



Research and Innovation Action

Flex5Gware

Flexible and efficient hardware/software platforms for
5G network elements and devices

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WP7 – Dissemination, standardisation, and exploitation

D7.1 - Flex5Gware communication and dissemination plan

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Executive Summary

This document presents Flex5Gware's Communication and Dissemination Plan. The latter evolves from the one presented in the Description of Work originally submitted to the EC, and lays down in a more formal way: i) the methodology to be followed in this consortium's dissemination actions, and ii) the actions to be taken in order to maximize the impact of Flex5GWare results.

We first identify the stages and associated tasks that compose the dissemination plan. This allows this consortium to define a consistent, formal approach to communication and dissemination, and to possess a coherent view of who is the responsible of which activity.

As far as the actions to maximize impact are concerned, we first identify our *groups of interest* and investigate what to communicate – and how – at what stage of the project completion. We then discuss key principles regarding our communication activities (e.g., use of the project name and logo, procedures for project-related scientific publications) and appoint roles related to the communication and dissemination process. Then, we categorise and analyse all dissemination activities as for costs and benefits, and lay down a preliminary list of events that we believe to be in the interest of the consortium members to attend, and scientific publication venues that the consortium intends to address.

We then recall the procedures for internal coordination formalized in both the DoW and subsequent IR8.1 "Flex5Gware Management Handbook, and provide quantitative targets to measure the effectiveness of Flex5Gware dissemination against. Finally, we outline a brief report of the dissemination activities carried out so far, i.e., in the first quarter of the project duration.



Table of Contents

1. Introduction	7
1.1 Communication and dissemination methodology	7
1.2 Plan design and definition	7
1.2.1 Setting goals	7
1.2.2 Identifying and profiling the audience	8
1.2.3 Defining messages	8
1.2.4 Selecting and evaluating communication channels	9
1.2.5 Partnership model	20
1.2.6 Identifying activities and roles	21
1.3 Plan approval	22
1.4 Plan execution	22
1.4.1 Carrying out activities	22
1.4.2 Obtaining feedback and evaluating results	22
1.5 Internal coordination	22
2. Communication and dissemination plan	24
2.1 Objectives	24
2.2 Audience profiling and message timing	24
2.3 Overview of communication activities	27
2.3.1 Meetings with groups of interest:	29
2.3.2 Attending events	30
2.3.3 Attending events as visitors	32
2.3.4 Organizing Symposia	32
2.3.5 Participating in symposia organised by third parties	33
2.3.6 Organising seminars	33
2.3.7 Participating in seminars organised by third parties	34
2.3.8 Organising demonstration workshops	35
2.3.9 Maintaining the project's website	35
2.3.10 Press releases	36
2.3.11 Contributing to and advertising on professional publications and web portals	36
2.4 Dissemination feedback and evaluation	38
2.5 Internal coordination	39
2.6 Updates to the communication and dissemination plan	40
3. Conclusions	41
4. Annex I – Flex5Gware website	42



1. Introduction

1.1 Communication and dissemination methodology

The tasks which make up Flex5Gware's Communication and Dissemination Plan are depicted in Figure 1-1 and described in more detail in the rest of this Section. These compose three main phases:

- **Plan design and definition:** the initial definition of the Communication and Dissemination Plan
- **Plan approval:** the formal approval of the Communication and Dissemination Plan by the consortium
- **Plan execution:** the actual carrying out of the plan as defined and approved by the consortium

While – on one hand – the three phases can be expected to be consecutive in time, a certain amount of feedback from the execution to the design phase can be expected, so that the initial plan can be enhanced and upgraded to the changing circumstances and scenario.

Internal coordination is necessary, regulated by sound management procedures, and underlying all the Communication and Dissemination activities of the consortium.

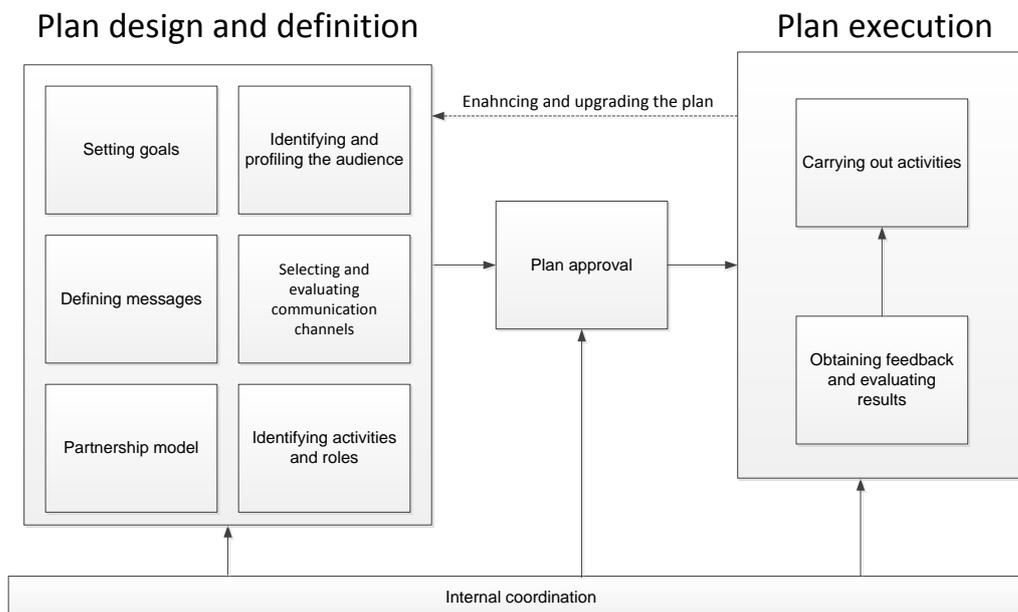


Figure 1-1: Outline of Flex5Gware tasks with respect to Communication and Dissemination

1.2 Plan design and definition

1.2.1 Setting goals

One of the main goals of this project is to disseminate knowledge and to create the premises for the industrial beneficiaries to exploit the project results. The Flex5Gware consortium will develop highly reconfigurable HW platforms together with HW-agnostic SW platforms targeting both network elements and devices, taking into account increased capacity,



reduced energy footprint, as well as scalability and modularity, to enable a smooth transition from 4G mobile wireless systems to 5G. The main beneficiaries of the above technology are the research community, the telecom/network operators and equipment manufacturers, and application software developers. While the research community can be reached through dedicated publications and conferences, the path to the operators, manufacturers and software developers goes through telecom conferences (i.e. IBC conferences, etc.), workshops, industry forums, standardization bodies.

1.2.2 Identifying and profiling the audience

A fundamental step is to identify and profile the audience that our communication and dissemination activities should address.

