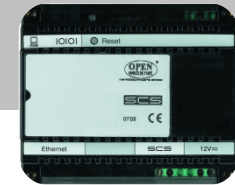




# HOME LIFE & SMART GRID

# Smart Grid Ready



## Visualization of Energy Consumption

Centralize the data and make them available through IP to end user interfaces or web

## Management of HVAC

Choice of the most useful heating systems according to user's needs - comfort, energy saving, money saving – (e.g. PAC, electric or Gas)

## Management of Lighting Control

e.g. Management of the light level according to daylight sensors

## Load Management

Control of the overcoming of the contract's threshold or switch on/off the loads , managing them according to other information (meteo provision or information coming from service providers). Possibility to configure the central with a configuration SW

## Diagnostic

Integration with Stop&Go via specific interface, collecting data coming from third party new renewable system (Inverter or Thermal central unit), collecting data coming from "advanced actuator", Added functionalities for Smart Grid

## Management of rolling shutters

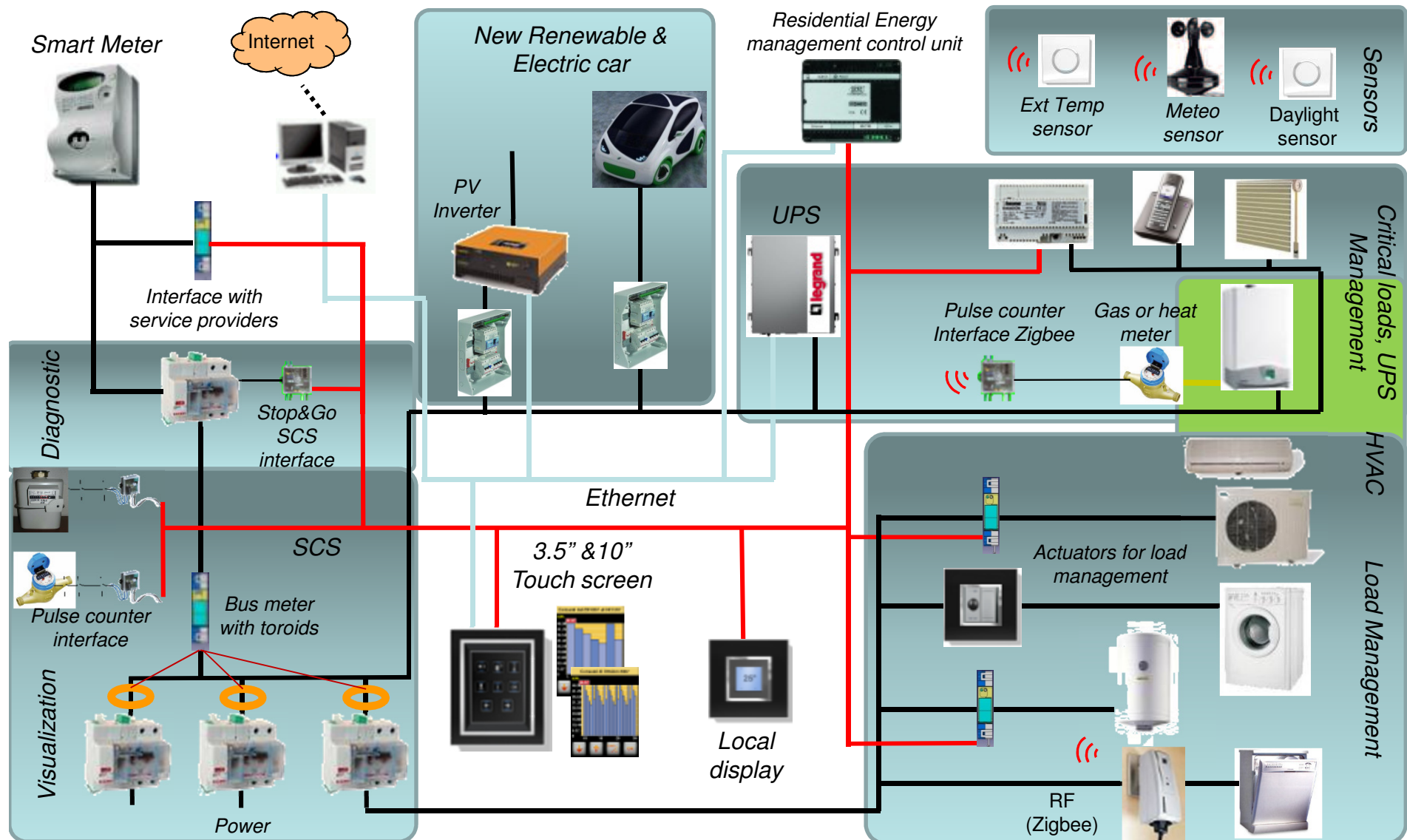
according to scheduled scenarios, information coming from light irradiation sensors, from temperature sensors (internal and external)

