# Telefónica`s integrated approach to energy efficiency and climate change

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Sympsium on ICT`s, Environment and Climate Change

Daniela Torres Espinosa
Telefónica S.A.
Climate Change Office

Telefonica

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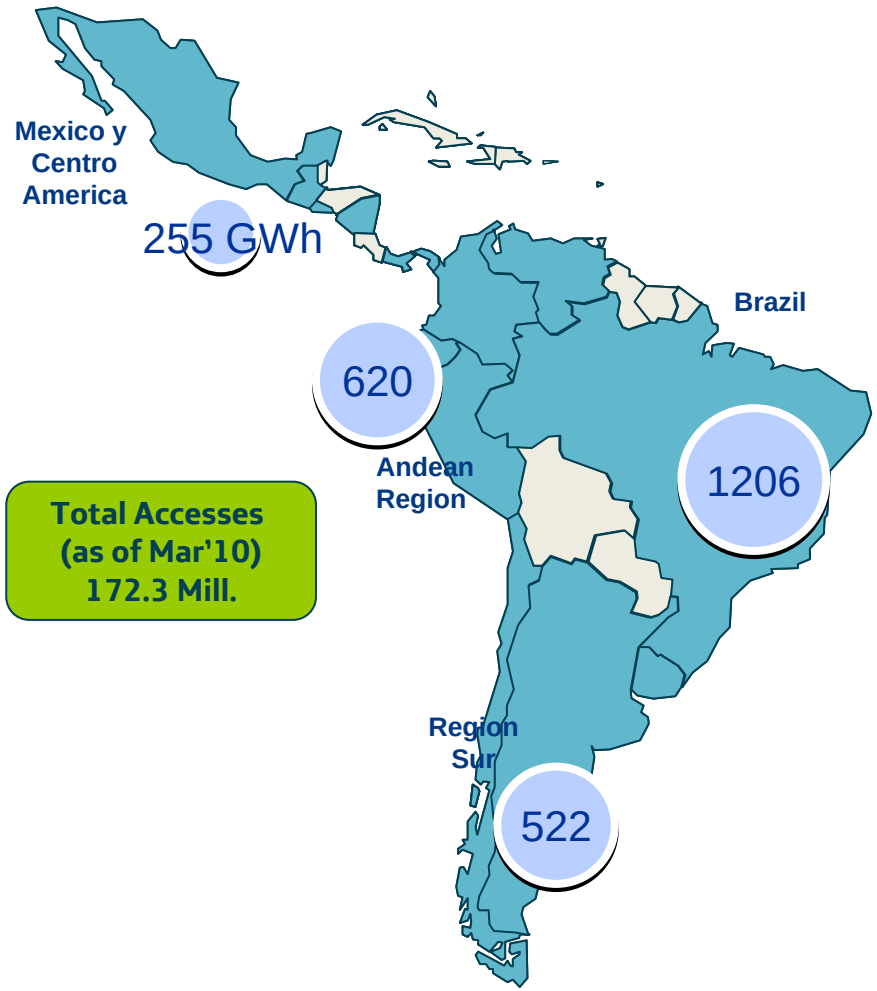
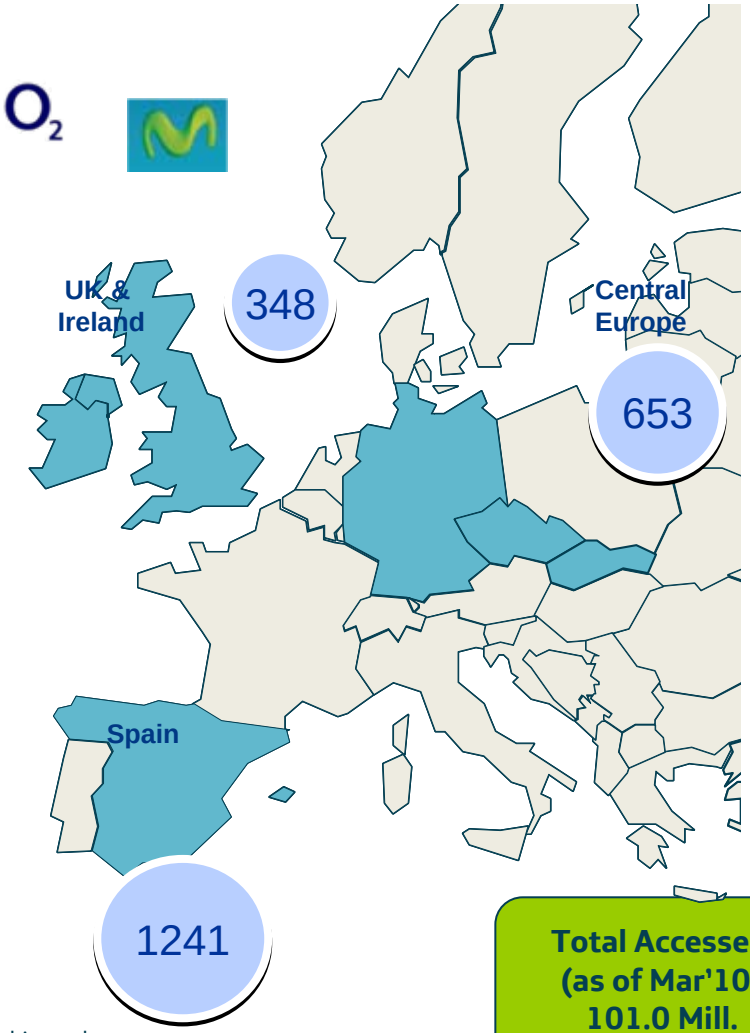
# Energy Efficiency and Climate Change Strategy of Telefónica

