UP2DATE

D7.2 Second Project Exploitation & Dissemination Plan

V1.00

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Change log

VERSION	DESCRIPTION OF CHANGE
V0.03	First draft from DH (OFF)
V0.11	Updated version, covering the review remarks by IKL (OFF)
V0.20	Merged all comments from the initial review round (DH OFF). Ready for final review.
V0.21	Merged final feedback
V1-00	Final format changes

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This report is based on the initial exploitation and dissemination plan (rf. D7.1) from March 2020. As the initial plan was carefully developed and discussed, most parts are still valid. Based on an analysis of the so far performance of the exploitation and dissemination activities (rf. D7.6), some parts had to be updated though, to ensure the project's exploitation and dissemination success.

For the reviewer's convenience, we do not deliver the changed sections only, but include the updates into the original document and clearly highlight all updates (apart from content neutral syntax/grammar corrections) using green colour coding (as can be seen here). The publicly released version of this report will not contain this announcement or the colour coding.

Based on the reviewer's feedback, we also added Annex A, which details the partner's exploitation planning. As this is a completely new chapter, we do not mark this part in green. As the annex also contains a market analysis, the industry partner's development strategy and other confidential details, it will not be part of the published version of this deliverable.

From the M9 review report, the following recommendations are addressed in this report:

ID	Recommendation	Reaction
R6	An exploitation plan, including details of artefacts, beneficiaries and activities must be presented in the second respective deliverable (D7.2.). It should also include a mid and long-term strategy for both use cases, discussion on IP, etc.	Annex A tries to give a comprehensive overview on strategy and market analysis.
R.7	Regarding dissemination, take special care on how to reach industry audience, taking into account the COVID19 situation. Be also sufficiently ambitious with respect to some of the KPIs, in particular with respect to number of scientific publications.	Sections 7.5, 7.6 and 7.6.1 describe our efforts in improving the content of both the newsletter as well as our social media content, trying to compensate for the missing information channel towards the industry. Section 12.2 presents our new KPIs, which have been risen in many relevant areas, especially for the scientific publications.
R.8	Update the website with more elaborated information on the use cases, links to the published papers, approved deliverables, advisory board.	Changes made to the project website's strategy are described in Section 7.1. These changes already are implemented.
R.9	Make sure that publications are open access.	We populated the UP2DATE ZENODO platform as out major open access

		platform int othe strategy (rf. Section 7.6.3)

1. EXECUTIVE SUMMARY

Complex and physically entangled systems of systems are of crucial importance for the quality of life of the citizens and for the European economy. Dynamic safe and secure software updates in the field for intelligent and resource intensive Mixed-Criticality Cyber-Physical Systems (MCCPS) are essential to deploy a wide number of applications (i.e. in transport) in a safe and secure way.

In this context, due to the relevance of the project towards the societal needs, dissemination activities will be the cornerstone for generating a deep impact of the project results in terms of attracting the interest of main stakeholders. To achieve this, it is necessary to develop an extensive communication and dissemination campaign that highlights the benefits of the developed technologies to overcome the lack of a clear understanding and communication between all the involved stakeholders.

In this context, the Work Package 7 (WP7) of UP2DATE aims to establish a framework that allows the widest outreach of information about Over-The-Air Software Updates (OTASU) for MCCPS through communication and dissemination activities. WP7 will focus on presenting the project progress to the end users and general public, increasing the awareness of the project-related subjects among the interested stakeholders, synchronising communication and dissemination plans within partner's institutions, disseminate the UP2DATE project related information regarding its objectives, course of execution and results, sharing project results with the scientific community, supporting the best information flow between the consortium partners and clustering with relevant EU and international programmes and initiatives in order to promote the Innovation Action's outcomes and receive useful inputs from other relevant stakeholders.

Accordingly, the purpose of the Task 7.1 of the UP2DATE project in which this Plan for Exploitation and Dissemination of Results (PEDR) is contained, is to provide an strategy and resources to ensure a proper uptake of all the deliverables and work resulting from the accomplishment of UP2DATE by the scientific community, the industry, the regulative institutions and make a difference on the perception of OTASU for MCCPS by end-users and the general public; therefore, this document must cover the coordination of the overall disseminative efforts of the consortium, providing tools and guidelines for the deployment of the different disseminative activities already listed at the Grant Agreement (GA) as well as new ones.

The PEDR also defines the exploitation strategy within the project, that is to say, the activities to carry out to get benefit from the knowledge and results generated in UP2DATE. Considering that this deliverable will be published and, the confidential nature of the information collected

on it, the deliverable will cover this plan in the Annex. Nevertheless, the objectives and methodology used for dissemination has been included on the current document.

2. OBJECTIVES

According to the European Commission H2020 Online Manual, "dissemination means sharing research results with potential users - peers in the research field, industry, other commercial players and policymakers"[1], which implies contributing to the progress of science in general.

In this sense, UP2DATE Plan for Exploitation and Dissemination of Results i) will work to ensure that UP2DATE generates the greatest possible impact on the environment in which it operates and on society as a whole, and ii) will focus on ensuring that the results of the project provide a solid basis on which to continue working in the future to better incorporate OTASU for MCCPS into everyday life.

All of which results in the primary objective of sharing the results stemming from UP2DATE with the society and the legal, political and economic players, making a point on the four pillars steamed in this project: the technical expertise pillar (the academic and industrial experts), the business expertise pillar (all kind of commercialization companies), the ethical, legal and socioeconomic expertise pillar (stakeholders with experience on social and legal science), as well as the end-users, policy makers and general public pillar. With this, UP2DATE expects making an impact in the embedded software for critical systems scientific community and in the global industry, contributing to the progress of the science and of the society through the better adoption of OTASU for MCCPS by end-users, a better understanding of the societal needs from the industry and researchers and an adequate regulatory framework.

To ensure wider dissemination of the project and to increase its impact and outreach, the UP2DATE Plan for Exploitation and Dissemination should undertake the following activities:

- Deploy a media planning to ensure that all the milestones of the project have an accurate broadcasting and reach the targeted audience having the expected impact.
- Make an intense follow-up of the dissemination and exploitation of results plan deployment.
- Ensure the correct functioning of the Plan for Exploitation and Dissemination and making the necessary corrections when it is needed.
- Lay out the dissemination activities among all the partners to ensure a correct deployment of the strategy.
- Coordinate with external stakeholders, such as related projects, institutions and media to ensure a high outreach of the communication activities.

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[1]https://ec.europa.eu/research/participants/docs/h2020-funding-guide/grants/grant-management/dissemination-of-results_en.htm

The headlines to be settled under this dissemination strategy by the Consortium to reach the goals are the following:

- Coordinate the overall dissemination efforts.
- Define the target groups.
- Define the dissemination channels.
- Define the methodology for the maintenance and update of this Plan for Exploitation and Dissemination of Results.
- Coordinate the dissemination and communication activities for a higher impact.

The UP2DATE project gathers a highly competent group of partners who cover the whole value chain of product innovation. The common goal of the consortium is to create knowledge, to develop new solutions and to pave the way for commercially successful product innovation to impact the market. An exploitation plan is not just required to support the transfer from project to business level in the start-up phase but is a vital aid to help the consortium to address potential business opportunities more effectively. The goals and ambitions of UP2DATE have already been stated within the proposal and confirmed at the project start.

The project exploitation strategy focuses on reaching the expected impact by the activities of the project consortium in the medium and long term and targets:

- Medium-term: Enlarged consensus around the project scientific and industrial excellence capitalising on reputation and networks of consortium partners; recalled attention of standards bodies to the benefits of next-generation automotive, railway and cross-domain architecture.
- Long-term: Uptake of next-generation automotive, railway and cross-domain architecture and respective UP2DATE components and building blocks in the automotive. Railway-. And cross-domain. Prepare the solutions, developed to be exploited within the markets.

The exploitation is supported by the active dissemination activities that demonstrate the quality and applicability of project results. Broad presence and industrial uptake of the UP2DATE results strengthens the market base for the industrial partners and is therefore an important factor in the exploitation of the project's results.

The partners in the project are committed to participate in the development of the common exploitation strategy and have provided information on their previous experience and their current business strategies and facilitate the exploitation activities planned. The plan is based on the high-level exploitation plans and the identified market and business opportunities, including a proposal for exploitation metrics of success.

The underlying exploitation plans are being refined, detailed, and further developed during the project duration. Due to the public nature of this deliverable and the confidential nature of the individual exploitation plans, the sketched exploitation plans are included in a separated annex of the deliverable.

