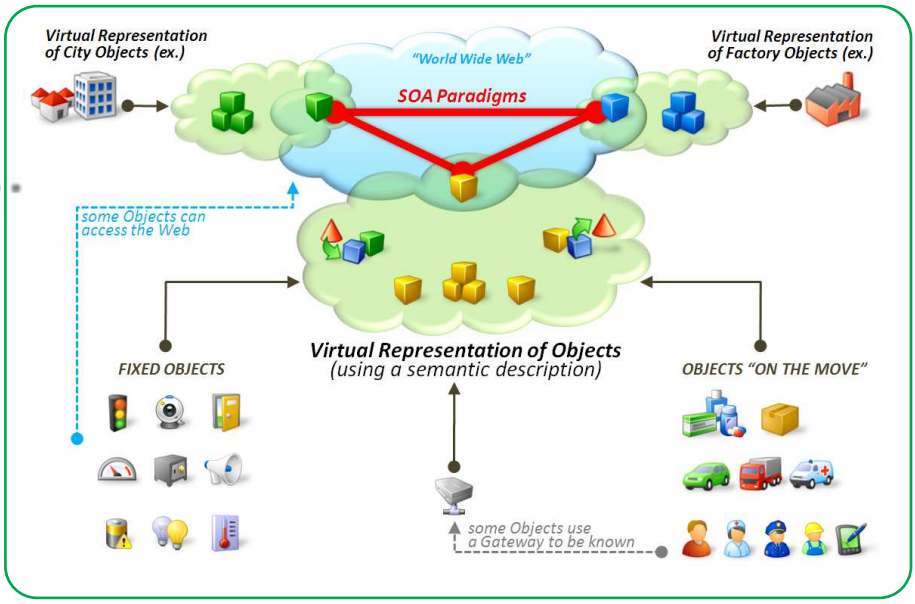
ITEA 2
INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

WoO

Web of Objects



WoO will deliver a **service infrastructure** simplifying the management of IoT business applications in smart city, building and home environments.

Objectives

- Interoperability of devices & services through semantics
- Service adaptation based on user profile and context
- Increased security at service, device and network level
- Dynamic discovery and reconfiguration of devices
- Device cooperation in different business workflows

Business Values

- Shared device integration platform for existing and new stakeholders
- Towards decentralized system operation: "checking & authorizing" functions instead of exclusive "decision making"
- Reactive objects: avoid a single failure point and enable faster reaction

Expected results

- Multi-tenant Internet-of-Things platform
- Common and device-specific services
- Semantic annotation tools
- Semantic service orchestration framework

Objects modeling:

- Internal properties
- Common services
- Specific services
- Context/preferences
- Semantic annotations
- Security policies
- Business workflows

Project start: Jan. 2012
Project end: Dec. 2014

Project leader:

