

Advisory Committee Blockchain Research

Jaco van de Pol, chairman
Prof. Computer Science, U Twente

Assignment

- Independent committee, asked by NWO, commissioned by topteam ICT
- Advise NWO, TNO, DBC, government(s), R&D in companies
- Create solid and broad support

- Goal: define a roadmap for blockchain research
- Long term, mid term, short term challenges, priorities
- International context, Dutch role

- 10 pages max...

Advisory Committee Blockchain Research

- *Dr. Balázs Bodó*, U of Amsterdam, Fac. of Law, Institute Information Law, societal impact
 - *Dr. Ir. Oskar van Deventer*, TNO, senior scientist, director TNO Blockchain Lab
 - *Dr. Jaap-Henk Hoepman*, Radboud U Nijmegen (CS) & U of Groningen (Law), Privacy
 - *Prof. Jeroen van den Hoven*, TU Delft, Philosophy, Ethics
 - *André de Kok*, Ministry of the Interior, Rijksdienst voor Identiteitsgegevens
 - *Marjan van der Plas*, ABN Amro, Innovation Manager Blockchain & Smart Contracts
 - *Prof. Jaco van de Pol*, U of Twente, Computer Science, Formal Methods (chairman)
 - *Dr. Ir. Johan Pouwelse*, TU Delft, Computer Science, Distributed Systems
 - *Prof. Marcel Thaens*, Erasmus U Rotterdam & PBLQ
 - *Dr. Marc Stevens*, CWI Amsterdam, Cryptology
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- *Dr. Ruben Sharpe*, NWO policy officer, provides organizational support

Approach

- Identification of the assignment
- Brainstorm session to identify subtopics
- Receiving quite some (detailed) input
- Elaborating subtopics in pairs

- *Working conference with invited experts (next week)*

- Restructure & Write-up
- Open consultation meeting
- Official Delivery

5 Subtopics

- Core Blockchain Technology
- Blockchain Economics
- Governance & Policy
- Identity, Autonomy & Privacy
- Blockchain & Society

Subtopic: Core Blockchain Technology

- Multiple approaches, multiple layers
- Correct functionality (requirements)
- Scalability (performance, energy)
- Security and privacy
- Design, Experiments, Analysis, ...

Subtopic: Blockchain Economics

- Facilitate digital economy by blockchain
- Incorporate economic principles in IT systems

- Decentralized (P2P), fair, ..., marketplace
- Incentives, smart contracts, game theory, ...
- Disruptive business models

Subtopic: Governance and Policy

- View blockchain as a socio-technical system
- How are the rules of the game defined and maintained?
- How to start / change / terminate a blockchain?
- How to migrate your pension to a new technology?
 - Remember Hyves?

Subtopic: Identity, Autonomy & Privacy

- Digital identity as a building block for blockchains
- Blockchains as a solution for identity management

- Self-sovereign identity
- Privacy vs transparency
 - Right to be forgotten

Subtopic: Blockchain and Society

- Ethics
- Legal

- Changing role of institutions
- Changing role of government

- Acceptance and adoption of blockchain technology

Some Dilemmas within the Committee

- Inclusiveness versus divergence
- Multi-disciplinarity: synergetic / depth
- Visionary vs project-driven
- Scepticism vs optimism

My view:

- Blockchain Technology is a big step towards collaboration at a global scale
- Still requires a lot of research to get it right and justifiable, and use it wisely