San Francisco – 9.8.2012

Dominique Genoud- Yann Bocchi - HESSO//Valais Switzerland

University of Applied Sciences

Hes·so
Haute Ecole Spécialisée
de Suisse occidentale
Fachhochschule Westschweiz
University of Applied Sciences
Western Switzerland

HES-SO in brief

- More than 15,500 students, the largest UAS in Switzerland

- 27 schools in 7 cantons

- About 10,000 employees (the equivalent of more than 3,000 full-time positions)

- Education in 6 fields

- 41 Bachelor's degree programmes

- 16 Master's degree programmes

- 170 recognized continuing education courses

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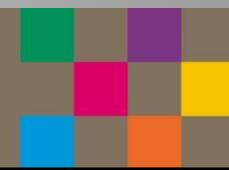
Institute of Business Information Systems

Switzerland : Home building / Building date
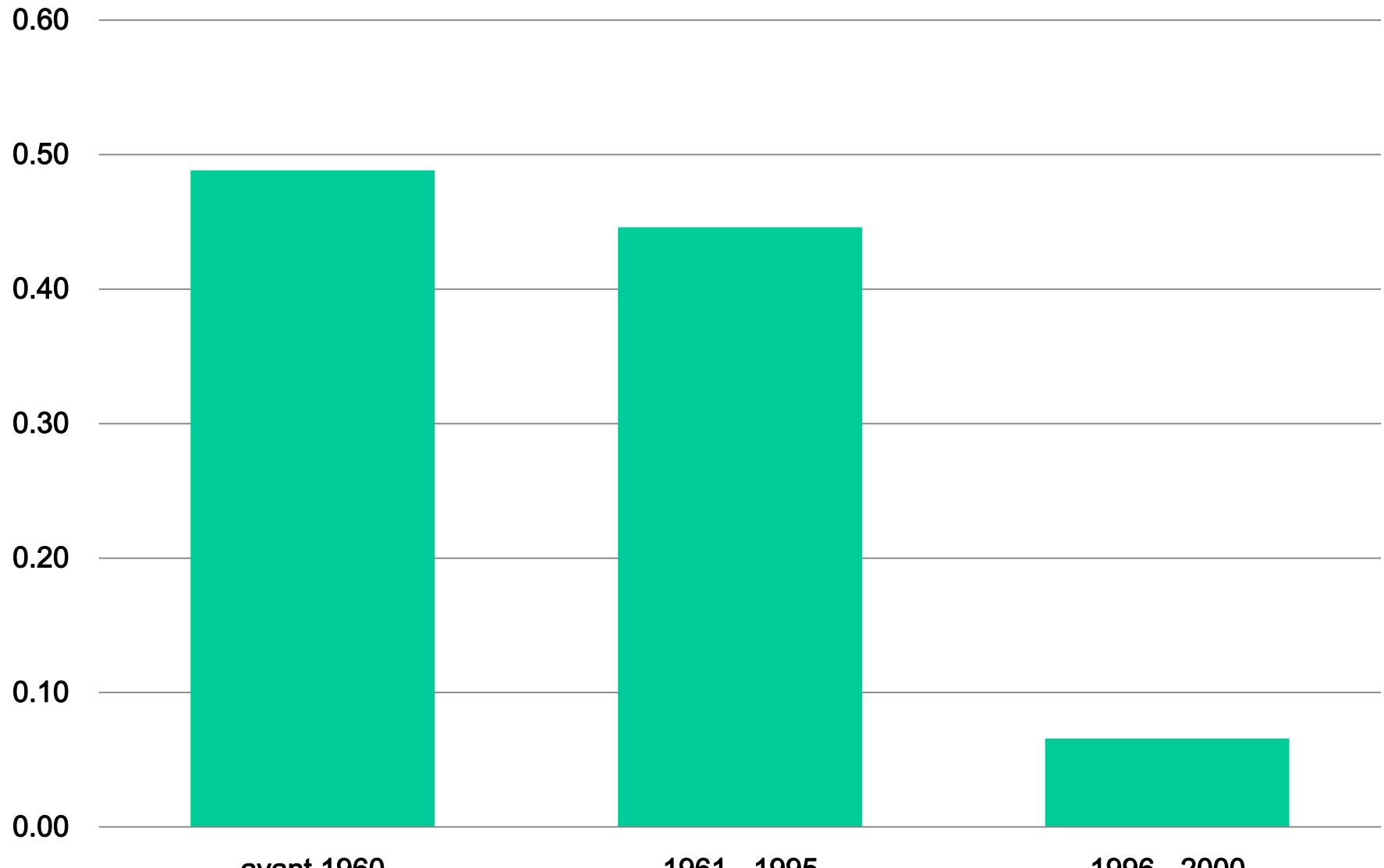
EM 21 : Vers l'indépendance des flux d'énergie
(from Michel Bonvin Hesso)

