

Welcome to FINESCE Open Day

Stenderup, Horsens, December 2, 2014

Speakers:

Karsten Lumbye Jensen

Thomas Seidelin Hune

Munna Hoffmann-Jørgensen

INSERO – A LOCAL GROWTH GENERATOR

By Karsten Lumbye Jensen, Head of Innovation



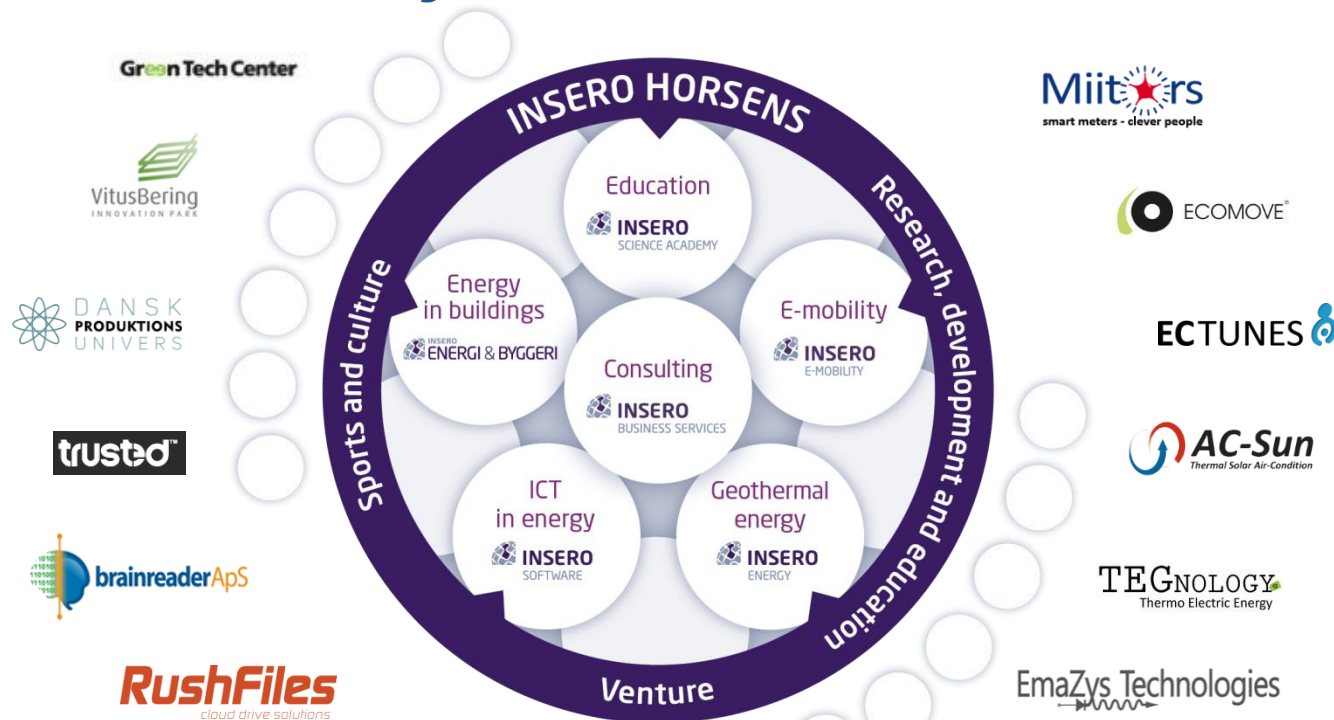
INERO



The Insero way

FUTURE
INTERNET
SMART
UTILITY
SERVICES

FINESCE



Agenda

- 09.15 Introduction to our trial site
 - Results and experiences
 - Demonstration
- 10.00 Introduction to FINESCE
 - Results and experiences
- 10.20 Visit to the families participating in the project
- 11.30 End of programme in Stenderup
 - By Councillor Lene Tingleff, Hedensted Municipality
- 12.00 Transportation to Vitus Bering Innovation Park



HORSENS TRIAL SITE – INSERO LIVE LAB

By

Thomas Hune, Insero Software &

Munna Hoffmann-Jørgensen, Insero Business Services

Agenda

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- **Insero Live Lab**
- **Insero Aggregator Solution**
 - GE integration
 - Data overview
- **Results – Shifting Energy Consumption**
 - Peak Load Manager product
- **Preliminary findings from the user involvement**
 - **Methods and Research**
 - **Preliminary Findings**



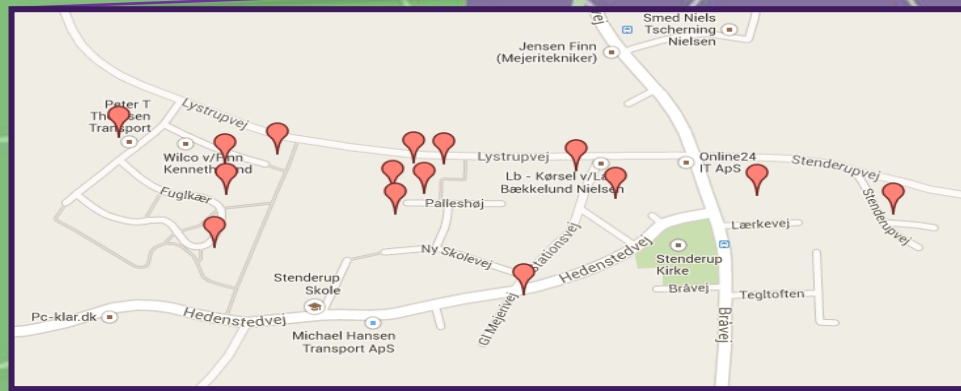
In the first Insero Live Lab project,
20 families in and around the village
of Stenderup south of Horsens are participating