An audience is composed of *groups of interest*, i.e., groups of individuals that have an interest into or are going to be affected by Flex5Gware's initiative. Within these groups of interest one may find, employees, executives, managers, business units, allies, project teams from companies belonging to the Flex5Gware's consortium, suppliers of the group of interest in question, clients of the group of interest in question, etc.

Groups of interest can be categorized as follows:

- Flex5Gware's **primary groups of interest** are those whose knowledge, attitudes or behaviour must be changed in order to meet Flex5Gware's goals. They have the potential to become Flex5Gware clients and primary partners.
- Flex5Gware's **secondary groups of interest** are all others who are affected if Flex5Gware's initiative succeeds in its goals.
- Flex5Gware's **tertiary groups of interest** are those who can influence primary and secondary groups of interest.

1.2.3 Defining messages

Communications is achieved by delivering *messages*. These messages are effective if they deliver important information about the issue and compel the targeted audience to think, feel or act, hence they should be geared to sever to the project's goal and objectives. Messages can point out the importance, urgency, magnitude or relevance of the issue being discussed. Moreover, they can put a "face" on the issue being discussed, i.e., associate a tangible, personified target to it.

Messages must convey key information associated to Flex5Gware's initiative. They should be designed taking into account the different groups of interest identified. Messages should become the underlying themes for the project's materials and activities, and possibly generate slogans based on them. Messages should help developing sets of talking points that members of the consortium can exploit in their presentations. They should suggest topics for fact sheets, drop-in articles, white papers, and letters to the editor or newspaper editorials.

Message should be designed according to the intended *audience*, the *channel* they should be sent through, and their *purpose*. Information may be designed to convey new facts, alter attitudes, change behaviour, or encourage participation in decision-making.



Some of the above purposes overlap, and can be seen as progressive steps towards a final goal. In fact, groups of interest must first receive information, then understand it, believe it, agree with it, and then act upon it.

Among the factors that are relevant to determine how a group of interest will accept a message we can find:

- **Clarity:** Messages must convey information clearly so as to ensure the understanding by the group of interest and to limit the chances for misunderstandings. A clear message contains few technical, scientific or bureaucratic terms, and never conveys unnecessary information. The main points should be stressed, repeated, and never hidden within less strategically important information.
- **Consistency:** Especially when new information is made available (such as the findings of the Flex5Gware project), consensus must be reached on the meaning of the findings, even among experts. Consistency must then be sought after to ensure communication success.
- **Tone and appeal:** depending upon the desired impact and the target audience, messages can be designed to be reassuring, alarming, challenging, or straightforward. However, messages should always be truthful, honest and as complete as possible.
- **Credibility** comes from the trustworthiness and professional stance of the spokesperson or source of information.
- **Audience needs:** messages can only break through the information clutter if they are based on what the *target audience* (as opposed to the originating agency) perceives as most important to them.

Before being issued to the general public, messages should be tested with special “test” audiences to assure that they are properly understood and to analyse the audience reaction.

For each of the groups of interest identified, the following questions should be analysed:

- What are the barriers and benefits to the audience thinking, feeling, or acting on Flex5Gware’s initiative?
- What changes in attitude does the consortium wish to promote in the audience to advance the project’s goal?
- What changes in the behaviour (day-to-day actions) of the audience is the consortium trying to achieve?

1.2.4 Selecting and evaluating communication channels

Communications channels are used to carry a message to a target audience. There are many channels, and selecting among them is not always straightforward. A guide towards selecting the most effective channel is given by the following questions:

- Where or from whom does this audience get its information? Who do they find credible?



- Where does this audience spend most of its time? Where are they most likely to pay attention to the messages being communicated by the consortium?

All channels possess different strengths and weaknesses, so it is essential to select the most appropriate ones. These may depend upon the content itself of the message being communicated (for instance, sensitive aspects are better communicated person-to-person) or the timing associated with it.

Two categories of communication channels can be used for Flex5Gware's dissemination process:

- Oral channels: Symposiums, seminars, workshops, etc.
- Written channels: Website, contributions to professional publications, etc.

The analysis of the communication channels to be used within the dissemination phase of the project is carried out according to the following characteristics:

- **Category:** either oral or written communication.
- **Size of group of interest:** An estimation of the number of persons that can be reached with the communication channel.
 - Large: Above 50 people.
 - Moderate: Between 15 and 50 people.
 - Small: Below 15 people.
- **Cost:** An estimation of the economic resources required for the channel (excluding human resources costs and travelling costs which might be required). The following scale is used:
 - High: Above 6.000€.
 - Moderate: Between 1.000€ and 6.000€.
 - Low: Below 1.000€.
- **Preparation time:** The approximate time required to prepare the action associated with the communication channel:
 - High: More than 2 days.
 - Moderate: Between 1 and 2 days.
 - Low: Less than 1 day.
- **Execution time:** The approximate time elapsed from the beginning of the action associated with the communication channel until it is deemed as having been completed:



- High: More than 3 days.
- Moderate: Between 3 hours and 3 days.
- Low: Less than 3 hours.
- Strengths: Main advantages of the communication channel.
- Weaknesses: Main disadvantages of the communication channel.
- Observations: Issues which are important to bear in mind with respect to the communication channel.

The consortium needs to acknowledge that individuals may react differently at different times to different messages, and that it is often the case that not all information is understood (hence retained) by the audience. For these reasons, communication channels can and should be used to re-iterate the key messages, so as to maximize the chance that information is made available at the right time to the right audience.

The different communication channels to be used within the dissemination phase of the project are described and analysed below, as a memorandum to and future reference for the consortium partners:

1.2.4.1 Formal face-to-face

- Category: Oral communication.
- Size of group of interest: Small.
- Cost: Low.
- Preparation time: Low.
- Execution time: Low.
- Strengths:
 - Personal.
 - Immediate feedback.
 - Low probability of misunderstandings.
 - High involvement.
- Weaknesses:
 - Planning required.
 - Logistics required.
- Observations:



- Good impact due to personal contact.
- To be used jointly with other channel(s) to reinforce communication.
- It is expected to be used extensively throughout the dissemination phase.

1.2.4.2 Informal face-to-face

- Category: Oral communication.
- Size of group of interest: Small.
- Cost: Low.
- Preparation time: Low.
- Execution time: Low.
- Strengths:
 - Personal.
 - Immediate feedback.
- Weaknesses:
 - Possibility of distorted messages.
 - Underestimation of the importance of messages by the recipient.
- Observations:
 - Quick and a good first-contact alternative.
 - Good impact due to the personal contact.
 - To be used jointly with other channel(s) to reinforce communication.
 - Not suitable to communicate sensitive information due to its informal nature.