10

# Building Automation Systems : 3 tiers
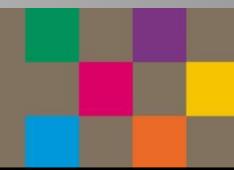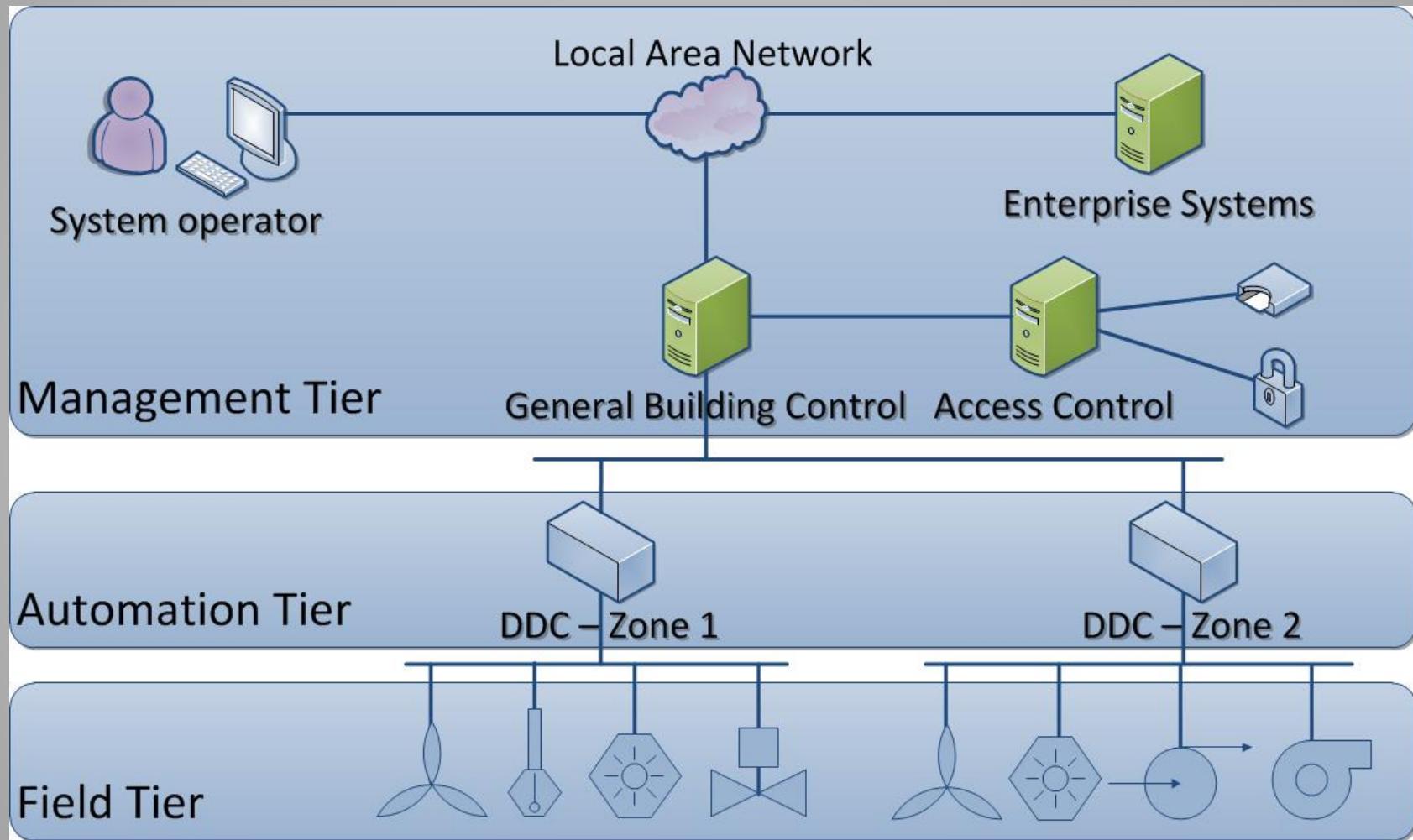
Now : Building automation layers & protocoles
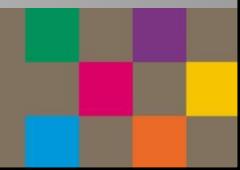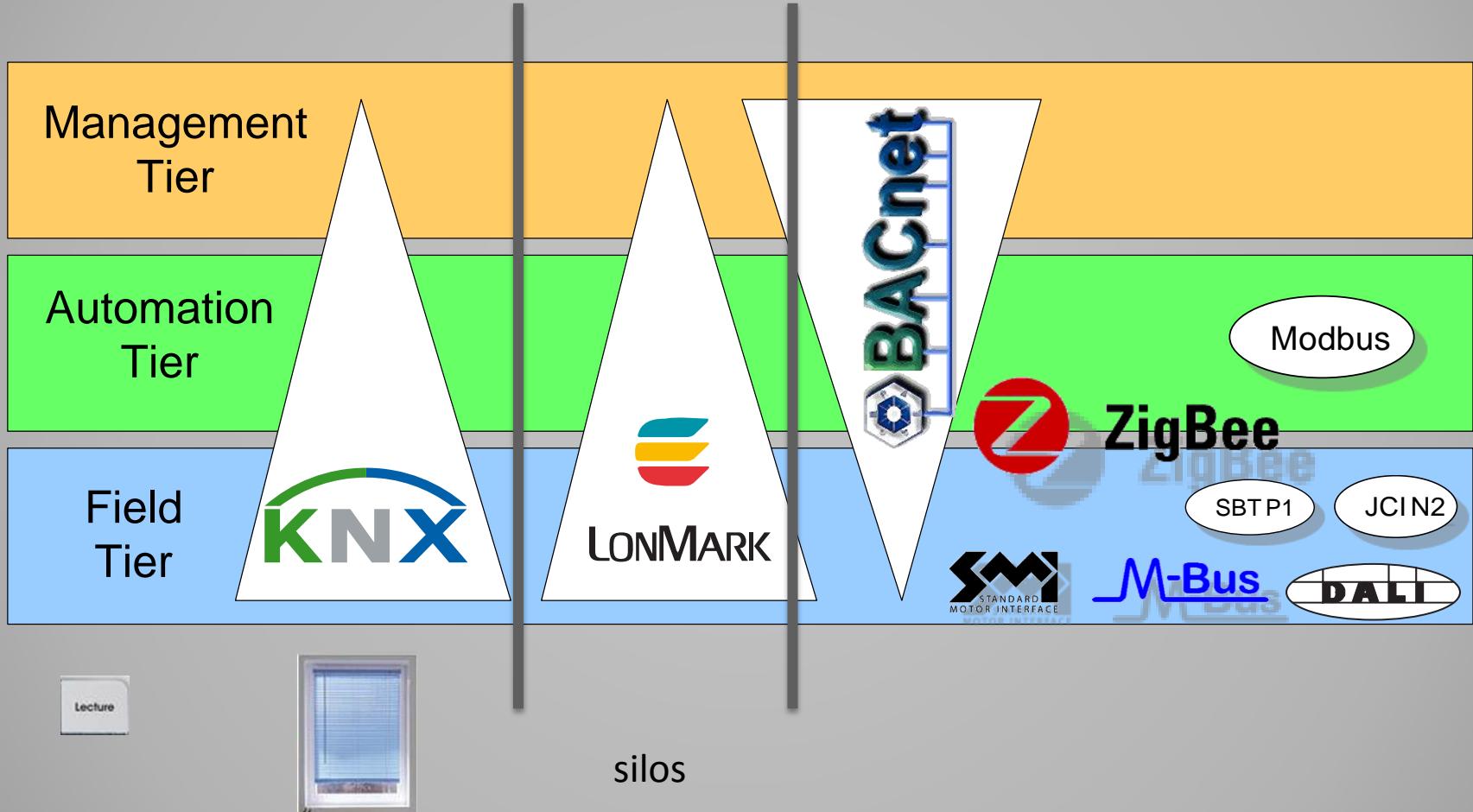
Smart Buildings : multiple protocoles

