

ICT for energy efficiency Industry players for national energy efficiency Living Labs

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VP Niitamo, Research director Nokia/CKIR/dimes/open lite

A key technology to achieve the 20-20-20 targets

The European Union set itself ambitious targets by the year 2020: to reduce the output of greenhouse gases by 20%, to improve energy efficiency by 20% and to increase the percentage of renewable energy by 20%. To achieve these targets the development of fully operational Smart Metering systems across Europe is essential. Smart Metering technologies deliver significant benefits to consumers as well as a more sustainable energy management and an increased security of energy supply.

Emission reductions

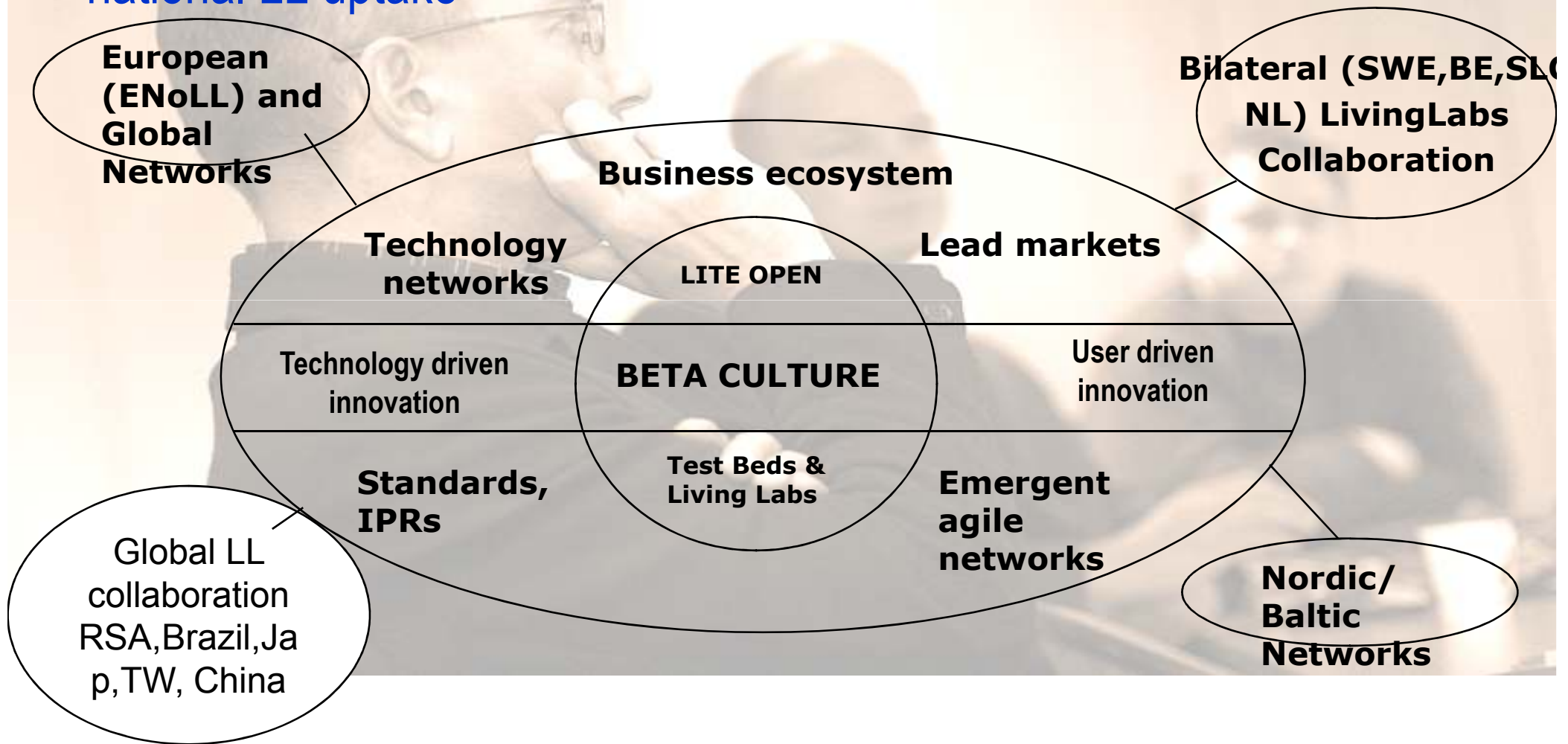
Energy Saving

Alternative and distributed
Energy production

Demand response (Peak Shaving)

