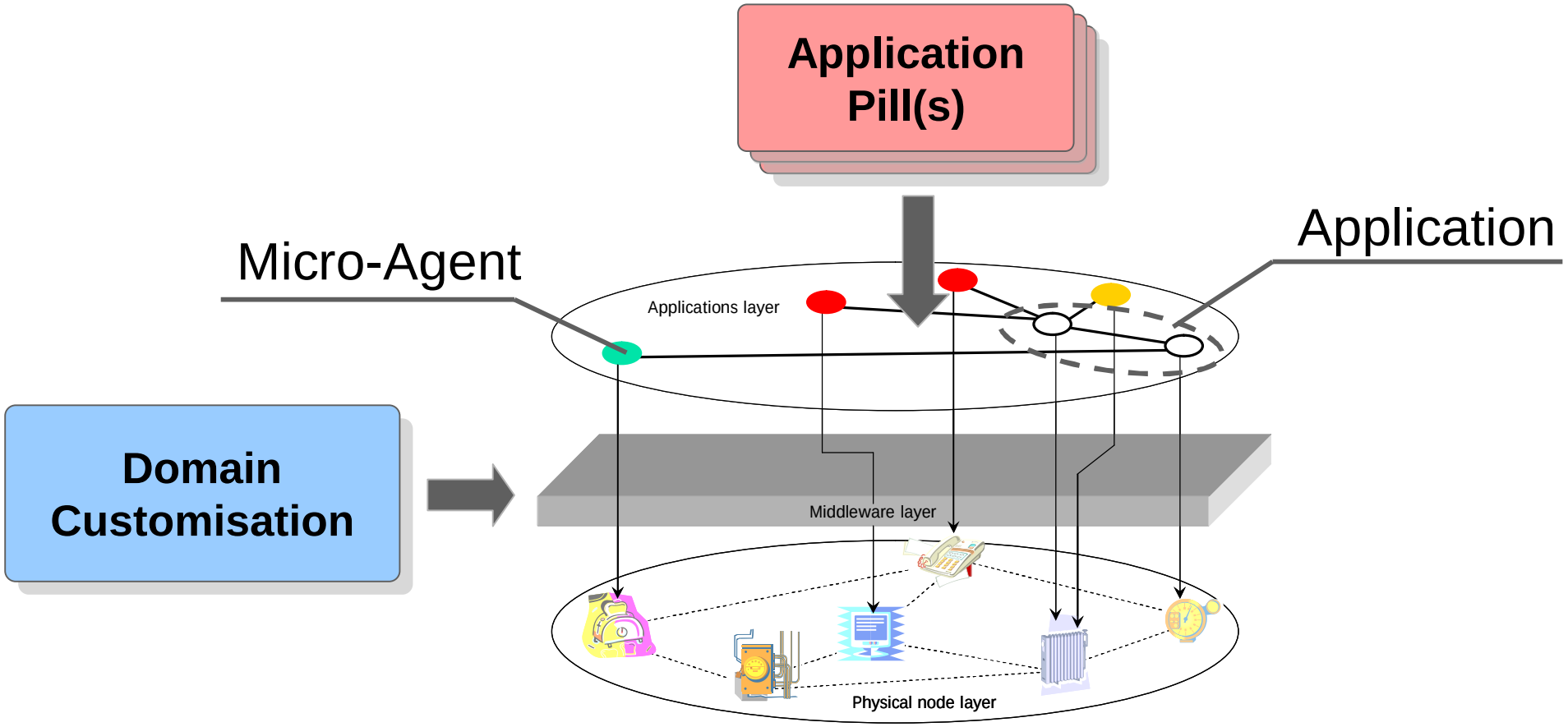
POBICOS – Platform for Home Automation and Energy-Efficient Buildings

Korea-EU Cooperation Forum on ICT 17.6.2008, Seoul, South Korea

- **Platform for Opportunistic Behaviour in Incompletely Specified, Heterogeneous Object Communities**
- **Project Objectives**
  - Producing wireless technology that will simplify the development and deployment of opportunistic computing applications to a considerable degree.
    - The programmer will write applications with reference to a formal domain model that will make it possible to flexibly access resources at the desired level of abstraction without restricting the application to a specific (custom) device/appliance configuration.
    - Users will acquire and deploy applications in a natural way, with little or no explicit administrative overhead and zero technical know-how; ideally, adding an application to one's home should be as simple as putting a sticker on a door.
    - Enabling the cooperation (interaction) between objects equipped with embedded nodes.
  - Supporting home/building automation for energy saving
- **Project consortium: 6 partners from 5 European countries**
- **Project start: May 2008**