UDG Architecture(2007)

MPC

ZigBee

RFID

WiFi

IPv6

MPC

X10

KNX

KNX

IPv6

UDG Server (OSGI)

Middleware

Events → ← Actions

Kernel

GUI
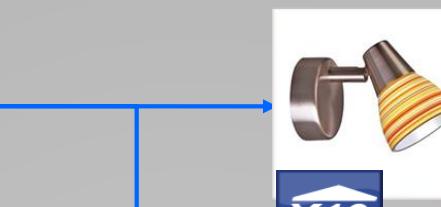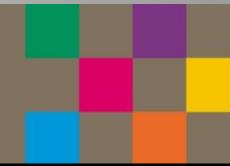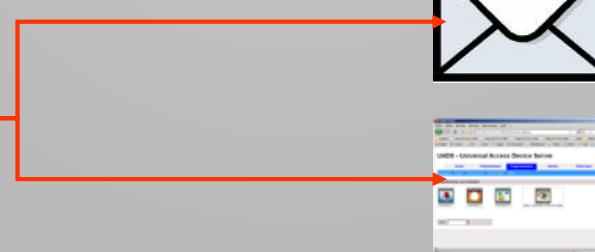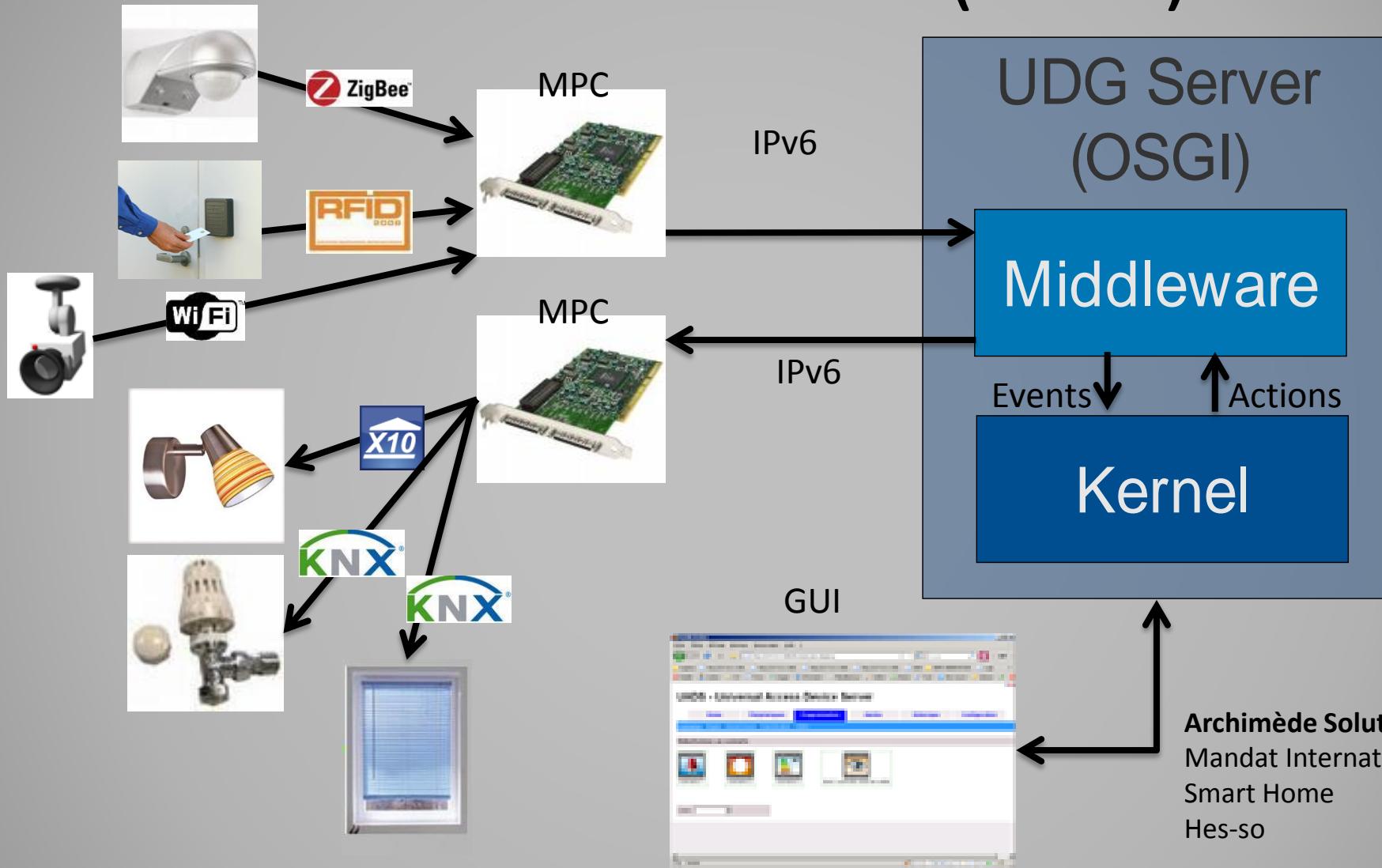