# Telefónica overview and energy consumption




Notes:
- Central America includes Guatemala, Panama, El Salvador and Nicaragua
- Total accesses figure includes Narrowband Internet accesses of Terra Brazil and Terra Colombia, and Broadband Internet accesses of Terra Brazil, Telefónica de Argentina, Terra Guatemala and Terra Mexico

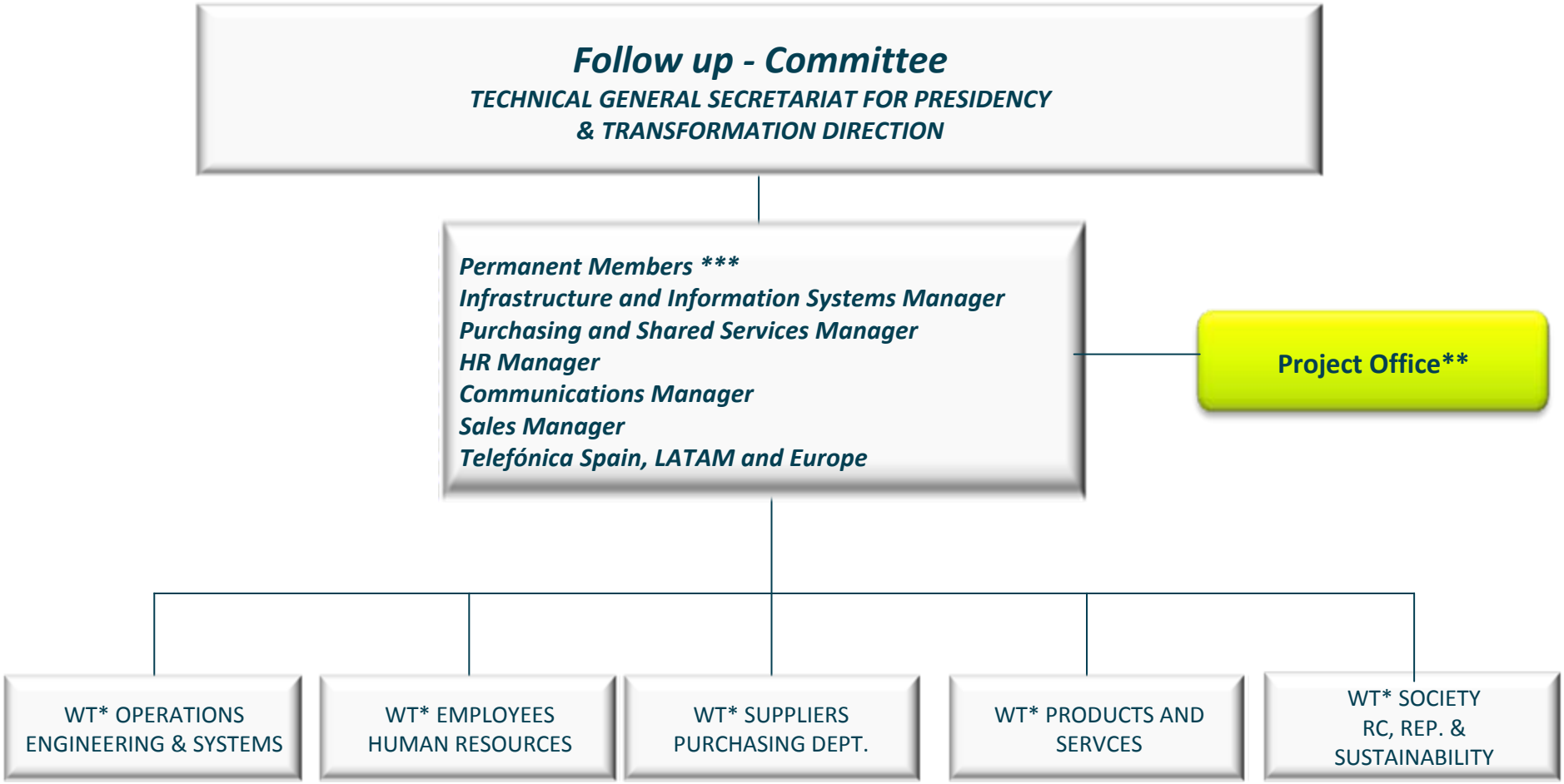
# Energy efficiency and climate change strategy

