History of Internet Governance & Challenges of Tomorrow

- MEAC-SIG
- Beirut, August, 7 – 10, 2016

- Prof. Wolfgang Kleinwächter
  - University of Aarhus
  - wolfgang@imv.au.dk

The Five Waves of Internet History

- Wave 1: Military (1957 – 1970s)
  - DARPA-Net
- Wave 2: Academic (1970s – 1990s)
  - TCP/IP
- Wave 3: Commercial (1990s – 2000s)
  - WWW
- Wave 4: Massmedia (2000s – 2010s)
  - WSIS
- Wave 5: Everybody & Everything (2010+)
  - IOT

What is the Information Society?

- Agricultural Society (Feudalism)
  - Land & Labour
  - Absolutistic Monarchies
- Industrial Society (Capitalism)
  - Industrial Revolution
  - Land, Labour & Capital
  - Decentralization of Power (Executive, Legislative, Judiciary)
  - Power Shift from the Palace to the Parliament
- Information Society (Dataism)
  - Information Revolution
  - Land, Labour, Capital & Data
  - Further Decentralization of Decision Making
  - Power Shift from Parliament/Government Mechanisms to Multilayer/Multiplayer (Multistakeholder) Mechanisms

Internet Specifics

- Architectural Design
  - Decentralized Network of Networks based on the end-to-end-principle
- Nature of Resources
  - Protocols, Names and Numbers are unlimited, non-territorial and re-usable resources
- Form of Regulation
  - Mix of Technical Code and Non-technical Self-Regulation & Co-Regulation on Top or Underneath of National Laws & International Treaties

PART I

- The Old Internet Governance History
  - The Sputnik Shock (1957)
  - The DARPANet (1969)
  - TCP/IP (1974)
  - The Domain Name System/DNS (1985)

The Sputnik Shock (1957)

- 1957: Outer Space as a new Threat with a new Window of Vulnerability (Kissinger)
- 1958: Establishment of NASA & ARPA (Eisenhower)
- 1960s: Decentralization of Communication Systems by Connceting Computers & Packet Switching (Rand Corporation & East and West Cost Universities)
- 1969: DARPANET (SRI, UCLA, Utah, Santa Barbara)

DARPANET (1969)

- Connecting four Computers in a non-hierarchical Network
  - Stanford Research Institute (SRI)
  - University of California Los Angeles (UCLA),
  - University of Utah
  - University of Santa Barbara

TCP/IP (1974)

- Vint Cerf & Bob Kahn
- From Connecting Computers to Connecting Networks
- DARPANET, ALOHANET, SATNET

Domain Name System/DNS (1984)

- Jon Postel & Paul Mockapetris
- Creation of the Territory of Cyberspace

Protocols & Organisations

- Protocols:
  - 1969: RFC (Steve Crocker)
  - 1971: @ (Roy Tomlinson)
  - 1974. TCP/IP (Vint Cerf & Bob Kahn)
  - 1982: SMTP (Jon Postel)
  - 1985: DNS (Paul Mockapetris & Postel)
  - 1991: HTML (Tim Barners-Lee)

- Organisations
  - 1975: IAB (Dave Clark & Barry Leiner)
  - 1986: IETF (Mike Corrigan)
  - 1989: IANA
  - 1992: ISOC (Cerf, Kahn & Chapin)
  - 1992: RIPE NCC
  - 1993: World Wide Web Consortium (Barners Lee)
  - 1998: ICANN
  - 2004: NRO

DNS: Territory of Cyberspace

- Numbers
  - IPv4: 134.35.145.34 (4.3 billion)
  - IPv6: 128 bits long (zillions, nearly endless)
- Names
  - gTLDs/for US: .mil, .gov, .edu, /for the world: .com, .org, .net,
  - ccTLDs: .de, .dk, .in (ISO 3166)
  - Since 2013 new gTLD process (1000+)
- Root Server
  - Originally 13, today with Anycast more than 200
  - Special role of US government (authorizes the publication of zone files for TLDs in the Hidden Server)
  - 2013 announcement for IANA transition (09/2016?)
- Management
  - Jon Postel via IANA (1989 ISI contract with USG) + NSI, now Verisign (contract with USG)
  - ICANN (since 1998 with AoC and IANA contract with NTIA)

