Programmable edge-to-cloud virtualization fabric for the 5G Media industry

D7.4 Report on dissemination, communication and community building activities and updated plan (version 1)

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<td>5G IA</td>
<td>5G Infrastructure Association</td>
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<tr>
<td>5G PPP</td>
<td>5G Infrastructure Public Private Partnership</td>
</tr>
<tr>
<td>5GMF</td>
<td>Fifth Generation Mobile Communication Promotion Forum</td>
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<tr>
<td>AIOTI</td>
<td>The Alliance of Internet of Things Innovation</td>
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<tr>
<td>BDVA</td>
<td>Big Data Value Association</td>
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<tr>
<td>COMMS</td>
<td>Communications</td>
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<td>EC</td>
<td>European Commission</td>
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<td>ETSI</td>
<td>European Telecommunications Standards Institute</td>
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<tr>
<td>FSAN</td>
<td>Full Service Access Network</td>
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<td>ICT</td>
<td>Information and Communications Technology</td>
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<td>IEEE</td>
<td>Institute of Electrical and Electronics Engineers</td>
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<td>IETF</td>
<td>Internet Engineering Task Force</td>
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<td>IRTF</td>
<td>Internet Research Task Force</td>
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<tr>
<td>ITU</td>
<td>International Telecommunication Union</td>
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<tr>
<td>MAPE</td>
<td>Monitoring, Analysis, Planning and Execution</td>
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<td>MEC</td>
<td>Multi-access Edge Computing</td>
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<td>NEM</td>
<td>New European Media</td>
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<td>NFVI</td>
<td>Network Function Virtualisation Infrastructures</td>
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<td>NGMN</td>
<td>Next Generation Mobile Networks</td>
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<tr>
<td>ONF</td>
<td>Open Networking Foundation</td>
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<td>SDO</td>
<td>Standards Developing Organization</td>
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<tr>
<td>SLA</td>
<td>Service Level Agreement</td>
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<tr>
<td>SSO</td>
<td>Standards Setting Organization</td>
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<tr>
<td>SVP</td>
<td>Service Virtualisation Platform</td>
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<td>VIM</td>
<td>Virtual Infrastructure Manager</td>
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<tr>
<td>VNF</td>
<td>Virtual Network Function</td>
</tr>
<tr>
<td>WG</td>
<td>Working Group</td>
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<tr>
<td>WP</td>
<td>Work Package</td>
</tr>
<tr>
<td>ZSM</td>
<td>Zero touch network &amp; Service Management</td>
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Executive summary

The main scope of this “D7.4 - Report on dissemination, communication and community building activities and updated plan (version 1)” is to outline the actions implemented, and the outcomes achieved with them, in the first period of the project (i.e. M1-M15) in terms of community building, dissemination and communication strategies (T7.2); overall visibility and cooperation within the 5G PPP community (Task 7.3); and liaison with open source and standardisation initiatives (Task 7.4).

The project has gained traction in Europe as one of the frontrunners in the use of 5G capabilities to boost a vertical market such as the media. Some key results that underline such position of 5G-MEDIA are:

- Participation in 28 events, which includes 19 conferences and 8 workshops, including some of international relevance:
  - EuCNC 2017, Oulu (Finland), June 2017
  - NEM Summit 2017, Madrid (Spain), November 2017
  - Mobile World Congress 2018, Barcelona (Spain), February 2018
  - IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB) 2018, Valencia (Spain), June 2018, where the project organized the technical workshop "Media delivery innovations using flexible network models in 5G"
  - EuCNC 2018, Ljubljana (Slovenia), June 2018
  - Organisation of the workshop “Media delivery innovations using flexible network models in 5G” within the IEEE BMSB 2018;
  - An audience of 480+ followers in Twitter, 290+ followers in LinkedIn and 2500+ unique visitors in our website;
  - A total number of 13 technical publications;
  - The first demonstration of a 5G-MEDIA use case was made at EuCNC 2018: scenario ‘Dynamic and Flexible UHD Content Distribution over 5G CDNs’ from UC3;
  - Beyond the Steering and Technology Boards, an active participation in 5G PPP activities is in place in 8 Working Groups (i.e. Architecture WG, Software Network WG, Vision WG, Security WG, SME WG, Trials WG, NetMgmt & QoS WG and COMMS WG). The collaboration with 5G PPP Phase 2 projects is remarkable and 5G-MEDIA has also contributed to several 5G PPP-wide outcomes:
    - 5G PPP’s European 5G Annual Journal 2018
    - 5G PPP Software Network WG White Paper “From Webscale to Telco, the Cloud Native Journey”
    - 5G PPP Vertical Cartography and Golden Nuggets
    - 6 videos have been produced with the objective to make more accessible the activities and demos of the project; at the time of writing it has been registered more than 450 views;
In January 2018, a contribution about the integration of OpenNebula VIM into Open Source MANO project using the XML-RPC API was submitted and accepted by this open source community. In July 2018, the project became an official contributor to the Research activities of OSM;

A number of contributions in the form of pull requests about a lighter version of OpenWhisk - lean OpenWhisk - with reduced resources footprint suitable to be part of 5G-MEDIA SDK and deployment at the edge in a resource constrained environment.

