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SVILUPPO ECONOMICO



Università di Roma “Roma Tre” e AIIIC  
“Colloquia sulle Infrastrutture Critiche”  
28 Marzo Roma - Italia

# “Reti di nuova generazione e città intelligenti: l'esempio di Seoul ed i nuovi trend nella pianificazione urbana”

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# Outline

- ISCOM Presentation
- Today Hot Topics
- Broadband diffusion policies
- U-City
- Conclusions



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Direzione generale per la sicurezza dell'approvvigionamento e le infrastrutture energetiche

Direzione generale per la lotta alla contraffazione - Ufficio Italiano Brevetti e Marchi

Direzione generale per la regolamentazione del settore postale

Direzione generale per l'incentivazione delle attività imprenditoriali

Direzione generale per l'energia nucleare, le energie rinnovabili e l'efficienza energetica

Direzione generale per il mercato, la concorrenza, il consumatore, la vigilanza e la normativa tecnica

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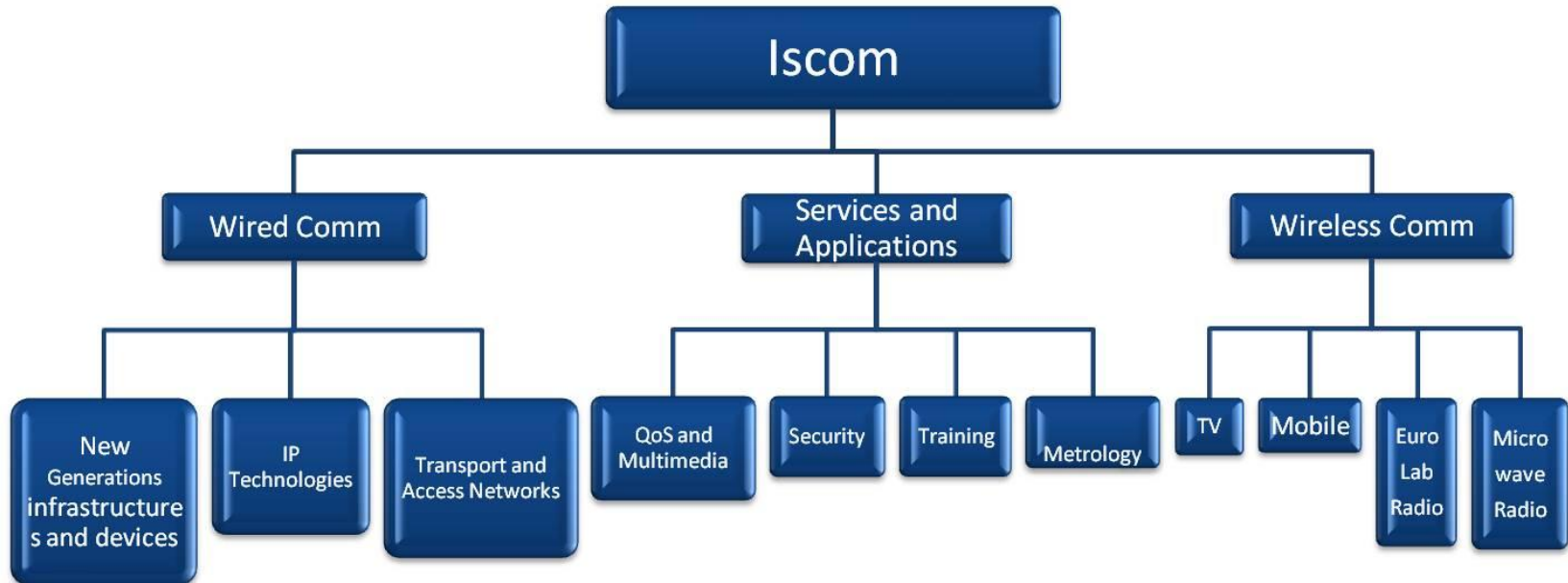
## ISCOM ACTIVITIES







## ISCOM Organization



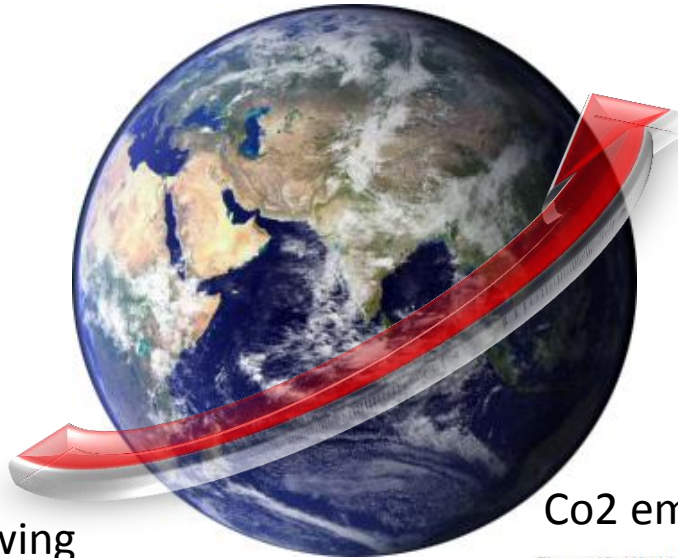


# Hot Topics

- Today the international agenda is driven by three main topics:
  - Global **Economic Crisis** (subprime bubble) , still alive.
  - Global **Warming**, keep going.
  - Global social turbulences, that means **security** needs.
- These concepts, being global, have an influence on the entire world changing locally our lifestyle and modifying the social cohesion.
- In which way ICT/TLC can influence or be influenced in this complex scenario?

