Deliverable D6.4

Early Plan for the exploitation and dissemination of the results

WP 6

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Dissemination Level

PU	Public	X
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

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1.0	Integration of the KDS and ATB reviews	22.12.20

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
IDE	Integrated Development Platform
i.e.	id est = that is to say
IP	Intellectual Property
IPR	Intellectual Property Rights
IT	Information Technology
KPI	Key Performance Indicator
M	Month
OSS	Open Source Software
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
CMS	Content Management System
RTD	Research and Technological Development

Executive Summary

This document presents the current status on the dissemination, communication and exploitation plans for the project. It contains the list of the current actions and time scales. It details the post-project actions containing the individual partners' intentions, at the point in time at which the deliverable is published. All the agreements with regard to the ownership of the results and IPR issues will be also included in this document. The outcomes resulting from the Standardisation, Clustering and Concertation tasks will also be reported within the future releases of this deliverable.

This document will have 3 releases:

- This first release (D6.4), month 12, describing the initial dissemination plan, the list of ongoing and upcoming actions and timelines. It presents a first version of the post-project actions, indicating the intentions of individual partners. We completed this release with a chapter on the risks and their mitigation related to the impact that the current pandemic may have on the realization of our plans.
- A second release (D6.6), at month 24, presenting the new actions, an update of the communication plan and business plans given that that the first versions of the prototypes will be available, and a market study should be available.
- A final release (D6.8), at month 36, describing the final exploitation plans of the different consortium members as well as all agreements regarding the ownership of results and IPR issues. The outcomes resulting from the standardisation, clustering and Concertation tasks will also be reported in this final version.

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1 Introduction

1.1 Document Purpose

The objective of the work package "WP6 Dissemination, Communication, Exploitation and Standardisation" is to increase the visibility of the SmartCLIDE project in order to attract the first users and to encourage the current consortium to continue and maintain the project. In other words, the objective of WP6 is to sustain the project by initiating a community of consumers and developers of SmartCLIDE technologies.

Deliverables D6.4, D6.6 and D6.8 “Plan for the exploitation and dissemination of the results” are part of WP6 and are produced as the main outcome of Tasks “T6.1 Dissemination Strategy”, “T6.2 Communication”, “T6.3 Exploitation & Innovation Management”, and “T6.4 Standardisation, Clustering and Concertation.”.

Tasks T6.1 and T6.2 aim to produce dissemination and communication materials in order to make the results of the project known, recognized, appreciated and finally used. Task T6.3 aims to coordinate the exploitation actions of the project by making the results broadly available in wider communities and integrating SmartCLIDE results in commercial products or services. Task T6.4 aims to support the project in contributing to current standards on Software Engineering, Multimodal information processing, Semantic Matchmaking and Cloud Deployment.

The purpose of this document is to present the detailed plans and achievements of these different tasks throughout the project. It is for this reason that this deliverable will produce 3 releases:

- This first release (D6.4), month 12, describes the initial dissemination plan, the list of ongoing and upcoming actions and timelines. It presents a first version of the post-project actions, indicating the intentions of individual partners. It also presents the standardisation objectives, their selection criteria, the action the consortium is putting in place to achieve these objectives We completed this release with a chapter on the risks and their mitigation related to the impact that the current pandemic may have on the realization of our plans.
- A second release (D6.6), at month 24, presenting the new actions, an update of the communication plan and business plans given that the first versions of the prototypes will be available, and a market study should be available.
- A final release (D6.8), at month 36, will describe the final exploitation plans of the different consortium members as well as all agreements regarding the ownership of results and IPR issues. The outcomes resulting from the standardisation, clustering and Concertation tasks will also be reported in this final version.

1.2 Approach

Within the context of SmartCLIDE the WP6 activities can be split in four phases, as shown in Figure 1, and as listed in the following:

- Project Start (M01-M03), to set up the communication channels and assets, including the website, the logo and the various social media accounts.
- Preparation Phase (M04-M12), where the first technical assets of the project are ready: for example, SmartCLIDE architecture defined, first technical documents, initial dissemination plan, among others.
- Building Phase (M13-M24), where dissemination activities are in motion, along with Community Building initiatives. During this phase the project is also expected to start sharing open-source project code to gain visibility with developer communities and update the market analysis.
- Consolidation Phase (M25-M36), where academic dissemination and exploitation will reach its maximum potential, and the business exploitation will begin. Sustainability of the project results will be supported through the community around the open-source results, first commercial products or services of the project, and contributions to current standards.

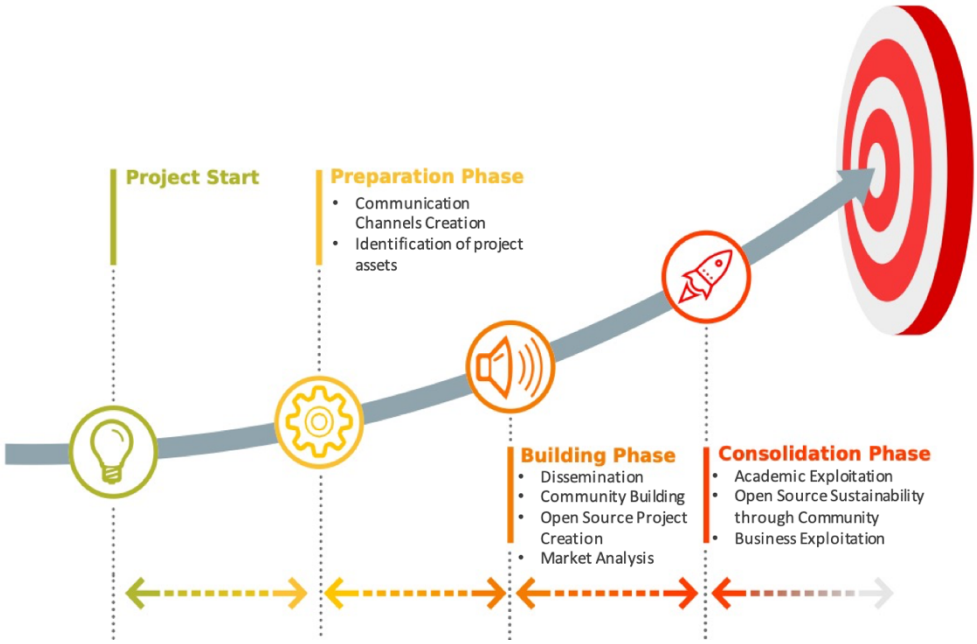


Figure 1 - Dissemination and exploitation phases in SmartCLIDE

We are wrapping up the “Preparation Phase” and this first release of deliverable D6.4 describes current achievements, open actions and future plans.

1.3 Document Structure

This document consists of the following sections:

- Section 2 presents the current stakeholders identified by the consortium and the key messages the partners have in mind to interact and attract specific audiences.
- Section 3 presents the Communication and Dissemination strategy as well as the current associated achievements.
- Section 4 presents the initial exploitation plan and the innovation strategy put in place by the consortium to sustain the project results.
- Section 5 presents the standardisation objectives, their selection criteria, the action the consortium is putting in place to achieve these objectives.
- The Section 6 presents the plan we put into place to mitigate the risks related to the COVID-19 pandemic.

2 SmartCLIDE stakeholders, their needs, and our answer

2.1 Elevator pitch session

2.1.1 Purpose of the exercise

To understand and summarize the SmartCLIDE consortium's vision in terms of stakeholders and the messages we want to convey to reach them, we organized an Elevator Pitch session. The goal of this exercise was to be able to build sentences based on this model:

> **For** <Target Market> **those who** <Needs / Problems>
>
> **SmartCLIDE**
>
> **is a** <Solution> **that** <Delivered value>

Instead of asking each partner to build his own sentence(s), we proposed each partner to answer:

- First to the question:
  - Who is our Target Market?
- Then, once everybody answered the first question, we ask the consortium to answer the next question based on all listed stakeholders:
  - What kind of **Needs** or **Problems** SmartCLIDE is supposed to address?
- Now that we have the stakeholders and their needs, we ask the consortium to answer the next question:
  - What kinds of **Solutions** does SmartCLIDE provide to address these needs?
- And, finally, we ask them to list the associated values by asking them to answer the question:
  - What is the associated **Delivered Value**?

Splitting the sentence in small pieces helped the consortium to express, discuss and finally combine various partners' understanding of the SmartCLIDE project.

2.1.2 MIRO platform

Usually, this exercise is run in a face-to-face meeting. Understanding that this is particularly important during this period of the project, we used the online collaborative whiteboard platform Miro[1] to reproduce this dashboard exercise on-line.

This platform was easy to configure for this exercise and use by the consortium. It is based on virtual sticky notes that are filled in, then using drag and drop, arranged on a pre-organized virtual whiteboard.

The Figure 2 shows the final appearance of the whiteboard after a productive session:

[1] https://miro.com/

Figure 2 - SmartCLIDE elevator pitch dashboard

The answers to each question are listed in the Appendix 8.5.

The next sections will present the summarized results of this exercise.

2.2 SmartCLIDE Targets

All partners participate in the three major activity blocks (scientific dissemination, communication, and exploitation). Each activity block is led, as presented in the diagram, by one group of partners according to their main interests. Figure 3 represents the external organizations and communities that will be reached by means of the actions enlisted in each block. In that way, Industrial Partners will target the members of their own networks such as suppliers, customers, or sectorial associations; RTD will target other RTDs, Universities, Regional bodies, Industry or Citizens and the ICT Vendor will mainly target other potential vendors and customers. All the actions are interrelated, thus any potential action within the Dissemination or Exploitation blocks will be communicated through any one of the media identified under the Communication Block.

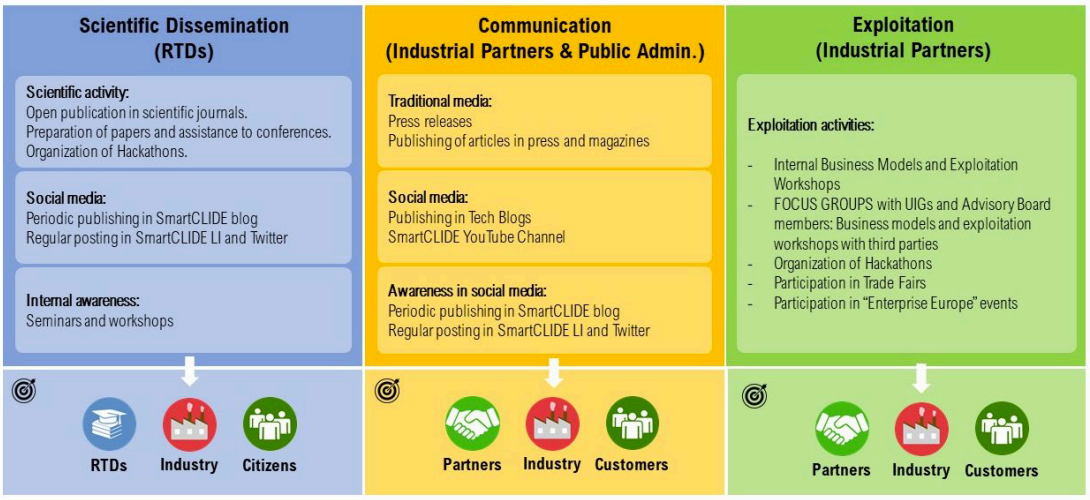


Figure 3 - Major activity blocks

The Elevator Pitch session helped to refine the list of stakeholders. Currently, we have 4 categories of profiles:

Education	Technical non-developers	Technical-Developers	Industries
Schools starting with digital education Developers with limited knowledge / experience in Cloud computing, Big Data Staff with some technical skills	Manager UX/UI Product Owner Management teams AI testers, Non-technical actors who want to analyse business existing features	Software SME Software development teams IT Services Software IDE Developers/Companies Application developers - providing a service (consulting) Cloud solution Developers (OSS) Developer communities	Start-ups Solution makers (Teams with end-to-end responsibility) Sales teams Development Tool Providers System Integrators and Value-Added Resellers Cloud Platform Providers

These profiles can be summarized into 7 major profiles as described in Section 2.2.1-2.2.6.

2.2.1 Developers

The main user targets of SmartCLIDE are developers. The tool will facilitate the developer's work through automation and pre-established commands.

- Professional
  - Software SME
  - Software development teams
  - IT Services
  - Software IDE Developers/Companies
  - Application developers - providing a service (consulting)
  - Cloud solution Developers
  - (OSS) Developer communities
  - Big-data platforms Developers
- Education
  - Schools starting with digital education
  - Developers with limited knowledge / experience in Cloud computing
  - Staff with some technical skills

2.2.2 *Autonomous teams*

Autonomous teams, with end-to-end responsibility, dealing with the full development stack, must also be able to select the best options for application deployment and make it available to end users. SmartCLIDE will helps in dealing with the associated complexity and multiplicity of available technologies.