1.2.4.3 Small meetings

- Category: Oral communication.
- Size of group of interest: Small.
- Cost: Low.
- Preparation time: Low or moderate.
- Execution time: Low.
- Strengths:



- Personal.
- Immediate feedback.
- Low probability of misunderstandings.
- High involvement.
- Weaknesses:
 - Planning and logistics required.
 - Attendance problems.
- Observations:
 - Usually includes professionals from two companies.
 - It encourages teamwork between the two parties.
 - They can be very effective if correctly executed.
 - They might be perceived as uninteresting and excessively time-consuming by some attendants, hence avoided.

1.2.4.4 Large meetings

- Category: Oral communication.
- Size of group of interest: Moderate.
- Cost: Low.
- Preparation time: Low or moderate.
- Execution time: Low.
- Strengths:
 - Creates interest.
 - Captures the audience.
- Weaknesses:
 - Significant planning and logistics required.
 - Attendance problems.
- Observations:
 - Usually includes professionals from several companies.



- It encourages teamwork between the parties involved.
- Good for putting out short messages without having to make decisions.

1.2.4.5 Events (as exhibitors)

- Category: Oral and written communication.
- Size of group of interest: High.
- Cost: High.
- Preparation time: High.
- Execution time: Moderate.
- Strengths:
 - Large audiences can be easily reached, most of which are going to be made up of individuals belonging to groups of interest, especially if these events are geared towards professionals from specific sectors of interest.
- Weaknesses:
 - Significant planning required.
 - Very significant preparation required.
 - Very high cost of execution (if booth is to be eye-catching).
- Observations:
 - Their real return-on-investment potential must be studied very carefully.
 - Possibility to sponsor the event.
 - Possibility to hand out promotional items and giveaways.

1.2.4.6 Events (as visitors)

- Category: Oral communication.
- Size of group of interest: Large.
- Cost: Low.
- Preparation time: Low.
- Execution time: Moderate.
- Strengths:



- A large number of individuals belonging to groups of interest can be reached in person, especially if these events are geared towards professionals from specific sectors of interest.
- Immediate feedback.
- Weaknesses:
 - Planning and logistics required.
- Observations:
 - It has good impact due to the personal contact.
 - It should be used jointly with other channel(s) to reinforce communication.
 - It is expected to be used extensively throughout the dissemination phase.

1.2.4.7 Symposia and conferences (as presenter)

- Category: Oral communication.
- Size of group of interest: Moderate.
- Cost: Moderate.
- Preparation time: Moderate.
- Execution time: Low.
- Strengths:
 - Creates interest.
 - Captures the audience.
- Weaknesses:
 - Significant planning required.
 - Significant preparation required.
- Observations:
 - A principal means of scientific dissemination
 - These are openly discursive events.
 - They may be organised by the Flex5Gware consortium or by a third parties (in which case there exists the possibility of sponsoring the event).



1.2.4.8 Seminars

- Category: Oral communication.
- Size of group of interest: Moderate.
- Cost: Moderate.
- Preparation time: Low or moderate.
- Execution time: Low.
- Strengths:
 - Low probability of misunderstandings.
 - High involvement.
- Weaknesses:
 - Significant planning required.
 - Significant preparation required.
- Observations:
 - These are participation-based events.
 - They may be organised by the Flex5Gware consortium or by a third parties (in which case there exists the possibility of sponsoring the event).
 - They may be conventional or online.

1.2.4.9 Workshops

- Category: Oral communication.
- Size of group of interest: Moderate.
- Cost: Moderate.
- Preparation time: Low or moderate.
- Execution time: Moderate.
- Strengths:
 - Immediate feedback.
 - Low probability of misunderstandings.
 - High involvement.



- Weaknesses:

- Significant planning and logistics required.
- Attendance problems.
- Cost of execution.

- Observations:

- These are demonstration-based events
- They shall be organised by the Flex5Gware consortium.
- They have good impact due to the personal contact.

1.2.4.10 Website

- Category: Written communication.

- Size of group of interest: Large.

- Cost: Low at first, and eventually high.

- Preparation time: High.

- Execution time: High.

- Strengths:

- Large audiences can be easily reached.
- Can be made to be eye-catching.
- Can include all the information required (whatever the volume).
- The website can be segmented so that different groups of interest can access only the information relevant to them.
- Interactive and dynamic.

- Weaknesses:

- Risk of information overload: the audience may feel overwhelmed if too much information is available.
- Requires specific skills to make it effective (especially in the field of usability).

- Observations:

- Very powerful tool if used to its maximum potential.



- Search-engine results positioning optimisation should be looked into.
- Enables the implementation of other functionalities such as forums, RSS news services, etc.
- Enables the possibility to be creative.
- Annex I of the present document describes Flex5Gware's website.

1.2.4.11 News releases

- Category: Written communication.
- Size of group of interest: Moderate or large.
- Cost: Low.
- Preparation time: Low.
- Execution time: Low.
- Strengths:
 - Large audiences can be easily reached.
 - Can be made to be eye-catching.
- Weaknesses:
 - May get lost in the information clutter.
 - May be ignored by a significant proportion of the audience.
 - Can only convey limited information.
- Observations:
 - Not periodic (released whenever required).
 - Used to inform of an important and very specific issue.

1.2.4.12 Professional publications and web portals (through contributions)

- Category: Written communication.
- Size of group of interest: Large.
- Cost: Low.
- Preparation time: Low or moderate.
- Execution time: Low.



- Strengths:
 - Large and specific audiences (segmented by specific sectors) can be reached.
- Weaknesses:
 - Can only convey limited information.
 - May get lost among all other information included within the publication or web portal in question.
- Observations:
 - Articles in scientific journals constitute a principal means of scientific dissemination
 - May target specific sectors.
 - May consist of scientific articles, newspaper columns, letters to the editor, etc.

1.2.4.13 Professional publications and web portals (through advertisement)

- Category: Written communication.
- Size of group of interest: Large.
- Cost: Low, medium or high, depending upon type of advert selected.
- Preparation time: Low or moderate.
- Execution time: Low.
- Strengths:
 - Large and specific audiences (segmented by specific sectors) can be reached.
- Weaknesses:
 - Can be expensive.
 - Can only convey limited information.
 - May get lost among all other information included within the publication or web portal in question.
- Observations:
 - May target specific sectors.
 - Enables the possibility to be creative.



1.2.4.14 Standardization bodies (through contribution to standards)

- Category: Written communication.
- Size of group of interest: Large.
- Cost: High.
- Preparation time: High.
- Execution time: High.
- Strengths:
 - Large and specific audiences (segmented by specific sectors) can be reached.
 - Large impact on industry.
- Weaknesses:
 - A great deal of preparation time is required, for drafting the contributions and reviewing the standard draft, implying a high person-month cost
 - A high number of meetings has to be attended, requesting a significant travel budget.
- Observations:
 - Standardization can reinforce European industry potential to create market opportunities by making Flex5Gware's technology ubiquitous and thus even more affordable and widely deployed.