POBICOS – Architecture



POBICOS – Opportunistic Behaviour

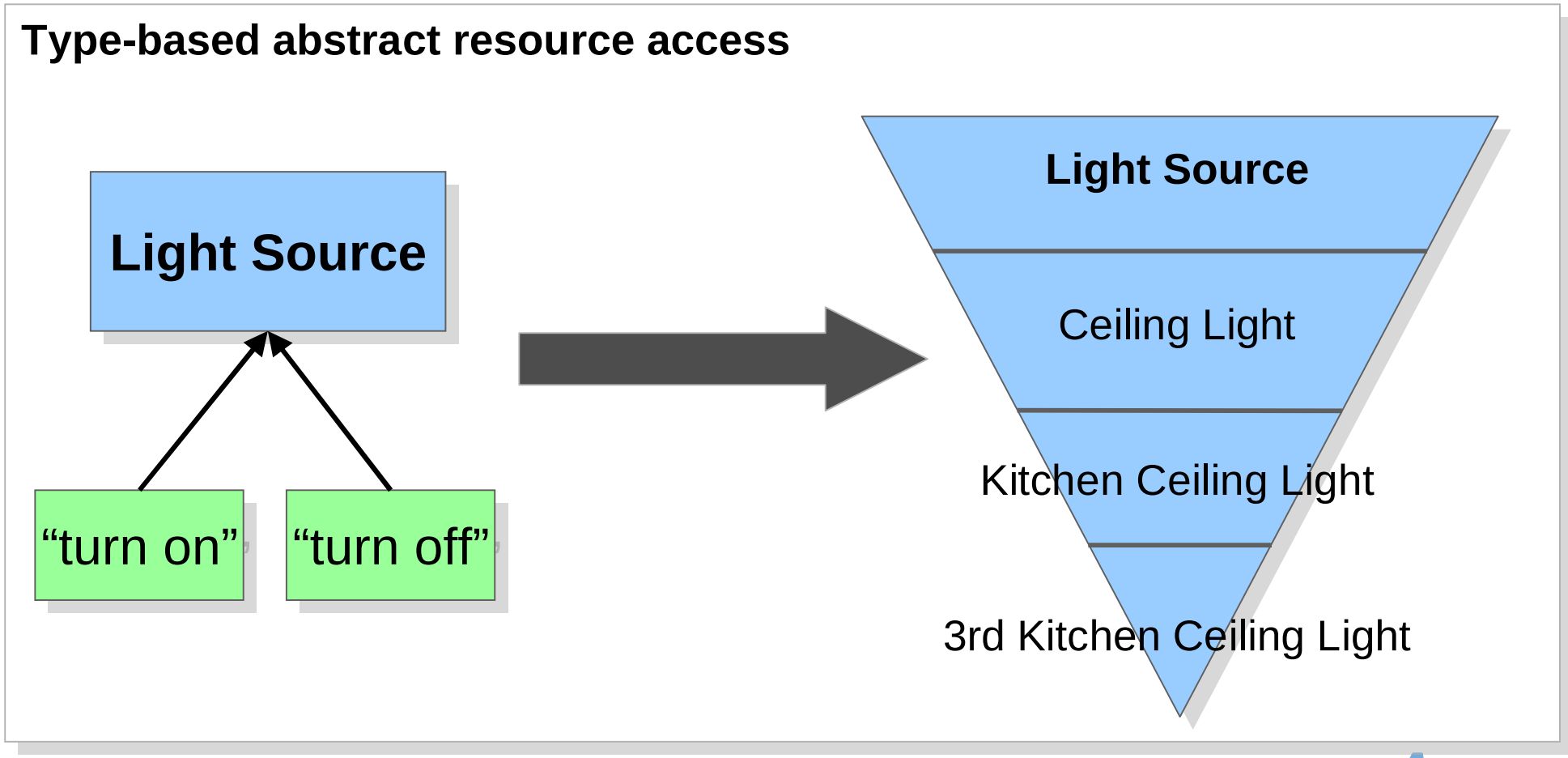
- Application level

  Opportunistic behaviour is explicitly implemented in the application

- Middleware level
  - Load balancing
  - Abstract resource access
    - Type-based
    - Event-based