## Management of other systems

e.g. Integration with irrigation system  
Management of pump, temperature and filters for swimming pool

# Smart Grid: the Home System side

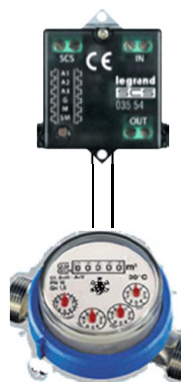
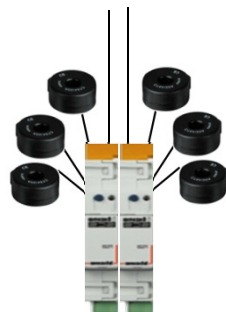
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modem router

ETHERNET

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dynamic  
address resolution  
service/portal



## HOME lab in brief



legrand®

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## Italian Consortium of Research on Domotics

- Operates in the field of open innovation with the aim of defining standards of interoperability for domestic automation



ARISTON  
THERMO GROUP

bticino

LOCCIONI

teuco

MR&D S.p.A.  
Innovation partner

elica  
aria nuova

Indesit  
company

SPES  
YOUR TECHNOLOGY PARTNER  
Società di Ricerca e Sviluppo in Informatica e Software

ST  
STMicroelectronics





# Interoperability project – Vision and objectives

Smart objects, smart home,  
smart building, smart  
cities, smart countries...



## Energy management

Awareness  
Peak management  
Sources management  
Smart grid



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**INTEROPERABILITY  
IS A KEYWORD FOR  
THE CURRENT  
MAIN WORLDWIDE  
TRENDS**

**AAL,  
Digital  
Divide,  
active aging**



## Internet of Things: a connected world

In 2015 more than 25 billions of “things”  
will be connected. Almost all market segment  
is adopting IP technology.



HOMElab facilitates debate between different stakeholders

The interoperability project establishes the bases for the change

# Field Protocols vs Languages

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Ethernet

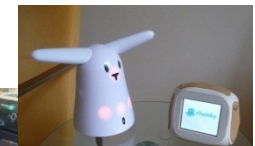


MY HOME  
GSM



HDMI™  
HIGH DEFINITION MULTIMEDIA INTERFACE

ECHELON®  
Bringing the Internet to IHS



WiFi

KNX®



HI-SPEED  
CERTIFIED  
USB™

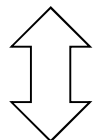


# Quick introduction to interoperability

Smart Devices (like people) can “interoperate” if

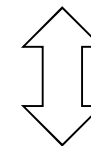
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- They can get in touch with each other □ they have to share a “technological solution” to get in contact
- They can exchange information with each other □ they have to share the same language