- Solution makers (Teams with end-to-end responsibility)
- System Integrators and Value-Added Resellers
- Cloud Platform Providers

2.2.3 *UX/Product Design*

Situated between Business and developers, User Experience and Product Design teams can work with feature specifications, user stories, and acceptance testing.

2.2.4 *Product Owner / Scrum Master*

SmartCLIDE provides Product Owners, Scrum Masters and Agile Coaches, with an effective overview of the project. It provides information about the speed and performance of the team, with metrics appropriate to these roles. It encourages collaboration through User Story Maps, Kanban, etc.

2.2.5 *Sponsor*

SmartCLIDE will also provide metrics and a Product Roadmap for the Sponsor or other Stakeholders, simplifying the general monitoring of the product that is being built

- Manager
- Management teams
- Non-technical actors who want to analyse business existing features

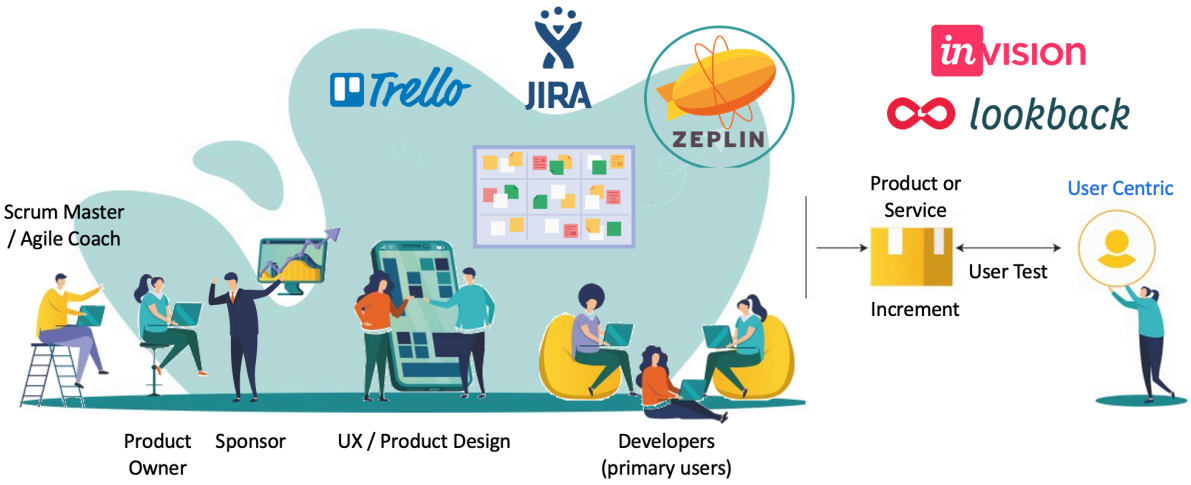


Figure 4 - SmartCLIDE targets

Each Communication and Dissemination action will target at least one of these stakeholders to build an active community of users and developers of the SmartCLIDE technologies.

2.3 SmartCLIDE messages

Based on the Elevator Pitch session, we have identified an initial series of messages addressing each of our stakeholders:

- Developers:
  - For Developers who need to quickly ramp-up on Cloud computing, SmartCLIDE provides assistance on algorithms to be used, based on input data and guidelines for model generation that shortens and simplifies Cloud System development, testing, maintenance and Deployment
  - For Developers who need assistance during development, SmartCLIDE provides training material, including getting started, that shortens and makes easier Cloud System development, testing, maintenance and Deployment
  - For Developers who want to automate the dev process (to make it more predictable) SmartCLIDE provides templates based on atomic functionalities. This makes the SW creation process more efficient and automated at every step
- Autonomous teams:
  - For Integrators/Solution Makers who need to select a solution, SmartCLIDE provides built-in components for sensors and monitoring (complex/dynamic) applications, that improves responsiveness to changing customer requirements
  - For Development Tool Providers who invest significant time to develop new solutions from scratch, SmartCLIDE removes/reduces dependencies in code to improve responsiveness to changing customer requirements
  - For SW vendors who want to create a quick demo, SmartCLIDE enables non-programmers to access programming capabilities. It offers greater flexibility in choice of services for developing dynamic systems (increases the services reuse)
- UX/Product Design:
  - For UX/UI Designers who have long testing and verification times for Cloud application deployments, SmartCLIDE is a next generation IDE to smartly support in an automated manner, the work of Dev Ops software developers
- Product Owner / Scrum Master:
  - For Architects / Product Owners who need to understand the platform and its services (to use or extend), SmartCLIDE helps to find the best (cloud) service for your current problem, offering greater flexibility in choice of services for developing dynamic systems (increases the services reuse)
- Sponsors:
  - For Managers looking for feedback throughout the SW creation lifecycle, SmartCLIDE provides a collaborative environment from inception to deployment, including testing and security
  - For Managers who want to automate the dev process (to make it more predictable), SmartCLIDE evaluates the dev status at each stage and automates monitoring at runtime to ensure that desired qualities are achieved
  - For Managers who are accountable for SW deployment, SmartCLIDE supports the whole SW creation lifecycle, from inception to deployment, including testing and security by making the SW creation process more efficient and automated at every step

These messages help the consortium in constructing some powerful and coherent messages and dissemination assets.

3 Communication and Dissemination strategy

The objectives of the dissemination strategy are: (a) to ensure maximum impact of SmartCLIDE within and outside the Project Consortium, (b) to stimulate the adoption of the new cloud services development paradigm and IDE; (c) to inform the research community of these important results, (d) to provide impact in terms of an improved image of science and technology in society.

To achieve these objectives, communication and dissemination activities must maintain a **drumbeat** on each of the communication channels, for example with announcements relating to key project milestones like a release, a contest, a presentation, etc. The following is an overview of the communication and dissemination initiatives and activities achieved by the project.

3.1 FREE your community

The project will follow the four pillars for successful community building in terms of a communication and dissemination strategy:

- **Feed your community**: In order to create and maintain a strong and sustainable relationship with a growing community, it is essential to provide it with regular information on the progress of the project while documenting the different facets of the project. At the same time, these actions allow us to build a knowledge base on the project that is accessible to all those who want to learn more.
- **Respect your community**: As soon as some code is available, it is important to share it with our communities. Even if we are not yet sure of its quality, giving access to our code to people outside the project increases our chances of getting feedback from our early adopters. The constraint of this *lean startup* approach[2] is that we have to be very reactive when we receive such feedback. "Every bug report is a love letter," says Erich Gamma[3]. This is absolutely true. In order to get that reaction, our early adopter will have to (a) find our code, (b) download it, (c) install it, (d) test it. And, finally, whoever encounters a problem, will then have to decide to (e) contact us to report a bug, submit a request for enhancement or a simple question. This feedback becomes a real demonstration of their interest in our work and we should not disappoint them.
- **Embrace your community**: The communities are not waiting for us. We may have an innovative idea, but if we don't know how to present it to these communities, if we cannot show them that we understand their needs and know how to meet them, we will miss the opportunity to attract them. That's why understanding them is essential. And the best way to achieve this level of understanding is to attend conferences, organize or participate in local events, interact with existing user groups and, last but not least, meet communities you are not used to meeting.

[2] https://en.wikipedia.org/wiki/Lean_startup
[3] https://en.wikipedia.org/wiki/Erich_Gamma

- **Engage your community**: At some point, it is necessary to engage our communities. Remote webinars, workshops, contests or hackathons are great ways to engage them. During the early stages of the project a webinar is a heads up for your community. During the *Building phase* (c.f. 1.2 Approach), a workshop or a hackathon brings useful feedback in terms of how the project is understood, how the platform is used, etc. Finally, during the *Consolidation phase*, a workshop or a contest can attract more early adopters.

In the next paragraphs, we will list the main assets, actions and their KPIs that we put in place to follow this FREE approach.

3.2 Marketing assets

3.2.1 Logo

It is important to remind our readers that the first "marketing" asset contributing to the identity of the project and its consortium is the logo. It helps to uniquely identify a project amongst others, and certainly contributes to or influences the graphical themes of the website and all the other marketing tools of a project.

The collaborative process for the creation of the SmartCLIDE logo has been described in the deliverable D6.2, section #3.

Figure 5 - SmartCLIDE logo

3.2.2 Stickers

We plan to print several hundred stickers and distribute them at events (conferences and trade shows). This is an excellent way to promote the identity of the project.

The stickers are highly appreciated by the developer communities. A nice logo will be displayed on the shell of a laptop, contributing to the visual recognition of the project and bringing pride to the consortium.

> Having no face-to-face events scheduled at the moment, we have delayed this printing action.

3.2.3 *Flyers and factsheets*

A flyer/factsheet summarizes a project by providing a quick overview of the key elements and entices the reader to want to learn more about the project.

A flyer can be considered the project's "business card" and it should be easily sharable with anybody without requiring extra information. In other words, you should be able to leave the flyer at an event booth, and anybody should be able to read it and understand the purpose of the project.

We created the first factsheet for the EclipseCon 2020 community event. Due to the urgency of the request, it was based on the SmartCLIDE proposal and could not be updated with the latest project formulations. This comment was heard and taken into account during the M9 review. A new version of the factsheet is currently being developed.

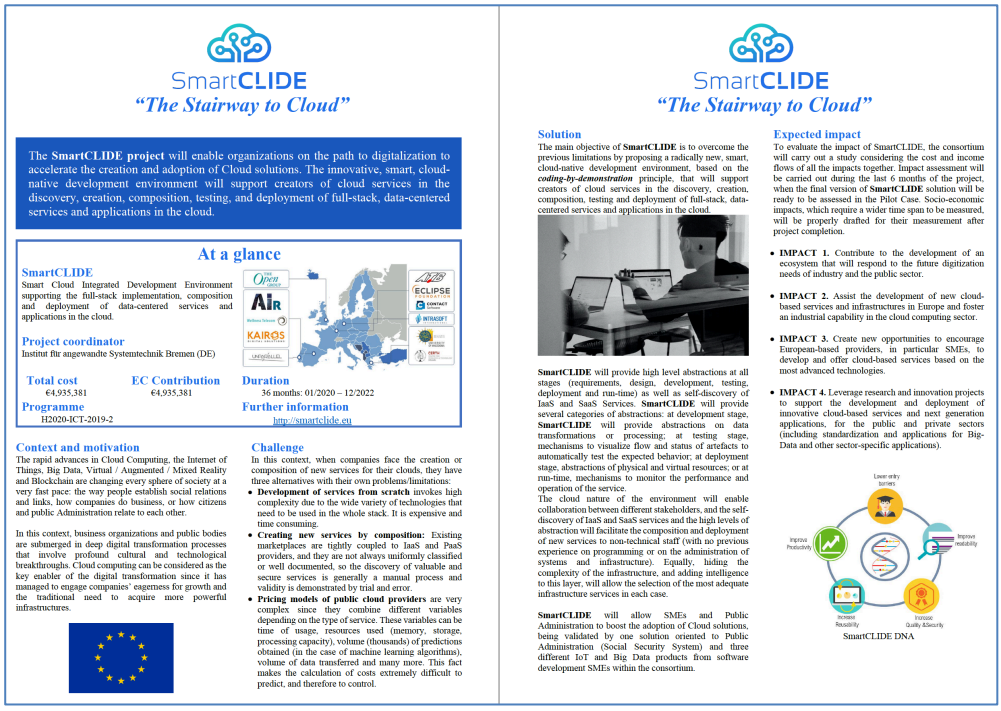


Figure 6 - SmartCLIDE first factsheet

This first factsheet is already publicly available on the SmartCLIDE website[4] and it can be downloaded and printed by the project partners. It doesn't target any specific audience. It provides a high-level picture of the project, its challenges and the solutions it plans to put in place.

3.2.4 *Posters and Roll-ups*

Poster are usually used when you have a particular speaking slot or booth and you want to advertise your project. It is always difficult to find a good trade-off between a poster with too much information and a poster clear enough to attract a passer-by.

Usually, posters are customized for a particular conference while roll-ups are designed to be reusable at other events. So, posters can put the emphasis on a specific aspect of the project which will resonate in the context of a particular conference or event.

[4] https://smartclide.eu/project-resources/

As with flyers, posters should evolve with the progress of the project. So, we plan to deliver at least one poster per target, depending on the number of conferences visited. As with flyers, poster will be available for downloading printing from the SmartCLIDE website.

3.2.5 Presentations / Slide decks

Slide deck presentations are a great means to communicate key messages to an audience. We have three kind of presentations in mind that target three different audiences:

- A **Technical** presentation to explain the big picture of the project to technical audiences who might be willing to join our Developer target group. This presentation will usually run for 30 minutes to 1 hour.
- A **Generic** presentation to provide a pitch of 10 to 20 minutes to a non-technical audience. In this case, we are trying to reach the end-user target group.
- An **Awareness** presentation, which presents in few slides what the project is all about. Usually, this presentation is included in a larger one and is used to include the project as a Use Case or an example in the flow of the main presentation.

