Deliverable D6.5

Interim Project Presentation and brochure

WP 6

Project Acronym & Number:	SmartCLIDE – GA 871177
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Project Partners

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Intrasoft International SA (INTRA), Luxembourg
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X/OPEN Company Limited (TOG), United Kingdom
Eclipse Foundation Europe GMBH (ECLIPSE), Germany
Wellness Telecom SL (WT), Spain
Unparallel Innovation LDA (UNP), Portugal
CONTACT Software GmbH (CONTACT), Germany
Kairos Digital, Analytics and Big Data Solutions SL (KAIROS DS), Spain

Dissemination Level

PU	Public	
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Document Control

Version	Notes	Date
0.1	Creation of the document	21/12/21
0.2	Integration of ATB comments	30/12/21
0.3	Integration of Kairos comments	18/01/22
1.0	Submitted version	20/01/22

Abbreviations

AB	Advisory Board
App	Software Application
APM	Adaptive Project Management
D	Deliverable
DoA	Description of Action
EA	Ethical Adviser
PB	Plenary Board
EC	European Commission
e.g.	exempli gratia = for example
etc.	et cetera
EU	European Union
FP7	Framework Programme 7
GA	Grant Agreement
GDPR	General Data Protection Regulation
ICT	Information and Communication Technology
i.e.	id est = that is to say
IP	Intellectual Property
IPR	Intellectual Property Rights
KPI	Key Performance Indicator
M	Month
PB	Plenary Board
PC	Project Coordinator
PQA	Project Quality Assurance
QA	Quality Assurance
RTD	Research and Technological Development
SME	Small and Medium Sized Enterprise
SC	Steering Committee
STQA	Scientific and Technical Quality Assurance
T	Task
VoIP	Voice over IP
WP	Work Package
WPL	Work Package Leader
WPMT	Work Package Management Team
w.r.t.	with respect to

Executive Summary

According to the predefined rules exposed at the beginning of the SmartCLIDE project, project presentation and brochure will be issued in this section. All the images and materials created (Brochure, poster, Roll up for conferences, and project templates) could be downloaded and are, of course, open to use as Creative Commons. This report gives an overview of the SmartCLIDE project public website dissemination area (Dissemination Kit, Blog and Follow up) and internal website and collaboration support.

The public site (www.smartclide.eu) is designed to present the work of the SmartCLIDE project to the general public, the scientific community, and industry. I was already presented with the SmartCLIDE logo on the deliverable D6.3.1.

All partners are collaborating in making local and international news about the goals of the consortium, updating deliverables to the website and keeping the open for public access. Our collaboration infrastructure will be evaluated and upgraded as necessary during the lifetime of the project. All partners are encouraged and reminded regularly to provide additional suggestions and further information regarding activities related to the SmartCLIDE project, so that these can be properly captured and advertised via the project website in order to keep the website current with fresh information and material.

Using the materials provided (printed and online) for their own events and for the events in which the Consortium have presence. (Updated pictures, updated reports, news about the platform, Workshops activities, Interaction with the end users… etc.)

This document will have 3 releases:

- The first release (D6.3), month 12, described the first set of assets created for the project.
- This second release (D6.5), month 24, presents the created assets after 2 years duration. Sections that have been updated will be marked with a NEW design.
- A final release (D6.7), month 36, will present the final list of assets created by the project dissemination and communication of the project.

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1 Introduction

1.1 About this deliverable

The project presentation and brochure are part of the management and dissemination strategy of the SmartCLIDE project. We will be creating these 3 coming years several materials to reinforce the image of the project at all the international events the Consortium participates in. It will serve as first source of information to the public, as concerns objectives, structure and partners involved but particularly with regards to activities, news and public project results. These materials will be regularly updated and customized until the end of the project (D6.3, D6.5 and D6.7) in order to improve engagement of early adopters and end-users.

SmartCLIDE's public website has 12 specific sections to promote the assets produced by the project:

- **Public deliverables** to share technical details about the project,
- **Scientific publications** to obtain academic recognition by our peers,
- **Articles** to disseminate to our stakeholders,
- **Presentations** to promote the project,
- **Videos** with recorded presentations or demos,
- **Newsletters** sent to the project followers,
- **Press Releases** to promote some key project milestones,
- **Posters, Flyers and Brochures** displayed or distributed. during some events,
- **Blog articles** to drumbeat the activities and progress of the project,
- Logo and artworks of the project,
- **Training material** that will contribute to learning and understanding of the project,
- Finally, **Developer resources** to access the open-source of the project.

2 Public deliverables

So far, we published the following deliverables:

- D1.1 – State-of-the-Art and Market Requirements
- D6.1 – Open Data Use Plan
- D6.2 – Project Website
- D1.4 – The SmartCLIDE Concept
- D1.5 – The SmartCLIDE Architecture

- D3.1 – Early SmartCLIDE Cloud IDE Design
- D6.3 – Early Project Presentation and brochure
- D6.4 – Early Plan for the exploitation and dissemination of the results

3 Scientific papers

We have 5 papers accepted in main scientific conferences:

2020

- "Applying Machine Learning in Technical Debt Management: Future Opportunities and Challenges" (University of Macedonia) QUATIC 2020

2021

- “A Hybrid Supervised/Unsupervised Machine Learning Approach to Classify Web Services” (AIR Institute) PAAMS 2021
- "A template-based approach to code generation within an agent paradigm" (AIR Institute) PAAMS 2021
- "Services extraction for integration in software projects via an agent-based negotiation system" (AIR Institute) PAAMS 2021
- "SmartCLIDE: Shortening the Toolchain of SOA-based Cloud Software Development by Automating Service Creation, Composition, Testing, and Deployment" (University of Macedonia) PCI 2021

4 Articles

2021

- Machine Learning for Technical Debt Identification (ATB) Eclipse Newsletter
- Increasing Adoption of Cloud Solutions with SmartCLIDE (UoM) IEEE Transactions on Software Engineering

5 Presentations

We created 3 presentations in 2020:

- **SmartCLIDE Pitch (Oct. 2020)** : First public presentation on SmartCLIDE presented during EclipseCon 2020 and used to create our first video.
  - See Appendix 15.1
- **SmartCLIDE Vision (Nov. 2020)** : Presented during the M9 Review
  - See Appendix 15.2
- SmartCLIDE: Stairway to Cloud (Dec. 2020) : Presented at the Open Research Webinars co-organized by the Eclipse Foundation and OW2, Dec. 15, 2020
  - See Appendix 15.3

6 Videos

Project videos are hosted on the SmartCLIDE YouTube channel. In 2021 we publish 2 new videos based on 2 blog post articles:

2020

- SmartCLIDE Introduction

2021

- AGILE methodologies and DevOps
- Cloud Computing in a nutshell
- SmartCLIDE presented at the Open Research Webinars

7 Newsletters

We published 5 newsletters: 1 in 2020 and 5 in 2021

2020

- Newsletter #1 – Jul. 2020: Let's lay the foundation (See Appendix 15.4)

2021

- Newsletter #2 - Mar. 2021: Our scenarios of use (See Appendix 15.11)
- Newsletter #3 - Sep. 2021: Deep Dive (See Appendix 15.12)
- In Eclipse Newsletter - Sep. 2021: Increasing Adoption of Cloud Solutions With SmartCLIDE (See Appendix 15.13)
- Newsletter #4 - Dec. 2021: SmartCLIDE Cloud IDE Design (See Appendix 15.14)

8 Press releases

8.1 For the project launch

We published 5 press releases for the project launch:

- CONTACT Software is partner in European cloud project SmartCLIDE
- Eclipse Foundation Supports EU Funded SmartCLIDE Project
- Kairós DS participa en el proyecto SmartCLIDE financiado por la UE
- AIR Institute Supports EU Funded SmartCLIDE Project
- Press Release – ATB Supports EU Funded SmartCLIDE Project

9 Posters, Flyers & Brochures

So far, we have only created an initial general information sheet. Due to the pandemic, we have only had one opportunity to distribute it.

- SmartCLIDE Fact Sheet #1
- SmartCLIDE Poster - Malaga 2022

10 Blog articles

In 2020, we published a total of 13 blog posts. It is interesting to notice that most of these articles have a usual content which can be considered as a resource for the project:

- Kick-Off meeting
- The Horizon2020 project SmartCLIDE has officially started on 1st January 2020! [Article]
- SmartCLIDE has its tagline
- SmartCLIDE: a new cloud-native IDE [Article]
- Machine Learning and Deep Learning: A power couple [Article]
- Cloud Computing in a nutshell [Article]
- Programming By Example [Article]
- Service Discovery in a Nutshell [Article]
- AGILE methodologies and DevOps [Article]
- First video for EclipseCon 2020
- Use Case: Real-Time Communication Service [Article]
- Our first deliverables are online
- Use Case: Enhance IoT-Catalogue with an integrated Cloud IDE [Article]

In 2021, we published 18 articles. The last 9 articles are directly extracted from the deliverable D3.1. Like for the first year, most of these articles have a usual content which can be considered as a resource for the project.

