EuWireless

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Communication, exploitation and dissemination plan

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Abstract

This report contains specific and precise plans for communication, exploitation and dissemination activities that will be carried out during the project lifetime.

Keywords

communication; exploitation; dissemination; standardisation

EuWireless Consortium

Universidad de Málaga	UMA	
DEKRA Testing and Certification	DEKRA	
Teknologian tutkimuskeskus VTT Oy	VTT	
IS-Wireless	ISW	
time.lex	TL	
NORDUnet A/S	NORDU	

Executive summary

This deliverable presents the planned communication, exploitation and dissemination activities in the EuWireless project. The plan focuses on the work that will be performed during project execution between 2018-2019. However, for the exploitation of the project results, the plan includes also few years after the project's ending.

The aim of the deliverable is to provide an overview to the overall communication, exploitation and dissemination strategy in EuWireless. In addition, the deliverable introduces the main tools and channels utilised in the work, defines the target audience for the project's communication messages and dissemination materials, and schedules the key actions to be taken during the project. The deliverable also lists the main organisations, industry associations and projects which will be contacted during the project for networking purposes.

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List of abbreviations

3GPP	3rd Generation Partnership Project
5GAA	5G Automotive Association
5G IA	5G Infrastructure Association
5G-PPP	5G Infrastructure Public Private Partnership
CEPT	European Conference of Postal and Telecommunications Administrations
CISPR	Comité International Spécial des Perturbations Radioélectriques
DoA	Description of Action
EC	European Commission
e-IRG	e-Infrastructure Reflection Group
ESFRI	European Strategy Forum on Research Infrastructures
ETP	European Technology Platform
ETSI	European Telecommunications Standards Institute
FIRE	Future Internet Research and Experimentation
GSMA	Global System for Mobile Communications Association
GTS	GÉANT Testbeds Service
ICT	Information and Communication Technology
IEEE	Institute of Electrical and Electronics Engineers
IETF	Internet Engineering Task Force
IPR	Intellectual Property Rights
ISG	Industry Specification Group
ISOC	Internet Society
ITS	Intelligent Transportation System
ITU	International Telecommunication Union
MNO	Mobile Network Operator
NFV	Network Functions Virtualisation
NREN	National Research and Education Network
R&D	Research & Development
SIG	Special Interest Group
SME	Small and Medium-sized Enterprises
STF	Special Task Force
ToC	Table of Contents
TSG SA	Technical Specification Group Service and System Aspects
URL	Uniform Resource Locator
vRAN	virtual Radio Access Network
WG	Working Group
WP	Work Package

1 Communication, exploitation and dissemination strategy

In this chapter, the overall strategy for the EuWireless communication, exploitation and dissemination activities is introduced. The role of Task 4.2 in the project is explained as background and motivation for the work. In addition, the methodology utilised to facilitate, monitor and assess the success of the communication, exploitation and dissemination activities is defined.

1.1 Introduction

The communication, exploitation and dissemination activities are key in order for the EuWireless project to successfully achieve the expected impacts of the INFRADEV-01-2017 call. In addition to the operational and technical specification work, it is of utmost importance that the EuWireless concept is brought to the attention of the identified key stakeholders. These stakeholders groups include the end users, i.e. scientific community and Research and Development (R&D) departments from the industry, National Research and Education Network (NREN) operators, commercial Mobile Network Operators (MNOs), telecom hardware/software vendors, funding agencies, regulators, standardisation organisations, as well as other European and non-European telecommunications research support initiatives, agencies, institutions and associations.

The consortium has a strong overall dissemination and exploitation vision and the actions to achieve it are part of Work Package 4 (WP4). To make the new EuWireless concept and design visible to decision makers and potential end users, the work in WP4 is divided in three tasks:

- **Task 4.1 "Exploitation":** Includes the direct networking activities towards European Strategy Forum on Research Infrastructures (ESFRI), national agencies funding infrastructures, European Commission (EC) through the project officers of the H2020 projects and other technological associations, e.g. in automotive domain, in order to present the design of the new infrastructures.
- **Task 4.2 "Dissemination":** Includes the activities towards general stakeholders by publishing scientific papers in conferences and journals, distributing factsheets in events, keeping an updated web page of the project, and managing newsletters and social network channels.
- **Task 4.3 "Workshops":** Includes the organisation of three workshops to get requirements and continuous feedback from the researcher community and other key stakeholders. Representatives from the funding agencies will also be invited to the workshops.

During project execution, Task 4.2 progresses in close collaboration with the technical work in WP1, WP2 and WP3, and facilitates both the collection of required inputs from the stakeholders in the requirements specification phase, and the dissemination of project outputs to the stakeholders through identified dissemination media. In addition, Task 4.2 is closely linked with WP5, which handles activities related to EuWireless Intellectual Property Rights (IPR) strategy and protection.

Two EuWireless project deliverables will come out of Task 4.2. The first one is "D4.2 - Communication, exploitation and dissemination plan" (due April 2018), which contains the planned communication, exploitation and dissemination activities for the project. The second one is "D4.3 - Communication, exploitation and dissemination - Final report" (due December 2019),

which at the end of the project summarises and analyses the main achievements of the task, and compares them to the plans.

1.2 Methodology

The methodology presented in the following Sections forms the step-by-step communication, exploitation and dissemination strategy for the EuWireless project. In the strategy, the selection of the correct target audience, execution of the planned communication and dissemination activities, and the assessment of the success of the executed activities are presented. Based on the assessment, the process for updating the EuWireless communication, exploitation and dissemination strategy during project execution is also defined.