To position Telefónica as an ICT company leader in the field of climate change abatement, spreading the energy efficiency culture in the group


To find new Income opportunities by the development of new products and services for energy efficiency.

To increase energy efficiency measures to reduce energy consumptions

# Climate change strategy – Governance Model

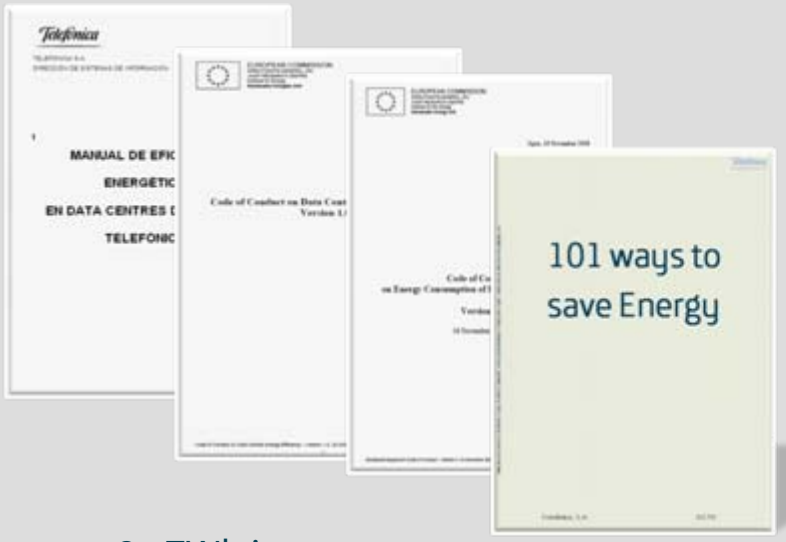


# Operations and Green IT

Operations | Procurement | Employees | Positioning | Customers

**To reduce 30 % of electricity consumption in operations per access by 2015**

## Energy Efficiency in networks and datacenters




4.85 TWh in 2010

## Renewable Energy in networks

Chile

Ireland

Around **1630 renewable energy sites** in fixed and mobile networks.