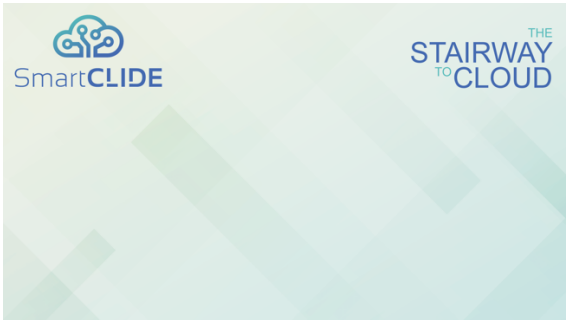
- Use Case: Provide a Quick Demonstration for a Customer [Article]
- H-Cloud Technical Community Event
- SmartCLIDE was presented at the TRANSFIERE event
- SmartCLIDE Market Requirements (Part 1) [Article]
- SmartCLIDE Market Requirements (Part 2) [Article]
- SmartCLIDE Service Creation [Article]
- SmartCLIDE Innovative Approaches [Article]
- For the second year, SmartCLIDE is present at EclipseCon
- SmartCLIDE will be presented to the H-Cloud community on November 15, 2021
- SmartCLIDE User Interface [Article]
- SmartCLIDE Deep Learning Engine [Article]
- Backend Service: Source Code Repository [Article]
- Backend service: Service Discovery, Creation and Monitoring [Article]
- Backend service: Security [Article]
- Backend service: Intercommunication [Article]
- Backend service: User Access Management [Article]
- Backend services: Deployment and CI/CD [Article]
- Early SmartCLIDE IDE Design [Article]

11 Logo & artworks

11.1 Logos

NEW!

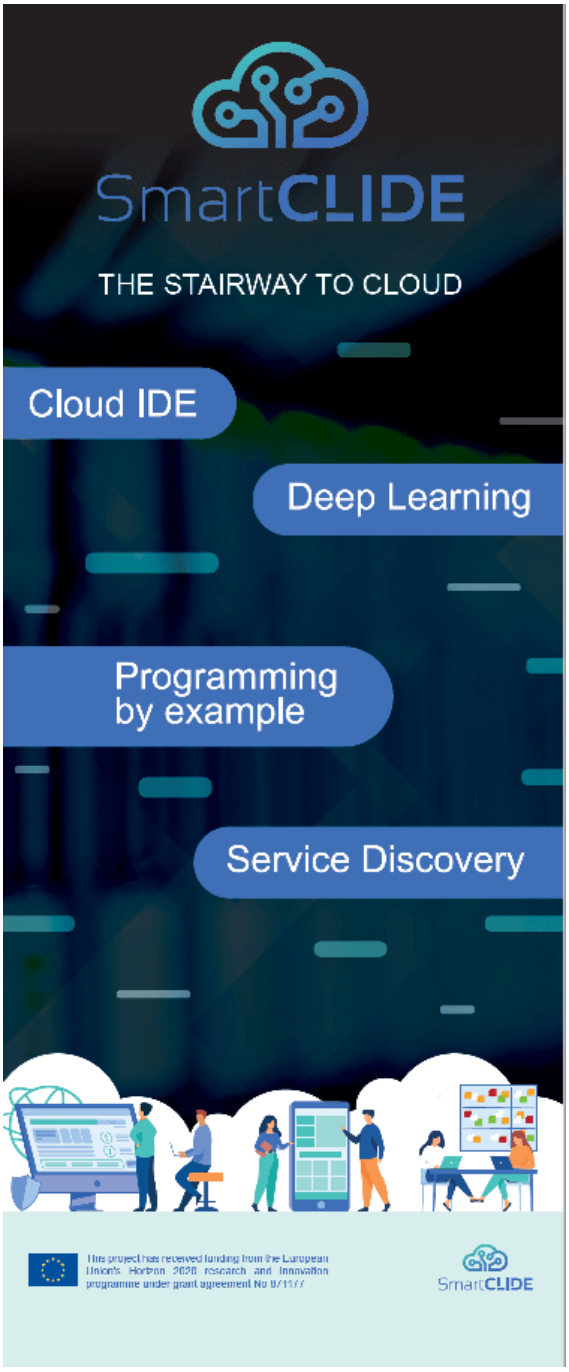
11.2 Zoom backgrounds

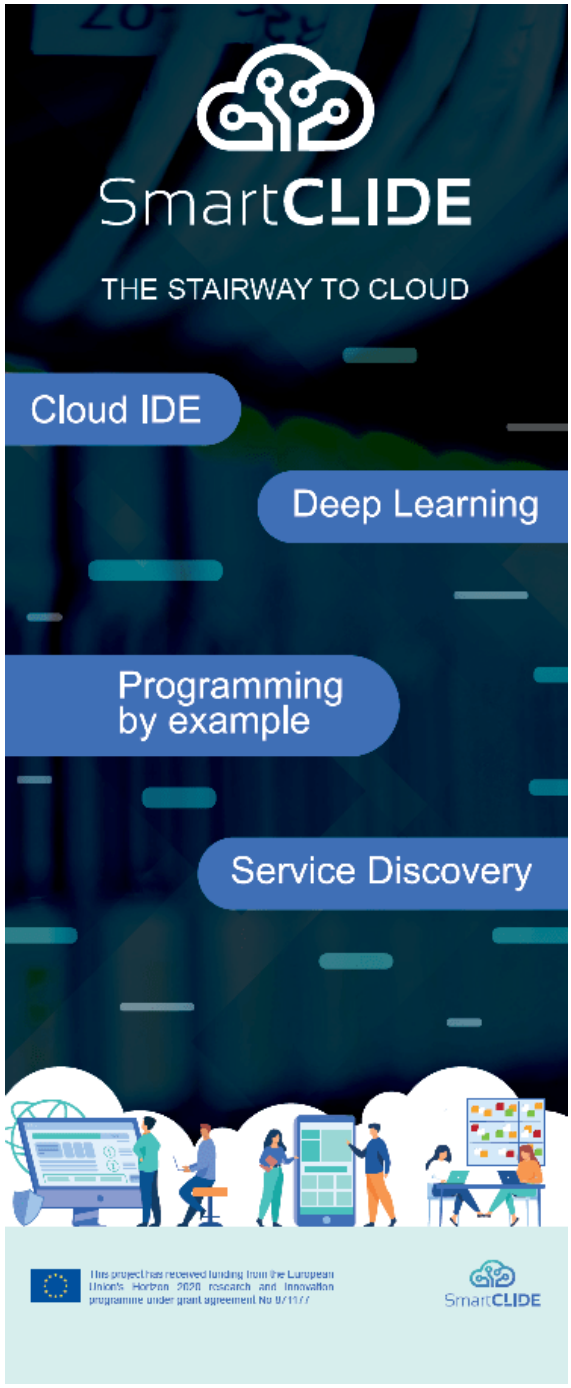


NEW!

11.3 Posters

11.4 Rollups


SmartCLIDE
THE STAIRWAY TO CLOUD
Cloud IDE
Deep Learning
Programming by example
Service Discovery
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 9/1777
SmartCLIDE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THE STAIRWAY TO CLOUD
Cloud IDE
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Service Discovery
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SmartCLIDE

12 Training materials

The training material is in progress. We should have early version of it by the middle of the coming year.

13 Open-source code

The open-source of SmartCLIDE is publicly hosted by the Eclipse Foundation under its Research Labs. Currently, SmartCLIDE is composed by 29 repositories:

Table 1: SmartCLIDE GitHub repositories

Repository	License
eclipse-researchlabs/kie-wb-common	Apache 2.0
eclipse-researchlabs/kie-wb-distributions	Apache 2.0
eclipse-researchlabs/smartclide	EPL 2.0
eclipse-researchlabs/smartclide-api-gateway	EPL 2.0
eclipse-researchlabs/smartclide-broker	EPL 2.0
eclipse-researchlabs/smartclide-cicd	EPL 2.0
eclipse-researchlabs/smartclide-cicd-gitlab	EPL 2.0
eclipse-researchlabs/smartclide-context	EPL 2.0
eclipse-researchlabs/smartclide-deployment-extension	EPL 2.0
eclipse-researchlabs/smartclide-deployment-service	EPL 2.0
eclipse-researchlabs/smartclide-design-pattern-selection-theia	EPL 2.0
eclipse-researchlabs/smartclide-docs	EPL 2.0
eclipse-researchlabs/smartclide-ide-front-end	--
eclipse-researchlabs/smartclide-ide-front-end-theme	EPL 2.0
eclipse-researchlabs/smartclide-jbpm	EPL 2.0
eclipse-researchlabs/smartclide-perftestgen-theia	EPL 2.0
eclipse-researchlabs/smartclide-RMV	EPL 2.0
eclipse-researchlabs/smartclide-security	--
eclipse-researchlabs/smartclide-service-creation	EPL 2.0
eclipse-researchlabs/smartclide-Service-Creation-Testing	EPL 2.0
eclipse-researchlabs/smartclide-service-creation-theia	EPL 2.0
eclipse-researchlabs/smartclide-service-discovery-poc	EPL 2.0
eclipse-researchlabs/smartclide-service-registry-poc	EPL 2.0
eclipse-researchlabs/smartclide-smart-assistant	EPL 2.0
eclipse-researchlabs/smartclide-task-service-discovery	EPL 2.0
eclipse-researchlabs/smartclide-TD-Interest	--
eclipse-researchlabs/smartclide-TD-Principal	EPL 2.0
eclipse-researchlabs/smartclide-TD-Reusability-Index	EPL 2.0
eclipse-researchlabs/smartclide-td-reusability-theia	EPL 2.0

We encourage our partners to maintain their code directly from the Eclipse Labs repos to stay in sync as much as possible.