1.2.1 Target audience

The target audience for the EuWireless communication and dissemination activities will be selected based on the contents of the different project outputs. The information related to the EuWireless overall concept, operational requirements, architectural solutions and detailed technological solutions will be all disseminated to different target audiences by utilising different communication media.

The process of selecting the target audience for disseminating the project outputs produced in different phases of its execution is performed in advance. This way both the required contents and the level of detail for each dissemination activity is known beforehand and the impact of the tailored information targeted towards different stakeholder groups can be maximised with minimum amount of editorial overhead

The selection of communication and dissemination tools, channels and target audiences for different dissemination outputs is based on the consortium's existing knowledge on the identified key stakeholder groups and can be found in Sections 2.2, 4.2 and 4.3.

1.2.2 Execution

When planning the execution of the communication, exploitation and dissemination activities in the EuWireless project, the scheduling and roadmapping of the activities are essential. For the key communication activities, the timeline is built around the expected availability of results for dissemination in the different phases of the project. The exploitation of the project results is facilitated by following both project-wide and partner specific roadmaps. The partner specific roadmaps outline how the deployed EuWireless infrastructure and the individual components of the overall design can be utilised to strengthen the product and service offering of individual project partners. The timeline for the key dissemination materials prepared for different stakeholder groups is based on the key scientific conferences and other stakeholder meetings where EuWireless can be promoted through presentations and marketing materials, and the key scientific journals and conference proceedings for the dissemination of the project's scientific results. In addition, the workshops to be organised by the project consortium will affect the scheduling of both communication and dissemination activities.

The planned schedules for the key communication, exploitation and dissemination activities can be found in Sections 2.3, 3.3 and 4.5, respectively.

1.2.3 Evaluation

The success of the EuWireless communication, exploitation and dissemination activities is evaluated by continuously comparing the realised actions against the planned activities during

project execution. With such analysis, the amount of reached stakeholders can be estimated in the different phases of the project, and the potential gaps identified.

Deliverable "D4.3 - Communication, exploitation and dissemination - Final report" will report the evaluation of the success of the planned communication, exploitation and dissemination activities, together with the summarised results of Task 4.2.

1.2.4 Updates

Based on the continuous evaluation of the success of the EuWireless communication, exploitation and dissemination activities, the plan can be refined during project execution if clear gaps are detected. These refinements, if any, will be summarised in deliverable "D4.3 - Communication, exploitation and dissemination - Final report" at the end of the project.

2 Communication

In this chapter, the key communication measures to be used for the promotion of the EuWireless project and its results are presented. Depending on the progress of the project and evaluated success of the planned activities, additional measures can be established to enhance and improve the communication and promotion process. By using specific channels to communicate and inform stakeholder groups on problems and solutions related to the project, the project aims to engage the interest of the public, society and different communities. A communication activities timeline synchronised with the progress of the project's technical work and planned outputs is utilised in the timing of the work.

2.1 Objectives

Taking into consideration the main objective of EuWireless project, and the desire to implement the resulting solutions and overall design, a significant part of the dissemination process will cover, not only the formulation and production of dissemination materials, but also the definition of clear messages and selection of appropriate communication channels as listed in Section 2.2.

Based on the target audience and selected communication channels, the utilised dissemination materials can describe solutions, services and technologies developed in the project, or the needs and problems addressed by the EuWireless concept. In addition, the win-win scenarios that the EuWireless concept will enable for different stakeholders can be highlighted in the materials. The best practices or usual practices coming from different stakeholder groups will also be investigated from the project's point of view. Reporting or recommending the best practices or usual practices means that the project partners will undertake to write (or where appropriate encourage others to write) about the technologies and tools which were used during the project or which would be useful (based e.g. on previous experience) to the project or any other project working in the same area.

To support the communication activities, documents created in the project will be made public, published and given permanent Uniform Resource Locator (URL) linked from the project website. As part of the shorter project messages, the project documents will be promoted to the wider public, different end-user groups, R&D community, Small and Medium-sized Enterprises (SME) and big international companies using the marketing tools and channels presented in Section 2.2. The communication activities utilising different tools and channels will be scheduled in accordance with the timeline presented in Section 2.3.

2.2 Tools and channels

Project's web presence is based on a public **project website** (https://euwireless.eu/), which provides a centralised information source on the progress of the project itself (including details of EuWireless partners, objectives, focus areas, results, publications, etc.) and to related fields of work (links to other projects, services, collaborative efforts, etc.). The website will also serve as the central repository of public project deliverables. The website will have persistent URLs and the consortium will use Google Analytics to monitor and optimise search ability for the website content. The public website will be one of the main channels for wider public information dissemination and may contain some information available on the websites of the project partners, subject to partners' agreement. Project partners should also provide links to the EuWireless website in their own communication channels in order to increase the visibility of the project.

In order to increase visibility of EuWireless, frequent updates will be provided in **social media** highlighting ongoing project activities and key achievements. The main social media platforms utilised in EuWireless are Twitter (project has its own account @EuWireless) and LinkedIn (project partners and personnel can share project information through their personal accounts). The audience reached through social media will be encouraged to interactive communication to enrich debates and group discussions around the project topics.

The project will generate a **newsletter** twice a year and makes it available through the project website. The newsletters will present the project's progress from the different perspectives, i.e. introduce the latest technical results, show the up-to-date version of the overall concept, and summarise the key communication and dissemination activities.