PART II

- The New Internet Governance History

The New Internet Governance History

- The CERN Invention (1991)
- The Cambridge Departure (1998
- The Geneva Conflict (2003)
- The Tunis Agenda (2005)
- The Dubai Desaster (2012)
- The Sao Paulo Principles (2014)
- The Busan Peace (2014)
- The Marrakesh Conensus (2016)
- The Cancun Challenge (2016)

The CERN Invention (1991)

- Tim Barners-Lee at CERN in Geneva introduces the HTTP-Protocol, creates the World Wide Web (WWW) and the Explosion of the Domain Name Market starts

- 1993: USG stops funding via NSF and allows NSI to charge for .com, .net and .org SLDs (35.00 per year)
- 1994: Jon Postel wants to introduce 150 new gTLDs
- 1995: Cybersquatting emerges
- 1996: Interim ad Hoc Committee (IAHC) is formed by IANA, IETF, ISOC, INTA, WIPO and ITU
- May 1997: The IAHC new gTLD MoU is signed in Geneva
- June 1997: Clinton/Gore eCommerce Paper is published
- Spring 1998: The Green & White Papers of the USG (NewCo as an alternative to the expiring contracts with NSI and ISI) are discussed
- Summer 1998: ICANN Bylaws are drafted
- October 1998: The ITU Plenipotiantry Conference in Minneapolis

The Cambridge Departure (1998)

- November 1998: ICANN Interim Board meets in Cambridge, ICANN is incorporated under Californian law, adopts its bylaws and enters into contractual relationship with the NTIA/DOC
- ICANNs introduces an innovative governance structure (Board, Supporting Organisations, Advisory Committees and Constituencies) with Governments in an Advisory Capacity
- March 1999: 1st ICANN Meeting in Singapore
- Summer 2000: ICANN Elections
- 2000-2002: UDRP, RAA & seven new gTLDs
- 2002: ICANN Reform (ccNSO, GNSO, ASO, GAC, ALAC, SSAC, RSSAC, NomCom)

The Geneva Conflict (2003)

- 2002: WSIS challenges ICANN
  - Governmental vs. private sector leadership (ITU vs. ICANN or US vs. China)
- 2003: The Geneva Compromise (WSIS 1)
  - Establishment of a multistakeholder working group
- 2004: WGIG
  - Oversight & Forum Function (Micro & Macrocosm)
- 2005: The Tunis Compromise (WSIS 2)
  - Internet Governance Definition
  - Recognition of „existing mechanisms“
  - Process of enhanced cooperation
  - Establishment of the IGF

The Tunis Definition (2005)

- *Internet governance is the development and application by Governments, the private sector and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures, and programmes that shape the evolution and use of the Internet*.

The Dubai Desaster 1 (2012)

- Internet Governance Microcosm after Tunis: The Multistakeholder Model is Maturing

  - ICANNs contractual relationship with USG evolves
    - 2006: Joint Project Agreement (JPA),
    - 2009: Affirmation of Commitment (AoC),
    - 2013: Announcement of IANA Stewardship Transition
  - ICANN produces concrete output and enhances accountability
    - iDNs,
    - DNSSEC
    - new gTLDs
    - Reviews under AoC
  - The Snowden Case
    - The I*s Montevideo Statement (October 2013)
    - The Road to Sao Paulo

The Dubai Desaster 2 (2012)

- Internet Governance Macrocosm after Tunis: The growing battle between Multilateralism and Multistakeholderism

  - IGF evolves (extension in 2010 until 2015)
  - UNCSTD Working Groups (IGF Improvement, enhanced cooperation) between 2009 and 2014
  - The Internet Governance Principle Hype (OECD, Council of Europe, G 8, GNI, I*s, APC etc.)
  - World Conference on International Telecommunication (WCIT) in Dubai 2012
  - The Snowden Case in Summer 2013
  - The Road to Sao Paulo