In conjunction to this common UP2DATE exploitation strategy and in line with the H2020-ICT targets, partners are encouraged to achieve their individual exploitation plans in relation to the project outcomes.

3. METHODOLOGY

As no results were available at the beginning of the project, during the first months the strategy has focused on raising awareness in the project among the different stakeholders to create a wide base of audience for the future **disseminative** activities; thereupon, when the first results and deliverables were available for exploitation, the disseminative activities included more developed and technical content.

The methodology used for the development of the UP2DATE Plan for Exploitation and Dissemination of Results reflects the purpose for which it was designed. Above all, this plan is a practical tool to be used by all partners to develop their individual and collective dissemination activities efficiently and contribute to the global objective of the project. It has been made considering the "Guidelines for your dissemination and exploitation activities"[2].

Therefore, the development of this Plan involves interaction among all the partners. In table 1 it is possible to see the main steps for the development of the Plan for Exploitation and Dissemination.

Table 1. Steps for the development of the UP2DATE Plan for Dissemination and Exploitation of Results

Who	When	What
IKL, OFF, BSC	Submission Process	Dissemination plan draft and guidelines
OFF & all partners	March 2020	Plan for exploitation and dissemination of results
OFF, IKL	October 2020, April 2021 (before mid-term review) October 2021 October 2022	Evaluation of the plan progress
OFF & all partners	June 2021 December 2022	Update of the plan for exploitation and dissemination of results

Each partner is integrated into a specific geographic and societal reality and has a deep understanding of the individuals and institutions that should be enrolled in the project and of the best way to do it. In addition, most of the partners have access to relevant networks that can be used to reach different target audiences and better disseminate the project deliverables.

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[2]https://ec.europa.eu/research/participants/docs/h2020-funding-guide/grants/grant-management/dissemination-of-results_en.htm

This plan is annually updated, so partners are requested to send their feedback and information about the next planned activities and results of the activities carried out. Moreover, as agreed in GA, In M18 a deep review of the PEDR has been done and a new version of this deliverable is provided.

The description of the **exploitation** plan is beeing carried out by using the "Lean Start Up" methodology, which proposes to extend the lean methods (successfully applied in manufacturing) to developing a new business but also from inside an established company.

According to the traditional way of doing business, the first thing that an entrepreneur should do is create a business plan describing the opportunity to solve, the problem and solution provided and should also include a 5-year forecast of revenues, profits and cash flow. This implies that it is possible to decipher all the questions inherent in a business before obtaining financing and executing the idea. Applying the same logic, only after the release of the product or service the company receives feedback from customers and in many cases, they realize they do not need or want a lot of product characteristics.

Based on these problems, "Lean Start- up" is based on three principles:

- Accept that when you start a new business all you have is a series of "untested hypotheses" (good assumptions) of the different aspects of the business. These assumptions should be assembled in one sheet called "Business Model Canvas". The important consideration is that these are initial hypotheses that must be validated.

- The way to validate hypotheses is through interaction with customers, so that we can understand the details of the problem they are trying to solve with our product/service, how much the solution we offer solves the mentioned problem, and how much money are they willing to pay for it. This is the process in which we validate or modify our initial hypotheses until we reach a refined business plan and will avoid making investments on a solution the customer is not really interested in and will not be bought as expected.

- The "Lean Start-up" uses agile development methodologies to develop the product in iterations giving more emphasis to implementing the features that will validate our business model hypotheses.

To summarize, therefore, this method intends to establish agile development methodologies so that the product or service remains in continuous progress in order to find the refined business model. The main idea is that the final product/service is not needed to start, just a minimum viable product is necessary to start and subsequently adapt it to potential customers´ requirements.

The purpose in UP2DATE is to use "Lean Start-up" to define each partner exploitation plan, therefore initial untested hypotheses of the different exploitation plans have been established during this period (M9-M18).

Figure 1: The relation between the nine elements in the Business Model Canvas[3]
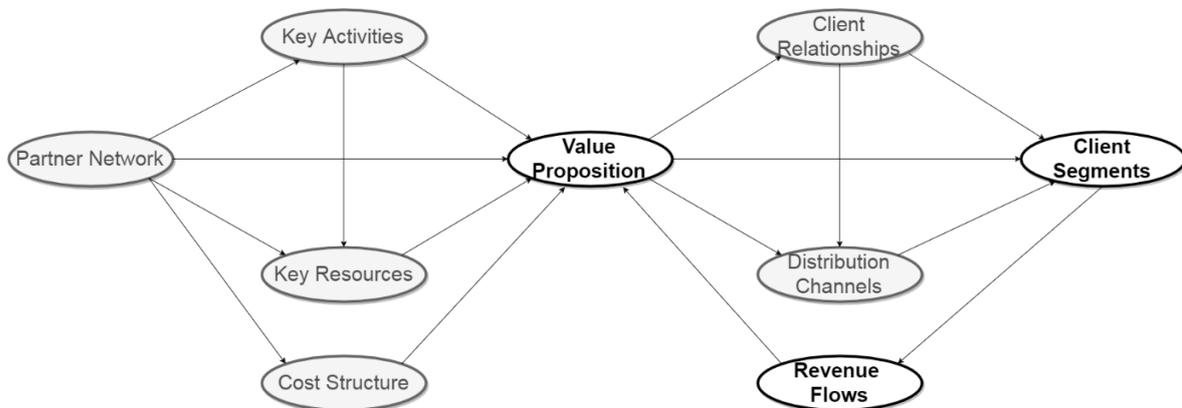
Validation of the more important hypotheses is foreseen during the following period of UP2DATE project, where relevant items of the corresponding business models should be refined in order to obtain a final version with the more important hypotheses confronted in the market. As a result of validation, the Business Model Canvas is undergoing different versions during the life of the project. So far, a first draft of the Business Model Canvas has been defined (see Annex A) and will be constantly updated throughout the course of the project. The goal is to get a good product/market fit by the end of the project.

The Business Model Canvas has nine basic blocks of information that cover all areas of a business. The nine elements and their relationship are depicted in figure 1. Despite the model describes nine blocks of information that cover all areas of a business, the partners provide a brief description of three of these blocks that are relevant for new technology development and improvement, which are the following:

- *Key partners:* In order to optimize operations and reduce risks of a business model, organizations cultivate buyer-supplier relationships so they can focus on their core activity.

- *Key activities:* The most important activities in executing a company's value proposition.

- *Key resources:* The resources that are necessary to create value for the customer. They are considered assets to a company that are needed to sustain and support the business.

- *Cost structure:* This describes the most important monetary consequences while operating under different business models.

- *Value Propositions*: products and services that can create value solving a problem or satisfying a need for each customer segment are described in this block.

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[3] Adopted from: Fritscher B., Pigneur Y. (2010) Supporting Business Model Modelling: A Compromise between Creativity and Constraints. In: England D., Palanque P., Vanderdonckt J., Wild P.J. (eds) Task Models and Diagrams for User Interface Design. TAMODIA 2009. Lecture Notes in Computer Science, vol 5963. Springer, Berlin, Heidelberg

- *Customer relationships:* To ensure the survival and success of any businesses, companies must identify the type of relationship they want to create with their customer segments.

- *Channels:* A company can deliver its value proposition to its targeted customers through different channels. Effective channels will distribute a company's value proposition in ways that are fast, efficient and cost-effective. An organization can reach its clients through its own channels (store front), partner channels (major distributors), or a combination of both.

- *Customer Segments*: this block attempts to define different groups of people or organization partners aim to reach and their different and common needs.

- *Revenue Streams*: represents the cash generated from each customer segment. Revenue model and pricing tactics should be provided in this block.

The Business Model Canvas is graphically depicted below.

Figure 2: Business Model Canvas [4] [5]

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[4] Osterwalder, Alexander; Pigneur, Yves; Clark, Tim (2010). Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. Strategyzer series. Hoboken, NJ: John Wiley & Sons. ISBN 9780470876411.

[5] https://en.wikipedia.org/wiki/Business_Model_Canvas#/media/File:Business_Model_Canvas.png

4. WHAT TO COMMUNICATE – KEY MESSAGE

UP2DATE aims to overcome the lack of a clear understanding and communication between all the stakeholders in the area of OTASU for critical embedded systems. For this, the project has reactivated a community hub, called Mixed-Criticality Cluster (MCC) and provided a platform to establish a working synergy between four pillars that covers all relevant stakeholders: the technical expertise pillar, the business expertise pillar, the ethical, legal and socioeconomic expertise pillar, as well as the end-users, policy makers and general public pillar.