A minimum of two major **press releases** will be published in order to build awareness and inform about the project's key results. The first major press release in the end of first year will summarise the key findings of the requirement specification and enabling technology study phase. The second major press release will focus on the publication of the finalised EuWireless architecture in the end of second year. In addition to the two major press releases, additional press releases focusing on specific project topics or results may be published. In order to maximise the exploitation opportunities of the project results, the consortium partners will promote and advertise the project using their own websites.

The consortium partners have sufficient experience and expertise in order to submit **scientific and technical publications** to academic journals, industrial journals, market relevant publications and web publications. Well-known high quality publications and journals will be selected to submit articles and other publications.

Supporting **promotion and marketing materials** (e.g. report summaries, leaflets and presentations) will be created both in digital and printed format. The supporting materials are related to the dissemination tools, detailed in Section 4.

The partners are taking into consideration the participation to relevant **events, fairs, expos, seminars, conferences and symposiums**, in order to enhance the communication, exploitation and dissemination activities. The aim is to have direct interaction with different stakeholder groups and the partners will use one of three main communication channel categories (see Table 1) to deliver the dissemination messages in a person-to-person manner.

In addition to the participation to events organised by others, the project will organise three **workshops** during its execution to allow partners disseminate more detailed results and experiences from the project to relevant target groups. The workshops can also be utilised to identify pathways for future research and collaboration opportunities, and exploitation of project results. The workshops will be utilised also to collect feedback to the presented results.

In addition to project workshops, feedback is actively collected throughout the project in order to complement and extend the project's view when it comes to the most relevant operational and technical requirements related to the EuWireless concept. For this purpose, **questionnaires and interviews** will be used as tools for collecting stakeholder feedback in different face-to-face meetings, group discussions and events.

Table 1. EuWireless communication activities overview

Communication activities	Channels and mechanisms
Electronic communication activities	Communication is done with a mix of digital written messages and multimedia. The feedback and evaluation mechanisms will include appropriate web-based tools and instruments at the project website.
Dissemination materials	Communication is done with a mix of printed and digital written messages, graphics and multimedia. The feedback and evaluation mechanisms will include appropriate web-based tools and instruments at the project website (links will be provided in dissemination materials).
Participation in events	Communication is done with a mix of face-to-face discussions as well as electronic and printed dissemination materials.

2.3 Timeline and priorities

Communication activities will be synchronised to project progress and milestones. Table 2 summarises the planned key communication activities during the project execution. The most significant activity is formulation and production of the dissemination materials (i.e. publications, reports, promotion materials and presentations) in accordance with the definition of communicated messages and selection of communication channels.

During 2018, the focus is on communication with different stakeholders in order to collect feedback to the system requirements and promote the EuWireless goals. During 2019, activities supporting the dissemination of the EuWireless architecture as well as preparation of publication manuscripts and reports to be disseminated the target groups have the highest priority.

Table 2. Planned timeline and scope of EuWireless key communication actions

Activity	**2018/Q1-2** Scope: initial requirements and technology enablers	**2018/Q3-4** Scope: final requirements and technology enablers	**2019/Q1-2** Scope: initial architecture	**2019/Q3-4** Scope: final architecture and validations
Electronic communication	Project website updates Social media news	Project website updates Social media news	Project website updates Social media news	Project website updates Social media news
Dissemination materials	Leaflet v1.0 Newsletter #1 Articles to scientific workshops and conferences Questionnaires	Press release #1 Newsletter #2 Articles to, scientific workshops and conferences Questionnaires Project deliverables	Leaflet v2.0 Newsletter #3 Articles to scientific journals	Press release #2 Newsletter #4 Articles to scientific journals Project deliverables
Participation to events	Promote project goals and concept in events organised by others	Project workshop #1* Promote requirements and enabling technologies in events organised by others	Project workshop #2 Promote initial architecture in events organised by others	Project workshop #3 Promote final architecture and validation results in events organised by others

*Tentative end of 2018 or early 2019, depending on the opportunities to co-locate with a suitable event.

3 Exploitation

In this chapter, initial plans for the exploitation of project results are presented. Starting exploitation planning in an early phase enhances the possibilities to successfully utilise the subsequent exploitation opportunities. The following sections cover the general exploitation opportunities for EuWireless results and introduce partner specific plans to further exploit the work done in the project. At the end of the chapter, an exploitation roadmap for 2019 and beyond is presented.

3.1 General exploitation opportunities

The project consortium has identified stakeholder profiles for the potential beneficiaries of the EuWireless infrastructure. In addition, stakeholders benefiting from the project's intermediate results (i.e. requirements, key enabling technologies, architectural designs, etc.) in the form of project reports are included in the list. An example of such beneficiaries are the agencies involved in the decisions making related to the possible implementation of the EuWireless architectural design, which would act as the starting point for the deployment of the project's concept. Table 3 provides a summary of the beneficiary profiles.