THALES

Project website:
www.web-of-objects.com

CONTACT

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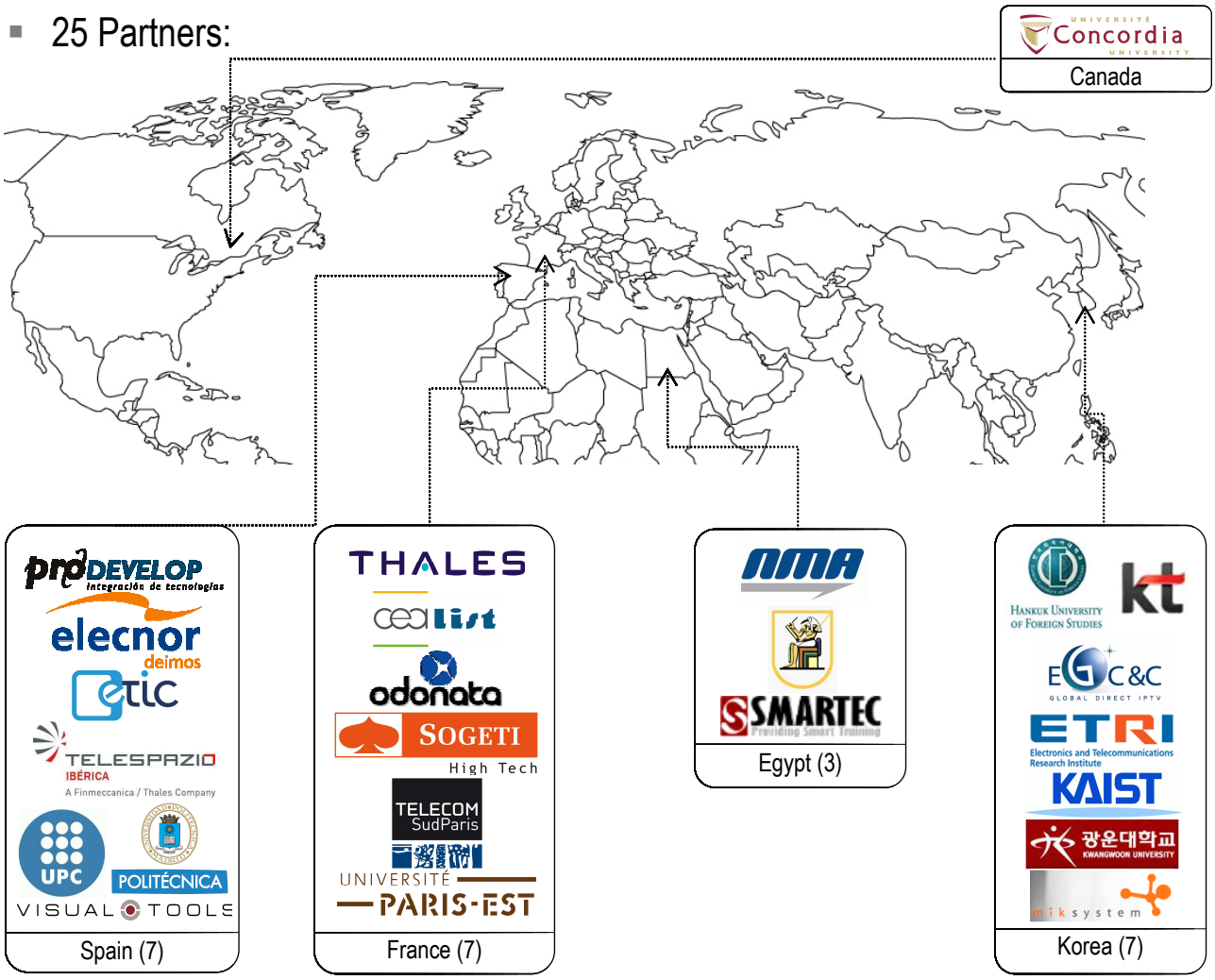
Project Consortium

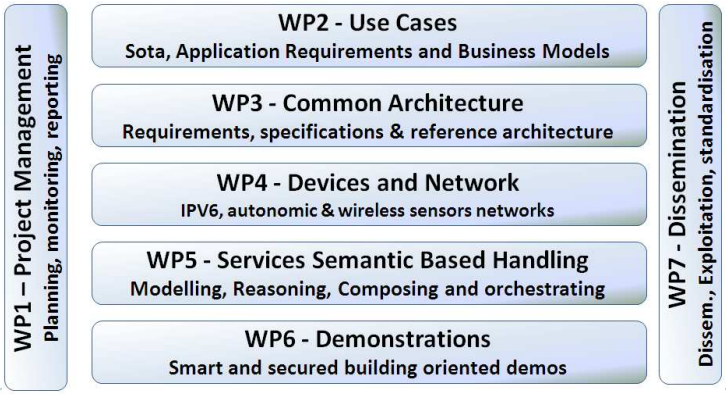
- 25 Partners:



Work Packages Overview

Web of Objects Partners

- Large companies (6)
- SMEs (7)
- Universities (7)
- Research institutes (5)



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WoO French Demo

Cooperative Objects for Secured & Smart Buildings

A malicious intruder penetrates a restricted area and damages electrical equipment. Workflows from 3 different stakeholders are triggered in response to the alarm. Within the shared IoT platform, direct cooperation between devices under the Control Center supervision leads to incident addressing.

Technical Contributions

- **Thales Services & CEA List**: Real-time video-tracking, Semantics
- **Thales Communications**: Devices registry & configuration, REST services
- **Odonata**: Embedded and distributed service infrastructure
- **Sogeti High Tech**: Bridges btw. technologies, Security, Semantic admin.
- **Univ. Paris East:** Devices control and cooperation, Semantic modeling
- **Inst. Telecom SudParis & Univ. Concordia**: Topology modeling

Application Domains

- Smart cities
- Transportation
- Critical infrastructure protection

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WoO Spanish Demo

One evening from home to the mall

During a family trip from home to the mall for seeing a film and having dinner, their Smartphones (including public user profiles, monitoring agents, NFC & WSAN based sensors, etc.) interact with other smart objects to offer/access innovative services.