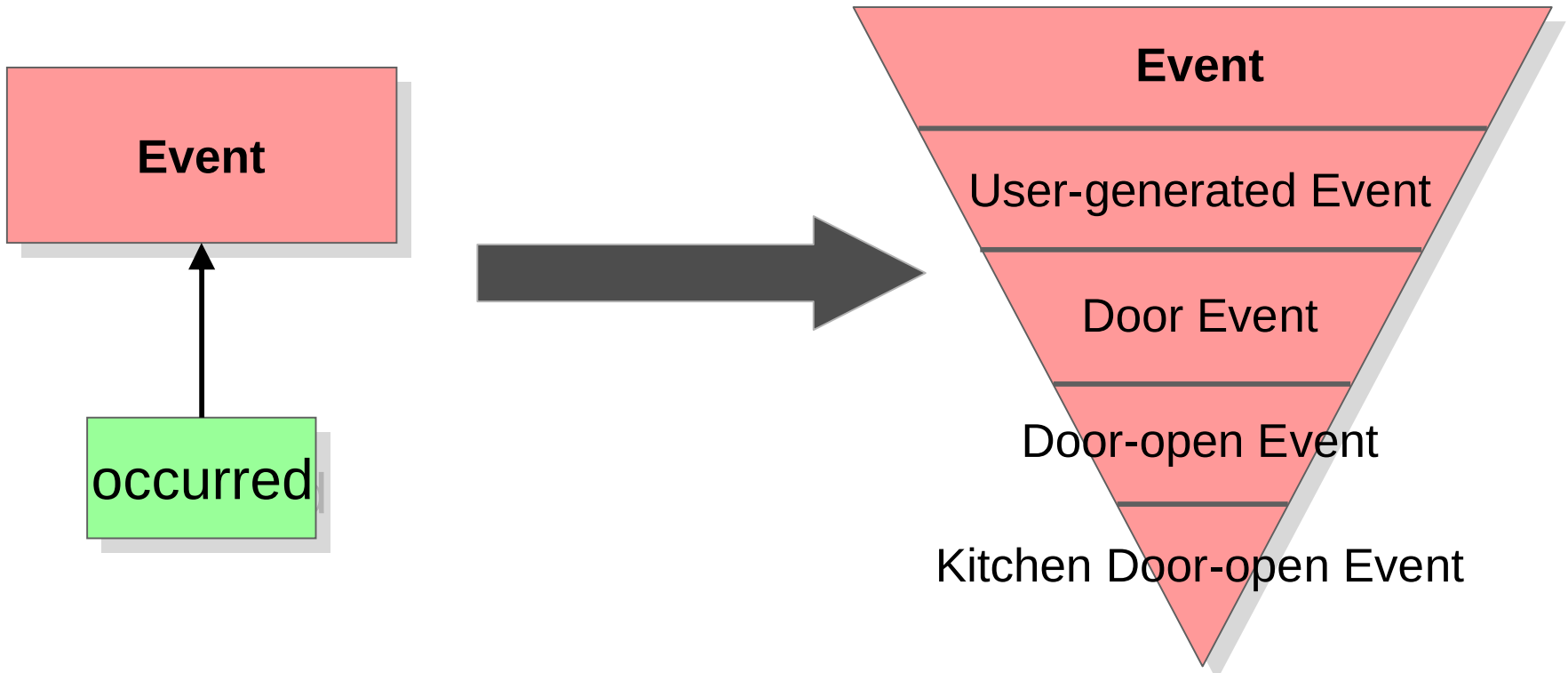
POBICOS – Opportunistic Behaviour – Example 1/2

Type-based abstract resource access



POBICOS – Opportunistic Behaviour – Example 2/2

Event-based abstract resource access



POBICOS – Home Automation

Challenges

- Heterogeneity in the sensing-computing-actuating resources
- Uncontrolled and ad-hoc fashion in which living environments are set up