14 Conclusion

This deliverable listed all the assets that contributed to the promotion of SmartCLIDE during the two first years of the project.

15 Appendix

15.1 Presentation: SmartCLIDE Pitch (Oct. 2020)

15.2 Presentation: SmartCLIDE Vision (Nov. 2020)

SmartCLIDE Motivation

Digital transformation is changing every sphere of society at a very fast pace.

Technological and cultural breakthroughs.

Cloud computing and **agile methodologies** as the key enablers of digital transformation

SmartCLIDE aims to **boost** the adoption of **Cloud and Big Data solutions**

SmartCLIDE → Cloud Computing → DIGITAL TRANSFORMATION

November 2020 SmartCLIDE Vision 3

SmartCLIDE Approach

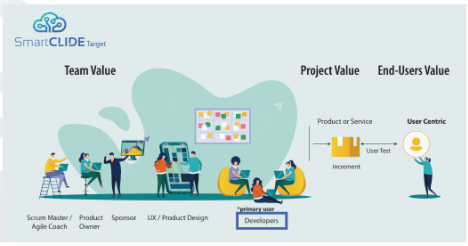
Main Objective

Boost the adoption of Cloud Solutions

	Limitations	Aims
01	Creating solutions from scratch is **time consuming, complex** and **expensive.**	**Faster and more effective development** of cloud and big data services Deeper **insights** on how cloud and code works
02	Composition of services is limited due to non-uniform classification and documentation, and a QoS and Security compromise	More secure and easy way to reuse quality code Gaining trust and facilitating the reuse of services
03	Predict and control costs is very difficult using **pricing models** of public cloud providers	To be a code learning tool Deeper understanding on the costs of big data and cloud

November 2020 SmartCLIDE Vision 4

SmartCLIDE Target Users & Value



November 2020 SmartCLIDE Vision 5

What is SmartCLIDE

Cloud IDE
- Smart, cloud-native IDE, based on the coding-by-demonstration paradigm
- Collaboration between different stakeholders

Services Composition:
- Create control, data and operations abstractions
- Combine abstractions to create new services

Services Discovery
- Import/Search and Discover available services and resources (abstractions, data sources, infrastructure resources, data transformations, etc.) from their current IaaS, PaaS and SaaS Providers

Deep Learning
- Automatic Software Classification
- Context Identification and Abstractions Selection
- Programmatic Output Generation

November 2020 SmartCLIDE Vision 6

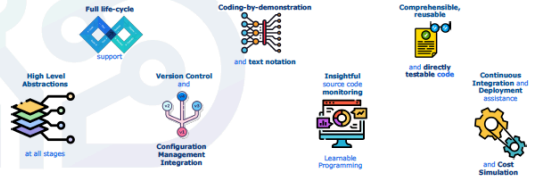
Discovery of Services

- **Automatically exposes available resources and cloud services** (e.g. VM images with different configurations, already implemented containers, business related services…) **from current IaaS, PaaS and SaaS providers, based on:**
  - General Purpose
  - Technical requirements
- **Provides additional information for better re-use of services and decision making in the creation or composition of new services**
  - Description
  - Certifications
  - Other services and applications using the proposed service
  - Opinions from other end-users
  - Comparison with other similar services
- **Ontology-based technique to identify cloud service categories**
  - By detecting cloud service concepts from cloud service sources

November 2020 SmartCLIDE Vision 7

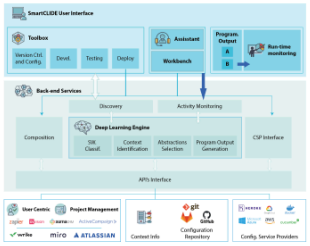
Composition of new Services

- Rapid implementation of new services either creating them **from scratch** or **by composition.**
- **Create** new services indicating the way the resulting service/ application will be deployed or the features that will be monitored at runtime



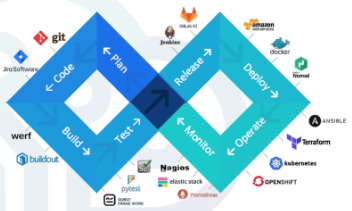
November 2020 SmartCLIDE Vision 8

The SmartCLIDE Features Map



November 2020 SmartCLIDE Vision 9

Whole life cycle support IDE

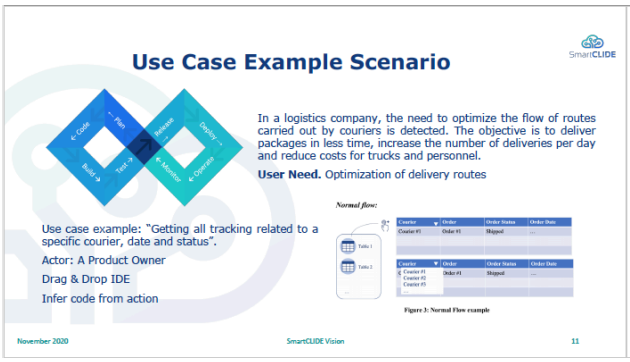


Integration with build tools for **packaging, virtualization and containerization** tools to handle images of environments and perform fast deployments.

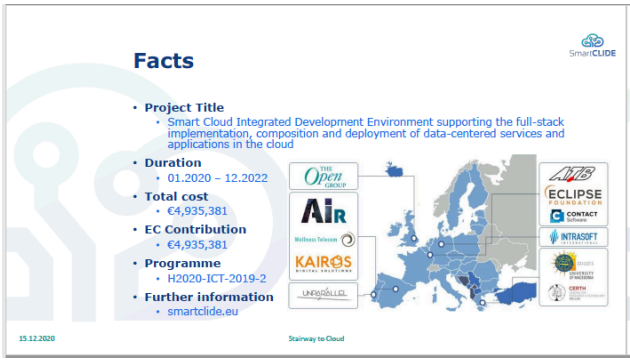
Extreme automatization concept of DevOps.

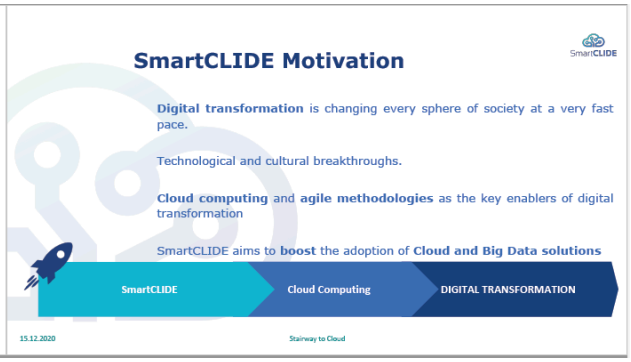
Integration of autonomous AI-based Smart Services within the DevOps loops, so end-users will be able to reuse already existing **user stories or acceptance criteria**, when and where more intensive testing will be required (by monitoring the verification stage), or when is the best moment to build and transport an application to a determined environment.