# Examples from OBs in each of the regions we are present prove it is possible…

| Telefónica | ES / BR | Central Europe | UK&IE | Andean | Southern | Mx&CA |
|---|---|---|---|---|---|---|
| Smart Metering & Management | | | ✓ | ✓ | | |
| | | | | | | |
| Power Saving Features | | ✓ | | | | |
| More Efficient Infrastructure | ✓ | | | | | ✓ |
| Selective Switch-Off | | ✓ | | ✓ | | |
| | | | | | | |
| Temperature Optimisation | | | | | ✓ | ✓ |
| Free-Cooling | | | ✓ | | ✓ | |
| | | | | | | |
| Green Self-Generation | ✓ | | | ✓ | | ✓ |
| | | | | | | |
| Flexible Procurement Model | ✓ | ✓ | ✓ | | ✓ | |

# Procurement



**To introduce energy efficiency criteria to purchases of equipment, raw materials and services.**

## Energy information recall from network, IT and climate equipment.

**Información Energética de Producto / Energy information of the product**

| | |
|---|---|
| *Línea de Producto / Type of Product Group* | LP2 |
| *Código de Producto / Product Code* | |
| *Tipo de Operación / Type of Operation* | Fija, Móvil o Edificios |
| *Breve descripción del equipo / brief description of the p* | Aire Acondicionado (Air conditioning), Equipos de Climatización (Climate equipment) |
| *País / Country* | |

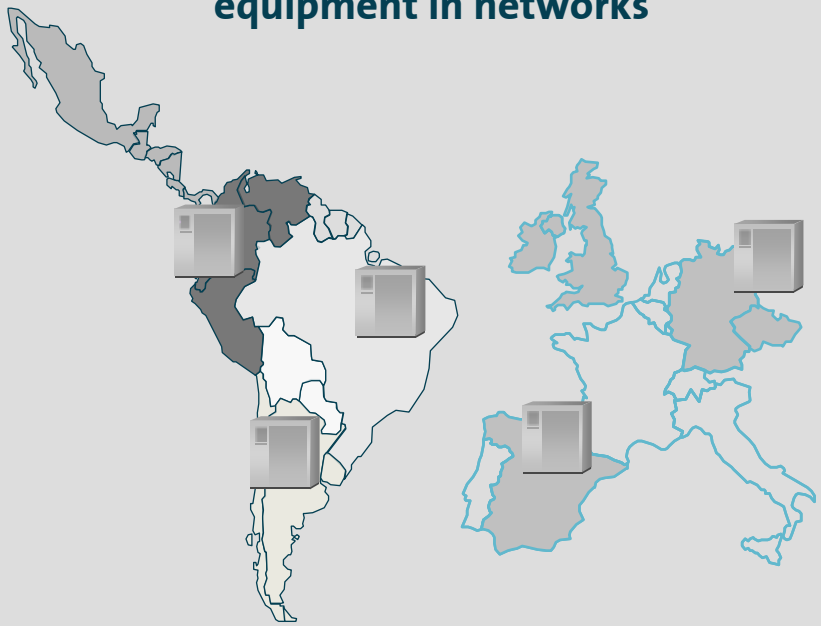
| **Consumo de Energía / Energy Consumption** | **DATO / INFORMATION** | |
|---|---|---|
| Fabricante (Manufacturer) | | |
| Modelo (Model) | | |
| Año de fabricación (Manufacturing year) | | |
| Tiempo de vida util del equipo en años (Equipment lifetime in years) | | |
| **Eficiencia Energética en Equipos de Enfriamiento/ Energy Efficiency in Cooling Systems** | **DATO / INFORMATION** | |
| Consumo Energético Tipico (Typical Energy Consumption) | | kwh/year |
| Capacidad Frigorífica / Cooling capacity | | BTU/h or W |
| EER (1) | | Btu/h |
| **Eficiencia Energética en Equipos de Calefacción / Energy Efficiency in Heating Systems** | **DATO / INFORMATION** | |
| COP (2) | | W/W |
| Capacidad de Calefacción / Heating capacity | | Btu/h or W |

**Más Eficiente / More efficient**


**Menos Eficiente / Less efficient**

| **Clasificación / Clasification** | **COP** |
|---|---|
| A | 3,60 < COP |
| B | >3,40 |
| C | >3,20 |
| D | >2,80 |
| E | >2,60 |
| F | >2,40 |
| G | 2,40 ? COP |

