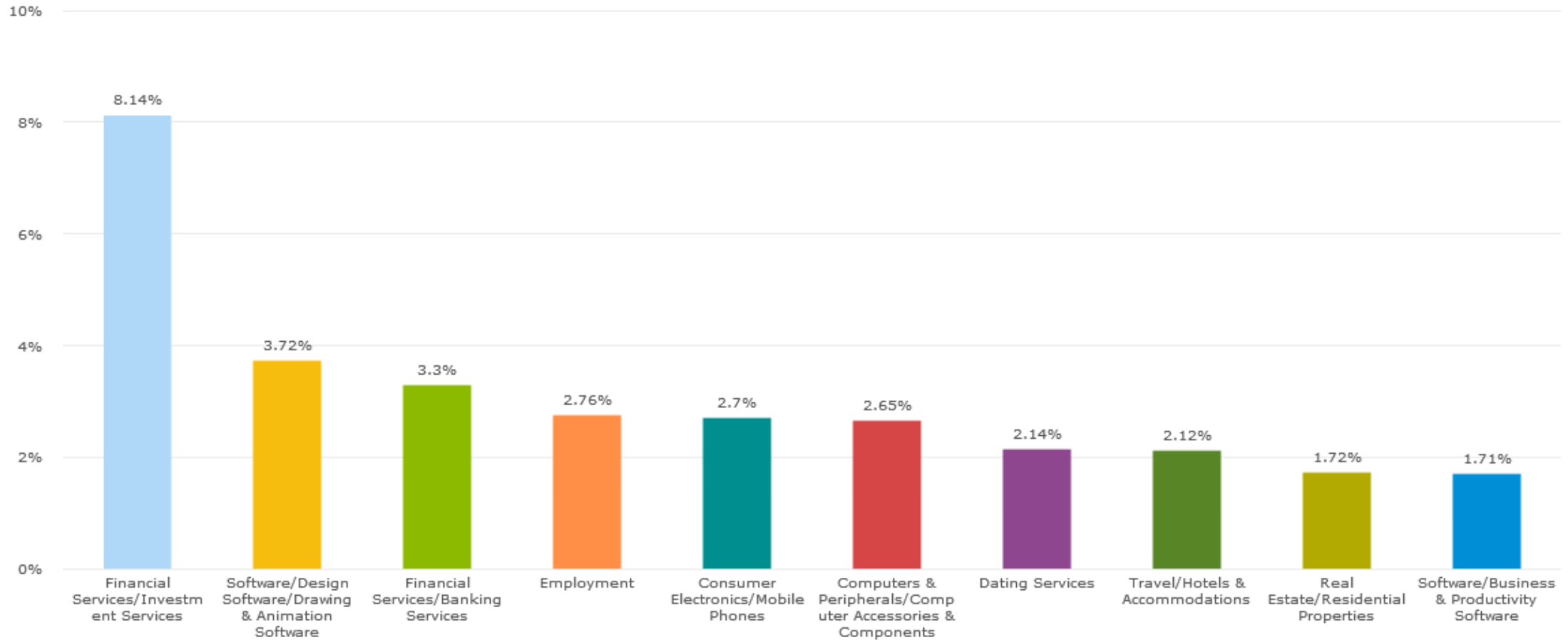
**Revenue growth from \$1.9 trillion in 2013 to \$7.1 trillion in 2020.**

(Source: International Data Corporation. "Market Analysis: Worldwide and Regional Internet of Things (IoT) 2014–2020. Forecast: A Virtuous Circle of Proven Value and Demand")

Source: Cisco IBSG, 2011

# Internet Of Everything

Bitcoin Community Interests (Google Analytics)  
coin.dance





# Incubators, Accelerators and Innovation Hubs

## Fintech Incubators, Accelerators and Innovation Hubs

- FCA Innovation Hub (UK)
- Barclays Accelerator (London, New York, Cape Town, Tel Aviv)
- Level39 Accelerator (UK)
- Fintech Innovation Lab (Global) – Supported by Bank of America, Barclays, Citi, Credit Suisse, Deutsche Bank, Goldman Sachs, JPMorgan Chase, Morgan Stanley and Wells Fargo.
- Y Combinator (Silicon Valley, USA) – not only for fintech
- FinTech Sandbox (Boston, USA) – backed by Fidelity Investments, F-Prime Capital, Thomson Reuters, Silicon Valley Bank, Amazon Web Services, EY and Intel.

# Incubators, Accelerators and Innovation Hubs

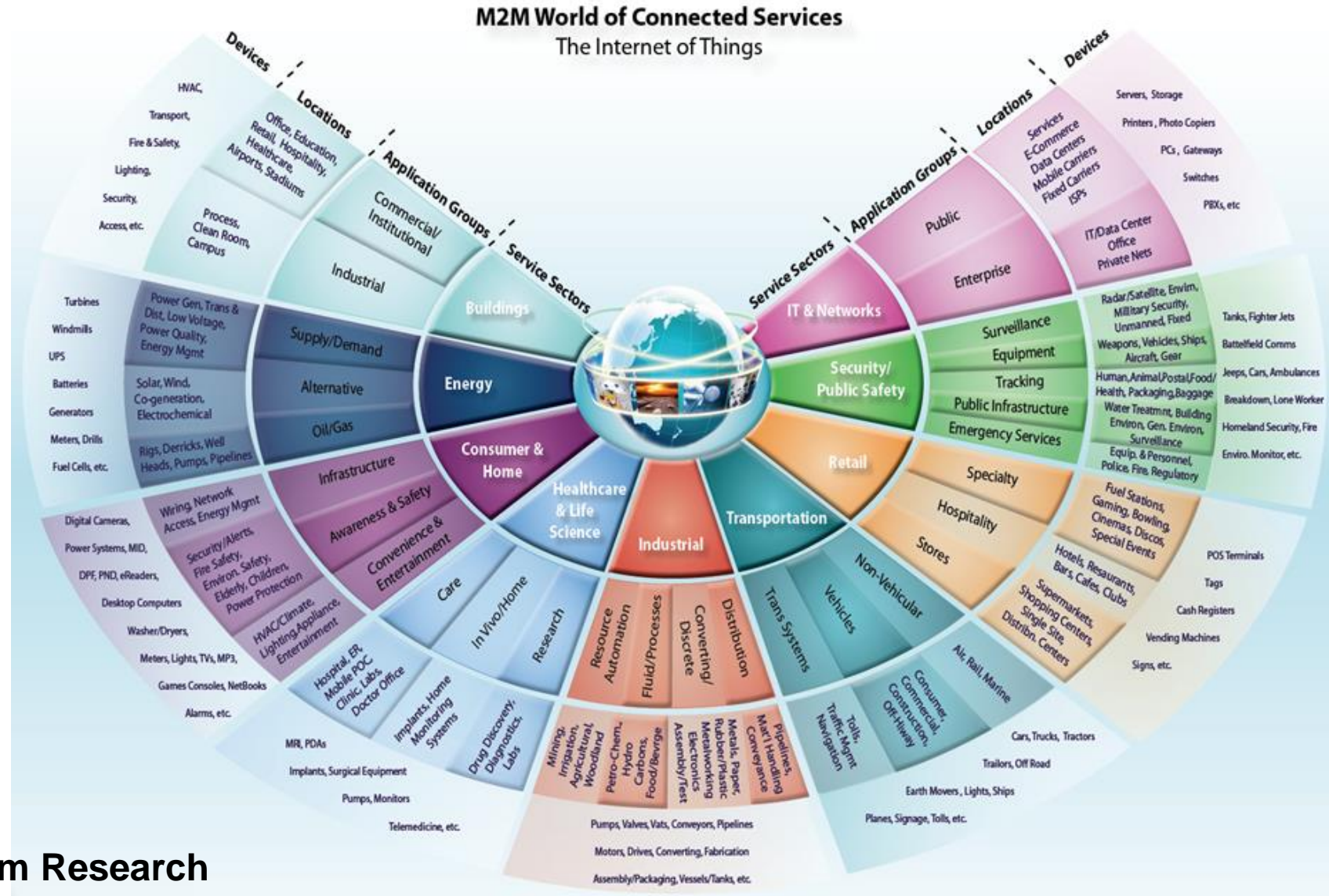
## Fintech Incubators, Accelerators and Innovation Hubs