To increase the impacts of UP2DATE, there are several main relevant messages identified to be shared from the very beginning of the project. Nevertheless, the main and more powerful messages of the UP2DATE project are beeing defined during its own development.

(I) END-USERS, POLICY MAKERS AND GENERAL PUBLIC PILLAR KEY MESSAGES

- OTASU for critical systems are beneficial for the society, they will enable the mastering of future automatic and autonomous transportation systems fostering self-determined mobility.

- UP2DATE contributes to responsible research and innovation for OTASU in critical embedded systems.

- UP2DATE promotes the development of safe and secure embedded systems for the benefit of the society.

- UP2DATE helps in the creation of an interactive hub for mixed-criticality systems and the application of OTASU, through the Mixed-Criticality Cluster (MCC).

- UP2DATE is contributing to a European "Innovation Union" and to the aims and impacts of the Strategic Research Agenda (SRA) and the Multi-Annual Strategic Plan (MASP) of the ECSEL JU.

- OTASU for critical embedded systems raise a few legal, economic and industrial questions that need to be addressed and UP2DATE will contribute to answer them.

- UP2DATE is contributing to identify the needs and gaps in the regulatory framework applicable to software updates and more specifically OTASU. UP2DATE will propose updates to safety standards.

(II) TECHNICAL EXPERTISE PILLAR KEY MESSAGES

- UP2DATE consolidates Safety and Security (SASE) concepts and technology for complex heterogeneous embedded HW/SW platforms, which are not well covered by current safety-oriented design methodology, thus leaving a gap between the state of the art of the technology and the possibility to exploit it in mixed-criticality applications.

- UP2DATE consolidates baseline (pre-OTASU) concepts related to functional safety and timing analysis for MCCPS as a building element for modular OTASU.

- UP2DATE contributes to the future incorporation of dynamic software updates in mixed-critically systems, through the development of new paradigms for composable and modular safety and security concept that allow OTASU in a safe and secure manner in Mixed-Criticality Cyber Physical Systems (MCCPS).

- UP2DATE coordinates workshops with stakeholders to identify gaps in the regulatory framework, existing standards and approaches related to OTASU for safety-critical systems.

- UP2DATE is demonstrating its referee architecture for OTASU for mixed-criticality systems in a laboratory-controlled environment applied to two real-world case-studies in the automotive and railway domain.

- UP2DATE carries out an assessment of safety and security certifiability of the concepts for OTASU in MCCPS.

- UP2DATE is contributing to a European "Innovation Union" and to the aims and impacts of the Strategic Research Agenda (SRA) and the Multi-Annual Strategic Plan (MASP) of the ECSEL JU.

- UP2DATE Deliverable D3.7 "Recommendations for Standards in dynamic Updates" will be available in webpage.

- UP2DATE Deliverable D3.4 "Final UP2DATE architecture Safety-security concept" will be available in webpage.

(III) BUSINESS EXPERTISE PILLAR KEY MESSAGES

- UP2DATE fosters dissemination and technology transference activities, road-mapping and clustering with other projects, aiming at ensuring that UP2DATE discoveries and development last beyond the lifetime of the project.

- UP2DATE liaises with on-going (and newly accepted) projects in the area of MCCPS to increase the synergies.

- UP2DATE performs roadmap activities and increase the awareness of the developed concepts by means of a thorough Plan for the Exploitation and Dissemination.

- UP2DATE works on removing or cutting down the non-technical barriers in the usage of OTASU in safety-critical embedded systems.

- UP2DATE showcases industrial success stories of the inclusion of OTASU in safety-critical applications in the automotive and railway domains.

- UP2DATE Deliverable D6.6 "Demonstrators' evaluation conclusions" will be available in webpage.

(IV) LEGAL AND SOCIOECONOMIC EXPERTISE PILLAR KEY MESSAGES

- UP2DATE will bring together experts to debate about these safety and security issues related to OTASU of critical embedded systems.

- UP2DATE coordinates workshops with stakeholders to identify gaps in the regulatory framework, existing standards and approaches related to OTASU for safety-critical systems.

- UP2DATE carries out an assessment of safety and security certifiability of the concepts for OTASU in MCCPS.

- UP2DATE workshops on the compliance with existing regulatory framework and its assessment are taking place in order improve the existing regulations for OTASU for critical embedded systems.

5. TARGET AUDIENCES

The main responsible for the definition of the dissemination procedures is OFF with the support from the WP7 leader TTA and the Coordinator IKL. Other consortium members are required to contribute and follow the defined procedures when performing internal or external disseminative activities. The main task in this field will be the definition of the privacy level of the contents and, once this job is done, the disseminative activities will be carried out according to this.

UP2DATE results are disseminated through different targeted groups according to the objectives of each moment but always keeping in mind the main purpose of contributing to the general scientific community (internal dissemination, critical embedded systems community, stakeholders, Industrial Advisory Board (IAB), general public, governmental and institutional dissemination).

According to the needs and interests of the different target groups, including general public, UP2DATE is using different dissemination tools. Specifically, the dissemination strategy of UP2DATE includes the reactivation of the Mixed-Criticality Cluster (MCC) for the development of an UP2DATE Community to establish a broad dialogue, collect input from entrepreneurs and general public, among others, assess community acceptance and establish a communication flow with the end-user community located in EU to create and raise large awareness, which are the paramount of preparing the future acceptance and uptake of project results.

UP2DATE dissemination activities extend from the most technical and experienced community working on critical and mixed-criticality embedded system development, to the general public, going through other fields of knowledge such as business or law.

These targeted audience are primarily segmented in internal and external audiences:

5.1 Internal Audience

The internal disseminative activities are carried out between the members of the consortium composed, almost entirely, of critical embedded system technical professionals. This dissemination is essential to ensure a proper project execution, exploiting synergies and ensuring the complementarity of the research carried out.

Another important pillar in the internal disseminative activities is the UP2DATE Industrial Advisory Board (IAB). They provide regular feedback and validation from the industrial community perspective concerning the UP2DATE results, progress and effectiveness and acceptance level reached. The IAB is formed by several stakeholders such as: technology developers of critical systems (e.g. ORBITAL), potential end-users from a variety of sectors (Airbus, DLR, FAT e.V. AK 31 Chair of the German Association of the Automotive Industry (VDA)) and certification bodies (TÜV). This group meets at least once a year with the UP2DATE consortium to receive a presentation of results and provide input and feedback to the project.

Moreover, they are provided the most critical deliverables to get their feedback before submitting them.

5.2 External Audience

External disseminative activities will take different tones according to the message that is being delivered and the targeted audience. The UP2DATE consortium has segmented the audience according to the objective to accomplish and the potential relationship pursued. Regarding the project objectives, the audience segmentation is shown in the following table:

Table 2: External Target Audience by groups

GROUP	COMPOSED OF	OBJECTIVE of the communication strategy	KEY MESSAGE CATEGORIES (I-IV, see section 4)
(A) Technology developers: developers of critical software **Safety critical embedded systems community**	▪ Professionals in safety critical embedded systems ▪ Academic researchers ▪ Applied researches ▪ European embedded system community	To raise their awareness about the importance of overcoming current barriers for the use of OTASU in critical embedded systems understanding and acceptance, involving them in the training, educational and disseminative activities. To maximize stakeholders' engagement. To ensure UP2DATE sustainability after the end of the project. To contribute to Responsible Research and Innovation (RRI)	(I): This group includes researchers and professionals who will benefit from the increased acceptance of OTASU by society. (II), (III): This group will participate in the disseminative and educational activities proposed by UP2DATE, will help to promote the trainings its results and will benefit of the identification and definition of best practices (for establishing business models, defining a guideline for entrepreneurs, IPR strategies, etc.).
(B) Potential end users. **Industrial audience.** **Economical players**	▪ Entrepreneurs and companies ▪ SMEs & entrepreneurs ▪ Main sectors influenced by OTASU for critical systems ▪ Private sector	The main objective of communicating the project to this group is to obtain their feedback about the main barriers found when developing or working with OTASU. The aim is also to ensure their involvement in the disseminative activities proposed (info days, training, etc.) and to ensure their acceptance of the strategies proposed in the project (contributing to the	(I): This group is formed by companies and entrepreneurs. (I), (III), (IV): This group includes economical stakeholder interested in new projects or funding instruments take advantage of the developed OTASU technology in the project.

