ADEPTNESS – Design-Operation Continuum Methods for Testing and Deployment under Unforeseen Conditions for Cyber-Physical Systems of Systems

Adeptness

EUROPEAN COMMISSION
Horizon 2020
H2020-ICT-01-2019
GA No. 871319

Deliverable No.	ADEPTNESS D8.6	
Deliverable Title	Dissemination plan	
Deliverable Date	2020-06-30	
Deliverable Type	Plan	
Dissemination level	Public	
Written by	UES	2020-06-12
Checked by	UES MGEP	2020-06-19
Approved by	General Assenbly	2020-06-26
Status	Final	2020-06-29

H2020-ICT-01-2019 – 871319 – ADEPTNESS: Design-Operation Continuum Methods for Testing and Deployment under Unforeseen Conditions for Cyber-Physical Systems of Systems

Acknowledgement

The author(s) would like to thank the partners involved in the project for their valuable comments on previous drafts and for performing the review.

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4 – SRL – Simula Research Laboratory – NO

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7 – EGM – Easy Global Market SAS – FR

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Disclaimer:

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871319.

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Document Change Log

Name	Date	Comments
V0.1	2020-03-25	Initial draft
V0.2	2020-05-22	First version after adding partners contributions
Final	2020-06-26	Final version after adding partners feedback

Exploitable results

Exploitable results	Organisation(s) that can exploit the result

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1 PURPOSE OF THE DOCUMENT

The purpose of this deliverable is to present the dissemination plan of the ADEPTNESS project over the project's duration.

This deliverable is a guideline that will specify project items to be communicated, target audience, timing and means of communication (e.g., newsletter, public event) for each communication item specified.

1.1 Document structure

Chapter 3 will explain the dissemination approach that will be used during the project.

Chapter 4 explains the rules defined for dissemination activities.

Chapter 5 and chapter 6 detail the dissemination activities done or planned during the project.

Chapter 7 describes the public dissemination of the project.

Chapter 8 defines the training activities related with ADEPTNESS.

1.2 Deviations from the original Description in the Grant Agreement Annex 1 Part A

1.2.1 Description of work related to deliverable in GA Annex 1 – Part A

There are no deviations with respect to work of this deliverable.

1.2.2 Time deviations from original planning in GA Annex 1 – Part A

There are no deviations with respect to work of this deliverable.

1.2.3 Context deviations from the original plan in GA Annex 1 – Part A

There are no deviations from the Annex 1.

2 INTRODUCTION

The ADEPTNESS project seeks to implement and investigate a streamlined and automatic workflow that makes methods and tools to be seamlessly used during design phases as well as in operation. The partners involved in the project will explore the generation and reuse of test cases and oracles from initial phases of the development, to the system in operation and back to the laboratory for reproduction. Integrated in this workflow, unforeseen situations will also be detected in operation to enhance development models for increasing resilience. We will consider several aspects of uncertainties (such as uncertainties in environment, uncertainty produced due to timing aspects of CPSoS, uncertainty in networks, etc.). Additionally, automatic and synchronized deployment techniques will be investigated to improve the agility of the whole workflow that covers the design-operation continuum.

One of the objectives of WP8 is to work on the appropriate communication and dissemination implementation. It is important that the results obtained in the project are understandable for the different stakeholders. It is also of interest that the results of ADEPTNESS reach as much as possible potential users. To meet these objectives, a series of dissemination and external communication activities have been defined.

This deliverable presents the dissemination and communication plan to ensure that ADEPTNESS results are effectively communicated to the European industry, associations, stakeholders (including universities, research and technology organisations), and the public domain.

This deliverable includes scientific publications in section 5, other dissemination and publications activities for stakeholders in section 6, and public dissemination in section 7.

3 DISSEMINATION APPROACH

The ADEPTNESS dissemination plan defines the communication activities during the project. It includes activities planned for the duration of the entire project. It is important to plan and define communication and dissemination related activities to increase the impact on the effectiveness of the project.

3.1 Target groups and stakeholder

The primary target groups and stakeholders — overlapping in some cases — with whom we want to have a lively dialogue on our project efforts include:

- Projects at the EU and national level that are clearly relevant to the scope and goals of ADEPTNESS.
- Fellow researchers working on problems similar to ADEPTNESS goals.
- Industrial contacts, beyond those participating in ADEPTNESS.
- Standardization bodies working within the scope of ADEPTNESS goals.

3.2 Dissemination channels and tool

In order to achieve the greatest possible exposure of ADEPTNESS and therefore increase our impact, efforts related to communication will be prioritized. The list below shows the preferred means of communication:

Project website:

The project website (http://adeptness.eu/) will be the focal point of online communication efforts. The website is described in detail in section 7.1.

Partners' existing communication structures:

Existing communication structures - such as partner websites, newsletters, events and online communities - will be used to disseminate relevant project activities within each partner domain.

Scientific publications:

The purpose is to make all scientific publications derived from ADEPTNESS openly accessible.