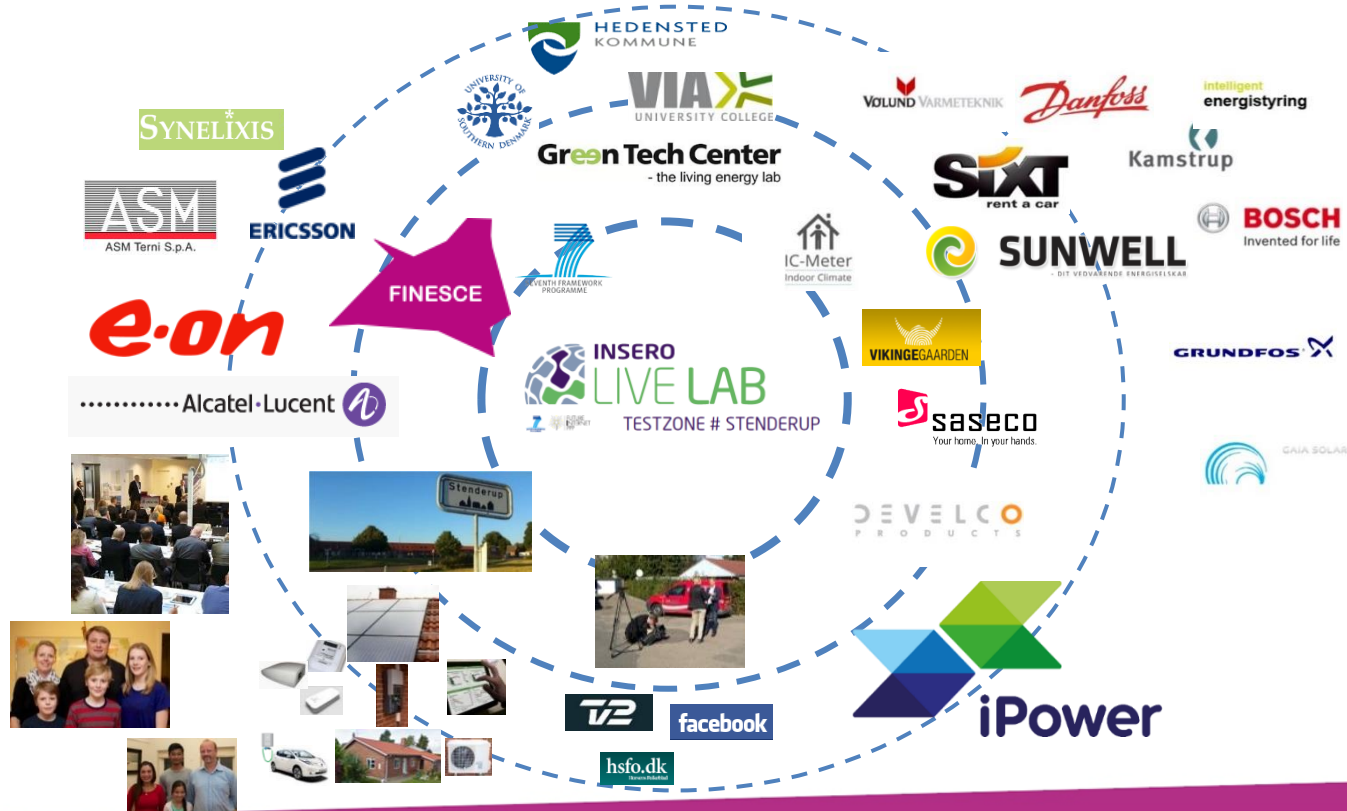
The goal:

To test the mutual interaction of the technologies as well as the users' experiences with the technologies. Furthermore, the coherence of the technologies with the entire energy system tested in an area outside the collective district heating.



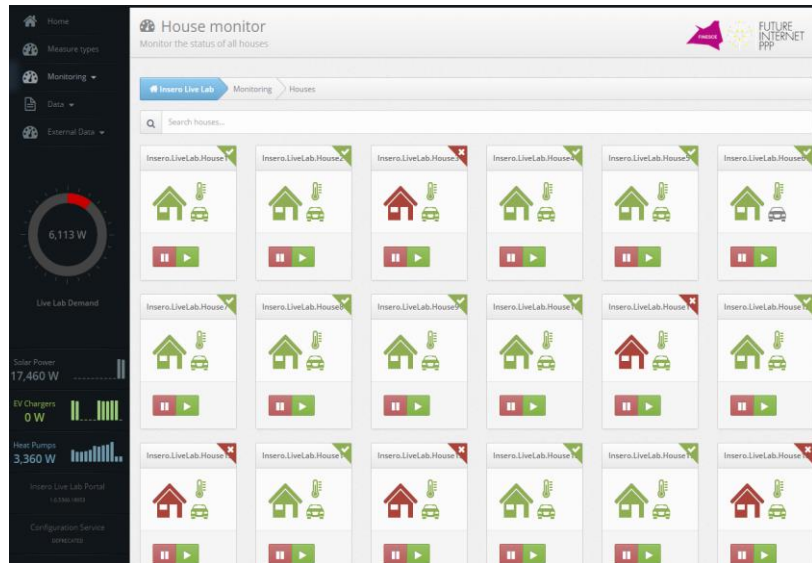
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Standard devices...

- Online data from all devices
- Insero Aggregator Software as platform
- Insero Aggregator Software enables for control of heat pumps and EV-charging