Archimède Solutions
Mandat International
Smart Home
Hes-so
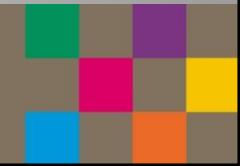
- Now we can run numerous scenarios & services
  - inside & outside of the building
  - locally or remotely
- => Internet of Buildings
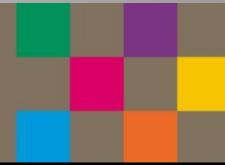
UDG + IoT6 integration
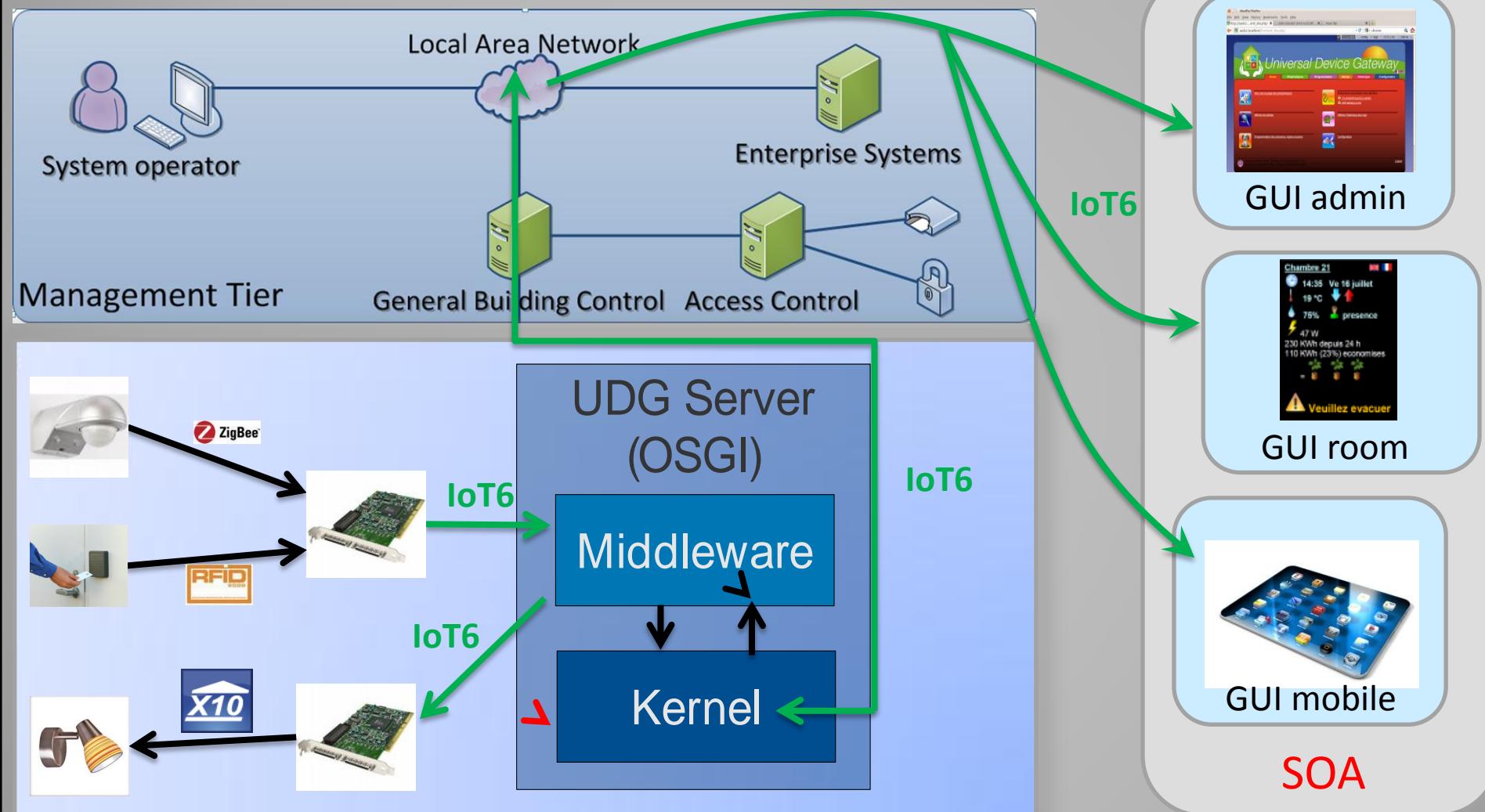
# Information system input:
smartly connected buildings
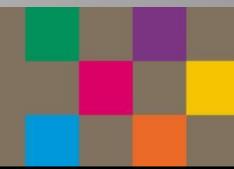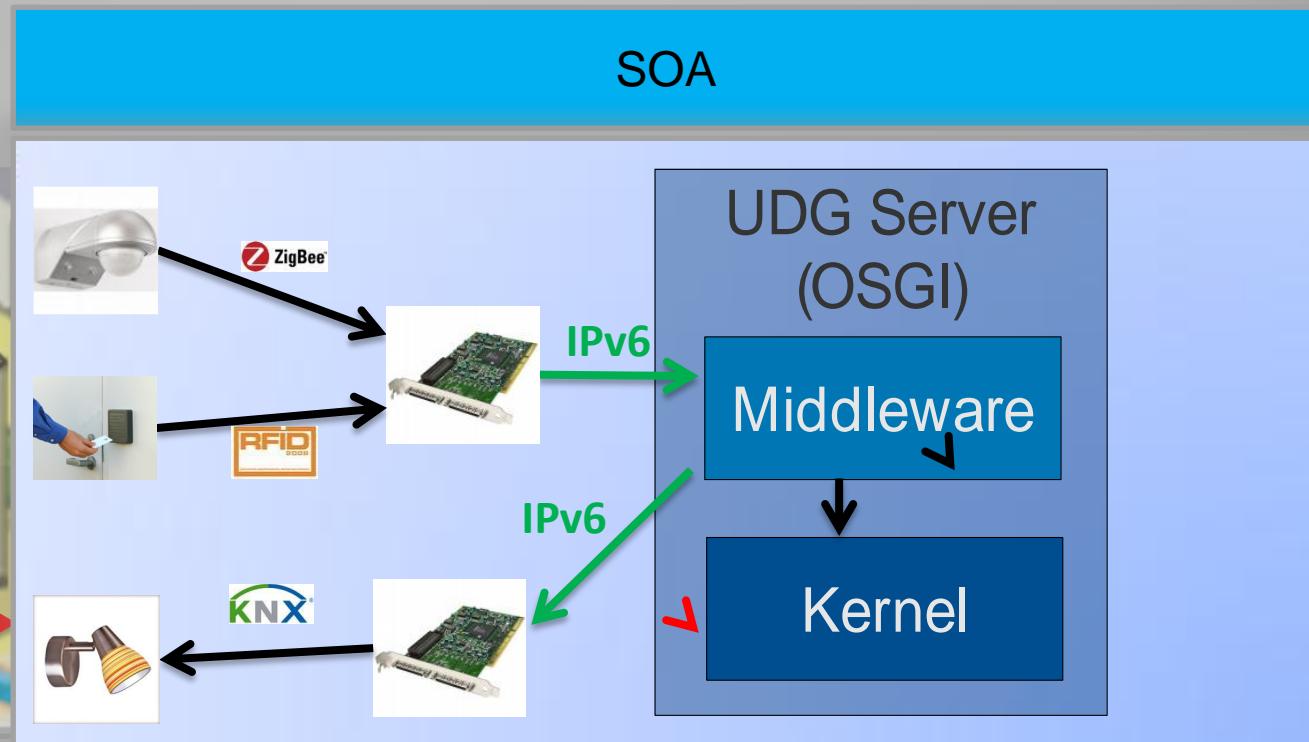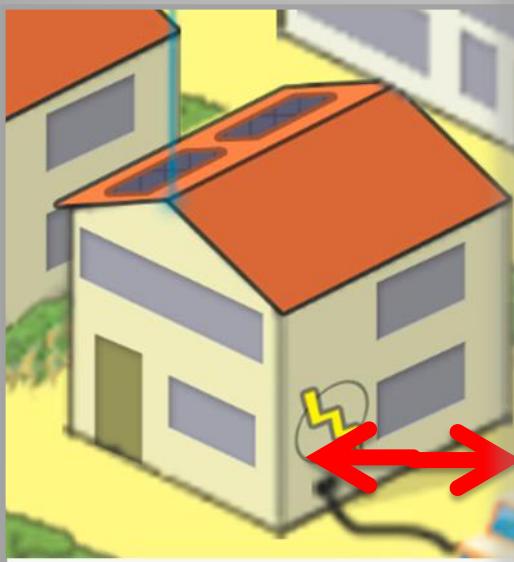
Smart grids and the IoT: micro-grid approach