Other publications:

Apart from the scientific community, it is expected that a large part of the industrial professionals will be interested in how the development of the project can help them in developing and maintaining their CPSoS.

Industrial or scientific conferences - with the consequent meeting of professionals in the field - are excellent platforms to disseminate our results and lead to conversions with the target audience.

Events, including trade shows and exhibitions:

Partners of the consortium that have a presence at international, national or regional events will represent the project where appropriate.

3.3 Quantification of the dissemination activities

The table 1 describes a quantification of dissemination activities defined in chapter 2.2.1 of proposal document of ADEPTNESS. It will serve as the basis for verifying the achievements of the dissemination plan:

Dissemination activity	*Key Performance Indicator (KPI)*
Project website	>100 visitors/month, 500 downloaded documents, 5 minutes of average session duration, 3 pages viewed
Other social media (Facebook, Twitter, LinkedIn)	> 250 subscribers in Y2, >10 pots published monthly, >200 post shared/retweet
Events & publications	>20 scientific publications (including >5 journal impact factors), >100 citations, >15 international events with project participation, 5 organised events
Interaction with industry / standardisation bodies	3 of joint workshops, 40 of attendees from these fields at the ADEPTNESS events, 2 of attended OMG technical meetings

Table 1: Dissemination activity vs KPI

4 DISSEMINATION RULES AND ORGANIZATION

The rules are described in Section 8.4 of the PCA.

4.1 Rules set in the Consortium Agreement

During the Project and for a period of 1 year after the end of the Project, the dissemination of own Results by one or several Parties including but not restricted to publications and presentations, shall be governed by the procedure of Article 29.1 of the Grant Agreement subject to the following provisions.

Prior notice of any planned publication shall be given to the other Parties at least 30 calendar days before the publication. Any objection to the planned publication shall be made in accordance with the Grant Agreement in writing to the Coordinator and to the Party or Parties proposing the dissemination within 30 calendar days after receipt of the notice. If no objection is made within the time limit stated above, the publication is permitted.

4.2 Processes to ensure the rules

We will use the following process to ensure the rules set in the consortium agreement

When project results are going to be published, the following steps have to be carried out:

- A WP member identifies the need to publish project content
- The WP member drafts the content and informs the Work package leader and the Project Coordinator / PCO (management@adeptness.eu+ WP leader)
- The Project Coordinator distributes the proposed content to all project partners (generalassembly@adeptness.eu)
- Project partners indicate any concerns to the Project Coordinator within 30 days (management@adeptness.eu)
- The Project Coordinator collects any concerns and provides them to the WP member
- If there are no objections, the Project Coordinator gives the permission to publish to the WP member

Dissemination posters already accepted in previous versions can be exposed in events, but the venue needs to be anticipated a week before so that any partner can object. We will ensure Open Access.

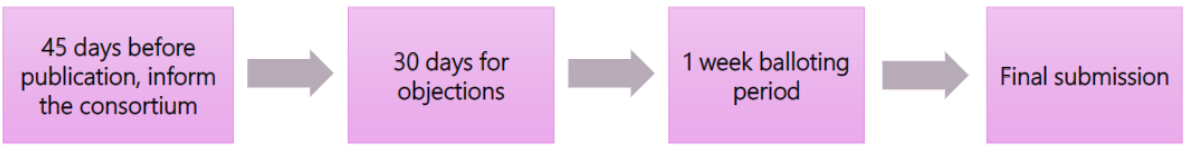

Figure 1: Process to publish results

If agreed by the general assembly members, this process can be shortened.

4.3 Acknowledgments

Any dissemination of results (in any form, including electronic) and any communication activity related to the action (including in electronic form, via social media, etc.) and any infrastructure, equipment and major results funded by the grant.

"This [infrastructure][equipment][insert type of result] is part of a project that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871319".

"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871319".

Whenever feasible, show the EU Emblem.

Figure 2: EU Emblem and note

5 SCIENTIFIC PUBLICATIONS

This section includes the public publications that the partners involved in ADEPTNESS are going to publish in relation with the project. Some publications are confirmed by the deadline of this deliverable, and others are planned for future dates. This section is divided in two sub-sections: ongoing publications (partners are currently working on them), and planned publications (partners expect to carry them out, but is not confirmed yet).

5.1 On-going publications

Find in the table below the list of on-going publications.