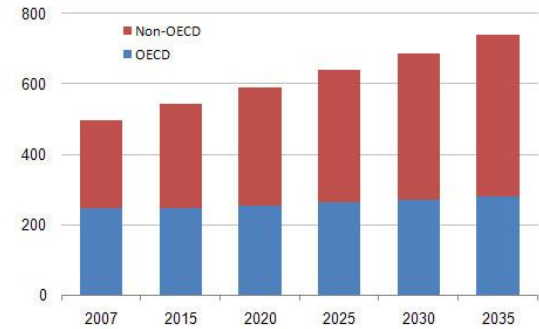


# World is changing



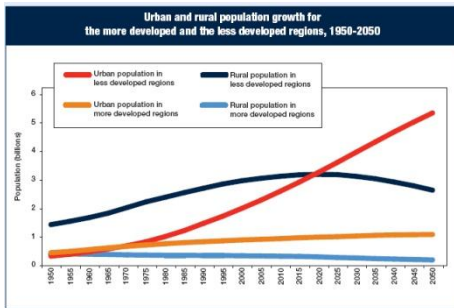
## Energy consumption

Figure 1. World marketed energy consumption



Source: EIA IEO 2010 Reference Case

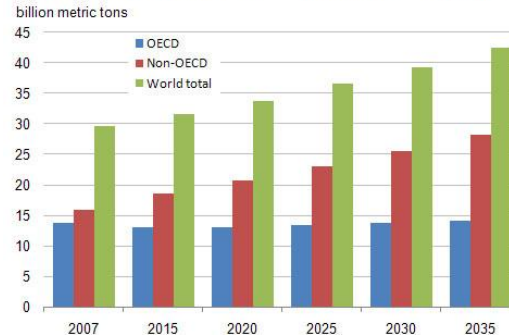
## Population is growing



Source: UN report, Urban and Rural Areas-07

## Co2 emissions

Figure 10. World energy-related carbon dioxide emissions



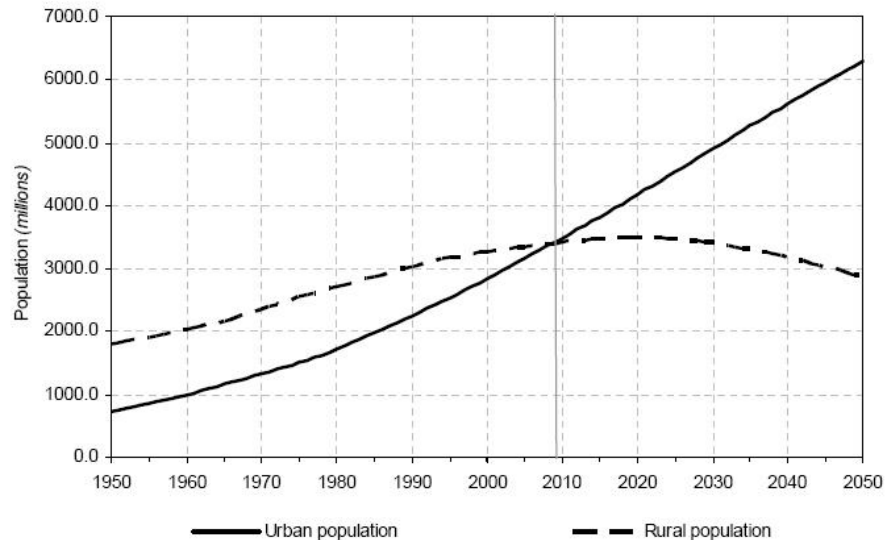
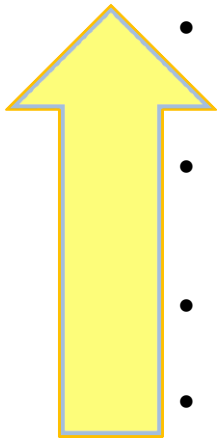
Source: EIA IEO 2010 Reference Case



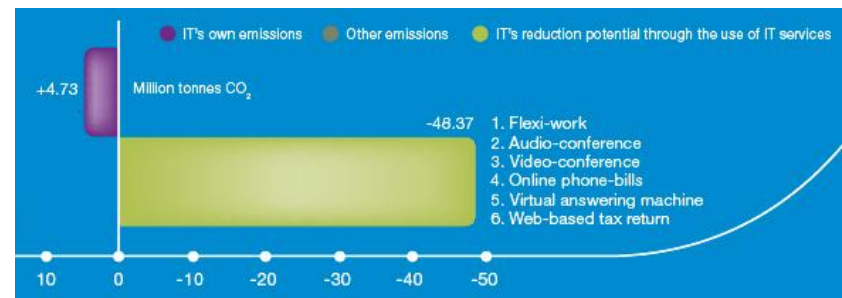


## World is changing and ICT can assume an important role

- 6.8 B (2009) to 9.1 B (2050) **population growth**.
- **Rural migration/transformation** with the 70% of population within the cities.
- Today around 50% (3.4B) live in urban areas where 75% of **energy** is consumed.
- **People** is pushing for green approach to the problems.
- A **perspective change** is needed to reduce the consumptions.
- **Infrastructure convergence (wired and wireless)** becomes crucial as well as the diffusion of intelligence along the infrastructures (Smart Homes, Smart Grids, Smart Cities).