Several contributions to standards and/or open source communities are in a very early stage or planned for the second period of the project, targeting for example:

- ETSI NFV, ETSI MEC, ETSI ZSM - to e.g. continue monitoring the NFV SOL specifications and identify their applicability to the NFV catalogue developed in 5G-MEDIA; to continue monitoring the MEC standard evolution and identify its applicability to 5G-MEDIA; to identify areas for Monitoring, Analysis, Planning and Execution (MAPE) loop automation into Zero touch network & Service Management (ZSM)
- OSM End User Advisory Group (EUAG) and OSM Hackfest – to continue monitoring the OSM releases and to propose the 5G-MEDIA NFV catalogue for integration in future OSM releases
- IETF Network Function Virtualization (nfvrg) – to propose the concept of a flexible and generalized catalogue for SDN and NFV applications and functions
1 Introduction

The mission of 5G-MEDIA is to boost the Media Industry by leveraging the power of 5G, enriching media applications and services with the next-generation of 5G capabilities. As a H2020 Innovation Action, the project must have a market vision, including prototyping, testing, demonstrating and piloting, with adequate channels and measures to identify and reach a target audience.

5G-MEDIA’s Work Package 7 (i.e. WP7) is the activity in charge of coordinating the overall impact of the project, assessing the most adequate market access, promoting its ongoing results and driving the collaboration with those ecosystems with a position to contribute or benefit from the initiative.

In particular, the main scope of this “D7.4 - Report on dissemination, communication and community building activities and updated plan (version 1)” is to outline the actions implemented, and the outcomes achieved with them, in the first period of the project (i.e. M1-M15) in terms of community building, dissemination and communication strategies (T7.2); overall visibility and cooperation within the 5G PPP community (Task 7.3); and liaison with open source and standardisation initiatives (Task 7.4). These activities are reported in Section 2 and represent an update of the actions introduced in “D7.2 - Dissemination, Communication and community building plan”1 released in M6.

In addition, this document will introduce the planned activities and next steps envisioned for period 2 (i.e. M16-M30) in Section 3.

This deliverable is complemented with “D7.5 - 5G-MEDIA Report on Impact and Exploitation (version 1)” that will be published in M15. This report will describe the actions implemented in WP7’s Task 7.1 during period 1, the task dedicated to plan and develop strategies and actions for future 5G-MEDIA services and components adoption, according to a sustainable model.

2 5G-MEDIA Activities Report for Period 1

2.1 Report on Community Building activities

2.1.1 5G-MEDIA Community Building

Identifying and engaging with the most relevant stakeholders of an initiative is an activity that is often referred as ‘community building’ and must play a key role in the strategic plan of any given Innovation Action. In the particular case of 5G-MEDIA, taking into consideration the industry-oriented approach of the initiative, it becomes clear the fact that there are a significant number of target groups that will either influence or benefit from the activities and outcomes of the project along its course. Identifying, creating and nurturing the links with such ecosystem of stakeholders will be a success factor for 5G-MEDIA’s value proposition.

This section outlines the cornerstones of the community building strategy, underlying those activities already achieved by the project in Period 1.

2.1.2 5G-MEDIA Stakeholder Map

The first stage of the strategy requires to understand which stakeholders 5G-MEDIA should engage with and for what purpose. Specific profiles -e.g. related to the 5G domain or the media industry- that need to be identified so as to be “involved” or “targeted”. The objective is to facilitate a standard taxonomy to be adopted by the project, including use case scenarios and business models.

D7.2 already introduced a preliminary version of this graphical tool, identifying and organizing potential target groups and specific candidates. Throughout Period 1, the map was adapted to the 5G-MEDIA marketing material into a version 2 and published in the website for public access².

This report provides a refinement of the map based on the progress achieved by the project in Period 1, updating the map to version 3 (Figure 1). Changes have been implemented by taking into consideration:

- The technical evolution of the project (WP2-5)
- The beginning of activities in the Use Cases and their scenarios (WP6)
- The outcomes of the Impact and Exploitation Plan (T7.1)

² 5G-MEDIA Stakeholder Map. http://www.5gmedia.eu/5g-media/stakeholder-map/
Refinement from version 2 takes into consideration:

- A dedicated assessment on the Media Industry, highlighting specific actors involved in the 5G-MEDIA Use Cases;
- The inclusion of the Open Source group, reflecting its impact on the technical development of the project;
- The extension of standardization bodies;
- The influence of other projects and initiatives with a focus on 5G and Media.