The SmartCLIDE consortium has created two presentations to date:

- a generic[5] presentation titled "SmartCLIDE, the Stairway to Cloud". This presentation was used to create a short video and pitch on SmartCLIDE during the last EclipseCon event in October 2020.
- an awareness[6] presentation titled "SmartCLIDE Vision". This presentation was created for the M9 review to provide a good overview of the project.

They are both accessible via our SlideShare account and can be also downloaded from the SmartCLIDE website[7].

3.2.6 Scientific papers

Scientific results emerging from the project are published in leading industrial and technical journals. The scientific results are disseminated to the industrial and academic communities through peer-reviewed publications.

- https://waset.org/software-engineering-conferences
- https://www.conference-service.com/conferences/software-engineering.html
- https://conferencealerts.com/topic-listing?topic=Artificial%20Intelligence
- https://conferencealerts.com/topic-listing?topic=Computer%20software%20and%20applications
- https://conferencealerts.com/topic-listing?topic=Information%20Technology

[5] https://www2.slideshare.net/SmartCLIDEProject/smartclide-project-vision
[6] https://www2.slideshare.net/SmartCLIDEProject/smartclide-project-pitch-presentation
[7] https://smartclide.eu/project-resources/

Our partner, the University of Macedonia, had one paper accepted and published at the 13th International Conference on the Quality of Information and Communications Technology (QUATIC 2020)[8]. The paper is titled "Applying Machine Learning in Technical Debt Management: Future Opportunities and Challenges" and it can be download from the SmartCLIDE website and directly from the ResearchGate portal[9].

3.2.7 Press Releases

A press release is a written communication that reports specific and brief information about an event, circumstance, or product launch. It is usually linked to a company or organization and communicated to the media through a variety of means.

The main purpose of any press release is to promote something important and specific, and to clearly do so. In addition, a press release is a document that follows a strict format and serves three marketing and promotional purposes:

- To notify the media about an event in hopes that they will spread the word.
- To share something about your business, hoping a reporter will see a story in your press release and write an actual news article about it.
- To promote your business' appearance on the internet via blogs, websites, and social networks.

We are usually considering 3 main events which could create an opportunity for a press release:

- **The launch of the project**: it is a great way for project partners to announce their participation to a European project
- **A major event during the project**, such as the publication of important results. For example, we recommend the consortium to have a press release when the code of the project is open sourced and has passed the IP review of the Eclipse Foundation.
- **The end of the project**: to promote project results of each partner and to announce the follow up actions such as a new project, the creation of a community, etc.

Five of our partners had the opportunity to write a press release for the launch of the project. To help them in this formal exercise, the WP6 shared a template inspired by the CONTACT Software press release they could adapt to their own needs.

[8] https://2020.quatic.org/home

[9] https://www.researchgate.net/publication/341650252_Applying_Machine_Learning_in_Technical_Debt_Management_Future_Opportunities_and_Challenges

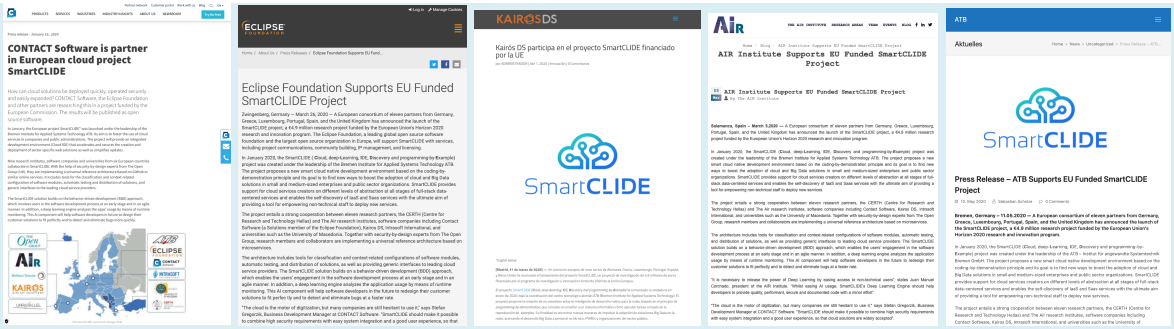


Figure 7 - PR for the launch of the project

These five press releases are accessible from the SmartCLIDE website[10]. The press release template is provided in the appendix of this document.

- CONTACT Software is partner in European cloud project SmartCLIDE
- Eclipse Foundation Supports EU Funded SmartCLIDE Project
- Kairós DS Supports EU Funded SmartCLIDE Project (Spanish & English)
- AIR Institute Supports EU Funded SmartCLIDE Project
- ATB Supports EU Funded SmartCLIDE Project

3.2.8 Blog posts

Blog posts are the real drumbeat of the project. It's a way to tell the general public what the project is doing and how it is progressing. It can generate quite a bit of interest in our project. It can result in useful feedback and pointers to new literature and ideas. It can lead to the discovery of new networks and potential new research projects and early adopters.

In other words, the blog posts are excellent hooks to attract new readers and potentially early adopters.

The consortium started the blog presenting the main topics involved the project:

- SmartCLIDE: a new cloud-native IDE
- Machine Learning and Deep Learning: A power couple
- Cloud Computing in a nutshell
- Programming by Example
- Service Discovery in a Nutshell
- AGILE methodologies and DevOps

It will continue with the presentation of the four use cases that will be implemented during the project. At the time of writing this deliverable, the first use case blog article has been released.

- Use Case: Real-Time Communication Service

In total, so far, twelves blog posts have been published[11].The complete list is provided in the Appendix 8.4 Current blog posts.

[10] https://smartclide.eu/project-resources/
[11] https://smartclide.eu/news/

3.2.9 Newsletters

A newsletter provides regular updates on the progress of the project. It is sent to a mailing list composed of emails collected via the SmartCLIDE website. Users must explicitly provide their email address to receive these updates. We may consider this mailing list as a list of potential early adopters.

The newsletter is created and sent using the marketing automation platform MailChimp, an online email delivery service that provides comprehensive support for compliance with current spamming regulations and GDPR. It also offers templates and an excellent user interface that allows the editor to apply the SmartCLIDE branding to the newsletter or other emails.

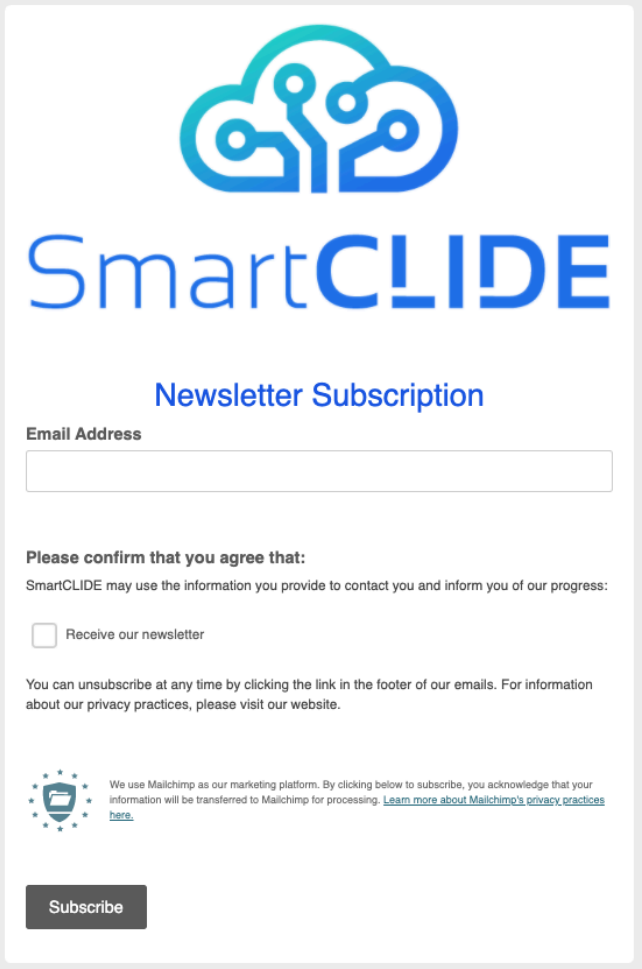


Figure 8 - Newsletter subscription form

Users can subscribe to the SmartCLIDE mailing list from the main page of the website. The newsletter will be sent out 2 to 3 times a year to interested community members. Relevant project information will be featured in the newsletter, such as news, project progress updates, blog posts, contest news, tutorials, information about the source code, upcoming events, and more.

It is a great resource that allows the project to communicate with the community on a regular basis. It's important to stay in touch and to send them new information as the project progresses. They are already aware that the project exists and this is first step in helping them understand what SmartCLIDE is. They need to understand the technology, before they can act and start using it.

Currently, we have 19 subscribers to the SmartCLIDE newsletter, 7 are new contacts.

A first newsletter was sent in July 2020 to present the main topics involved the project. A second one will be published once the use cases are described.

3.2.10 Videos

Videos are another useful and efficient media to communicate the message. Our targets often prefer to watch a 5-minute video summarizing a new topic or even a 30-minute video with more details. If the content is interesting, they will search for additional materials such as longer articles.

The project realized its first video[12] based on the project's first introductory presentation. There were no additional licensing fees needed to create the video, as the main tasks were writing the script for the voice over and synchronizing the voice with the slide deck animation.

Figure 9 - First SmartCLIDE video

The feedback we received on the first video is very encouraging. We are considering possibly creating additional videos in the midterm.

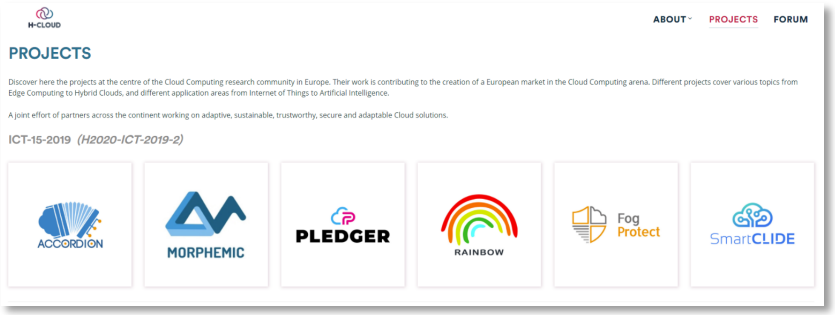
[12] https://youtu.be/101djn48DS8

3.2.11 Reached communities & Cluster

As mentioned at the beginning of this chapter, the project must "Embrace its community". This action needs to start as soon as the project can communicate its motivations and ambitions.

Currently, the project is involved in 3 main communities and clusters:

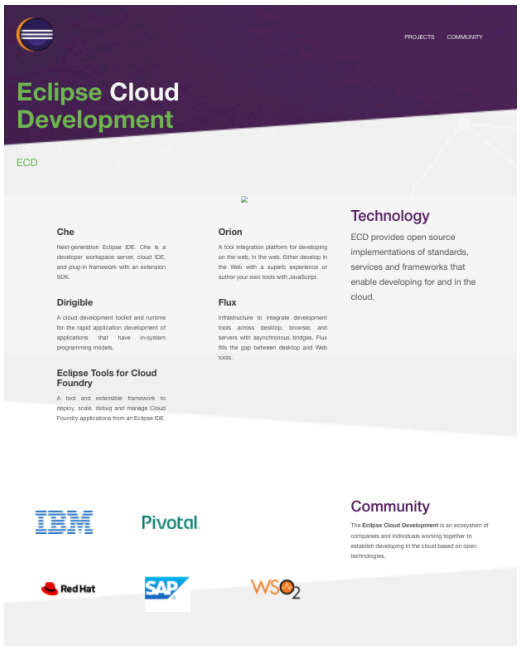
- The H-Cloud cluster[13]



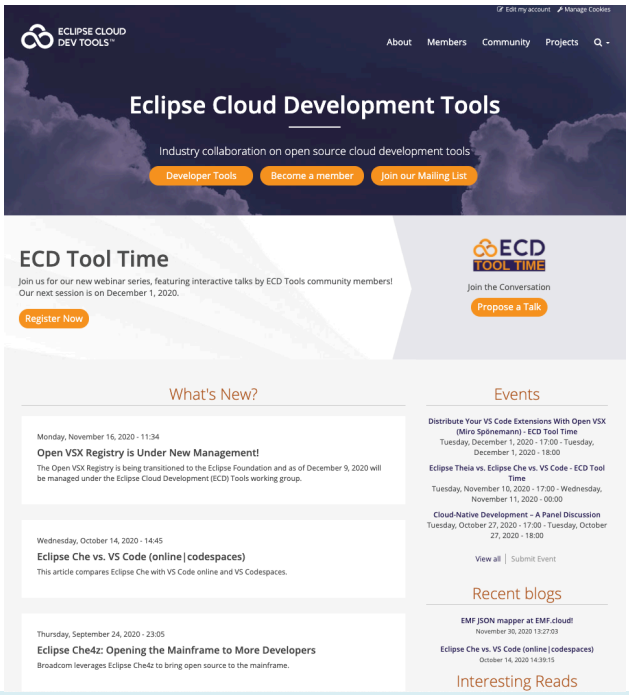
- The Future Cloud cluster[14]

[13] https://www.h-cloud.eu/projects/
[14] https://eucloudclusters.wordpress.com/future-cloud/

- The Eclipse Cloud Development community[15]



- And the Eclipse Cloud Development Tools working group[16]



At the moment, we are mainly listening to these different groups. We will start to contribute during the second year of the project, once we will have our first prototypes in place.