The Sao Paulo Principles 1 (2014)

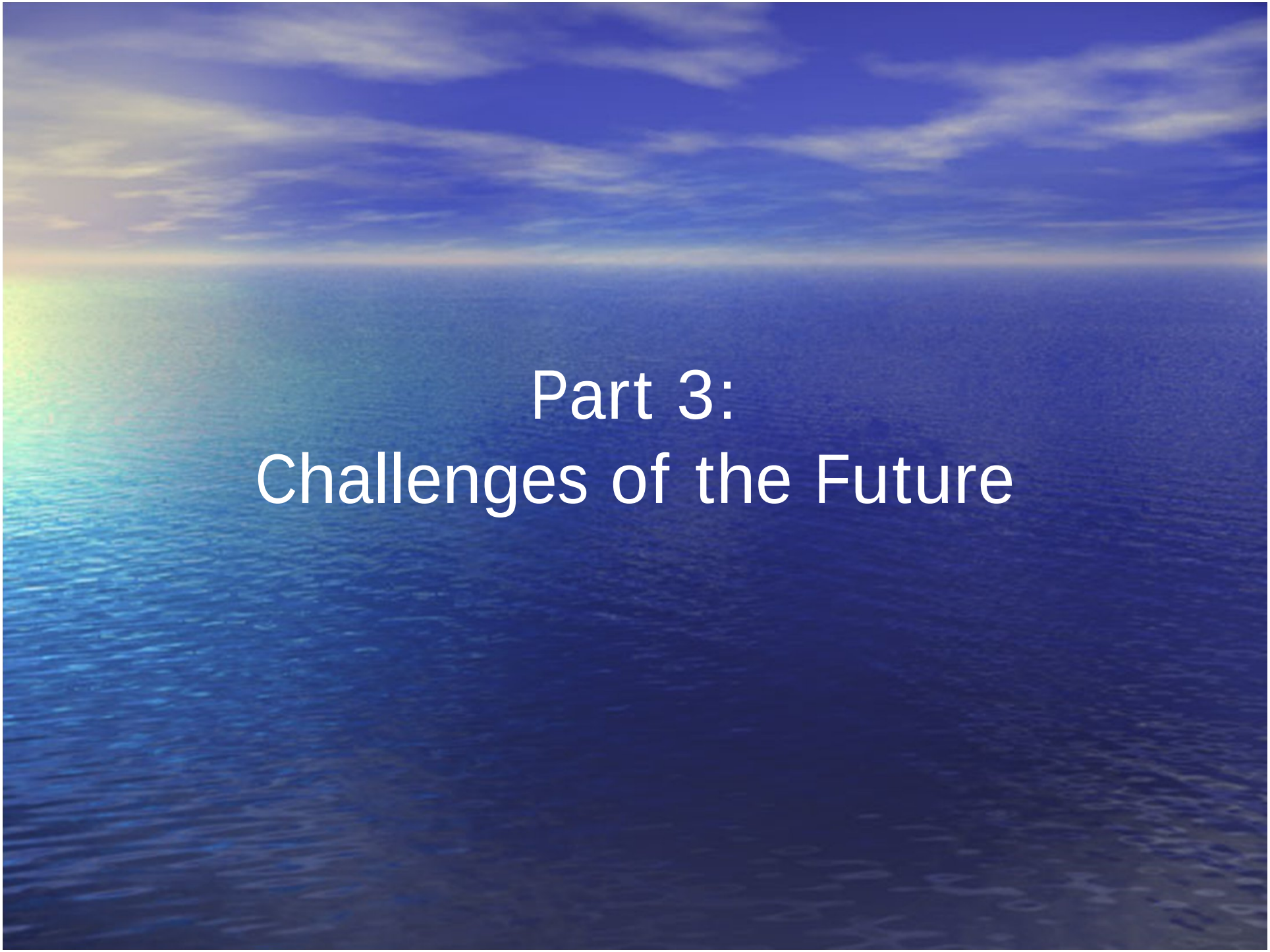
- Sao Paulo Principles
  - Human Rights and Shared Values
  - Protection of Intermediaries
  - Uniform and Unfragmented Space
  - Security, Stability and Resilience of the Network
  - Open and Distributed Architecture
  - Enabling Environment for Sustainable Innovation and Creativity
  - Internet Governance Process Principles (Multistakeholderism)
  - Open Standards
- Sao Paulo Roadmap