Due to the dynamic nature of this Communication and Dissemination Plan, the communication channels listed above may be complemented with or replaced by others according to specific needs that the consortium might identify throughout the dissemination phase of the project.

1.2.5 Partnership model

Groups and organizations may exist that could advance the progress of the consortium towards its goals by providing funds, expertise, support, or other resources.

When designing a partnership, one should:

- Determine the needs for each particular type of partnership.
- Design a comprehensive partner program (or at least the part associated with communication) to account for each type of partnership identified.
- Identify of potential allies and partners associated with each group of interest within the influence area of each consortium member.
- Identify the correct contact within each partner.



- Identify allies and partners who already support or work with each group of interest within the influence area of each consortium partner.

1.2.6 Identifying activities and roles

In order to define which activities will carry the message to the intended audiences most effectively, one must take into account the following issues:

- Appropriateness to audience, goal, and message.
- Relevance to desired outcomes.
- Appropriateness to initiative development stage (pre-launch, launch or post-launch).
- Timing and frequency.
- Costs and resources.
- Climate of marketplace towards the initiative.
- Cultural appropriateness (including language).
- Environment - geographic considerations.

Moreover, *roles* must be identified so that the responsibilities for the activities are clear:

- **Sponsor:** The person or group which promote that specific communication activity. It is preferable that the activity being sponsored falls into the area of influence of the person or group in question.
- **Coordinator:** The person or group which are responsible for the Communication and Dissemination Plan as a whole, hence coordinate all communication activities.
- **Developer:** The person or group which is directly involved into the specific activity, and provides (e.g.) all the required supporting material for the latter.
- **Supervisor:** The person or group that supervise all communication and dissemination activities. It is their responsibility to ensure that all the above activities are appropriate and effective.

Last, but not least, resources should be assigned to the activities. These include both budget and estimated staffing, as well as physical resources, etc. In order to do this, a good practice is to first lay down the complete list of all activities, taking into account their frequency (if applicable), break each of them down into steps, and estimate the required resources for all the steps. In doing this, a timing plan can also be designed, by working backward starting from the execution date of the activity.



1.3 Plan approval

Once the design of the Communication and Dissemination plan has been completed, the latter should receive official approval by the consortium. The above approval should be reiterated for possible future revised versions of the plan itself.

1.4 Plan execution

1.4.1 Carrying out activities

The plan execution phase is the most visible one, and consists in carrying out the activities designed and approved by the consortium.

All the consortium partners are expected to contribute to this phase, leveraging the partnership model that supports the communication strategy, so as to enhance the visibility of the project results.

1.4.2 Obtaining feedback and evaluating results

Dissemination and communication are subject to feedback, and their effectiveness must be evaluated. The feedback and evaluation process must take into account the following issues:

- **Mechanisms:** how is feedback conveyed?
- **Timing:** when is feedback conveyed, and – mostly – when it is analysed and acted upon.
- Reviewing the **strengths and weaknesses** of the Plan progressively, and acting upon them.
- Creating and implementing **new approaches for success**.
- If needed, consulting with communications technical assistance advisors.

Relevant changes identified at these stages will need to be assessed and approved by the whole consortium, whereas minor changes at one particular communication activity should be dealt with by the parties involved with the activity in question, and if appropriate, communicated to the consortium by the WP7 coordinator.

1.5 Internal coordination

Internal coordination underlies all the communication activities. More in detail, this task includes:

- Managing the **plan design and definition** stage
- Generating the present deliverable
- Coordinating all the internal feedback on the contents of the present document
- Managing the **plan approval** stage
- Coordinating the **plan execution** stage



-
- Continuously enhancing and upgrading the Communication and Dissemination plan based on the received feedback and the changing environment.

Internal coordination relies on *proactive* feedback – regarding communication and dissemination issues – from the Flex5Gware consortium partners. Partners should share knowledge, results and experiences in the dissemination activities as well, in order to maximize the impact of the project.



2. Communication and dissemination plan

2.1 Objectives

This Communication and Dissemination Plan serves many purposes: on one hand, it is the foundation to build awareness of the project, communicating its concept and expected benefits to the interested shareholders. Moreover, by achieving the latter, it should help build a wide network of potential users of the Flex5Gware results.

The present plan evolves with respect to the baseline defined by the project's Description of Work document (see Section 2, "Impact"), which addresses:

- The project's mission, main benefits and goals.
- A preliminary assessment of the possible beneficiaries of Flex5Gware's technology and the expected impact on their activities.
- A preliminary list of communication and dissemination activities by the partners, including numerical targets per activity.

In addition to what is written in the DoW, the present Communication and Dissemination Plan includes the following elements:

- Audience profiling and message timing, to identify who is to be targeted, and saying what at what stage in the project.
- A set of policies for communication activities, involving publication of the project results and the identification of roles.
- A preliminary analysis of the possible communication channels, including a list of events and publication venues to be considered by the consortium for dissemination activities.
- An analysis of possible feedback techniques.
- A summary of the procedures for internal coordination
- An update regarding the dissemination activities carried out so far (i.e., in the first quarter of the project) and planned for the future.

2.2 Audience profiling and message timing

The groups of interest are made up of organisations (and in some cases individuals) that have an interest on or are going to be affected by Flex5Gware's initiative, and whose individual members can be assumed to possess similar knowledge, attitudes and behaviours with respect to Flex5Gware.

Flex5Gware's groups of interest are identified below.

1. Industry

- Flex5Gware activities and results will interest a wide range of industries, which either have ICT as their core business or do exploit cutting-edge ICT. Among the first ones, mobile telecom operators, network service providers,



application software developers, network equipment manufacturers, etc.. Among the second ones, automotive, utilities, transport, healthcare, security, etc..

2. Universities and research groups

- Flex5Gware activities and progress are a contribution to technology progress, of clear interest for the European research, in a strategic area targeted by the H2020 programme.

3. Regulation authorities

- The Flex5Gware project will forge links with the regulation authorities to identify and work with them to overcome potential regulatory barriers for system adoption and deployment, including regulatory e.g. with respect to anticipated spectrum allocations, since Flex5Gware targets to deliver multi-RAT solutions and to exploit new bands including mmWave.

4. Other projects and initiatives:

- The Flex5Gware project will forge links with other related projects and initiatives in general, and especially in 5G PPP association. The latter will be closely monitored with the aim of exchanging information, ideas and promoting innovation, through this formation of a “large knowledge pool”. The project intends to create interactions with established initiatives like ANEC, Net World 2020 ETP, EIT ICT Labs, Living Labs.

5. European citizens

- Flex5Gware aims at improving the quality of service and the number of applications and services, at reduced costs and increased flexibility, empowering citizens with increased access to information through ubiquitous connectivity. This will have a positive impact on several everyday activities, e.g. the job market and education activities. Moreover, widespread integration of M2M technology into 5G communications will improve citizen’s lifestyle.

