How Technology Impacts to Currency
From Bitcoin to Flexible Ecosystem

Shin'ichiro Matsuo

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About me

@ShaneMatsuo

- Research Professor at Georgetown University
  - Initiating Blockchain Technology and Ecosystem Design (B-TED) Research Center
- Director's Liaison for Financial Cryptography at MIT Media Lab

- Co-Founder of Bsafe.network (Blockchain Research)
- ISO TC307 Committee member
- Program committee and editor: Scaling Bitcoin, IEEE, ACM conferences, Ledger Journal and more…
- Ph.D. from Tokyo Institute of Technology

Revisit what Satoshi proposed

An electronic **payment** system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party.

In this paper, we propose a **solution to the double-spending problem** using a peer-to-peer distributed timestamp server to generate computational proof of the chronological order of transactions.

Gaps between Satoshi's paper and real

- There is no exchange to Fiat Currency in the ecosystem

  - Everything is closed inside Bitcoin ecosystem

- All participant has equal computational power

- Lack of consideration of Governance

Functions of currency, what Satoshi proposed and the reality

	What Satoshi Says	Reality of use
Medium of Exchange		
Measure of Value		
Standard of deferred payment	✓	Some of… ✓
Store of Value		Mainly ✓

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Governance and regulation issues

- **Bitcoin = New economical nation**
  - Mathematics of Bitcoin = (economical) Constitution of the nation
  - Current chaos of governance: Lack of procedure of amendment of constitution
  - Branching of Bitcoin: independence with new constitution
- **How do we think the new economical nation?**
  - Decentralized Virtual Currency (for greater innovation) vs. stable virtual currency

Source of technology related immaturity

Unproven technology
  Security
  Scalability
  Trust model

Community Risk and Quality assurance
 Need healthy community and ecosystem

Lack of evaluation criteria toward technological due-diligence
  Standardization

Gap between
  - What original Satoshi paper proposes and
  - Expectation to Blockchain technology and its application

Technology Trade-offs in Blockchain technology

Privacy

Security

Operational Cost

Find Good Balance

Performance/ Scalability

Usability

How Decentralized?
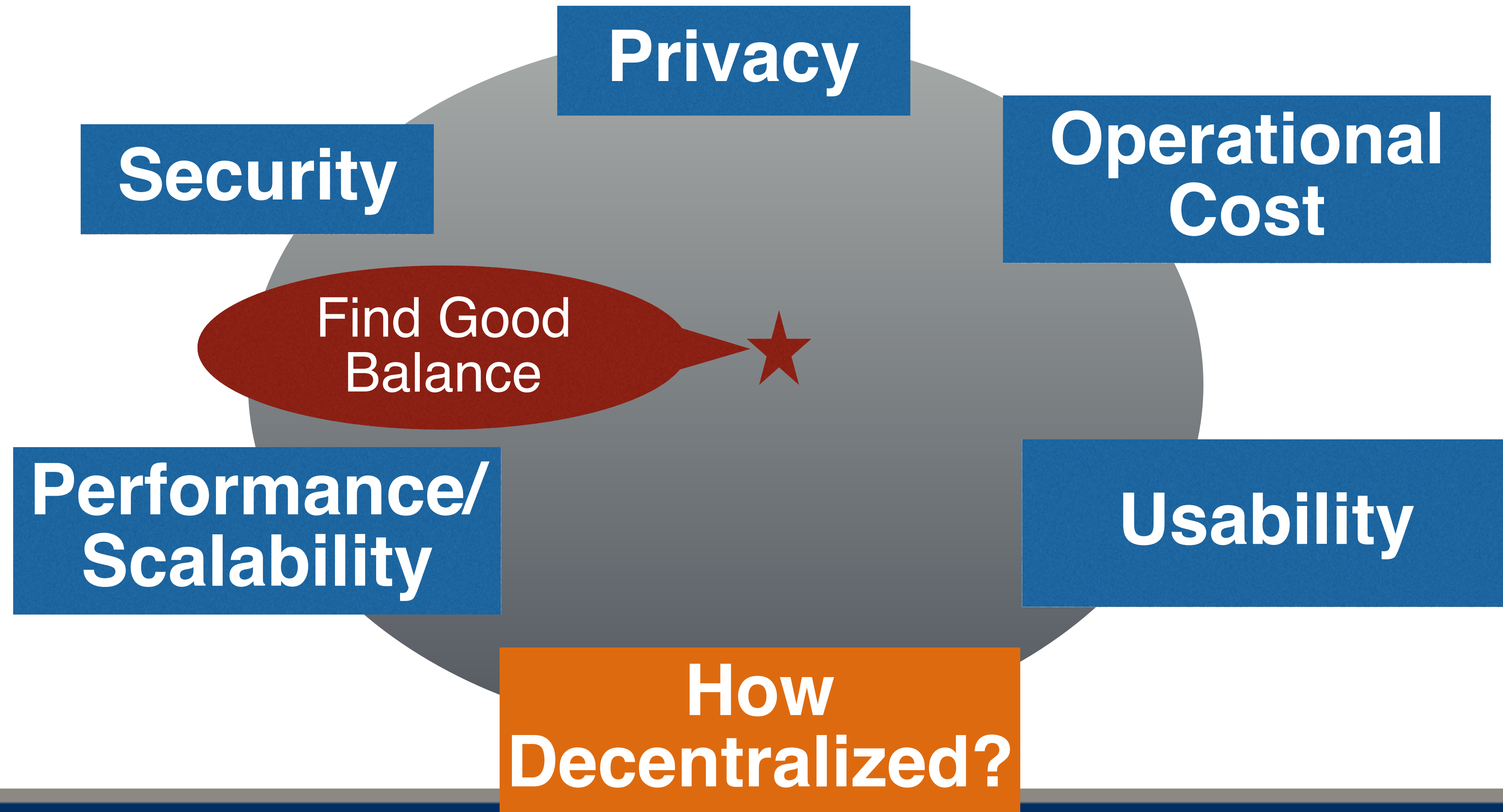
Needs for multi-disciplinary research

