

State of Cryptoeconomics Research



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STAND: JULI 2017





is not a currency!

- New asset class
- Distributed & Transparent Bookkeeping & Settlement Layer
- Incentive Machine
- Governance Machine
- Operating system for a new economy

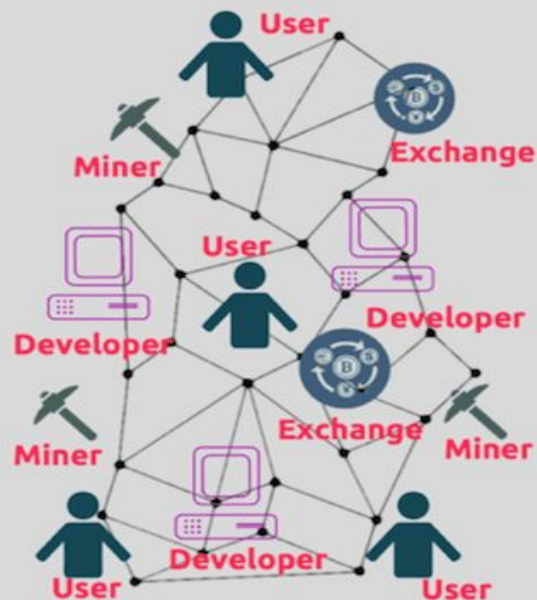
Traditional Top Down Organizations



Top Down Management

One legal entity
Employment contracts

Decentralized Autonomous Organizations



Distributed Network of Autonomous Stakeholders

No centralized legal entity!
No employment contracts!

Cryptoeconomics

not a subfield of economics, but rather applied cryptography that takes economic incentives and economic theory into account.

Bitcoin, Ethereum, et al products of cryptoeconomics

Today, cost of a 51% attack on Bitcoin:
\$5.9 billion in hardware
\$4 million in electricity every day

SMART CONTRACTS

Relations



Define behavioural rulesets for all participants
of the smart contract

APPLICATION LAYER

RECORD OF TRANSACTIONS

Assets



File containing all information since block 1 - tracking all asset
movements.

CONSENSUS RULES

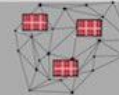
Governance



Defining game theoretical behavioural rulesets of all actors
in the network

P2P NETWORK OF COMPUTERS

Physical Network



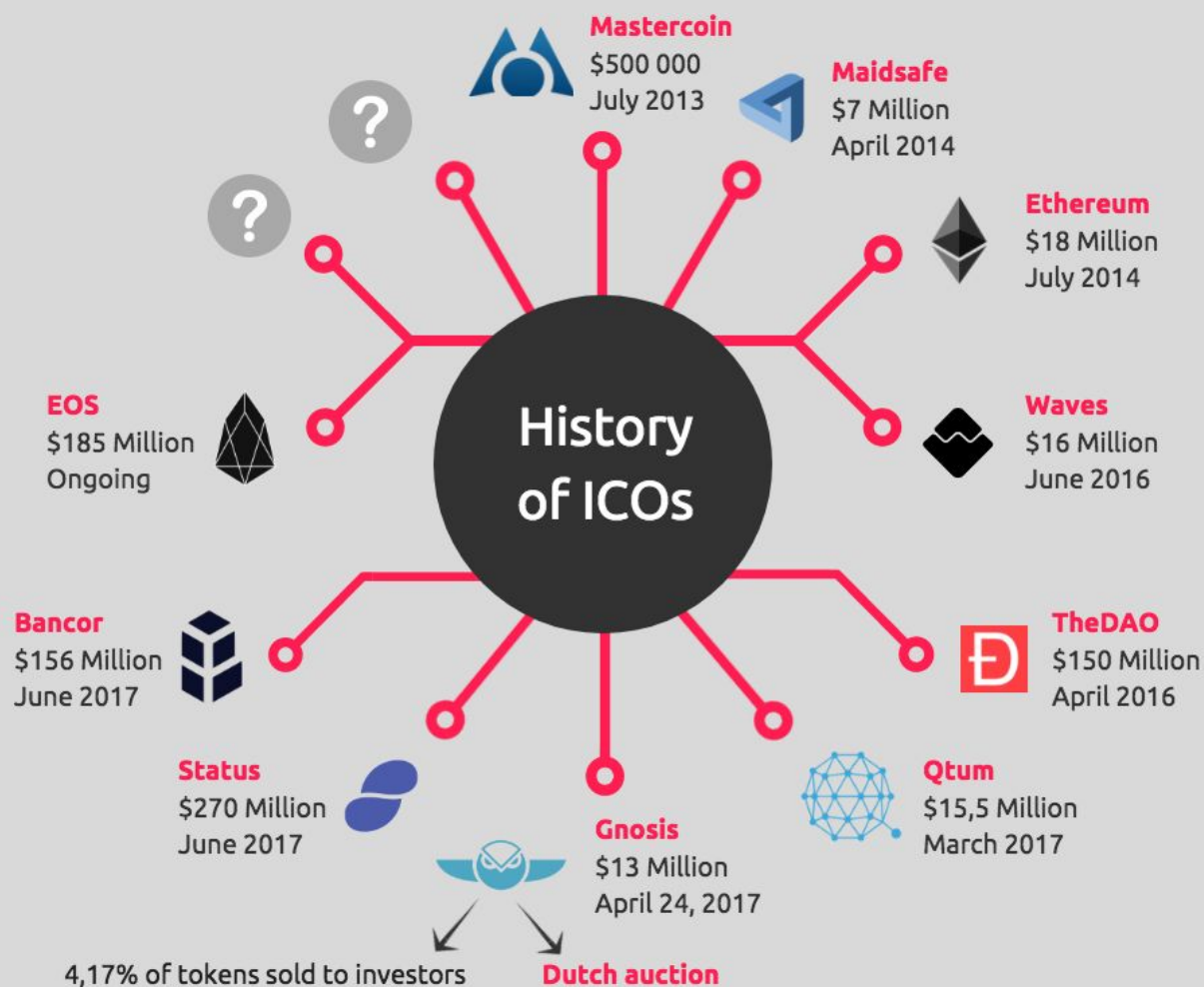
A network of all devices running the blockchain
protocol, and keeping records of transactions