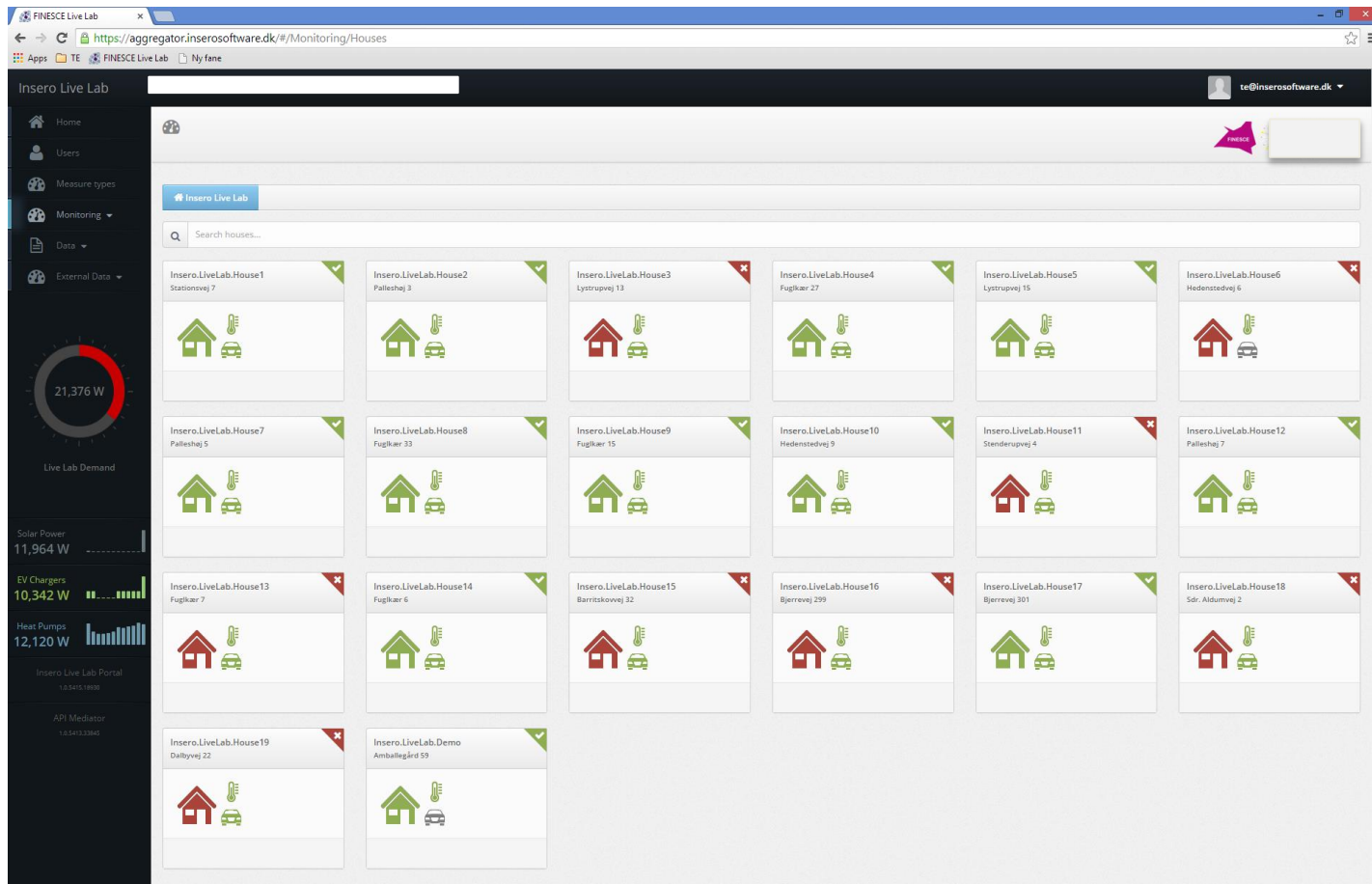
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Insero Aggregator Software

- Live data
- Historic data
- Monitoring of devices
- Optimizing and control

... new possibilities



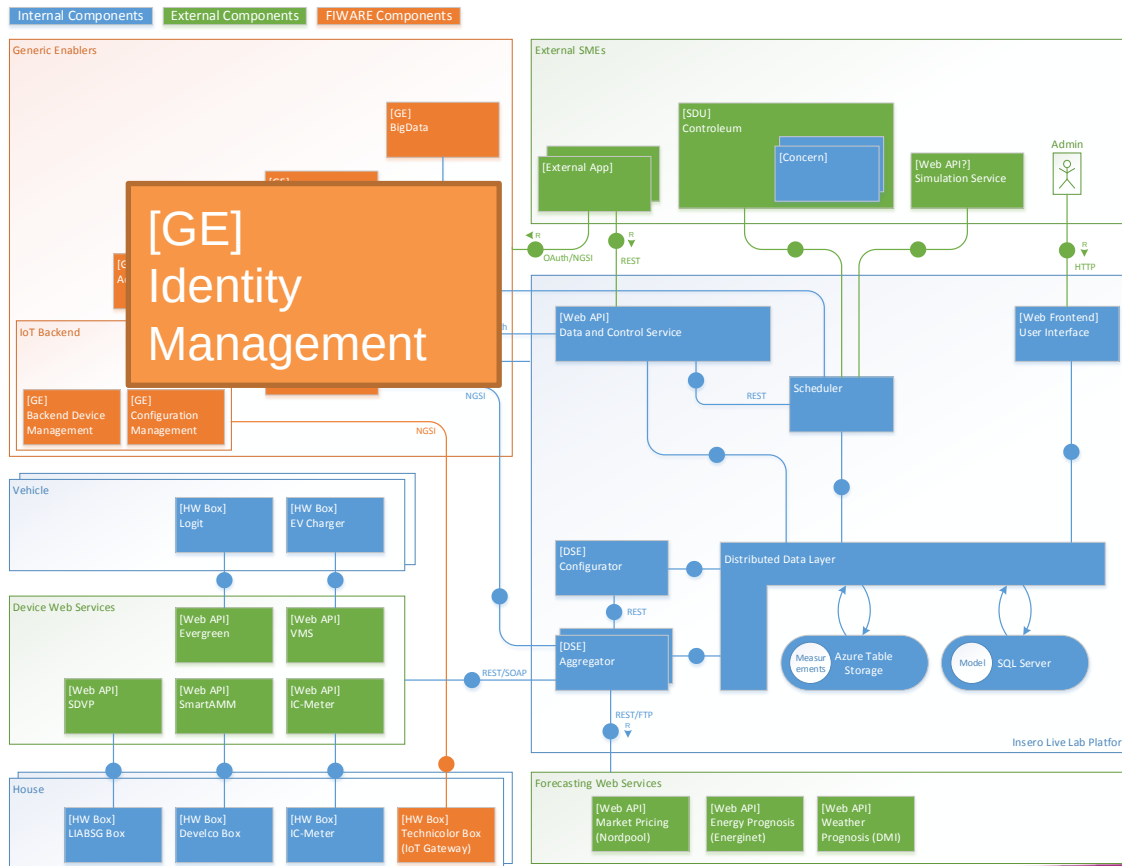
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GE Integration - Software Architecture