[15] https://www.eclipse.org/ecd/
[16] https://ecdtools.eclipse.org/

3.3 Events

3.3.1 Conferences/Exhibitions

The results of the research work carried out in SmartCLIDE will also be submitted for publication to international events and peer-reviewed conferences.

Participating in and presenting the project at different conferences and events is certainly one of the dissemination keystones. For the consortium, it was essential to visit such events from the beginning of the project to take the temperature of our respective targets and understand the expectation of the market. This “lean startup” approach helps the various partners to validate their hypothesis.

As the Eclipse Foundation is a partner in SmartCLIDE, the project is of course planning to participate and promote the project results at EclipseCon events. The consortium is also planning to participate in several other events targeting developers and non-developers such as:

- Cloud Native
- Microsoft Ignite
- Cloud Expo Europe
- Cyber Security and Cloud Expo
- Google Cloud Next
- AI & Big Data Expo
- Deep Learning World
- AI & Blockchain summit
- And more: https://tradefest.io/en/tag/computer-software

We participated this fall in the EclipseCon 2020 virtual event. The project was part of the exhibit at the Eclipse Research virtual booth.

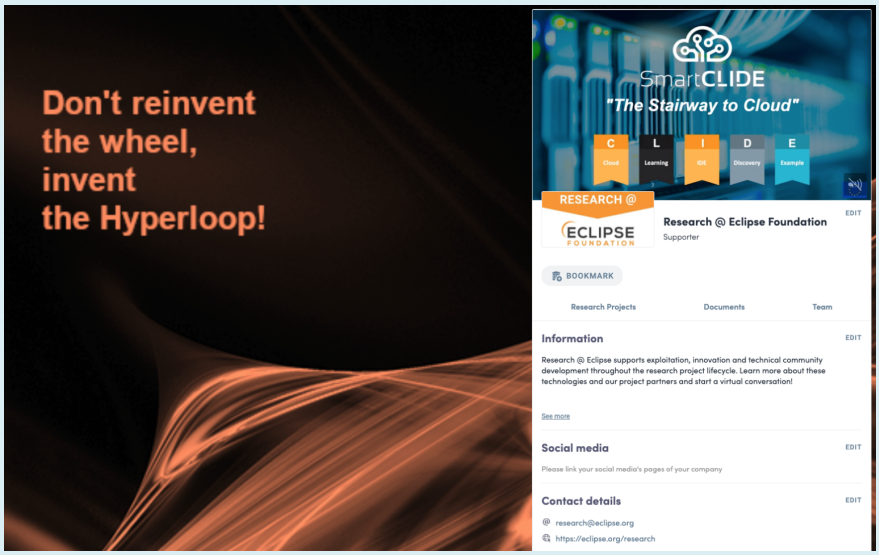


Figure 10 - Eclipse Research virtual booth at EclipseCon 2020

During this event we shared our initial factsheet and the video based on our first introductory presentation.

3.3.2 *Hackathons, Developer Challenges & Workshops*

We are still too early in the project to initiate a hackathon[17], a developer challenge, or a workshop. However, we consider this type of event to be key elements for building a sustainable community of developers around the project.

We are planning to organize these at future developer conferences such EclipseCon to introduce and challenge SmartCLIDE.

3.3.3 *Webinars*

Webinars have a double benefit: they are great to bring people from anywhere around the world in the same virtual session and they produce, at almost no cost, a video you can share with your community as a new asset that persists even after the webinar is broadcast.

The SmartCLIDE project has been invited to join the Open Research Webinars series[18] and present the SmartCLIDE project to the Eclipse and OW2 communities (https://opensourceinnovation.eu/2020/december/)

Figure 11 - Open Research Webinar social card

3.4 Measuring the Dissemination and Communication impact

This section presents the Dissemination timeline, some social media metrics, and some KPIs of the project and their status.

[17] "A hackathon (also known as a hack day, hackfest or codefest) is a design sprint-like event in which computer programmers and others involved in software development, including graphic designers, interface designers, project managers, and others, often including subject-matter-experts, collaborate intensively on software projects. Occasionally, there is a hardware component as well. Hackathons typically last between a day and a week. Some hackathons are intended simply for educational or social purposes, although in many cases the goal is to create usable software. Hackathons tend to have a specific focus, which can include the programming language used, the operating system, an application, an API, or the subject and the demographic group of the programmers. In other cases, there is no restriction on the type of software being created." Wikipedia, https://en.wikipedia.org/wiki/Hackathon

[18] These webinars (https://opensourceinnovation.eu/) are co-organized by the Eclipse Foundation and OW2

3.4.1 Communication and Dissemination timeline

The following graphics show an overview of the project timeline and the different communication and outreach actions:

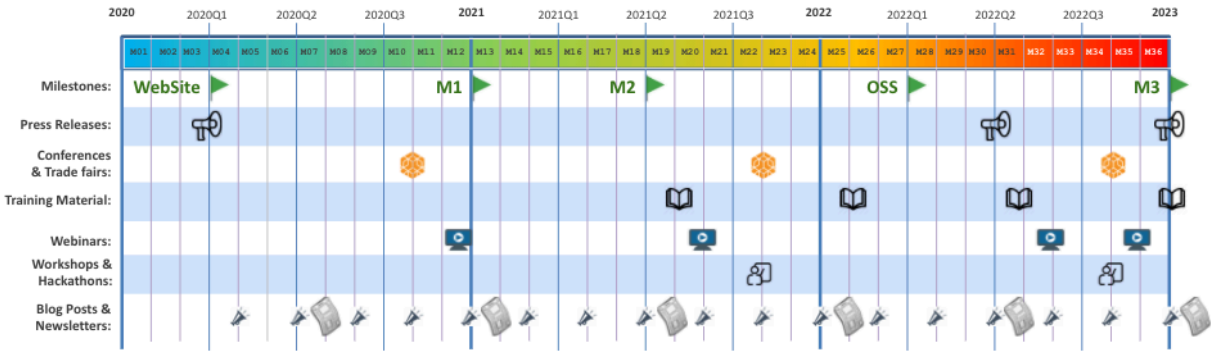


Figure 12 - SmartCLIDE current timeline

This graphics shows:

- The main SmartCLIDE milestones:
  - Launch of the SmartCLIDE website
  - M1: State of the art (D1.1) of SmartCLIDE relevant topics is completed, Requirements (D1.2) and Use Case Scenarios (D1.3) are available. SmartCLIDE functional concept (D1.4) and architecture (D1.5) are completed.
  - M2: Early prototype (D4.2) of the SmartCLIDE and its components are designed, developed and validated in a laboratory environment.
  - Submission of the Eclipse open-source project proposal
  - M3: Full prototype of SmartCLIDE and its components are designed, implemented and validated (D4.3) to be assessed in the three pilot companies (T530). Result of the assessment is retrofitted into the Final Version (T440) and made available to the Open-Source Community.
- Planned Press Releases:
  - First to announce the jumpstart of the project
  - Second to announce the availability of the initial open-source contribution and open collaboration with the rest of the world
  - Third to announce the end of the project and the beginning of its sustainability
- Some key well-known **developer conferences** (such as EclipseCon) and trade fairs to meet SmartCLIDE peers and stakeholders. This graphic line will be update as soon as the outreach workshop and follow up is completed.
- **Training materials** produced after major milestones (M2, Open-Source project creation, and M3) to support understanding and adoption of the project.
- **Public webinars** to present and demo the project ahead of a major conference to initiate the discussion with some communities
- **Public workshops** and **hackathons** to engage communities during their community event
- **Social Media drumbeat**: Regular blog posts (at least one per month) and quarterly newsletter to feed the growing community information on project progress.

3.4.2 Dissemination and Communication KPIs

The following table lists the current set of KPIs the project consortium committed to achieve:

Table 1 – Dissemination and Communication KPIs

KPI	Target	Dec. 2020
Newsletters	10	1
Direct contacts with manufacturers	20	
Seminars (2 per country)	12	
Leaflet	1	1
Presentations to Researchers audience	50	20
Presentations to Students	500	
Presentations to industrial partners	100	
Presentations to Schools (1 per academic)	4	
Video demo (1 per use case)	4	
Internal seminars (just for partners 'staff)	9	
Internal seminars individual reached	500	
Open workshops (7 workshops during the project development: - 3 for requirements gathering, - 3 for business modelling and - 1 final event in M36)	7	3
Hackathons	1	
Brochure	1	
Project website unique visitors during the execution of the project	20,000	238
Blog posts	50	12
Publications on Twitter		23
Publications on LinkedIn		10
Conferences	35	1
Paper and articles in specialized publications (RTD)	7	1
Paper and articles in sectorial magazines (SME)	2	
Community Management / UIG (organizations/individuals receiving information about the project results through direct contact or social media)	3,000	

We would like to complete these KPIs with several other KPIs which can contribute to achievement of the impact on the dissemination:

Table 2 - Optional KPIs

Optional KPIs	Target	Dec. 2020
Flyers and Factsheets (1 per year)	3	1
Posters (1 per year)	3	0
Technical slide deck (Last 2 years)	2	0
Generic slide deck (At least one per year)	3	1
Awareness slide deck (At least one per year)	3	1
Business case presentations	4	0
Direct contacts with manufacturers	20	0
Publishing of the project results	3	0
Webinars (1 per year)	3	1
Newsletter subscribers	100	19
Twitter followers	200	59
Asset downloads	500	108
Videos (1 per use case + 1 video per year)	7	1
Videos views	500	58

3.4.3 Social Media analytics

a) Website

The following graph presents the traffic on the smartclide.eu website:

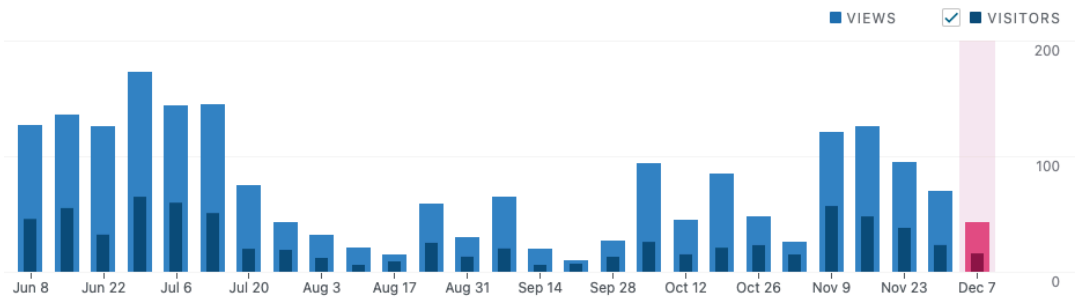


Figure 13 - Website traffic in 2020

If we make the parallel with the publication of the blog posts, it is, as expected strongly related to the activity of the blog. It is for this reason, that it is important to publish at regular intervals whenever possible.

The next graphic lists the top locations by country of visitors reading our website:

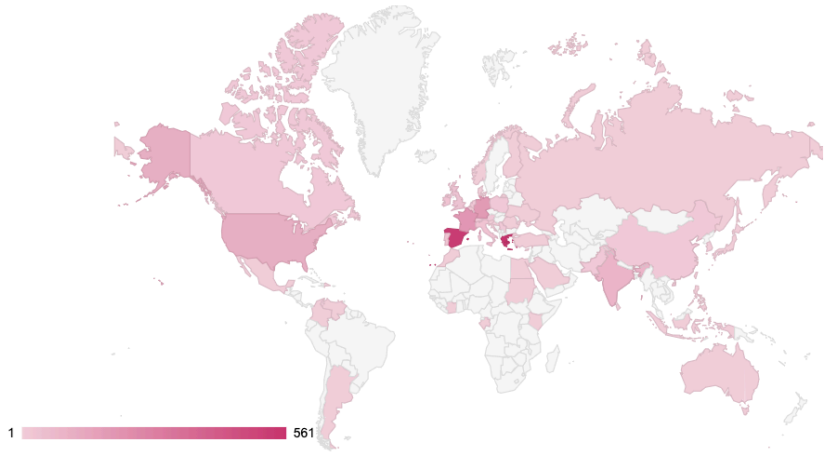


Figure 14 - Website reader countries

Our main readers are coming from:

Table 3 - Website readers per country

Country	Views
Greece	**561**
Spain	**519**
France	**192**
Germany	**187**
USA	**113**
Rest of Europe	**240**

It clearly shows that the consortium partners are locally promoting the project.