GROUP	COMPOSED OF	OBJECTIVE of the communication strategy	KEY MESSAGE CATEGORIES (I-IV, see section 4)
		subsequent sustainability of UP2DATE).	
(C) R&D and Academia. Scientific community. **Associations and platforms.** **Educative community.**	▪ Developers of critical embedded systems ▪ UP2DATE partner interested in education of young students ▪ Students and teachers ▪ Schools and other educational institutions interested in critical or mixed-critical embedded systems design	To increase awareness of the UP2DATE project and to demonstrate the benefits of OTASU for critical embedded systems. Integrate OTASU in their current activities.	(II): This group will participate in the workshops organized by UP2DATE partners. They will also use the UP2DATE public deliverables and other materials provided by the project to promote the benefits of OTASU among students, teachers, etc. and to amplify the students' curricula in the area of safety critical embedded system design. This group will also make use of the open-source tools and demonstrators derived from UP2DATE and oriented to cover the specific training needs required to use OTASU in safety critical embedded systems.
(D) Standardization/ certification bodies / **Open initiatives and framework builders**	▪ Lawyers, economists and innovation experts, engineers and insurance companies ▪ IP institutions, national entities and experts from Industry and academia ▪ Entities working in standardiza-tion	The main objective of communicating the project to this group is to ensure their contribution and advice. They will provide the project with inputs in their areas of expertise (standards, regulation, etc.) and will help to disseminate the outcomes of the project among their relevant community. They will also consider the conclusions and advise of UP2DATE when addressing certification topics, regulations, standards, etc.	(I), (II), (IV): This group includes innovation experts, lawyers or insurance companies involved in identification of current gaps and the development and implementation of a specific regulation (IPR, consumer protection, product safety, etc.). (II): This group includes entities working in standardization who will work to establish a framework for standardization of safety and security assessment of OTASU in the different industrial domains.

GROUP	COMPOSED OF	OBJECTIVE of the communication strategy	KEY MESSAGE CATEGORIES (I-IV, see section 4)
(E) Policy Makers & regulators	▪ Policy makers ▪ Regulators	Policymakers at European, National and Regional level (Governments, Ministries, Agencies, Councils and others) to stimulate and facilitate the integration of UP2DATE technology into the society and industry	(I), (II), (IV): This group includes policy makers involved in identification of current gaps and the development and implementation of a specific regulation (IPR, consumer protection, product safety, etc.). (II): This group includes entities working in regulation bodied who will support to establish a framework for standardization of safety and security assessment of OTASU in the different industrial domains.
(F) General public. Not technical or specialized groups	▪ Mass media ▪ Specialized media ▪ End users: General industry	Inform about ongoing research, project concepts and objectives as well as benefits to society. To increase awareness of the UP2DATE project and to demonstrate the benefits of OTASU for the end-users and for the society.	(I): These groups are in the scope of UP2DATE. They will be the final beneficiaries of UP2DATE outcomes, since the project also aims at increasing general public awareness and acceptance about OTASU for critical embedded system. Social media and social networks will be crucial to disseminate UP2DATE and OTASU in this group. (III): UP2DATE will inform general industry about the benefits of incorporating OTASU in their safety-critical products.

6. DISSEMINATIVE CONTENTS

Dissemination of contents includes the deliverables to be produced during the project and other publications, such as peer-reviewed manuscripts or monographs.

The Europe 2020 strategy for a smart, sustainable and inclusive economy underlines the central role of knowledge and innovation in generating growth. For this aim, the EU is promoting better access to scientific information, especially in the case of research funded under H2020. In UP2DATE the type of access is as follows:

- Publications:

  - Green Open Access (OA): Also referred to as self-archiving, is the practice of placing a version of an author's manuscript into a repository, making it freely accessible for everyone. The version that can be deposited into a repository is dependent on the funder or publisher. Unlike Gold OA the copyright for these articles usually sits with the publisher of, or the society affiliated with, the title and there are restrictions as to how the work can be reused. There are individual self-archiving policies by journal or publisher that determine the terms and conditions e.g. which article version may be used and when the article can be made openly accessible in the repository (also called an embargo period). A list of publishers' self-archiving policies can be found on the SHERPA/RoMEO database[6].

  - Gold Open Access (OA): Makes the final version of an article freely and permanently accessible for everyone, immediately after publication. Copyright for the article is retained by the authors and most of the permission barriers are removed. Gold OA articles can be published either in fully OA journals (where all the content is published OA) or hybrid journals (a subscription-based journal that offers an OA option which authors can chose if they wish). An overview of fully OA journals can be found in the Directory of Open Access Journals (DOAJ)[7].

- Deliverables and info material

  - Access and use free of charge: This type of information will be provided through the project website.

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[6] http://www.sherpa.ac.uk/romeo/index.php?la=en&fIDnum=|&mode=advanced
[7] https://doaj.org/

6.1   Project deliverables

During the execution of UP2DATE, the project will produce a wide range of official and public deliverables. The 17 public deliverables that will be produced along the execution of the project are listed in table 3: below.

Table 3: List of UP2DATE public deliverables

No.	Deliverable name	WP	Lead partici-pant	Type	Dissemi-nation level	Delivery date (month)
D2.2	Baseline definition	2	BSC	R	PU	6
D3.1	Definition of relevant SASE criteria for Contracts	3	OFF	R	PU	15
D3.2	Initial UP2DATE Architecture definition	3	IKL	R	PU	15
D3.3	Mid UP2DATE Architecture definition	3	IKL	R	PU	21
D3.4	Final UP2DATE architecture Safety-security concept	3	IKL	R	PU	27
D3.7	Recommendations for Standards in dynamic Updates	3	IKL	R	PU	36
D4.1	UP2DATE Middleware foundations	4	OFF	R	PU	18
D5.1	Initial Monitoring and Controllability report	5	IKL	R	PU	15
D6.6	Demonstrators evaluation conclusions	6	MM	R	PU	36
D7.1	First Project Exploitation & Dissemination Plan	7	OFF	R	PU	3
D7.2	Second Project Exploitation & Dissemination Plan	7	OFF	R	PU	18
D7.3	Project web site and social network profiles. CMS guide for all partners.	7	IKL	DEC	PU	3
D7.4	First Promotional material (newsletters, flyer, videos, video news release)	7	IKL	DEC	PU	9
D7.5	Second Promotional material (newsletters, flyer, videos, video news release)	7	IKL	DEC	PU	27
D7.6	First Report on C&D activities	7	OFF	R	PU	18
D7.7	Second Report on C&D activities	7	OFF	R	PU	36
D7.9	Final event	7	IKL	OTH	PU	36

The consortium has agreed to make public more deliverables (D4.1 and D5.1) so that publishing early concepts of UP2DATE technology, we can recall attention of industry and standard bodies.

6.2 Strategy for knowledge management and protection

UP2DATE follows the guidelines set out by the EC and specified in the Article 29.2 of the AMGA, which details the legal requirements on open access to scientific publications. Partner in UP2DATE shall ensure open access to all peer-reviewed scientific publications relating to its results. Open access comprises two steps:

1. Depositing publications in repositories. This will be done as soon as possible and at the latest upon publication.
2. Providing open access to them. UP2DATE will ensure open access to those publications via ZENODO (https://zenodo.org/communities/up2date/) repository, platform hosted by CERN and developed under the European OpenAIRE program . Nevertheless, there are two partners (BSC and TTA) which will use their own repositories.
UP2DATE will have a strategy of mixed "gold open access" and "green open access" approach, according to the scope and impact of the published results and with consideration of the IPR issues:

- Self-archiving "green open access": in this case, UP2DATE partners will deposit the final peer-reviewed manuscript in a repository of their choice, ensuring open access to the publication within at most 6 months (12 months for publications in the social sciences and humanities).

- Open access publishing "gold open access": this strategy will be applicable when UP2DATE partners publish in open access journals, or in hybrid journals that both sell subscriptions and offer the option of making individual articles openly accessible. Monographs can also be published either on a purely gold or green open access.

The Consortium has already identified a preliminary list of communication channels for publications and journalistic articles, detailed in Section 7.

7. COMMUNICATION AND DISSEMINATION CHANNELS, TOOLS AND ACTIVITIES

Results will be disseminated through various channels outside the consortium in order to reach the targeted audiences, considering, for each audience, the best media planning. The following table summarizes the type of channels used for C&D purposes. The following sections will describe each channel in detail.

