



# ubiquity and identity: the new network paradigm

Lara Srivastava

International Telecommunication Union  
lara.srivastava@itu.int



**TELECOMM INDIA 2006**  
**5 October 2006 (Mumbai, India)**

# network evolution...

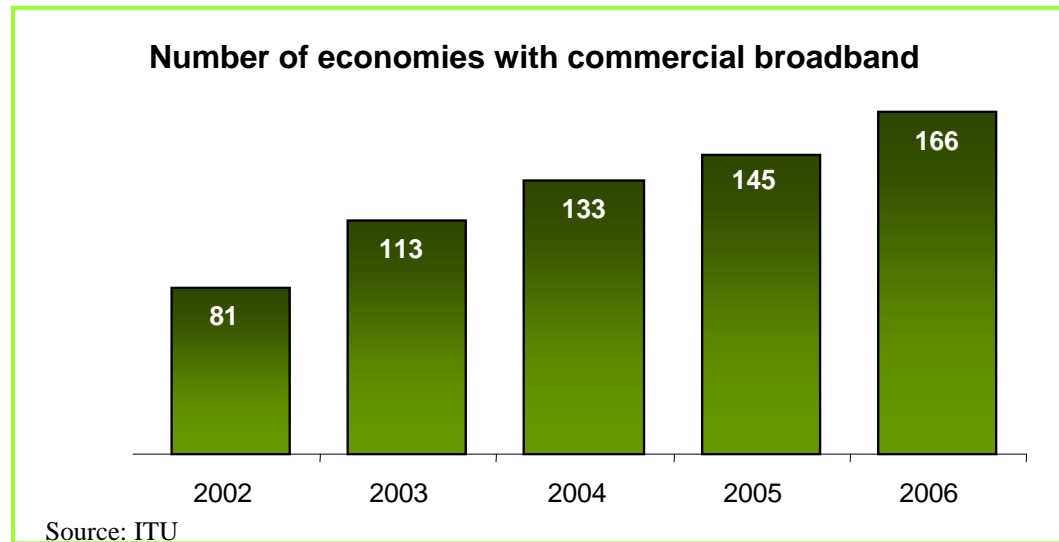
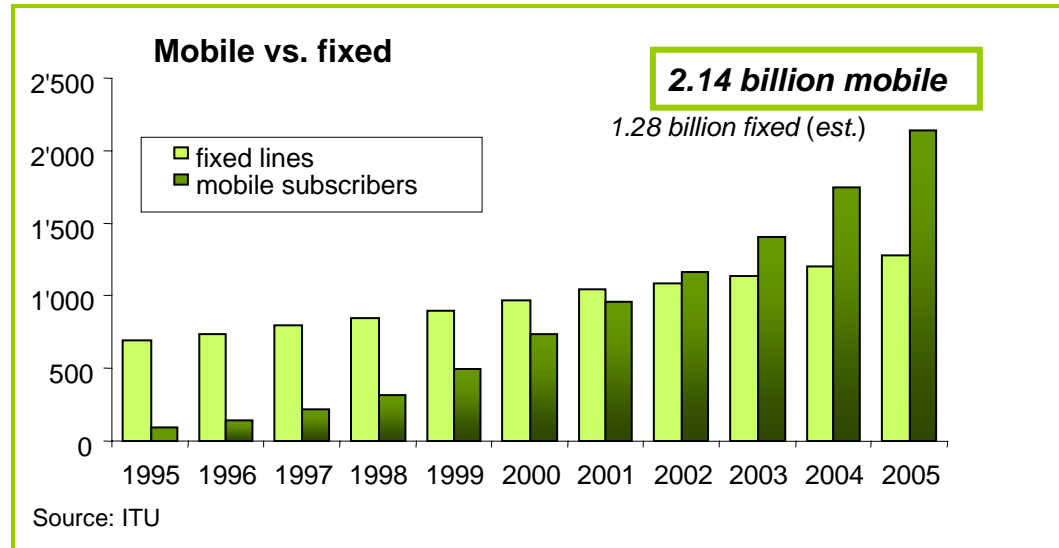
# industry evolution...