Source: UN report, Urban Urbanization Prospects: the 2009 revision



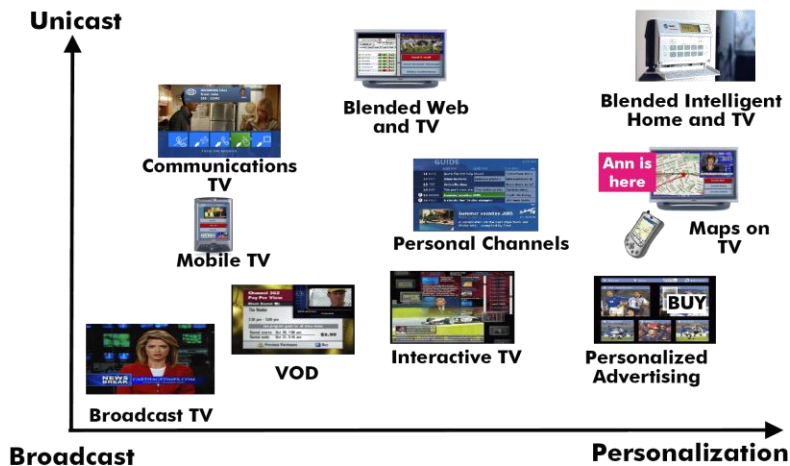
Source: WWF Document 2008





## The net effect is that: 1/2

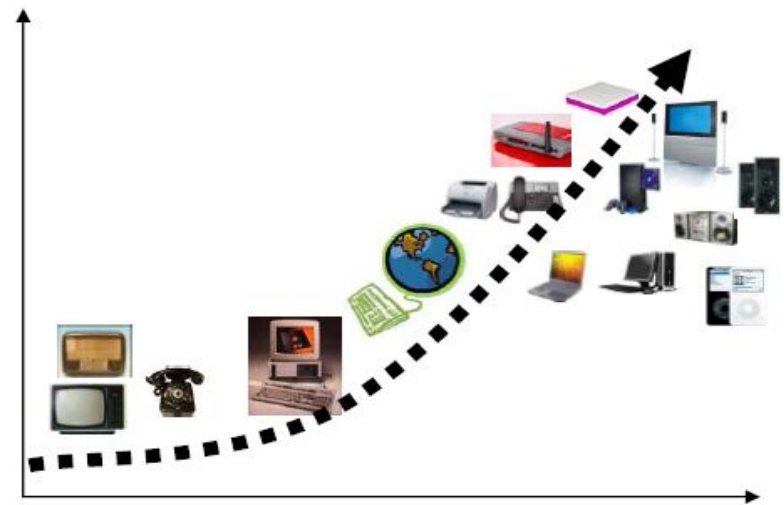
- The broadband proliferation **IS** today a reality and **IS** guided by the services.
- e/m/u services as well as TV based (HD, 3D, 3D) are today **common concepts** in the human language.
- **Energy consumption is growing up**



Fiber for Increased bandwidth  
 All-IP Multi-service Networks  
 IMS for Efficient Service Delivery

Courtesy from AIT - Prof I. Tomkos

### Energy consumption



1960 1990 2008

Courtesy from FT Orange- Philippe Chanclou



## The net effect is that: 2/2

- The market globalization and the raise of new access technologies static (FTTH) and/or nomadic (HSDPA+/LTE) nomadic are changing the business models.
- Services **“on the top”** becomes fundamental:
  - MoD
  - Remote Storage
  - E-Sport=Gaming (“gaming has made Korea the most wired country in the world” FTTHCAP Seoul Conf).
  - P2P and user generated content (Bit Torrent, PPStream, Flickr, YouTube)
  - Cloud Computing
  - Gov Services
  - Immersive Services (Healt/Education)
  - Surveillance and security
  - VPN Services