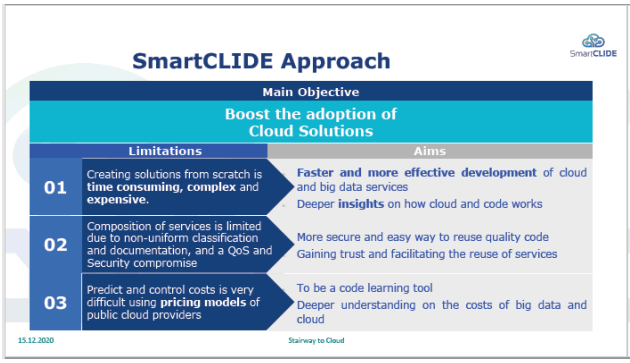
November 2020 SmartCLIDE Vision 10

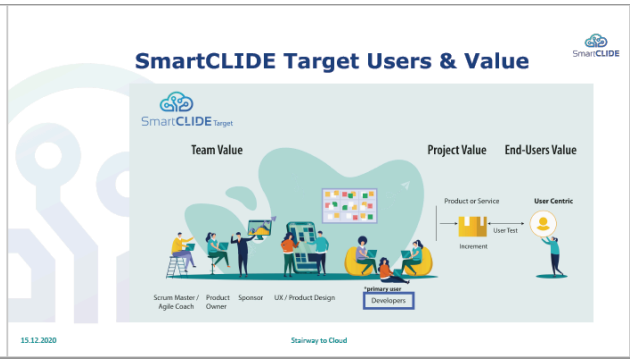


15.3 Presentation: SmartCLIDE: Stairway to Cloud (Dec. 2020)









Pilots

- Driven by 4 Pilots

Pilot 1: Platforms for Social Security Organisation

Pilot 2: IoT Catalogue

Pilot 3: Real-Time Communication Platforms

Pilot 4: PDM/PLM/ALM Platforms

15.12.2020 Stairway to Cloud 7

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15.12.2020 Stairway to Cloud

Discovery of Services

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15.12.2020 Stairway to Cloud

Composition of new Services

- Rapid implementation of new services either creating them **from scratch** or **by composition.**
- **Create** new services indicating the way the resulting service/ application will be deployed or the features that will be monitored at runtime

Full life-cycle support

Coding-by-demonstration and text notation

Comprehensible, reusable and directly testable code

High Level Abstractions at all stages

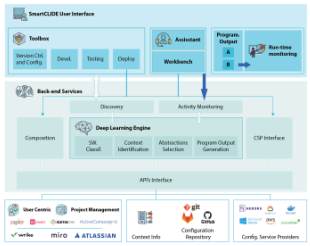
Version Control and Configuration Management Integration

Insightful source code monitoring Learnable Programming

Continuous Integration and Deployment assistance and Cost Simulation

15.12.2020 Stairway to Cloud

The SmartCLIDE Features Map



15.12.2020 Stairway to Cloud

Whole life cycle support IDE

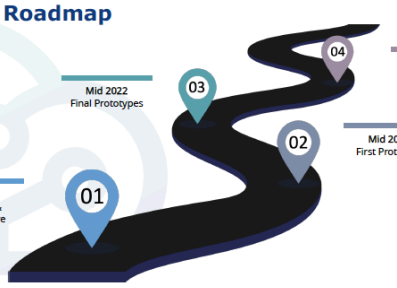
Integration with build tools for **packaging, virtualization and containerization** tools to handle images of environments and perform fast deployments.

Extreme automatization concept of DevOps.

Integration of autonomous AI-based Smart Services within the DevOps loops, so end-users will be able to reuse already existing **user stories or acceptance criteria,** when and where more intensive testing will be required (by monitoring the verification stage), or when is the best moment to build and transport an application to a determined environment.

15.12.2020 Stairway to Cloud

Roadmap



End 2020 Concept & Architecture

Mid 2021 First Prototype

Mid 2022 Final Prototypes

End 2022 Demonstration

15.12.2020 Stairway to Cloud 13

SmartCLIDE
the Stairway to Cloud

Thank you !

Join our newsletter: http://smartclide.eu

15.12.2020 Stairway to Cloud

15.4 Newsletter #1: Let's lay the foundation

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.

Newsletter #1: Let's lay the foundation

We are launching our first SmartCLIDE newsletter with a set of articles presenting the pillars of our project: Cloud Computing, Deep Learning, the Integrated Development Environment, Service Discovery and Programming by Example.

Our partners have made a special effort to write for as broad a technical audience as possible, to provide a look into the state-of-the-art of the project pillars and to understand the innovations that the SmartCLIDE project plans to implement.

If you would like to know more about our project, we invite you to visit the SmartCLIDE.eu website and subscribe to our newsletter to receive regular updates on our progress.

The SmartCLIDE team

Cloud computing in a nutshell

Cloud computing has become the platform for the new, global digital transformation stage we have entered to not only for our countries, governments and companies but also for each one of us. Our phone contacts, photos and messages are stored in...
[read more]

Machine Learning and Deep Learning: a power couple

Buzzwords like Machine Learning and Deep Learning have been around for quite some time. We've always known that intelligent systems had been a promising technology that would enable us to search through vast amounts of ...
[read more]

SmartCLIDE: a new cloud-native IDE

Analyzing data is much easier and faster today thanks to cloud computing and on-demand availability of computer system resources such as data storage and computing power. However, the development of cloud solutions requires tools adapted to special characteristics of the cloud ...
[read more]

Service Discovery in a nutshell

In recent years, Microservices have gained in popularity, since they come with various advantages, which are very useful for contemporary software development for example, in the era of containers, decentralization and cloud computing.
[read more]

Programming by Example

The aim of Programming By Example is to develop programs through the synthesis of a series of examples. First, a sequence of actions is performed or given by the user: this is the starting point of a combination of functions which result in a programmatic output, ...
[read more]

Co-financed by the Connecting Europe Facility of the European Union

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871177

15.5 Press Release: CONTACT Software

CONTACT Software | PRODUCTS | SERVICES | INDUSTRIES | INDUSTRY INSIGHTS | ABOUT US

Press release - January 16, 2020

CONTACT Software is partner in European cloud project SmartCLIDE

How can cloud solutions be deployed quickly, operated securely and easily expanded? CONTACT Software, the Eclipse Foundation and other partners are researching this in a project funded by the European Commission. The results will be published as open source software.

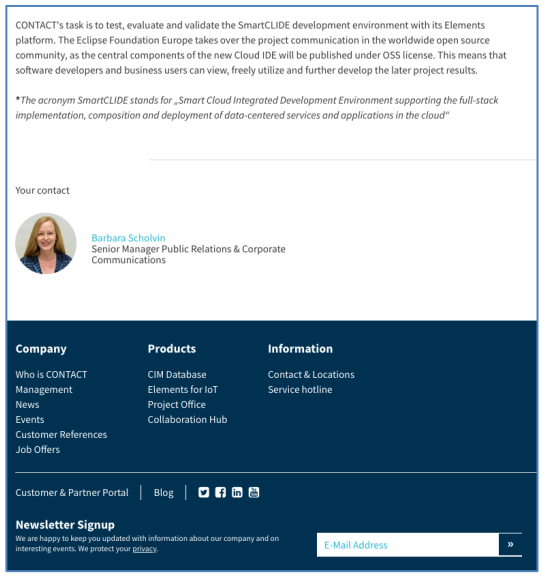
In January, the European project SmartCLIDE* was launched under the leadership of the Bremen Institute for Applied Systems Technology ATB. Its aim is to foster the use of cloud services in companies and public administrations. The project will provide an integrated development environment (Cloud IDE) that accelerates and secures the creation and deployment of sector-specific web solutions as well as simplifies updates.

Nine research institutes, software companies and universities from six European countries collaborate in SmartCLIDE. With the help of security-by-design experts from The Open Group (UK), they are implementing a universal reference architecture based on GitHub or similar online services. It includes tools for the classification and context-related configuration of software modules, automatic testing and distribution of solutions, and generic interfaces to the leading cloud service providers.

The SmartCLIDE solution builds on the behavior-driven development (BDD) approach, which involves users in the software development process at an early stage and in an agile manner. In addition, a deep learning engine analyzes the apps' usage by means of runtime monitoring. This AI component will help software developers in future to design their customer solutions to fit perfectly and to detect and eliminate bugs more quickly.

The SmartCLIDE consortium (image: ATB)

The EU Commission is funding the project as part of its Horizon 2020 programme to strengthen the digital sovereignty of the European economy. "The cloud is the motor of digitization, but many companies are still hesitant to use it," says Stefan Gregorzik, Business Development Manager at CONTACT Software. "SmartCLIDE should make it possible to combine high security requirements with easy system integration and a good user experience, so that cloud solutions are widely accepted".



CONTACT's task is to test, evaluate and validate the SmartCLIDE development environment with its Elements platform. The Eclipse Foundation Europe takes over the project communication in the worldwide open source community, as the central components of the new Cloud IDE will be published under OSS license. This means that software developers and business users can view, freely utilize and further develop the later project results.

**The acronym SmartCLIDE stands for „Smart Cloud Integrated Development Environment supporting the full-stack implementation, composition and deployment of data-centered services and applications in the cloud"*

Your contact

Barbara Scholvin
Senior Manager Public Relations & Corporate Communications

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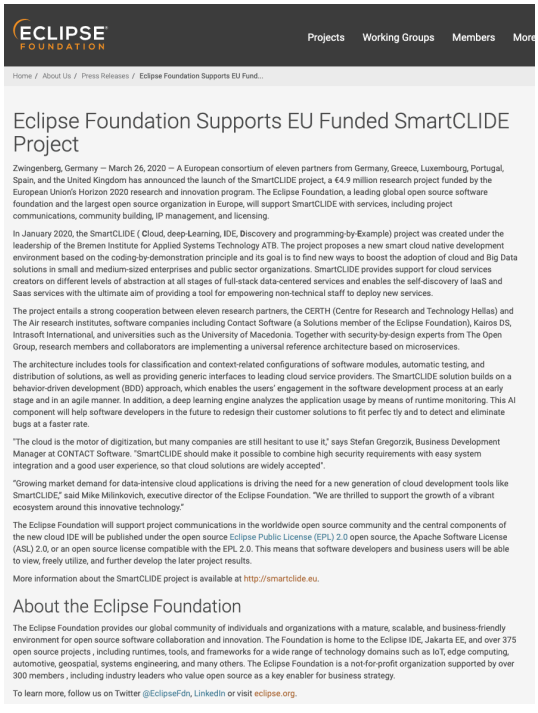
15.6 Press Release: Eclipse Foundation



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Home / About Us / Press Releases / Eclipse Foundation Supports EU Fund...