- Bank of England FinTech Accelerator (UK)
- Founders' Institute (Global/Cyprus)
- SIX Group FinTech Accelerator F10
- FinTech Regulatory Laboratory – Abu Dhabi Global Market (ADGM)

Cryptomarkets:

Trends, **Opportunities** and Risks

# Opportunities



M2M/IoT Sector Map :: Beecham Research

# Blockchain Applications

- **Blockchain in Finance**

- Money and Capital Markets
- Financial Services
- Insurance

- **Blockchain in Law**

- Corporate law (Rights, claims, voting, obligations...)
- Self-enforcement law

- **Gaming and Betting**

- Raffles
- Profit distribution

- **Blockchain in Identity**

- Digital Identities (Passports, IDs, Social Security Numbers...)
- Certificates (birth, wedding,...)
- Online verifications

- **Oil and Gas**

- Distribution
- International trade and settlement

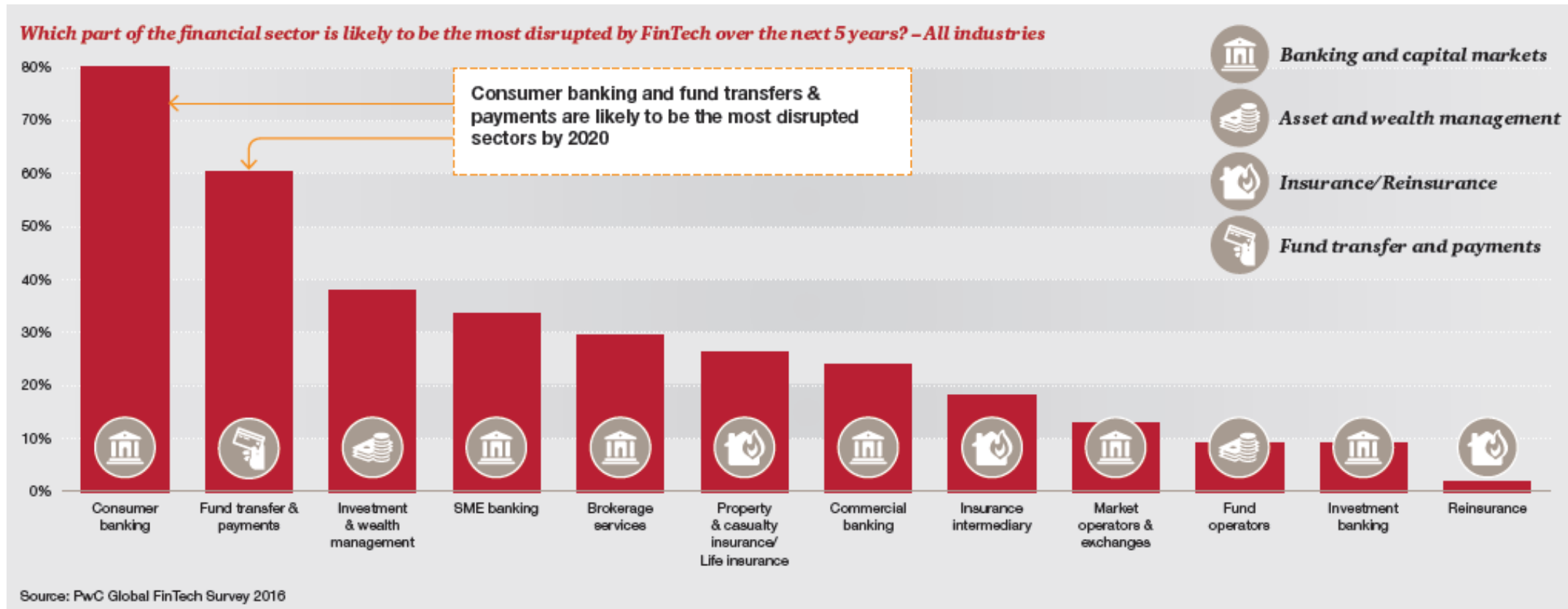
- **Tourism and Entertainment**

- Bookings
- Events organising
- Music rights

# Opportunities

## Market participants to be affected in the next 5 years

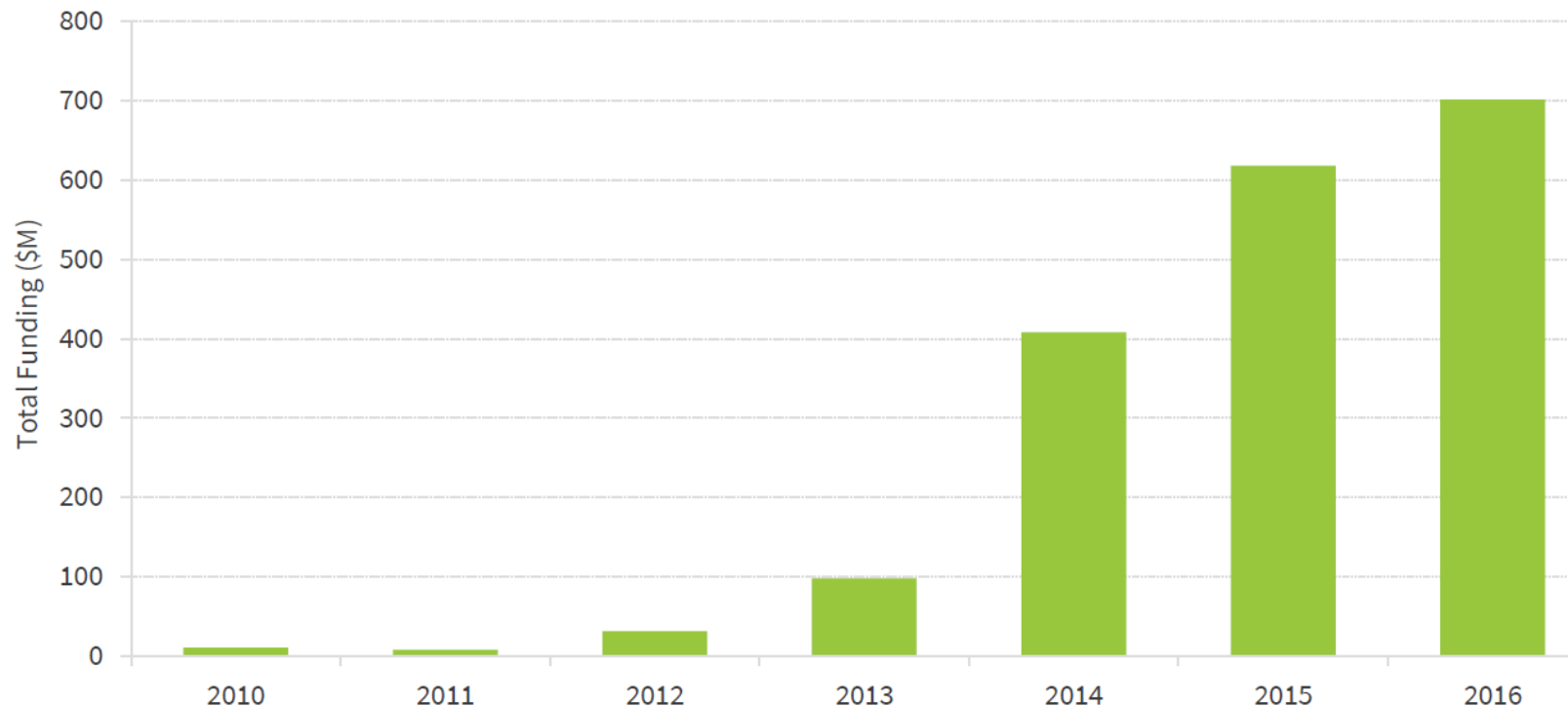
Regulators also follow the same trend by establishing rules firstly for the most disruptive areas.