Type of publication: • Article in Journal • Publication in conference proceedings/Workshop • Publication in conference • Books / Monographs • Chapters in books • Thesis/Dissertation • ...	Title or Topic of the Scientific Publication	Title of the Journal or equivalent	Publisher	Year of publication (planned)	Peer-review	Open access	Status	Partner involved
Workshop	Handling uncertainties in cyber-physical systems during their operations with digital twins	MT-CPS 2020	Simula TR	2020	Yes	Yes	Published	SRL
Conference	Towards a taxonomy for eliciting design-operation continuum requirements of cyber-physical systems	RE'20	IEEE	2020	Yes	Yes	Accepted	MGEP, IKL, MDH, BT, ORO
Conference	Using regression learners to build test oracles: a case study on elevators dispatching algorithms	ESEC/FSE	ACM	2020	Yes	Yes	Submitted	MGEP, IKL ORO
Conference	Using regression learners to predict performance problems on software update: a case study on elevators dispatching algorithms	ISSRE	IEEE	2020	Yes	Yes	Submitted	MGEP, IKL ORO
Conference	Quality of service metamorphic testing: an elevation case study	ISSRE	IEEE	2020	Yes	Yes	Submitted	MGEP, ORO
Conference	Requirements Engineering for Digital Twins of Cyber-Physical Systems	TBD	TBD	2020	Yes	Yes	Rejected. Planning resubmission.	SRL, others TBD

Journal	An Evaluation of Monte Carlo-Based Hyper-Heuristic for Interaction Testing of Industrial Embedded Software Applications	Journal of Soft Computing	Springer	2020	Yes	Yes	Published	MDH
Conference	Intermittently Failing Tests in the Embedded Software Applications	ISSTA	ACM SIGSOFT	2020	Yes	Yes	Accepted	MDH
Conference	Towards a Model-Driven Product Line Engineering Process - An Industrial Case Study	ISEC	ACM	2020	Yes	Yes	Published	MDH
Journal	On Using Grey Literature and Google Scholar in Systematic Literature Reviews in Software Engineering	IEEE Access	IEEE	2020	Yes	Yes	Published	MDH

Table 2: List of on-going publications

5.2 Planned publications

The table below shows the list of tentative publications that partners plan to publish. The accurate list of publications will be updated in the ADEPTNESS website.

Type of publication: • Article in Journal • Publication in conference proceedings/Workshop • Publication in conference • Books / Monographs • Chapters in books • Thesis/Dissertation • ...	Title or Topic of the Scientific Publication	Title of the Journal or equivalent (TBD if it is not defined yet)	Publisher	Year of publication (planned)	Peer-review	Open access	Partner involved
Conference	Generation of runtime monitors from STL formulas	TBD		2021	Yes	Yes	TUW

Conference	QoS on the Dynamic Deployment of IoT Services	TBD		2020/2021	Yes	Yes	TUW
Conference	Using Neural Regulatory Networks to observe system properties and automate system recovery.	TBD		2021/2022	Yes	Yes	TUW
Workshop	Demonstration of automated deployment and QoS monitoring system for Fog networks.	TBD		2020	Yes	Yes	TUW
Journal	Test oracles for multi-level testing of CPSoS	JSS	Elsevier	2021	Yes	Yes	MGEP
Conference	A DSL for specifying Design-Operation Continuum tasks of CPSoS	MODELS	IEEE	2021	Yes	Yes	MGEP, MDH, SRL, IKL
Conference	A microservices-based architecture to support CPSoS design-operation continuum	ECSA	Springer	2021	Yes	Yes	IKL, MGEP, ORO
Conference	Uncertainty-wise metamorphic testing of CPSs	ICST	IEEE	2021	Yes	Yes	MGEP, SRL, ORO
Journal	Metamorphic testing of CPSs	TOSEM	ACM	2022	Yes	Yes	MGEP
Journal	AI techniques for operation validation of software releases	JSS	IEEE	2021	Yes	Yes	IKL, MGEP, ORO

Conference	Design-operation continuum methods applied in lifts	Lift Symposium		2020-2021	Yes	Yes	ORO,MGEP, IKL
Conference	The ADEPTNESS project. Progress	SISTEDES		2021	Yes	Yes	MGEP, IKL
Conference	The ADEPTNESS project. Progress	SISTEDES		2022	Yes	Yes	MGEP, IKL
Conference	Design time uncertainty detection	TBD	TBD	2021	Yes	Yes	SRL, TBD
Conference	Operation time uncertainty detection	TBD	TBD	2020/2021	Yes	Yes	SRL, TBD
Journal	Uncertainty detection	TBD	TBD	2022	Yes	Yes	SRL, TBD

Table 3: List of planned publications

6 OTHER DISSEMINATION AND COMMUNICATION ACTIVITIES FOR STAKEHOLDERS

6.1 Newsletters

With reference to the newsletter, it is planned that every twelve months, updates of the project's achievements will be sent to relevant contacts of the consortium and published on the website, in order to inform potentially interested stakeholders (research organizations, universities and companies) of technical developments and achievements.

The foreseen content of the newsletter generated by the project will be the following:

Newsletter no	Date	Planned Content	Related WP
2	December 2020	• Information about the microservice based architecture • Information about the interfaces microservices	WP1
3	December 2021	• Information about the toolchain and workflow • Information of the microservices realization • Case studies' results • Intermediate results of the technical work packages	WP 2-7
4	December 2022	• Case studies' results • Final results of the technical work packages	WP2-7

Table 4: Planned newsletters

6.2 Industry fact sheets

ORONA will publish an Industry Fact Sheet with it goals in ADEPTNESS project.

