

New technologies and their impacts on regulation

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Center for Information and
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Overview

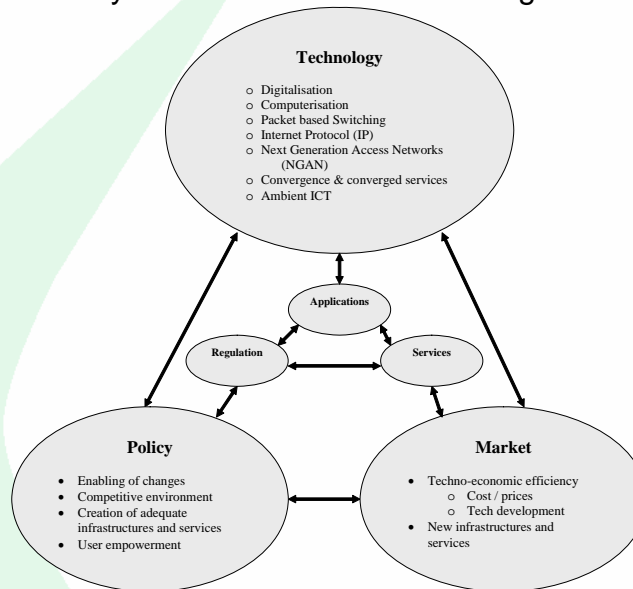
- ◀ Techno-Policy objectives & Technological trends
- ◀ Technological Trends
- ◀ Impacts of technological changes on telecom market
- ◀ Impact on telecom regulation
- ◀ New Regulatory Paradigm



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Techno-Policy Environment and Technological Trends



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Technological Trends: First Wave

◀ Digitalisation

- From Analogue to Digital
- Compression Technologies (Audio/Video)
- Modulation technologies
- Forward Error Correction (FEC)

◀ Computerisation

- Processing Power
- Miniaturisation
- Storage capacity

◀ Packet based switching

- From Circuit switched to packet switched



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Technological Trends: Second Wave

- ◀ Emergence of the Internet
- ◀ New Generation access Networks (NGAN)
- ◀ Convergence & Converged Services
- ◀ Ambient ICT



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◀ The Internet and IP

- Separation between network technology and services
- Intelligence moved from the core to the edge of a network
- Scalability
- Distributed design and decentralised control

◀ New Generation access Networks (NGAN):

- 2.5G, 3G and beyond 3G
- WiFi, 802.11b, g, a....
- WiMAX (802.16)
- Satellite & Combination of satellite and WiMAX
- Combination of WiMAX and WiFi
- IPDC



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◀ **Convergence & Converged Services**

- Broadband, Platform for Convergence
- Mobile Broadcast Convergence
 - ◀ DVB-H
 - ◀ DMB
 - ◀ MediaFLO
- Fixed Mobile Convergence (FMC)
- Next Generation Network (NGN)
- Converged Services
 - ◀ VoIP
 - ◀ IPTV
 - ◀ SoD (VoD, AoD,)
 - ◀



◀ **Ambient ICT**

- use of ICT in other socio-economic sectors
- influence efficiency and quality in the production processes
- E-banking, E-health, E-government
- Windows of opportunity for developing countries



Impacts of technological changes on Telecom market

- ◀ Improved possibilities for competition
- ◀ Improved possibilities for Innovation
- ◀ Market Convergence
- ◀ New business models
 - Public, Gated, and Walled Garden models
 - Revenue sharing within the value chain & incentives for investment
 - Development towards **self organisation** paradigm
- ◀ Regulation
 - Licensing
 - Numbering
 - Universal Access; complementarities and competitiveness of NGAN
 - Vertical horizontal integration/separation
 - Converged services like IPTV
 -



Impact on the Telecom Market

- ◀ Vertical Separation of Networks and Services
- ◀ Service and Network Convergence
- ◀ Death of distance and cheaper bandwidth
- ◀ Low cost wireless access in rural areas
- ◀ Market Convergence
- ◀ More competition in particular on services
- ◀ New business models
 - VoIP
 - MVNOs
 - Infrastructure providers



Impacts on regulation

- ◀ Need for unified Licensing
- ◀ Less demand for price regulation
- ◀ Facilitation of National Internet Access Points
- ◀ Internet Settlements: Developing countries become net contributors as services move to IP-networks
- ◀ Universal access threatened by VoIP
- ◀ Flexible and adaptive Spectrum management a key for infrastructure development in rural areas.



A New Regulatory Paradigm

- ◀ Regulatory activities and organisations must reflect the changing technology and market developments.
 - Good regulation can be a vital factor in supporting growth and new technologies
 - Failing regulation can be a major barrier
 - Regulation has to adapt to the changing environments
- ◀ New Paradigm
 - Based on the establishment of an open and level playing field for
 - ◀ commercial companies
 - ◀ non-commercial,
 - ◀ community-based or end-user-organized network initiatives
 - Reflect
 - ◀ existing best practice
 - ◀ Emerging technology and market developments



A New Regulatory Paradigm - Elements

- ◀ Increased emphasis on universal access/ service policies in developing countries
 - other regulatory fields should support this
 - ◀ E.g. frequency regulation incl new and more open frequency management policies
- ◀ A coherent national ICT-policy
 - regulation encompasses
 - ◀ the regulation of communication infrastructures,
 - residential as and business
- ◀ An appropriate regulatory paradigm
 - Includes technology and market convergence
 - Leads to
 - ◀ new competitive possibilities, as different infrastructures can be used for conveying the same kinds of services
 - ◀ new services being developed
 - ◀ new questions regarding the interrelationships between infrastructure and content regulation.
- ◀ National developments in ICTs take place in a wider international context
- ◀ The influence on basic/ First Wave technology developments limited
- ◀ Local and national initiatives play a significant role on Second Wave
- ◀ The organisational aspects of regulation must be adapted to the changing technology and market developments in terms of scope and regulatory practices
 - Convergence lead to new technology solutions and the development of new market opportunities
 - Developing countries
 - ◀ Leapfrogging
 - ◀ Windows of opportunity
 - ◀ lack of regulatory resources can