Message communication should always be aligned to the project’s objectives, even if these change over time. As far as timing is concerned, we can identify three project stages, for which slightly different communications styles are appropriate.

Use-case definition stage

For the consortium members involved in the use-cases definition stage (IMC, ALUD, CEA, CNIT, CTTC, EAB, NEC, SEQ, TI, TST, UC3M, UNI Pisa, VTT, WINGS), this is the second chance to start building awareness of the project (the first one being the project proposal stage). Unlike at the project proposal stage, when the communication of the expected benefits and relevance of the project had (by necessity) a prospective flavour, at this stage, these benefits must begin to look achievable and within reach. It is important to convey a clear idea of the relevance and magnitude of the project.

Regarding the message characteristics at this stage, we can underline:

- **Clarity:** Simplicity and straightforwardness of messages being communicated.



- **Consistency** with respect to the DoW is to be maintained.
- **Tone and appeal** must be straightforward and reassuring, with the aim to maintain a high interest of the potential target audience. As always, messages should also be truthful, honest and as complete as possible.
- **Credibility**: especially at this early stage of the project lifetime, the trustworthiness and professional integrity of the spokesperson transmitting the message is extremely relevant.
- **Audience needs**: the needs of the audience must be taken continuously into account, basing messages on what the target audience perceives as most important to them, which at this stage are the benefits that the industry, university, regulation authorities and citizens are going to obtain from the project as a whole.

Research and development stages

During these stages, the consortium must keep on building awareness on the project. Moreover, the communication of the project's concept and potential benefits needs to start being differentiated depending upon the target audience and communication channels utilised, being necessary to take into account the audience profiling and communication channel issues described in this document.

Examples of these differentiations are:

- To communicate research findings to stimulate ongoing interest in the work of the project to the research community, special attention must be paid to providing detailed technical information. Care must be taken that only non-confidential information is disclosed, and striking a balance between detail and confidentiality is one of the fundamental issues in this type of communication.
- To pave the ground to effective partnership, messages need to address not just the benefits of end-users, but also the short and long term benefits of the partners which aim to get involved in the project exploitation phase.

Regarding the message characteristics at this stage, we underline:

- **Clarity**: same as with the user requirements stage, simplicity and straightforwardness of messages are essential to limit misunderstandings with issues such as the progress of technological development achieved at different times.
- **Consistency** with respect to earlier stages should be maintained, so as to consolidate the messages being sent out. Consistency must also be enforced within each type of audience.
- **Tone and appeal**: The tone and appeal must be constantly reassuring, looking to maintain a high level of interest of all audiences.
- **Credibility**: during the research and development stage, the same level of credibility must be achieved by all members of the consortium, independently on their level of involvement in these technology-orientated tasks. In other



words, the trustworthiness of all parties involved in message communication must be consistent.

- **Audience needs:** At these stages, the target audience will value particularly that research and development is progressing successfully and that milestones are being achieved as planned. Messages must therefore be based primarily on these issues.

Proof-of-concept demonstration stage

At this final stage, the project's outcome, scientific validity and benefits are put to the test. Therefore, the benefits of the project must be thoroughly underlined, with greater emphasis on the added value of inter-partner collaboration as a driver for the project achievements.

Regarding the message characteristics at this stage, we can underline:

- **Clarity:** Simplicity should be sustained throughout, especially regarding the communication of the steps which are included in this stage and the explanation of the difficulties and setbacks which are expected in it.
- **Consistency:** Consistency must be maintained regarding the communication of the project's benefits, regardless of the internal difficulties which the consortium may find at this stage.
- **Tone and appeal:** regardless of the difficulties encountered at this stage, the tone used to communicate messages should always remain reassuring and never be alarming.
- **Credibility:** Message credibility is a key factor which at this stage depends heavily upon testing results. The trustworthiness and professionalism of the spokespersons transmitting the messages becomes extremely relevant.
- **Audience needs:** Again, the needs of the audience must to be taken constantly into account, basing messages on what the target audience perceives as most important to them.

2.3 Overview of communication activities

Regarding the dissemination and communication activities, **CTTC** and **KU Leuven** (through their role of WP and task leader in WP7 and T7.1, respectively) shall ensure that the following key principles are known by all the partners:

1. Dissemination materials (other than scientific and academic publications) concerning results from H2020 projects **need to contain the following specific sentence**, included in the EC Grant Agreement:

"This work was supported by the European Commission in the framework of the H2020-ICT-2014-2 project Flex5Gware (Grant agreement no. 671563)"

2. The project logo should, as much as possible, be included in all dissemination materials, including the public and internal websites, articles, brochures, posters etc. The Flex5Gware logo is located at: <https://cloud-flex5gware.cttc.es/Templates/Logo>.



If possible, the European flag should also be included alongside the Flex5Gware logo (http://europa.eu/about-eu/basic-information/symbols/flag/index_en.htm).

3. If several logos are included, e.g. the logo of partner's organisation, other sponsors etc., they should all be of about the same size – there should not be a large difference for example by making the host organisation's logo bigger than the others

When publications are made, conflicts of interests among partners must be solved. This requires a policy for publication procedure, which we outline below.

A project partner, considering publishing results in a scientific journal or conference should take into account the following excerpt from the Consortium Agreement (Section 8.4.1):

“Prior written notice of the final version of any planned publication shall be given to the other Parties at least thirty (30) days before the planned publication submission date. Any objection to the planned publication shall be made in writing to all Parties within twenty one (21) days after receipt of the written notice. If no objection is made within the time limit stated above, the publication is permitted.

An objection to a planned publication by a Party is justified if:

- (a) the protection of the objecting Party's Results or Background would be adversely affected;
- (b) the proposed publication includes Confidential Information of the objecting Party; or
- (c) the objecting Party's legitimate academic or commercial interests would be significantly harmed.

Any and all objection(s) shall include, to the extent possible, a precise request for necessary modifications. If an objection has been raised on one or more of the above mentioned grounds, the objecting Party and the publishing Party shall discuss how to overcome the justified grounds for the objection on a timely basis (for example by amendment to the planned publication and/or by protecting Confidential Information before publication) and the objecting Party shall not unreasonably continue the opposition if appropriate measures are taken following the discussion.”

Communication activities shall be promoted according to the following roles:

• Sponsor:

- Communication activities with a limited geographic scope, e.g. national, regional or local will be promoted by the consortium partners that cover the area being targeted.

• Coordinator:

- The role of dissemination coordinator shall be carried out by **CTTC** and **KU Leuven**, i.e., the partners leading WP7 and T7.1. Coordination includes managing the validation process for all types of dissemination material



(technical, functional, industry-related, etc.). Dissemination content shall always be validated by the partners best suited for it.