# Blockchain – VC Investments

Overall *bitcoin and blockchain technology VC funding grew at a CAGR of 100%*  
from 2010-2016

Bitcoin and Blockchain Technology Funding Over Time



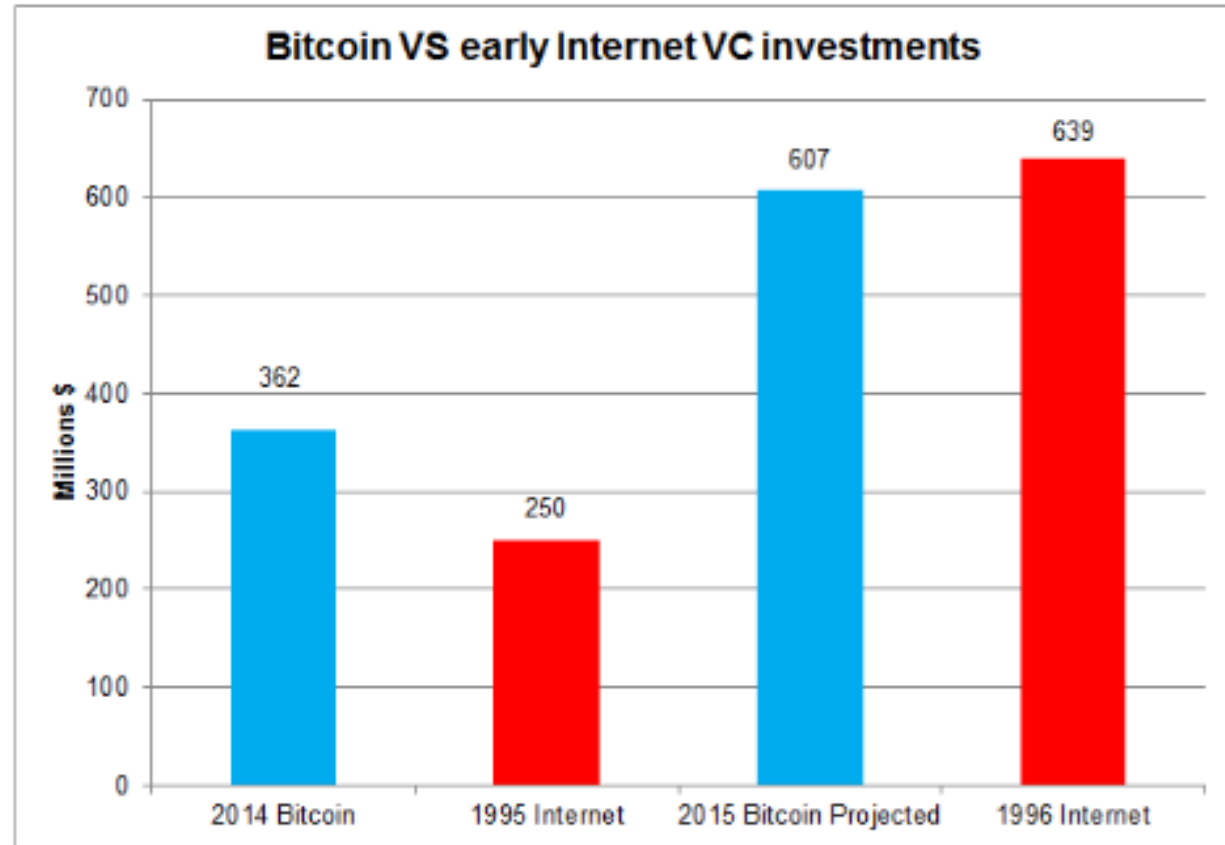
Source: Venture Scanner  
and The Cointelegraph  
Blockshow 2017



# Bitcoin Vs. Internet

UNICREDIT: *Blockchain  
Technology and Applications  
from a Financial Perspective*

*(February 26, 2016)*





# Blockchain – Why it is so important



# Blockchain – Why it is so important

## SWIFT (2015) and VISA (2016) in numbers

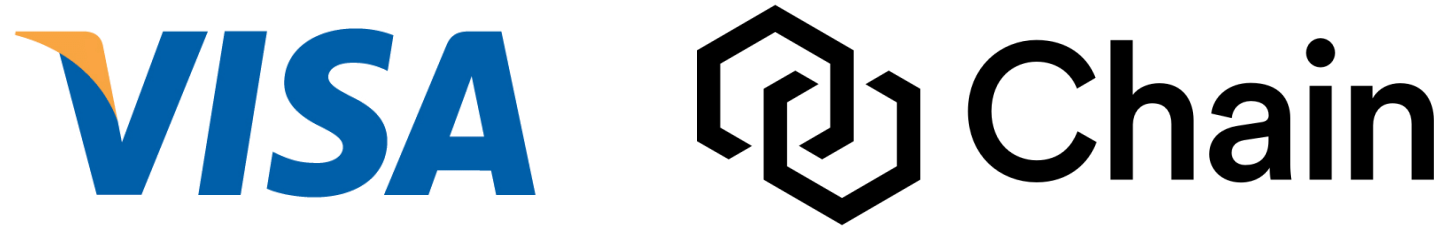


- 11,000+ Institutions
- 200+ Countries
- 24.2+ average daily FIN messages
- \$15.1bn Net Operating Revenue (\$6bn Net Income)
- \$5,8trl Payments in Volume
- 83.2bn Processed Transactions