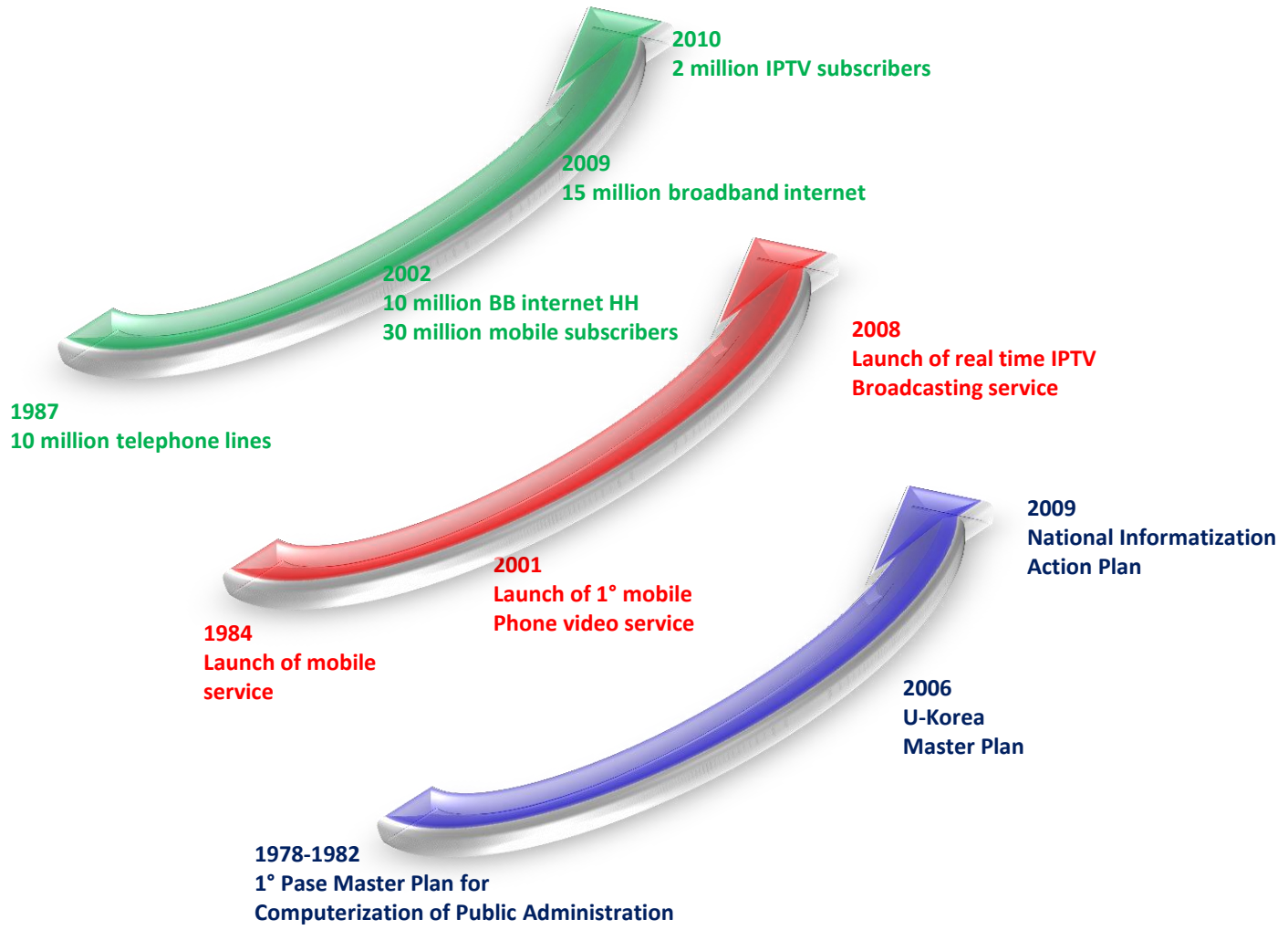
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# The S. Korea Approach



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## From 2006 The U-city life style

- The U-city deliver a U-service to the citizen that can realize and shape its life via a **U-Life**, **U-Business** and **U-Public services**.
- The U-space** is divided in:
  - Living Space
  - Culture Space
  - Working Space.
- The U-city network** is designed considering the:
  - size of the city
  - the U-services planned
  - the development plans.



# The U-approach

- A U-city is a **mixture of public and private services** travelling on the same infrastructure and managed by the same system.
- The human kind activities are translated from the real to the virtual world using an ubiquitous technology (FTTH, RFID, Wi-Fi, LTE, ...)
- **The aim is to realize an ideal connectivity barrier free.**