- from physical distances to virtual proximity
- from network-centric to edge-centric
- from tech-push to demand-pull
- from content to context
- from low-speed to high-speed
- from frequent access to perpetual access
- from fixed to mobile

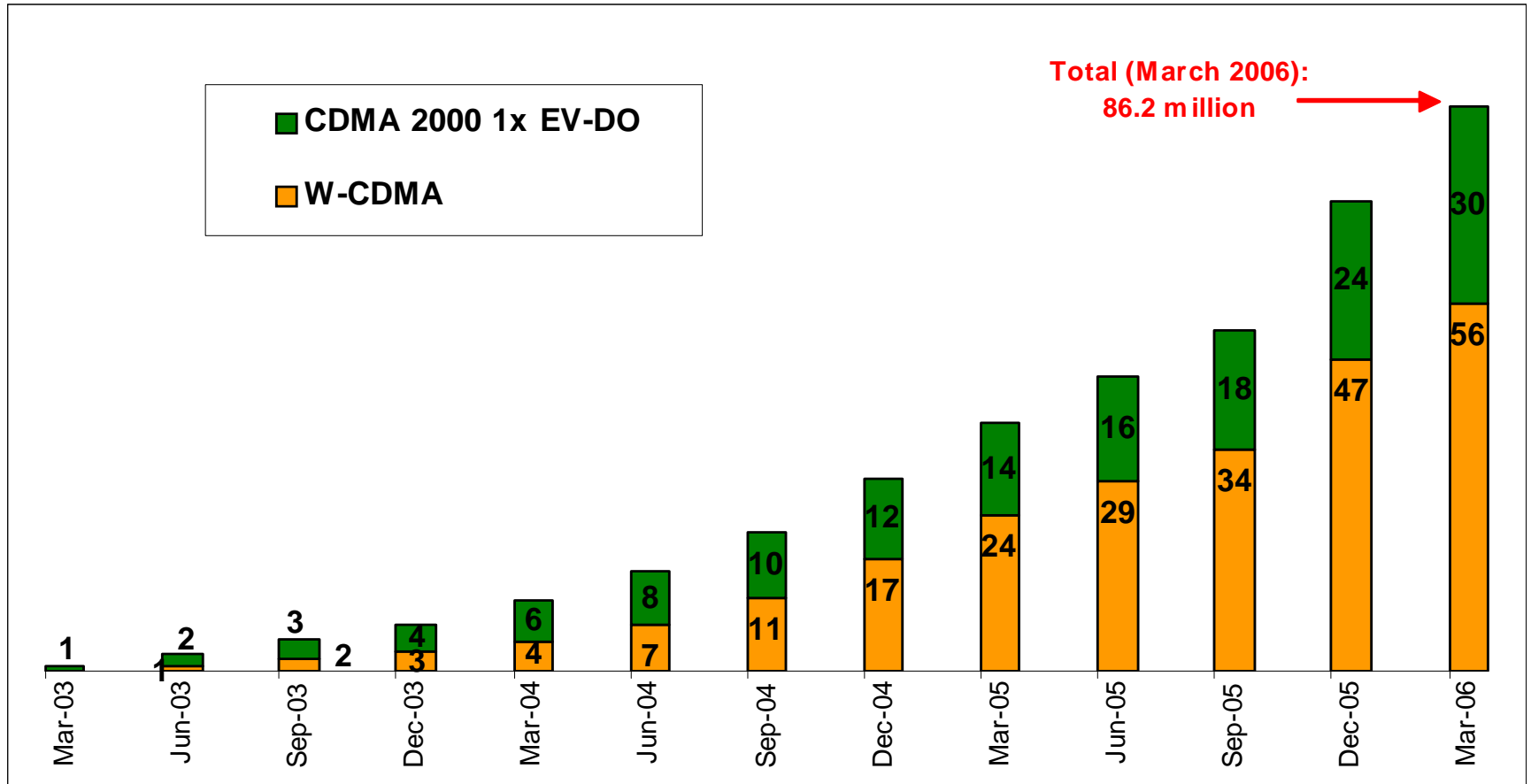


NASA