Table 3. Profiles of the EuWireless beneficiaries

Profile of beneficiary	**Benefits from EuWireless**
Scientific community working at Universities and research centres	EuWireless provides a cutting-edge facility to validate research ideas without current limitations regarding e.g. the use of regulated spectrum.
Research departments working in industry with activities related societal challenges, e.g. transport, environment, etc.	EuWireless operator entity provides a single point of contact for large-scale trials with vertical sectors. The design phase will also contribute to the planning private deployments and trials before the implementation of EuWireless.
Researchers and SMEs working on products and services for mobile networks	EuWireless infrastructure enables access to large-scale trial environments, which are currently closed to these stakeholders. Currently, limitations are encountered both in terms of the exclusivity of the trials ran by operators in their networks and in terms of economic cost of supporting own full deployments. By providing realistic trial environments to the researchers and smaller industry player, EuWireless accelerates the transfer of technology from the academia to the industry.
Vendors working on hardware and software for mobile networks	EuWireless opens new business opportunities to vendors with integration of equipment in testbeds via research networks and MNO infrastructures.
NREN users and managers	EuWireless enriches the wireless part of NRENs with the support of mobile communication infrastructures.
Commercial MNOs	EuWireless offers new collaboration opportunities with research sector and potentially new business models to exploit

Profile of beneficiary	Benefits from EuWireless
	the MNOs spectrum. The evaluation of the EuWireless solutions for network sharing can open new possibilities also in other domains identified by the EC, e.g. in mission critical communications.
National and EU regulators as policy makers	EuWireless offers to policy makers an access to detailed reports on different regulations in Europe as well as details on how researches could overcome the barriers imposed by these regulations. These reports can be used to raise awareness on regulation problems and/or even to produce new regulations.
Funding agencies managing research infrastructures, e.g. ESFRI, e-Infrastructure Reflection Group (e-IRG), etc.	EuWireless provides a complete design of a new trialling infrastructure including technical, financial, legal, governance and operation details. The final design will be ready for implementation during the next steps in the process of delivering the pan-European infrastructures for research.
Members of Networld2020 European Technology Platform (ETP) and 5G Infrastructure Public Private Partnership (5G-PPP)	In both associations, the provision of trial infrastructures and operations for 5G and beyond is very important and there are several working groups devoted to the trials. Introduction of the EuWireless facility that can potentially increase the size of the trials with vertical sectors is of strategic interest for these communities.
European initiatives supporting research in other fields than telecoms, e.g. the PPPs in big data, security, etc.	In associations focusing on other technology domains than telecommunication, EuWireless offers new solutions to enhance the catalogue of trial platforms as well as interconnection features that can be utilised in future H2020 projects.
International standardisation organisations	Standardisation bodies, such as the 3rd Generation Partnership Project (3GPP), the Institute of Electrical and Electronics Engineers (IEEE), the Internet Engineering Task Force (IETF) and the European Telecommunications Standards Institute (ETSI), could benefit from results of the enabling technology validations performed in EuWireless. The project results can help in the identification of gaps in current technologies and/or in the mitigation of current gaps with innovative uses of the existing technologies. Eventually, EuWireless could provide a test infrastructure to run plugtests/plugfests or other interoperability test events.
Non-European agencies or institutions	EuWireless enables new international collaborations in order to find synergies with similar initiatives and targeting for global research networks, e.g. via International Telecommunication Union (ITU) or Comité International Spécial des Perturbations Radioélectriques (CISPR).

As a joint exploitation opportunity, the project consortium as a whole will explore the funding opportunities to eventually implement the onward steps, i.e. the design of the EuWireless infrastructure. In particular, apart from national and ESFRI calls, the consortium plans to submit proposals to the calls of H2020 Information and Communication Technology (ICT) Work Programme where platforms and trials could be supported.

3.2 Partner specific exploitation plans

Partners have the following individual exploitation plans related to the project results:

- **UMA:** UMA has already collaborated in the area of this project with relevant companies like DEKRA (leader as test house in wireless communications), Keysight Technologies –Agilent Technologies (a reference as vendor of conformance and radio frequency testers for mobile devices), or Alcatel-Lucent and OPTIMI-Ericsson (major European vendors). UMA is also actively sharing the testbed PerformNetworks in the H2020 projects Fed4FIRE+, TRIANGLE and Q4Health. The new solutions generated in the EuWireless project will allow UMA to extend the use of PerformNetworks resources to a field deployment. UMA expects to increase the participation in joint projects with other research institutions, mobile operators and vendors. In particular, EuWireless will position UMA for the new calls for platforms and trials in the 5G part of ICT work programme 2018-2020. UMA is also aware of a real need for experimentation platforms for SMEs and has some experience in the support to experiments selected by Fed4FIRE to be executed in FIRE testbeds. This is a potential and reasonable market to exploit a lab-level tester like PerformNetworks, especially to be used remotely by SMEs. UMA is currently planning a business model supported by the Spanish rules for collaborations among Universities and private sector. As a public University, UMA will take advantage of research to produce scientific publications, to complete new MSc and PhD thesis and to create and improve teaching material.
- **DEKRA:** DEKRA is used to participate, and has already participated, in several collaborative projects in different international consortiums and organisations, like Bluetooth Special Interest Group (SIG), Wi-Fi Alliance, Open Charge Alliance, OPEN SIG Alliance, 3GPP, just to name few ones among many others. In particular, regarding connected car related projects, DEKRA collaborates with ETSI in Special Task Force (STF) S46, STF 405 and STF 398) and the OmniAir Consortium with active participation. DEKRA expects to increase its participation in joint projects related to connected car technologies. In particular, DEKRA expects to become a reference laboratory for the connected car technologies, a key industry target, according to all the available forecasts. Participation in projects like EuWireless will also bring DEKRA the opportunity to get a clearer picture of the technology status and evolution at the standardisation level, so future decisions can be made for the construction and improvement of new DEKRA test capabilities.
- **VTT:** VTT provides research services to industry and public sector, and aims to transfer the developed technology solutions to business. Statistics show that 50% of most demanding innovations in Finland have involved VTT's expertise. VTT has good connections with mobile industry in Finland and in Europe. Participating in EuWireless will improve VTT's competitiveness and competence in the field of future communication networks and specifically within the area of spectrum and infrastructure sharing, including both regulatory and technical aspects. This will enable VTT to offer enhanced solutions for both public and private actors to support their future network operations and development work. As another concrete outcome of the project, VTT's development and testing facilities, such as the 5G Test Network Finland (5GTNF) ecosystem, will be enhanced by incorporating novel

solutions from EuWireless research results. These will include especially enablers for spectrum sharing, network sharing, and increased trust, privacy, and security, allowing for large scale field tests and connecting to other testbeds in Europe. The results of the EuWireless project will also improve the position and scientific expertise of VTT for the 5G PPP Phase 3 projects, where, e.g., the interconnection of European testing activities and facilities is one important target.