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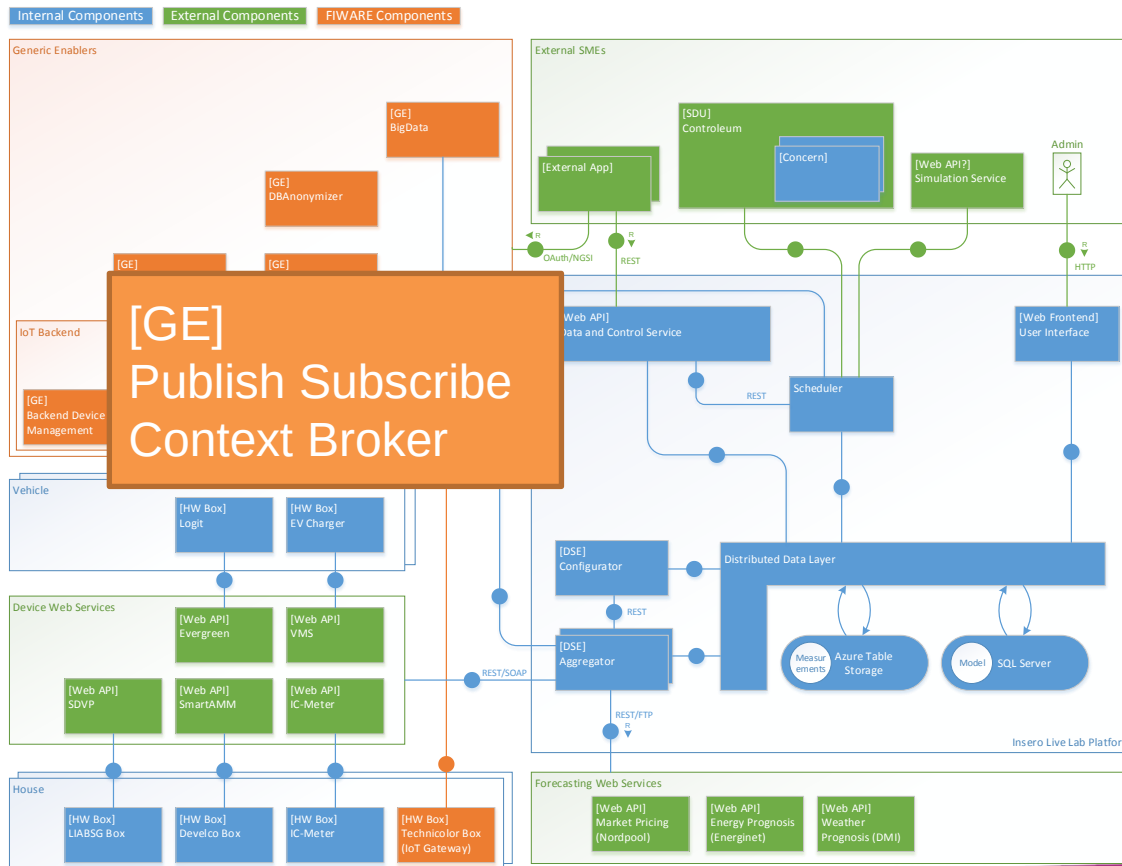
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GE Integration - Software Architecture

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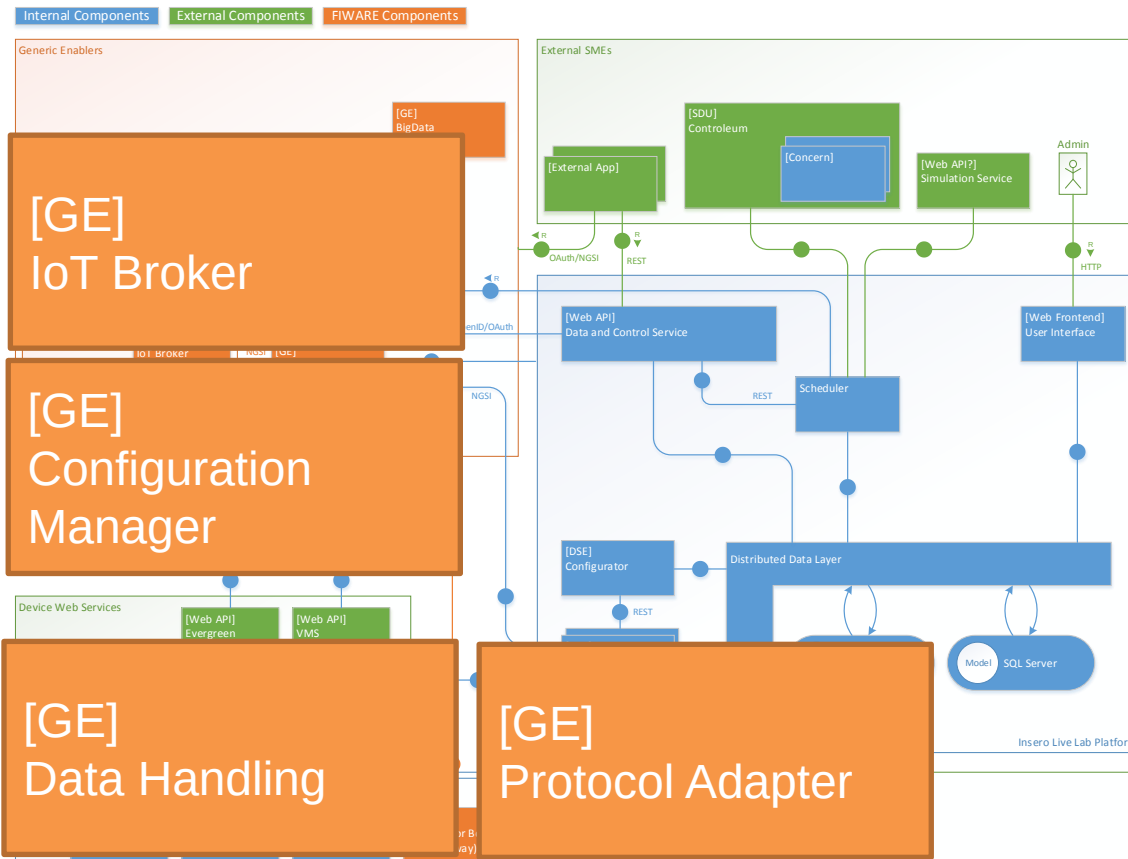
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GE Integration - Software Architecture