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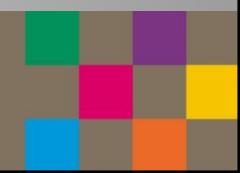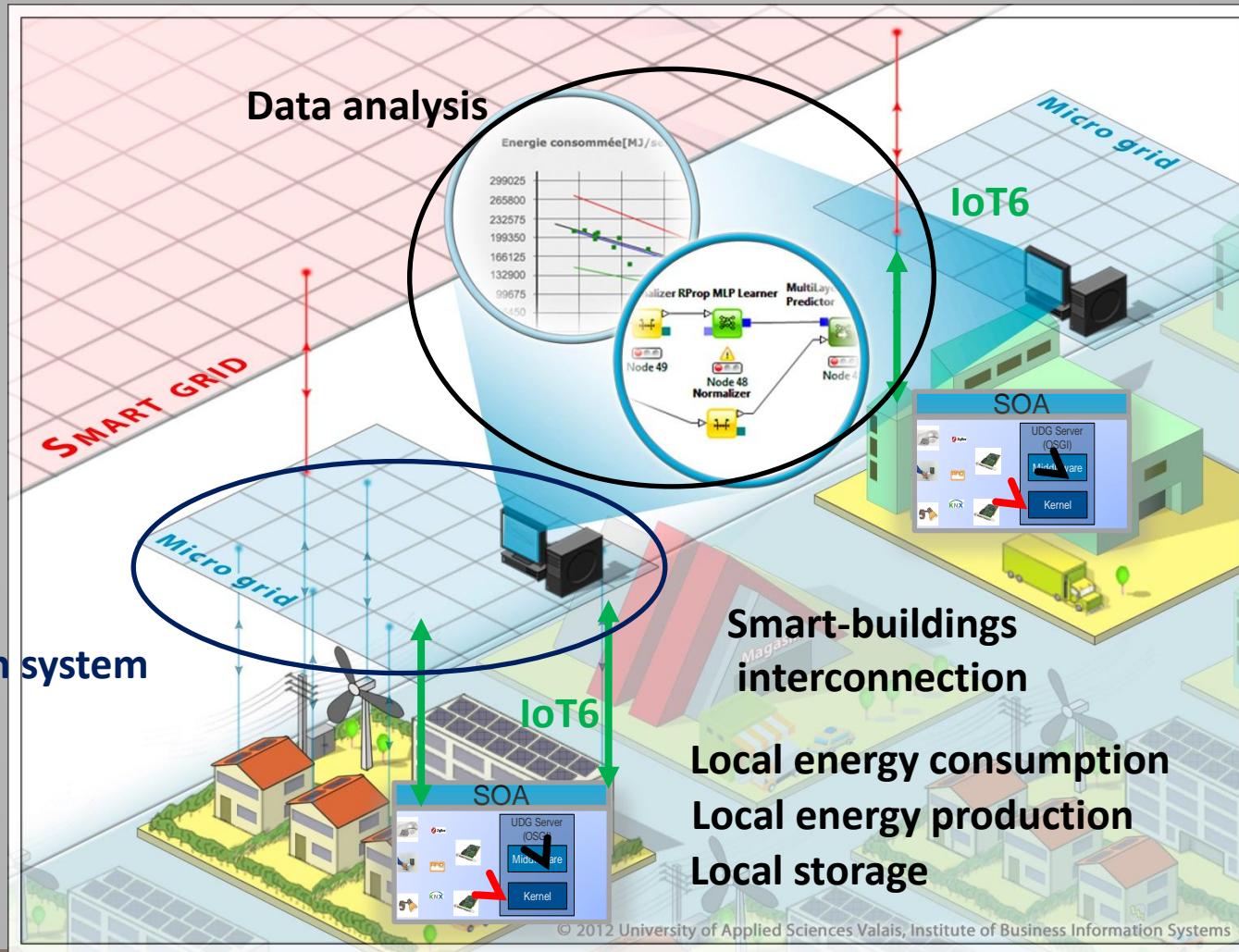
The necessity of Load balancing of the microgrids