6.3 Organization of events

We also plan to organize a set of events, including workshops and sessions in international and national conferences. By the time this deliverable was submitted, some events were organized:

- DepDevOps workshop, co-located with the SAFECOMP conference, organized by Haris Isakovic, Miren Illarramendi and Aitor Arrieta. Various researchers from ADEPTNESS are also part of the Program Committee. The workshop was co-organized in collaboration with the UP2DATE H2020 project.

- ITEQS 2020, 4th International Workshop on Testing Extra-Functional Properties and Quality Characteristics of Software Systems, co-located with ICST 2020, organized partly by Eduard Enoiu (MDH). Also, Shaukat Ali (Simula) is part of the Program Committee.
- NEXTA 2020, 3rd IEEE Workshop on NEXt level of Test Automation, co-located with ICST 2020, organized partly by Adnan Causevic (MDH).
- Global IoT summit (https://globaliotsummit.org/).

6.4 Conferences and workshops

In table 5, we specify the conferences and workshops that partners of ADEPTNESS are going to organize or in which they are going to participate.

Type of activity: • Organization of conference • Organization of workshop • Participation to a conference • Participation to a workshop • ...	Workshop/Event/OMG technical meeting	URL	Partner involved
Participation to a conference	UCAAT: User Conference on Advanced Automated Testing	https://ucaat.etsi.org/	EGM
OMG technical meeting	SRL regularly attends the OMG technical meetings. We have bi-weekly teleconference meetings related to the Precise Semantics of Uncertainty Modelling standard led by Tao.	-	SRL
Participation to a conference	SRL will do two poster presentations at the relevant conferences during the project	-	SRL
Participation to a conference	SRL will perform two tool demonstrations at the relevant conferences during the project	-	SRL
Participation to a workshop	Organization of joint workshops with other related projects on CPS such as COSMOS.	-	SRL

Table 5: Conferences and workshops

6.5 Press releases

TUW plans to create a series of short videos explaining technology and research behind ADEPTNESS that can be used for educational or dissemination purposes. TUW keeps track of projects on its local websites: ti.tuwien.ac.at/institute/research/projects, and www.cpsiot.at.

We plan to publish some articles and videos as we move forward with the deliverables.

6.6 Non-scientific publications

EGM will publish a white paper.

6.7 Exhibitions – Trade fairs

Exhibitions and trade fairs where partners of ADEPTNESS planned to participate are specified in table 6.

Date	Title	Venue	URL and/or description	Partner involved
March 2020	Go Mobility	Irun, Spain	https://gomobility.eus/en/	MGEP
November 2020	Basque Industry 4.0	BilbAo, Spain	https://basqueindustry.spri.eus/en/	MGEP
September 2021 Annual	SISTEDES	Malaga, Spain	https://sistedes2020.spilab.es/	MGEP
September 2020 Annual	SIDO	Lyon, France	https://www.sido-event.com/en/	EGM
December 2020	ICT 2020	Cologne, Germany	https://ec.europa.eu/digital-single-market/en/news/ict-2020-leading-digital-age ICT 2020: Leading the Digital Age is a major event organized by European Commission to bring members technology and science communities together to share and combine their skills in new research initiatives. TUW is regular member (if circumstances created by Covid-19 virus allow) on these events, and we will use it for dissemination of ADEPTNESS results and ideas.	TUW

Table 6: Exhibitions and Trade fairs

7 PUBLIC DISSEMINATION

7.1 Website

The website will be maintained and updated regularly. It can be found at the web address:

www.adeptness.eu

The homepage of ADEPTNESS serves as an initial point of contact to all individuals interested in the project. It provides a short overview of the project's purpose and objectives.

In conjunction with the webpage, the ability to subscribe to a newsletter will be provided. This newsletter will contain periodic news with the progress of the project.

MGEP will develop and maintain the website. ADEPTNESS partners will provide information about their companies and feedback regarding the content of the website.