The Sao Paulo Principles 2 (2014)

- The Net Mundial Initiative (starts August 2014)
- The IANA Stewardship Transition (starts September 2014)
- The Peace of Busan (November 2014)
- WSIS 10+ (December 2015)

The Marrakesh Consensus & The Cancun Challenge (2016)

- Macrocosmos: Bildt Commission (Cancun)
  - One Internet
  - Three Scenarios
  - Social Compact for a Digital Society
- Microcosmos: IANA Transition (Marrakesh)
  - new Level of Multistakeholder Cooperation
  - Enhanced Security and Stability (PIT)
  - Enhanced Accountability (Empowered Community)
  - Respective Role for Governments


Part 3:
Challenges of the Future

The New Internet Governance Complexity

- The Challenge of Multistakeholderism (vs. One-Stakeholderism)
- Power Shift leads to Innovations in International Law, Diplomacy and Decision Making
- What is the respective role of stakeholders?
  - Role of governments?
  - Legitimacy and accountability of non-governmental stakeholders?
- What are the appropriate bodies for political discussions and decision making
  - ICANN, IGF, NMI, United Nations, G 7/8, BRICS, G 20?
- What are the needed political & legal instruments?
  - AoC, LoI, MoU, FoC?

Internet Governance Ecosystem

- Technical Community
  - IANA, IETF, RIRs/NRO, W3C, IEEE,. ICANN, ISOC, IAB, M³AAWG, APWG
- Governments
  - UNGA, ITU, WIPO, UNESCO, UNCSTD, WTO, UNCITRAL, HRC, OECD, COE, OSCE, BRICS, SCO, EU, AU
- Business
  - ICC, WEF, WITSA, CCIA, GNI, Google, Apple, Facebook, Amazon, Cisco (GAFAC), Baidu, Alibaba, Huawei, Xiaomi, China Mobile, TaoTao, etc.
- Civil Society
  - APC, HRW, ROG, EEF, ACLU, ALAC, NCSG, IGC, JNC, BB, CPSR, Access, EDRI

The Multistakholder Internet Governance Mechanism

- An Eco-System with no leadership and no central place (Rainforest)
- Equal participation of all stakeholders in their respective roles on equaL footing
- Bottom up policy development (PDP)
- Transparency and openess

Multistakeholder Approaches 2016

- There is no model or one size fits all

- ICANN
  - Private Sector takes final decisions
- WSIS
  - Governments take final decisions
- IGF
  - No decision-taking
- NetMundial
  - Multistakeholder decision-taking (Rough Consensus)

Internet Governance Issues 1

- Governance OF the Internet

– Domain Names (ICANN/GNSO/ccNSO)

– IP Numbers (RIRs/NRO/ASO)

– Internet Protocols (IETF/W3C/IEEE/ITU-T)

– Root Server System (ICANN/RSSAC)

– Security & Stability (ICANN/SSAC)

Internet Governance Issues 2

- Governance ON the Internet

- Basket 1: Cybersecurity
  - Cyberwar, Cyberterrorism, Cybercrime
  - International Law offline and online (GGE/UNGA)

- Basket 2: Cybereconomy
  - eCommerce, eTrade, Industry 4.0, Intellectual Property, Legal Issues (Jurisdiction, Taxation, Competition, Data Protection)

- Basket 3: Human Rights
  - Privacy, Freedom of Expression, Freedom of Association, Consumer Protection, Individual Human Rights offline and online (HRC/UNGA)

- Basket 4: Technology
  - Internet of Things (IOT), Big Data, Cloud Computing

Multilateralism vs Multistakeholderism: Clash of Cultures?