Modeling Prédiction

DB

solar parameters

Elec Consumption parameters (high speed)

All Energy parameters (low speed)

Smart House energy management

μCHP

Storage parameters
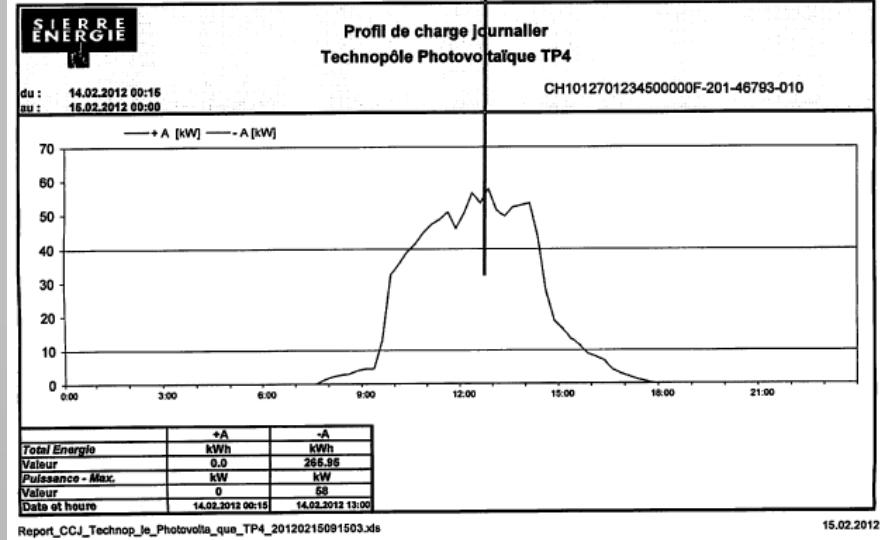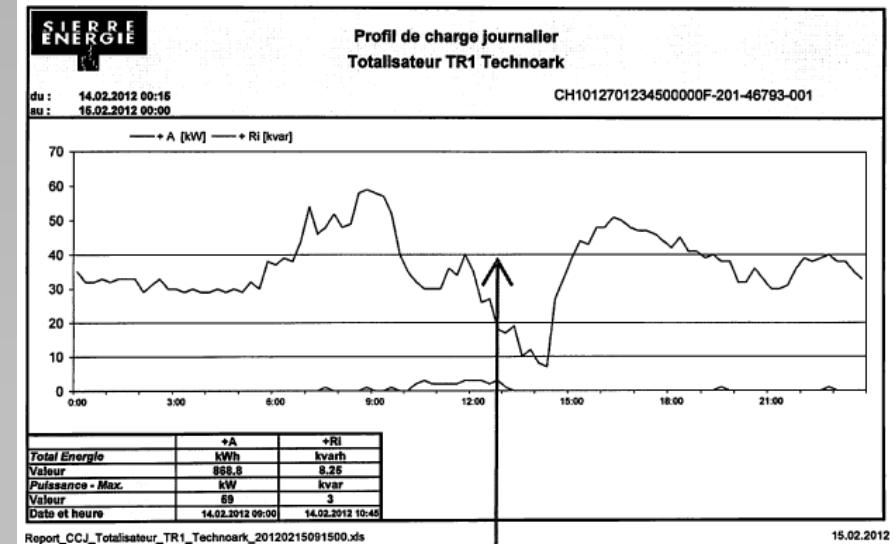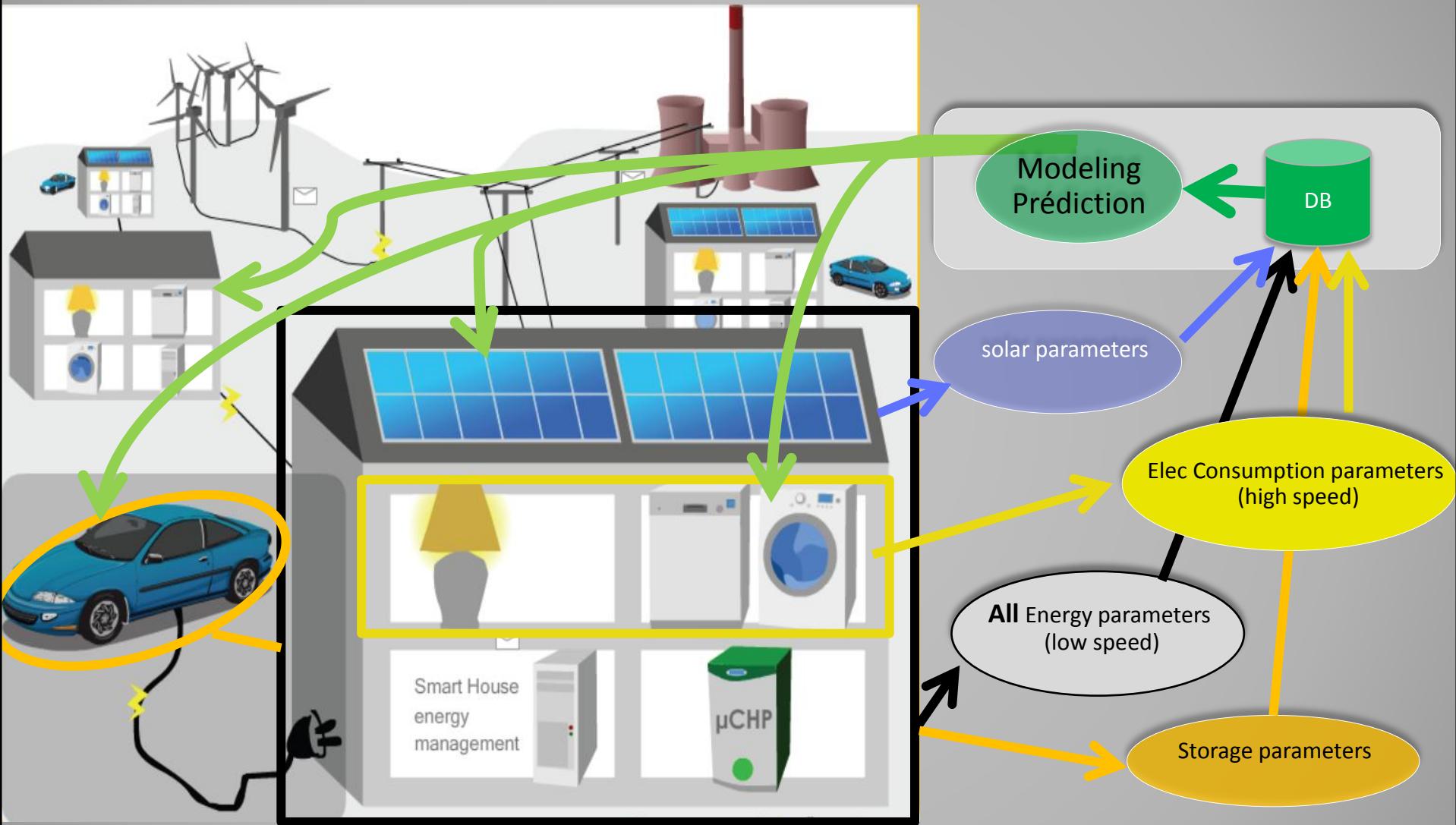
Consumption prediction using data