Technical Contributions

- **Prodevelop**: Social data and geolocated sensor processing
- **DEIMOS**: Sensor access platform and user question/answer interface
- **ETIC**: Intelligent interaction
- **Telespazio**: Remote & intelligent metering
- **UPC**: Security and privacy protection
- **UPM**: Interoperability and decision making leveraged by semantic annotation
- **Visual Tools**: Vehicle verification, people tracking system

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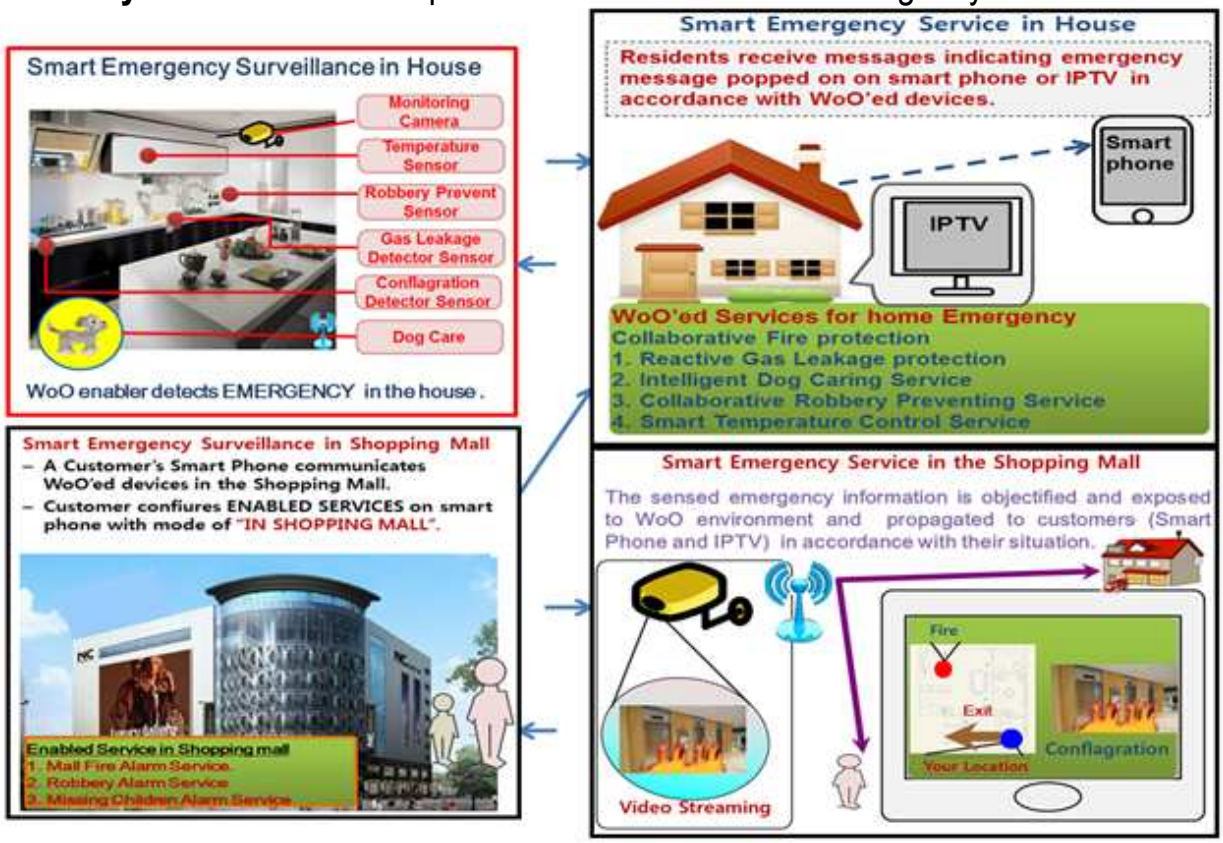
WoO Korean Demo

Smart Emergency Services

Smart Emergency Surveillance and Protection services became operational after a configuration step where all devices in the house and shopping mall are endowed with WoO'ed communication and collaboration capabilities. Smart Emergency Controller sends emergency messages to all residents/customers on Smart Phone and IPTV and takes its protective actions automatically.

