Advances

The SOA4All project provides a comprehensive global service delivery platform that integrates complementary and revolutionary technical advances into a coherent and domain independent service delivery platform, i.e.:

- **SOA** as the dominant paradigm for application development which abstracts from software to the notion of service
- **Web principles** to scale SOA to a world wide Web communications infrastructure
- **Web 2.0** as a means to structure human-machine cooperation in an efficient and cost-effective manner
- **Semantic Web technologies** to enhance service descriptions and automate service discovery, mediation and composition
- **Web of Data** as the ongoing effort of exposing and interlinking on the Web data previously enclosed within silos
- **Context management** to meet local environmental constraints, organizational policies and personal preferences in composing, adapting and delivering services

At a Glance

**Project title**
Service Oriented Architectures for All

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13,386,634 € / 9,474,415 €

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Scope

Computer science has entered a new generation. The emerging generation starts by abstracting from software and sees all resources as services in a Service Oriented Architecture (SOA). In a world of services, SOAs have rapidly become the dominant computing paradigm. However, current SOA solutions are still restricted in their application context to being in-house solutions of companies. While service orientation is widely acknowledged for its potential to revolutionize the world of computing by abstracting from the underlying hardware and software layers, its success depends on resolving a number of fundamental challenges that SOA does not address today.

SOA4All realizes a world where billions of parties are exposing and consuming services and data via advanced Web technology. To this end, SOA4All aims to bear SOA, Web, Semantic Web, Web of Data and Context adaptation as the core principles able to provide the power, flexibility and simplicity that is necessary for a wider uptake of service-oriented technologies in the Future Internet.

Positioning in global context

In a broad context, SOA4All significantly impacts the competitiveness of the European Software and Services industry in the Future Internet. The main success factors for the SOA4All integrated solution are the open ecosystem and the service ecosystem.

The open ecosystem is based on the idea of “a Web of billions of services” in an open environment, where an unlimited number of services can be offered, found, consumed and created, and where the interaction of different services and actors is enabled by SOA4All technology.

SOA4All offers added value in the open ecosystem approach, as it is a flexible and scalable solution for modern architectures that provides functional and non-functional properties that no other platform can provide nowadays.

The service ecosystem builds on the idea of federated service platforms and service parks, where ‘prosumers’ can find and consume services of different providers through a single platform.
The general value in the service ecosystem is that SOA4All can be used as a federated infrastructure well suited to this kind of service provision. The ‘prosumer’ gets benefit from the community and the ecosystem and can generate its own business value.

**Contribution to standardization and interoperability issues**

SOA4All contributions to standardization and interoperability can be summarized as follows:
- W3C member submission of WSMO-Lite, a lightweight approach to the semantic annotation of Web service descriptions.
- Integration of lightweight annotation features into latest OASIS Semantic Execution Environments (SEE) Reference Ontology review draft.
- Contribution to Unified Service Description Language (USDL) W3C XG with focus on aligning lightweight service annotation languages and the reuse of existing ontologies with the USDL. The project also acted as consultant to THESEUS/TEXO in regards to USDL standardization, and worked with the SA-REST people to establish a W3C XG/WG.
- SOA4All is endorsed by the NESSI Initiative (http://www.nessi-europe.eu/) and contributed significantly to the NESSI Open Framework, which is one of the main challenges of the European Platform on Software and Services.

**Target users / sectors in business and society**

The SOA4All Studio is a fully-fledged Web-based framework that supports end-users throughout the entire life-cycle of services. It can be seen as a key pillar in achieving a Web that allows everyone to become a ‘prosumer’, i.e., easily create and access services and to turn the “Web of billions of services” into reality. The SOA4All Studio builds upon advanced Web 2.0 and Semantic Web technologies in order to hide complexity and provide an intuitive graphical interface that allows users to:
- Discover services in a distributed service space
- Annotate services with semantic information
- Compose services in a mashup-like way
- Use (consume) services with a single mouse click
- Monitor and analyze services

**Overall Benefits for business and society**

Research and development about SOA related technologies carried on by the SOA4All project can contribute to enable sustainable growth in the field of service creation and delivery on the Web.

As an example, the SOA4All approach to a global service delivery platform can facilitate the creation of service infrastructures and increase the interoperability between large numbers of distributed, heterogeneous and highly dynamic functionalities on the Web. By exploiting Web 2.0 and semantic technologies in tools for increased automation and interoperability for service delivery, SOA4All can help new business ideas to be more easily realized and integrated in the upcoming “billions of services” open ecosystem.

**Examples of use cases**

The SOA4All project developed three use cases with high market potential to demonstrate SOA4All technologies by means of business scenarios covering different target domains such as eCommerce, telecommunications and Public sector.

For instance, the **C2C Service eCommerce** use case demonstrates how SOA4All solutions can provide an easy way to use existing third-party services, enabling end users to build, publish and execute new eCommerce applications in order to market and sell their own products. E.g., thanks to SOA4All solutions a Webshop provider can combine offers from many different vendors on the fly and integrate them into a new process to be advertised on social platforms.

**Achievements**

SOA4All main achievements can be summarized as follows:
- **SOA4All principles and core technologies**: the SOA4All approach to integrating complementary and revolutionary technical advances (the Web, context-aware technologies, Web 2.0 and Semantic Web) into a coherent and domain independent worldwide service delivery platform for the Future Internet of Services.
- **SOA4All reference architecture**: the foundation of the SOA4All framework supporting a world where a massive number of parties expose and consume services by realizing a coherent and domain independent platform.
- **SOA4All open source tools and platform services**, in particular the **SOA4All Studio**: a fully-fledged Web-based distributed system that provides extensive support for completing different tasks along the lifecycle of services.
- **Video tutorials and training material**, illustrating the SOA4All approach and demonstrating SOA4All tools.
- **Several scientific publications**, including journal articles, conference papers, white papers etc.
- **Contribution to standardization bodies**, in particular as for WSMO-Lite and USDL.
- **Collaboration with several research initiatives**, both at the technical level and as joint dissemination activities.