# Blockchain – Current Developments

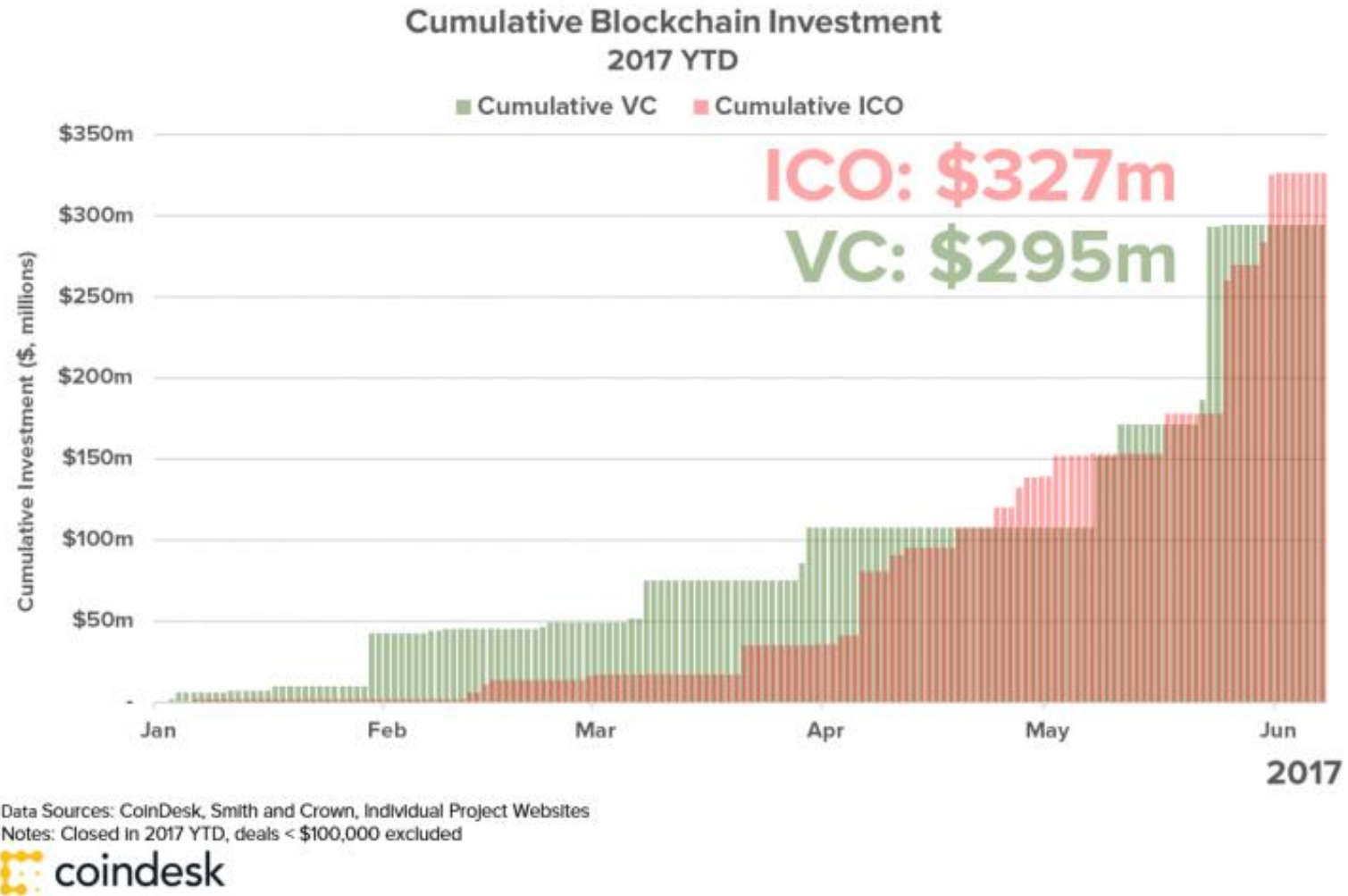
## VISA

- In 2016, Visa partnered with Chain, a startup building a revolutionary blockchain technology to pilot a program aiming at allowing businesses to transact directly with each other without necessarily needing a banking intermediary.



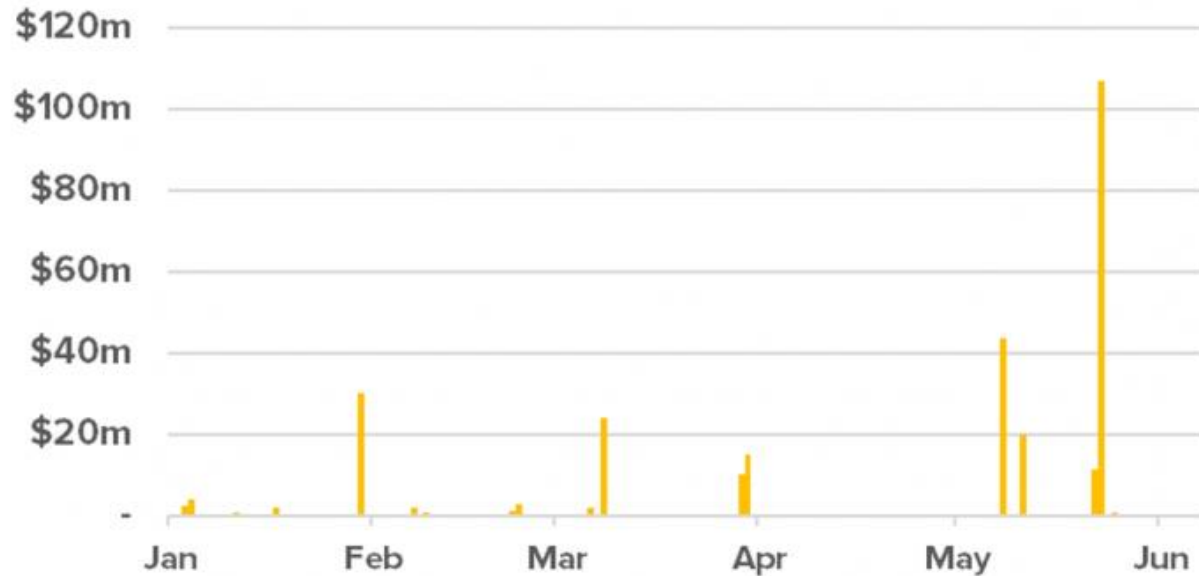
- In 2016, VISA acquires VISA Europe and the creation of an ‘Integrated global economy’.
- In 2016, launch of VISA Token Service: digital transactions more secure by removing card numbers from the transaction and replacing the card number with a token – a substitute number that cannot be used if it is stolen or compromised.

# Initial Coin Offerings



# Initial Coin Offerings

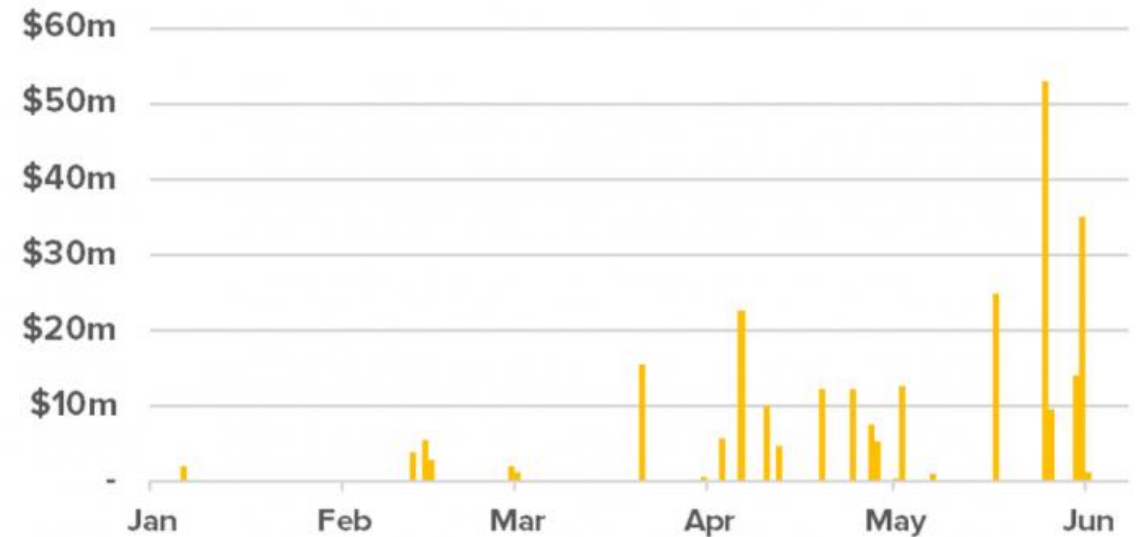
## Blockchain VC Investment 2017 YTD



Data Source: CoinDesk venture capital database  
Notes: Closed in 2017 YTD, deals < \$100,000 excluded



## Blockchain ICO Investment 2017 YTD



Data Sources: CoinDesk, Smith and Crown, Individual Project Websites  
Notes: Closed in 2017 YTD, deals < \$100,000 excluded



