

Smart Energy – Smart Buildings

Energy Efficiency beyond Technology: a Change in the Usage Paradigm

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GLOBAL FORUM, SESSION 9
SMART ENERGY: THE BOOMING
FIELD

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The European Union's (EU) goals regarding energy transition by 2020 :

- A 20% reduction of primary energy consumption
- A 20% reduction of greenhouse gas emissions
- A 20% production of the EU's energy from renewable sources

Main priority : Improve the energy efficiency of buildings

Buildings (domestic and tertiary sectors) represent about 40% of the final energy consumption in the EU

ICT (smart grids, home automation, smart meters...) can play a major role by:

- Reducing energy consumption in cities of up to 30%
- Facilitating the integration of renewable energy sources within the electrical grid

Long Existing Information Technology regarding Energy Efficiency : Why Such a Slow Deployment?

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- High price of the first models available on the market
- Inadequacy between the performance of the first models and people's expectations
- Slow evolution of lifestyles
- Low renovation rate of buildings (1% a year)

A Favorable Context: a constant increase of the energy prices (I)

The continuous rise of the energy price justifies the financial investment in smart home technologies:

Electricity price increase in the EU:

+6,3% between 2010 and 2011

+6,6% between 2011 and 2012

(Eurostat May 2013)

Gas price increase in the EU:

+12,6% between 2010 and 2011

+10,3% between 2011 and 2012

(Eurostat May 2013)

- **94% of consumers are aware of the rise of energy price** (Rexel Foundation/Opinion Way 2013)
- Home automation could **reduce heating costs for a household by up to 25%**, heating representing 62% of the total energy bill (Promotelec 2013)
- The main incentive for users/consumers to adopt **eco-friendly technologies is reduction of energy bills** (for 72% of the users) far ahead environmental protection (36%) and comfort (33%) (Rexel Foundation/Opinion Way 2013)
- 56% of consumers plan to improve their home in the next 5 years; out of those, 26 % consider adopting smart home technologies (home automation, motion sensors...) (idem)

A Favorable Context: Beyond Energy Efficiency, the Convergence with Key Societal Challenges (II)

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- The population generally shows an aspiration towards home improvement and comfort.
- Beyond energy efficiency, housing is at a crossing points between societal issues, such as, for instance:
 - Aging of the population: the +65 years old today represent 17,5% of the EU's population and 29,5% in 2060
 - Necessity to improve the conditions of disabled people on a day-to-day basis : 1/6th of the EU's population live with a disability
- Smart home technologies can address users' needs beyond the environmental challenge, e.g.:
 - **Remotely triggered entrances**
 - **Motion detector lightning**
 - **Remotely triggered electric appliances**

A Favorable Context : « *Internet of things* » (III)

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- **A growing number of mobile devices** (smartphones, computers, tablet computers...) **can be used as housing enablers:**
 - 4,7 connected objects *per* household today and 7,1 foreseen in 2017
 - 12bn connected objects worldwide today and 19bn estimated in 2017
- A great potential to leverage mobile devices at the service of energy efficiency:
 - **pilot home automation**
 - **mobile apps for energy consumption metering**

A Favorable Context: An Enabling Legislative and Regulatory Framework (IV)

Manufacturers of ICT devices :

- Adoption at EU level of eco-design requirements for energy-related products such as ICT devices (ex: computers, televisions, electrical and electronic household and office equipment).
- Adoption at EU level of eco-labelling requirements in order to raise users' awareness of the environmental footprint of ICT devices.

Builders/Construction sector:

- Legislation at EU and Member States' levels imposing energy efficiency criteria for buildings. Smart home technologies can help builders to meet the new requirements.

Member States:

- EU Directives set a framework for the deployment of smart meters. Member States will have to supervise the implementation (ex: France and the "*Linky*" smart meter).

Key factors contributing to the take-up of ICT for energy efficiency:

- Performing energy efficient technologies already on the market
- Legislative/regulatory framework incentivizing their adoption
- End users more aware of energy related issues

How can public policies persuade the end users to take the leap?

- Awareness raising
- Public and/or financial incentives for users + operational support
- Preventing a rebound effect