- **CTTC** and **KU Leuven** shall also be responsible for obtaining the feedback related to all activities and to lead the evaluation.

• Supervisor:

- The role of supervisor, i.e. the one to ensure that all communication activities are appropriate, well-targeted and effective, is going to be carried out by **CTTC** and **KU Leuven**.

Evaluating and planning possible dissemination activities involves a detailed analysis. This analysis shall take into consideration the following issues:

- Objective: Purpose of the communication activity.
- Message: Message to be communicated.
- Audience: Group(s) of interest being targeted.
- Steps required: planning, development of supporting material, validation, execution, etc.
- Timing and frequency: Timing and frequency of the communication activity.
- Human resources: People involved in making the activity a reality throughout each of its steps.
- Other resources: prototypes, promotional items, etc.
- Cost: Total estimated budget, excluding human resources costs.

This Plan includes a preliminary analysis of the above issues for each foreseen activity. Such preliminary analyses will be progressively refined according to the project's development progression and the feedback and evaluation obtained.

The communication activities that should be carried out as project dissemination are described below:

2.3.1 Meetings with groups of interest:

- Objective: Depends upon each specific meeting.
- Message: Depends upon each specific meeting.
- Audience: Primary and/or secondary and/or tertiary groups of interest.
- Steps required: Proposal, planning, development of supporting material (if any), validation, execution, feedback and evaluation.
- Timing and frequency: Depends upon each specific meeting.



- Human resources: Representatives from those companies within the consortium covering the influence area in which the meeting takes place or with expertise on the meeting's theme.
- Other resources: None.
- Cost: Depends upon each specific meeting.

2.3.2 Attending events

- Objective: To build awareness at a relatively big scale and to meet in person representatives from different groups of interest. The evaluation of the following year's involvement in the event in question will also be an objective.
- Message: Depends upon each specific event, the project's development progression, etc.
- Audience: Primary and/or secondary and/or tertiary groups of interest.
- Steps required: Thorough planning, comprehensive preparation and development of supporting material, validation, execution, feedback and evaluation.
- Timing and frequency: Depends upon each specific event.
- Human resources: Representatives from those companies within the consortium covering the influence area in which the event takes place or with expertise on the event's theme.
- Other resources: Booth materials, prototypes, product brochures and promotional items.

The following is the preliminary list of events which have been identified as being of interest to the consortium. These should be carefully evaluated by all consortium members. For most of the events, only the 2016 edition has been announced so far, whereas the 2017 edition – which is however of interest for the consortium – has yet to be announced.

- ACM Conext'15, Heidelberg, Germany, December 1-4 2015.
- ACM MobiHoc 2016, Paderborn, Germany, 5-8 July 2016.
- ACM Mobicom 2016, New York, NY, USA (dates TBA).
- Asilomar Conference on Signals, Systems, and Computers 2016-2017
- EAI Crowncom: 11th EAI International Conference on Cognitive Radio Oriented Wireless Networks, May 30–June 1, 2016, Grenoble, France: The Flex5Gware consortium is considering to lead a workshop at this conference
- ETSI Workshop on Future Radio Technology: Air Interface January 2016



- ETSI Workshop From Research to Standardization, 10-11 May 2016, Sophia Antipolis, France
- EUCNC - European Conference on Networks and Communications. The 2016 edition will be in Athens, Greece, June 27 – 30, 2016.
- European Microwave Week 2016-2017, including European Microwave Conference, EuMC
- European Signal Processing Conference (EUSIPCO) 2016-2017
- European Solid-State Circuits Conference, Lausanne (Switzerland), ESSCIRC 2016
- FPL: Field programmable logic and applications 2016, 2017. Exact dates and places are yet to be announced.
- IEEE GLOBECOM 2016-2017
- IEEE ICASSP, International Conference on Acoustics, Speech, and Signal Processing 2016-2017
- IEEE ICC, International Conference on Communications, 2016, 23-27 May 2016, Kuala Lumpur, Malaysia.
- IEEE INFOCOM 2016, 10-15 April 2016, San Francisco, CA, USA.
- IEEE ISWCS International Conference on Wireless Communications Systems 2016-2017
- IEEE RFIC, Radio Frequency Integrated Circuits Symposium, 2016
- IEEE SPAWC, Signal Processing Advances in Wireless Communications, 2016-2017
- IEEE VTC (IEEE Vehicular Technology Conference). The Spring 2016 edition is to be held in Nanjing, China, 15–18 May 2016.
- IEEE WCNC. IEEE Wireless Communications and Networking Conference. The 2016 edition will be in Doha, Qatar, 3-6 April 2016.
- International Microwave Symposium, IMS 2016/2017
- International Solid-State Circuits Conference, Jan 31-Feb 4, 2016, San Francisco (USA), ISSCC 2016
- International Symposium on Radio-Frequency Integration Technology (RFIT) 2016-2017
- ITC28, 12-16 September 2016, Würzburg, Germany.



- Mobile World Congress 2016, 2017. For 2016 the exact dates are: February 22-25, 2016.
- Optical Fiber Communication Conference (OFC), 20-24 March, 2016
- VDE-ITG Workshop on Smart Antennas (WSA) 2016-2017

2.3.3 Attending events as visitors

- Objective: To build awareness at a relatively large scale and to meet in person representatives from different groups of interest. Evaluating the interest in being involved in the following year's event (if periodic) can also be an objective.
- Message: Depends upon each specific event, the project's development progression, etc.
- Audience: Primary and/or secondary and/or tertiary groups of interest.
- Steps required: Thorough planning, development of supporting material (if needed), validation, execution, feedback and evaluation.
- Timing and frequency: Depends upon each specific event.
- Human resources: Representatives from those companies within the consortium covering the influence area in which the event takes place or with expertise on the event's theme.
- Other resources: None.
- Cost: Depends upon each specific event.

2.3.4 Organizing Symposia

- Objective: To build awareness at a moderate scale, to present research and development results, and to meet in person representatives from different groups of interest. Possible enhancements for the next symposium to be organised by the consortium should also be evaluated.
- Message: Depends upon each specific symposium, but it is expected that the messages conveyed will revolve around building awareness and/or presenting research and development results.
- Audience: Primary and/or secondary and/or tertiary groups of interest.
- Steps required: Thorough planning, comprehensive preparation and development of supporting material, validation, execution, feedback and evaluation.
- Timing and frequency: Depends upon each specific symposium.



- Human resources: Representatives from those companies within the consortium covering the influence area in which the symposium takes place or with expertise on the symposium's theme.
- Other resources: Prototypes and product brochures.
- Cost: Depends upon each specific symposium.

The list of symposia to be organised by the consortium will need to be carefully evaluated by all its partners.

