

## Project Profile

# SITAC

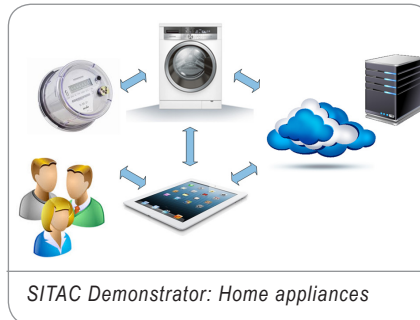
## Social Internet of Things: Apps by and for the Crowd

*Social Networks (SN) and Internet of Things (IoT) are two of the most promising paradigms of the next decade. Enabling autonomous interaction among humans and devices is the main objective when these two paradigms converge. The challenge undertaken by the ITEA 2 SITAC project is to create a unifying architecture and 'ecosystem' comprising platforms, tools and methodologies that enable the seamless connection and cooperation of many types of network-connected entities, whether systems, machines, devices or humans with personal devices. This ecosystem must make business sense and therefore cover the needs of various types of industrial stakeholders: device manufacturers, telecom operators, service providers and companies acting as users.*

SITAC aims to deliver an open platform to enable such actors to monetise their products and services – whether communication infrastructures, installed sensors, data flows or labour – as well as share revenue, much in the way that cloud computing platforms do. The project will innovate by using the 'social networking' paradigm to facilitate and unify interactions both between people and devices and between devices. It will propose a distributed framework for enabling the Web-based service representation of smart spaces and the objects they include.

### PLATFORM-NEUTRAL REFERENCE ARCHITECTURE

The project will develop a reference architecture with enabling technologies for creating a common platform for heterogeneous networks capable of addressing the challenges of scalability, adaptability and security. This architecture will support distributed and heterogeneous environments and address a spectrum of network-based configurations, ranging from the client-server style used in clouds with powerful resources to the command-and-control style of resource-constrained sensor-actuator networks. This architecture will also allow for heterogeneous networks (and infrastructure) to be exposed to make it tangible for a device owner to consciously select



(or build) a relevant network infrastructure according to specific needs. Furthermore, the use of semantic interoperability and context-awareness techniques will facilitate the delivery of information at the right place and at the right time. In this respect, SITAC will focus on dynamic and behavioural interoperability and meeting quality requirements in dynamic situations, with design time support of configuration, scalability and optimisation.

The business, social and technical models and solutions to be developed will be validated by a set of demonstrators in a variety of domains including the home, transport, energy and education. SITAC contributes to the ITEA Roadmap 'Infrastructures & basic services' and 'Networks & computing', and will build on results from previous ITEA projects such as SODA, ESNA and DiYSE.

### KEY INNOVATIONS

The SITAC project aims to generate key innovations in the following terms:

- Facilitating seamless connection and cooperation among devices and users through the use of social networks and crowd-based applications;
- Allowing casual users to take control of such massively deployed objects in a convenient and safe manner;
- Providing a platform which enables the development of Social IoT and crowd-based applications and its relevant business-wise ecosystem;
- Enabling in-node content analysis and decision making to decrease the amount of data flows;
- Addressing technical challenges related

## SITAC (ITEA 2 ~ 11020)

### Partners

Alcatel-Lucent  
 Arcelik A.S.  
 Fara Oy  
 Gemalto SA  
 GS Technologies  
 KoçSistem  
 Institut Télécom  
 Instituto de Telecomunicações  
 MobiquiThings  
 PLANET MEDIA  
 Prodevelop  
 Sen.se  
 Soft4Energy  
 Starhome  
 Thales Communications and Security  
 Universidad de Alcalá  
 Universidad Politécnica de Valencia (UPV)  
 University of Seville  
 University Paris-Est Marne-la-Vallée

### Countries involved

Finland  
 France  
 Israel  
 Portugal  
 Spain  
 Turkey

### Project start

December 2012

### Project end

November 2015

### Contact

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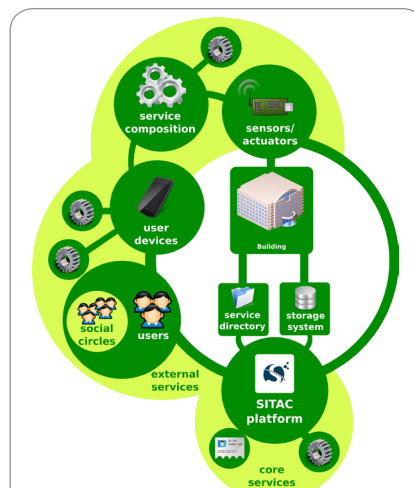
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to data analysis and recommendation techniques when leveraging the social network and crowd-based paradigms.