Table 4: Overview of available media channels

Category	Channels
Earned Media	- SEO - Social mentions - PR & news - Reviews - Partners social media - Partners web/blog - Partners congress - EU media
Paid Media	- Conferences & Congresses - Workshops - Exhibitions
Rented Media	- Twitter - LinkedIn page - ResearchGate
Owned Media	- Project website - Newsletter

7.1 Project website

The website (https://h2020up2date.eu) is aimed to reach all the audiences of the UP2DATE project, although a greater number of visits is expected from those groups that are more technical and related to the subject matter of the project. The main communication objectives of the UP2DATE website are:

- To provide relevant and current information to a wide audience.

- To ensure information is provided in an accessible and usable manner.

- To be an information database of all the activities and public deliverables carried out by the UP2DATE project and its partners.

The public deliverables of the project listed in table 3: will be available at the project Website (https://h2020up2date.eu/deliverables/). It will be possible to download them.

Also, on the website there will be links to published articles informing about the project progress and its outcomes. The responsible of these articles will be OFF, who will require the collaboration of every WP leader and deliverable responsible for the elaboration of each news.

In order to better promote the scientific papers, available for download at the website and in order to improve the overall website appearance, we will generate a short overview description for each paper: what to learn there, why it this relevant, what problem was solved, and why is this relevant.

Following the PO recommendation we already strengthen the description of the use cases to better and more attract our industrial target group and in order to give a good introduction into our entire scientific work.

We will also show a list of intended project results, explain each of them briefly, motivate it in the context of our use cases, link to relevant publications and deliverables, and give the predicted availability date for each of these results.

Finally, we will lower the "entrance level" for our website by generating introductory articles, starting with relevant common knowledge, and explaining the project contributions based on that.

7.2 Project brochures and other disseminative materials

To contribute to the promotion and communication of the project objectives and its outcomes. The project has developed the visual and content identity: logo, style guidelines, videos, communication kit, etc. As shown in D7.4, The following communication materials have been produced:

- 1 Flyer, in English, describing the overall approach of the project, its innovation and the expected impacts to be widely distributed by partners at meetings and events. Use case leaders will translate its contents into their local language (Spanish, Italian, and German) for dissemination at demo and country level.

- 1 Roll-up to be displayed at fairs, conferences, events. Local versions will be produced by the local partners.

7.3 Publications and journalistic articles

Project results will be also disseminated in the form of scientific publications targeted at peer-reviewed professional journals. The main scientific journals identified as potential disseminators of UP2DATE results are shown in table 5.

Table 5: Scientific journals

Journal Name
ACM Transactions on Design Automation of Electronic Systems (TODAES)
Elsevier Microprocessors and Microsystems (MICPRO)
IEEE Transactions on Computers (TC)
IEEE Transactions on Embedded Computer Systems (TECS)

IEEE Transaction on Computer Aided Design (TCAD)
IEEE Micro
IEEE Design & Test
IEEE Transactions on Emerging Topics in Computing (TETC)
IEEE Access

In addition, to complement the appearance in specific media, the major achievements and milestones of the project will be released and published in the project website and delivered to mass media around Europe. These press releases will be written by OFF with the technical contribution of the UP2DATE partners when needed and reviewed by the Project Coordinator, IKL, before their distribution.

For the accomplishment of this purpose, the following table identifies the main European media companies identified as relevant contacts for the distribution of UP2DATE news.

In the first project phase, the project did not use all European Commission media as planned. We thus decided to implement the following changes:

We will push all relevant conference events to www.cordis.europa.eu /news/home_en.html and plan an article at project month 27 for the Horizon Magazine http://horizon-magazine.eu/. Additionally, we will generate a project story on https://ec.europa.eu/programmes/horizon2020/en/newsroom/551/ also capturing the feedback from the midterm review and the IAB meeting. Finally, we plan to generate a project highlight report for the eu results magazine https://cordis.europa.eu/research-eu/en till M33.

Table 6: List of identified European media

Media	Country	Type
Agence France Presse	Europe	Press Agency
Agencia EFE	Spain	Press agency
Channel 4	United Kingdom	TV media
RTVE	Spain	Public radio & TV
Reuters	Europe	Press Agency
ANSA	Italy	Press Agency
Press association	United Kingdom	Press Agency
Europa Press	Spain	Press Agency
Deutsche Presse-Agentur	Germany	Press Agency

UP2DATE will also use EC's media channels such as those listed in Table 7.

Table 7: European Commission Media

Media	Description	Use to communicate KEY MESSAGE CATEGORIES (I - IV)
Horizon Magazine http://horizon-magazine.eu/	HORIZON is the EU Research & Innovation e-magazine. It covers the latest developments in EU funded research and innovation, communicating the priorities and achievements of EU-funded research, its impact on citizens' lives and its contribution to the EU goals of smart and sustainable growth.	(I), (III): These media will be used to inform about the benefitsand progress that UP2DATE will generate in Europe, informing about the open debates created and the results.
Project stories https://ec.europa.eu/programmes/horizon2020/en/newsroom/551/	Articles about selected EU-funded research projects, which led to breakthroughs, and that contribute to economic growth and creating jobs, and tackling societal challenges.	
research*eu results magazine https://cordis.europa.eu/research-eu/en	This print magazine features highlights from the EU-funded research and development projects. It is published 10 times per year in English and covers mainly the research areas of biology and medicine, Social sciences and humanities, energy and transport, environment and society, IT and telecommunications, industrial technologies and space.	(II), (III): This media will be used to inform about the existence of the UP2DATE project, explain its main challenges and inform about it progress.
Events on the CORDIS website www.cordis.europa.eu/news/home_en.html	This website displays research-related conferences and events.	(II), (III): Public UP2DATE related conferences and events will be displayed on this media to have a wider outreach.
Conferences and events organised by the European Commission	The European Commission co-organises a variety of conferences. These may include exhibition areas or sessions.	(I), (III), (IV): UP2DATE will work to be part of EC Conferences talking about the success that this project means and the benefits for Europe that this kind of project means.

7.4   Partner's website and media

To increase the impact among the specialised audience, all the consortium members have been asked to include a mention to the project and their participation at this project on their organization website listed in table 8 or the social media.

Table 8: List of Consortium members' webpages

Partner	Website
IKL	https://www.ikerlan.es/en/
BSC	https://www.bsc.es/
OFF	https://www.offis.de/en.html
TTA	https://www.tttech-auto.com/
IAV	https://www.iav.com/en/
MM	https://www.marelli.com/
CAF	https://www.cafsignalling.com/en/

After every relevant milestone of the project, every consortium member who took part in it has been asked to make a mention on their owned media channels and/or profiles making proper reference to the project:

- Referring to the project name

- Referring to the UE funding status

- Describing their role in the project and/or in the specific event

Afterwards, UP2DATE's media channels and profiles (website, newsletter, and social media) will mention these publications to increase the impact of every communicative action.

7.5   Project newsletters

To keep the interested audiences informed about the progress of the project, a newsletter is addressed every 6 months to all the consortium members. It contains the main news and information about the project. The responsible of managing and delivering this document is IKL. IKL ensure the existence of enough materials to be included in the Newsletter and ask other consortium members for their contribution.

In this sense, an external newsletter is issued every 6 months (from M6) to present the latest results of the projects, success stories, news from the partners, upcoming events, events where project consortium members assist, etc.

The newsletter is defined according to the European legislation in this sense, and it is forwarded to all the subscribers who decide to do so through the website, e-mail or other media such as recommendation of the consortium members.

As the initial response to the newsletter was below our expectations, we will improve the newsletter's promotion on the well visited project website: We will move the "register" button from the legal footer of the website into the main menu, significantly raising its visibility. Additionally, we will put a copy of this button atop of the "news" site, which is the most visited of all sites and fits well to a newsletter.

Additionally, we will reduce the scepticism and predicted overload, which some newsletters actually have by clearly stating, that there will be only a single mail shot every 6 months with a collection of abstracts and links to full version of the most relevant project news.

7.6   Social networks

UP2DATE owns project profiles on social media to increase the impact and generate straight communication channels to allow interactions with the audience thought different tools depending on the communicative objective. Social networks are a powerful tool to achieve a multiplier promotional effect on communication activities that is why the project profiles are constantly updated to show UP2DATE as an active and interesting project.