Low frequency parameters (load curves)

High frequency parameters(device mesures)

Energy predictions (meteo, long term climate stats
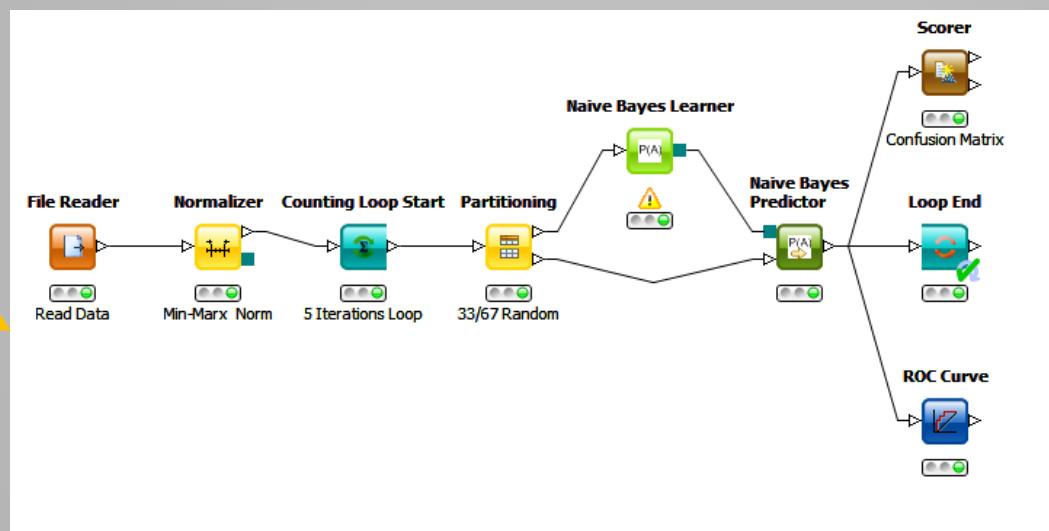
Load curves

Next ¼ hour instructions

Next ¼ rate