The Security of Bitcoin/Cryptocurrency/ Public Blockchain relies not only on technology but also on incentive design.

Some flaws in the current design of Bitcoin ecosystem are the cause of debates and chaos.

Games in blockchain ecosystem

Possibility of another ATARI shock

- Video Game Crash of 1983
- Too many "Junk Games" discounted the value of game platform.
  - Lack of control of quality
- Nintendo started control of quality of each game.

- In the case of current many Virtual Currency and ICO projects?
- How can we control the quality in the era of decentralization?

What the exchange rate to fiat says:
Similarity to Japanese telephone registration fee

- In Japan, users of telephone paid "registration fee" as a initial cost for facilities of telephone network.
  - 80K JPY in 1976
  - The registration was transferable: traded like "a right."
  - Currently, the registration fee (as a right) is not needed: The market value of "the right" become almost zero.
    - The cost for each communication became near zero: source of tons of merits of internet ecosystem
- Similarity to the exchange rate of Bitcoin to fiat currency
  - Mining cost as an initial cost of initiating network
  - Bitcoin as a medium of exchange something: Do we need to pay expensive cost to obtain it?

Competition among Blockchain technologies/services

Common to Internet-like innovation

Fail Fast
Horizontal and Vertical

Difference to Internet-like innovation

Experiment using consumers money/asset
Lack of Due-diligence: Need to have good way to realize it
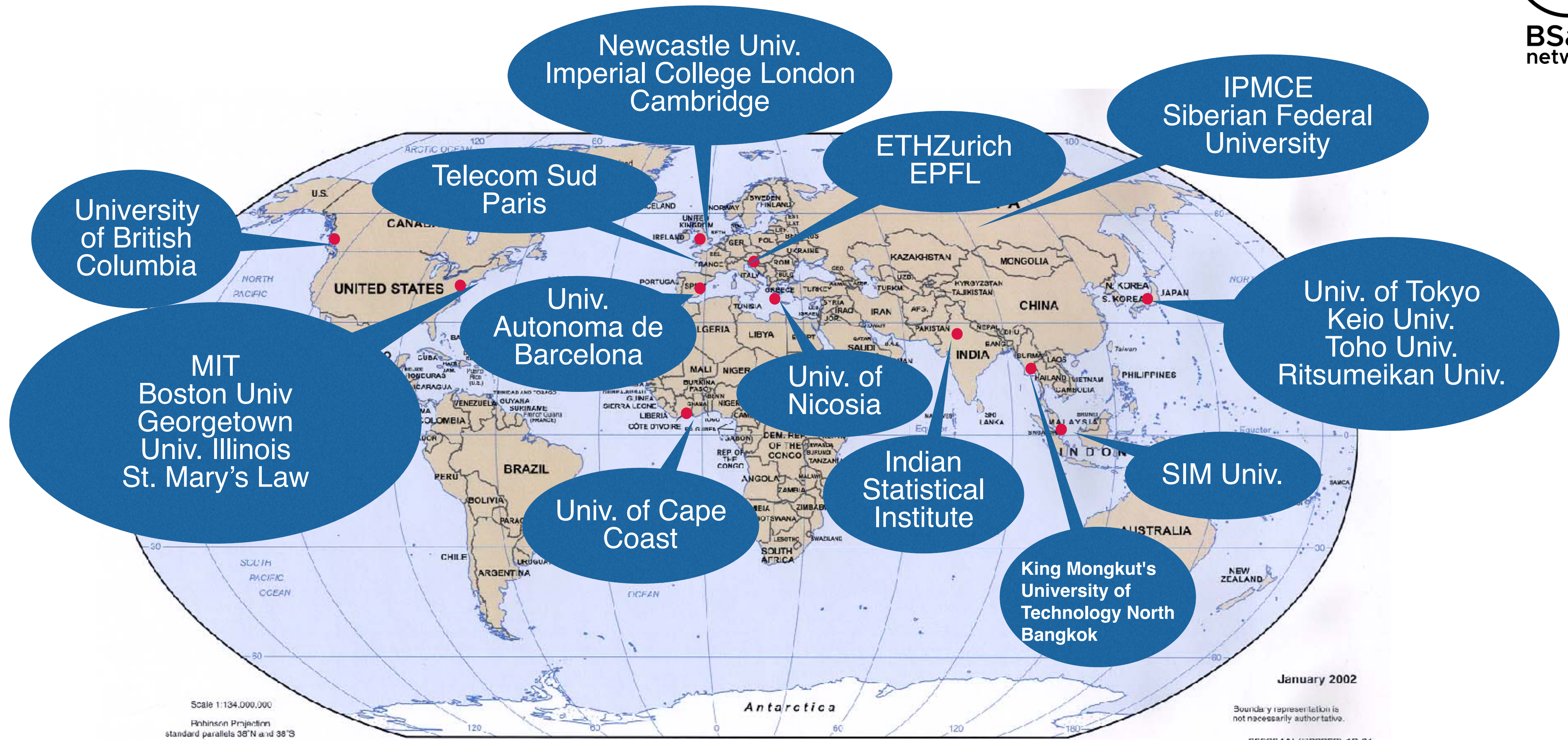Ecosystem for innovation: competition among blockchain projects