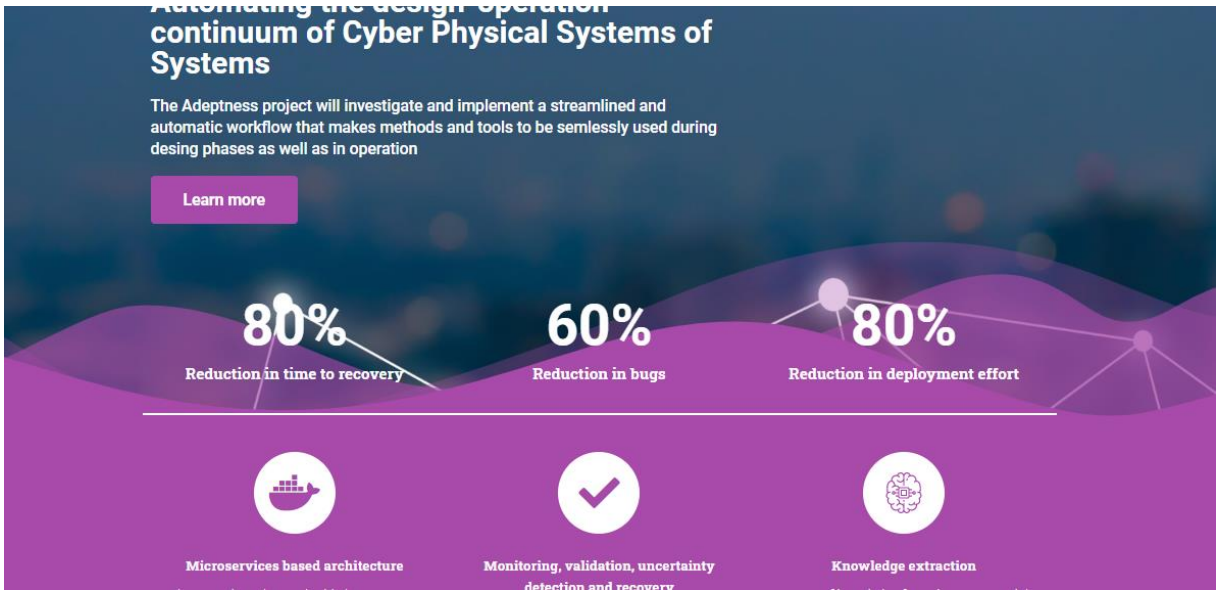

Figure 3: Project homepage

7.1.1 Structure

The website supports a clear design, in accordance with the project logo and colour scheme. Navigation is performed through a drop-down menu located at the top. This menu is separated into five main categories, separated into project information, social-media and news, dissemination activities, consortium information, and project workspace and collaboration platforms.

Figure 4: Website menu

7.1.1.1 Discover

This section contains information regarding the ADEPTNESS project. It includes a brief introduction containing the main objectives and outcomes of the project, the project structure, with information of the involved work packages and organization and the description of the use-cases being studied in the ADEPTNESS project.

