new media for information and communication: prospects and challenges

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back in the old days
1844:
“what hath God wrought”
In 1864, radio is predicted and in 1887, it is detected...
And in 1865, the ITU was born as:

the International “Telegraph” Union
The ITU: an enduring institution

• ITU is the oldest international organization in the world…
  – … with its work spanning three centuries
• The organization pre-dates the United Nations, and is now one of its specialized agencies
• A recent report by Booz Allen Hamilton and leading scholars ranks the ITU among the “World's Top 10 Most Enduring Institutions”, one that has:
  “changed and grown in unswerving pursuit of success and relevance - yet remained true through time to its founding principles"
the good old days?

1910: Lars Magnus Ericsson and his wife Hilda
trends today
trends and tendencies

• Innovation and transition to **digital** technologies

• Growing value of **information**, especially timely and on-the-go information: “always on”

• **Speed**, speed and more speed

• **IP (internet protocol)** as a critical network enabler

• **Mobility** as key network requirement
still like talking more than eating!

Source: OECD
The international user base continues to grow.

**Number of economies with commercial broadband**

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>81</td>
</tr>
<tr>
<td>2003</td>
<td>113</td>
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<tr>
<td>2004</td>
<td>133</td>
</tr>
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<td>2005</td>
<td>145</td>
</tr>
<tr>
<td>2006</td>
<td>166</td>
</tr>
</tbody>
</table>

Source: ITU

**Mobile vs. fixed**

- **2002**: 1.28 billion fixed (est.)
- **2005**: 2.14 billion mobile

Source: ITU
more speed: both fixed and mobile broadband on the rise

Source: ITU, adapted from 3G today and CDG

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Executive Master in e-Governance (e-Gov) 2006/07, EPFL, Lausanne, Switzerland, 10th October 2006

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shrink divide: faster for mobile

**FIXED**

- Fixed telephone lines per 100 inhabitants
- The digital divide in 1994: 11 times more
- The digital divide in 2004: 4 times more

**MOBILE**

- Mobile telephone subscribers per 100 inhabitants
- The digital divide in 1994: 27 times more
- The digital divide in 2004: 4 times more

Source: International Telecommunication Union
why the mobile is king

• **Connectivity first**
  – connectivity is the *raison d’être* of the mobile

• **Cross-cutting**
  – age, gender, income

• **Portability**
  – smaller and more portable than laptop

• **Physical proximity**
  – at day, at night, standing still, on the move

• **Intimacy and emotional attachment**
  – many can’t leave home without it

• **Individuality and identity**
  – accessory, personal diary, status symbol
convergence towards mobile broadband
impact of convergence

• creates new services
  – mobile TV, VoIP
  – new billing models (multiple play)
• introduces rapid changes
  – how quickly some mobile users gave up fixed phones altogether
• fosters more competition
  – for broadband: between cable TV, satellite, xDSL, FTTh
• opens markets for new entrants
  – new ISPs providing broadband TV, eg. Free’s freebox
• encourages old players to enter new areas
  – plain old copper can provide broadband access, so incumbent fixed line players can offer new television-like services (e.g. BT Hub)
towards mobile broadband

Source: MIC
applications & growth drivers for mobile broadband

Source: WINNER, Final usage scenarios, 30/06/2005;“Parameters for Tele-traffic Characterization in enhanced UMTS2” and University of Beira, Portugal, 2003, as cited by Siemens, NGMN Technical White Paper, 2006
untapped markets,
untapped revenue opportunities

but it would seem that no one player can go it alone…

Source: Unstrung Insider

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the original vision of IMT-2000 based on “complementarity”

Source: ITU WP 8F
regulatory and policy challenges
keeping up with rapid innovation

• impact of convergence and fast-paced innovation means that traditional definitions may no longer be relevant

• today TV can be seen on mobiles and voice calls can be made on a computer

• as such, there is an increasing need to aim for technological neutrality when issuing licenses
spectrum and licensing

• spectrum allocation
  – increasing demands on spectrum
  – e.g. 3.5GHz band is the most widely available band allocated for broadband wireless access worldwide, except for US - but 3.5 GHz is mainly allocated to fixed services
  – line between 3G/4G environments and broadband wireless access is blurring and is set to converge
  – availability of new bands?