## Regional Purchases of efficient equipment in networks



# Employees



**To achieve an electricity reduction objective of 10% by 2015 in Telefónica Offices.**

## Energy efficiency campaigns for employees


## Teleworking in Telefónica

## Foster Virtual meetings

# Positioning

Operations | Procurement | Employees | Positioning | Customers

# Telefónica recognizes the need for methodology development

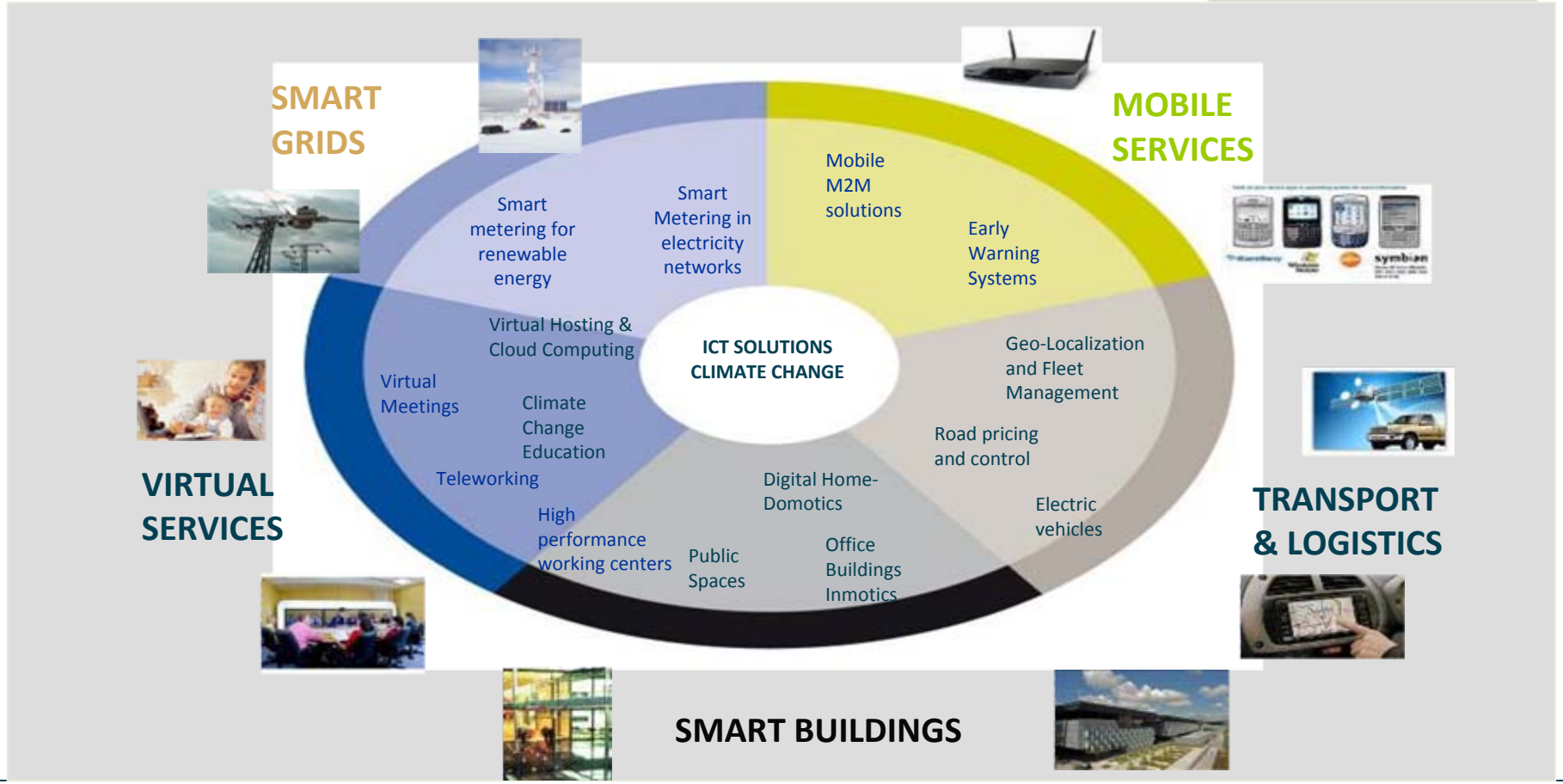



ITU – T Methodologies

- General Umbrella,
- Environmental impact of ICT goods, networks and services
- Environmental impact of ICT in organisations
- Environmental impact of ICT projects
- Environmental impact of ICT in countries