Smart Home

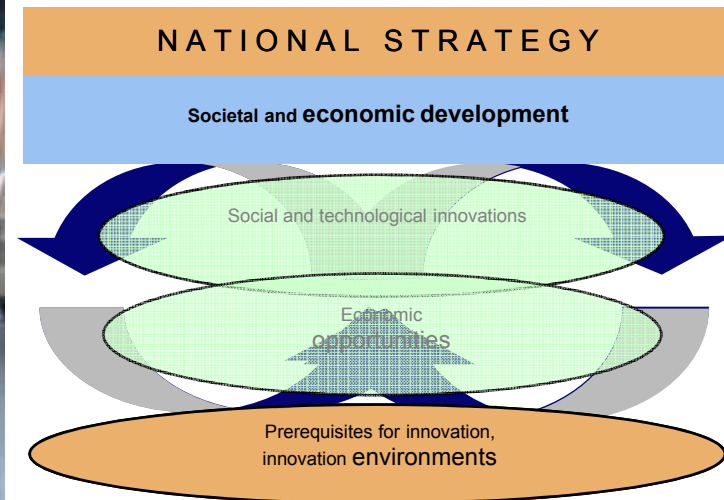
SHO(C)Ks – For Open Innovation in Finland , DIMES driving national LL uptake



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Potential Lead Markets in 7 regions of Netherlands

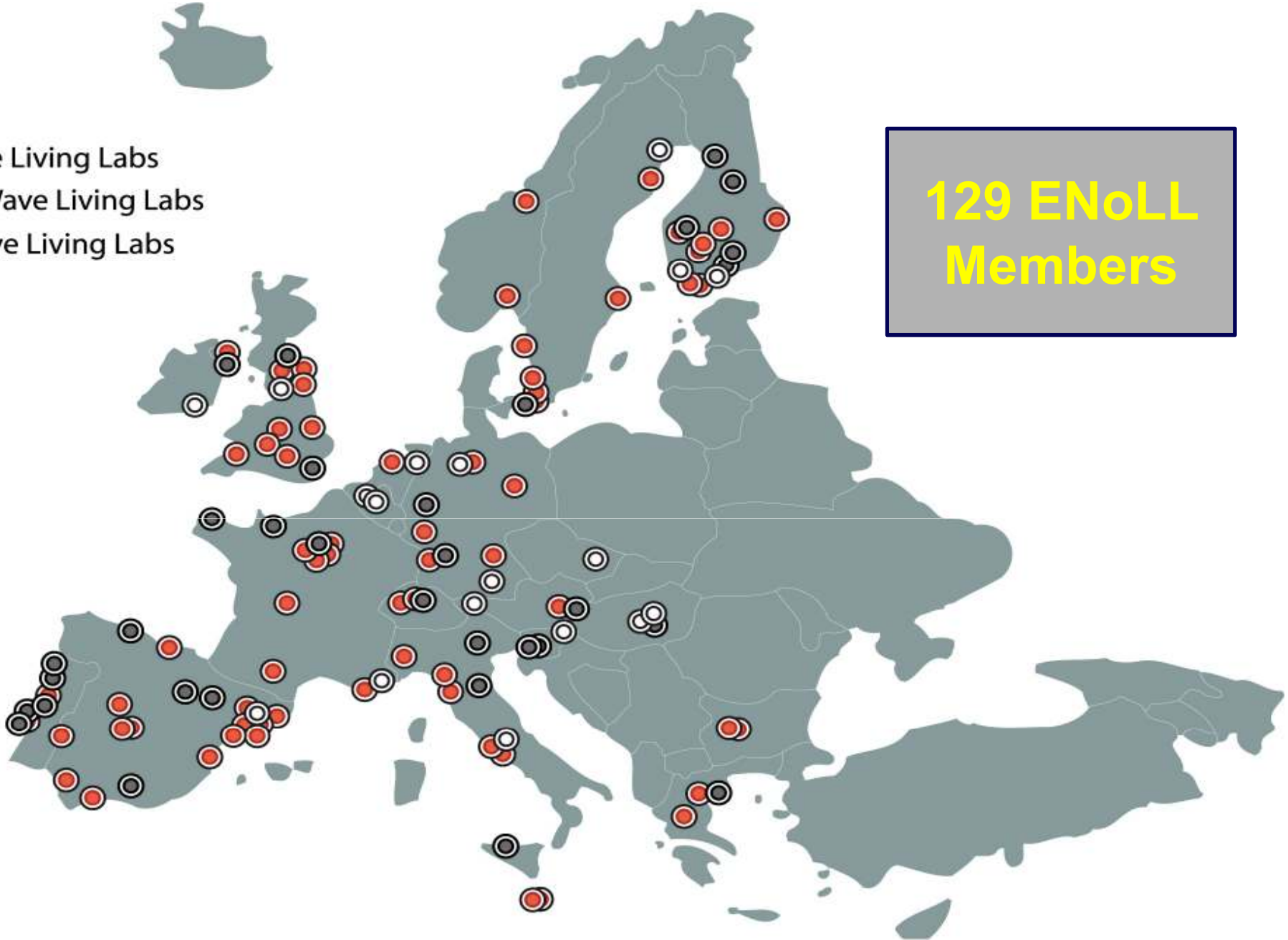
- Emerging markets for testbed and living labs
 - Health and well being (Health valley LL)
 - Energy and durability (Climate Street)
 - Mobility and workplace (Virtual workplace)
 - Amsterdam, Leiden, Almere, Groningen, Twente, Delft, Rotterdam,