2.3.5 Participating in symposia organised by third parties

- Objective: To build awareness at a moderate scale, to present research and development results, and to meet in person representatives from different groups of interest. Possible involvement in the following year's symposium should also be evaluated.
- Message: Depends upon each specific symposium, but it is expected that the messages conveyed will revolve around building awareness and/or presenting research and development results.
- Audience: Primary and/or secondary and/or tertiary groups of interest.
- Steps required: Thorough planning, comprehensive preparation and development of supporting material, validation, execution, feedback and evaluation.
- Timing and frequency: The timing depends upon each specific symposium, and the frequency is generally once a year.
- Human resources: Representatives from those companies within the consortium covering the influence area in which the symposium takes place or with expertise on the symposium's theme.
- Other resources: Prototypes and product brochures.
- Cost: Depends upon each specific symposium.

2.3.6 Organising seminars

- Objective: To build awareness at a moderate scale, to present research and development results, and to meet in person representatives from different groups of interest. Possible enhancements for the next seminar to be organised by the consortium should also be evaluated.
- Message: Depends upon each specific seminar, but it is expected that the messages conveyed will revolve around building awareness and/or presenting research and development results.



- Audience: Primary and/or secondary and/or tertiary groups of interest.
- Steps required: Thorough planning, comprehensive preparation and development of supporting material, validation, execution, feedback and evaluation.
- Timing and frequency: Depends upon each specific seminar.
- Human resources: Representatives from those companies within the consortium covering the influence area in which the seminar takes place or with expertise on the seminar's theme.
- Other resources: Prototypes and product brochures.
- Cost: Depends upon each specific seminar.

The list of seminars to be organised by the consortium will need to be carefully evaluated by all its partners.

2.3.7 Participating in seminars organised by third parties

- Objective: To build awareness at a moderate scale, to present research and development results, and to meet in person representatives from different groups of interest. Possible involvement in the following year's seminar should also be evaluated.
- Message: Depends upon each specific seminar, but it is expected that the messages conveyed will revolve around building awareness and/or presenting research and development results.
- Audience: Primary and/or secondary and/or tertiary groups of interest.
- Steps required: Thorough planning, comprehensive preparation and development of supporting material, validation, execution, feedback and evaluation.
- Timing and frequency: The timing depends upon each specific seminar, and the frequency is generally once a year.
- Human resources: Representatives from those companies within the consortium covering the influence area in which the seminar takes place or with expertise on the seminar's theme.
- Other resources: Prototypes and product brochures.
- Cost: Depends upon each specific seminar.



2.3.8 Organising demonstration workshops

- Objective: To demonstrate research and development results to primary and/or secondary and/or tertiary groups of interest.
- Message: Presenting successful research and development results.
- Audience: Primary and/or secondary and/or tertiary groups of interest.
- Steps required: Thorough planning, comprehensive preparation of prototypes, validation, execution, feedback and evaluation.
- Timing and frequency: Will depend upon research and development progression.
- Human resources: Generally workshops will involve representatives from all companies within the consortium.
- Other resources: Prototypes.
- Cost: Depends upon each specific workshop. It shall be heavily dependent on the location of the workshop, as representatives from all companies within the consortium are likely to attend.

Towards the end of the project (i.e., June 2017, in Turin) a Flex5Gware demonstration will be arranged to present Flex5Gware achievements to interested stakeholders. During the workshop, the actual operation of Flex5Gware PoCs will be demonstrated to the stakeholders. The idea of organizing joint demonstration events with other 5G PPP projects is being considered at the time of writing this deliverable.

2.3.9 Maintaining the project's website

- Objective: To make available all external information regarding the project to primary, secondary and tertiary groups of interest.
- Message: Further to initial static content insertion, messages will depend upon the type of updates being made, which can be associated with:
 - News.
 - Events, symposiums and seminars of interest.
 - Web portals of interest.
 - Publications of interest.
 - Information on related projects.
 - Other links of interest.
- Audience: All groups of interest, including the general public.



- Steps required: Development, validation, execution, feedback and evaluation.
- Timing and frequency: Whenever deemed appropriate by consortium partners.
- Human resources: Website updates will normally be generated by the consortium institutions with expertise on the issues needing to be communicated. The publishing of all updates will be carried out by the WP7 leader in the consortium - **CTTC**.
- Other resources: None.
- Cost: None.

2.3.10 Press releases

- Objective: To inform about the project's news to primary and/or secondary and/or tertiary groups of interest.
- Message: It will normally revolve around successful research and development results and/or sales numbers.
- Audience: Primary and/or secondary and/or tertiary groups of interest.
- Steps required: Development, validation, execution, feedback and evaluation.
- Timing and frequency: Will depend upon research and development progression.
- Human resources: News will normally be generated by the consortium company with expertise on the news needing to be communicated and distributed by the project coordinator or the dissemination task coordinator.
- Other resources: None.
- Cost: None.

2.3.11 Contributing to and advertising on professional publications and web portals

- Objective: To build awareness at a relatively large scale and to inform about the project's news to primary and/or secondary and/or tertiary groups of interest.
- Message: It will normally revolve around successful research and development results and/or sales numbers.
- Audience: Primary and/or secondary and/or tertiary groups of interest.
- Steps required: Development, validation, execution, feedback and evaluation.



- Timing and frequency: Will depend upon research and development progression.
- Human resources: Contributions will normally be generated by the consortium company with expertise on the issue in question, and then distributed to the different web portals and publications by the dissemination task coordinator of the consortium.

The following is the preliminary list of professional publications which have been identified as being of interest to the consortium. These should be carefully evaluated by all consortium members.

- ACM Transactions on Modelling and Performance Evaluation of Computing Systems (TOMPECS)
- IEEE/OSA Journal of Optical Communications and Networking
- IEEE Journal on Selected Areas in Communications
- IEEE Journal on Selected Areas in Signal Processing
- IEEE Journal of Solid State Circuits
- IEEE Transactions on Circuits and Systems I & II
- IEEE Transactions on Communications
- IEEE Transactions on Microwave Theory and Techniques
- IEEE Transactions on Mobile Computing
- IEEE/ACM Transactions on Networking
- IEEE Transactions on Signal Processing
- IEEE Transactions on Vehicular Communications
- IEEE Transactions on Vehicular Technology
- IEEE Transactions on Very Large Scale Integration Systems
- IEEE Transactions on Wireless Communications
- IEEE Communications Magazine
- IEEE Vehicular Technology Magazine
- IEEE Wireless Communications Magazine



- IEEE Communications Letters
- IEEE Signal Processing Letters
- IEEE Wireless Communications Letters
- Elsevier Computer Networks
- Elsevier Computer Communications
- Springer Wireless Networks

2.4 Dissemination feedback and evaluation

As outlined in the Introduction, dissemination activities must generate feedback and be assessed for effectiveness by the consortium, coherently with the evolution of the project and that of the stakeholder's environment. The mechanisms to be used for feedback and evaluation come in different forms, e.g., in the form of short reports generated following each dissemination activity. Feedback can be either *automatically-generated* or *human-generated*.