Technical Contributions

- **HUFS**: WoO'ed SON architecture for smart emergency, service integration
- **EGC&G:** Overlay delivery networking platform
- **ETRI**: Mobile and social networking services for smart emergency
- **KAIST**: Device APIs and objectification for WoO'ed smart emergency
- **KT**: Overall state of arts and application scenario, and business models
- **Kwangwoon Univ.:** Smart streaming protocol for smart emergency
- **Miksystem**: IPTV service platform for WoO'ed smart emergency



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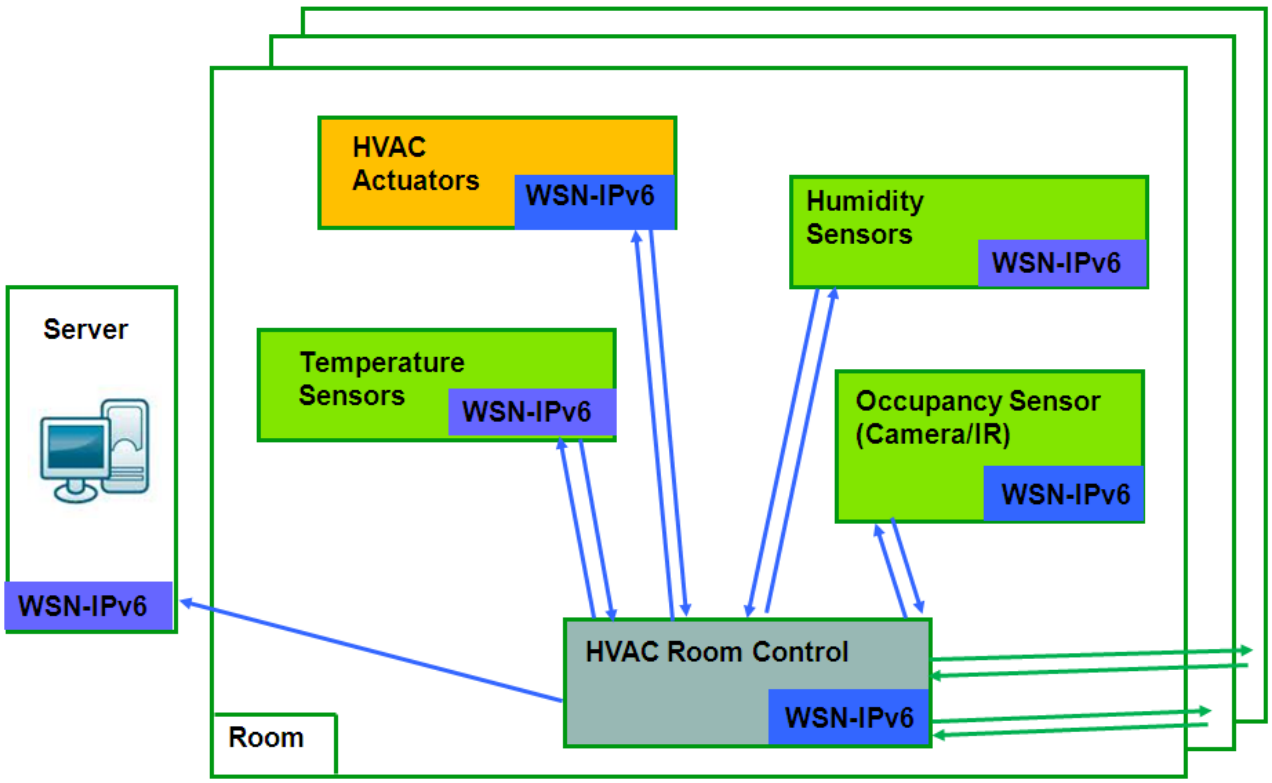
WoO Egyptian Demo

Autonomous & Efficient Climate Control in Buildings

The proposed *Autonomous Energy Efficient Climate Control Solution for Smart Buildings* is based on smart sensing, autonomous actuation and localized decision making. It enables to a Smart Building manager to monitor the climate of the building facilities via a web portal. Energy Optimization: only use the actual amount of energy and when it is really required. The IPv6 network directly integrates the 6LowPAN enabled wireless sensor nodes and, via a smart gateway, the IP-enabled devices.

Technical Contributions

- **Cairo University**: Devices auto-configuration and fault identification; Embedded intelligence in the sensor nodes and decentralized energy optimization algorithms
- **NMA Technologies**: HVAC (Heating, Ventilation and Air Conditioning) energy optimization and in-Building climate control algorithms
- **Smartec**: Wireless Sensor Networks channel modelling, mote placement, power management, and deployment



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