BLOCKCHAIN LAYER

TCP/IP
Infrastructure



INTERNET LAYER

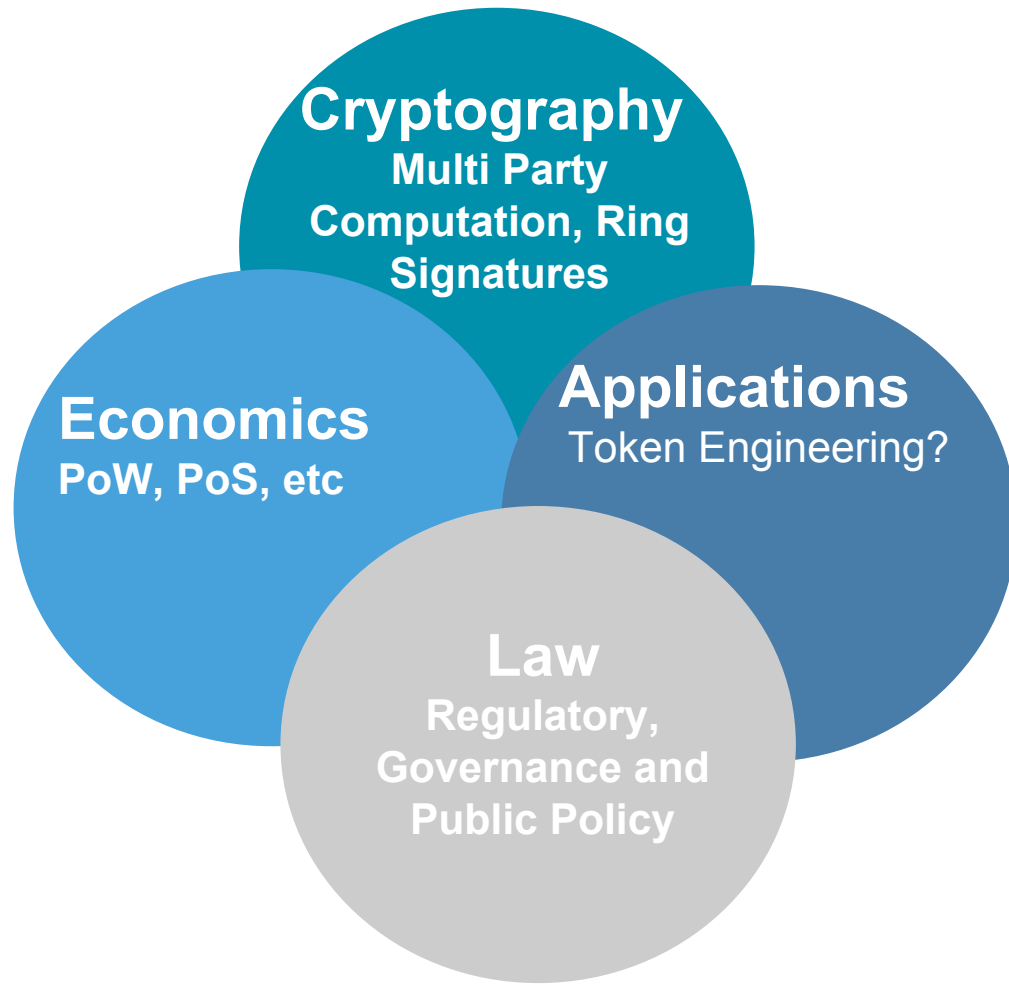


Total market cap: **\$312 Million** (Total coin supply: 10 Million)