The following table presents the most read pages and posts:

Table 4 - Top readings

Title	Views
Front Page	844
Cloud Computing in a nutshell	262
About SmartCLIDE	152
Project Resources	102
News	95
Machine Learning and Deep Learning: A power couple	78
Service Discovery in a Nutshell	71
SmartCLIDE: a new cloud-native IDE	65
Home page / Archives	57
Programming By Example	57
Use Case: Real-Time Communication Service	47
AGILE methodologies and DevOps	47
Project events	42
Contact us	38

This table shows that our audience is mostly interested in our main themes, Cloud Computing and AI (Cloud Computing in a nutshell, Machine Learning and Deep Learning: A power couple). They also want to know more about the project (About

SmartCLIDE, Project Resources, News). This indicates that we should continue to focus on these 2 topics even if the main topic is not directly related.

b) Twitter

The analytics on the Twitter account (@SmartCLIDE[19]) provide the same result: posting articles on the website produces activities on this social media and new followers.

c) LinkedIn

The analytics on our LinkedIn account (Figure 15) provide some interesting values regarding the job functions of our account visitors. We are in touch with the correct targets. We need to leverage this input by promoting even more our activity on LinkedIn.

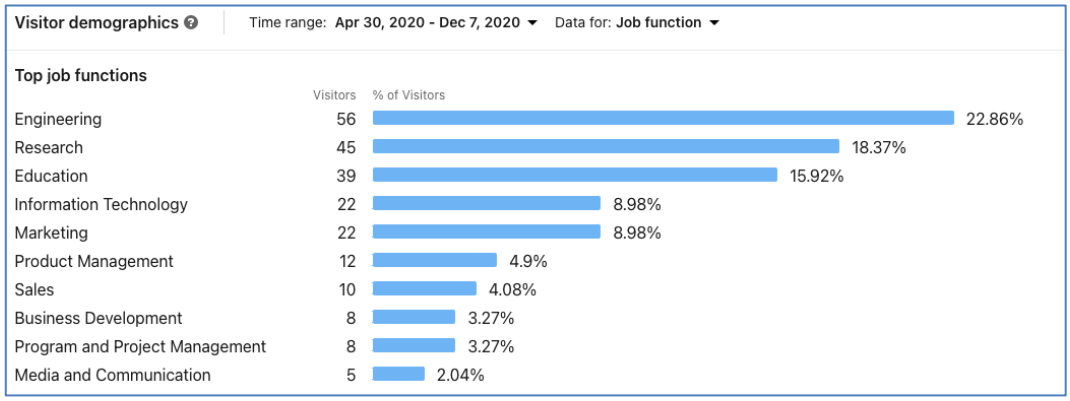


Figure 15 – Top job functions on LinkedIn

3.5 What's next – highlights

3.5.1 Short term actions

The next dissemination and communication short-term actions are:

- Publication of a blog post on each use case of the project.
- Publication of a second newsletter referencing the 4 use cases / blog posts
- Re-prioritize external outreach planning taking under consideration the constrains related the COVID-19 lockdown.

3.5.2 Mid- and long-term actions

For the next 6 months, we will:

- Increase our visibility inside the H-Cloud and Future-Cloud clusters
- Build a first set of Posters to be able to share them, at a minimum, on virtual events.
- Put in place open collaboration under the Eclipse Research Labs infrastructure. Having the code accessible by the rest of the world will contribute to the dissemination of the SmartCLIDE project and its concepts.

[19] https://twitter.com/SmartCLIDE

4 Exploitation and Innovation strategy

4.1 Introduction

The aim of this section is to draft the exploitation plan. Here the inputs to be evolved will be described along with their content, drafting which strategies are planned to acquire the exploitation inputs.

SmartCLIDE has to address the necessity of making software development faster –reducing the Time-to-Market- and adopt cloud solutions –particularly by means of composing and reusing services-. Both technical and non-technical users needs have to be considered with a bias to the technical ones. It is key to focus on resources re-use to optimize time, guarantee the software security to deliver reliable applications, and enhance the code quality to make it readable and maintainable.

The existent problem is an initial resources heterogeneity, which makes hard to find and reuse services, so as the implicit complexity of development for this kind of paradigm.

Thus, an IDE is to be obtained which tackles these problems by proposing a comprehensive development solution, which helps business stakeholders to define their requirements and the IT crew to save time during development while quality code is provided. Pilot cases will deliver a metric to evaluate the effectiveness of proposed solutions, while will act as feedback to improve methodologies, processes and products of their leading partners

Therefore, the expected knowledge will be both industry- and research-oriented. Regular industry knowledge will consist of the techniques, tools and technologies needed to compose quality secure services considering all the software lifecycle. Research knowledge will come from advancements in AI application to services development, particularly adding context information and system monitoring to the algorithms.

IT partners will obtain a tool for their internal use and an additional know-how to apply to their methodologies and products; research partners will be able, apart from using the tool itself, to make use of the extracted knowledge to open new research fields and perform trainings.

It is soon to define success metrics as definitive KPI, but benefits from the project are expected to be the following:

- To enhance development speed
- To ease incomers training
- To allow the involvement of business stakeholders into the software development
- To ease the transition to cloud model by using containers
- To enhance the software quality
- To enhance the code re-use
- To enhance secure code
- To ease the access to AI algorithms and techniques
- The Discovery of new, particularly Deep Learning, and the combinations of them. Find advances in Context, Monitoring and AI, particularly Deep Learning and the combination with the above.
- To enhance processes, methodologies and products by part of the pilot cases

Last, final users and stakeholders will be reached by several dissemination strategies in several fields:

- Academic field: Congress, papers, journals
- Professional field: Work groups, Open Source Communities
- Social media: Web page, newsletter, social media profiles

The product showcases and workshops in next stages will be organized in order to get feedback, getting final users involved and helping to disseminate the tool amongst them.

4.2 Exploitation Strategy

There are 4 stages to the exploitation strategy after the project starts:

- Up to the 12th month. First draft of the document.
- Up to the 24th month. Detailed identification of potential markets and competitive environment.
- Up to the 36th month (project completion). Specification of commercial strategy, IPR, identification of investors and partners to market, business models, financial information and agreements between partners.
- After project completion. Actions in order to bring TRL-6 prototypes to commercial products are to be performed.

4.2.1 Exploitation Timing and Tasks

As a summary, Table 5 shows the three main results along with their TRL level and exploitation dates.

Table 5 - TRL Results

Result	Format	TRL	Exploitation timing
SmartCLIDE cloud IDE	Cloud deployable Software	6-7	1-2 years after the end of the project
Deep Learning Engine	Software, deployable containerized modules	6-7	1-2 years after the end of the project
SmartCLIDE methodology	Report on SmartCLIDE Paradigm and usage	6-7	1-2 years after the end of the project

The tasks to be addressed in the exploitation plan are:

- Market analysis. A yearly market report has to be elaborated to track changes in market and analyse SmartCLIDE position.
- Development of marketing strategy. Related to the actions aimed to determine the strategies and pricings to adapt the final product to what market needs, and forecast its adoption.
- Financial plan. A detailed analysis on projected profit and loss.
- Concept demonstration. The elaborated system concept conforms the MVP, which will be implemented and used to demonstrate the feasibility of the project amongst final potential users

- Implementation plan. At the end of the project, a roadmap to commercialization will have to be defined along with the channels to perform it

4.3 Single partner Exploitation Plans

An analysis of the existing individual exploitation routes looking for common items throws three categories. One regarding exploitation by part of the IT partners (SME and large companies) concerning the application of SmartCLIDE to their products and methodologies, other by part of the RTD partners more focused, and a third shared one.

- IT partners
  - The exploitation of the whole SmartCLIDE framework and services
  - Add the know-how of SmartCLIDE to their products
- RTD partners
  - Use SmartCLIDE as a tool for training students
  - Use SmartCLIDE knowledge to propose new research projects
  - The use of knowledge to elaborate PhD thesis and trainings
- Both
  - Exploit SmartCLIDE as a service via partner alliances

Below are listed the individual exploitation routes of each partner, which will be updated according to the performed workshops:

Table 6 - ATB Exploitation Route

Organization	ATB
Profile	RTD partner
What are your interests in SmartCLIDE	• The whole SmartCLIDE IDE framework and services • Artificial Intelligence classification algorithms • Artificial Intelligence learning services
Which are your exploitation routes	• Use the SmartCLIDE services in commercial software development projects for German companies, to accelerate the TTM • Use of SmartCLIDE in the development of new research projects • Consultancy and training services for German software development companies • Use of SmartCLIDE as a tool for students' internships at ATB • New PhD thesis of ATB research staff • Proposal of new research projects based on the knowledge generated at SmartCLIDE • Business alliances with project partners to offer SmartCLIDE as a service

Table 7 - INTRA Exploitation Route

Organization	INTRA
Profile	IT partner
What are your interests in SmartCLIDE	• The whole SmartCLIDE IDE framework • Microservices • Abstractions at all software lifecycle services
Which are your exploitation routes	• Use of SmartCLIDE with own Innovative Software Products, by supporting the pilot with the product department • Training of new internal programming staff • Acquisition of know-how and technology transfer • Business alliances with project partners to offer SmartCLIDE as a service

Table 8 - AIR Exploitation Route

Organization	AIR Institute
Profile	RTD partner
What are your interests in SmartCLIDE	• SmartCLIDE dashboard for lifecycle monitoring and follow-up • Use of microservices to support the whole software lifecycle
Which are your exploitation routes	• Consultancy and training services for Spanish software development companies • Offering of AI classification and abstraction discovery as a resource for private software development companies • Use of SmartCLIDE as a teaching tool for new students • New PhD thesis of AIR research staff • Use of SmartCLIDE in the development of new research projects • Business alliances with project partners to offer SmartCLIDE as a service

Table 9 - UoM Exploitation Route

Organization	UoM
Profile	RTD partner
What are your interests in SmartCLIDE	• SmartCLIDE dashboard for lifecycle monitoring and follow-up • Use of microservices to support the whole software lifecycle
Which are your exploitation routes	• Consultancy and training services for Greek software development companies • Use of SmartCLIDE as a teaching tool for new students • New PhD thesis of UoM research staff • Use of SmartCLIDE in the development of new research projects • Business alliances with project partners to offer SmartCLIDE as a service

Table 10 - CERTH Exploitation Route

Organization	CERTH
Profile	RTD partner
What are your interests in SmartCLIDE	• SmartCLIDE dashboard for lifecycle monitoring and follow-up • Use of microservices to support the whole software lifecycle
Which are your exploitation routes	• Offering of research services to Greek software development and industrial companies, based on the SmartCLIDE framework • New PhD thesis of CERTH research staff • Use of SmartCLIDE in the development of new research projects • Business alliances with project partners to offer SmartCLIDE as a service

Table 11 - TOG Exploitation Route

Organization	TOG
Profile	RTD partner
What are your interests in SmartCLIDE	• The whole SmartCLIDE IDE framework and services • Methodology/paradigm of software creation
Which are your exploitation routes	• Consultancy and training services to software development companies worldwide • Use of SmartCLIDE in the development of new research projects • Business alliances with project partners to offer SmartCLIDE as a service

Table 12 - Eclipse Exploitation Route

Organization	ECLIPSE
Profile	RTD partner
What are your interests in SmartCLIDE	• The whole SmartCLIDE IDE framework and services
Which are your exploitation routes	• Integration of SmartCLIDE services to ECLIPSE open-source marketplace • Use of SmartCLIDE in the development of new research projects • Business alliances with project partners to offer SmartCLIDE as a service

Table 13 - WT Exploitation Route

Organization	WT
Profile	IT partner
What are your interests in SmartCLIDE	• The whole SmartCLIDE IDE framework and services • SmartCLIDE dashboard for lifecycle monitoring and follow-up
Which are your exploitation routes	• Use of SmartCLIDE in the development of different products within the different business lines of the company • Training of new internal programming staff • Business alliances with project partners to offer SmartCLIDE as a service

Table 14 - UNP Exploitation Route

Organization	UNP
Profile	IT partner
What are your interests in SmartCLIDE	• The whole SmartCLIDE IDE framework and services • SmartCLIDE dashboard for lifecycle monitoring and follow-up
Which are your exploitation routes	• Use of SmartCLIDE in the development of different products within the different business lines of the company • Training of new internal programming staff • Business alliances with project partners to offer SmartCLIDE as a service

Table 15 - CONTACT Exploitation Route

Organization	CONTACT
Profile	IT partner
What are your interests in SmartCLIDE	• The whole SmartCLIDE IDE framework
Which are your exploitation routes	• Use of SmartCLIDE within the ELEMENTS product • Training of new internal programming staff • Business alliances with project partners to offer SmartCLIDE as a service

Table 16 - KAIROS Exploitation Route

Organization	KAIRÓS
Profile	IT partner
What are your interests in SmartCLIDE	• The whole SmartCLIDE IDE framework and services
Which are your exploitation routes	• Use of SmartCLIDE in internal projects • Use of SmartCLIDE with current and future customers • Training of new internal programming staff • Business alliances with project partners to offer SmartCLIDE as a service

The exploitation table output which is expected to be filled in after the exploitation workshops is as shown in the Table 17. The method will be explained below in the workshop section.