Approach

- **Reduced user intervention:** Upon deployment, the application will seamlessly spread itself in the object community
- **Opportunistic behaviour:** Possibility for programmers to write portable applications that will automatically deploy themselves in different environments
- **Open API** makes application development attractive for third parties

POBICOS – Energy-efficient Buildings

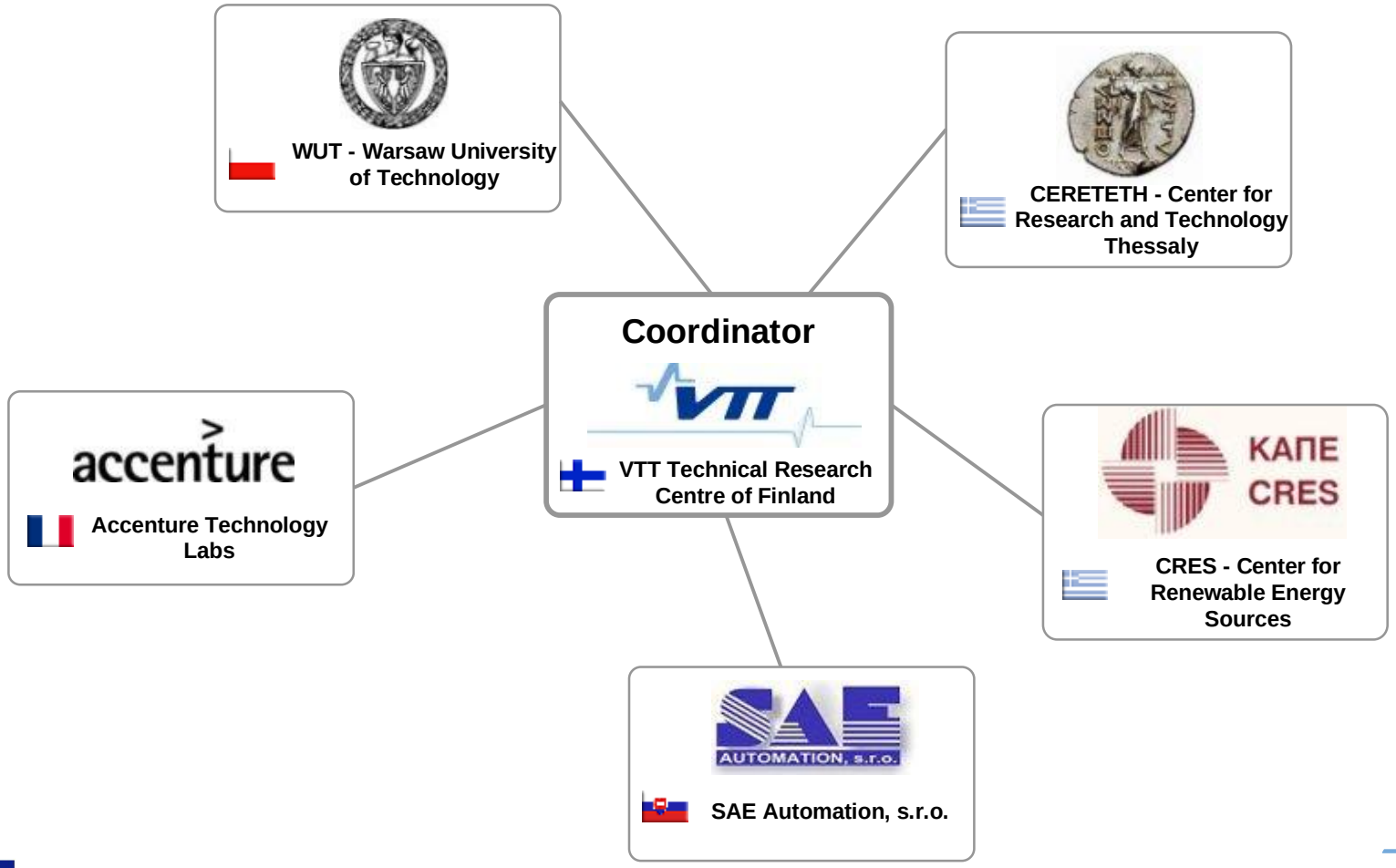
Building Energy Management Systems (BEMS)