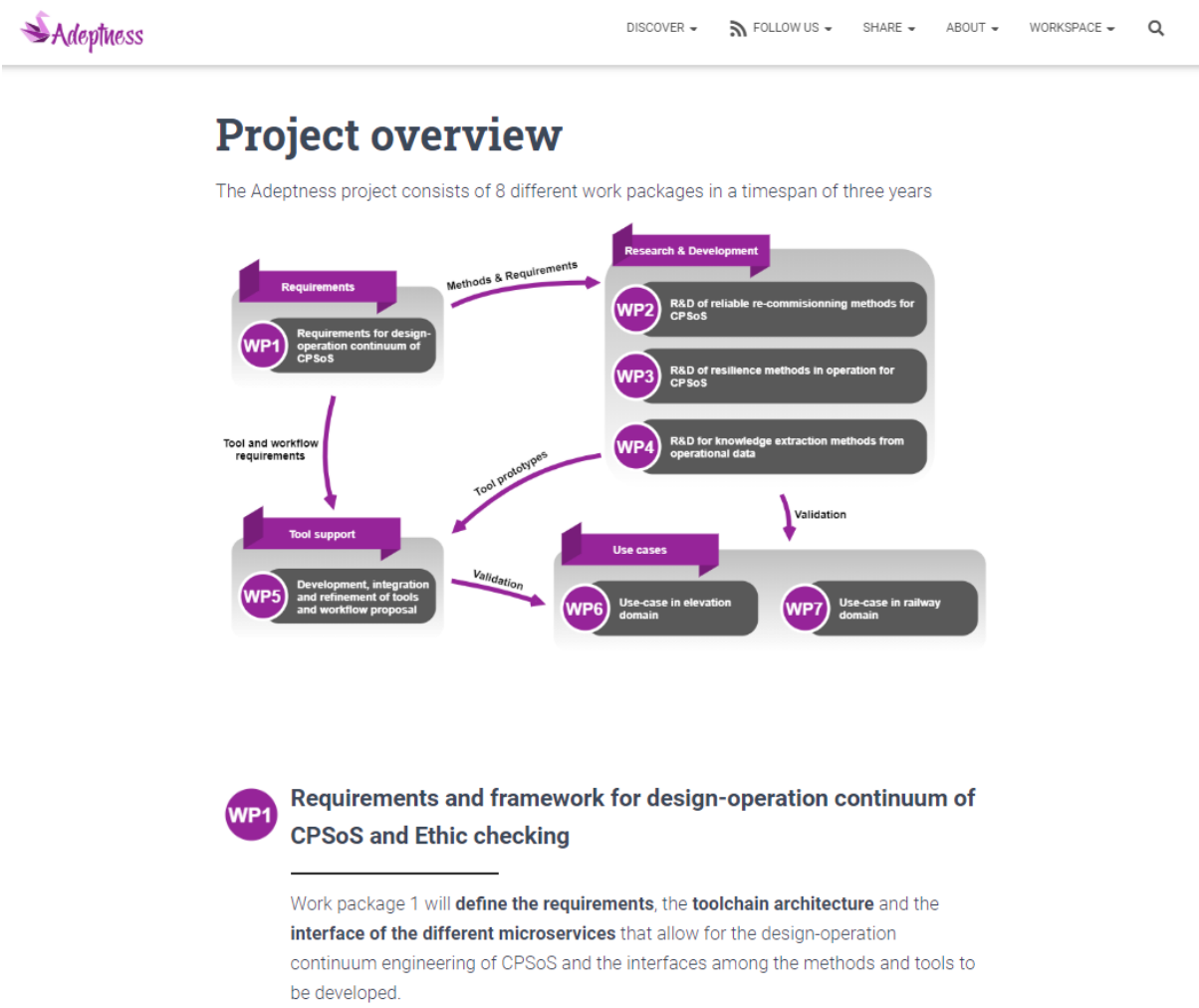

Figure 5: Project overview page

7.1.1.2 Follow us

This section contains all the news and means to follow the progress of the project by the interested public. It contains a news section where the progress of the project will be periodically posted. With these news, periodical newsletters will be sent to the stakeholders. A form to subscribe to the newsletter is directly provided on the webpage.

Events and workshops will also be in this section of the webpage.

Finally, links to the project's social media platforms are provided.

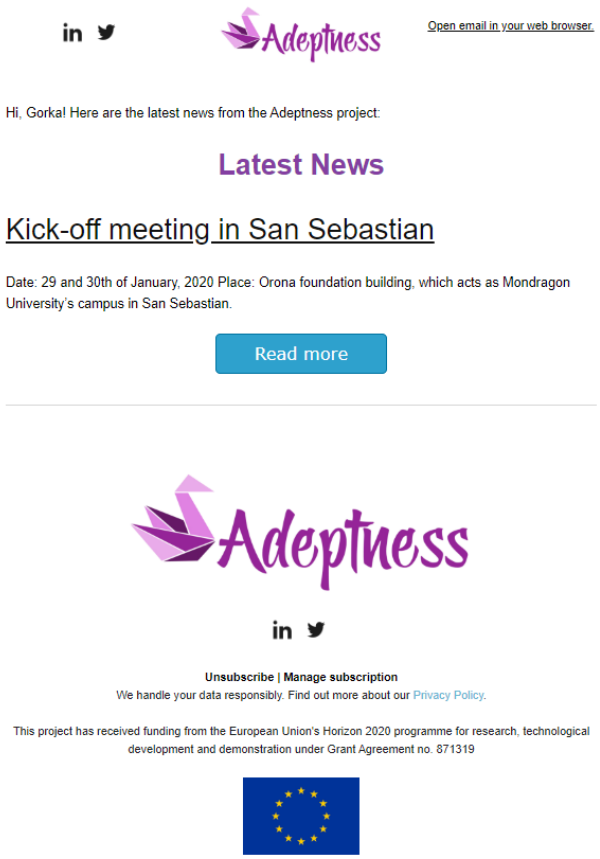

Figure 6: ADEPTNESS newsletter

7.1.1.3 Share

This section contains all the outcomes of the project that are made public. It is separated in four subsections containing slides, software, deliverables and scientific publications.

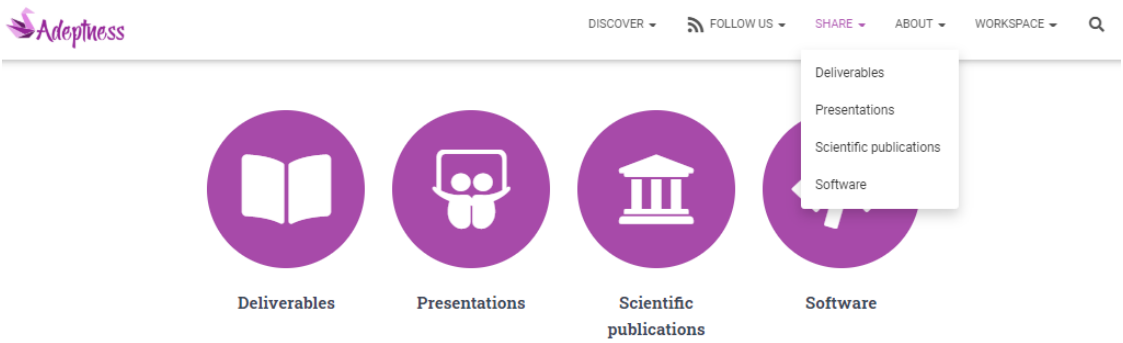

Figure 7: Share tab

7.1.1.4 About

In this section, we can find information about the ADEPTNESS consortium itself, showing all the involved partners and information about the companies, main researchers involved in the project and finally, ways of contacting the management body and legal information.