Protocol: GSM / 4G

- Digital
- Wireless
- Mobile
- Smart contents



Protocol: Meucci/Bell

- Plain Old Analog
- Wired (2 wires)
- Fixed
- Voice only

*language operates here*

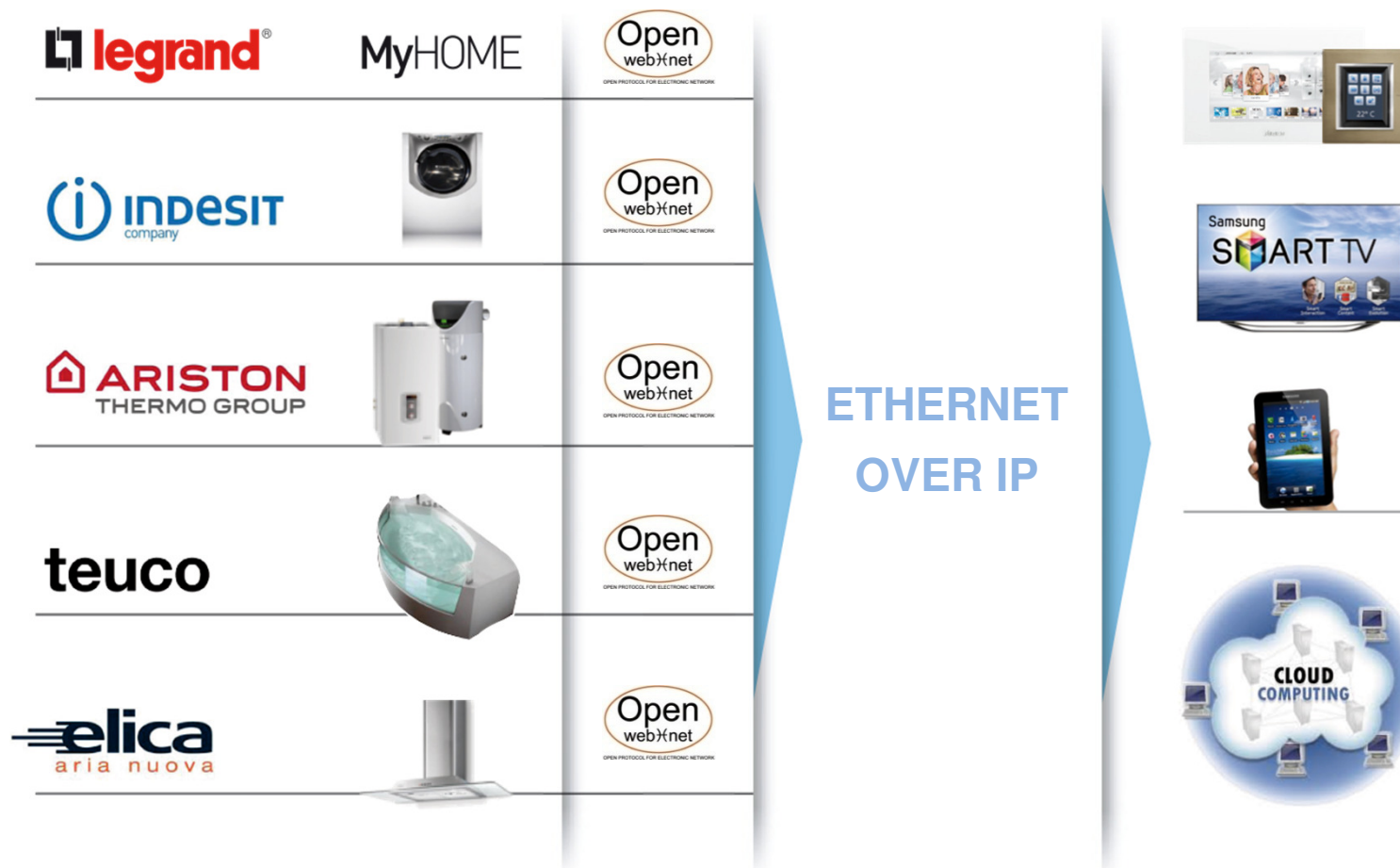
*The support (technological solution) is the Internet Protocol !*