# Investment Opportunities – BTC Vs. Gold



# Investment Opportunities – BTC 2017

Bitcoin (XBTUSD)  
February 2017



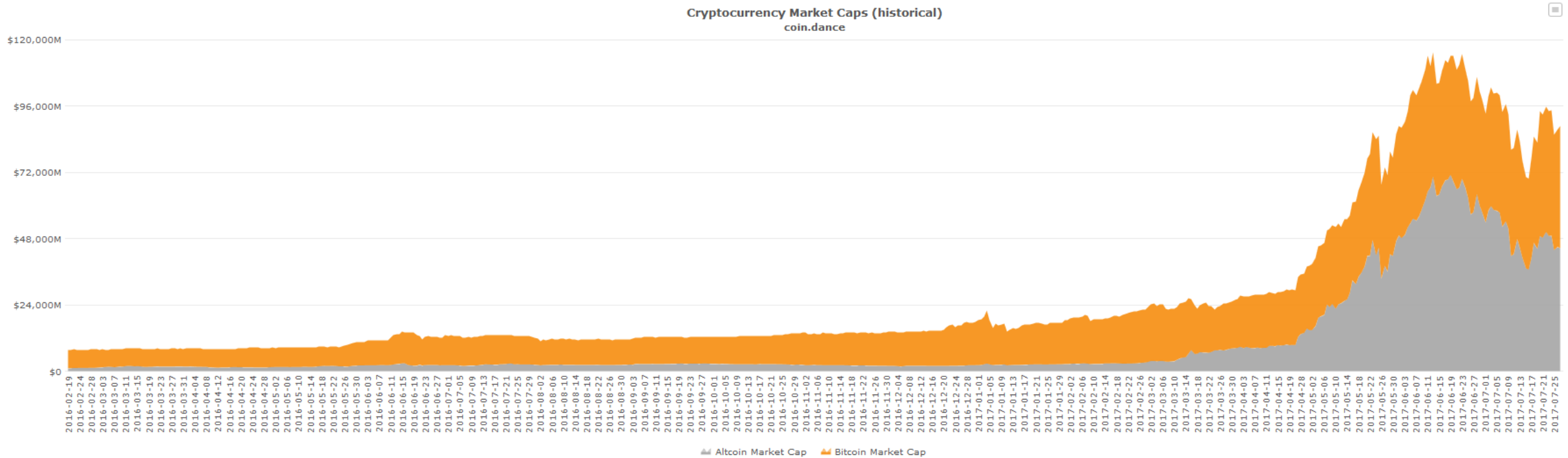
# Investment Opportunities – BTC 2017

Bitcoin (XBTUSD)  
August 2017



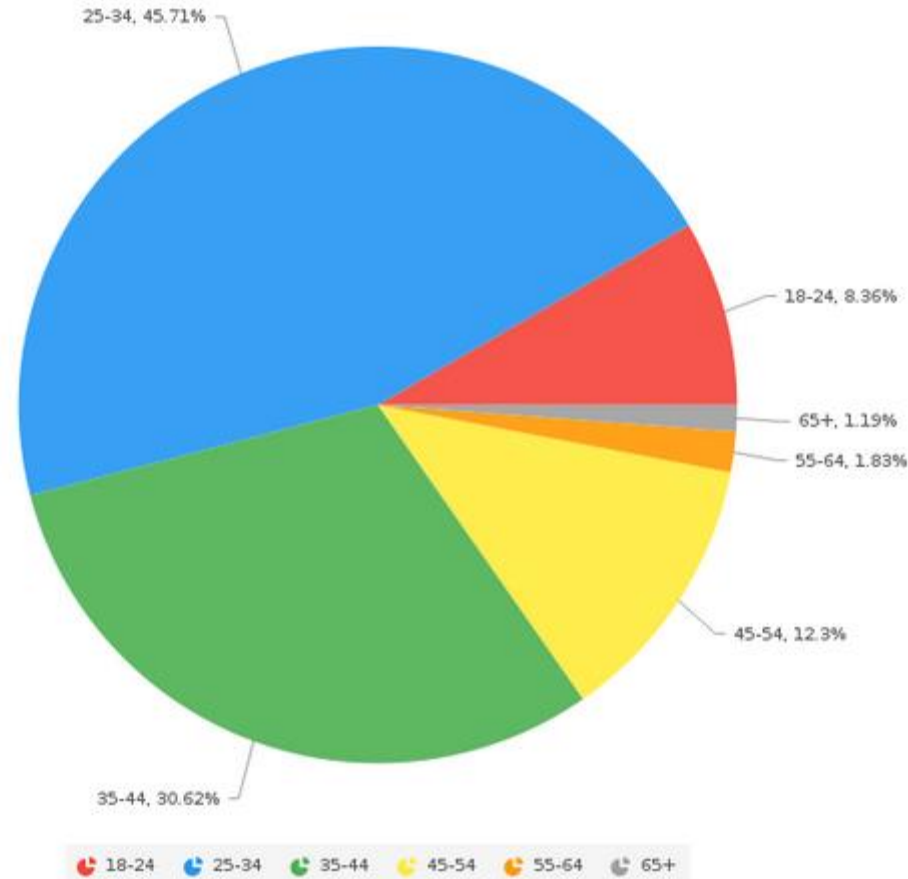


# Crypto Opportunities - Market Volume

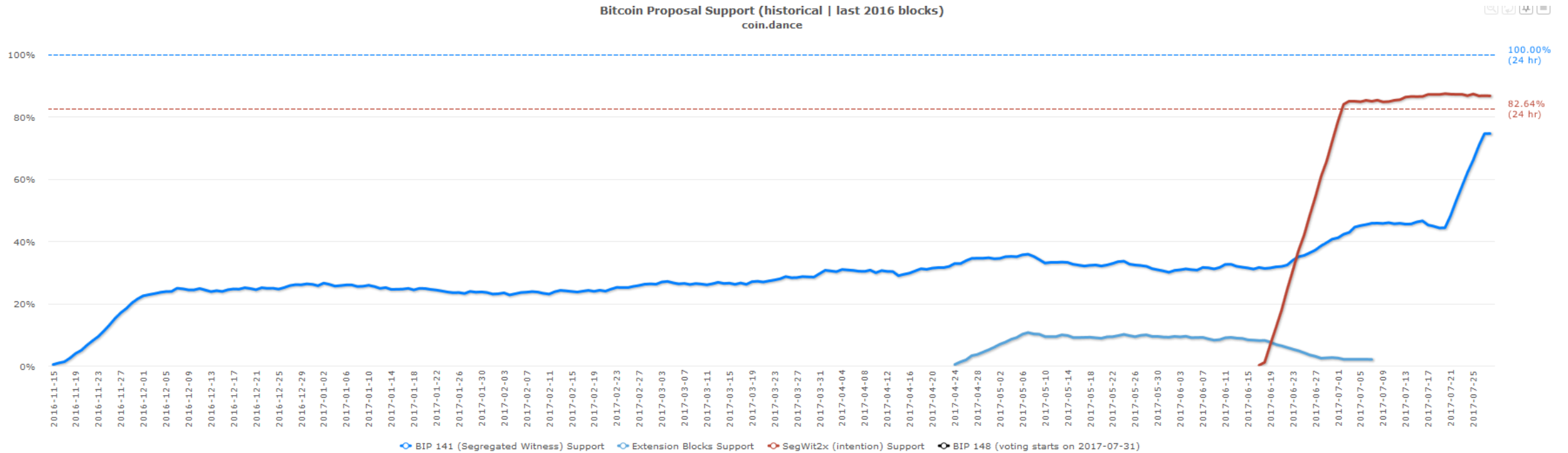


# Distributed Engagement

Bitcoin Community Engagement by Age (Google Analytics | 18+ only)  
coin.dance



# Decentralized Opinion



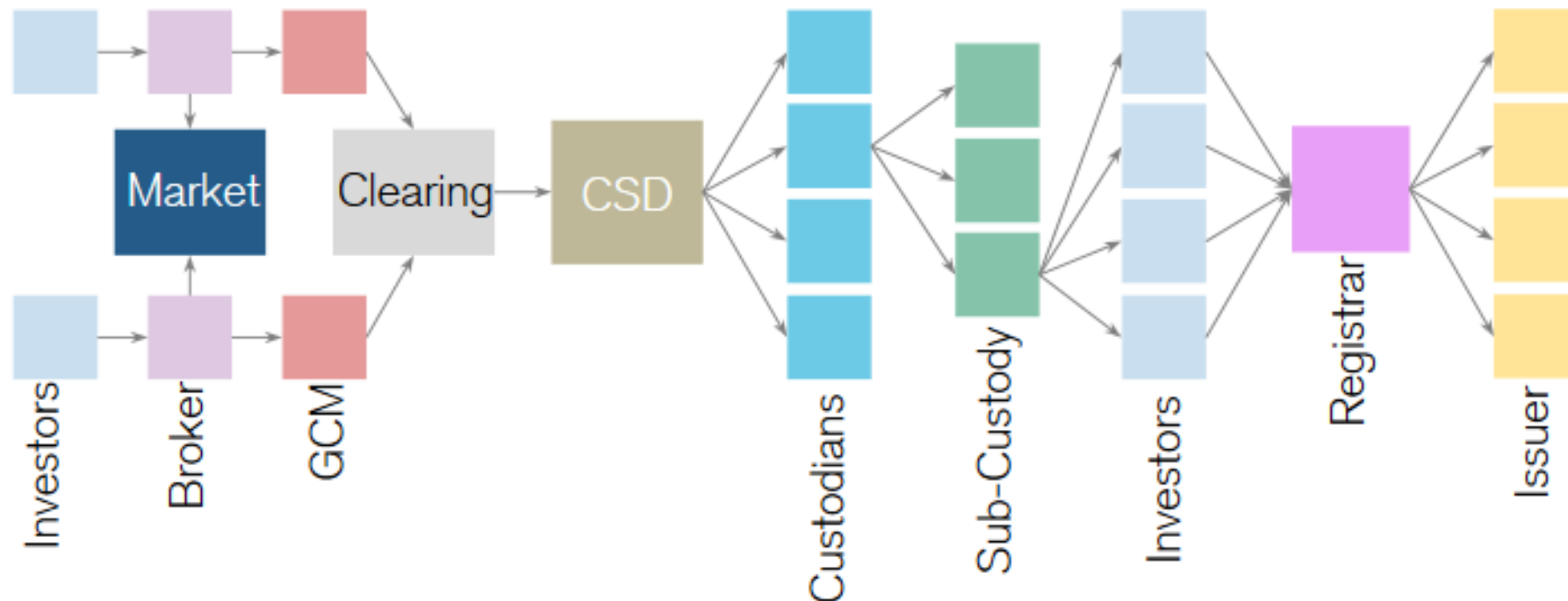
# Blockchain Applications - Finance

- Trade Processing and Settlement
- Trade Reporting
- Foreign Exchange Markets
- Securities Markets
- Auditing
- Compliance