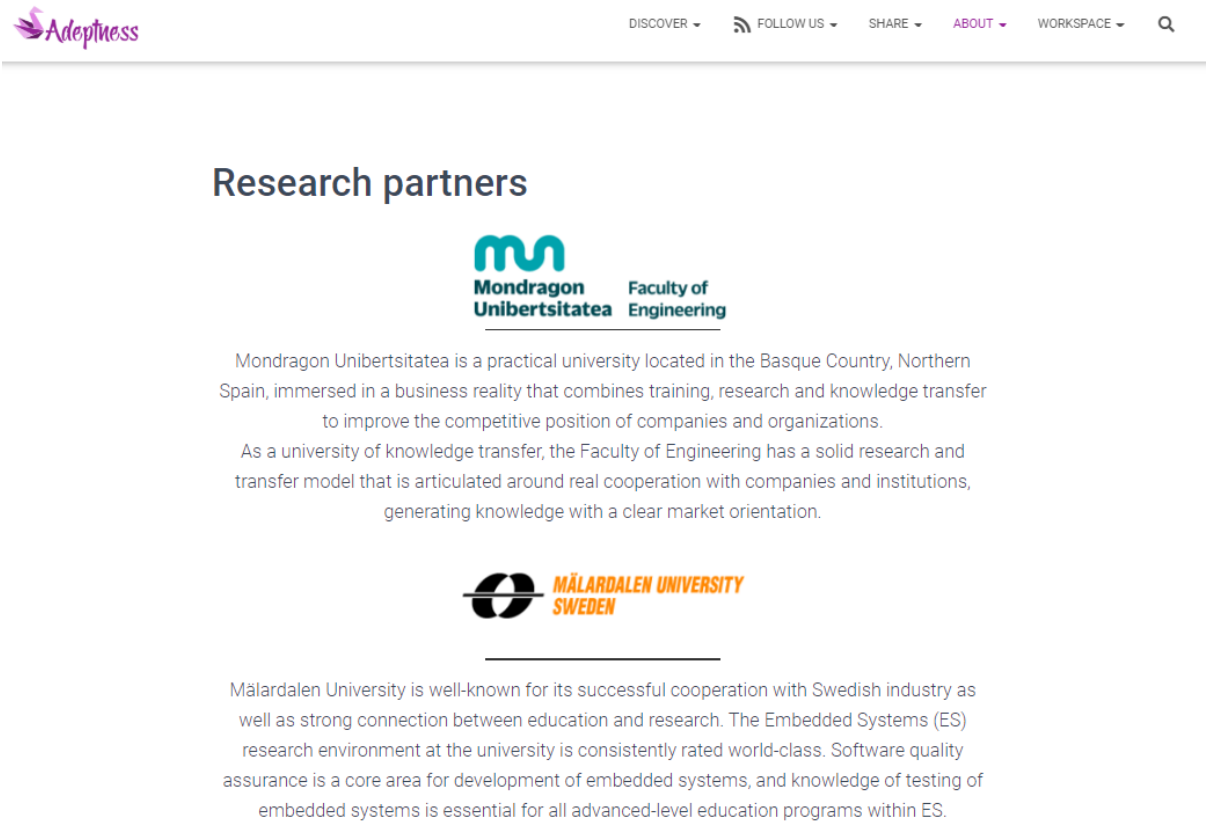

Figure 8: Consortium information page

7.1.1.5 Workspace

This section is for internal use of the consortium and provides direct access to all the collaboration platforms being used by the partners. These platforms include the Nextcloud document collaboration platform and the GitLab code collaboration platform. Along with these platforms, a support form is also provided for cases that any of the partners has trouble accessing the platforms.

7.1.1.6 Legal information and compliance

The website contains all the legally required measures to meet the European legislation, this includes all the measures to preserve the visitor's privacy and comply with the GDPR. Cookie usage notifications have been enabled, and the privacy policy is available for the visitors to read. Special care has also been taken when designing the contact form and newsletter to comply with the legislation.

Following the H2020 guidelines, the footer, and therefore, all the pages on the webpage, contain the acknowledgement of the EU funding, including the EU emblem and grant agreement number.