- **ISW:** ISW plans to 1) improve existing products by incorporating them into the planned experimental mobile network. The products include software suite for experimentation of 4G/5G radio (5G Experimental Toolset) and virtual Radio Access Network (vRAN) 5G Small Cell Protocols. 2) Verify the planned experimental mobile network from the perspective of a user who designs and implements vRAN protocols and small cell algorithms. 3) Exploit the fact of joining a consortium, which is a complete ecosystem, in order to find business partnerships or even customers for its products, and 4) promote its solutions by referring them to project activities.
- **TL:** As a specialised "niche" law firm, TL is continuously making efforts to maintain its leading position in the area of ICT and electronic communications law. The provision of legal assistance to operators and users of wireless communications is an important market for the firm. EuWireless provides an excellent opportunity for TL to expand its knowledge base on national frequency spectrum allocation policies and procedures in the EU Member States. This expertise will be extremely useful for future EU and national policy support studies and for the participation of the law firm in future R&D actions.
- **NORDU:** NORDU itself does not own the licensed spectrum, nor does it have the financial or logistical elements to deploy even a small scale pilot in a metro area, so the project is of strategic interest. With appropriate visionary and ambitious partners, NORDU can be a strong collaborator to assist in the implementation engineering and initial pilot deployment of a EuWireless integrated architecture, fostering the way to enable the virtualisation of commercial wireless networks within the GÉANT Testbeds Service (GTS) resources.

3.3 Exploitation roadmap

Table 4 presents the project results exploitation roadmap for 2019 and beyond for the EuWireless consortium and each individual partner. The key common goal of the EuWireless consortium is to implement the EuWireless concept and create business, societal and scientific impact. Large joint trials with potential beneficiaries (presented in Section 3.1) will have a critical role when realising this common goal.

The EuWireless industrial partners will utilise the project results in their business development where the ultimate target will be the development of improved and new products and services as presented in Section 3.2. The EuWireless academic and research partners will utilise the project results to increase their technology related scientific competencies, to provide new commercial services to the industry, and to enhance the capabilities and scope of their current local test facilities with EuWireless technologies.

Table 4. Project results exploitation roadmap

Actor	2019	2020	2021	2022 ➔
EuWireless consortium as a whole	Discuss with decision makers (ESFRI, ETSI, operators, etc.) and prepare implementation project proposal.	System implementation and preparations of joint trials with potential project beneficiaries.		Large joint trials with potential project beneficiaries in EU area.
UMA	Increased participation in project proposals. Strengthened scientific knowledge. PerformNetworks development to field deployment and commercial use.		Use PerformNetworks resources into a field deployment. Provide services to industry	
VTT	Increased participation to project proposals. Design of the next generation 5GTNF facility.	Implementation of next generation 5GTNF facility. Increased volume of EuWireless technology related R&D.	Local focused trials inside Finland with potential project beneficiaries.	
DEKRA	Increased participation in project proposals. Identification of field testing needs and methodologies.		Deployment of new services based on testbeds.	
Other industrial partners: ISW, NORDU and TL	Business development; creation of new products and services.		New products and services business ramp-up; production, marketing and sales.	

4 Dissemination

In this chapter, a detailed dissemination plan is defined, in order to carry out the project dissemination in a comprehensive way. Starting dissemination process early and with contents tailored for the targeted audience increases its impact. Providing the key stakeholders with advance notice of what is planned to be published during project execution will strengthen the collaboration links between consortium partners and external target groups. Continuous communication and dissemination will also help to establish and reinforce the connections with potential customers and target markets. For these purposes, the target audience and key messages are defined for the dissemination activities in the following sections together with most important dissemination tools and channels. In addition, partner specific dissemination plans are shortly introduced and timeline for the scheduling of the most critical dissemination activities is defined.

4.1 Objectives

The overall success of the EuWireless will depend on how the project is able to reach ESFRI, national infrastructure funding agencies, testbeds providers and other legal entities operating in the markets of interest. It is of utmost importance that they are informed about the both the planned and realised project outputs, and the potential of the obtained technical results, when the implementation options of new infrastructures for experimental research in mobile communication technologies are discussed on different forums.

Definition of an appropriate dissemination plan is crucial also for the facilitation of technology transfer the market. Therefore, the EuWireless dissemination plan will focus on raising awareness of the novelty of activities and results obtained in the framework of the project. A multi-step and multi-channel dissemination approach is followed in order to reach different target groups with right information adjusted carefully to the audience's level of needs or involvement in the project's topic.