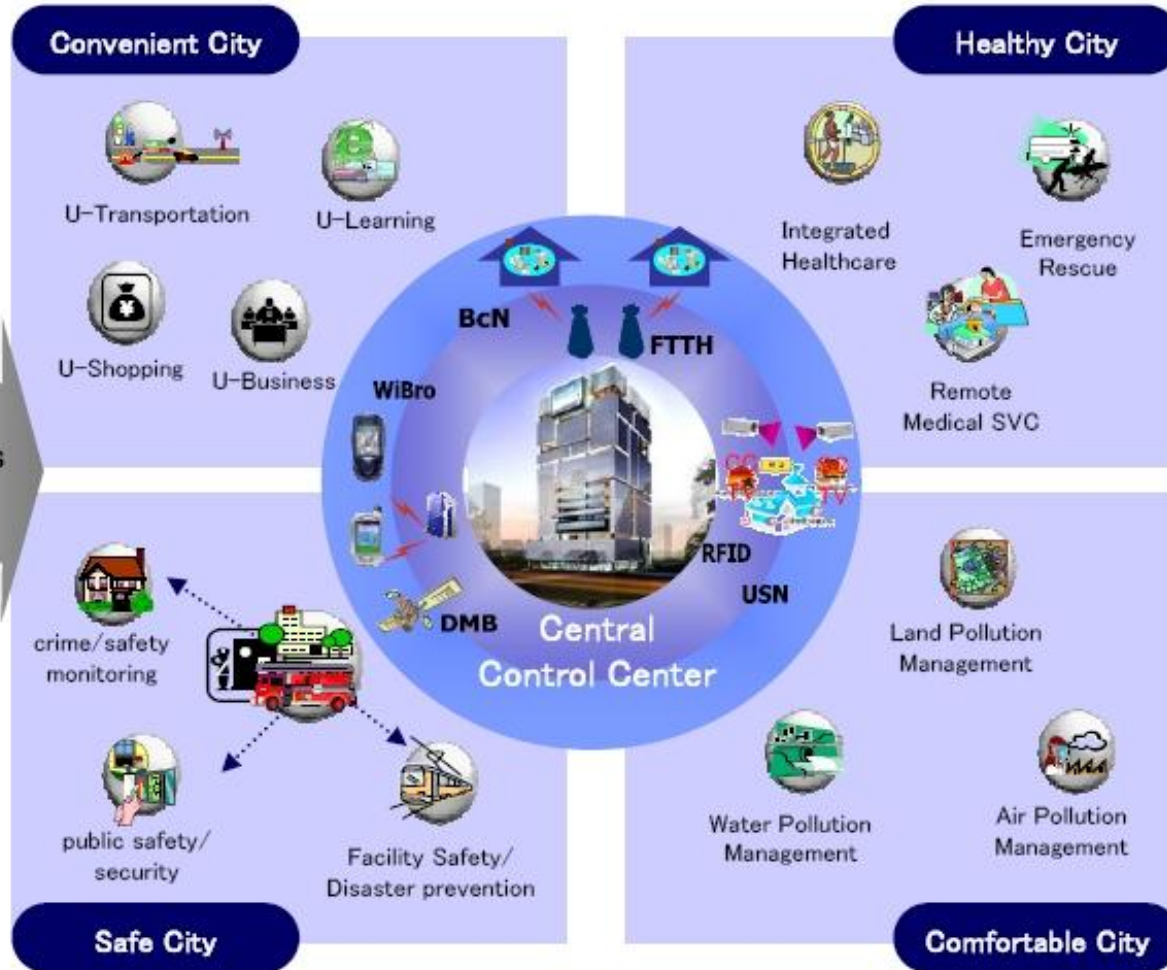


# U-City

## U-City



Ubiquitous Society







## U-City

General Info:

- U-city area, around 1500 acres.

- **U-city as working and living place at the same time:**

International hospital, school, golf club, central park, malls, hotels....,

- U-city as a new life way. **A simple example to understand the concept:** i single key card to open the house, enter the subway, see a movie, borrow a bike, pay a car spot and so on.







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# The U city experience (Seoul) 1/5: u-Health, u-Bus Stop, u-Shopping





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## The U city experience (Seoul) 2/5: Virtual and tele work



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## The U city experience (Seoul) 3/5: Virtual School



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## The U city experience (Seoul) 4/5: Memorial Tree