# user explosion: mobile & broadband



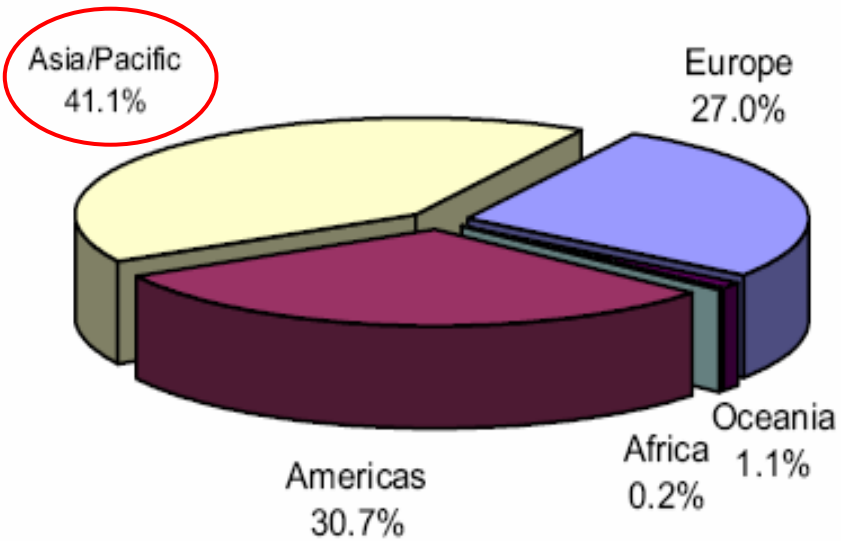
# mobile + internet: in 3G form



Source: ITU, adapted from 3G today and CDG

# asia in the lead

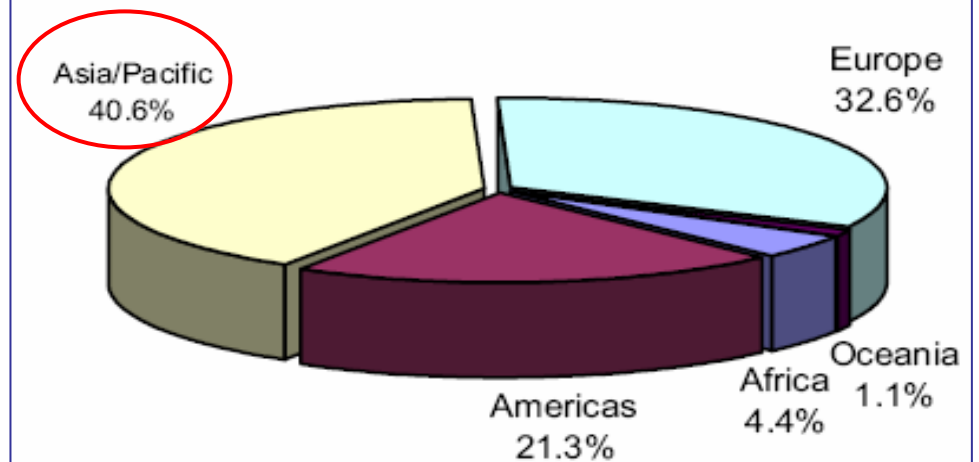
Broadband subscribers, by region, 2005



Source: ITU

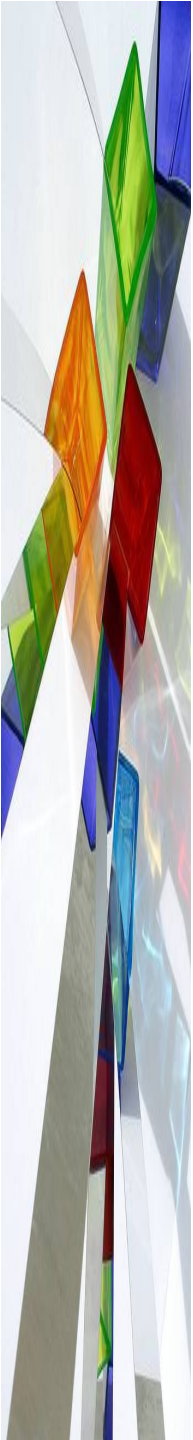