State

- Governments
- Hierarchies
- Laws
- Top Down
- Voting
- Behind Closed Doors
- Lobbying

Stakeholder

- Constituencies
- Networks
- Code
- Bottom Up
- Rough Consensus
- Open & Transparent
- Public Comment

Net Mundial:
A Multistakeholder Innovation

- Sao Paulo 2014:
  - Declaration of Principles
  - Roadmap
- Net Mundial Initiative (NMI)
  - From „talking the talk to walking the walk“ in close cooperation with the IGF
  - Coordination Council (5 regions x 4 stakeholders) & Terms of Reference (ToR)
  - Implementation of Principles & Roadmap by Projects (NMI Trustmark, Clearinghouse, Observatory, Watchdog)
  - Cgi.br as the home for a platform in partnership
- Towards Net Mundial 5+ (2019)
  - Review of Principles & Roadmap

WSIS 10+ (December 2015)

- Outcome Document
  - Reaffirmation of the Tunis Definition
  - Linkage to the Sustainable Development Goals (next Billion Internet users)
  - Strengthening of the multistakeholder approach and the existing mechanisms (ICANN, GGE, UNCSTD etc.)
  - Extension of the IGF Mandate (until 2025)
  - Continuation of the Discussion on Enhanced Cooperation (WGEC until 2018)
  - High Level Meeting in 2025 to prepare SDG Summit in 2030

Internet Governance 2016: The Governmental Dimension

- G 7
  - Foreign & IT Minister, Multistakeholders and Heads of States (Hiroshima, Takamatsu and Isa-Shima)
  - G7 Principles and Action on Cyber
- G 20
  - Summit takes place in September 2016 in China
- BRICS
  - Moscow Communique April 2016
  - BRICS summitin November in Goa/India
- United Nations
  - 1st, 2nd and 3rd Committees are preparing UNGA resolutions
  - Group of Governmental Experts (GGE), UNCSTD (WGEC) & Human Rights Council (HRC)
  - ITU, UNESCO, WTO, WIPO
- OECD
  - Ministerial Meeting in June 2016 in Cancun (Job & Skill Stragey)
  - Multistakehoder Model (BIAC, TUAC, TAC, CISAC)

Internet Governance 2016: The Non-Governmental Dimension

- IGF
  - 11th IGF meets in November in Mexico, 50+ regional and national IGFs
- ICANN
  - IANA Contract expires September 30, 2016; AoC Review on Competition, Consumer Trust and Consumer Choice is underway, including new gTLDs
- NetMundial
  - Platform under cgi.br
- Freedom Online Coalition (FOC)
  - 5th annual meeting in September in Costa Rica
- Initiative on Digital Economy & Society/World Economic Forum (FII)
  - Discussion of Internet Fragmentation, Digital Trade, Cybersecurity and the next Bilion of Internet Users
- Wuzhen Internet Initiative (WII)
  - High Level Advisory Committee (HAC) meeting in June to prepare 3rd World Internet Conference in Wuzhen, November
- Global Commission on Internet Governance (GCIC)
  - Final Report, Three Scenarios & Social Compact for a Digital Society
- Global Commission on Stability in Cyberspace (GCSC)
  - Will be established in Fall

Looking Ahead: 2020

- 5 billion Internet Users
- Multilingual Internet
- All Kinds of converged services (Web 4.0)
- Internet of Things
- Beyond DNS?

- Network: Unification vs. Fragmentation
- Policy Development: Free vs. Healthy & Open vs. Secure
- Management: Top Down vs. Bottom up & Multistakeholder Self-Organisation vs. Governmental & Commercial Control

- But whatever happens, one thing is for sure:
- Internet Governance will remain the subject of high level political controversy and it will be about

- Power & Money

Thank You

- wolfgang@imv.au.dk