- Cost as much as 7-10% of the total cost of the building construction
- Complexity in programming and setting up for both, the engineer as well as the end-user
- The need for technical staff to be managing BEMS make them inaccessible to the housing sector
- Implemented in a fairly customised way mostly working with a priori known devices and configurations

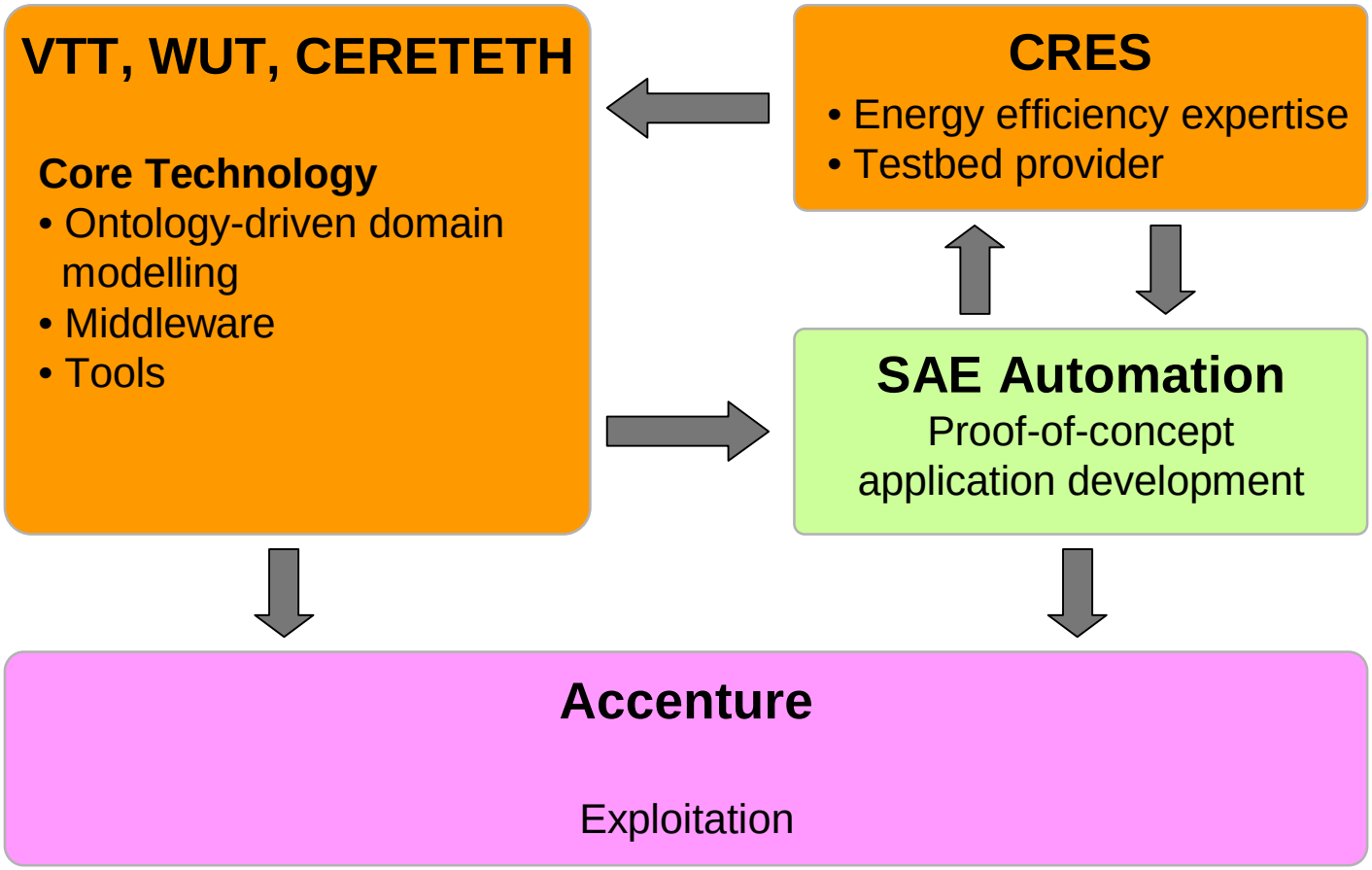
POBICOS

- No major dedicated infrastructure is needed as POBICOS-ready regular home items are gradually acquired and installed in the house/apartment
- Monitoring the energy efficiency and providing information to the dwelling users
- In the instance of bioclimatic elements, such as Trombe walls, POBICOS applications could successfully lower the building's energy needs
- POBICOS makes BEMS available for home applications