Mobile subscribers, by region, 2005



Source: ITU

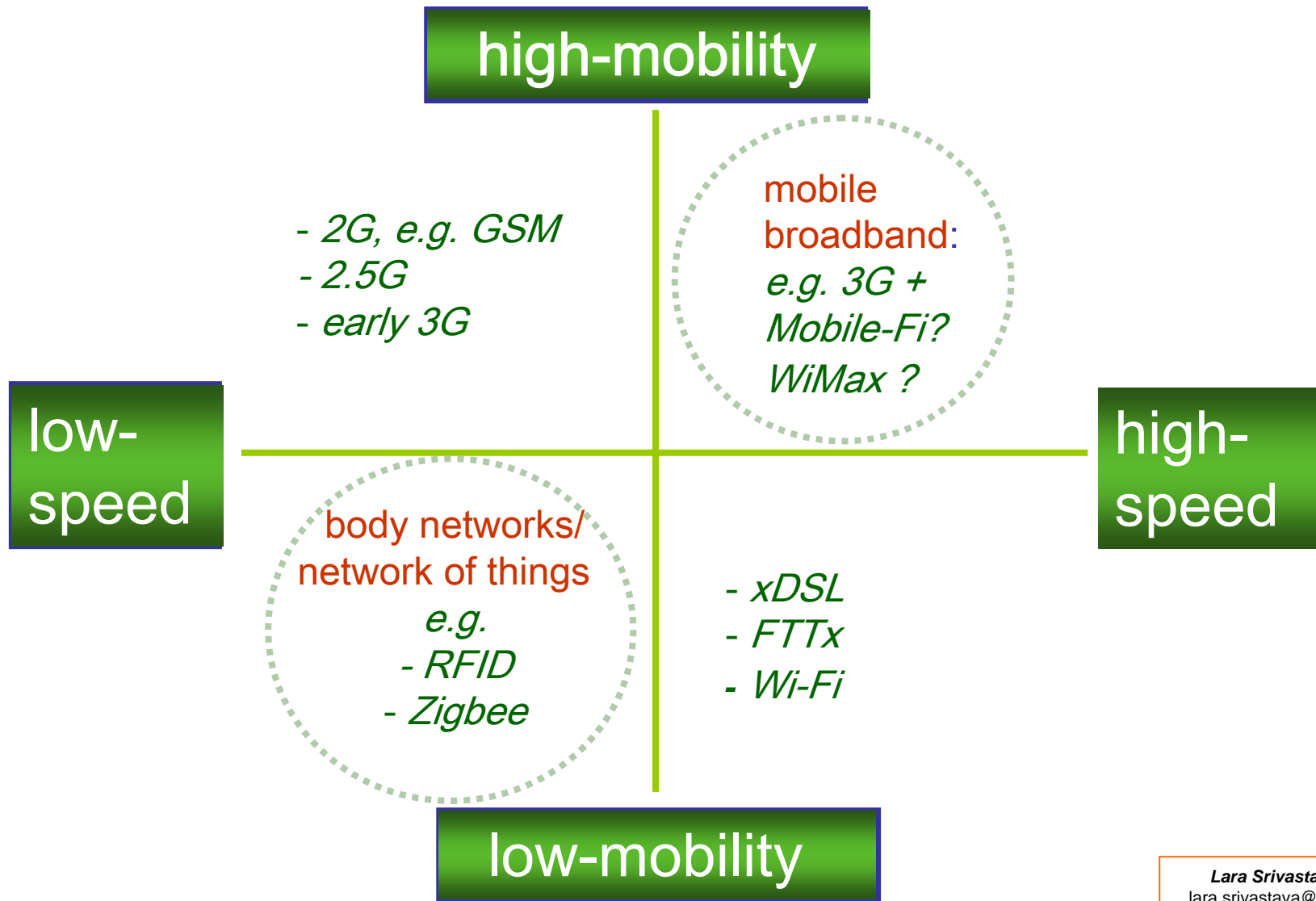




# the mobile device: more than the new personal computer?

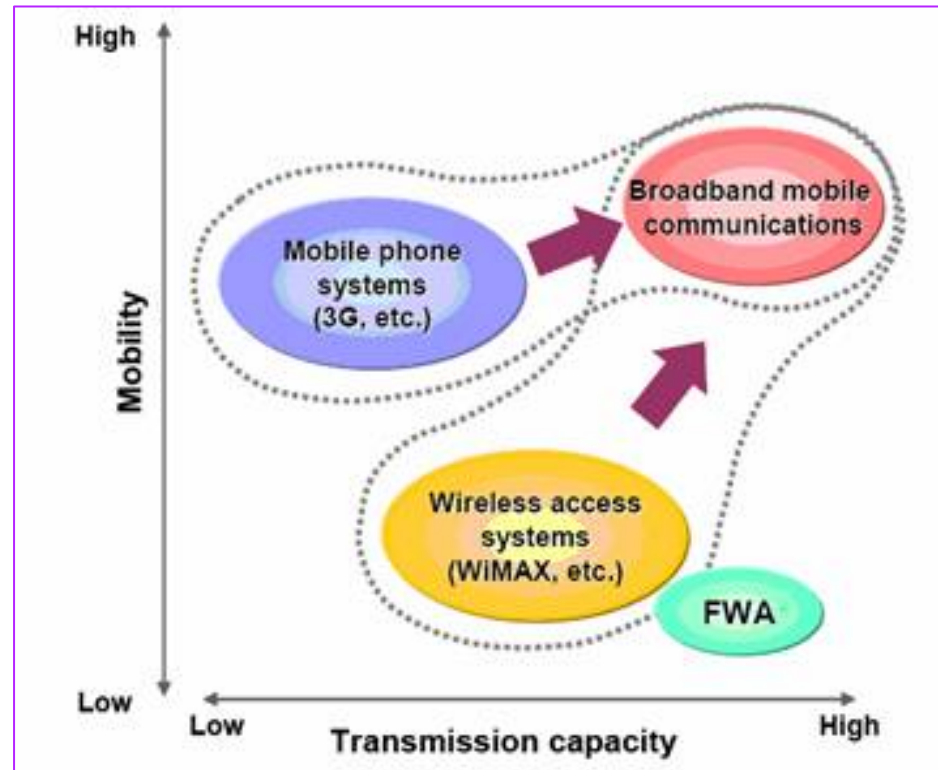
- connectivity is its very *raison d'être*
  - no such thing as an unconnected mobile, while there still exist “unconnected” PCs
- truly the most intimate ICT device on the market:
  - true portability
  - true individuality
  - true proximity
- widespread use
  - one for every three people on the planet
- cuts across demographic and socio-economic criteria
- fosters growth in social and human capital
- growing gateway to content