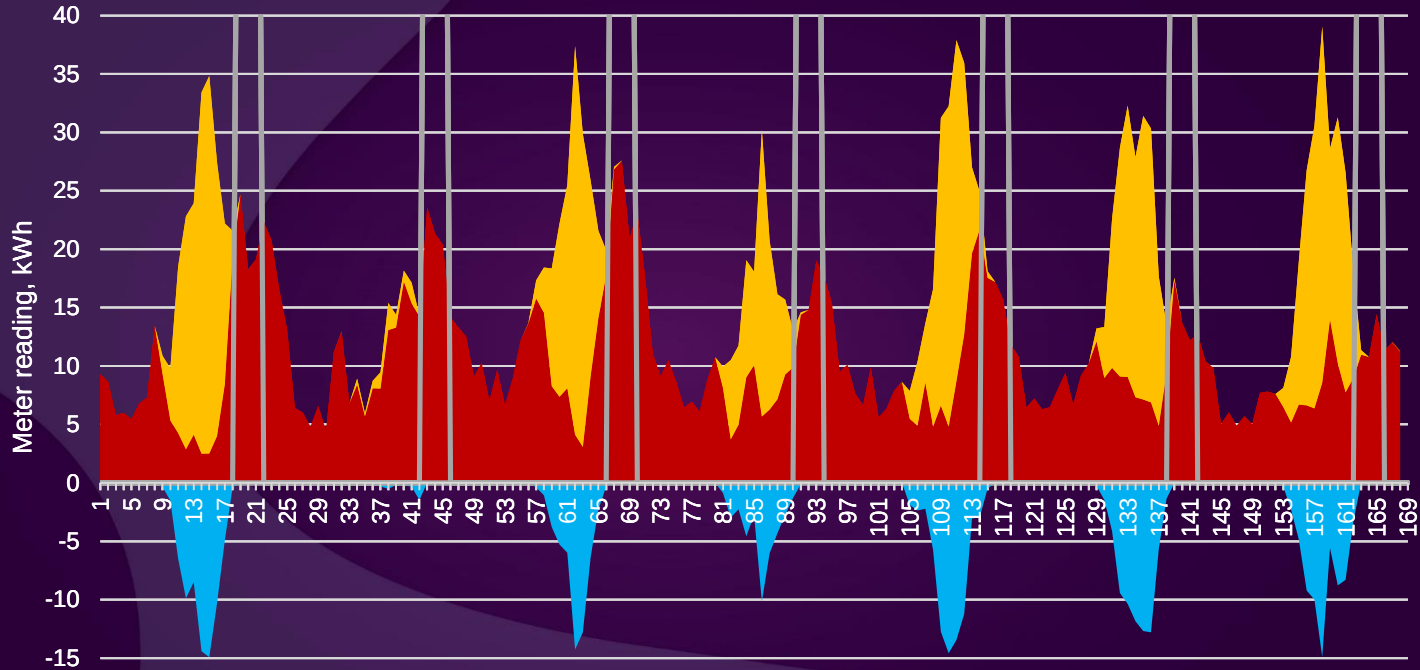
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Results

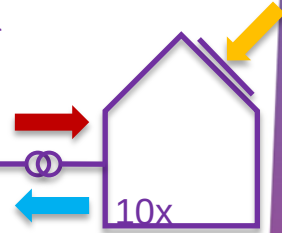
Live Lab, meter readings 06/10/2014-12/10/2014