BSafe.network: Plays the same role as NSFNet and BSD

- A **neutral**, **stable** and **sustainable** research test network for Blockchain technology <u>by international universities.</u>
- Founded by me and Pindar Wong in March 2016. Each university becomes a blockchain node.
- Research on Blockchain and its applications
  - Not limited to Security. All aspects will be researched.
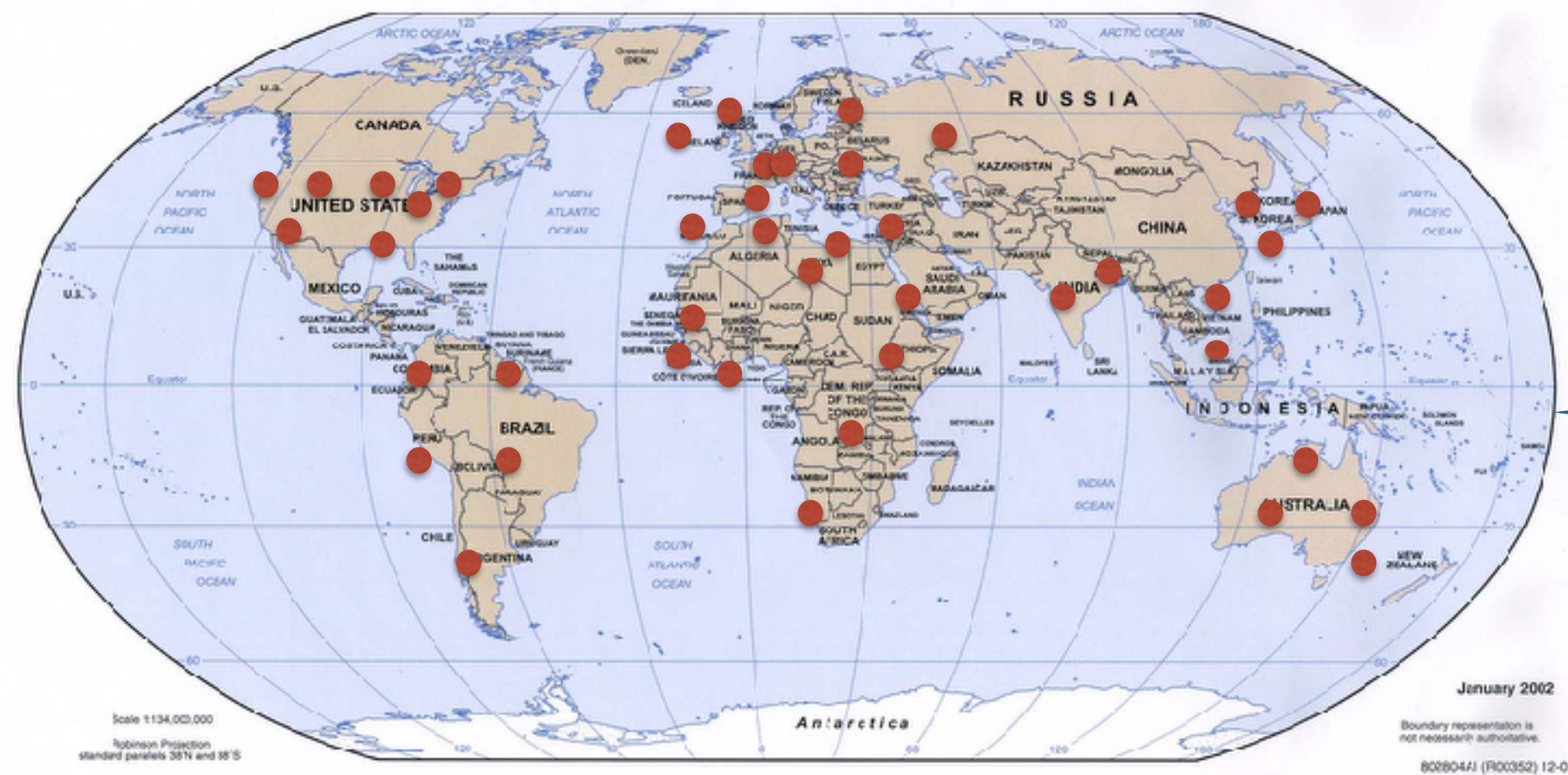
- Neutral platform
- de-anchored trust of Blockchain network
- More nodes (with Neutrality)
- Testbed for academic research

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24 International Universities Already Join and We Add More...

Newcastle Univ.
Imperial College London
Cambridge

IPMCE
Siberian Federal
University

ETHZurich
EPFL

Telecom Sud
Paris

University
of British
Columbia

Univ. of Tokyo
Keio Univ.
Toho Univ.
Ritsumeikan Univ.

Univ.
Autonoma de
Barcelona

MIT
Boston Univ
Georgetown
Univ. Illinois
St. Mary's Law

Univ. of
Nicosia

Univ. of Cape
Coast

Indian
Statistical
Institute

SIM Univ.

King Mongkut's
University of
Technology North
Bangkok

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Thank you!