## The U city experience (Seoul) 5/5

Bus Stop



City light

Virtual House



Telepresence



**Which is the KILLER APPLICATION? 1 or all?**

Tomorrow Class



Virtual Shopping

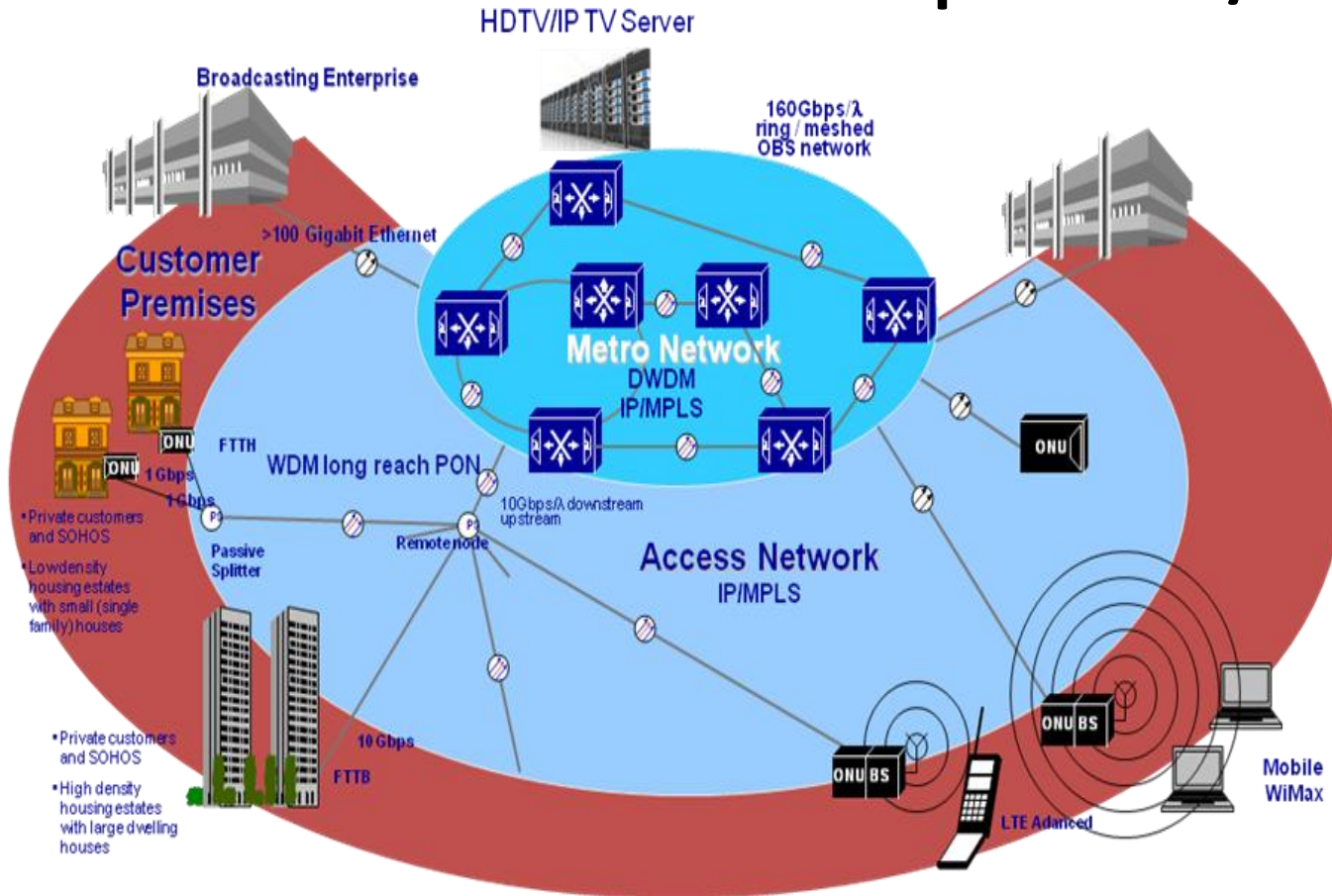


Virtual Museum





# Future Networks Specs 1/2





# Future Networks Specs 2/2

Holistic approach  
Devices reduction  
Optical level functionalities

Intelligent

Ecosustaneability  
Lower dissipation  
Alternative energies

Efficient

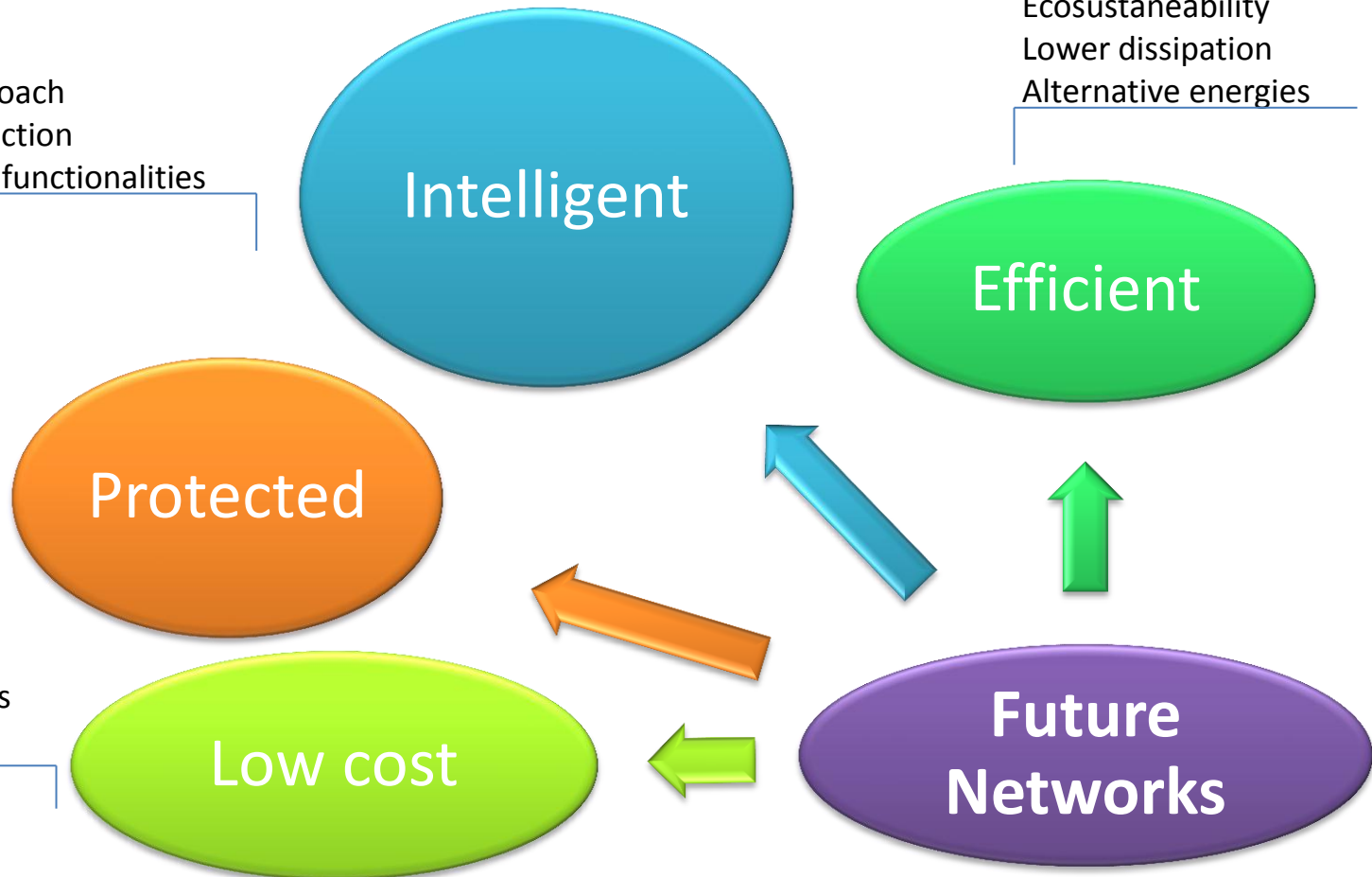
ICT European Space  
Coesion and social Inclusion  
Protection in the cyber space