Eclipse Foundation Supports EU Funded SmartCLIDE Project

Zwingenberg, Germany — March 26, 2020 — A European consortium of eleven partners from Germany, Greece, Luxembourg, Portugal, Spain, and the United Kingdom has announced the launch of the SmartCLIDE project, a €4.9 million research project funded by the European Union's Horizon 2020 research and innovation program. The Eclipse Foundation, a leading global open source software foundation and the largest open source organization in Europe, will support SmartCLIDE with services, including project communications, community building, IP management, and licensing.

In January 2020, the SmartCLIDE (**C**loud, deep-**L**earning, **I**DE, **D**iscovery and programming-by-**E**xample) project was created under the leadership of the Bremen Institute for Applied Systems Technology ATB. The project proposes a new smart cloud native development environment based on the coding-by-demonstration principle and its goal is to find new ways to boost the adoption of cloud and Big Data solutions in small and medium-sized enterprises and public sector organizations. SmartCLIDE provides support for cloud services creators on different levels of abstraction at all stages of full-stack data-centered services and enables the self-discovery of IaaS and Saas services with the ultimate aim of providing a tool for empowering non-technical staff to deploy new services.

The project entails a strong cooperation between eleven research partners, the CERTH (Centre for Research and Technology Hellas) and The Air research institutes, software companies including Contact Software (a Solutions member of the Eclipse Foundation), Kairos DS, Intrasoft International, and universities such as the University of Macedonia. Together with security-by-design experts from The Open Group, research members and collaborators are implementing a universal reference architecture based on microservices.

The architecture includes tools for classification and context-related configurations of software modules, automatic testing, and distribution of solutions, as well as providing generic interfaces to leading cloud service providers. The SmartCLIDE solution builds on a behavior-driven development (BDD) approach, which enables the users' engagement in the software development process at an early stage and in an agile manner. In addition, a deep learning engine analyzes the application usage by means of runtime monitoring. This AI component will help software developers in the future to redesign their customer solutions to fit perfec tly and to detect and eliminate bugs at a faster rate.

"The cloud is the motor of digitization, but many companies are still hesitant to use it," says Stefan Gregorzik, Business Development Manager at CONTACT Software. "SmartCLIDE should make it possible to combine high security requirements with easy system integration and a good user experience, so that cloud solutions are widely accepted".

"Growing market demand for data-intensive cloud applications is driving the need for a new generation of cloud development tools like SmartCLIDE," said Mike Milinkovich, executive director of the Eclipse Foundation. "We are thrilled to support the growth of a vibrant ecosystem around this innovative technology."

The Eclipse Foundation will support project communications in the worldwide open source community and the central components of the new cloud IDE will be published under the open source Eclipse Public License (EPL) 2.0 open source, the Apache Software License (ASL) 2.0, or an open source license compatible with the EPL 2.0. This means that software developers and business users will be able to view, freely utilize, and further develop the later project results.

More information about the SmartCLIDE project is available at http://smartclide.eu.

About the Eclipse Foundation

The Eclipse Foundation provides our global community of individuals and organizations with a mature, scalable, and business-friendly environment for open source software collaboration and innovation. The Foundation is home to the Eclipse IDE, Jakarta EE, and over 375 open source projects , including runtimes, tools, and frameworks for a wide range of technology domains such as IoT, edge computing, automotive, geospatial, systems engineering, and many others. The Eclipse Foundation is a not-for-profit organization supported by over 300 members , including industry leaders who value open source as a key enabler for business strategy.

To learn more, follow us on Twitter @EclipseFdn, LinkedIn or visit eclipse.org.

15.7 Press Release : Kairós DS

KAIROSDS NOSOTROS QUÉ HACEMOS INNOVACIÓN

Kairós DS participa en el proyecto SmartCLIDE financiado por la UE

por ADMINISTRADOR | Abr 1, 2020 | Innovación | 0 Comentarios

SmartCLIDE

[Madrid, 31 de marzo de 2020] — Un consorcio europeo de once socios de Alemania, Grecia, Luxemburgo, Portugal, España y Reino Unido ha anunciado el lanzamiento del proyecto SmartCLIDE, un proyecto de investigación de 4,9 millones de euros financiado por el programa de investigación e innovación Horizonte 2020 de la Unión Europea.

El proyecto SmartCLIDE (*Cloud, deep-Learning, IDE, Discovery and programming-by-Example*) ha comenzado su andadura en enero de 2020, bajo la coordinación del centro tecnológico alemán ATB (Bremen Institute for Applied Systems Technology). El proyecto propone la creación de un novedoso entorno inteligente de desarrollo nativo para la nube, basado en el principio de *programming-by-demonstration*, que consiste en enseñar a un sistema informático cómo ejecutar tareas a través de la reproducción de ejemplos. Su finalidad es encontrar nuevas maneras de impulsar la adopción de soluciones Big Data en la nube, acercando el desarrollo Big Data a personal no técnico, PYMEs y organizaciones del sector público.

SmartCLIDE da apoyo en los diferentes niveles de abstracción de la creación de servicios en la nube aplicando a todas las etapas del desarrollo de servicios full-stack data-centered. Habilita un self-discovery de servicios IaaS y Saas capacitando al personal no técnico en el despliegue de nuevos servicios.

El proyecto, que plantea una arquitectura de referencia universal basada en microservicios, se aborda de manera colaborativa entre los once socios participantes. El centro de investigación heleno, CERTH (*Centre for Research and Technology Hellas*) o el instituto castellano-leonés de investigación en Inteligencia Artificial AIR, son sólo dos de los centros que colaboran con empresas de software como Contact Software, Kairós DS, o Intrasoft International, universidades como la de Macedonia, o los expertos en seguridad, calidad y estandarización del Software, The Open Group.

La solución propuesta incluye herramientas de clasificación inteligente de software, apoyo a pruebas automáticas y a la distribución continua de soluciones en la nube, todo desde una interfaz gráfica que incluye múltiples guías visuales para los usuarios. La solución SmartCLIDE se construye sobre un enfoque de desarrollo dirigido por comportamiento (BDD), el cual habilita la participación de los usuarios en el proceso de desarrollo software para asegurar la entrega de valor continua desde una etapa temprana de los proyectos. Además, incluye un motor de aprendizaje profundo (Deep Learning) que ayudará a los desarrolladores de software a diseñar soluciones que se adapten perfectamente las necesidades de sus clientes de manera segura, rápida y eficaz.

"La nube es el motor de la digitalización, pero muchas compañías todavía dudan en usarlo," dice Stefan Gregorzik, Business Development Manager en CONTACT Software. "SmartCLIDE deberá posibilitar la combinación de requisitos de alta seguridad con una sencilla integración de sistemas y una buena experiencia de usuario, y así ampliar la aceptación de las soluciones en la nube."

"El crecimiento de la demanda de aplicaciones de uso intensivo de datos en la nube está impulsando la necesidad de una nueva generación de herramientas de desarrollo en la nube como SmartCLIDE," dijo Mike Milinkovich, Executive Director de Eclipse Foundation. "Estamos encantados de apoyar el crecimiento de un ecosistema vibrante alrededor de esta tecnología innovadora."

La Fundación Eclipse apoyará la comunicación del proyecto en la comunidad open source mundial y ayudará a que los componentes centrales este nuevo entorno de desarrollo para la nube sean publicados bajo el open source Eclipse Public License (EPL) 2.0, el Apache Software License (ASL) 2.0, o una licencia open source compatible con el EPL 2.0. Esto significa que los desarrolladores de software y los usuarios profesionales podrán ver, utilizar gratuitamente y seguir desarrollando los resultados de proyecto posteriormente.

Más información sobre el proyecto SmartCLIDE está disponible en http://smartclide.eu.

Sobre Kairós DS

Kairós DS se ha convertido en referencia internacional en el campo de la transformación digital apoyando compañías en su transformación digital con un nuevo modelo de project management en un proyecto individual, Agile en escala y niveles de gestión de portfolio.

Expertos en el desarrollo de producto digital "*end to end*" incorporando las mejores prácticas de desarrollo de software, un proceso que se está convirtiendo mucho más tradicional y principal.

Entrega continua de soluciones, centrándose en las necesidades de los clientes y las tecnologías digitales a través de la aplicación de conceptos Lean-Agile bajo la filosofía de Producto Mínimo Viable (MPV), proporcionando de este modo desarrollos iterativos, incrementales y escalables.