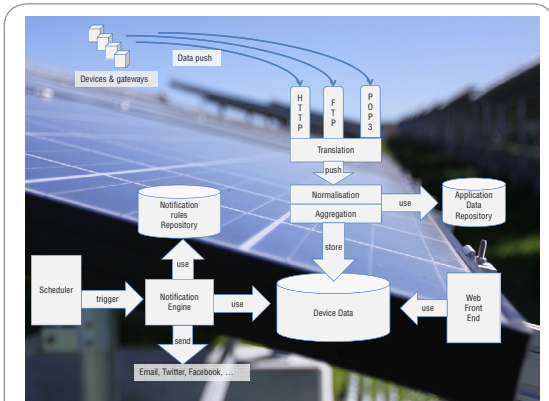
The SITAC architecture will also define appropriate security and privacy solutions.

One of the major goals of SITAC is to empower the crowd to engage into the co-creation and sustainability of societal phenomena that will shape future social experiences. To this end, SITAC will develop an open creation platform empowering communities and end users to manage the complexity of data streams being exchanged over billions of connected devices. For the end-user, this means the ability to select devices he/she wants with whatever application at a much lower cost, at the same time enabling competition between choices. For developers, it creates new opportunities in terms of service management and application development. It will also drive changes in technology faster, creating more flexibility and greater opportunities from end to end across different vertical markets.

Europe is well placed to lead the new wave of the Internet. The potential impact on European technology and commerce is substantial, given the promise it holds with respect to key success factors like reduced time-to-market for new product developments, increased application durability, improved interoperability and easier product integration, and more streamlined business operation, all of which will have a positive impact on productivity and competitiveness.



*SITAC Demonstrator: Crowd-based building management expert system*



*SITAC Demonstrator: Solar energy production managed by users*

For SITAC, the IoT is an enabler for new and exciting social and crowd services. The big data created by IoT enablers will have value for a new set of uses and users. First, one needs to determine the methods and architectures for collecting and managing the data. Second, the question is how to provide that data, or now content, so that it can underpin services. Third, SITAC will concentrate on how to create and design services that are informative, persuasive, social, business-oriented, and at the same time target a totally new territory considering contemporary businesses.

### EMPOWERMENT AND OPPORTUNITY

The opportunity is huge, from social energy production and consumption, new approaches to home energy monitoring and control, community creation of cooperative applications and services, education connected with the physical environment and social behaviour, to name a few. As the IoT proliferates, a boom of continuous data generation can be expected. SITAC will advance the state of the art when it comes to data analysis and recommendation systems by combining design, user experience and business aspects into a dynamic and behaviourally interoperable SITAC architecture that takes account of and proposes solutions to the relevant societal, political and legal aspects.

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■ ITEA 2 – Information Technology for European Advancement – is Europe's premier co-operative R&D programme driving pre-competitive research on embedded and distributed software-intensive systems and services. As a EUREKA strategic Cluster, we support co-ordinated national funding submissions and provide the link between those who provide finance, technology and software engineering. Our aim is to mobilise a total of 20,000 person-years over the full eight-year period of our programme from 2006 to 2013.

■ ITEA 2-labelled projects are industry-driven initiatives building vital middleware and preparing standards to lay the foundations for the next generation of products, systems, appliances and services. Our programme results in real product innovation that boosts European competitiveness in a wide range of industries. Specifically, we play a key role in crucial application domains where software dominates, such as aerospace, automotive, consumer electronics, healthcare/medical systems and telecommunications.

■ ITEA 2 projects involve complementary R&D from at least two companies in two countries. We issue annual Calls for Projects, evaluate projects and help bring research partners together. Our projects are open to partners from large industrial companies and small and medium-sized enterprises (SMEs) as well as public research institutes and universities.