- Risk
- Accounting
- Asset Management
- 'Smart' Securities
- Crowdfunding - ICOs
- Payments
- Fintech and IoT
- Regtech

# Blockchain Applications - Finance

## Trade Processing and Settlement

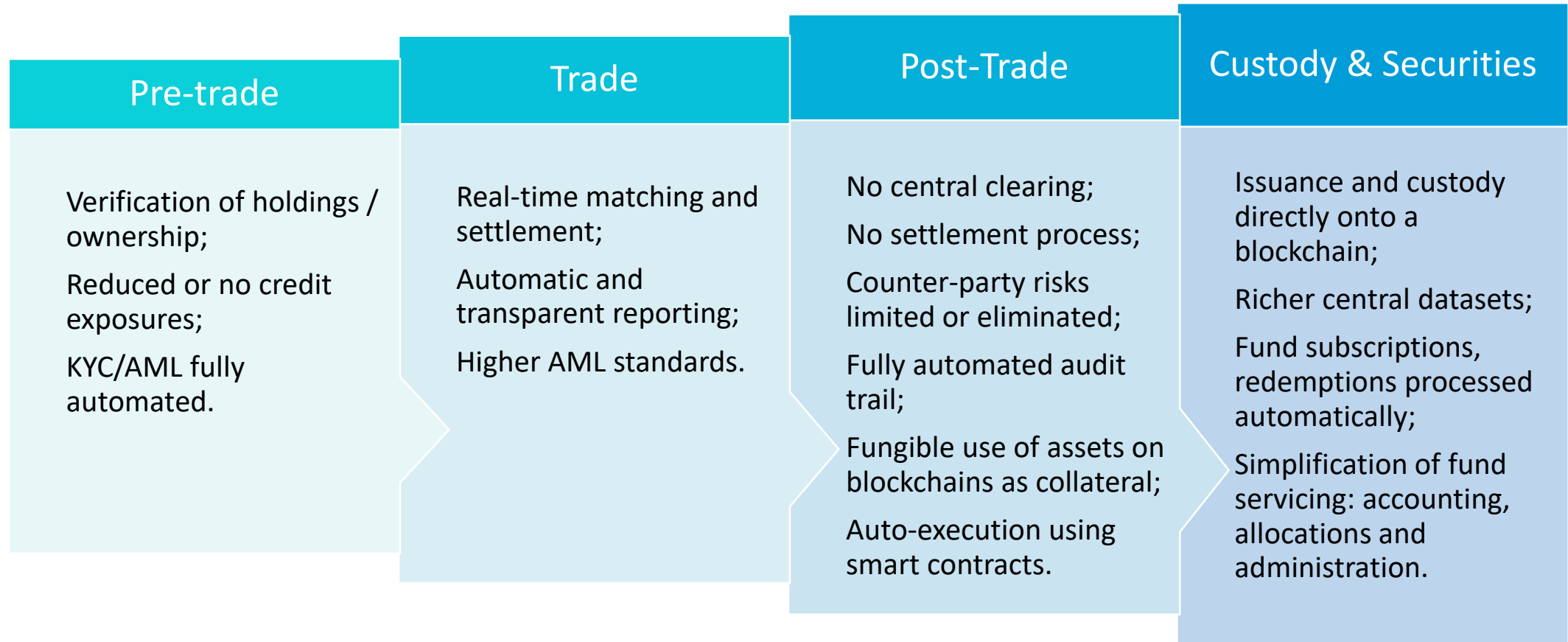
The post-trade environment is crowded



Source: Computershare, SETL, Credit Suisse Research

# Blockchain Applications - Finance

## Trade Processing and Settlement



# Blockchain Applications - Finance

- Trade Processing and Settlement
- Trade Reporting
- Foreign Exchange Markets
- Securities Markets
- Auditing
- Compliance
- Risk
- Accounting
- Asset Management
- ‘Smart’ Securities
- Crowdfunding - ICOs
- Payments
- Fintech and IoT
- Regtech