NOKIA

- First Wave Living Labs
- Second Wave Living Labs
- Third Wave Living Labs

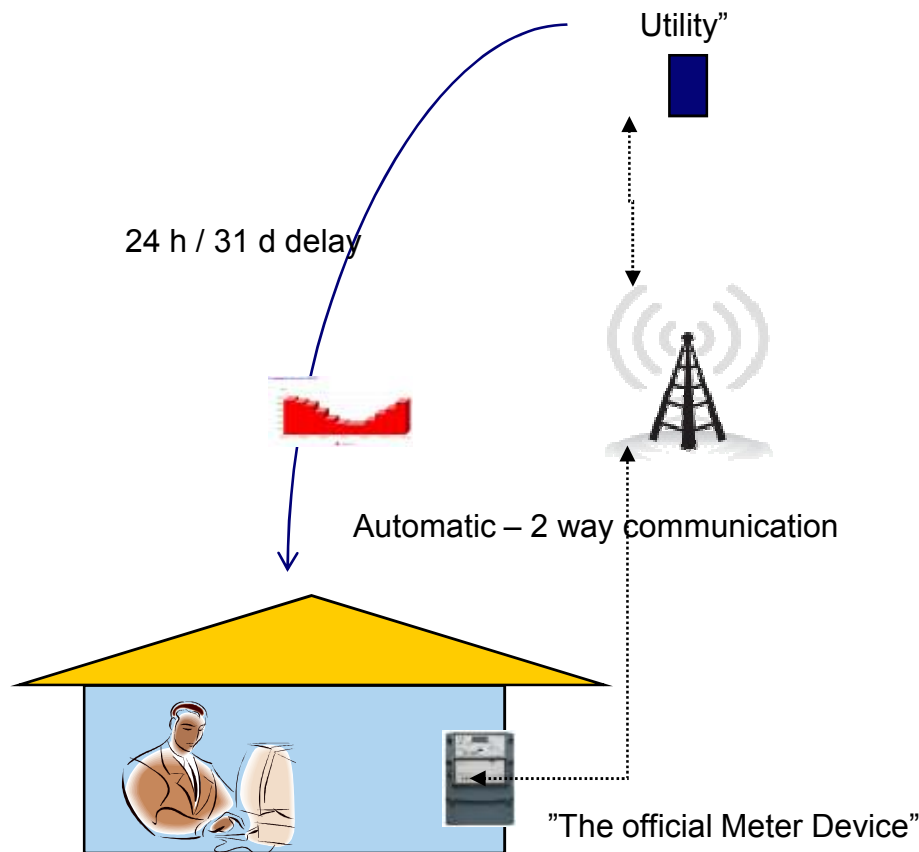
129 ENoLL
Members



Continuously Changing Energy Market

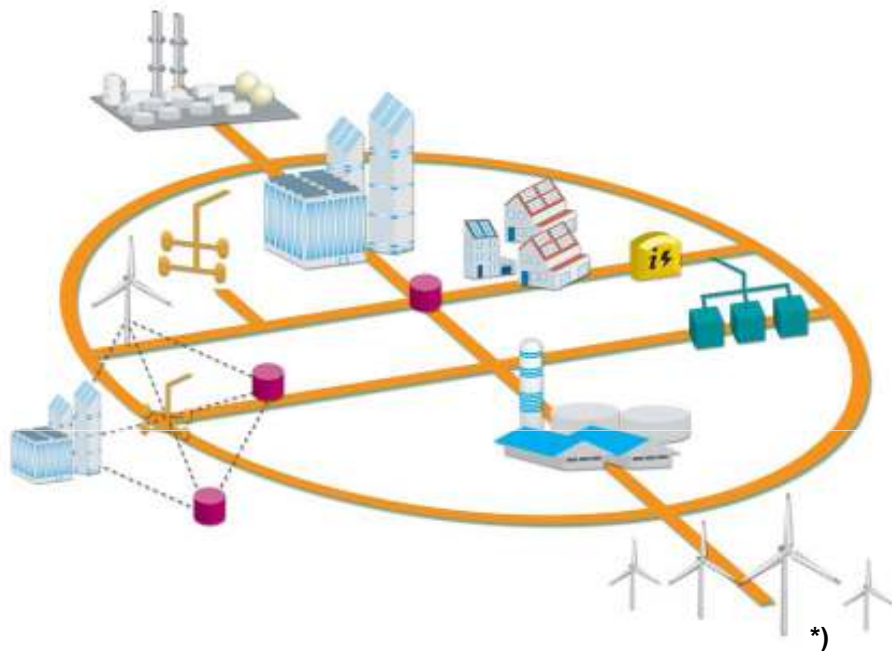
- The deregulation of energy market has proceeded in Europe gradually since 1991 - almost 20 years!
- Limited cross-border trading possible in whole sale market (market coupling mechanism partly in use / under development in Europe)
- In principle, the end customer has a free choice of supplier – but only inside own country – not even in Scandinavia cross- border end-user trade is possible
- Consolidation and restructuring of the market instead of increasing end user competition in many countries
- Smart Grid and Smart Metering – An emerging new business ?

Smart Metering



- The first generation of Smart Metering is already in operation in several countries
- The first implementations are utility driven
- Investments are big:
 - In Finland 3,1 Million metering points * 250 €/each = 750 M€ + operation costs
 - In Germany 10 times bigger
- End customers are not getting that much benefit – delays in getting data
- The last of the last miles – user and user behavior has had small attention
- The second generation of Smart Metering will be needed

Smart Grid



- Smart Grid will be the future concept of utilizing energy grid efficiently
- The grid should be an open, neutral platform for efficient power production, transmission and use
- Distributed production should be possible for every connection point
- Energy storages should be able to be utilized
- Integrated home automation could minimize energy use and costs: Automated demand responses etc
- A lot of opportunities to shift peak demand
- Crucial platform in improving energy efficiency and small scale renewable generation: Solar etc

*) Ref: EUR 22040 — European Technology Platform SmartGrids — Vision and Strategy for Europe's Electricity Networks of the Future