The presence of the project on social media is fundamental to accomplish the objectives, it is used as a relevant tool to reach third parties, the research community and to interact with the general public. The availability of new project results are communicated informing about its progress and its effect on the industry, disseminating the project outcomes and creating a scientific hub interested in collaborating with the project. It is crucial to reach a high level of followers to have a real impact.

The content is generated by IKL with the collaboration of other consortium members. The consortium members will also publish the relevant information in their social networks. This communication channel is expected to be rather efficient in communicating project evolvements and stabilising strong presence.

IKL is responsible of the social media management, overseeing the creation and maintenance of the profiles, programming, executing and making the follow up of all the publications. IKL

elaborates a publications calendar feed with information from all the consortium partners such as assistance to workshops or conferences, the main milestones of the project and the broadcast of the project on mass media.

As very recently, the timeframes, over which access statistics can be accessed have been reduced, we will institutionalize the collection of this data on the first day of each quarter of a year (by now, some services only report for 3 months backwards).

In order to improve the newsletter's content, we will ask the WP leaders to generate a non-scientific progress report every 3 months as input for our newsletter.

There are three kinds of possible scenarios:

- Programmed posts inside the project: IKL oversees carrying out the post overall after every consortium monthly telco.

- Assistance to conferences, workshops or events where IKL doesn´t assist: on this situation, as long as it would be possible, IKL will keep in contact with the consortium members assisting to the event to keep informed and make publications in real-time and interacting with other users. In the case that this situation can't be carried out, UP2DATE will give access to an elected consortium member assisting to the event to publish and inform about the UP2DATE implication in such event; in these cases, the person publishing on UP2DATE social media profiles must have in mind all the procedures and meet the project tone and public image.

- Answer to technical issues out of the scope of IKL: in the situations where a comment from a user in social media brings IKL out of its scope, he might ask the collaboration of other consortium members to give the best answer.

The following subsections will explain the targeted social medias.

7.6.1 Twitter

Twitter is used to create a community with experts in different fields related to the project and share with them the results of the project. Twitter is used also to inform about the existence of project events such a conference and workshops, make a follow up of them and disseminate the results. UP2DATE profile on Twitter also makes mentions of partner's assistance to third parties' events, contributing to their dissemination and exposing their point of view about the topics discussed.

Twitter is a tool that will be very useful to contact with experts in different fields and to reach a wider audience in the dissemination of contents to a bigger audience such as general public or end- users.

In order to increase the project's visibility, we will offer a mail-to-twitter service, where unexperienced partners can push their raw content per mail and an experienced colleague will generate a well written and connected (use #) tweet.

7.6.2 LinkedIn

LinkedIn is a professional social network and is used to reach a business and scientific audience. UP2DATE LinkedIn is used to share news and articles about the progress and outcomes of the project. It will be a crucial tool for the dissemination of the main achievements made during the progress of the project.

7.6.3 ~~ResearchGate~~ Zenodo

~~ResearchGate is a European commercial social networking site for scientists and researchers to share papers, ask and answer questions, and find collaborators. According to a 2014 study by Nature and a 2016 article in Times Higher Education, it is the largest academic social network in terms of active users[8] [9], although other services have more registered users, and a 2015–2016 survey suggests that almost as many academics have Google Scholar profiles[10].~~

Zenodo is a general-purpose open-access repository developed under the European OpenAIRE program and operated by CERN. It allows our consortium to deposit research papers, data sets, research software, reports, and any other research related digital artifacts. For each submission, a persistent digital object identifier (DOI) is minted, which makes the stored items easily citeable.

Due to the proximity of this platform to the European Commission, due to the higher impact and due to the higher cite quality, we decided early in the project to replace our ResearchGate efforts by Zenodo.

The consortium will also use Zenodo as the preferred instrument for green open access publications. Nevertheless there are some partners which will host their green open access publications in their own servers.

UP2DATE partners ~~that are actively using ResearchGate,~~ use this social network for sharing scientific publications with the scientific community, enabling a feedback channel for the discussion on scientific and technical results of the project with the community.

7.6.4 Partners' social media

The partners will be asked to communicate the relevant milestones of the project, as well as their participation in project events on their social media profiles. In the following table are the consortium member's profiles on social media.

Table 9: List of Consortium members' social media profiles

Partner	Twitter	LinkedIn	ResearchGate

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[8] *Matthews, David (7 April 2018). "Do academic social networks share academics' interests?". Times Higher Education. Archived from the original on 2016-04-17. Retrieved 2016-04-22.*

[9] *Van Noorden, Richard (13 August 2014). "Online collaboration: Scientists and the social network". Nature. **512** (7513): 126–129. Bibcode:2014Natur.512..126V. doi:10.1038/512126a. PMID 25119221*

[10] Innovations in Scholarly Communication. 2016. Universiteit Utrecht, accessed 2016-12-02. Archived 2016-12-09 at the Wayback Machine.

IKL	https://twitter.com/ikerlanofficial	https://www.linkedin.com/company/ikerlan/	https://www.researchgate.net/institution/Ikerlan
BSC	https://twitter.com/bsc_cns	https://www.linkedin.com/company/barcelona-supercomputing-center/	https://www.researchgate.net/institution/Barcelona_Supercomputing_Center
OFF	https://twitter.com/offis	https://www.linkedin.com/company/offis-institute-for-information-technology/	https://www.researchgate.net/institution/OFFIS
TTA	N/A	https://www.linkedin.com/company/tttech-auto/ https://www.linkedin.com/company/tttech/	N/A
IAV	https://twitter.com/iav_de https://twitter.com/iav_usa	https://www.linkedin.com/company/iav-gmbh/	https://www.researchgate.net/institution/IAV_GmbH_Ingenieurgesellschaft_Auto_und_Verkehr
MM	https://twitter.com/marellitech	https://www.linkedin.com/company/marelligroup/	https://www.researchgate.net/institution/Magneti_Marelli
CAF	N/A	https://www.linkedin.com/company/caf-signalling/	N/A

7.7   Project events

7.7.1   Owned Events

For the performance of some of the tasks, several project internal workshops will be implemented and executed in the frame of UP2DATE. This include the project kick-off meeting in M1 and technical meetings in M6, M12, M18, M24 and M30. These workshops will focus on the technical work packages (WP2 to WP6). Selected results of these workshops will be disseminated in other media, as well as these workshops will be used to disseminate the results of previous advances.

UP2DATE will have a **final event** to deport on the results of the project. It is planned to organize this event in the framework of another existing event at EU/international level. IAB will attend this event.

A dedicated workshop of the Mixed-Criticality Cluster (see section 9) is organized once a year. This MCC workshop will be integrated into the HiPEAC conference in M1, M13 and M25. Moreover, in collaboration with other projects like ADEPTNESS once a year another workshop in DepDevOps (Dependable development-operation continuum methods for dependable CPS) will be organized into SAFECOMP.

7.7.2   External Events

Members of the consortium assist to different congresses, conferences fairs and workshops about project related topics in the area of critical and mixed-critical embedded systems design, modelling and analysis where they represent the consortium and, according to the event agenda, they lead debates, carry out project-related speeches and/or workshops, contact with stakeholders and market leaders or assist to chats and debates to contribute or learn about the actual opinions and tendencies in the industry.

The partners will go on attending international conferences to disseminate the UP2DATE activities and strategies in order to disseminate to the broader scientific communities. The main events in this sense identified are listed:

Table 10: List of identified main events.

Dissemination Activities	Involved Partners	Target Group
Scientific Conferences		
Euromicro Conference on Digital System Design (DSD), Design Automation Conference (DAC), Design, Automation and Test in Europe (DATE), International Conference on Control, Automation and Diagnosis (ICCAD), Real-Time Systems Symposium (RTSS), Euromicro Conference on Real-Time Systems (ECRTS), Real-Time and Embedded Technology and Applications Symposium (RTAS), Embedded Systems Week (ESWEEK), Symposium on Industrial Embedded Systems (SIES)	IKL, BSC, OFF	C
Dissemination to Associations and platforms		
ARTEMIS Industry Association	IKL	C
Connected and automatic Driving (ACEA)	MM	C
Euro HPC, etp4hpc	BSC	C
Attendance to EU/ International industrial events, trade fairs and workshops		
International TÜV Rheinland Symposium (bi-annual)	IKL	D
Operational Safe Systems for Level 5 Automation Event	IKL	D
EUCAR Conference (Annual). Networking event for automotive stakeholders	TTA	A, B, E
SafeTrans industrial day (bi-annual)	OFF	A, B, E
Meetings with potential end users & other partners internal business lines		
Internal specific meetings with other MM, CAF interested in this technology Business Lines	MM, CAF	B
External meetings with automotive car, train manufacturers	MM, CAF	B

8. ROLES AND RESPONSIBILITIES

OFF will lead the dissemination of results activities based on this Plan for Dissemination and Exploitation of Results, supported by TTA as WP7 leader. At the same time, OFF will encourage all partners to contribute, lead or suggest in the disseminative activities.