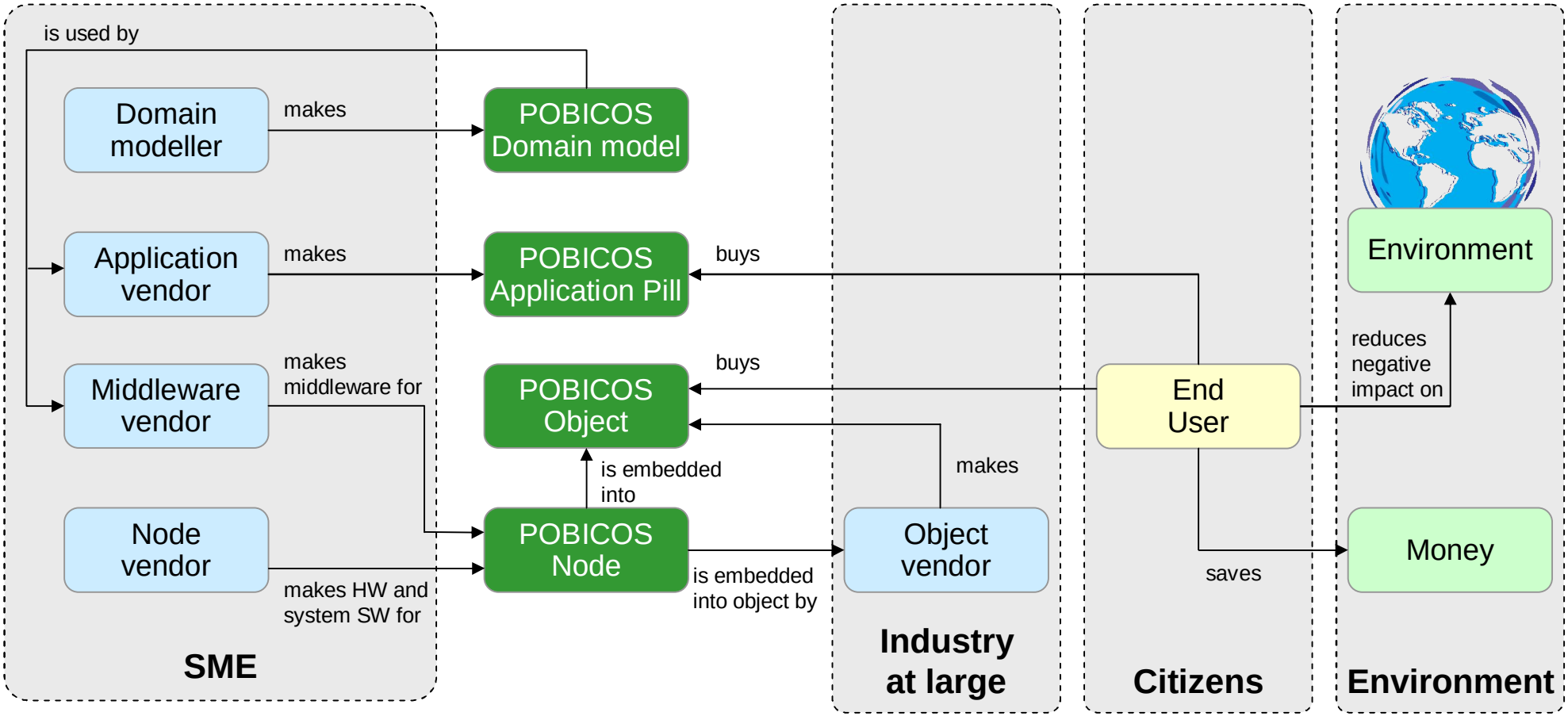
POBICOS – Partners



POBICOS – Partners' Primary Roles



POBICOS – Meta-model



POBICOS – Additional Information

Website

www.ICT-POBICOS.eu

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