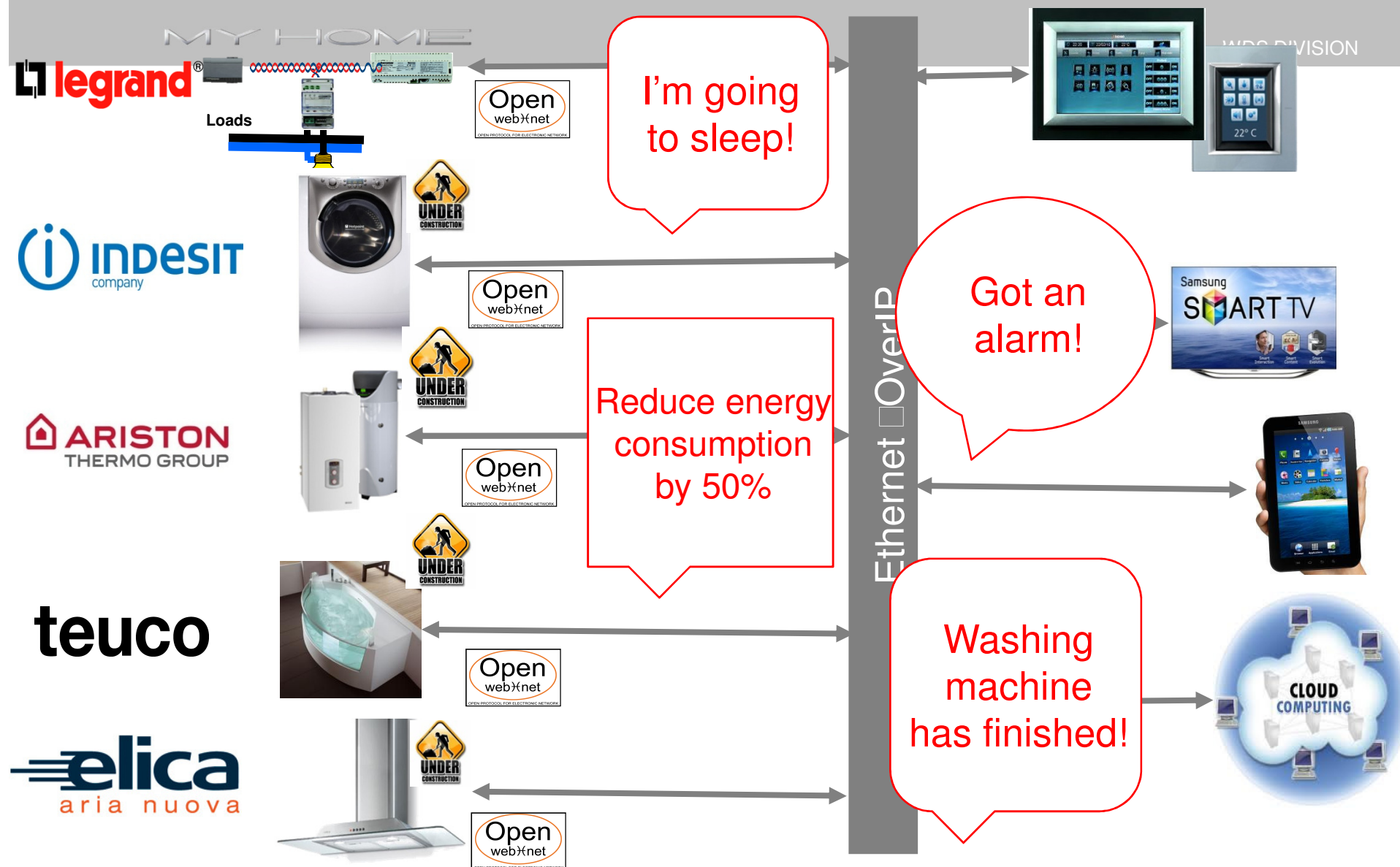
# Interoperability project – Technical Architecture

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Different devices ... the same languages ☐ OpenWebNet