# Customers

Operations | Procurement | Employees | Positioning | Customers



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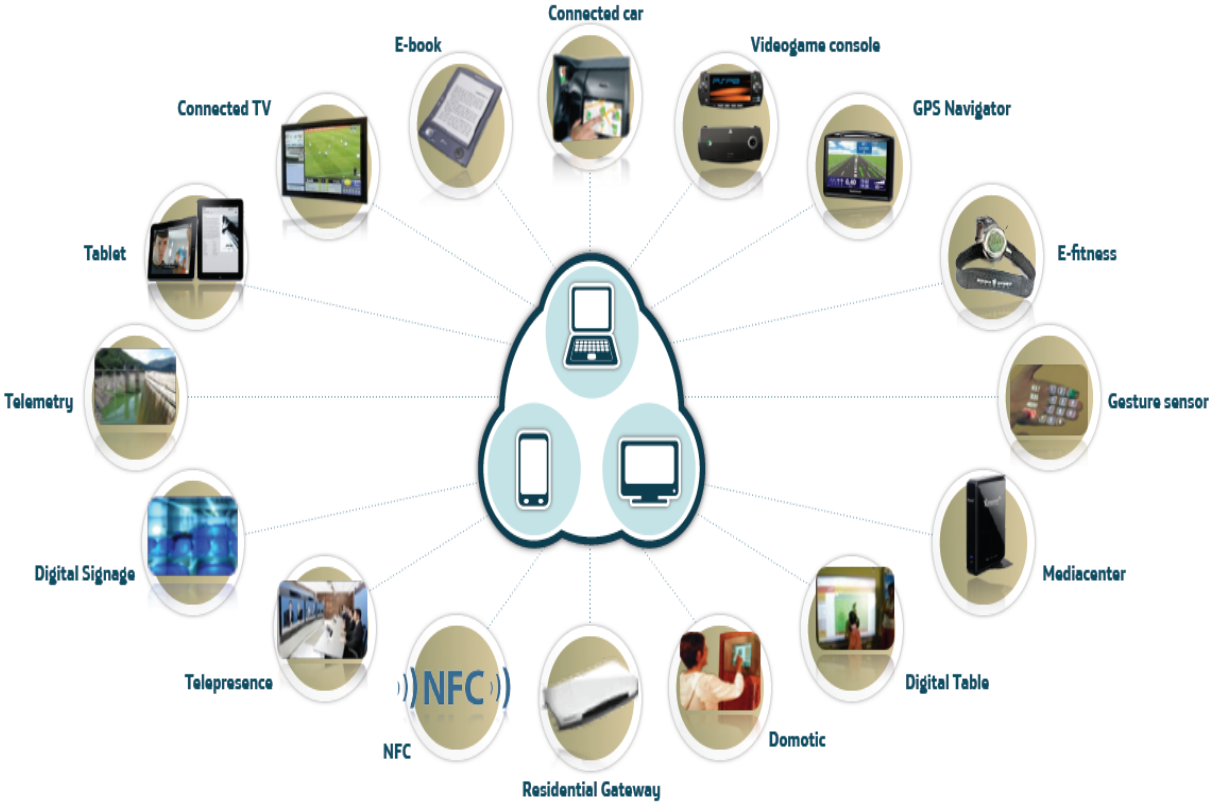
# ICT solutions for energy efficiency & climate change