# from device to network evolution: mobility a key requirement



# taking mobility to the next level: *mobile ubiquity*

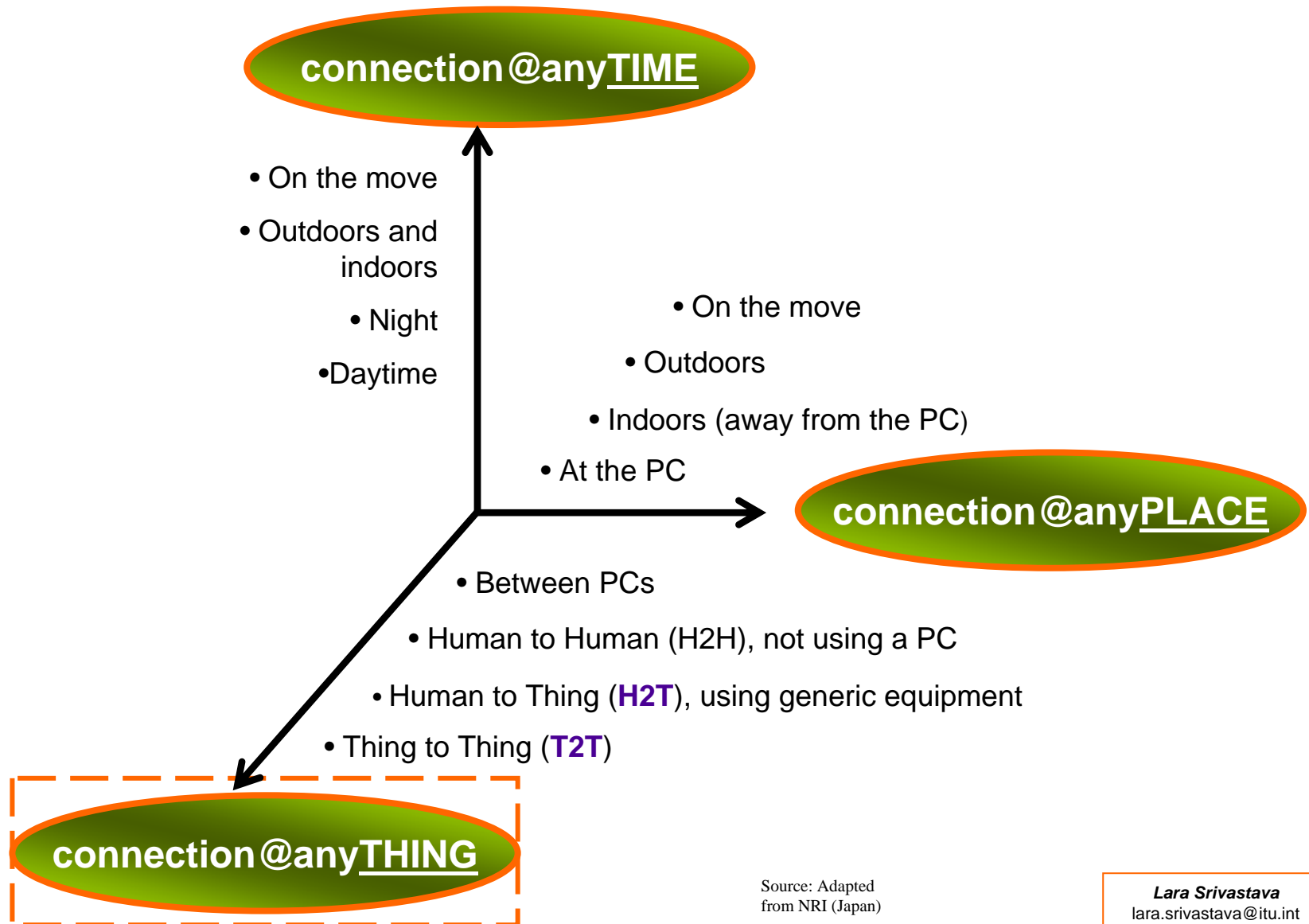
- same objective, different starting points
- broadband mobile comms. for always-on access is increasingly favoured
- e.g. wireless cities a good early example (e.g. Taipei)



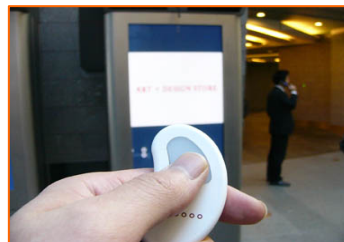
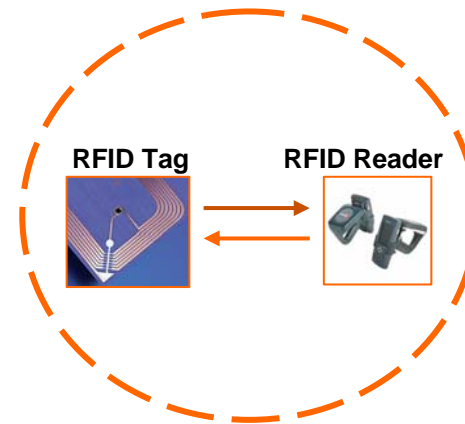
Source: MIC, as cited in ITU New Initiatives, "The Regulatory Environment for Future Mobile Multimedia Services", 2006. See [www.itu.int/ni](http://www.itu.int/ni)