# Blockchain Applications - Finance

## Compliance

### Automated Compliance

*Future-state benefits*

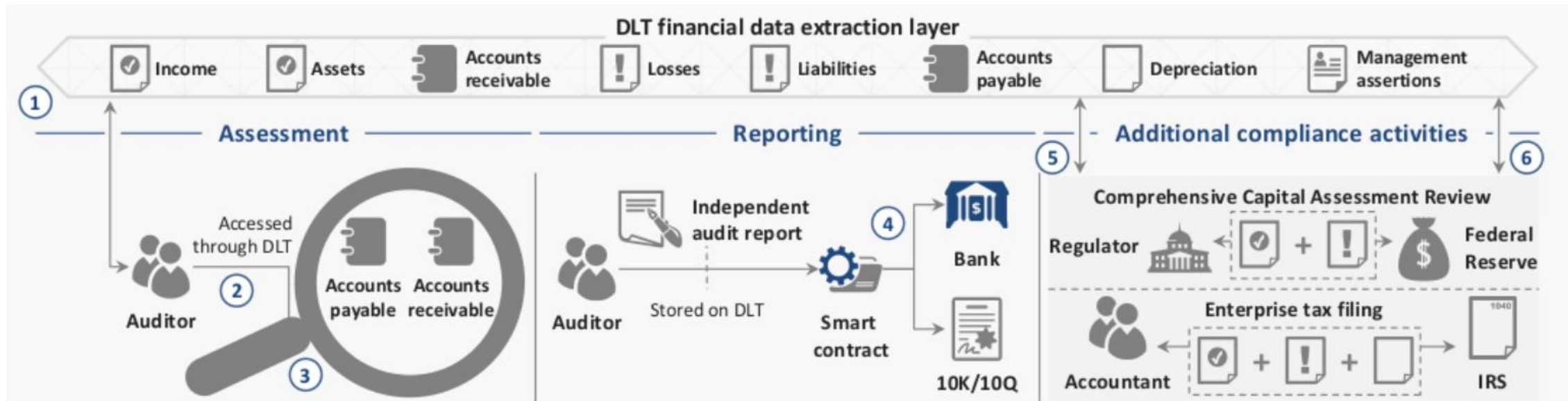


Figure 3 : Automated compliance process (Source : World Economic Forum Report)



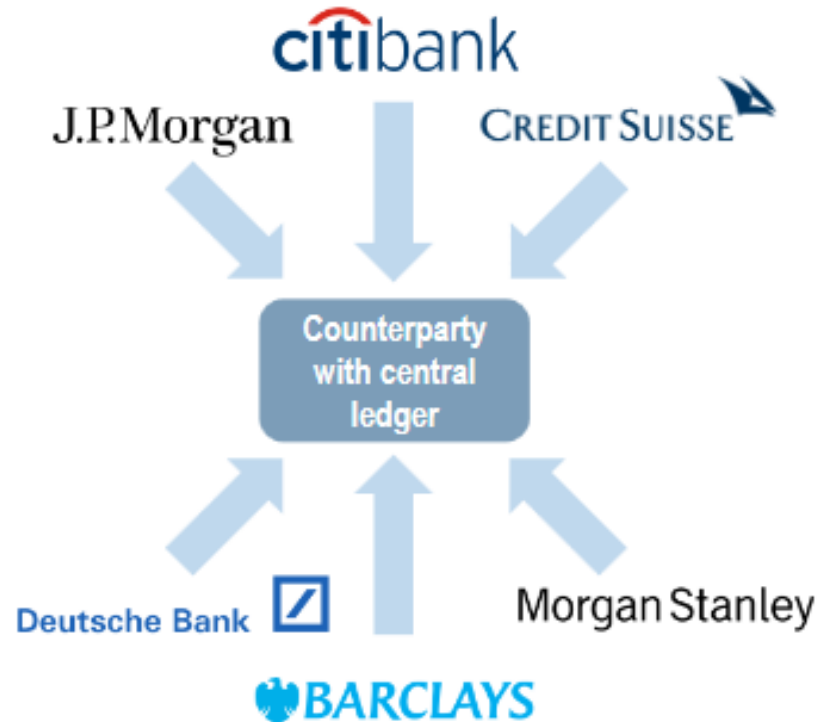
# Blockchain Applications – Finance (Governance)

Functions of central banks and their coverage in different countries, as defined in the BIS Study, 2008

		AR	AU	BR	BG	CA	CL	HR	CZ	HK	Eurosystem											
		ECB	BE	FI	FR	DE	IT	NL	PT	SK	ES											
1. Monetary stability functions	Monetary policy	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Exchange rate policy	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
2. Financial stability & regulatory functions	Prudential policy development	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Supervision/oversight	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
3. Policy operation functions	FX intervention	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	FX reserves	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Liquidity management	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Lender of last resort	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
4. Financial infrastructure provision functions	Currency provision	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Banking/account management services	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Payment system (inter-bank)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Settlement system for central bank money	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Other settlement systems	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Registry provision	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
5. Other public good functions	Debt management	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Asset management	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Development functions	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Research (other than for functions above)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Statistics	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Consumer services	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
6. Other functions	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	

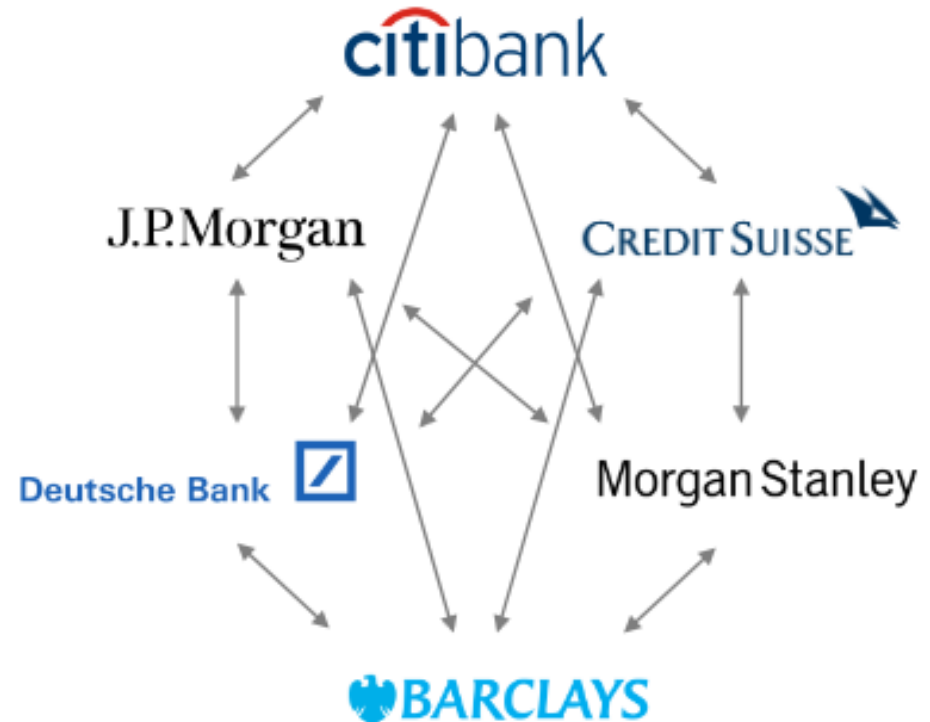
# Blockchain Systems

Figure 7: Traditionally, a 'centralized ledger' approach solves the transaction trust issue by tracking the movement and ownership of value



Source: Credit Suisse research

Figure 8: A secure distributed ledger removes the counterparty as the transaction record is universally visible and immutable

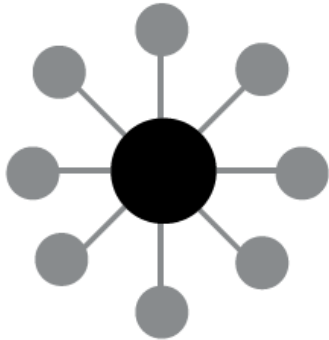


Source: Credit Suisse research

# Blockchain Systems

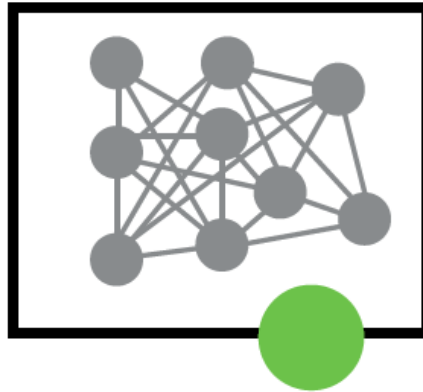


TRADITIONAL  
CLEARING HOUSE



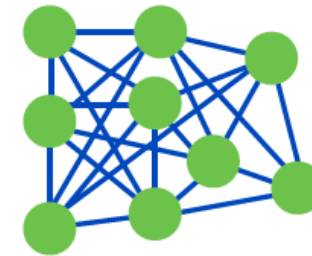
Reliance on central  
intermediary or custodian