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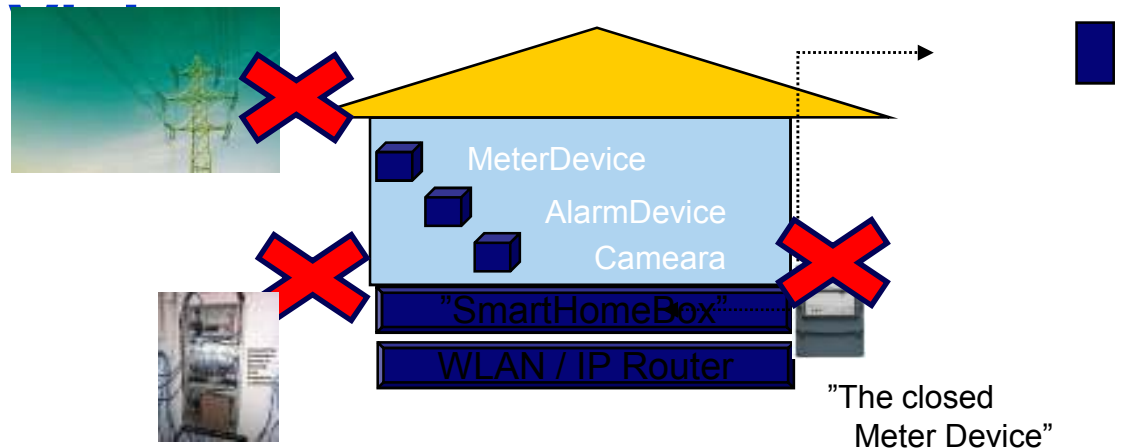
Smart grids and meters for the diverse business...

- Opportunities
 - Micro generation at private house level
 - Electric vehicles and charging sites (see www.betterplace.com)
 - Second generation Smart Meters / control units with real time energy monitoring and energy efficiency action
 - End customers, facility management companies, building owners
 - Smart Home Automation Systems
 - Etc..
- Many new players coming to this market
 - Google, There Corporation (Nokia Spin-off), Microsoft....

Smart grids and meters for the diverse business ...by Process

Challenges

- A lot of barriers to reach the benefits of SMART GRID and SMART METERING:



- Home automation is based on closed solutions
- The official utility meter are still closed – meter values not available directly for end users
- Feed in tariffs are not widely available for micro generation – no access to utilize smart grid
- Metering, grid, building infrastructures are old – long lasting process to replacing / renew
- Political issues still dominant – who can invest to new production and to access grid etc...

Company background

There Corporation

combines knowledge of communication technology with deep understanding of energy infrastructure

Nokia Smart Home

The most up to date technological knowlegde in mobility, communication technologies, internet services and user interface development

