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

- **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