SmartCLIDE

"The Stairway to Cloud"

The **SmartCLIDE project** will enable organizations on the path to digitalization to accelerate the creation and adoption of Cloud and Big Data solutions. The innovative, smart, cloud-native development environment will support creators of cloud services in the discovery, creation, composition, testing, and deployment of full-stack, data-centered services and applications in the cloud.

At a glance

SmartCLIDE

Smart Cloud Integrated Development Environment supporting the full-stack implementation, composition and deployment of data-centered services and applications in the cloud.

Project coordinator

Institut für angewandte Systemtechnik Bremen (DE)

Partners

- INTRASOFT International (LU)
- AIR Institute (ES)
- University of Macedonia (GR)
- CERTH (GR)
- X/OPEN Company (UK)
- Eclipse Foundation Europe (DE)
- Wellness Telecom (ES)
- Unparallel Innovation (PT)
- CONTACT Software (DE)
- KAIRÓS Digital Solutions (ES)

Duration

36 months: 01/2020 – 12/2022

Total cost

€4,935,381

EC Contribution

€4,935,381

Programme

H2020-ICT-2019-2

Further information

http://smartclide.eu

Context and motivation

The rapid advances in Cloud Computing, the Internet of Things, Big Data, Virtual / Augmented / Mixed Reality and Blockchain are changing every sphere of society at a very fast pace: the way people establish social relations and links, how companies do business, or how citizens and public Administration relate to each other.

In this context, business organizations and public bodies are submerged in deep digital transformation processes that involve profound cultural and technological breakthroughs. Cloud computing can be considered as the key enabler of the digital transformation since it has managed to engage companies' eagerness for growth and the traditional need to acquire more powerful infrastructures.

Challenge

In this context, when companies face the creation or composition of new services for their clouds, they have three alternatives with their own problems/limitations:

- **Development of services from scratch** invokes high complexity due to the wide variety of technologies that need to be used in the whole stack. It is expensive and time consuming.
- **Creating new services by composition:** Existing marketplaces are tightly coupled to IaaS and PaaS providers, and they are not always uniformly classified or well documented, so the discovery of valuable and secure services is generally a manual process and validity is demonstrated by trial and error.
- **Pricing models of public cloud providers** are very complex since they combine different variables depending on the type of service. These variables can be time of usage, resources used (memory, storage, processing capacity), volume (thousands) of predictions obtained (in the case of machine learning algorithms), volume of data transferred and many more. This fact makes the calculation of costs extremely difficult to predict, and therefore to control.

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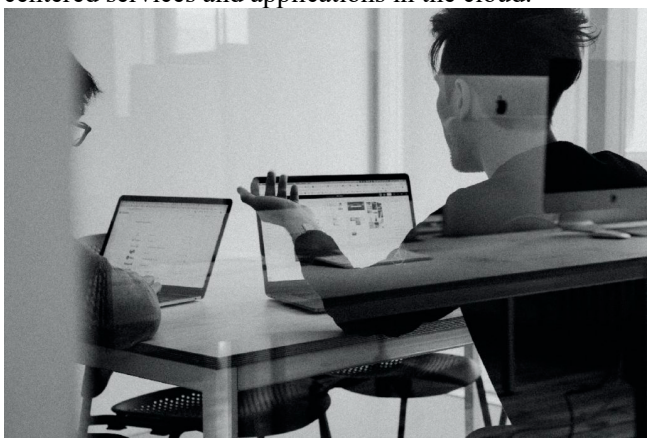
Solution

The main objective of **SmartCLIDE** is to overcome the previous limitations by proposing a radically new, smart, cloud-native development environment, based on the ***coding-by-demonstration*** principle, that will support creators of cloud services in the discovery, creation, composition, testing and deployment of full-stack, data-centered services and applications in the cloud.



SmartCLIDE will provide high level abstractions at all stages (requirements, design, development, testing, deployment and run-time) as well as self-discovery of IaaS and SaaS Services. **SmartCLIDE** will provide several categories of abstractions: at development stage, **SmartCLIDE** will provide abstractions on data transformations or processing; at testing stage, mechanisms to visualize flow and status of artefacts to automatically test the expected behavior; at deployment stage, abstractions of physical and virtual resources; or at run-time, mechanisms to monitor the performance and operation of the service.

The cloud nature of the environment will enable collaboration between different stakeholders, and the self-discovery of IaaS and SaaS services and the high levels of abstraction will facilitate the composition and deployment of new services to non-technical staff (with no previous experience on programming or on the administration of systems and infrastructure). Equally, hiding the complexity of the infrastructure, and adding intelligence to this layer, will allow the selection of the most adequate infrastructure services in each case.

SmartCLIDE will allow SMEs and Public Administration to boost the adoption of Cloud and Big Data solutions, being validated by one solution oriented to Public Administration (Social Security System) and three different IoT and Big Data products from software development SMEs within the consortium.

Expected impact

To evaluate the impact of SmartCLIDE, the consortium will carry out a study considering the cost and income flows of all the impacts together. Impact assessment will be carried out during the last 6 months of the project, when the final version of **SmartCLIDE** solution will be ready to be assessed in the Pilot Case. Socio-economic impacts, which require a wider time span to be measured, will be properly drafted for their measurement after project completion.

- **IMPACT 1.** Contribute to the development of an ecosystem that will respond to the future digitization needs of industry and the public sector.
- **IMPACT 2.** Assist the development of new cloud-based services and infrastructures in Europe and foster an industrial capability in the cloud computing sector.
- **IMPACT 3.** Create new opportunities to encourage European-based providers, in particular SMEs, to develop and offer cloud-based services based on the most advanced technologies.
- **IMPACT 4.** Leverage research and innovation projects to support the development and deployment of innovative cloud-based services and next generation applications, for the public and private sectors (including standardization and applications for Big-Data and other sector-specific applications).

SmartCLIDE DNA