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0,4 kW

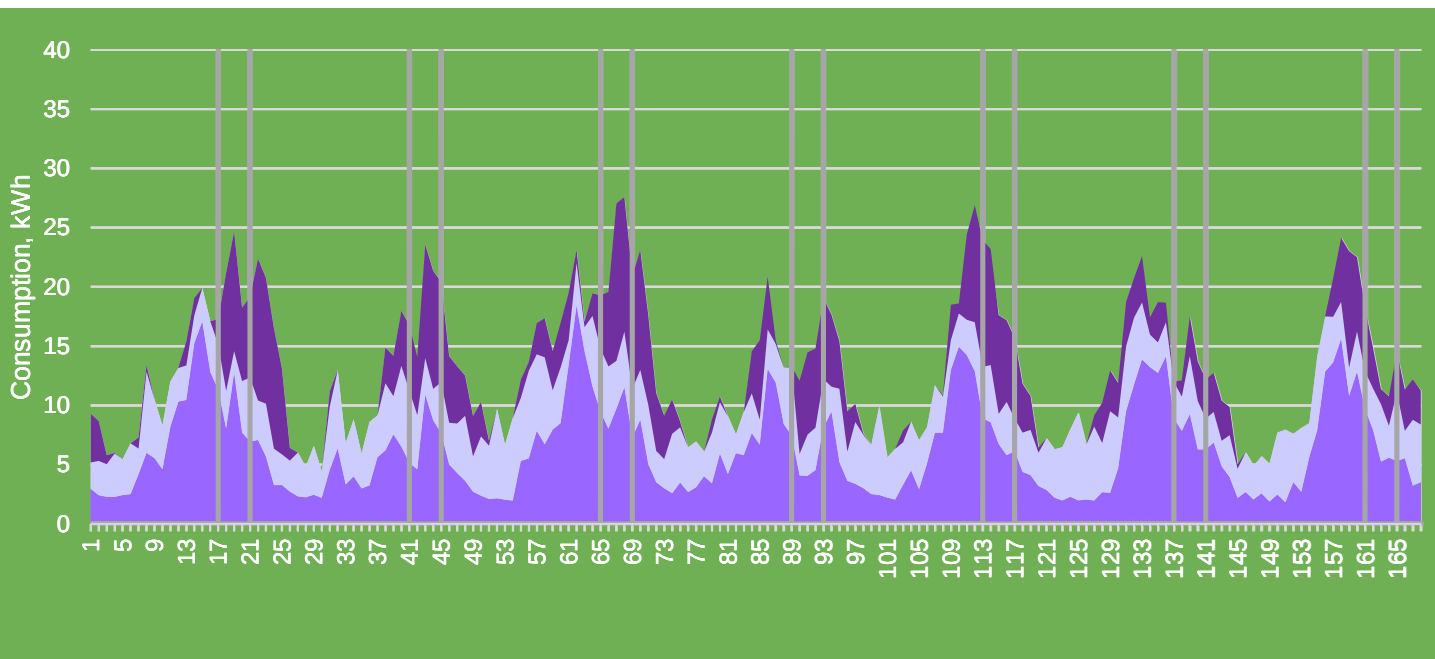


Results

Live Lab, power consumption 06/10/2014-12/10/2014

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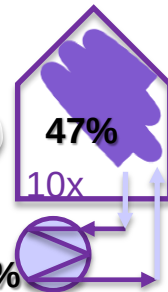
22%



47%

10x

31%

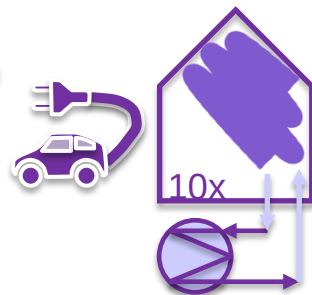
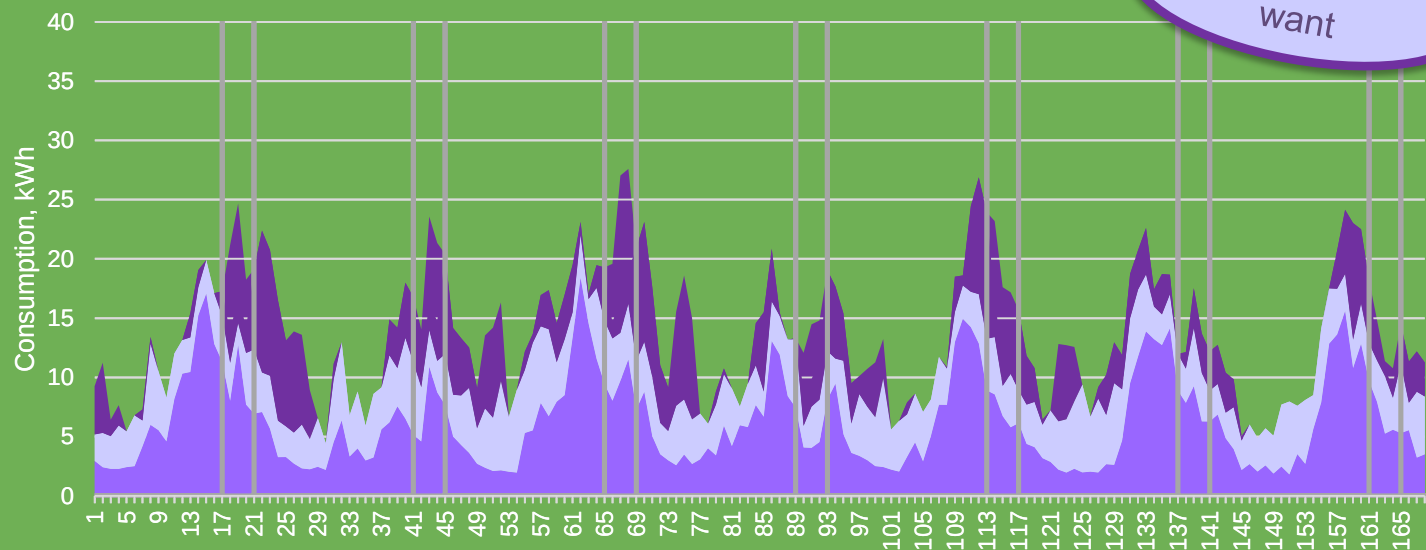