Table 17 - Table extended

Organization	XXXX	
Profile	IT partner | RTD partner	
Size	XX – XX people	
Areas of interest/development	[Organization interests or area of development]	
What are your interests in SmartCLIDE	[General interests regarding the Organization context to SmartCLIDE]	
Which features do you expect the most (Rank obtained from survey)	[Features to be suggested at the workshop with a score selector]	
Which are your exploitation routes	Internally	[In-house exploitation routes]
	Externally	[Client-side exploitation routes]
(If pilot owner) Is there any relevant exploitation route concerning your pilot case?	[If related to a pilot case, determine if any exploitation route seems to specially fit]	
(Optional) Do you want to suggest any other cross-wise exploitation route?	[If up to, specify any general exploitation route from which the project can benefit]	

4.4 Business Model

Business model manufacture is to be completed answering to the following items

- Governance. The set of rules, practices and processes by which a company is directed and controlled.
- Key Partners. The relationships a business has with other businesses, i.e. the entities who contribute to the success of one's business not being employees nor suppliers
- Key Activities. The things a business performs to get a profit
- Key Resources (technological & human). They can be human, physical, intellectual or financial
- Cost Structures. The types and relative proportions of fixed and variable costs
- Value Proposition. The value a business promises to deliver to the client
- Impact. Specific positive outcomes created for specific stakeholders of the business
- Channels. How a business communicates with and reaches its clients
- Customers. The community of customers or businesses to which a business is aiming to sell its products.
- Extended Beneficiaries. The person who is acquiring value from a business without paying for it
- Business ecosystem (SWOT analysis): The Strengths, Weaknesses, Threats and Opportunities analysis to assess the influence of external factors and take management decisions

4.4.1 The Alexander Osterwalder Canvas

To ease the expansion of individual exploitation plan inputs and the creation of the business model in an intuitive and visual way, first workshop will be performed by using a survey, the same manner it was successfully performed for the requirements gathering.

The business strategy workshops will use the Alexander Osterwalder canvas as a base. The Alexander Canvas contains selection of the aforementioned inputs sorted in a graphical way Figure 16.

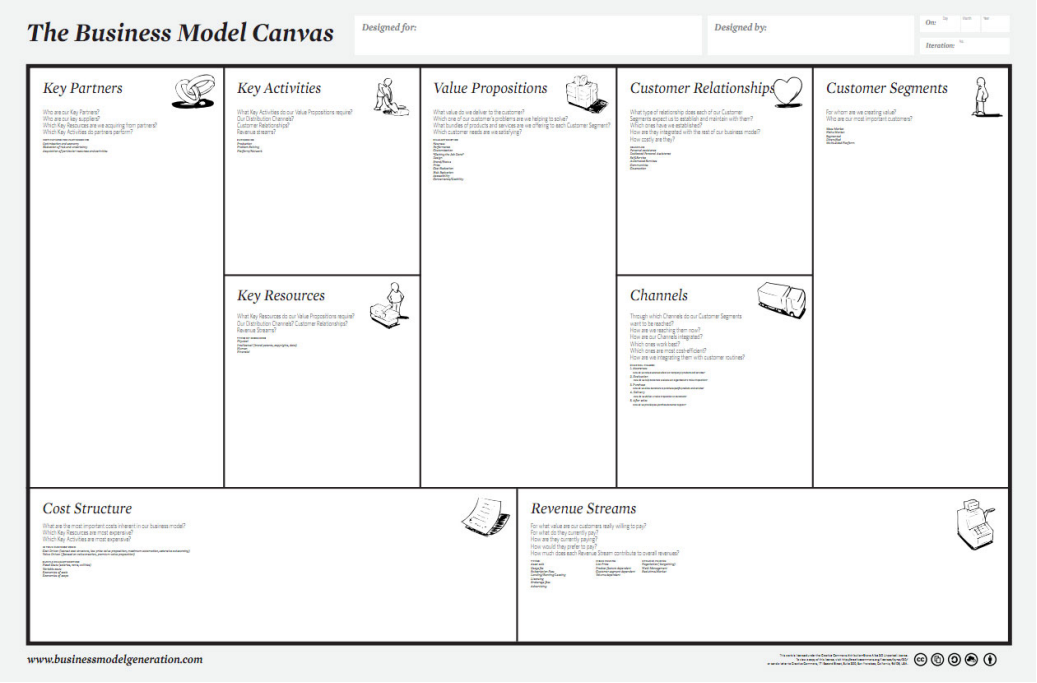


Figure 16 - Business Model Canvas

They have to be filled in a particular order to have a final business plan: clients, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partners and cost structure Figure 17.

The walkthrough the canvas will be made easy. The survey will guide the user along the canvas items, one at a time and providing an input box to fill in. Navigation will be performed by next-previous buttons.

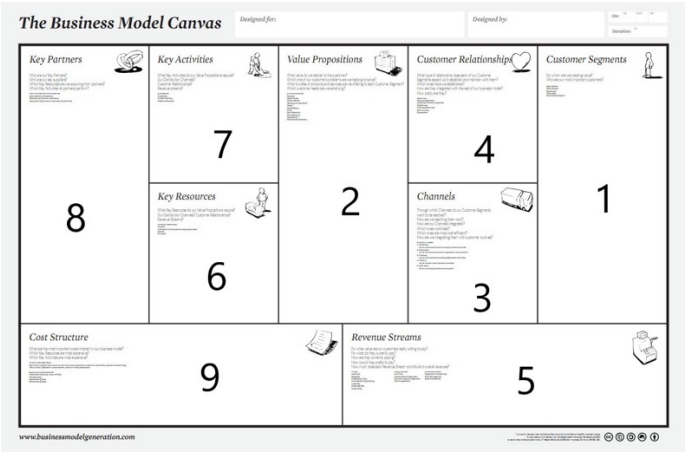


Figure 17 - Business Model Canvas filling order

4.4.2 Workshops

Three workshops are set for business model definition, whose aim is to determine and expand the exploitation plan and business model for each partner individually and globally. These workshops are stated as follows:

- First. Within the first 12 months of the project (MVP) to set realistic, focused and achievable actions
- Second. When the Early Prototype is ready, to evaluate the influence of the business model on the features of the system
- Third. Once the full prototype is ready, to involve third parties and make adjustments to maximise the results exploitation

This first workshop will consist of two parts.

- First, an asynchronous survey to address the exploitation plan of every partner, optionally with a second survey to extract the business model for every partner too
- Second, a real time collaborative session in which all partners contribute to a single business model

TOOLS

In-home survey platform

This platform consists in an application which allows to deliver custom surveys, allowing to send them and gather and export the results from a dashboard. The sent links are partner-independent and the platform provides enough flexibility to reach the workshop needs and respond anonymously.

Two surveys are to be developed and sent to every partner.

- Single partner exploitation plan
  - Page 1
    - Organization name
    - Profile (Option)
      - IT partner
      - RTD partner
    - Size (Option 1-10, 10-100, 100-500, +500)
    - Areas of interest/development
    - What are your interests in SmartCLIDE?
    - Which features do you expect the most (Score, features to be defined)
    - Which are your exploitation routes?
    - Are you a pilot case owner? (Option yes/no)
      - Is there any relevant exploitation route concerning your pilot case?
    - Do you want to suggest any other cross-wise exploitation route?
- (Optional) Single partner business model
  - Page one
    - Customer segments
  - Page two
    - Value propositions
  - Page three

- Channels
- Page four
  - Customer relationships
- Page five
  - Revenue streams
- Page six
  - Key resources
- Page seven
  - Key activities
- Page eight
  - Key partners
- Page nine
  - Cost structure

The results will be gathered and exported from the platform dashboard.

MIRO [20]online collaborative sticky notes tool

This online collaborative application suggested by KAIRÓS consists in a canvas in which different colour elements with editable text–such as electronic post-it or sticky notes- can be sticked around and modified -written- by the users Figure 18.

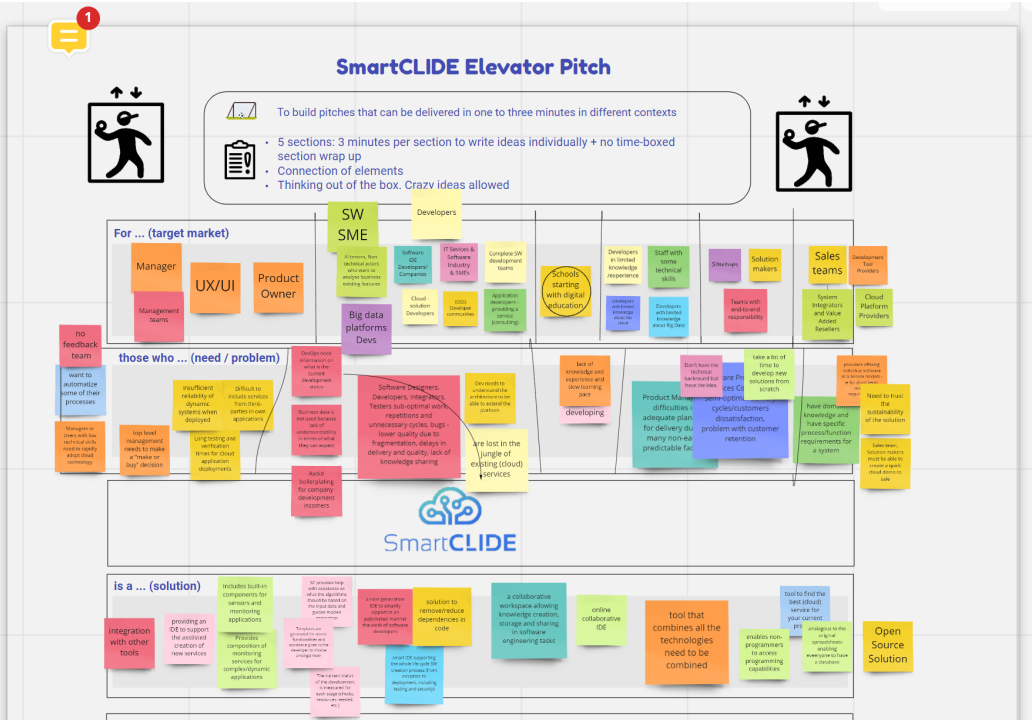


Figure 18 - MIRO Tool

All contributors can interact with the sticks and see each other's movements. A moderator says what actions have to be performed in a limited amount of time to follow an order and keeps the dynamic of the group. The idea here is to draw an Osterwalder canvas Figure 16 to allow all present partners to fill in each stage with ideas, and then gather them to compose the definitive business model.

[20] https://miro.com/

The approach for later (second, third) workshops can be adapted to a regular pattern if convenient.