Kairós DS se centra en ayudar a sus clientes a desarrollar rápidamente la habilidad de generación de valor en estos contextos tan cambiantes. Nuestros profesionales preparan a las compañías para llegar a ser empresas basadas en el conocimiento, donde los productos y los clientes son el centro de la organización, y los empleados son el motor de la transformación digital a través de la agilidad e intraemprendizaje. Ésta es la razón por la cuál Kairós DS está basada fuertemente en el conocimiento y la adaptabilidad digital, dando apoyo a sus clientes para adaptarse de una forma eficaz y segura al cambio digital.

Kairós DS está formado por más de 450 profesionales en todo el mundo. Aunque Kairós DS nació en España, su pluralidad y preocupación por conocer, mejorar y servir en diferentes geografías del planeta, le ha llevado a estar presente en España, México y Perú y llevando a cabo proyectos con clientes en UK, Brasil y USA.

Cofinanciado por el Programa "Horizonte 2020" de la Unión Europea

Kairós DS Supports EU Funded SmartCLIDE Project

[Madrid, March 31, 2020] — A European consortium of eleven partners from Germany, Greece, Luxembourg, Portugal, Spain, and the United Kingdom has announced the launch of the SmartCLIDE project, a €4.9 million research project funded by the European Union's Horizon 2020 research and innovation program.

In January 2020, the SmartCLIDE (**C**loud, deep-**L**earning, **I**DE, **D**iscovery and programming-by-**E**xample) project was created under the leadership of the Bremen Institute for Applied Systems Technology ATB. The project proposes a new smart cloud native development environment based on the coding-by-demonstration principle and its goal is to find new ways to boost the adoption of cloud and Big Data solutions in small and medium-sized enterprises and public sector organizations. SmartCLIDE provides support for cloud services creators on different levels of abstraction at all stages of full-stack data-centered services and enables the self-discovery of IaaS and Saas services with the ultimate aim of providing a tool for empowering non-technical staff to deploy new services.

The project entails a strong cooperation between eleven research partners, the CERTH (Centre for Research and Technology Hellas) and The Air research institutes, software companies including Contact Software, Kairós DS, Intrasoft International, and universities such as the University of Macedonia. Together with security-by-design experts from The Open Group, research members and collaborators are implementing a universal reference architecture based on microservices.

The architecture includes tools for classification and context-related configurations of software modules, automatic testing, and distribution of solutions, as well as providing generic interfaces to leading cloud service providers. The SmartCLIDE solution builds on a behavior-driven development (BDD) approach, which enables the users' engagement in the software development process at an early stage and in an agile manner. In addition, a deep learning engine analyzes the application usage by means of runtime monitoring. This AI component will help software developers in the future to redesign their customer solutions to fit perfectly and to detect and eliminate bugs at a faster rate.

«The cloud is the motor of digitization, but many companies are still hesitant to use it,» says Stefan Gregorzik, Business Development Manager at CONTACT Software. «SmartCLIDE should make it possible to combine high security requirements with easy system integration and a good user experience, so that cloud solutions are widely accepted».

"Growing market demand for data-intensive cloud applications is driving the need for a new generation of cloud development tools like SmartCLIDE," said Mike Milinkovich, executive director of the Eclipse Foundation. "We are thrilled to support the growth of a vibrant ecosystem around this innovative technology."

The Eclipse Foundation will support project communication in the worldwide open source community and the central components of the new cloud IDE will be published under the open source Eclipse Public License (EPL) 2.0 open source, the Apache Software License (ASL) 2.0, or an open source license compatible with the EPL 2.0. This means that software developers and business users will be able to view, freely utilize, and further develop the later project results.

More information about the SmartCLIDE project is available at http://smartclide.eu.

About Kairós DS

Kairós DS has become an international reference in the field of digital transformation supporting companies in the transition towards a digital approach with a new model of project management at individual project, Agile at scale and portfolio management levels.

Experts in «end to end» digital product development incorporating the best software development practices, a process that is becoming much more traditional and core.

Continuous delivery of solutions, focussing on customers needs and digital technologies through the application of Lean-Agile concepts under Minimum Viable Product (MVP) philosophy, thus providing iterative, incremental and scalable developments.

Kairós DS services are focused on helping their customers to develop their ability to swiftly generate value in these fast-changing contexts. Our professionals coach companies to become knowledge-based enterprises, where product and customers are the centre of the organisation, and employees are the engine of the digital transformation through agility and intra-entrepreneurship. That's the reason why Kairós DS is strongly based on knowledge and digital adaptability, aiming at supporting their customers to smoothly and safely embrace digital change.

Kairós DS is an organization supported by over 450 professionals all over the world. Although Kairós DS was born in Spain, its plurality and our concern to know, raise and serve in different geographies of the planet, has led us to be present at a physical level in Spain, Mexico and Peru and carrying out projects with UK clients, Brazil and USA.

Co-funded by the Horizon 2020 programme of the European Union

15.8 Press Release : AIR Institute

THE AIR INSTITUTE RESEARCH AREAS TEAM EVENTS BLOG

Home / Blog / AIR Institute Supports EU Funded SmartCLIDE Project

AIR Institute Supports EU Funded SmartCLIDE Project

05 Mar **AIR Institute Supports EU Funded SmartCLIDE Project**

By The AIR Institute

Salamanca, Spain – March 5,2020 — A European consortium of eleven partners from Germany, Greece, Luxembourg, Portugal, Spain, and the United Kingdom has announced the launch of the SmartCLIDE project, a €4.9 million research project funded by the European Union's Horizon 2020 research and innovation program.

In January 2020, the SmartCLIDE (**C**loud, deep-**L**earning, **I**DE, **D**iscovery and programming-by-**E**xample) project was created under the leadership of the Bremen Institute for Applied Systems Technology ATB. The project proposes a new smart cloud native development environment based on the coding-by-demonstration principle and its goal is to find new ways to boost the adoption of cloud and Big Data solutions in small and medium-sized enterprises and public sector organizations. SmartCLIDE provides support for cloud services creators on different levels of abstraction at all stages of full-stack data-centered services and enables the self-discovery of IaaS and Saas services with the ultimate aim of providing a tool for empowering non-technical staff to deploy new services.

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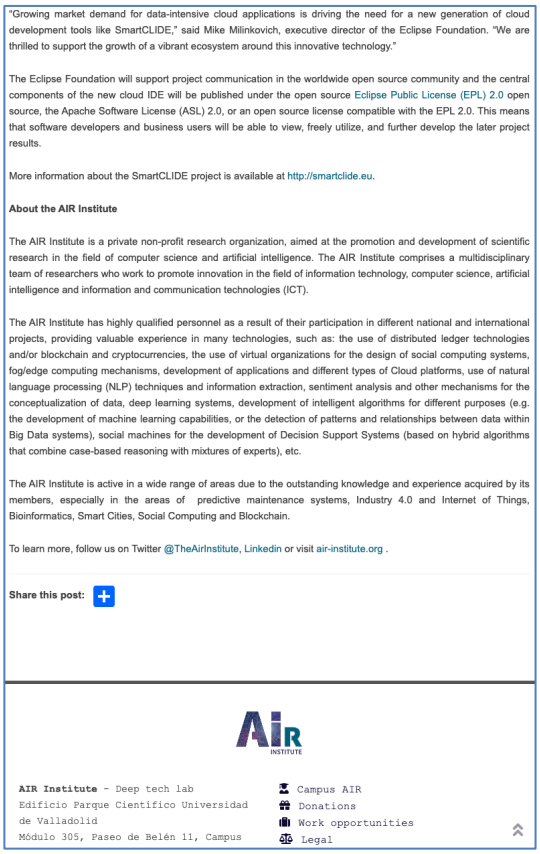
"It is necessary to release the power of Deep Learning by easing access to non-technical users", states Juan Manuel Corchado, president of the AIR Institute. "Whilst easing AI usage, SmartCLIDE's Deep Learning Engine should help developers to provide quality, performant, secure and documented code with a minor effort".

"The cloud is the motor of digitization, but many companies are still hesitant to use it," says Stefan Gregorzik, Business Development Manager at CONTACT Software. "SmartCLIDE should make it possible to combine high security requirements with easy system integration and a good user experience, so that cloud solutions are widely accepted".



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The Eclipse Foundation will support project communication in the worldwide open source community and the central components of the new cloud IDE will be published under the open source Eclipse Public License (EPL) 2.0 open source, the Apache Software License (ASL) 2.0, or an open source license compatible with the EPL 2.0. This means that software developers and business users will be able to view, freely utilize, and further develop the later project results.

More information about the SmartCLIDE project is available at http://smartclide.eu.

About the AIR Institute

The AIR Institute is a private non-profit research organization, aimed at the promotion and development of scientific research in the field of computer science and artificial intelligence. The AIR Institute comprises a multidisciplinary team of researchers who work to promote innovation in the field of information technology, computer science, artificial intelligence and information and communication technologies (ICT).