Automatically-generated feedback

The principal source of automatically-generated feedback are Flex5Gware's website usage statistics. These will shed insight regarding potential clients and partners with different levels of interest in Flex5Gware.

Flex5Gware's website is one of the main communication channels within the project's Communication and Dissemination Plan. It provides complete external visibility as it contains general information on project goals, scope, focus and work progress, as well as on consortium partners.

Human-generated feedback

Examples of these feedback mechanisms are:

- **Direct person-to-person feedback**, such as the one that can be gained when meeting people at events and gauging their reaction to the project's messages (e.g., their interest, curiosity, etc.). In most cases, this mechanism can be used to obtain feedback regarding potential clients and partners which have shown interest in Flex5Gware.
- **Questionnaires**: if appropriate, questionnaires can be used to assess the level of interest or potential involvement in the project, as well as acceptance of the project messages by specific target audiences.

Depending upon the importance of the results of the different feedback mechanisms used, these should be shared with all the members of the consortium as they come, or through the periodic evaluation meetings mentioned above.



2.5 Internal coordination

The procedures regarding internal coordination and management can be found in Section 3.2 “Management structure and procedures” of the Flex5Gware Description of Work (accessible via <https://cloud-flex5gware.cttc.es/DoW>).

In addition, the internal report IR8.1 “Flex5Gware Management Handbook” provides an overview of Flex5Gware practices and procedures. This internal report supports contributors, work package leaders and task leaders to apply common working processes and to minimize the administrative overhead. The report also describes roles and responsibilities within the project, the tools, quality assurance and risk management, document handling procedures, reporting procedures and external publication. The report is based on the description of work, content used for the Grant Agreement and the arrangements agreed in the Consortia Agreement. IR8.1 can be accessed via [https://cloud-flex5gware.cttc.es/WP8/Deliverables and internal reports/IR8.1 Management Handbook](https://cloud-flex5gware.cttc.es/WP8/Deliverables%20and%20internal%20reports/IR8.1%20Management%20Handbook).

In addition, the Flex5Gware consortium will keep track of all the dissemination and communication activities regarding events identified as relevant to the consortium via a “Dissemination Record” that will contain the following fields

The ‘Dissemination Record’ tool includes the following fields regarding events identified as relevant to the consortium:

- Name: The name of the event / conference / journal etc.
- Location: The city and country where the event takes place.
- Dates: The date in which the event takes place or in which the paper was / will be published.
- Type of dissemination: Exhibition, demo booth, conference, journal publication, etc. This field will also include a check box that, for the case of publications, will be ticked once the publication is available via Open Access.
- Involved Flex5Gware partners: List of the partners involved in the dissemination activity.
- Comments: Any kind of additional comment which is deemed as relevant and that can help identify the dissemination activity. E.g., title and authors of a journal/conference publication.

This ‘Dissemination Record’ can be located in the following internal URL: https://cloud-flex5gware.cttc.es/WP7/Dissemination/Dissemination_Record.xlsx and is being maintained by the T7.1 and WP7 leaders (KU Leuven and CTTC).

Finally, the Flex5Gware consortium keeps track of new dissemination opportunities via an “Opportunities record” that can be found in the same internal folder: <https://cloud-flex5gware.cttc.es/WP7/Dissemination>.



2.6 Updates to the communication and dissemination plan

The following table provides a quantification of the Flex5Gware dissemination activities, and sets a basis for verifying whether the project's dissemination objectives have been met.

Table 2-1: Quantification of Flex5Gware (general) Dissemination Activities

Dissemination Activity	Target Value
Submitted journal publications (international refereed journals) and whitepapers	20
Publications and presentations in international conferences (reviewed papers)	30
Participations in public exhibitions and demonstrations	5
Flex5Gware workshops and/or conferences	2
Participation in major events relating to 5G systems outside Europe	2
Production of Flex5Gware leaflets	2
Flex5Gware newsletter	4

Moreover, members of the Consortium (specifically, the Project Coordinator, the Technical Manager and WP1 and WP6 leaders) have already created awareness of the Flex5Gware project by participating in the 5G PPP workshop (28-29 September, 2015, Kista, Sweden). In the later, the project mission and vision were explained, and the list of PoC was presented. Moreover, a call for joint demonstration with other 5G PPP initiatives has been announced. Consortium members plan to participate in similar joint workshops in 5G PPP events in the future.

A press release has been issued on date 26.08.2015 by the project coordinator, detailing the composition of the consortium, the scope of the project and the challenges ahead. The release has been sent to the 5G PPP organization, and is a published press material via Intel Newsroom¹ and is also linked into other partners' home pages.

Flex5Gware representatives have disseminated the project vision at the following events:

- i) 5-Alive video, recorded at EuCNC conference in Paris, France, July 2015 (CTTC)
- ii) PhD summer school 3h lecture in Trento, Italy, July 2015 (CNIT);
- iii) 1h keynote at the IEEE IWCMC conference in Dubrovnik, Croatia, August 2015 (CNIT);
- iv) 1h keynote at the ITAS conference in Sochi, Japan, September 2015 (CNIT).
- v) Speech at 7th EAI International Conference on Mobile Networks and Management, Santander, Spain, September 2015 (CTTC).

¹ http://download.intel.com/newsroom/kits/atom/comms/pdfs/Flex5Gware_PressRelease.pdf



3. Conclusions

This deliverable presented a methodology and a content for the communication and dissemination process within the Flex5Gware initiative.

As far as the methodology is concerned, we developed a clear dissemination plan which includes target audience identification, selection of the type of messages and channels to be used, assignment of responsibilities for the communication activities. The plan has been formally approved at a plenary meeting, and responsibilities for its implementation have been clearly identified.

As far as the content is concerned, we have agreed on keeping a formal record of the dissemination activities carried out by the consortium members, and we have reviewed the types of dissemination outlets that are viable for the consortium, analyzing their properties and cost/benefits. We have added a list of events and publications that we want to target, as well as quantitative targets for our publication outlets. Finally, we have inserted a summary of the dissemination activities carried out so far and an overview of Flex5Gware's website, which is one of the primary dissemination channels for the consortium.



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Flex5Gware

Link to project website: [Flex5Gware Project](#)

Contact: Flex5Gware-Contact@5g-ppp.eu

Horizon 2020 - Call:	H2020-ICT-2014-2
Topic:	ICT-14-2014
Type of action:	RIA
Duration:	24 Months
Start date:	1/7/2015
Project Title:	Flex5Gware: Flexible and efficient hardware/software platforms for 5G network elements and devices

Figure 4-2: Screenshot of part of the Flex5Gware page in the 5G-PPP website



<http://www.flex5gware.eu>