• licensing regimes
  – how to license future services? Who should provide services like WiMax: mobile operators or fixed line providers? and why?
  – who will provide services beyond 3G?
affordability

price of mobile services hasn’t decreased at same rate as broadband, internet

Average cost of ICT usage worldwide, in US$, 2003-2005

- Mobile basket: 23%
- Broadband ($/100 kbps): 40%
- 20 hours’ Internet access: 25%

Average price of an SMS, in US$, 2005

- Americas: 0.06
- Asia: 0.07
- Africa: 0.10
- Europe: 0.14
- Oceania: 0.16

cheap-to-produce services, e.g. SMS, priced well-above cost in some regions

Source: ITU World Information Society Report

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example: mobile roaming

- roaming =15% of global mobile revenues in 2004 (US$78.6 billion)

- EC first looked into issue in 2000, but to not much avail

- In 2005, a tariff comparison website was set-up

- Roaming charges vary widely, with the highest rate found by EC to be 13 euros a minute (Maltese calling home from Latvia)

- EC now proposing a regulation (consultation period ended in May 2006) which will be put into effect no earlier than summer 2007
ensuring a level playing-field is still a challenge

• ICT regulatory trends in Europe:
  – from *ex ante* to *ex post*
  – roll back of sector-specific regulation as markets become more competitive in favour of competition law

• mobile has traditionally been less regulated than fixed
  – many of the larger mobile markets remain relatively concentrated in Europe

• in the broadband world, concerns over access to incumbent’s networks persist in many areas
SMS interconnection

• by some estimates, the total SMS revenues in 2005 were about 75 billion USD. Compare this to:
  – Global box office: 25-30 billion
  – Global music industry revenues: 35 billion
  – Videogaming, consoles & all software: 40 billion

• though SMS interconnection costs are very low, retail costs remain high

• this does not bode well for future mobile data and multimedia pricing

• though little has been done thus far, some regulators are imposing price caps on SMS termination (e.g. ARCEP).

• but some argue that intervention at retail level (rather than wholesale) may be required
managing content

• regulating specific forms of content
  – the 3Gs
  – increasing use of camera phones and user-generated content
  – protection of minors

• advertising
  – advertising rights & responsibilities
  – the problem of spam

• copyright and DRM
  – prevention of piracy & payment of appropriate royalties
  – rewarding content creation without limiting distribution
  – use of universal principles for DRM

• regulation of mobile transactions & mobile payments
EU and content

- traditional separation of broadcasting and telecommunications giving way to increasing convergence: both in terms of media & regulation

- Europe’s TWF Directive now being amended as *Audiovisual Media Services Directive* (AMS)
  - to cover (scheduled and on-demand) media services over internet, mobile, telecom, broadcasting and over “*any other electronic network whose principal purpose is the provision of moving images to the general public*”
  - regardless of technology used, multimedia services will be subject to a minimum standard of protection relating to e.g. advertising, discrimination, incitement to hatred

- Thus the directive will extend regulation to control audiovisual media services that have, until now, been untouched by specific regulatory intervention, and left to MS’s general laws (and self-regulation has been the norm)
impact of new media on human society
Blurring boundaries

• Private sphere becomes public
  – Greater freedom of action
  – questions of etiquette
    e.g. “forced eavesdropping”
  – phenomenon of social networking

• Public sphere becomes private
  – Continuity of connectivity
  – Perception of social distance
  – Group dynamics
individuality, privacy & surveillance

• growth of citizen journalism
  – through use of camera phones, moblogging, all human activities susceptible of being recorded
  – climate of security threats and terrorism may mean that vigilantes become increasingly common

• data perpetuity
  – privacy as a commodity

• such an environment of surveillance (real of perceived) may lead to lack of individuality, self-expression and greater anxiety in decision-making (no matter how small)
  – these elements are crucial to individual and societal development
the responsibility of communication

• nuisance
• punctuality
• keeping options open
• spontaneity of communication
• illusion of communication
  – second lives
  – alternate identities
a wider approach is required
a future network of things
the next internet: internet of things?

- RFID and related technologies have the potential to tag every item on the planet
- As such, everyday items could be identified, tracked, and monitored
- The tag can also contain valuable information about an item, e.g. price, ingredients
- Combined with sensors, RFID systems can create context aware application, creating an even stronger link between real and virtual
dropping cost and size

Source: E. Fleisch, University of St. Gallen, Switzerland
key implications

• privacy and data protection mechanisms will need to be further elaborated
  – when and how can information on the tag be accessed?
  – when should the tag remain active after an item is purchased?

• who will govern the system of identifiers?

• in order for a truly global “internet of things” to be created, greater efforts at standardization are required
thanks

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