4.5 Exploitation Risks

Two kinds of risks can be found to the project: those which are intrinsic to the project development and those which affect to the final product

Table 18 - Exploitation Risks table

	Risk	Mitigation actions
Project development	Too ambitious functionalities	Several rounds of requirements. Research on the limits of the technologies by prior planning and manufacturing of prototypes
	Difficulties regarding deadlines	Realistic agreed planning dates
	Development problems	Tracking by means of the application of Agile methodologies for early identification and correction of problems
	Complexity on the application of standards	Agreement amongst IT partners and RTD partners to find the best options
	Communication problems amongst partners	Follow-up meetings to debate problems
	Wrong priorization or task estimation	Clear, detailed, agreed definition in each WP of tasks and execution plan
	Research with no applicable results	Identification of conservative and risky techniques to implement the desired functionalities
	Loss of key partners	Common storage of knowledge and frequent partners updates
Final product	Final user does not know (insufficient dissemination) about the project or its possibilities	Adjustments on the dissemination techniques depending on the monitored results, addition of resources by part of the partners
	Project is not aligned with market needs	Monitoring by part of the Innovation Manager of the existing tools and updates
	Existing products cope better with the requirements than the SmartCLIDE functionalities (independently or as a whole)	Analysis by part of the Innovation Manager of existing products and market trends

	Failure at settling Open Data particular policies or disagreement by part of partners or final users	Establishment of agreed, common policies about data, code and product use. Dissemination activities to get feedback.
	Changes at the IDE base (Theia)	Hard to happen, but the tool has been
	Changes on the programming paradigm	Development trends monitoring by part of the Innovation Manager
	Lack of desired functionality regarding pilots or final users	Tracking of desired functionalities achieved (pilots) and project prototypes dissemination activities to get feedback from final users

5 Standardisation

5.1 Standardisation objectives

Standardisation activities are important to the project as they support dissemination objectives, a collaborative path towards continued evolution of SmartCLIDE results, and increased exploitation and associated industrial impact opportunities for the project. Proper adoption of existing and widely used industry standards, as well as interfacing with standards organisations such as OMG, W3C, and many others addressing standards that are aligned with the project objectives, is an important part of the overall exploitation strategy for the project. TOG, as a leader in the development of open, vendor-neutral IT standards, is in a unique position to support the SmartCLIDE standardisation activities and to facilitate the collaboration with relevant standards bodies. Use of industry standards and standardisation of project results contributes to several project objectives including:

- **Reduction of time and effort needed for development** – use of standards such as models and interfaces for describing services and interfaces for exchanging information will reduce the time and effort for the development of new applications that use service discovery, composition, AI and other advanced features made possible by a cloud-based IDE.
- **Increase in number of innovative services** – use of standards will reduce the time and costs to develop and deploy new services and applications that exploit combinations of services by building on well-established and proven technologies used for many other types of applications. It will also enable greater interoperability so that new combinations of systems and innovative services can be more easily assembled by reusing much of what has already been developed for earlier solutions.
- **Enable additional tools to be included in the SmartCLIDE IDE** – use and extensions of standards such as Language Server Protocol and others enable additional components developer support to be easily included in the platform providing even greater capabilities after the project is completed and further contributing to an increase in innovative use of cloud-based development.
- **Reduction of time to market** – the use of open source technologies that already have established communities of users within the SmartCLIDE platform will reduce the time to market as the software technologies utilised will be more mature. Also, standards used in the SmartCLIDE platform will enable other development tool providers to utilise the technologies developed in the project to provide cloud-based versions their tools based on familiar protocols for exchanging data and software development artefacts.
- **Cost reduction for Support Services** – use of standard interfaces and models and *de facto* open source technology standards will reduce the learning curve for Support Services as personnel will in many cases already be familiar with many of the technologies used for the SmartCLIDE platform and will be able to provide support and assistance to developers with less effort when compared to solutions that rely heavily on proprietary or bespoke development and deployment technologies.

The use of standards and standardisation of project results therefore supports both the exploitation and dissemination strategy for the project and also contributes towards achieving the industrial impacts that the project has targeted.

5.2 Standardisation selection criteria

Commitment to open standards is a fundamental principle underlying all of the research and development activities within the SmartCLIDE project. The project work programme includes tasks for monitoring and maintaining alignment with existing technology standards adopted for use within SmartCLIDE. More importantly, the SmartCLIDE partners intend to develop extensions to existing standards and may also propose new standards that will be needed for the SmartCLIDE innovations intended to support faster and more effective development of cloud-based applications and services across multiple industrial sectors.

Process characteristics of standards bodies and the nature of their deliverables play an important role in selecting the standards setting organisation that best fits the standardisation targets for the project. However, the specific characteristics of individual standards bodies play a more decisive role where the selection of the standards body to be targeted for adopting the project results must also consider the following aspects:

- The alignment of the standardisation goals of SmartCLIDE with the thematic scope of the targeted organisation;
- The lifespan of the SmartCLIDE project and the timing of deliverables with the agenda of the targeted standards organisation;
- The alignment of the methods, processes and principles applied by the targeted organisation with SmartCLIDE project objectives, as well as the standardisation results and impact being pursued;
- The geographic scope of the impact SmartCLIDE is pursuing through its planned standardisation activities and targets;
- IPR rules and confidentiality policies of targeted standards bodies, as well as SmartCLIDE consortium partners' requirements;
- Membership rules and procedures for standards bodies and the possibilities for SmartCLIDE partners' input and proposals to be taken into consideration.

In cases where the project technologies intended for standardisation are extensions to existing standards, the first choice for the standards organisation to target is clear. However, in some cases a domain-specific extension in support of the needs of one of the Pilot Case industries represented in the project, or domain-specific services (e.g. IoT services within the CONTACT Pilot Case) in particular, may not be accepted by the standards organisation of choice, which may necessitate the use of an alternate organisation or formation of a new industry grouping.

5.2.1 Technology focus area

Finding the standards body best covering the thematic scope of SmartCLIDE technologies may seem a relatively easy part of the selection process. Nevertheless, it can be quite complicated to point out a single organisation, because in some cases several standards bodies are addressing the specific standardisation area being targeted. Consequently, it may be necessary to define in much more detail the specifics of the envisaged results, which may not always be possible in the early stages of the project. On the other hand, project results may indeed be relevant to several standards bodies, but project resources may not be sufficient to interface with all of them.

Narrowing down, and focusing envisaged standardisation output, while simultaneously matching it with the thematic scope of targeted standards bodies,

must therefore be done at an early stage of the project during specification and development of the early prototypes. This provides greater assurance that SmartCLIDE will be able to pursue its standardisation goals.

5.2.2 Timing

Standardisation processes are market driven and usually start when market players have identified the need to initiate a process of capturing user, industrial or functional requirements for what is to become a new, or an improved specification or standard. Timing is often an essential aspect in these processes as standards bodies consequently have to focus on the momentum in the market. When putting forward project results for standardisation, it is important to ensure that the challenge or area addressed is actually on the agenda of the targeted standards body, and that there is sufficient critical mass among the target standards body's members to at least support if not contribute to the process of finalising the specification or reference technology provided by the SmartCLIDE project.

If this is not the case, additional constituency or consensus building may be first required, but if there is little perspective that this situation can be changed within a reasonable amount of time, it may be preferable for SmartCLIDE to seek alternative organisations for which their agenda provides a better match with SmartCLIDE project's standardisation objectives.

5.2.3 Open standardisation processes

Standards organisations do not all have the same background. Moreover, their structure, working methods and principles have often developed over several years and mostly reflect a balanced result of the positions and considerations of their founding members. There are a number of commonalities between processes adopted by most organisations that have proven to be essential to conducting voluntary, open, and market driven standardisation processes. The following criteria have therefore been established by SmartCLIDE in selecting the target standards bodies:

- Standardisation activities are carried out through what are essentially public processes; although work may normally be done by expert committees or subgroups, other interested parties should have the opportunity to become involved;
- Specifications or standards are essentially the result of consensus between parties involved, and participation of all relevant stakeholders should be sufficiently ensured, e.g. by validating draft specifications through a public review process;
- Approved drafts of standards and specifications are formally ratified by the members of the standards organisation, and subsequently published;
- Standards produced by an organisation are available to all interested parties either free of charge, or licensable on FRaND[21] terms;
- Interoperability between various implementations is verified, either as part of the standardisation process or through a process of self-certification, installed by the parties involved, and maintenance is embedded in the processes of the organisation that developed the standard.

[21] Fair, reasonable, and non-discriminatory

The final criteria of verification is often the most challenging as many standards organisations do not establish procedures for verification of products as being conformant to their standards. However, as TOG operates certification programmes for many other standards organisations, a shortcoming in this area by a candidate standards organisation may not be grounds for disqualification as TOG has the ability to put in place a complementary certification programme for new or extended standards based on SmartCLIDE project results.

5.2.4 Geographic focus areas

Generally speaking, SmartCLIDE is pursuing standardisation of results at a global level. This will maximize exposure of project innovations to industry and consequently widen dissemination opportunities. In addition it will help to prevent competing regional standards from emerging, which may cause barriers to trade for European software development tools and technology vendors. However, some specific criteria for pursuing standardisation targets at a regional level should also be considered:

- Project partners that are particularly well embedded in national or regional standardisation organisations or processes;
- Taking specific national or regional legislative or product/services requirements into account;
- Resources for national or regional standardisation processes can be considerably lower and can often influence broader European standards.

Regional and global standardisation systems in some technologies are complementary and several standards bodies have arrangements in place for addressing this, for example, in the area of security. Nevertheless cooperation and exchange between globally and regionally orientated standards organisations is mostly organised on an ad-hoc basis.

5.2.5 Confidentiality and intellectual property

Standards organisations do not always have the same rules with respect to confidentiality and intellectual property rights (IPR). While there are organisations that require its members and/or participants to submit their contributions and technologies or specifications for free (i.e. without obligations for users of this technology to pay license fees), other organisations may work under an IPR regime offering their contributors opportunities for exploiting standardised technology through licensing.

Regardless of the IPR regime a standards body is working under, most standardisation processes are open, i.e. documents discussed are accessible to all the organisation's members and in principle considered being in the public domain. Nevertheless, in specific situations, mechanisms usually exist for keeping contributions confidential, or to discuss issues in a confidential environment.

As part of the selection process the IPR regime of the targeted organisations should be considered by SmartCLIDE partners, as well as their confidentiality policies to verify it is aligned with project partners' requirements.

5.2.6 Membership of standards bodies

Most standards bodies offer membership to a variety of organisations, encompassing individual companies, non-profit organisations, institutions, governmental bodies, etc. although some formal standards bodies restrict membership to nationally

appointed representatives. Although research projects are usually not excluded from membership, there can be several reasons (e.g. the financial consequences, or the limitations of a project's lifespan) for not applying for membership as a project. There are also some standards organisations where membership is not strictly necessary for participating in at least part of the standardisation process, while taking part in the decision-making process usually does require membership. Some alternatives in case direct membership is not feasible are identified as follows:

- Participate through the membership of one of the project's consortium partners;
- Utilise public events (e.g. seminars, conferences, etc.) and forums that are sometimes organised by standards organisations for making contributions;
- Apply for an observer status or temporary membership that is offered by some standards bodies or industry consortia;
- Submit results through other standards organisations that are able to participate in the activities of the specific standards body a project intends to target (e.g. TOG has cross-membership agreements with several standards organisations including OMG and W3C).
- Some standards bodies are willing to be low or unfunded partners in projects where the envisaged research is closely aligned with work or interests of that particular organisation.

Considerations concerning membership in terms of costs, required representation for discussions and consensus building, and ability to influence outcomes and decision making should be included in the selection process of standards organisations to be targeted by the SmartCLIDE project.

5.3 Standardisation actions

The SmartCLIDE project has established a set of common steps to be taken by the project partners towards achieving the standardisation of project results. The timing and specific actions to be taken will vary depending on the project technology and the standardisation body or community being targeted. The steps towards standardisation that will be taken by the consortium for each technology targeted for standardisation are the following:

- **Specification preparation** – preparing the SmartCLIDE research results as a specification suitable for submission to the standards body or open source community to support the process of industry review and comment.
- **Constituency building** – partners identify various constituencies that will have an opinion or position with regard to the SmartCLIDE specification and will contact them to understand their interests and positions and to solicit their support.
- **Consensus building** – organising meetings and briefings with those individuals or organisations that are important for the decision making within a standards body or open source community.
- **Conflict resolution** – addressing questions, challenges, and alternative approaches from others outside the project consortium concerning the SmartCLIDE specification that has been submitted for review and comment.
- **Acceptance** – the action by the standards body or open source community of recognising the SmartCLIDE specification as being an extension to an existing standard or new standard.

During the development tasks within the project, specific candidate technologies will be selected and targeted for standardisation. Each of the selected technologies will progress through each of the standardisation steps through actions to be taken by the project partners. Some of the steps may not be completed until after the project is finalised due either to the maturity of the research results, or the time required by the targeted standards body or open source community to complete their required procedures.

5.4 Coordination of standardisation actions

The SmartCLIDE consortium includes a standards organisation as Task Leader under WP6 for the standardisation activities in the project that will provide overall coordination of the standardisation steps for each of the SmartCLIDE technologies targeted for standardisation. The Open Group already publishes Architecture, Security, CPS, Development and Deployment Platforms technology standards as well as domain-specific standards that have completed an industry consensus process. The Open Group also collaborates with many other standards organisations including cross-membership agreements with OMG and W3C, joint initiatives with ETSI and CENELEC supporting standardisation of EC funded research results, chairmanship and participation in several ISO Working Groups, and hosting and provision of the operational infrastructure for other independent standards groupings.