HYBRID PRIVATE  
MODEL



Trusted shared ledger  
for private consortiums

FULLY  
DECENTRALISED



Public blockchain model

Cryptomarkets:

Trends, Opportunities and **Risks**

# Risks Involved

- Regulation and Compliance
  - P2P Vs. Traditional Payments
  - Fintechs Vs. Banks
  - Crowdfunding and ICOs (SEC)
- Operations
  - Emerging and Innovative Markets (e.g. solar)
  - Ecommerce
- Technology
  - Hacks
  - Network overload
  - Fraud and AML
- Market
  - Insider Dealing and Market Manipulation
  - Volatility
  - Timing issues

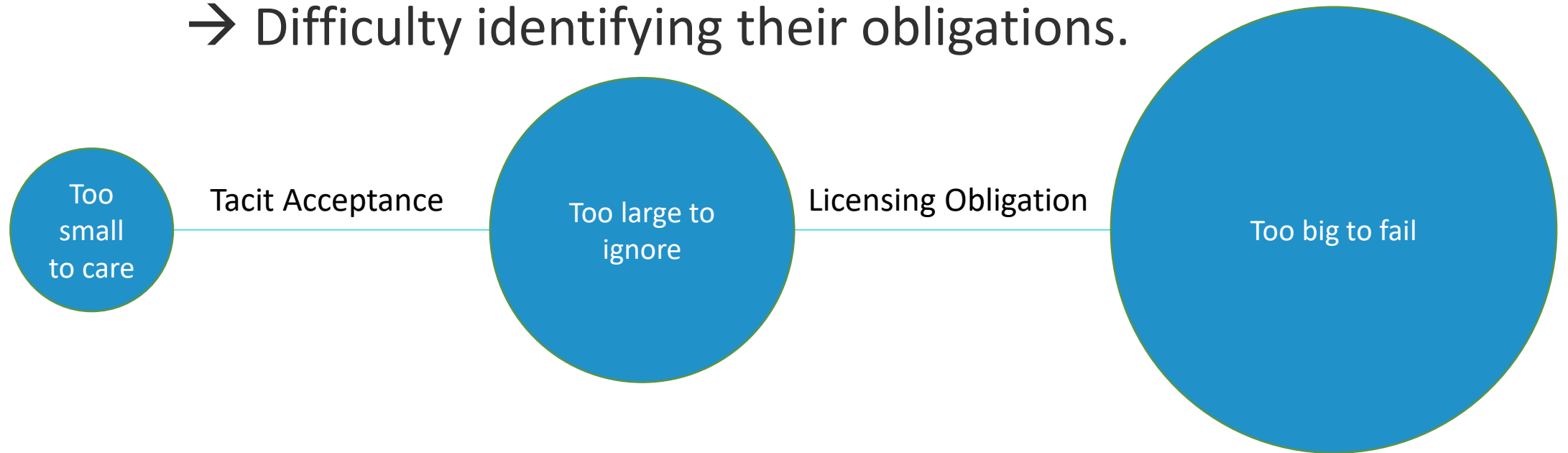
# Regtech

- **Uber:** Is it a taxi company? Is it a tech company? Is it a payment services provider?
- **AirBnb:** Is it an exchange? Is it a tour operator? Where is it based? Do home users pay taxes?
- **Lykke Coin – Digital Assets Exchange:** Who controls it? Is it legal? Does it accept payments in fiat currency? Which banks support it? Any increased operational and credit risks?

# Regtech

Fintech startup companies have limited track records regarding their business operations and performance (e.g. profitability, liquidity, risk management...)

→ Difficulty identifying their obligations.



# Regtech

For regulators point of view:

- Early-stage companies generally represent a limited prudential & consumer risk. Exponential fintech company growth can create 'risk blind spots'
- Frequent failures or fraud can impact investors' and market's confidence.




# Operational and IT Risks - Exchanges

Table 4: Operational risk factors rated by exchanges

Respondents Scored these Categories on a 1 - 5 Scale

1: Very low risk    2: Low risk    3: Medium risk    4: High risk    5: Very high risk

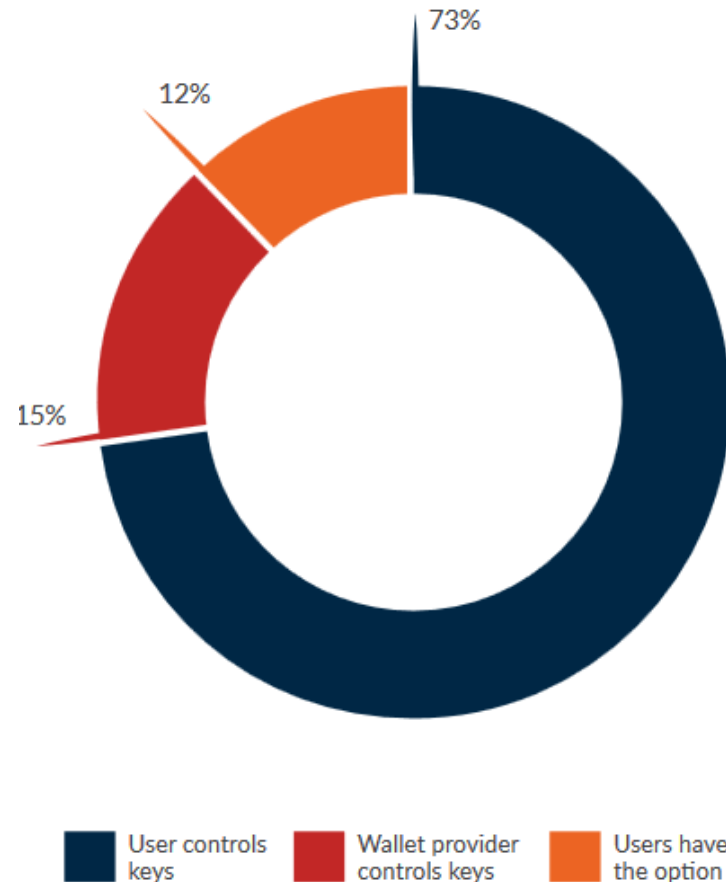
Lowest average score  Highest average score

	Weighted average	Small exchanges	Large exchanges
IT security/hacking	3.70	3.93	3.17
Deteriorating banking relationships	3.45	3.79	2.67
Fraud	3.08	3.50	2.08
Regulation (in general)	3.08	2.89	3.50
Competitors/business model risk	2.88	3.00	2.58
Reputation risk	2.88	2.93	2.75
AML/KYC enforcement	2.68	2.64	2.75
Insufficient demand for services	2.58	2.82	2.00
Lack of talent	2.46	2.52	2.33

University of Cambridge:  
Global Cryptocurrency  
Benchmarking Study  
(2017)

# Operational and IT Risks - Wallets

73% of users directly control their funds with the risk of losing them and not being able to recover them.



University of Cambridge:  
Global Cryptocurrency  
Benchmarking Study  
(2017)



Thank You!



# Yiannis Menelaou

- University of Nicosia
- Lykke



UNIC



**Lykke**