# Interoperability: the importance of SCENARIOS



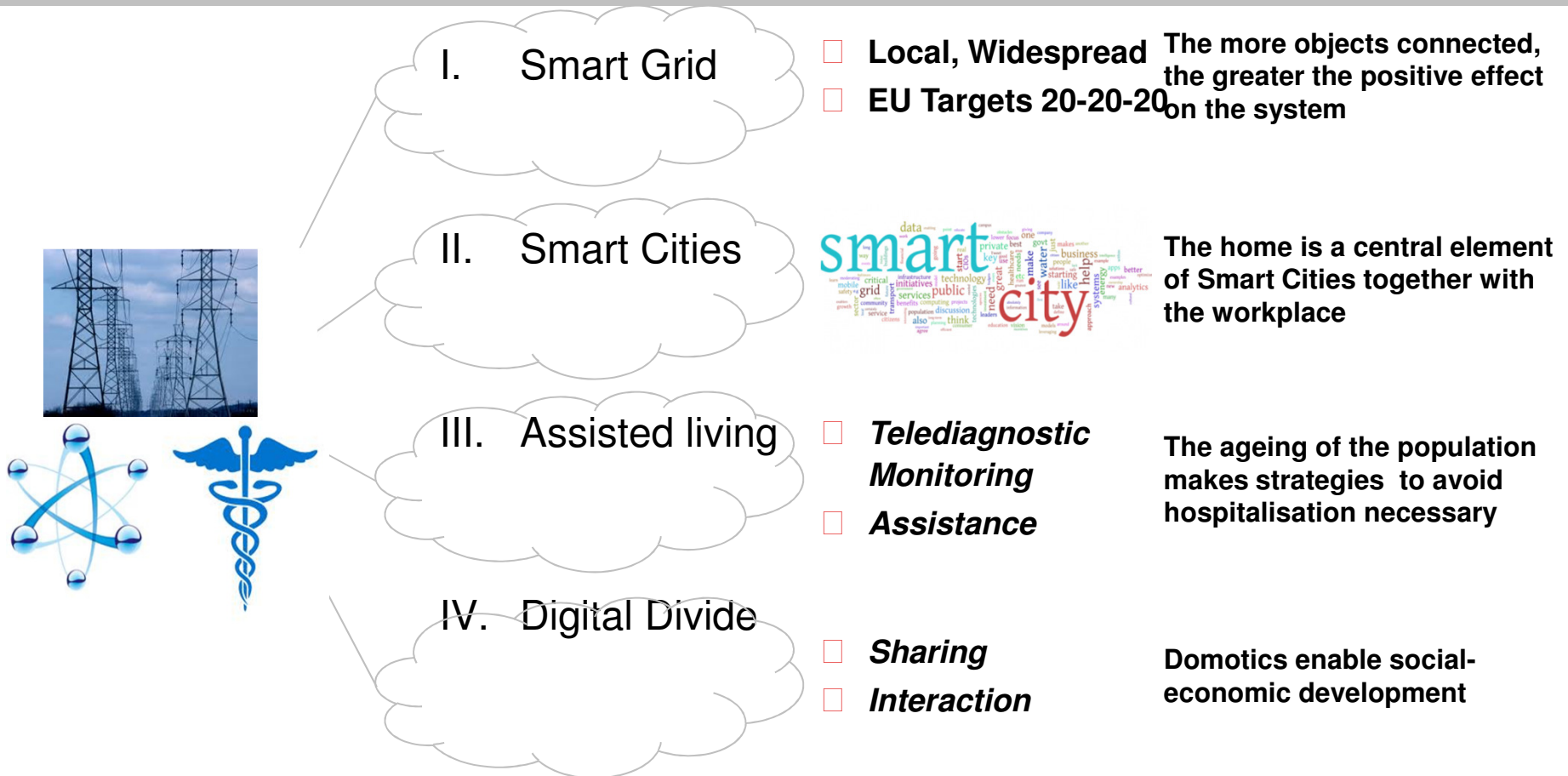
## Key factors

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- |                |   |   |
|----------------|---|---|
| I. Open Source |    | <input type="checkbox"/> Open and free language<br><input type="checkbox"/> Contribution of the Community<br><input type="checkbox"/> Open Apps   |
| II. Democratic |    | <input type="checkbox"/> Autocertification of compatibility<br><input type="checkbox"/> Possibility for all to add missing User Cases<br><input type="checkbox"/> Maximum freedom in product functionality                |
| III. Scalable  |    | <input type="checkbox"/> Minimum requisites to be compliant are very low<br><input type="checkbox"/> From simple solutions to complex algorithms<br><input type="checkbox"/> No limit to the number of integrable objects |
| IV. Flexible   |   | <input type="checkbox"/> Vertical & horizontal solutions<br><input type="checkbox"/> Diversity in the solutions<br><input type="checkbox"/> <i>User case</i> and shared or reserved solutions                             |
| V. Economical  |  | <input type="checkbox"/> Marginal investments to adapt products<br><input type="checkbox"/> Light software<br><input type="checkbox"/> HW: current power on electronic board already suitable                             |

# Value Proposition

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# SMART GRID: NEXT STEPS

## *RICERCA DI COORDINAMENTO IN INTERVENTI DI SVILUPPO*

necessità di confronto tra gli organi di certificazione e le distribution company  
□ standard aperto di comunicazione

## *RICERCHE DI TECNOLOGIE SICURE*

necessità di standard affidabili

## *RICERCA DI MODELLI ECONOMICI ed INCENTIVI FISCALI*

necessità di supporti economici che permettano di raggiungere una sostenibilità effettiva

## *SVILUPPO DI PROGETTI PILOTA*

realizzazione di piccole smart city per testare la fattibilità su piccola scala la tecnologia delle smart grid per poi renderla globale.

## SVILUPPO FUTURO

## *RICERCA TECNOLOGICA*

maturazione della tecnologia e la loro adozione su larga scala per superare la soglia critica di adozione delle S.G. arrivando ad una adozione massiva da parte degli utenti finali che hanno una naturale inerzia al cambiamento tecnologico

## *CHIAREZZA NORMATIVA*

elaborazione di normative adeguate e certe in campo energetico

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