The AIR Institute has highly qualified personnel as a result of their participation in different national and international projects, providing valuable experience in many technologies, such as: the use of distributed ledger technologies and/or blockchain and cryptocurrencies, the use of virtual organizations for the design of social computing systems, fog/edge computing mechanisms, development of applications and different types of Cloud platforms, use of natural language processing (NLP) techniques and information extraction, sentiment analysis and other mechanisms for the conceptualization of data, deep learning systems, development of intelligent algorithms for different purposes (e.g. the development of machine learning capabilities, or the detection of patterns and relationships between data within Big Data systems), social machines for the development of Decision Support Systems (based on hybrid algorithms that combine case-based reasoning with mixtures of experts), etc.

The AIR Institute is active in a wide range of areas due to the outstanding knowledge and experience acquired by its members, especially in the areas of predictive maintenance systems, Industry 4.0 and Internet of Things, Bioinformatics, Smart Cities, Social Computing and Blockchain.

To learn more, follow us on Twitter @TheAirInstitute, Linkedin or visit air-institute.org .

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15.9 Press Release : ATB

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SmartCLIDE

Press Release – ATB Supports EU Funded SmartCLIDE Project

12. May 2020 Sebastian Scholze 0 Comments

Bremen, Germany – 11.05.2020 — A European consortium of eleven partners from Germany, Greece, Luxembourg, Portugal, Spain, and the United Kingdom has announced the launch of the SmartCLIDE project, a €4.9 million research project funded by the European Union's Horizon 2020 research and innovation program.

In January 2020, the SmartCLIDE (**C**loud, deep-**L**earning, **I**DE, **D**iscovery and programming-by-**E**xample) project was created under the leadership of the ATB – Institut für angewandte Systemtechnik Bremen GmbH. The project proposes a new smart cloud native development environment based on the coding-by-demonstration principle and its goal is to find new ways to boost the adoption of cloud and Big Data solutions in small and medium-sized enterprises and public sector organizations. SmartCLIDE provides support for cloud services creators on different levels of abstraction at all stages of full-stack data-centered services and enables the self-discovery of IaaS and Saas services with the ultimate aim of providing a tool for empowering non-technical staff to deploy new services.

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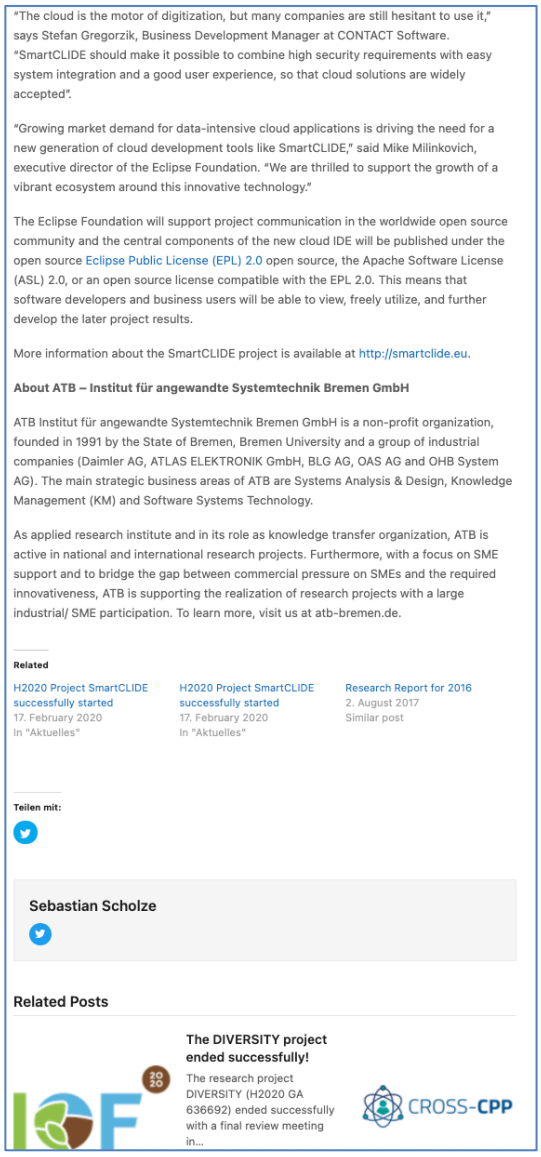

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More information about the SmartCLIDE project is available at http://smartclide.eu.

About ATB – Institut für angewandte Systemtechnik Bremen GmbH

ATB Institut für angewandte Systemtechnik Bremen GmbH is a non-profit organization, founded in 1991 by the State of Bremen, Bremen University and a group of industrial companies (Daimler AG, ATLAS ELEKTRONIK GmbH, BLG AG, OAS AG and OHB System AG). The main strategic business areas of ATB are Systems Analysis & Design, Knowledge Management (KM) and Software Systems Technology.

As applied research institute and in its role as knowledge transfer organization, ATB is active in national and international research projects. Furthermore, with a focus on SME support and to bridge the gap between commercial pressure on SMEs and the required innovativeness, ATB is supporting the realization of research projects with a large industrial/ SME participation. To learn more, visit us at atb-bremen.de.

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15.10 SmartCLIDE Fact Sheet #1

SmartCLIDE
"The Stairway to Cloud"

The **SmartCLIDE project** will enable organizations on the path to digitalization to accelerate the creation and adoption of Cloud 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)

Total cost
€4,935,381

EC Contribution
€4,935,381

Duration
36 months: 01/2020 – 12/2022

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.

SmartCLIDE
"The Stairway to Cloud"

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 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

15.11 Newsletter #2 - Mar. 2021: Our scenarios of use

NEW!

The SmartCLIDE project will enable organizations on the path to digitalization to accelerate the creation and adoption of Cloud 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.

Newsletter #2: Our scenarios of use

This second SmartCLIDE newsletter presents scenarios where SmartCLIDE will be validated and evaluated under real conditions. There are 4 such scenarios:

- **Wellness Telecom** proposes a real-time communication project that involves the **deployment of multiple virtual machines**, providing a compelling use-case for SmartCLIDE at the creation of run-time abstractions like real-time constraints of the communication process and the validation of the deployment in software-defined infrastructures.
- **Unparallel** proposes two different scenarios for SmartCLIDE piloting its evaluation in the evolutive development and **interfacing of an IoT web catalog** with SmartCLIDE, enabling the end-users of the portal (mostly IoT developers or integrators) to develop IoT solutions with SmartCLIDE.
- **CONTACT Software** proposes to evaluate SmartCLIDE as part of its ELEMENTs integration platform, enabling potential customers to **build their own IoT-related services**.
- **Intrasoft** will make use of SmartCLIDE at **all the stages of the lifecycle** within an existing software project.

If you would like to know more about our project, we invite you to visit the SmartCLIDE.eu website and subscribe to our newsletter to receive regular updates on our progress.

The SmartCLIDE team

"About real-time communication services" by Wellness Telecom

[read the article]

"Enhance IoT-Catalogue with an integrated Cloud IDE" by Unparallel

[read the article]

"Provide a Quick Demonstration for a Customer" by CONTACT Software

[read the article]

News: Our first deliverables are online

[check it out]

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Co-financed by the Connecting Europe Facility of the European Union

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871177

15.12 Newsletter #3 - Sep. 2021: Deep Dive

NEW!

The SmartCLIDE project will enable organizations on the path to digitalization to accelerate the creation and adoption of Cloud 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.

Newsletter #3: Deep Dive

After a first newsletter presenting the state of the art of the main pillars of the SmartCLIDE project, followed by a second newsletter describing the usage scenarios set up to test and demonstrate the IDE, it is time to dive into the heart of the matter: the benefits of the SmartCLIDE project. To this end, this newsletter includes 3 articles:

- The first article presents the team's approach to listing the challenges the project wants to solve and the associated proposed solutions;
- Based on the market requirements, the second article explains the added value of an architecture based on microservices. This article is divided into 2 parts:
  - Part 1: The road to microservices
  - Part 2: Quality and security in a microservices world
- The last article looks at a key feature of SmartCLIDE: service creation and how SmartCLIDE will support it.

If you would like to know more about our project, we invite you to visit the SmartCLIDE.eu website and subscribe to our newsletter to receive regular updates on our progress.

The SmartCLIDE team

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SmartCLIDE Innovative Approaches

[read the article]

Market Requirements: #1 The road towards microservices

[read the article]

Market Requirements: #2 Quality and security in a microservices world

[read the article]

SmartCLIDE Service Creation

[read the article]

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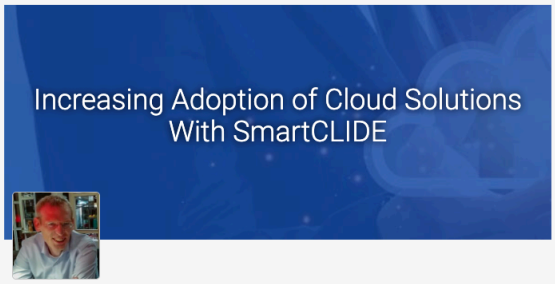
15.13 Eclipse Newsletter - Sep. 2021

NEW!