Comsel

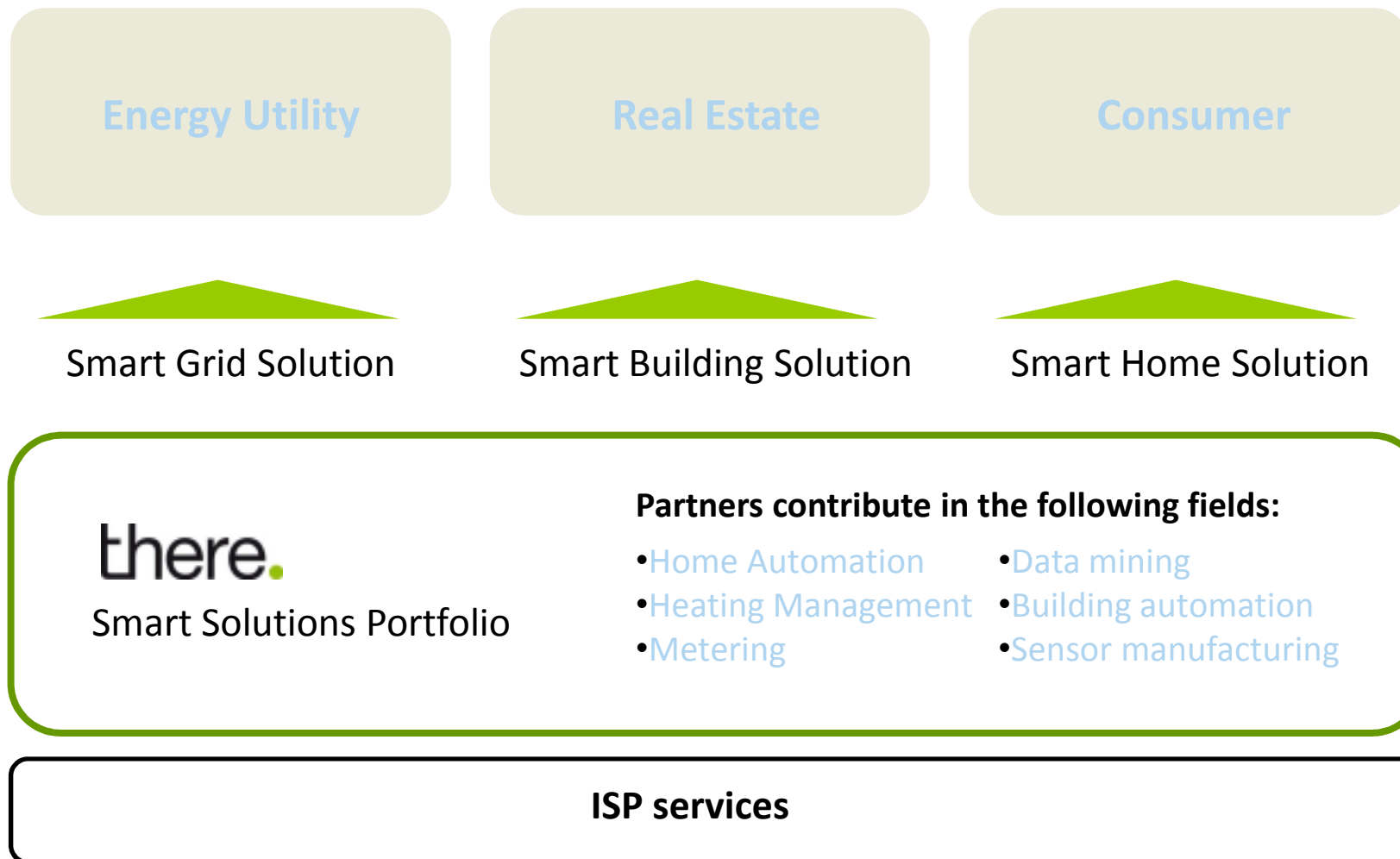
Extensive & proven track record in utilizing smart grid and energy metering technologies

Our Vision

We provide platform to combine Smart Metering, Smart Home and Smart Grid solutions. This allows our partners to offer sustainable future proof solutions and services to their clients

