



European
Commission



COMPOSE

COMPOSE will create an ecosystem for unleashing the power of the IoT via an easy transformation to an IoS. COMPOSE technology will enable the creation of base services, composite services, and applications stemming from and operating on smart objects.

AT A GLANCE

Project title:

Collaborative Open Market to Place Objects at your Service

Project reference:

317862

Project coordinator:

Benny Mandler, IBM Research, ISRAEL

Partners:

CREATE-NET, (IT)
Fraunhofer Institute FOKUS, (DE)
The Open University, (UK)
Barcelona Supercomputing Center, (ES)
INNOVA S.p.A, (IT)
University of Passau, (DE)
U-Hopper, (IT)
GEIE ERCIM (W3C), (FR)
Fundació Privada Barcelona Digital Centre Tecnològic (Bdigital), (ES)
Abertis Telecom, (ES)
EVERYTHING, (CH)

Duration:

36 months

Total cost:

€7,40M

Website:

COMPOSE overview

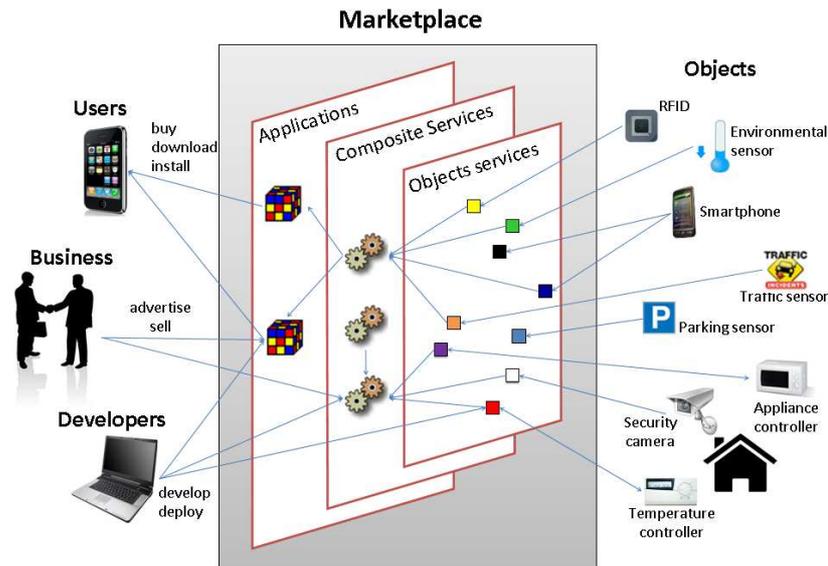
COMPOSE aims at enabling new services that can seamlessly integrate real and virtual worlds through the convergence of the Internet of Services (IoS) with the Internet of Things (IoT).

COMPOSE will achieve this through the provisioning of an open and scalable marketplace infrastructure, in which smart objects are associated to services that can be combined, managed, and integrated in a standardised way to easily and quickly build innovative applications.

The project will develop novel approaches for virtualising smart objects into services and for managing their interactions. This will include solutions for managing knowledge derivation, secure and privacy-preserving data aggregation and distribution, dynamic service composition, advertising, discovering, provisioning, and monitoring.

COMPOSE is expected to give birth to a new business ecosystem, building on the convergence of the IoS with the IoT and the Internet of Content (IoC). The COMPOSE marketplace will allow SMEs and innovators to introduce new IoT-enabled services and applications to the market in a short time and with limited upfront investment.

At the same time, major ICT players, particularly cloud service providers and telecommunications companies, will be able to reposition themselves within a new IoT-enabled value chain.



Technical Approach

The vision of the COMPOSE project is to advance the state of the art by integrating the IoT and the IoC with the IoS through an open marketplace, in which data from Internet-connected objects can be easily published, shared, and integrated into services and applications. The marketplace will provide all the necessary technological enablers, organized into a coherent and robust framework covering both delivery and management aspects of objects, services, and their integration.

- Object virtualization: enabling the creation of standardized service objects
- Interaction virtualization: abstract heterogeneity while offering several interaction paradigms
- Knowledge aggregation: creating information from data
- Discovery and advertisement: of semantically-enriched objects and services
- Data Management: handle massive amounts and diversity of data/metadata
- Ad hoc creation, composition, and maintenance: of service objects and services
- Security, heterogeneity, scalability, and resiliency: incorporated throughout the layers

Expected Impact

COMPOSE strives for a strong impact on a developing market by lowering barriers to

develop, select, combine, and use IoT-based standardized value added services. This will be achieved by providing a complete ecosystem, and having it adopted by enterprises, SMEs, government-related bodies, and individual developers and end-users.

We hope that opening the door to this realm for smaller entities will lead to higher innovation. COMPOSE expects to aid by fostering a developers' community and advocating an open source/interfaces

Use-Case Driven

COMPOSE design, development, and validation will be based on innovative use cases highlighting different aspects of the platform. Among the use cases:

- **Smart City (Barcelona):** Ample amount and diversity of sensors are deployed at a Barcelona district under the supervision of a COMPOSE partner. Along with Barcelona's OpenData, COMPOSE intends to showcase life in a smart city by creating a group of city services for the citizens.
- **Smart Territory (Trentino):** With the collaboration of regional network providers, the tourism board, and meteorological data providers, COMPOSE will explore innovative services for tourists. This pilot aims to enhance the tourist experience by exploiting COMPOSE technologies for the creation of personalized, social- and environmentally-aware (web and mobile) tourism services and territory monitoring services that leverage the regional networking and environmental infrastructures.