# Telco services are essential today and they will be more so in the future …

## Customer demand drivers

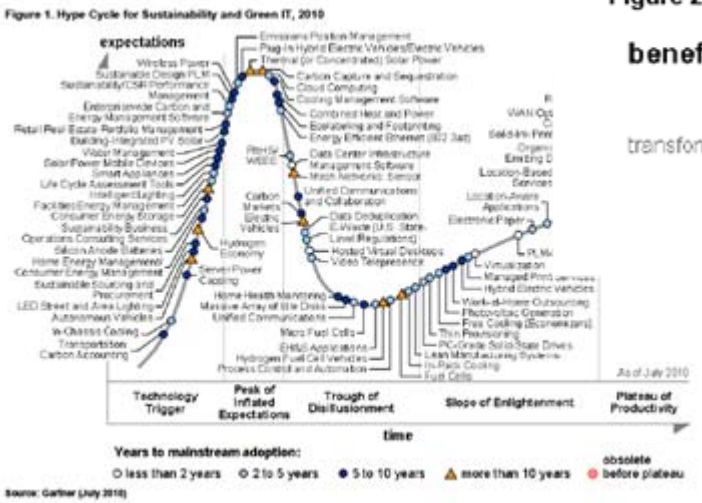
- **Everybody** and **everything connected**
- **Social networking**
- **User Generated Content**
- **Huge increase of digital content**
- Hundreds of thousands of **applications**
- **e-World**: e-Health, e-Learning, e-Finance services, e-Travel
- **M2M** : smart metering, e-Car, e-Logistics, vending
- Increasingly **powerful devices**
- **Energy efficiency**




**Evolution from devices to ecosystems**

**(Devices + Operating Systems + User Interfaces + Applications)**

# ICTs recognized as Technology Innovators for Green




Gartner

**Figure 2. Priority Matrix for Sustainability and Green IT, 2010**

| benefit | years to mainstream adoption | | | |
|---|---|---|---|---|
| | less than 2 years | 2 to 5 years | 5 to 10 years | more than 10 years |
| transformational | Virtualization | Cloud Computing<br>Data Deduplication<br>Lean Manufacturing Systems<br>Thin Provisioning<br>Unified Communications | Unified Communications and Collaboration | Autonomous Vehicles<br>Carbon Capture and Sequestration<br>Hydrogen Economy |

***VIRTUALIZACIÓN***

***CLOUD COMPUTING***

***THIN PROVISIONING***

***UNIFIED COMMS***

***COLLABORATION***

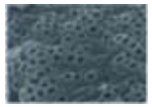
## *Emerging Technologies*

***LED STREET AND AREA LIGHTING***

***HYDROGEN ECONOMY***

***SILICON ANODE BATTERIES***

***SOLAR POWER MOBILE DEVICES***



***CLOUD COMPUTING***

There is still a lot of room for Technological Innovation around resources efficiency, Telefónica is leading this trend

# Telefónica examples

**Smart Buildings:** Inmotics Service for Energy Efficiency: Reduction of 20 to 30% of electricity consumption per year. ***Customer Example. C&A in Spain***

**Smart Transport**: Pilot projects with companies and foster the electric vehicle penetration in EU markets. ***i.e Electric Vehicles***

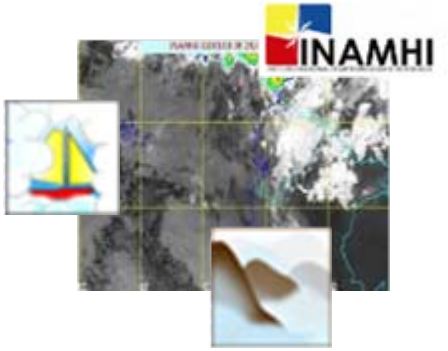
**Smart Grids & Smart Metering:** Pilot projects with EU Beytwach project. Smart customers

**Virtual Services:** Foster virtual meeting: webconference, videoconference and telepresence. Virutal hosting services

**Mobile Services:** Green devices and eco-applications. ***Example: Strategic Alliance with Manufacturers***

E-Route Movistar


# Climate change monitoring & early warning systems




**To create the capacity to generate warnings based on weather forecasting.**

**Climate conditions monitoring in real time**

**Signal reception of Telefónica Movistar Ecuador**


**EARLY WARNING**
INAMHI INFORMS:
Heavy rain is expected in the northern and south part of the coast for the next three hours.
TAKE PRECAUTION

**SMS sending to community leaders**

**SMS reception and dissemination**

CIIFEN

**Establishment of a database of users, Movistar customers in areas exposed to risk**

# 03

# Future Challenges

# ICTs for climate change mitigation and adaptation


Identification of ICTs potential to reduce emissions in other sectors

Communication of benefits and identification of existent services


Initial methodology development to asses benefits.

Apps Green

2011

Desarrollo de nuevos P&S

2012

Climate Change information

2013

Electric Vehicles

2014

Smart Grids

Smart Cities

Smart Connected Cities & users



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