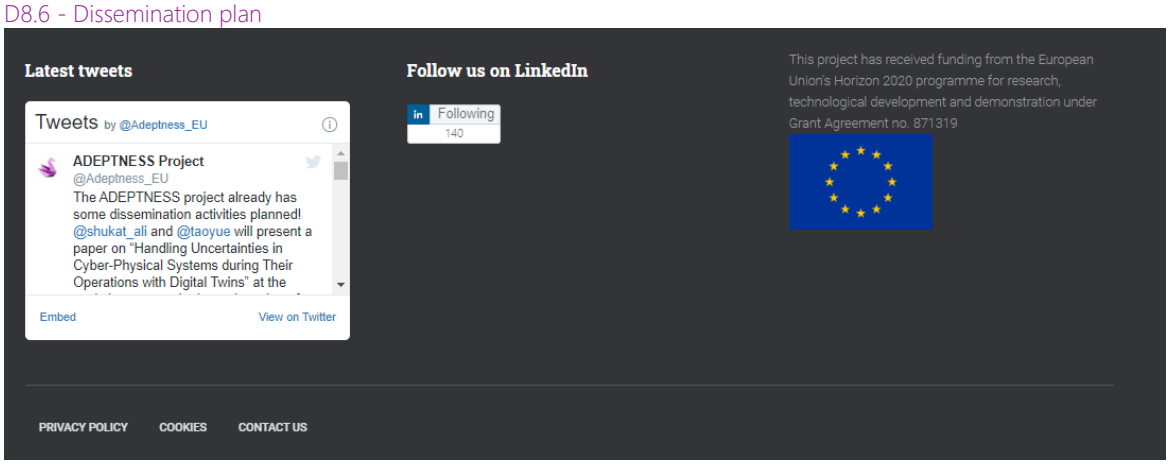

Figure 9: Website footer

7.2 Project logo

The project's logo has been designed in order to establish an appropriate project identity. It was created in month one and will be included with all presentations, reports, documents and other publications regarding the project. The logo is depicted in the figure below.

Figure 10: Project logo

7.3 Social media

Accounts in Twitter and LinkedIn have been created.

Twitter

The twitter account was created at Month 1 and news will be continuously published during the duration of the project. This dissemination is intended for the general public.

Figure 11: Twitter account

LinkedIn

LinkedIn account is intended for a general audience. It was created in Month 2 and by the time this deliverable was submitted, it already had 172 subscribers:

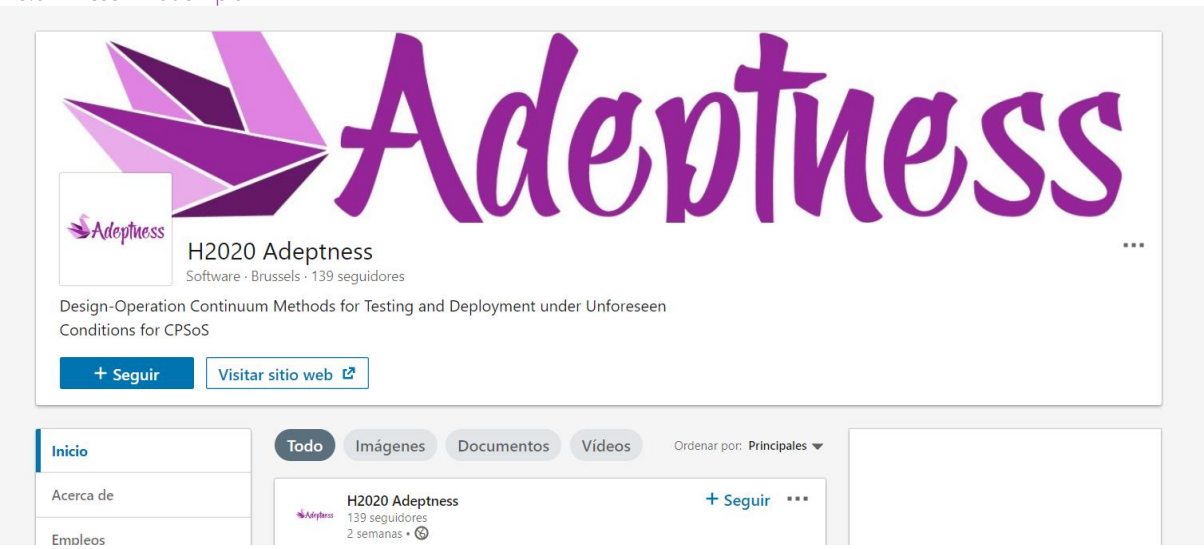

Figure 12: LinkedIn account

7.4 Communication campaign - videos

It is intended to create some videos in order to explain the ADEPTNESS project, and the progress made within the project. Some planned videos are:

- Video with the contents of the ADEPTNESS project
- Video showing the experience of ORONA in ADEPTNESS project

7.5 Dissemination materials

The dissemination material is prepared to help spreading the ADEPTNESS project. Some planned materials are:

- Poster with the overview of the project
- Fact sheets of the project

8 SCHOOLS AND EVENTS OF THE PROJECT

In the context of the ADEPTNESS project, we will define a set of training activities with public and in-house training courses and sessions:

Training description	Expected Audience	Date	Partner involved
Microservices based architecture	Students of Master	September 2020	MGEP
Concepts of validation & Microservice based architecture	Professionals	May 2020	IKL/MGEP
Microservices based architecture	Industrial companies of the Basque Country	December 2021	IKL/MGEP
Continuous deployment, monitoring and validation in CPS	Industrial companies of the Basque Country	December 2022	IKL/MGEP

Table 7: Training activities

9 CONCLUSIONS

This deliverable presents the dissemination plan of the ADEPTNESS project.

This dissemination plan has been planned in the initial part of the project. During the project, these activities will be monitored and updated.

10 ACKNOWLEDGMENTS

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement no. 871319.

Disclaimer

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