4.2 Target audience and messages

The project will integrate the feedback from potential end users and other stakeholders to its work thanks to periodic open workshops organised by the project as described in Section 2.2. These workshops are meant to be the general EuWireless dissemination channel where all consortium partners come together to disseminate tailored and detailed information towards interested external organisations, researchers and companies (both European and international). In this forum for discussion, the challenges related to technological, societal and organisational aspects of the EuWireless concept can be addressed from all points of view. This is also in line with the project's will to expose all EuWireless concepts, designs and ideas for public scrutiny and a wider discussion interested parties before the concept is finalised. Special attention will be paid when inviting representatives from different organisations to participate in the workshops and online presentations or discussions. As part of the dissemination activities, links will be established with other relevant European projects (see Section 6) and, whenever possible, joint events of common interest can also be organised.

The overall communication, exploitation and dissemination plan of EuWireless is focused towards ensuring large impact on the society, economy, and science. The aim is to create novel business opportunities, strengthen Europe's R&D and confirm potential for leadership of the European academic and industrial sectors in network sharing and optimisation issues.

EuWireless relies on the profound professional experience of partners for dissemination. Dissemination activities during the project can be classified into:

- Internal dissemination: Internal dissemination is especially important for knowledge sharing within EuWireless. The project will use web-based collaborative tool for internal dissemination. All partners will also have to periodically report on their activities related to dissemination activities inside their organisation. In addition, project meetings and specialised internal workshops are an important form of internal dissemination.
- External dissemination: A major expression of external dissemination is the production of public project deliverables. Other public reports are produced in the form of articles in in highly reputed international journals and transactions, presentations at conferences and workshops, and contribution proposals towards standardisation bodies. Partners will use their involvement and status in the research community, in order to have impact in major scientific events by organising panels, tutorials, and special sessions related to the EuWireless topics.

Table 5 shows the target audience groups for the project's dissemination actions and materials, as well as the main objectives related to each group.

Table 5. Target audience groups, main dissemination objectives and activities

Target group	**Main objective**	**Main dissemination activity or material**
Scientific community working at Universities and research centres	To promote the EuWireless technology platform, raise awareness of the concept, gather requirements and explore educational use cases	Scientific publications Presentations Leaflets Questionnaires
Research departments working in industry with activities related societal challenges, e.g. transport, environment, etc.	To promote the EuWireless technology platform, raise awareness of the concept and gather requirements	Other publications Presentations Leaflets Questionnaires
Researchers and SMEs working on products and services for mobile networks	To get requirements and evaluation of the design decisions	Presentations Questionnaires
Vendors working on hardware and software for mobile networks	To get feedback on the market feasibility of the proposed technical solutions	Presentations Discussions/interviews
NREN users and managers	To make visible the new opportunities offered by EuWireless and the role of NRENs community in the exploitation	Presentations Leaflets

Target group	Main objective	Main dissemination activity or material
Commercial MNOs	To engage operators to gather requirements and feedback from their side	Presentations Discussions/interviews
National and EU regulators as policy makers	To explain how the EuWireless model can be implemented if the regulation considers more opportunities to exploit production networks for research	Presentations Project deliverables Discussions/interviews
Funding agencies managing research infrastructures, e.g. ESFRI, e-Infrastructure Reflection Group (e-IRG), etc.	To raise awareness on the need of a platform like EuWireless and to provide material to evaluate the feasibility of its implementation	Presentations Project deliverables
Members of Networld2020 European Technology Platform (ETP) and 5G Infrastructure Public Private Partnership (5G-PPP)	To enhance networking towards international initiatives related to testbeds supporting the evolution towards and beyond 5G	Publications Presentations Contributions to association white papers (UMA and VTT are active members of NetWorld2020 and 5G-PPP WGs)
European initiatives supporting research in other fields than telecoms, e.g. the PPPs in big data, security, etc.	To promote EuWireless platform as a way of providing validation at scale for different research programs	Presentations Leaflets Discussions/interviews
International standardisation organisations	To provide information to all relevant international organisations supporting or aiding the deployment of technology enablers studied in EuWireless	Presentations Project deliverables Discussions/interviews
Non-European agencies or institutions	To promote cooperation and to ensure alignment with other international initiatives	Presentations Discussions/interviews

4.3 Tools and channels

Communicating work in progress is an efficient way to disseminate information related to most recent project findings and to help stimulate ongoing interest towards the project's work. In this context, the usual strategies used in R&D project dissemination activities are utilised with selected dissemination tools and channels:

- **Project website** provides information about the project developments in multiple formats tailored to the interest of the different groups of stakeholders. It will contain general information about the project, news about the latest results, project newsletters, public project deliverables, list and links (when possible) to other publications generated by the project, and demonstrative contents (e.g. videos) showing the operation of the developed solutions. This will allow ESFRI and other funding agencies as well as testbed providers and researchers to monitor the progress of the project from a single information source.
- Attendance to **conferences, congresses, industrial fairs, exhibitions and commercial meetings** related to the project topics, where dissemination will be done with presentations, leaflets and demos. The key stakeholder groups of the project will be reached through participation in academic and industrial conferences. In addition, workshops, showrooms and events directed to the public administrations as well as other European and international events where the partners participate can be considered. These events provide the best venue, where potential users of the EuWireless project results can be contacted face-to-face.
- **Publications** including scientific papers and specialised articles in well-known peer review journals and magazines of international recognition.
- General dissemination of news and press releases will be performed though local, national and European **mass media** to highlight the results of the project.