Protected

Multiple business models  
applications

Low cost

Future  
Networks



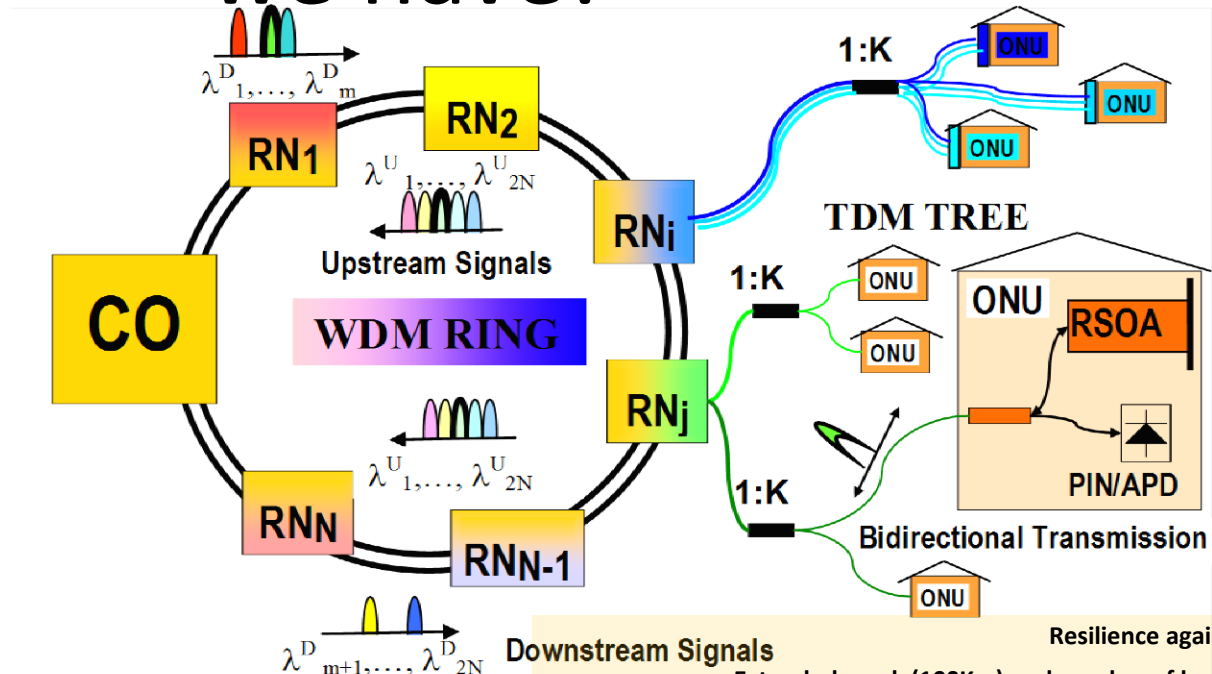




# BB Converged Networks, We need and



## we have!



- Resilience against fibre cut
- Extended reach (100Km) and number of homes (>1000)
- Full compatibility with new 10G XGPON
- Truly passive
- Better fibre utilization and smooth scalability
- a transparent solution to metro-access convergence



Project leader: Josep Prat (UPC)



# Strategic Technologies Top Ten

2010	2011
Cloud Computing	Cloud Computing
Advanced Analytics	Mobile Applications and Media Tablets
Client Computing	Social Communications and Collaboration: <ul style="list-style-type: none"><li>•Social networking</li><li>•Social collaboration</li><li>•Social publishing</li><li>•Social feedback</li></ul>
IT for Green	Video
Reshaping the Data Center	Next Generation Analytics
Social Computing	Social Analytics
Security	Context-Aware Computing
Flash Memory	Storage Class Memory
Virtualization for Availability	Ubiquitous Computing
Mobile Applications	Fabric-Based Infrastructure and Computers



## NATIONAL BROADBAND PLAN ARE NEEDED

<b>Austria</b>	By <b>2013</b> 100% of population will be provided with access speeds of at least 25 Mbps
<b>Belgium</b>	By <b>2015</b> 90 % of families to have broadband and 50 per cent of residents to be using the mobile Internet
<b>Denmark</b>	By <b>2013</b> : <ul style="list-style-type: none"><li>• at least 80 % of all households and businesses should have access to speeds of 50 Mbit/s DS and 10 Mbit/s US</li><li>• all – or almost all – households and businesses should have access to a speed of 10 Mbit/s DS and 5 Mbit/s US</li></ul>
<b>France</b>	By <b>2012</b> at least 4 million subscriptions to very high speed broadband (100 Mbps)
<b>Germany</b>	By <b>2014</b> 75% of households will have download speeds of 50 Mbps
<b>Italy</b>	By <b>2012</b> all Italians to have access to the Internet at between 2 and 20 Mbps
<b>Japan</b>	By <b>2015</b> , fibre optic highways will be completed enabling every household to enjoy a broadband service.
<b>Korea</b>	By <b>2010</b> to provide broadband multi-media services to 12M HH and 23M wireless subscribers. By <b>2012</b> to raise average speeds to 10 Mbps with a maximum of <b>1 Gbps</b> .
<b>Luxemburg</b>	By 2015 FTTH to every HH and By <b>2020 1Gbps</b> to every HH





08/12/08  
114/CE EU IC

22/11/10  
COM (673) on  
the EU internal security  
strategy

Dec. 2007,  
Lisbon Strategy  
adopted

18/12/09  
Res 321/01 EU info an  
network security

2009 (406)  
CE on the GAS  
emission reduction  
by 2020

19th April 2010,  
Ministers of Communications  
approve the **Granada  
Digital Agenda:**  
broadband for all within 2013  
and ultrabroadband (100 Mbps)  
within 2020 for the 50% of  
population.