The dissemination activities and the responsibilities of each partner are defined in

(L means Leader, and C means Contributor).

Table 11: Overview of dissemination activities and the responsibilities of each partner (L = Leader, C = Contributor)

DISSEMINATION ACTIVITIES	OFF	TTA	IKL	BSC	IAV	MM	CAF
Project website							
Upgrade and management	C		L				
Contents and deliverables	L	C	C	C	C	C	C
Project newsletters							
Content	L	C	C	C	C	C	C
Dissemination	L	C	L	C	C	C	C
Social networks							
Project social networks	C	C	L	C	C	C	C
Partners owned social networks	L	C	C	C	C	C	C
Printed & Digital materials & Journalistic Articles							
Production of printed and digital materials in support of specific project activities	L	C	C	C	C	C	C
Publications							
Publications in specialized journals, magazines or newsletters	L	C	C	C	C	C	C
Publications in owned media	L	C	C	C	C	C	C
Owned Events							
Planning and organization of Workshops	C	L	C	C	C	C	C
Promote and assistance to project events	C	L	C	C	C	C	C
Organize UP2DATE final event	C	L	C	C	C	C	C
External events							
Disseminate project results in targeted events	C	L	C	C	C	C	C
Promote networking and cooperation with other on-going projects	C	L	C	C	C	C	C
Assessment and Strategy Revision							
Monitoring of the project dissemination activities	L	C	C	C	C	C	C
Revision of the project dissemination activities	L	C	C	C	C	C	C

The exploitation activities that will be defined, once the exploitation task starts, will be led by TTT.

9. COLLABORATION WITH OTHER INITIATIVES

Academic partners (universities and other research institutions) will include the results of the project into their educational activities. Links will be established with other research groups involved in similar or related activities in Europe.

We currently prepare collaborations with the following running projects:

- Step-UP!CPS: Software Methods and Technologies for Modular Updates of Cyber-Physical Systems (https://stepup-cps.de/).

- SELENE: Self-monitored Dependable platform for High-Performance Safety-Critical Systems (http://www.selene-project.eu/).

- De-RISC: Dependable Real-time Infrastructure for Safety-critical Computer (https://derisc-project.eu).

- Safe4RAIL-2: Safe architecture for Robust distributed Application Integration in roLling stock 2 (https://safe4rail.eu/).

- Fractal: Cognitive Fractal and Secure Edge Based On Unique Open-Safe-Reliable-Low Power Hardware Platform Node (https://fractal-project.eu/).

- GPU4S: GPUs for Space (https://www.bsc.es/news/bsc-news/bsc-awarded-esa-project-evaluate-low-power-gpus-space-applications).

- SELENE: Self-monitored Dependable platform for High-Performance Safety-Critical Systems (https://www.selene-project.eu/).

- VERIDEVOPS: Automated Protection and Prevention to Meet Security Requirements in DevOps Environments (https://www.veridevops.eu/).

- ADEPTNESS: Automating the design-operation continuum of Cyber Physical Systems of Systems (https://adeptness.eu/).

On the other hand, UP2DATE is currently part of Mixed-criticality Forum (MCF) and cluster (MCC). MCF goal is to provide access to selected project results for the community. Targeted members of the community are (a) component developers that have a real interest and incentives for developing components initially based on the results produced in projects related to mixed-criticality systems (e.g., tools, platform components); and (b) community of application developers that use the resulting architecture for safety-critical applications.

10. DISSEMINATION MEANS AND CONTENTS

Following the analysis of the above descriptions of the Dissemination Plan, the present section aims to identify the content/possible content of the various project communication means. This information is included in the table below:

Table 12: Dissemination means vs Contents

	Project website	Project brochures	Project leaflets	Project posters	Publications & articles	Project newsletter	LinkedIn	Twitter	Project events	Partner's media
(I) END-USERS, POLICY MAKERS AND GENERAL PUBLIC PILLAR KEY MESSAGES										
OTASU for critical systems are beneficial for the society, they will enable the mastering of future automatic and autonomous transportation systems fostering self-determined mobility.	X	X	X			X	X	X	X	X
UP2DATE will contribute to responsible research and innovation for OTASU in critical embedded systems	X	X				X	X	X	X	X
UP2DATE will promote the development of safe and secure embedded systems for the benefit of the society.	X	X		X		X	X	X	X	X
UP2DATE will help in the creation of an interactive hub for mixed-criticality systems and the application of OTASU, through the Mixed-Criticality Cluster (MCC).	X		X			X	X	X	X	X
UP2DATE is contributing to a European "Innovation Union" and to the aims and impacts of the Strategic Research Agenda (SRA) and the Multi-Annual Strategic Plan (MASP) of the ECSEL JU	X				X		X	X	X	X
OTASU for critical embedded systems raise several legal, economic and industrial questions that need to be addressed and UP2DATE will contribute to answer them.	X		X	X		X	X	X	X	X
UP2DATE will contribute to identify the needs and gaps in the regulatory framework applicable to software updates and more specifically OTASU. UP2DATE will propose updates to safety standards.	X					X	X	X	X	X
(II) TECHNICAL EXPERTISE PILLAR KEY MESSAGES										
UP2DATE consolidates Safety and Security (SASE) concepts and technology for complex heterogeneous embedded HW/SW platforms, which are not well covered by current safety-oriented design methodology, thus leaving a gap between the state of the art of the technology and the possibility to exploit it in mixed-criticality applications.	X	X	X	X	X	X	X	X	X	X
UP2DATE consolidates baseline (pre-OTASU) concepts related to functional safety and timing analysis for MCCPS as a building element for modular OTASU.	X				X		X	X	X	X
UP2DATE contributes to the future incorporation of dynamic software updates in mixed-critically systems, through the development of new paradigms for composable and modular safety and security concept that allow OTASU in a safe and secure manner in Mixed-Criticality Cyber Physical Systems (MCCPS).	X				X		X	X	X	X
UP2DATE coordinates workshops with stakeholders to identify gaps in the regulatory framework, existing standards and approaches related to OTASU for safety-critical systems.	X				X		X	X	X	X
UP2DATE will demonstrate its reference architecture for OTASU for mixed-criticality systems in a laboratory-controlled environment applied to two real-world case-studies in the automotive and railway domain.	X	X	X	X	X	X	X	X	X	X
UP2DATE carries out an assessment of safety and security certifiability of the concepts for OTASU in MCCPS.	X		X	X	X		X	X	X	X
UP2DATE is contributing to a European "Innovation Union" and to the aims and impacts of the Strategic Research Agenda (SRA) and the Multi-Annual Strategic Plan (MASP) of the ECSEL JU.	X				X		X	X	X	X
UP2DATE Deliverable D3.7 "Recommendations for Standards in dynamic Updates" is now available.	X				X		X		X	X
UP2DATE Deliverable D3.4 "Final UP2DATE architecture Safety-security concept" is now available.	X				X		X	X		X
(III) BUSINESS EXPERTISE PILLAR KEY MESSAGES										
UP2DATE fosters dissemination and technology transference activities, road-mapping and clustering with other projects, aiming at ensuring that UP2DATE discoveries and development last beyond the lifetime of the project.	X	X	X	X	X	X	X	X	X	X
UP2DATE will liaise with on-going (and newly accepted) projects in the area of MCCPS to increase the synergies.	X				X	X	X	X	X	X
UP2DATE performs roadmap activities and increase the awareness of the developed concepts by means of a thorough Plan for the Exploitation and Dissemination.	X	X	X		X	X	X	X	X	X
UP2DATE will work on removing or cutting down the non-technical barriers in the usage of OTASU in safety-critical embedded systems.	X		X	X		X	X	X	X	X
UP2DATE will showcase industrial success stories of the inclusion of OTASU in safety-critical applications in the automotive and railway domains.	X	X		X		X	X	X	X	X
UP2DATE Deliverable D6.6 "Demonstrators evaluation conclusions" is now available.	X				X		X	X	X	X
(IV) ETHICAL, LEGAL & SOCIOECONOMIC EXPERTISE PILLAR KEY MESSAGES										
UP2DATE will bring together experts to debate about these safety and security issues related to OTASU of critical embedded systems.	X					X	X	X	X	X
UP2DATE coordinates workshops with stakeholders to identify gaps in the regulatory framework, existing standards and approaches related to OTASU for safety-critical systems.	X				X		X	X	X	X
UP2DATE carries out an assessment of safety and security certifiability of the concepts for OTASU in MCCPS.	X				X		X	X	X	X
UP2DATE workshops on the compliance with existing regulatory framework and its assessment are taking place in order improve the existing regulations for OTASU for critical embedded systems.	X				X		X	X	X	X

11. ACTION PLAN

The Global Action Plan includes an update of the main events and actions to be carried out during the second half of UP2DATE project execution, most of them involving all the partners. Many of the activities and actions included in the Action Plan were already defined in the UP2DATE Grant Agreement and therefore the allocation of responsibilities among partners and the respective budget are already partially defined. The first version of the Action Plan is provided below. It will be updated regularly.