4.4 Partner specific activities

All partners will actively collaborate and contribute to internal and external dissemination activities:

- **UMA:** The purpose of dissemination is threefold: (1) to raise the interest in the scientific community, interest groups, independent experts and academia; (2) to seek alliances between industrial agents, so that they can access the developed technology and inherent knowledge and apply it in their sector, and (3) to promote excellence in both teaching and research, educate and enlighten students to attract new students/graduated/researchers with relevant and interesting courses, as motor of sustenance of the R&D partners. UMA will focus the dissemination activities to the research community. However, UMA will also be active in leading the contacts with other target groups as project coordinator. UMA will address the dissemination in the research community in wireless/mobile networks. The expected impact of these activities includes:
    - Better knowledge of advanced alternatives for interconnecting wireless/mobile resources to create testbeds in Europe (and in other parts).
    - Increasing visibility of UMA activities and resources in 5G-PPP, Future Internet Research and Experimentation (FIRE) and other communities that will make possible further collaboration.
    - Increasing visibility of UMA as a potential service provider for innovative SMEs in the field of optimised services for 4G/5G networks.

    - Increasing the potential of UMA to create and to improve master and doctoral level teaching activities in the field of mobile communications.
    - Establishing contacts with mobile operators and regulators in the way to make it possible the use of production networks for research.
- **DEKRA:** The purpose of dissemination is threefold: (1) to inform the industry in general, and the potential customers in particular, about the new standardisation, and eventually regulation, scenarios and requirements regarding the connected car technologies; (2) to seek alliances and collaborations with standardisation organisations; in the continuously evolving scenario of connected car and Intelligent Transport System (ITS) technologies, it is necessary to be aware of the latest changes and decisions regarding the standards and regulations; (3) to raise the interest of students, researchers and governments in the cutting edge connected car technologies; it is worldwide accepted that connected car technologies will lead the automotive industry to a new transport paradigm. To tackle the dissemination necessity, DEKRA proposes the following actions:
    - To include updated information in DEKRA website.
    - To organise specific webinars oriented to potential customers.
    - DEKRA could eventually participate in some publications.
- **VTT:** The results of EuWireless will be published in various scientific forums in the form of conference, journal, and white papers. The visibility of the project and the collaborative European test network development efforts in general are also supported with active participation to key conferences, workshops and industry events in the field. Joint publishing with partners having common interests is considered a significant added value. Besides acting as an efficient tool for dissemination and providing visibility for EuWireless and VTT, the publications are also intended to support the on-going and coming PhD works of VTT's project personnel. The expected impact of the dissemination activities in general include increasing the knowledge at VTT on spectrum sharing, infrastructure sharing and testbed interconnection practices in Europe, and strengthening VTT's position in 5G-PPP and other communities.
- **ISW:** ISW plans to disseminate the outcome of the project through its regular commercial processes, such as Marketing and Sales. The company will especially be looking for alliances with MNOs and telco vendors (of equipment and software), to try to synergize the product development (e.g. vRAN and 4G/5G network simulation and probing as a service) with the long-term vision of expanding and unifying the "research toolset" for large-scale wireless experiments and vRAN early adopters. Such approach will help enhancing existing and build new competitive products / their features. Besides this, ISW is present at key scientific conferences and industrial fairs where it aims at regular promotion of the project results.
- **TL:** TL will present the result of the study on the national spectrum policies and regulations of the 28 EU Member States in the form of an interactive website. The analysis and assessment of the overview report, as well as the legal framework for the EuWireless "umbrella" will be presented in a publication for a specialised legal journal (e.g. Telecommunications Policy) and in at least two presentations for international conferences.
- **NORDU:** NORDU staff work with their collaborators to publish and present the results of this project at research conferences and in associated research and industry journals. The target design of the EuWireless program - such as field deployments or real world pilots - will be predicated.

4.5 Timeline and priorities

EuWireless key dissemination activities and content is synchronised to project progress and milestones. Table 6 presents these activities during project execution time.

During 2018, the focus is on the collection of feedback to EuWireless system requirements and dissemination of the system concept and initial architecture. During 2019, refined architecture definition, key enabling technologies, validation results and EuWireless benefits to different dissemination target groups have higher priority. In order to enable EuWireless concept implementation and create maximal business, scientific and societal impact, dissemination of key results to funding agencies, regulators and commercial MNOs have the highest priority.

Table 6. Planned timeline and key dissemination materials

Disseminated information	**2018/Q1-2** Scope: initial requirements and technology enablers	**2018/Q3-4** Scope: final requirements and technology enablers	**2019/Q1-2** Scope: initial architecture	**2019/Q3-4** Scope: final architecture and validations
Technical	Questionnaires Discussions / interviews	Questionnaires Discussions / interviews Contributions to association white papers	Scientific publications (architecture design and components) Project deliverables Presentations Discussions / interviews Contributions to association white papers	Scientific publications (final architecture and validation results) Project deliverables Presentations Discussions / interviews Contributions to association white papers
Non-technical	Scientific publications (project concept and goals) Project deliverables Presentations Leaflets Questionnaires Discussions / interviews	Scientific publications (requirements and regulation) Project deliverables Presentations Leaflets Questionnaires Discussions / interviews	Presentations Leaflets	Presentations Leaflets

5 Standardisation

In this chapter, an initial list of relevant standardisation bodies, working groups and study items to follow during EuWireless project execution is presented. As the technical details of the project concept and EuWireless architecture evolve, additional items may be added to the list. However, this is expected to happen mainly around individual technical enablers and validation use cases that become part of the overall design during the project. In addition, the project will seek targets for possible standard contributions based on the project results and gap analysis on the current standardisation efforts.