Results

Live Lab, power consumption 06/10/2014-12/10/2014

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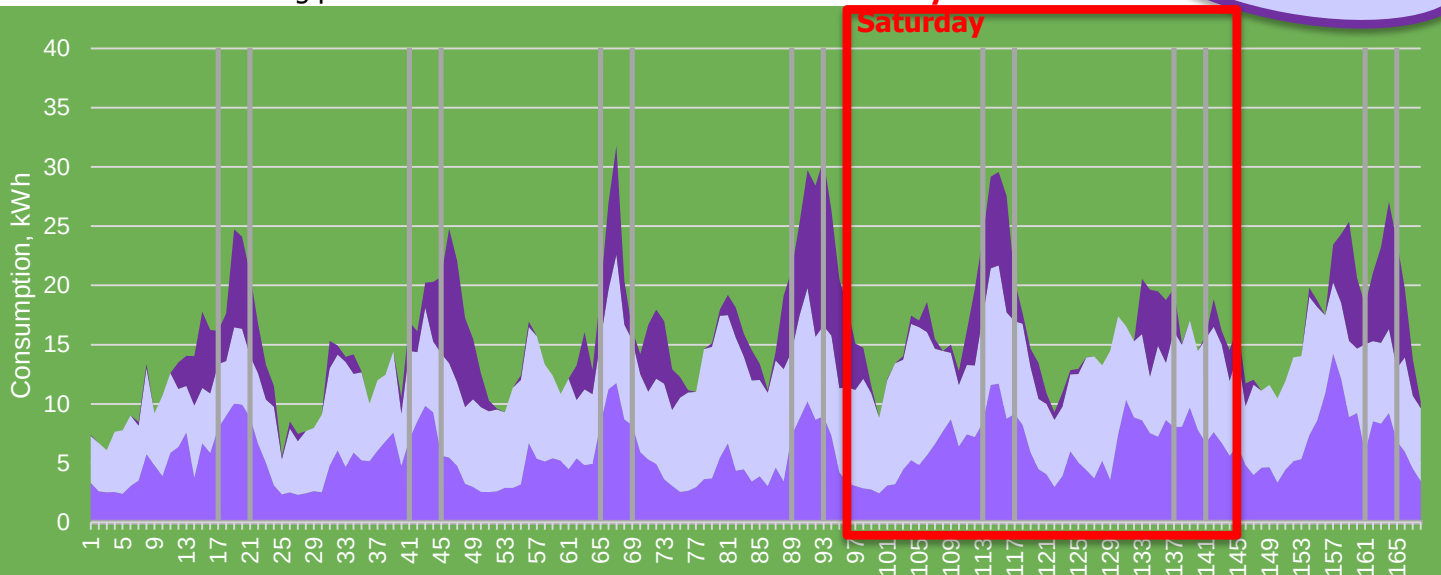


Results

Live Lab, power consumption 03/11/2014-09/11/2014

Comparison early October with early November:

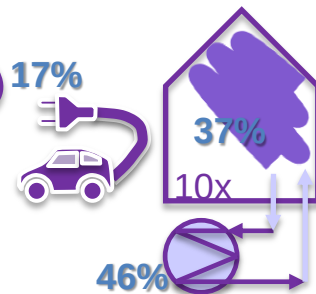
- Overall increase in power consumption with 20%
- HP power consumption nearly doubled
- 30% increase during peak load hours



what we do

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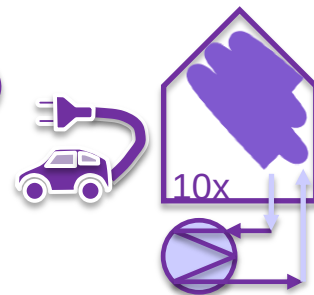
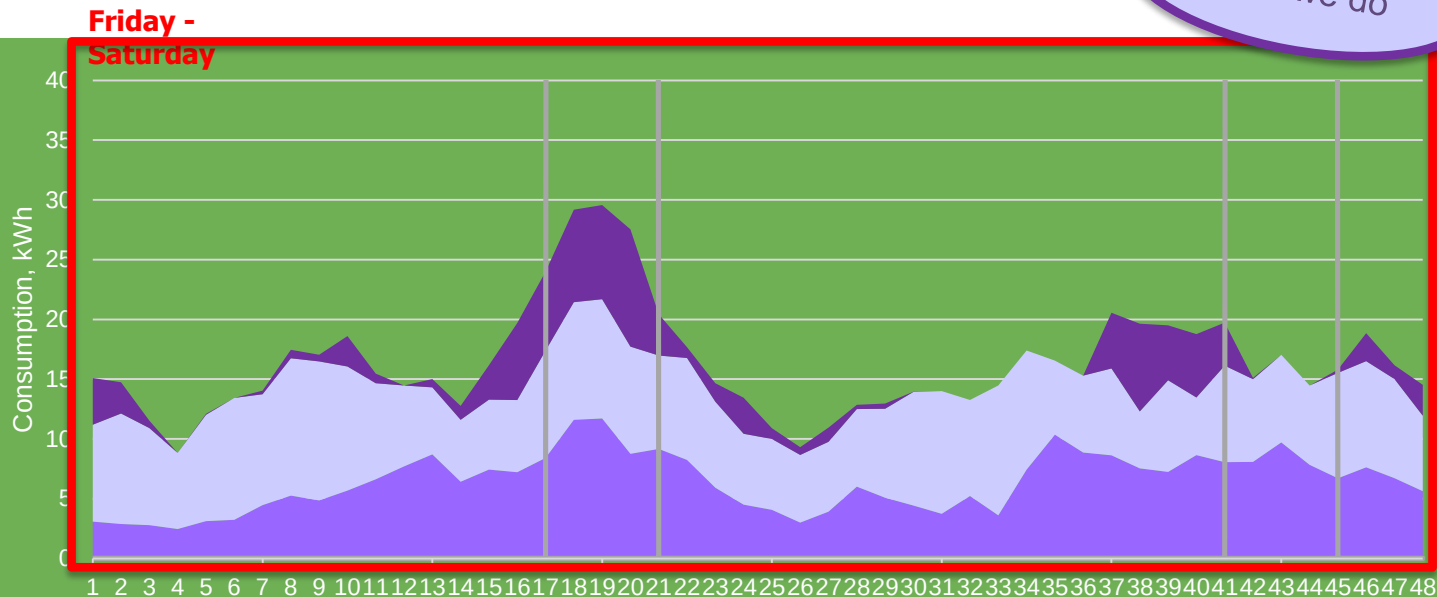
Results

Live Lab, power consumption 07/11/2014-08/11/2014

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what we do



Peak Load Manager



IN THE VILLAGE OF STENDERUP, LOCATED IN THE WESTERN PART OF DENMARK, 20 FAMILIES PARTICIPATE IN INSERO LIVE LAB. HERE THE FAMILIES LIVE AND TEST SMART GRID TECHNOLOGY IN THEIR HOMES.

Together with the Stenderup families, Insero Software develops and tests Smart Grid products that control the households' power consumption while ensuring compliance with the families specified comfort settings.