The core elements of the coordination strategy that will be utilised within SmartCLIDE to achieve substantial progress towards standardisation of results are the following:

1. Periodic reviews at major development milestones in the work plan will be carried out to identify technology innovations with respect to industrial and SmartCLIDE ecosystem needs and opportunities for standardisation. In the early stages of the project the RTD partners will have the greatest insights, but in later stages the industrial Pilot partners will have gained experience working with the new technologies and will be able to reinforce or provide further insights and recommendations.
2. For each project technology identified for standardisation, a Technology Representative will be assigned from the consortium. This will typically be the RTD partner that developed the technology as they will be most able to express the motivations and capabilities of the technology and to carry out the initial step of preparing the specification for submission to the target standards grouping.
3. Taking due consideration of the standardisation body selection criteria (see Section 5.2), a specific standards body or community will be targeted by the consortium for adopting the project technology as a standard. This may be as an extension to an existing standard or as a new standard. It may be as a publication or inclusion in an industry reference open source distribution.
4. The Open Group will collaborate with the Technology Representative to agree a realistic schedule for undertaking each of the common standardisation steps (see Section 5.3). The schedule will be based on previous experience of consortium partners in working with the specific standards body or similar groupings, the maturity of the project technology, the experience of the Technology Representative in participating in standards groupings, and other factors.
5. The Open Group will assist the Technology Representative in each of the standardisation steps to provide examples and recommendations for preparing

formal submissions to standards groupings, as well as best practices for preparing the groundwork among the target grouping membership so that the submission will be favourably received.

6. The Open Group and Technology Representative will collaborate with other members of the SmartCLIDE consortium to reinforce within the target standards grouping the motivation and need for standardisation of the project technology. This may be joint support actions by consortium members at standards group meetings or forums to demonstrate critical mass of support for the project technology as a standard, or individual support actions by highly influential SmartCLIDE consortium members from industry (e.g. Eclipse Foundation) to help build momentum for the consensus building step. Support actions in collaboration with consortium partners may also be used to overcome potential challenges from alternative approaches less conducive to SmartCLIDE standardisation interests.
7. Multiple threads for standardisation of project technologies are expected to be running in parallel targeting various standards bodies or communities each with a Technology Representative and each supported by The Open Group. The progress for each thread will be reported at periodic project meetings and details concerning on-going standardisation steps and future plans will be coordinated amongst the consortium partners.

The strategy for standardisation coordination leverages key capabilities of the RTD consortium partners in establishing standards and the more than 25 years of experience of The Open Group in reaching industry consensus for ICT standards to provide an effective approach for assuring the standardisation targets needed to support the SmartCLIDE ecosystem are achieved, which will increase the exploitation and industrial impact opportunities for the project.

6 COVID-19 Project Risk mitigation

6.1 Dissemination and Communication risk mitigation

The project is facing communication difficulties related to the COVID-19 pandemic. The consortium cannot meet face-to-face and all conferences are currently taking place virtually and will continue to do so for several months.

Under these circumstances, networking activity, which is one of the cornerstones of community building in the dissemination activity, is compromised.

To mitigate this risk, the SmartCLIDE consortium must adapt the usual communication and dissemination activities to this situation.

After several exchanges with the consortium, we have planned 4 main actions:

- Create more communication assets.
  - For example, we believe that short videos summarizing some of our blog posts could help increase traffic on our website and hopefully attract some of the first users/adopters.
  - We could repurpose unused travel budget to create professional videos on the project's results.
- Promote the SmartCLIDE brand during our remote calls and events
  - Using the travel budget, we plan to print and distribute logo t-shirts to the consortium and our advisory board, making the logo visible on webcams.
  - Provide printable graphics for printing logo posters to be displayed behind the participants in video calls
  - Provide virtual backgrounds for use in video calls
- Solicit direct feedback via individual or small group focus sessions
  - 1–2-hour sessions to present the concept, use cases and plans for prototypes in Q2 2021 and solicit direct feedback
  - Second set of focus sessions to present and solicit feedback on the prototypes as they become available
- Participate in additional conferences and events
  - The outreach workshop and follow up will result in additional recommendations for event participation

6.2 Exploitation Risk mitigation

The COVID situation makes the gathering of people and workshop organization challenging, but in any case, the communication can be established by means of telematics software. Inputs can be extracted via modern tools to act collaboratively in a synchronous way –common business model with MIRO tool-, and partners can contribute in an easier asynchronous way by answering to previously elaborated forms –exploitation plans, business models with in-house survey platform-.

The design of these forms will be done in such a way that they result quick and intuitive to fill in, using an in-house platform to that effect.

The inputs to be gathered will come from each partner individually and from the whole consortium when needed. The outputs will be:

- The expanded exploitation plan for each single partner
- The business model for each single partner (optional)
- The whole consortium business model (first stage)

To this end, as explained we will use a couple of online platforms to involve partners in a collaborative way, taking as less time as possible while obtaining valuable information. Both platforms/techniques have been used at (a) trends analysis in the IT world and (b) an elevator pitch with successful results.

Finally, the answers to the individual exploitation questions will be captured and exported into this report. The conclusions related to the business model put in common will be added to this document too, once discussed in an online session.

7 Conclusions

This first described the initial dissemination plan, the list of ongoing and upcoming actions and timelines.

It presented a first version of the exploitation plan, indicating the intentions of individual partners.

It also presented the standardisation objectives, their selection criteria, the action the consortium is putting in place to achieve these objectives

We completed this first release with a chapter on the risks and their mitigation related to the impact that the current COVID-19 pandemic may have on the realization of our plans.

8 Appendix

8.1 Targets concerned by the dissemination actions

Dissemination & Communication actions or assets	Type	Date	Developers	Solution makers	UX/Product Designers	PO/Scrim Master	Sponsors	Academics - Cloud computing	Academics - AI
SmartCLIDE Factsheet #1	Flyer	Oct. 2020	X	X		X	X		
Slide deck "SmartCLIDE Project Vision"	Slide deck	Nov. 2020	X	X	X	X	X		
Slide deck "SmartCLIDE Pitch #1"	Slide deck	Oct. 2020	X	X	X	X	X		
CONTACT Software is partner in European cloud project SmartCLIDE	Press Release	Mar. 2020		X			X		
Eclipse Foundation Supports EU Funded SmartCLIDE Project	Press Release	Mar. 2020		X			X		
Kairós DS Supports EU Funded SmartCLIDE Project (Spanish & English)	Press Release	Mar. 2020		X			X		
AIR Institute Supports EU Funded SmartCLIDE Project	Press Release	Mar. 2020		X			X		
ATB Supports EU Funded SmartCLIDE Project	Press Release	Mar. 2020		X			X		
SmartCLIDE: a new cloud-native IDE	Blog Post	Jun. 2020	X	X		X	X		
Machine Learning and Deep Learning: A power couple	Blog Post	Jun. 2020	X	X		X	X		
Cloud Computing in a nutshell	Blog Post	Jun. 2020	X	X		X	X		
Programming By Example	Blog Post	Jul. 2020	X	X		X	X		
Service Discovery in a Nutshell	Blog Post	Jul. 2020	X	X		X	X		
AGILE methodologies and DevOps	Blog Post	Aug. 2020	X	X	X	X	X		
Use Case: Real-Time Communication Service	Blog Post	Nov. 2020		X		X	X		
SmartCLIDE, "The Stairway to Cloud"	Video	Oct. 2020	X	X	X	X	X		
EclipseCon 2020 - Research Labs booth	Conference	Oct. 2020	X	X		X	X		
Open Research Webinars series	Webinar	Dec. 2020	X	X			X		
Applying Machine Learning in Technical Debt Management: Future Opportunities and Challenges	Paper	Sep. 2020							X
SmartCLIDE newsletter #1	Newsletter	Jul. 2020	X	X		X	X		

8.2 SmartCLIDE current timeline

8.3 SmartCLIDE Press Releases for the launch of the project

8.4 Current blog posts

1. Kick-Off meeting ..... Feb. 11, 2020
2. The Horizon2020 project SmartCLIDE has officially started on 1st January 2020! Feb. 21, 2020
3. SmartCLIDE has its tagline ..... Mar. 11, 2020
4. SmartCLIDE: a new cloud-native IDE ..... Jun. 5, 2020
5. Machine Learning and Deep Learning: A power couple ..... Jun. 8, 2020
6. Cloud Computing in a nutshell ..... Jun. 15, 2020
7. Programming By Example ..... Jul. 7, 2020
8. Service Discovery in a Nutshell ..... Jul. 9, 2020
9. AGILE methodologies and DevOps ..... Aug. 21, 2020
10. First video for EclipseCon 2020 ..... Oct. 18, 2020
11. Use Case: Real-Time Communication Service ..... Nov. 10, 2020
12. Our first deliverables are online ..... Dec. 2, 2020

8.5 Elevator Pitch session results

8.5.1 Who is our Target Market?

- Manager
- UX/UI
- Product Owner
- Management teams
- Developers
- SW SME
- Complete SW development teams
- IT Services & Software Industry & SMEs
- AI testers, Non-technical actors who want to analyse business existing features
- Software IDE Developers/Companies
- Application developers - providing a service (consulting)
- Cloud -solution Developers
- (OSS) Developer communities
- Big data platforms Devs
- Schools starting with digital education
- Developers in limited knowledge /experience
- Staff with some technical skills
- Developers with limited knowledge about the cloud
- Developers with limited knowledge about Big Data
- Start-ups
- Solution makers
- Teams with end-to-end responsibility
- Sales teams
- Development Tool Providers
- System Integrators and Value-Added Resellers
- Cloud Platform Providers

8.5.2 What kind of Needs or Problems is SmartCLIDE supposed to answer?

- No feedback teams
- Want to automatize some of their processes

- Insufficient reliability of dynamic systems when deployed
- Difficult to include services from third-parties in own applications
- Managers or Users with low technical skills need to rapidly adopt cloud technology
- Top level management needs to make a "make or buy" decision
- Long testing and verification times for Cloud application deployments
- DevOps need information on what is the current development status
- Software Designers, Developers, Integrators, Testers sub-optimal work, repetitions and unnecessary cycles, bugs - lower quality due to fragmentation, delays in delivery and quality, lack of knowledge sharing
- Dev needs to understand the architecture to be able to extend the platform
- Business data is not used because lack of understandability in terms of what they can expect
- are lost in the jungle of existing (cloud) services
- Avoid boiler plating for company development incomers
- Lack of knowledge and experience and slow learning pace
- Need some assistance during developing
- Don't have the technical background but have the idea.
- Software Product and Services Companies semi-optimal delivery cycles/customers dissatisfaction, problem with customer retention
- Product Managers: difficulties in adequate planning for delivery due to many non-easily predictable factors
- Providers offering individual software as a service models - ie for short term, one-off requirements
- Need to trust the sustainability of the solution
- Have domain knowledge and have specific process/function requirements for a system
- Sales team, Solution makers must be able to create a quick cloud demo to sale
- Take a lot of time to develop new solutions from scratch

8.5.3 What kind of Solutions does SmartCLIDE provide to answer these needs?

- Includes built-in components for sensors and monitoring applications
- Providing an IDE to support the assisted creation of new services
- Integration with other tools
- Provides composition of monitoring services for complex/dynamic applications
- The current status of the development is measured for each stage (checks, resources needed, etc,)
- SC provides help with assistance on what the algorithms should be based on the input data and guides models generation
- Templates are generated for atomic functionalities and assistance given to the developer to choose amongst them
- A collaborative workspace allowing knowledge creation, storage and sharing in software engineering tasks
- Solution to remove/reduce dependencies in code
- A next generation IDE to smartly support in an automated manner the work of software developers

- Online collaborative IDE
- Smart IDE supporting the whole life cycle SW creation process (from inception to deployment, including testing and security)
- Tool to find the best (cloud) service for your current problem
- Tool that combines all the technologies need to be combined
- Analogous to the original spreadsheets enabling everyone to have a database
- Open-Source Solution
- Enables non-programmers to access programming capabilities

8.5.4 What is the associated Delivered Value?

- Easier cloud solution to maintain
- More secure software
- Easier software maintainability
- Create your application safely, tested and rapidly
- More quality and secure sw is developed in less time
- So that the sw creation process is more efficient and automatized at every step
- Greater flexibility in choice of services for developing dynamic systems
- Increased reuse and efficiency in system development
- Shorten Cloud systems development, testing and deployment times
- Business process analysts
- Automated monitoring at runtime to ensure desired qualities are maintained
- Cloud platforms have to be built in a fast manner reusing services
- Models are delivered in an easy and fast way
- DevOps and software development crew's life comes easier
- DevOps quicker and more informed assistance (about status of software releases)
- Code errors are avoided while better quality code is delivered
- Cloud solution --> collaborative / not local code...
- Complete whole software workflows better, faster, with higher quality and with better teams interaction and knowledge sharing
- Improved and facilitate the process of design, testing and deployment of cloud services and applications
- Re-use software artefacts, implicitly augment personal know-how
- Getting Started Documentation, Training material
- Multiplying productivity of individual developers
- Responsiveness to changing customer requirements
- Delivering and modifying software services quickly and efficiently