## Main EU Actions

March 2000, Lisbon  
European Council meeting.  
Defined the **Lisbon  
Strategy** to boost the  
competitiveness up to 2010.  
Job for all within 2010

March 2005,  
Lisbon Strategy  
revision. 3% GP for  
research and development  
within 2010.

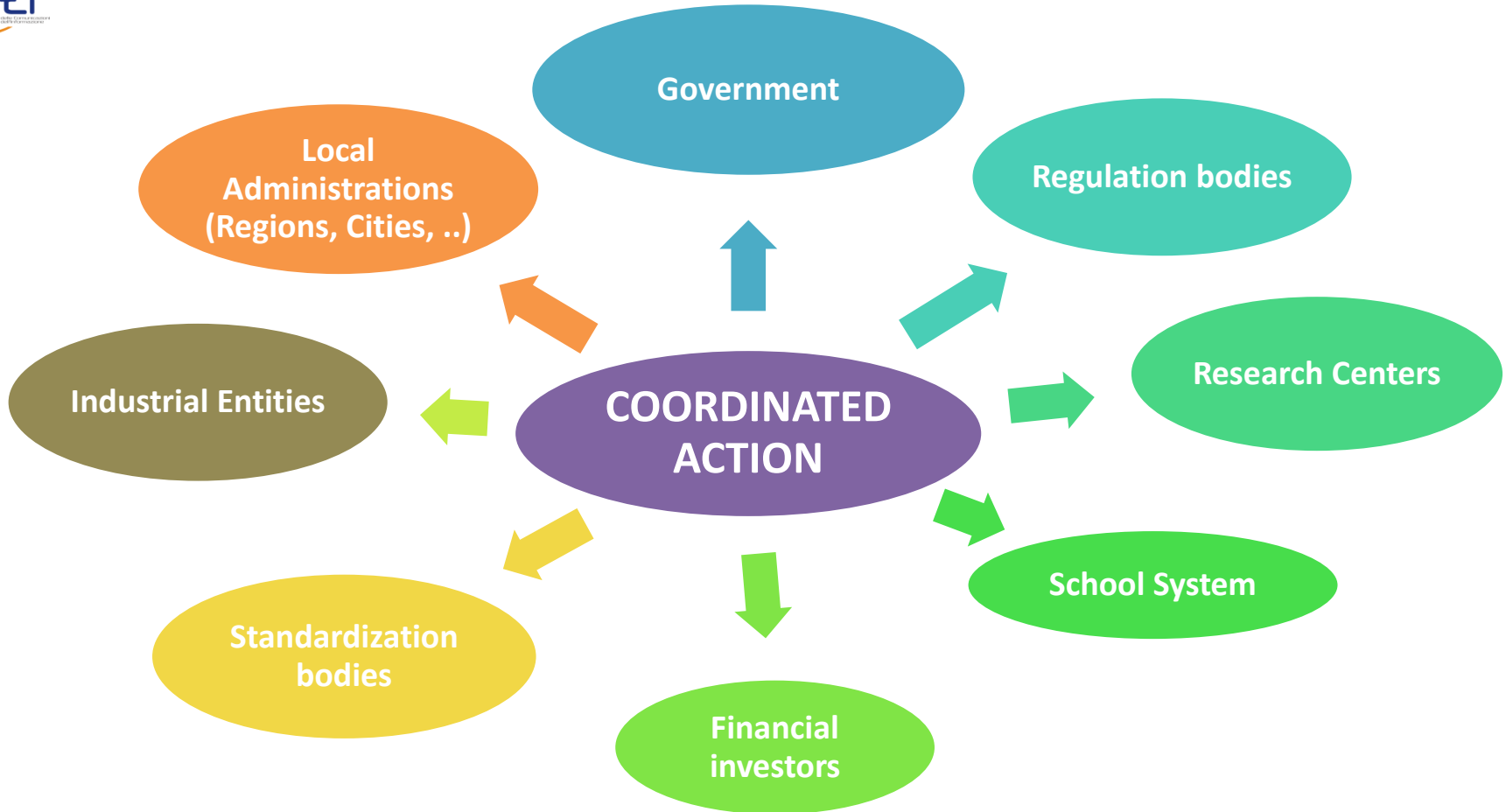
2002,  
Regulatory  
Package  
adoption.

Mid 2007,  
Launched the revision  
process of the  
**Regulatory  
Package** and  
approval in **December  
2009**. EU Regulatory  
Agency, Functional  
Separation, NgN  
Investments, one day  
number portability....

2007-2013  
Launched the FP7  
program with 53B€  
budget:  
•FP  
•Structural Funds  
•Cohesion Funds  
•Innovation and  
Competitiveness

3th March 2010, EU  
Commission launch the **Europa  
2020 strategy** to answer  
the global crisis boosting the innovation  
at all levels and defining the **Digital  
Agenda**.





***Sharing these best practises at a global level  
Armonization is need to do not create distortions***



# Conclusions

- The diffusion of Fiber based technologies is today fundamental.
- Based and applied research represent a corner stone but is nothing if not connected with the real world.
- Thus a deepley coordinations between the actors, both public and private, is needed.
- The European Commision approach is going towards the right direction.
- In order to reinvent ourself and to grow as Community we need now to enforce this approach and to open us to the international actors.
- The Asian model can represent a good reference to be translated, where and if possible, on the EU territory.





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# In honor of Prof. Benedetto Daino



21/08/1935-12/01/2011