# ubiquity of networks, but also ubiquity of connections

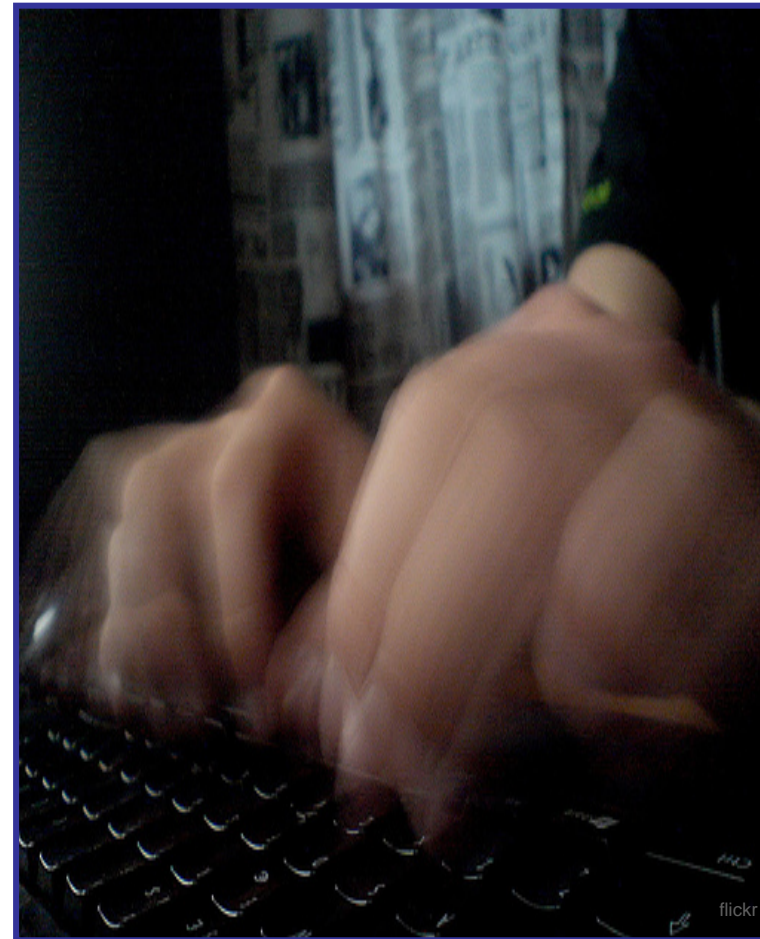


# RFID as key enabler of ubiquity



# the influence of ubiquity and mobility on the role of the user

- not only follower but also leader
- not only consumer but producer
- not only audience but player, entertainer
- not only reader but storyteller
- not only a passive listener but an active orator
- not only a tech user but also developer
- not only subject but participant



# ubiquity and identity

- multiple and mobile identities:
  - people, but also...
  - animals
  - machines
  - institutions
  - things
- multiple impacts:
  - on social interaction
  - on doing business
  - on network design



# a question of concern, but also a key opportunity

- in a ubiquitous network environment, managing a large number of “identities” will become vital
- issue of concern not only for technology providers but also for service providers, governments, users etc...
- but also a great opportunity for service diversification
- however, today, no single system of identity management exists for the digital world



# challenges and risks for identity on the network

- fragmentation
- permeability
- perpetuity
- blurred boundaries
- commoditization
- governance of resources
- globalization, cultural differentiation