Our main customers are leading utilities and service providers

Smart Solutions Portfolio



Platform for extendable services

1.) Smart Metering Services

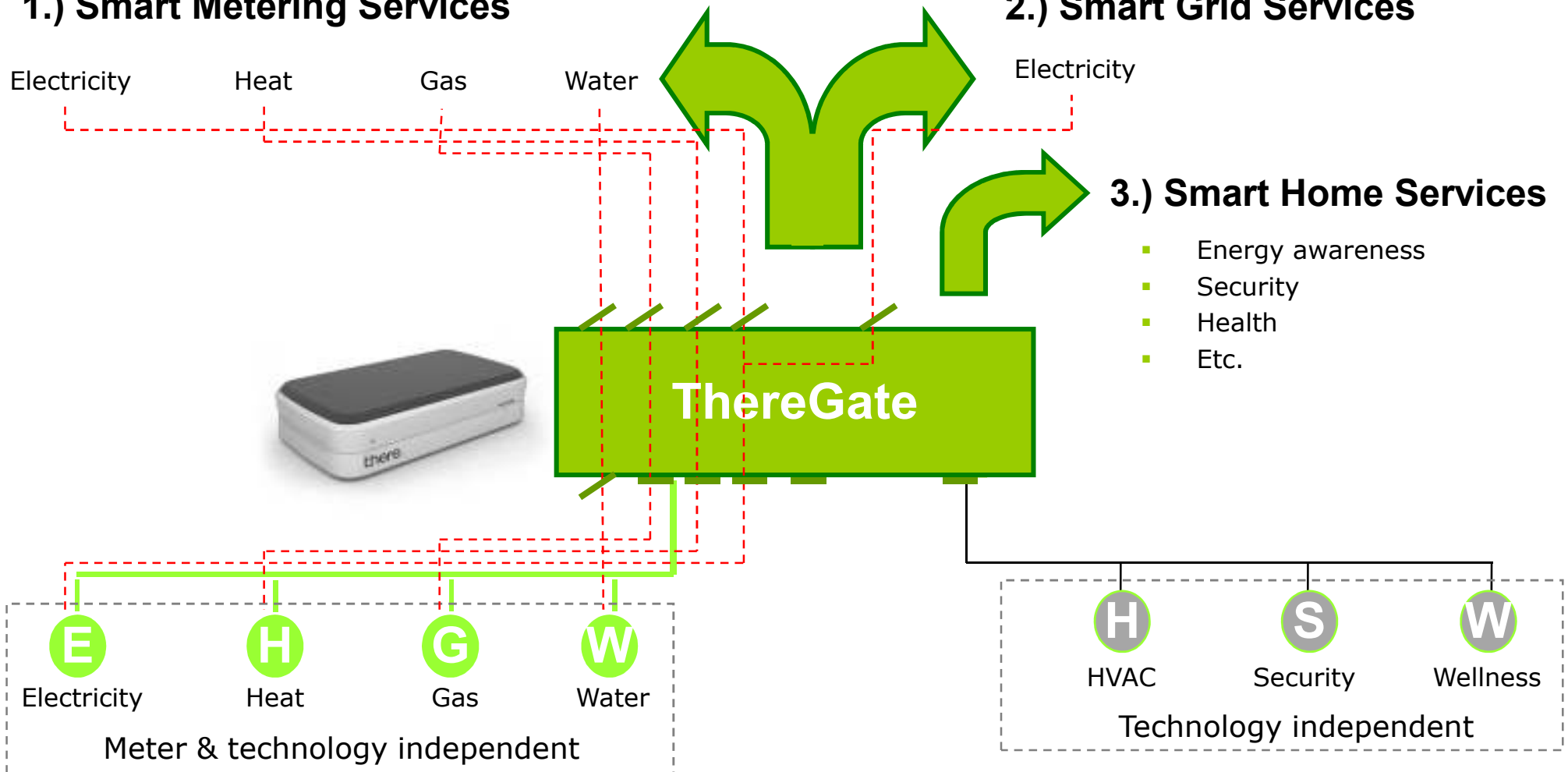
Electricity Heat Gas Water

2.) Smart Grid Services

Electricity

3.) Smart Home Services

- Energy awareness
- Security
- Health
- Etc.



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Objectives, DIEM-BA by STOK (Suomen Talotekniikan Osaamiskeskus, Porvoo)

- Developing platform for unified access and control of building systems
- Scalable: software architecture scalability and price
- Open: use available standards, open-source solutions and open-source procedures whenever possible (essential building blocks for ecosystem)

First demonstration environments

- **Home Control Center as integration platform**
- **Enervent control (heat-recovering ventilation)**
- **Ensto ECO600**
- **Elsi sensor floor**





The Nokia Eco Sensor Concept includes a range of built-in sensors to help you monitor your health, environment and weather.

Challenges for Europe

1. Is there an European dimension in UDOI in managed environments such as LivingLabs
2. Do we have national, regional and European level instruments to drive early market RDI
3. Can we drive smart regulation for global leadership in new emergent global businesses
4. Can we attract global investments and other innovation resources to European regions
5. Do we have a rapid single European market for ramp up
6. How to collaborate with emerging markets such as Brazil; by individual countries or European front.
7. How is innovation value captured by citizen; role of DG Education,,,E-Skills Initiative,Digi competencies,EIT



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Conclusions

- The last mile will be technically solved soon
- Smart Metering will create a platform for Energy Saving
- Smart Grid will create a platform for Energy Efficiency

BUT

- European Energy market is slowly moving – business opportunities and energy efficiency improvements will take a lot of time if nothing radical will happen.