



## Project Results

# SITAC

## Going beyond and on top of the cloud solution

### Executive summary

The ITEA 2 project SITAC aims to provide an attractive eco-system for managing the huge number of expected connected objects by leveraging on three successful paradigms: social networks, crowd-based applications and data analysis. SITAC has produced a highly innovative, social-media based platform that enables the development of Social IoT and crowd-based services and applications while stimulating a relevant and new business-oriented ecosystem.

### Project origins

Internet of Things (IoT) is expected to grow exponentially in numbers of devices and bring with it a tidal wave of data. Those who can exploit it correctly will emerge with new kinds of service eco-systems while others will be left behind. This data explosion is driving changes in communications, storage and advanced analytics. In many cases the value of the data will outweigh the value of the device collecting the data, transforming the value proposition. Devices will shift from passive sources to active (and even independent) participants in transactions. The challenge is to determine the tools and architectures for collecting and sharing the data in order to stimulate the creation of services and applications by the crowd that are informative, persuasive, social, business-oriented while, at the same time, targeting a totally new territory in respect of contemporary businesses. For SITAC, the Internet of Things is an enabler for new and exciting social and crowd-based services.

### Technology applied

SITAC focused on integrating three paradigms (social, data analysis, crowd) in a common IoT platform that enables mutuality and allows device owners to consciously select (or build) a relevant network infrastructure according to specific needs. Another important feature is the use of semantic interoperability and context-awareness techniques to facilitate the delivery of information or

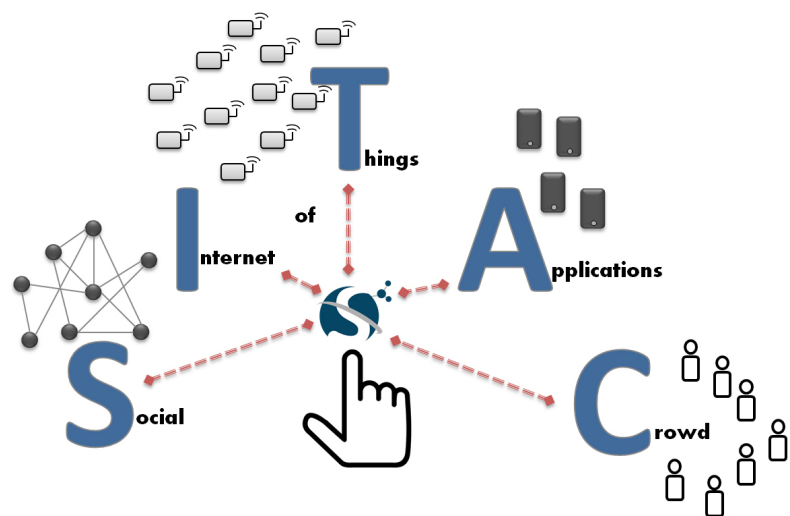
services at the right place and at the right time. The sharing of resources and search leveraging through machine learning helps enhance recommendation techniques. With a new paradigm for managing access control to resources, the casual user, for instance, can take control of massively deployed objects in a secure manner and, in the economic domain, achieve low-cost maintenance and cooperation between different deployments.

The business, social and technical models and solutions developed within the project have been validated by a set of demonstrators in a variety of domains. Examples include Social

Green Building (services and data sharing with social circles, service creation by the crowd), solar energy production managed by users (secure data collection and sharing, social network of producers and their equipment, applications by the crowd), control and monitoring of home appliances (control of operation and monitoring, energy monitoring) and network identity and subscription management (M2M network enabler for connected objects introducing new business roles and solutions).

### Making the difference

Among the main results of the project are



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

the framework for data processing and recommendation techniques, and crowd-based design by and for the crowd with the possibility to create applications, compose and share services as well as introduce new IoT resources into the SITAC platform without the need for prior programming skills. All with unified secure access control for resource sharing. Exploitation is evident in a number of products, transfer of results and acquisitions and spin-offs. For instance, Prodevelop has created a port solution suite POSIDONIA for mooring reservations and recommendations while Starhome has enhanced its M2M service broker between mobile operators and M2M verticals.

There are several examples, too, where members of the project consortium have transferred the results to their internal programmes, such as Gemalto with trust management as a service and M2M On Demand Connectivity (ODC) or Thales with technical recommendations for an extension to the PaaS of Thales' virtual private cloud offer. Alcatel-Lucent has been able to employ the results to actively engage in dialogue with town halls

in a 'Social Smart City' project and Arçelik and KoçSistem are collaborating to build an IoT SaaS platform. The Soft4Energy SME (using Wattometer's underlying technology as a middleware) has been acquired by an independent energy producer And MobiquiThings has been acquired by Sierra Wireless for its key embedded SIM technology for IoT connectivity. GS Tech created the spin-off product 'InTouch'.

### Future prospects

The open creation platform will empower communities and end users to manage the complexity of data streams exchanged over billions of connected devices at much lower cost. For developers, too, more flexibility and greater opportunities can be generated from end to end across different vertical markets. The uniqueness of SITAC lies in the concrete solutions that go beyond and on top of the cloud solution.

## Major project outcomes

### Dissemination

- 28 publications, including 3 Rank-A journals (e.g. 2 IEEE IC Mag., 1 Elsevier IM Journal), 6 international journals and 19 relevant international conferences
- 10 presentations at conferences/fairs

### Exploitation (so far)

- A Social Smart City project that uses crowd devices for data sensing with the SITAC crowd-based service ecosystem for a new smart city approach – Alcatel Lucent
- Provide new solutions for M2M MNO Subscription Management (On Demand Connectivity from Gemalto, versatile SIM and connectivity solution from Sierra Wireless, M2M service broker from Starhome)
- Wattometer's underlying technology as a middleware for energy monitoring and propose turnkey hosted solution for hardware manufacturer (e.g. battery monitoring) – Soft4Energy
- Solution suite POSIDONIA for mooring reservations using SITAC based service ecosystem – Prodevelop

### Standardisation

- Participation in OneM2M with a new work item proposal on Authorisation Management
- GSMA Subscription Management compliant implementation
- UMA compliant implementation of delegated Authorisation Management

ITEA is the EUREKA Cluster programme supporting innovative, industry-driven, pre-competitive R&D projects in the area of Software-intensive Systems & Services (SiSS). ITEA stimulates projects in an open community of large industry, SMEs, universities, research institutes and user organisations. As ITEA is a EUREKA Cluster, the community is founded in Europe based on the EUREKA principles and is open to participants worldwide.

## SITAC

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### Partners

#### France

Gemalto SA  
Institut Mines-Télécom  
MobiquiThings – Sierra Wireless  
Sen.se  
Soft4Energy  
Thales Communications and Security  
Université Paris-Est Marne-la-Vallée

#### Israel

Starhome

#### Portugal

GreenSphere Lda  
Instituto de Telecomunicações

#### Spain

Alcatel-Lucent  
Prodevelop  
Universidad de Alcalá  
Universidad Politécnica de Valencia (UPV)  
Universidad de Sevilla

#### Turkey

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**KocSistem Information and  
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### Project start

December 2012

### Project end

November 2015

### Project leader

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