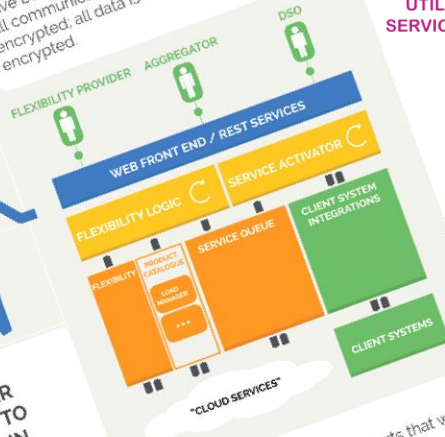
In Insero Live Lab, 60% of the load in domestic households during peak hours originates from heat pumps and charging of electric vehicles.

SCHEDULING OF THE POWER CONSUMPTION IS THE KEY TO PEAK LOAD MANAGEMENT IN RESIDENTIAL AREAS

With the Peak Load Manager, the load is limited during peak hours by re-scheduling the charging of electric vehicles to night hours, and ensuring that the electric vehicles are charged according to the users settings.

The Peak Load Manager monitors and schedules the load ensuring that the specified limits are not exceeded during peak hours.

The Peak Load Manager is an end-to-end service, where data security, service redundancy and guaranteed deliverables have been paramount in the design. All communication through the internet is encrypted, all data is anonymized and encrypted.



The system has four integral parts that work together:

- Onsite integration with client equipment
- Redundant, real-time monitoring and control
- Cloud-based modular services, control and measurement storage
- Customizable web applications for configuration, monitoring and control.

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Preliminary findings from the user involvement

Agenda

- **Methods and Research**
- **Preliminary findings**



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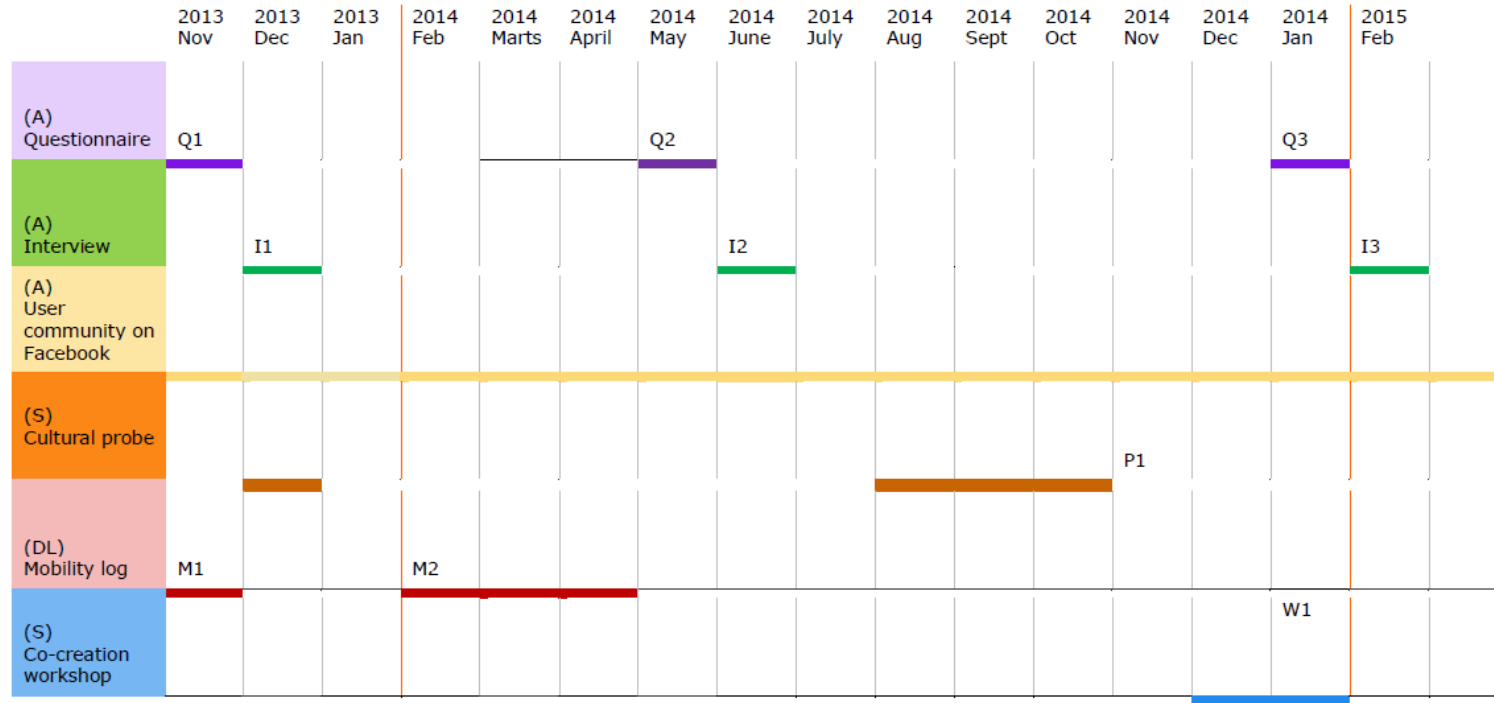
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User involvement program

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Technology and social behavior

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Energy visualization

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Prosumers in the grid

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Typologies on users of smart grid technology



External control

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Preliminary findings from the user research in Insero Live Lab



Technology and social behavior

Increased awareness on energy

Hands-on optimization

Energy visualization

Stimulated curiosity

Prosumers in the grid

Adjusted consumption practices

Typologies of future smart grid citizens

External control

Sense of achieving something

Learning points based on user experiences in Insero Live Lab

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1 : Well designed
: support is optimal
: to avoid that
: users feel lost in
: transition.

2 : Smart automation is inherently an invisible
: alternative to you being in control. Well
: designed interfaces between users and
: systems can help avoid this being a
: barrier.

3 : The sense of
: achieving something
: is vital in the
: acceptance of the
: extern control.

4 : The feeling of
: being in control is
: vital in the
: acceptance of the
: system control.

5 : The competitors of intelligent control is to be find in local
: common senses. In the case of offering control as a service,
: the service must be open towards meeting and incorporate
: clear local motivators as in the case of having free energy
: from own solar cells.



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