5.1 Standardisation efforts to be followed

From the beginning of the project, the EuWireless consortium members will pay close attention to following standardisation bodies, working groups and study items:

- Network Functions Virtualisation (NFV) ETSI Industry Specification Group (ISG): NFV ISG develops the required standards for NFV and shares experiences on best practises related to NFV implementation and testing.
- 3GPP Technical Specification Group Service and System Aspects (TSG SA) Working Group 1 (WG1), Services: TSG SA WG1, Services is in charge of the specification of Stage 1 features, services and service capabilities, as well as the identification of requirements to support service operation, service interworking and service interoperability between networks.
- 3GPP TSG SA Working Group 2 (WG2), Architecture: TSG SA WG2, Architecture is in charge of developing the Stage 2 of the 3GPP network. Based on the services requirements elaborated by WG1, WG2 identifies the main functions and entities of the network, and how these entities are linked to each other and the information they exchange.
- 3GPP TSG SA, Working Group 5 (WG5), Telecom Management: TSG SA WG5, Telecom Management specifies the requirements, architecture and solutions for provisioning, management and orchestration of the overall network and its services. Network policy management and measurement of the experienced service quality are also topics covered in the group. WG5 defines charging solutions in alignment with other relevant WGs, and specifies the architecture and protocols for charging of the network and its services.
- 5G-PPP Trials WG: Develops the European Trial Roadmap based on the 5G Manifesto. Trials WG facilitates the involvement of verticals in the trials roadmap as well as discusses and defines business principles underpinning the economic viability of the trials. It also considers and coordinates the European trials activity with other relevant initiatives at international level (e.g. proposal from China Mobile), and investigates and proposes how to link trials to Horizon 2020 5G PPP Phase 3 in order to get funding for parts of the overall trial roadmap.
- ITU Radiocommunication Sector (ITU-R) and European Conference of Postal and Telecommunications Administrations (CEPT): The regulation groups discussing spectrum sharing will be followed.

5.2 Potential targets for contributions

As the project progresses, standardisation bodies, working groups and study items identified as potential targets for EuWireless contributions will be searched. Continuous following of the key standardisation groups will serve two purposes in EuWireless. First, the consortium is kept up-to-date what kind of technical enablers are already part of the latest standard publications or coming

into the next standard versions. Second, the consortium can identify functionalities that are currently missing from the standardisation discussions, but which would benefit the future deployment and operation of the EuWireless infrastructure. Consequently, the selection of potential contribution targets will be based on the functional, operational and technical requirements of the EuWireless concept, as well as on a gap analysis performed to the current standardisation efforts initially listed in Section 5.1.

Another area, where potential targets for standard contributions can be found, are the groups working on specifications related to different vertical industry domains. In the context of the project's connected cars validation use case, the following target groups have been selected:

- OmniAir Consortium is a leading industry association promoting interoperability and certification for connected vehicles, ITS, and transportation payment systems. OmniAir's membership includes public agencies, private companies, research institutions, and independent test labs. DEKRA participates in the Technical, Certification and Cybersecurity working groups.
- 5G Automotive Association (5GAA) working groups develop the frameworks, practical aspects, required standards, and business cases for 5G and the future application of connected mobility solutions. DEKRA is a member of 5G-AA and participates in various working groups.

6 Project liaisons

In this chapter, initial lists of relevant organisations for networking as well as the key national and international projects to cooperate with are presented. From EuWireless point of view, networking towards different associations and organisations working in the field of telecommunications are in key role when awareness of the project concept is wanted to be increased. In addition, direct collaboration with other projects and testbed initiatives will enhance the trialling possibilities during the project and open new cooperation possibilities when entering the implementation phase of the EuWireless infrastructure.

6.1 Organisations for networking

The EuWireless consortium will do networking activities at least within the following organisations:

- 5G PPP and 5G Infrastructure Association (5G IA) - https://5g-ppp.eu/
- Global System for Mobile Communications Association (GSMA) - https://www.gsma.com/
- Internet Society (ISOC) - https://www.internetsociety.org/
- NetWorld2020 ETP - https://www.networld2020.eu/
- RedIris - https://www.rediris.es/

In practise, networking is implemented by inviting above organisations members to the EuWireless workshops or/and participating to their meetings and workshops as much as possible.

6.2 National and international projects and other initiatives

The EuWireless consortium plans to do cooperation at least with the following national and international projects and testbed initiatives:

- 5GCAR - https://5gcar.eu
- 5G ESSENCE - http://www.5g-essence-h2020.eu/
- 5G Test Network Finland - www.5gtnf.fi
- 5G-SAFE - http://5gsafe.fmi.fi/
- CLEAR 5G - http://clear5g.eu/
- EXTREMETestbed - http://networks.cttc.es/mobile-networks/extreme_testbed/
- FED4FIRE+ - https://www.fed4fire.eu/
- Global 5G - http://www.global5g.org/
- MONROE - https://www.monroe-project.eu/
- SILECS - http://www.silecs.net/

In practise, cooperation includes discussions in EuWireless workshops, participation to project seminars/workshops, utilisation of the projects public deliverables for information sharing.

7 Conclusion

This deliverable introduced the EuWireless project's communication, exploitation and dissemination plan for 2018-2019. In addition to the overall strategy for these activities, the document presented the most important tools, target audiences and schedules for the execution of the work. Initial targets for contributions and collaboration in standardisation and project liaisons were also listed. However, these lists are expected to evolve as the project work and the discussions towards potential collaboration organisations and initiatives progress.

Deliverable "D4.3 - Communication, exploitation and dissemination - Final report" (due December 2019), will summarise and analyse the main achievements of the communication, exploitation and dissemination work in the end of the project. D4.3 will also compare the achieved results to the plan presented in this deliverable and introduces the updates, if refinements to the original plan are performed during the execution of the project work.