	Year	2020												2021												2022											
	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Events	**Responsible**																																				
Implement project workshops	IKL																																				
IAB Meetings	IKL, OFF																																				
Final Event	IKL. TTA																																				
MCC Workshop ah HiPEAC	IKL																																				
Participate in external meetings, seminars and conferences	all																																				
Action/Tools	**Responsible**																																				
Provide project website	IKL																																				
Update project website	IKL, all		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Release of project flyer, posters	TTA												U												U												U
Release of roll-up	IKL												U												U												U
Elaborate and distribute project newsletters	IKL																																				
Develop and publish press releases	TTA, all																																				
Publish articles	OFF, all																																				
Launch Twitter & LinkedIn accounts	IKL																																				
Update Twitter & LinkedIn accounts	IKL, all	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U

12. MONITORING

The main objective of monitoring and evaluation is to ensure a high-quality communication strategy execution.

The project has an overall evaluation strategy to ensure the above-mentioned quality. However, a separate monitoring focused on communication activities is vital as the impact of those activities contribute to the successful implementation of the project. It is important that this evaluation is carried out on a continuous basis to ensure:

- An effective impact assessment and update or redefinition of communication activities.
- Ensure the quality of the communication activities carried out.

Monitoring can be broken down into sub-sections:

- Performance measurement
- Impact
- Reporting
- Monitoring and assessment

12.1 Performance Measurement

The consecution of this plan will be measured according to the following indicators:

- The level of acknowledge of the project around Europe in two levels: the main UP2DATE's stakeholders and the general public.
- Rates regarding Website and Social media activities: a careful monitoring of UP2DATE website hits will be done together with an analysis of the impact of events (e.g. publication of a new article). Using web tools for analysing visitor traffic and giving a complete picture of number of visitors, visited pages, geographical coverage including the audience's needs and interest.
- Number of articles in non-scientific publications: the partner in charge (OFF) will keep track of the number of publications.
- Number of External contact requests: a contact form on the UP2DATE website will allow outside people to contact the consortium.
- Number of attendants to the project events.

12.2 Impact

Impact is a tool to ensure that the project objectives are being accomplished through a selection of tailored activities. Impact regarding communication activities can help the consortium to understand the reach and sustainability of the project's results. Furthermore, the impact can also be used to measure and assess the promotion activities in terms of their relevance, quality, and promotion channel.

Impact is often measured through indicators; both quantitative and qualitative should be considered for the activity/action. Following the recommendations of the fist review, the KPI referring to publications were raised. We also included an additional KPI, which is the number of readers of these publications. At other KPI, where the 2020 figures clearly showed, that we could even exceed the final KPI (rf. D7.6), we raised our goals to more ambitious, yet realistic values.

These indicators are included in the following table.

Indicator	December 2020	December 2021	December 2022	Source & methodology
Accumulated number of visits to UP2DATE project website	1000	~~2500~~ 3000	~~5000~~ 5500	Google Analytics
Accumulated number of info packs/brochures distributed	50	100	150	Registry of dissemination activities
Accumulated number of followers on Twitter	50	~~100~~ 120	~~150~~ 170	Twitter registry
Accumulated number of followers on LinkedIn	50	~~100~~ 150	~~150~~ 200	LinkedIn registry
Accumulated number of newsletters releases	3	6	9	Registry of dissemination activities
Accumulated number of subscribers to the project mailing list (for the newsletter distribution)	40	80	~~120~~ 100	Internal subscriber registry
Accumulated number of press releases distributed	1	2	3	Registry of dissemination activities
Accumulated number of articles published on the UP2DATE project website	6	~~12~~ 20	~~18~~ 35	Registry of dissemination activities
Accumulated number of articles published on external media (e.g. LinkedIn post , twitter posts…)	3	~~6~~ 80	~~9~~ 120	Registry of dissemination activities
Accumulated number of readers of articles	500	~~1000~~ 4000	~~2000~~ 6000	Reach out information from

Indicator	December 2020	December 2021	December 2022	Source & methodology
published on external media				external media
Accumulated number of relevant events on which participants take part	5	15	25	Registry of dissemination activities
Accumulated number of participants of relevant events on which participants take part	~~50~~ 70	~~150~~ 230	~~250~~ 230	Participant list
Accumulated number of events for academia	~~2~~ 4	~~4~~ 15	~~6~~ 20	List of organized and co-organized events for academia
Accumulated number of participants on events for academia	~~40~~ 50	~~80~~ 250	~~120~~ 320	Participant list
Accumulated number of events for industry	1	2	3	List of organized and co-organized events for industry
Accumulated number of participants on events for industry	10	~~20~~ 30	~~30~~ 60	Participant list
Accumulated number of publications ~~in international peer reviewed journals~~	1	~~4~~ 10	~~6~~ 20	Publication list
Accumulated number of readers of publications	50	200	300	
Accumulated number of clustering events (of the Mixed-Criticality Cluster)	1	2	3	List of organized clustering events
Accumulated number of participants on clustering events (Mixed-Criticality Cluster)	15	~~30~~ 70	~~45~~ 120	Participant list
Number of participants at final event	-	-	**100**	Participant list

Table 13: Performance indicators for dissemination activities

12.3 Reporting

To facilitate an accurate monitoring and assessment of the communication activities, and to understand the impact of the actions carried out, it is necessary for all partners to register the activities that they implement. In this sense, there is available in the file share an excel file to report every communication activity or publication (articles, publications on blog, etc.) made by each consortium member. The success of this careful and regular reporting scheme can be seen in D7.6: almost all data, needed to compile our first communication and dissemination

report could be generated from the collected data. Only a small questionnaire with seven more general questions had to be circulated to complete minor gaps in that report.

These activities include both the previewed and the ad-hoc activities. Therefore:

- All partners must consider the communication procedures settle in this document.
- All partners should register the activities in the communication reporting document available in the private area of the website.
- All partners should save evidence of the activities conducted.

By performing regular monitoring of the activities (in the monthy PTC meeting), it is possible to assess if the action plan is being carried out properly and if it is on time. It will also be possible to see which activities had the biggest impact on the stakeholders (both in quantitative and qualitative terms). The conclusions from these reporting will be considered for the communication plan annual updates.

12.4 Monitoring and assessment

The process of monitoring communication activities will be outlined as follows:

- Step 1: Define the "Plan of Dissemination and Exploitation of Results".
- Step 2: Schedule and execute/implement each dissemination activity.
- Step 3: Assess/Review the impact of the executed/implemented dissemination activities.
- Step 4: Improve/update the "Plan of Dissemination and Exploitation of Results".
- Step 5: Continue with step 2.

Monitoring is a continuous process that will assess the overall WP7 dissemination activities/results, but also evaluate each individual activity and its impact on the project. It is most likely that the Dissemination Plan will be updated according to the results of such evaluations. The dissemination plan will continuously be updated according to the analysis of the results of the monitoring process.

13. GLOSSARY

IAB	Industrial Advisory Board
MCC	Mixed-Criticality Cluster
MCCPS	Mixed-Criticality Cyber-Physical Systems
OTASU	Over-The-Air Software Updates
RRI	Responsible Research and Innovation
WP	Work Package
EC	European Commission

ANNEX A MARKET OVERVIEW

This section will not be part of the public version of this document for obvious reasons. It will be delivered to the reviewers as a separate document.