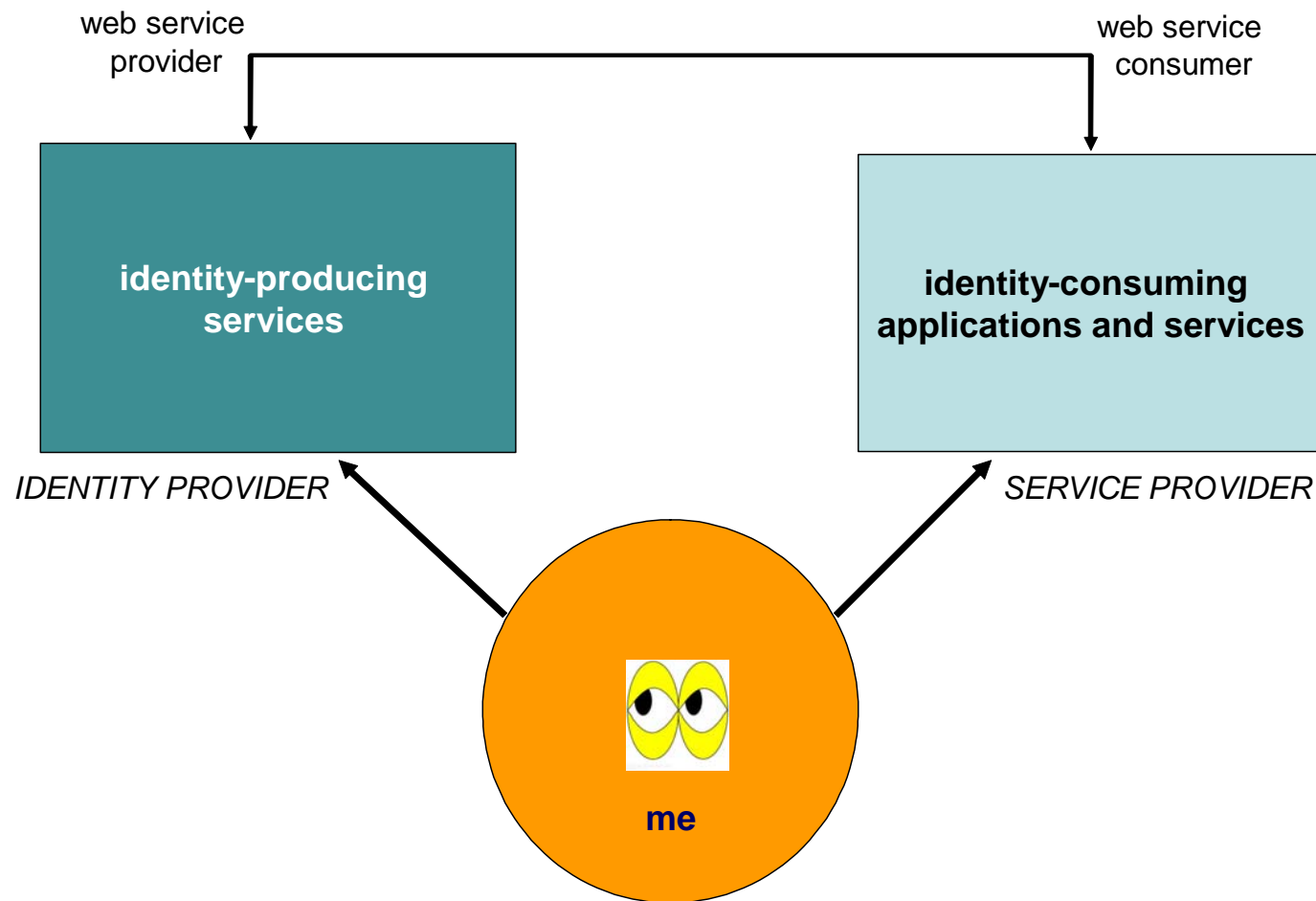
- user reticence, mistrust
- leaks, breaches
- mistaken identity
- identity theft

# building trust in the network: not just a technical issue

- trust as a complementary asset
- user-focused innovation
- quality of service at multiple levels
- clear and transparent information policies
- flexible billing models
- future-proofing
- cooperation and collaboration
- developing technology that takes into account socio-ethical and cultural values
- ...



# identity production and consumption: a “circle of trust”





# key strategies

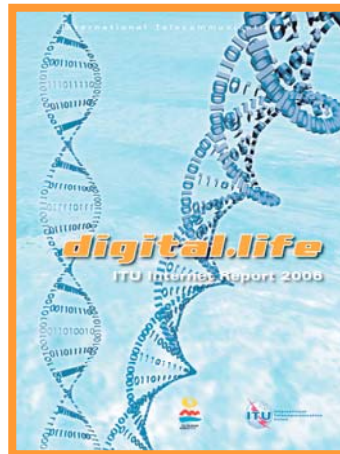
- ensuring interoperability
- fostering international standardization
- understanding the business case
- understanding and educating the user
- actively seeking global dialogue



# *ITU Internet Reports 2005* **THE INTERNET OF THINGS**

Over 200 pages of analysis, including statistical annex

[www.itu.int/internetofthings/](http://www.itu.int/internetofthings/)



*ITU Internet Reports 2006*

# *digital.life*

*Coming in December 2006!*

[www.itu.int/osg/spu/publications/digitalife](http://www.itu.int/osg/spu/publications/digitalife)

# **THE ITU NEW INITIATIVES PROGRAMME**

Research & policy analysis (reports, workshops)  
on a wide range of topics since 1999

[www.itu.int/ni](http://www.itu.int/ni)



*"No sensible decision can be made any longer without taking into account not only the world as it is, but the world as it will be"*

- Isaac Asimov

**T H A N K S**



lara.srivastava@itu.int