- **Native Blockchain Tokens**
- **Application Tokens**
 - Utility Tokens
 - Asset Backed Tokens

Classic Cryptoeconomic Research Areas

- Consensus protocols of Native Tokens
- App Token Engineering
- State Channels



WU | **INTERDISZIPLINÄRES
FORSCHUNGSINSTITUT
FÜR KRYPTOÖKONOMIE**
VIENNA

- **Interdisciplinary Research**

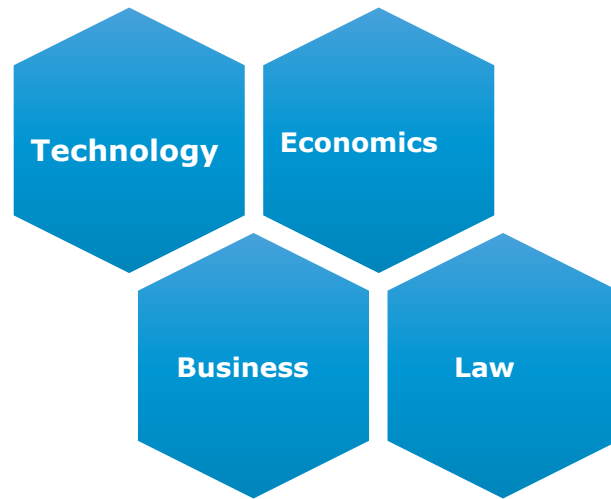
Technology, Economics, Business & Law

- **Industry Partnerships**

Knowledge Transfer between academia and business

- **Academic Partnerships**

With other national and international Institutions



Our Team

30 Researchers
8 Departments



Interdisciplinarity is the Key!

8 Departments

- Information Systems & Operations
- Economics
- Public Law & Tax Law
- Business, Employment & Social Security Law
- Finance, Accounting & Statistics
- Global Business & Trade
- Strategy & Innovation
- Marketing

Micro & Macroeconomic Foundations of the Token Economy

- Game theoretical analysis
- Agent-based modelling
- Monetary theory
- Incentive design



Legal Aspects

- Information Privacy & Information Security
- Tax Law, Digital Tax Transformation
- Changes to the current contract paradigm

Technical Aspects, Business Processes & Smart Contracts Security

- Agent Based Systems
- Smart Contracts security and formal verification
- Smart-legal languages

Blockchain Applications

- Supply Chain & Trade Finance
- Identity
- Business model research
- Limitations of blockchain-based solutions

ABC - Austrian Blockchain Center

We initiated a Cluster of Austrian research institutions among others: TU Wien, Uni Wien, SBA Research, RIAT, AIT, IST

Mission

one-stop-shop Austrian Research Center for Blockchain and related technologies.

- 21 Research Institutions (National & International)
- 55 Companies
- 19 Public institutions

May 2018

We filed application for public funding from FFG K1 Comet Center
Hearing mid Nov 2018

More info

<https://www.blockchain-center.at/#>

Published Scientific Papers

- Untrusted Business Process Monitoring and Execution Using Blockchain
Weber, Riveret, Governatori, Ponomarev, Mendling
- Disrupting governance with blockchains and smart contracts
Voshmgir
- Caveat Emptor: Does Bitcoin Improve Portfolio Diversification?
Eisl, Gasser, Weinmayer
- Taxation on the Blockchain: Opportunities and Challenges
Owens, de Jong
- Forecasting with Global Vector Autoregressive Models: A Bayesian Approach
Cuaresma, Feldkircher, Huber

Development of Research Mindmap Cryptoeconomics (over summer)

Research Focus: Blockchain & Sustainability (TBA soon)

Workshops

- IT department of a large Austrian Corporation & WU researchers
- Generation & evaluation of use cases for blockchain application
- First POC for a selected use case

Policy Makers

- Fintech Beirat of Ministry of Finance
Prof Susanne Kalss is representing our Institute
- FMA Workshop
many members of our Institute were present and helped define relevant regulatory questions.

Trainings

- Executive Academy of WU:
Prof. Jan Mendling is Academic Director of Blockchain Program and selected members of our team will be teaching specific modules

PAST EVENTS

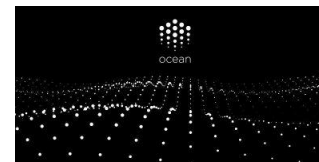
- Blockchain Summit, December 2017
- Cryptomonday, March 2018
- ARTIS Blockchain Launch Event, April 2018
- Token Investment Summit (together with Fittich Academy)
- Blockchain for Science, 2 Day un-conference (together with Blockchain for Science)

UPCOMING

- Forum Alpbach (TBA)
- Cryptomonday Series in Fall
- Event with Aussenwirtschaft Austria

Partners

StaDt  Wien



2018

Tokenize real assets: Petro Token, Company Tokens
Mechanism Design for Application Tokens?

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