ECLIPSE FOUNDATION

Home / Eclipse Newsletter / 2021 / Targeting Real-World Challenges With... / Increasing Adoption of Cloud Solutions With SmartCLIDE

Thursday, September 30, 2021 - 07:00



Sebastian Scholze

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The SmartCLIDE research project aims to bridge the gap between on-demand business strategies and the lack of qualified software professionals by creating a new cloud native IDE that makes it easier to develop and deploy cloud services. The project is funded by the European Union's Horizon 2020 research and innovation program, and involves a consortium of 11 partners from Germany, Greece, Luxembourg, Portugal, Spain, and the United Kingdom.

SmartCLIDE Targets Key Cloud Challenges

Cloud computing is considered to be the main enabler for digital transformation because it allows organizations to disengage their growth from the need to acquire more powerful infrastructures. When companies move creation or composition of new services to their clouds, they can:

- Create new services from scratch
- Reuse code to compose new services
- Adopt new types of pricing models

However, creating and composing new cloud services in the cloud has increased in complexity, slowing progress towards digital transformation for businesses and public administrations. The SmartCLIDE project addresses limitations in each of the areas listed above to help increase adoption of cloud services (Table 1).

Table 1: SmartCLIDE High-Level Objectives

Limitation	SmartCLIDE Goals
Creating new services from scratch is time-consuming, complex, and expensive.	• Enable faster and more effective development of cloud and big data services • Provide deeper insights into how cloud and code work
Reusing code to compose new services is restricted by non-uniform classifications and documentation, as well as quality of service (QoS) and security compromises.	• Provide an easier and more secure way to reuse quality code • Increase trust and facilitate reuse of services
Adopting public cloud pricing models makes it very difficult to predict and control costs.	• Be a code learning tool • Increase understanding of the costs of big data and cloud

SmartCLIDE overcomes the limitations listed in Table 1 with an IDE that:

- Helps creators of cloud services by enabling collaborative discovery, creation, composition, testing, and deployment of services and applications in the cloud.
- Allows the discovery of services to facilitate composition and deployment of new services for staff with no previous experience in programming or administering systems and infrastructure.
- Enables collaboration among different stakeholders.
- Uses a deep learning engine to automatically categorize available resources before presenting them to end users.

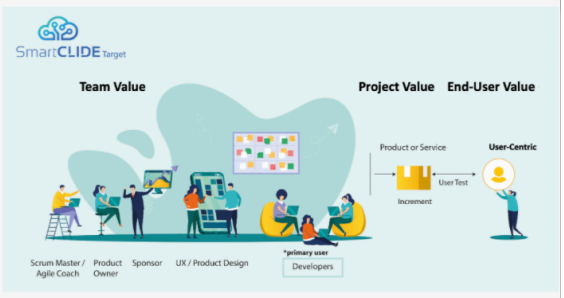
Benefits for Developers and the Entire Team

The SmartCLIDE IDE facilitates developers' work through automation and pre-established commands that increase the efficiency of tasks such as version deployment, security tests based on established acceptance criteria, and software development based on the highest quality standards.

The IDE helps to eliminate potential dependencies, leading to improved self-organization and increased end-to-end accountability of the entire development stack. As a result, it allows developers to deliver quality software, faster, even if they are novices with little understanding of the underlying mechanisms of cloud-based applications.

While developers are the main users of the IDE, SmartCLIDE adds value to the entire team, including product owners and managers with some technical skills, the project, and end users who use the tool directly and indirectly (Figure 1).

Figure 1: SmartCLIDE Value Across the Organization



Here's a brief summary of the value SmartCLIDE provides:

- **Team value:** Autonomous teams with end-to-end responsibility deal with the full development stack. They must be able to select the best options for deploying applications and making them available to end users despite the associated complexity and many available technologies.
- **Project value:** SmartCLIDE adds value to the team, and consequently to the project, through integration with version control systems, continuous integration and continuous development (CI/CD) tools, quality management (QM), and other tools.
- **End-user value:** The end user benefits directly and indirectly from the SmartCLIDE IDE. For example, because the team has greater control over what it produces and makes available to users, the tool's perceived value of it increases. In addition, changes to the service can be made in a more agile and effective way within product development cycles.

SmartCLIDE IDE Features Simplify Development and Deployment

The SmartCLIDE IDE is based on Eclipse Theia, which provides all of the tools necessary for development. Theia consists of a rich interface with a vast range of features that accelerate deployment of cloud services, improve their quality, and expand the skills of novice and experienced developers.

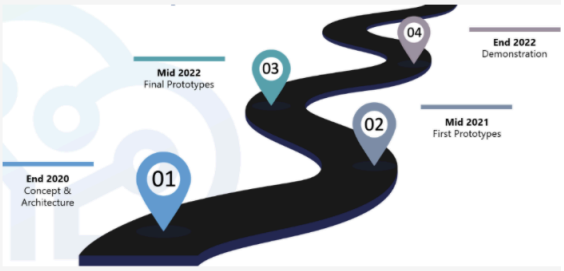
The main features of the SmartCLIDE IDE include:

- **Life cycle support**. Software follows a life cycle, from feature specification to solution deployment. SmartCLIDE provides the specific tools required at each life-cycle stage. For example, at the development stage, SmartCLIDE provides data sources, data transformations, graphics visualization artifacts, and general-purpose abstractions and patterns that can be combined to implement features.
- **Insightful source code monitoring**. SmartCLIDE includes visualization features that help developers gain deeper understanding of the source code. It dynamically shows the meaning of expressions or code flow at low levels of granularity. It also allows developers to compare different software states, perform state changes that are reflected dynamically, and create new abstractions that can be easily reused.
- **CI/CD integration**. SmartCLIDE enables integration with widely used CI/CD tools such as GitHub and GitLab.

The SmartCLIDE IDE also includes innovative features that leverage the power of a deep learning engine:

- **Development by demonstration and text notation.** SmartCLIDE automatically retrieves resources that are considered relevant for the new development. The end user can use text notation to enhance the description of the retrieved behavior or algorithm. The deep learning engine then uses these notations to suggest programmatic solutions that result in the desired output.
- **Automatic software classification.** The deep learning engine automatically identifies and classifies existing and new software abstractions that can be visualized in the IDE for reuse based on the purpose or behavior defined by the end user.
- **Continuous integration and deployment assistance.** End users are guided through each life cycle stage, ensuring the code generated has been properly tested, accurately integrated within the corresponding development branch, and automatically deployed in the selected cloud service. These capabilities align with the end-to-end responsibilities associated with the DevOps philosophy.

A demonstration of the SmartCLIDE IDE is expected to be available in late 2022 (Figure 2).



Horizon 2020

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SmartCLIDE

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871177.

15.14 Newsletter #4 - Dec. 2021: SmartCLIDE Cloud IDE Design

The SmartCLIDE project will enable organizations on the path to digitalization to accelerate the creation and adoption of Cloud 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.

Newsletter #4: SmartCLIDE Cloud IDE Design

This newsletter presents the articles dealing with the SmartCLIDE IDE design and detailed in the deliverable "D3.1 - Early SmartCLIDE Cloud IDE Design" design document.
You can either access the full deliverable via the above link or select a blog post based on your area of interest.

This series of articles covers the following topics:

- **User Interface**: The first article of the series described the design progress of the main components of the SmartCLIDE IDE User Interface integrating all the functionalities provided by SmartCLIDE technologies and exposing them as a development experience to developers.
- **Deep Learning Engine**: The second article of this series provided an overview of the Deep Learning Engines (DLE) components. These subcomponents are responsible for supporting AI-based smart assistant features of the IDE.
- **Backend Components**: The rest of the articles presents the early design approach of the core backend components from the technological perspective. You will retrieve:
  - **Source Code Repository** choice,
  - **Services Discovery, Creation and Management** subcomponents,
  - The **Security** Assurance module and its 2 mechanisms: Vulnerability Prediction and Quantitative Security Assessment.
  - The **Message Oriented Middleware** component in charge of the inter-component communication with the SmartCLIDE platform.
  - The **User Access Management** subcomponent.
  - The **Deployment** workflow and its third-party services, and the **CI/CD** infrastructure.

If you would like to know more about our project, we invite you to visit the SmartCLIDE.eu website and subscribe to our newsletter to receive regular updates on our progress.

The SmartCLIDE team wishes you a happy holiday season 🎅🎄⛄

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SmartCLIDE User Interface

[read the article]

SmartCLIDE Deep Learning Engine

[read the article]

GitLab

Backend service: Source Code Repository

[read the article]

Backend service: Service Discovery, Creation and Monitoring

[read the article]

Backend service: Security

[read the article]

Backend service: Intercommunication

[read the article]

RabbitMQ

Backend service: User Access Management

[read the article]

Backend services: Deployment and CI/CD

[read the article]

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