The details of the stakeholder groups under consideration are explained in the associated glossary from Table 1.
Table 1 – 5G-MEDIA Stakeholder Glossary

<table>
<thead>
<tr>
<th>Stakeholder Category</th>
<th>Details</th>
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<tbody>
<tr>
<td><strong>5G Industry</strong></td>
<td>5G Industry contains any general technological effort, business activity or commercial enterprise that is using or related to the fifth generation (5G) of communication networks. The 5G Industry in the scope of 5G-MEDIA includes those organisations providing 5G capabilities and related services:</td>
</tr>
<tr>
<td><strong>Network Application/Service/Function Developers</strong>: companies of various sizes that develop innovative 5G-related services (or functions that can be combined to create a service), leveraging on Service Virtualisation Platform (SVP) offerings and Network Function Virtualisation Infrastructures (NFVIs). In particular: 1) media services that may include functions related to media streaming servers, processing of A/V signals, audio encoding, packet analysis, and 2) networking services including functions related to caching, switching, firewalling, traffic classification, routing policies.</td>
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<tr>
<td><strong>Infrastructure Managers</strong>: this role mostly includes large companies (especially telecom operators) providing (network, computing, storage) resources in large-scale and cloud-based environments for the deployment of services. In 5G-MEDIA, infrastructure managers provide/lease the NFVIs. These infrastructures are integrated with the SVP and managed by Virtual Infrastructure Managers (VIMs), administered by the Service Platform Provider. Another possible option for the Infrastructure Provider is to provide a cloud-based environment for the deployment and configuration of the Service Virtualisation Platform itself.</td>
<td></td>
</tr>
<tr>
<td><strong>Service Virtualisation Platform Operators</strong>: responsible for operating and maintaining a secure, scalable, and efficient Service Virtualisation Platform (SVP) for the instantiation of 5G media-related services. The responsibilities of the SVP Operator entail oversight of the provisioning and maintenance practices, security practices, disaster recovery planning and execution, as well as general oversight of daily operations. The Operator is also in charge of analysing and optimising the resource allocation and ensure charging according to signed SLAs.</td>
<td></td>
</tr>
<tr>
<td><strong>Academia</strong>: scientific and research driven technical organisations working on the development of the next generation of 5G network capabilities without a profit-oriented mission. This includes universities and research centres.</td>
<td></td>
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</tbody>
</table>
Stakeholder Category | Details
--- | ---
5G PPP | The 5G Infrastructure Public Private Partnership (5G PPP) is a joint initiative between the European Commission and the European ICT industry (ICT manufacturers, telecommunications operators, service providers, SMEs and researcher Institutions). The 5G Infrastructure Association (5G IA) represents the private side and the European Commission the public side. 5G-MEDIA is part of this initiative and will actively contribute in its activities.

Phase 1 involves 19 projects while 21 projects were selected in Phase 2. In addition, there are 9 cross-project Work Groups where the work of multiple projects can converge into identifying the shared issues and developing supported program level position on technical and strategic items.

NetWorld2020 is the European Technology Platform for communications networks and services.

Global 5G | This target group assembles all the 5G-related Organisations and Forums at global scale, especially around the series of events known as “Global 5G”. This initiative is developed in the interest of efficiency and building global consensus on 5G, and was announced in October 2015 by the following parties of a Memorandum of Understanding: 5G Americas (Americas), The Fifth Generation Mobile Communications Promotion Forum (5GMF) (Japan), 5G Forum (Republic of Korea), IMT-2020 (5G) Promotion Group (China), the 5G Public Private Partnership (5G PPP) (Europe) and 5G Brazil. Other initiatives of relevance include the Next Generation Mobile Networks (NGMN), the 5G Automotive Association (5G AA) and Full-Service Access Network (FSAN) Group.

Media Industry | Within the scope of 5G-MEDIA, the Media Industry represents a key domain as beneficiary of the 5G capabilities provided. This category includes those stakeholders acting as consumers of 5G services.

- **End-users**: the consumers who actually use a media service or product. They can be considered as: 1) participants (as an active player or a simple spectator) in an online tele-immersive (TI) gaming experience, 2) viewers of a live broadcasting event with enriched User Experience (UX) functionality that includes, for example, different camera views, Ultra High Definition (UHD) or 4K analysis or consumption via different devices (smart TV, smartphone, tablet, etc.), 3) consumers of different services, such as Video on Demand (VoD) “on-the-go” provided by smart platforms.
In specific cases, the end-user can be considered as the producer of content (i.e. audio and/or video files processed real-time or uploaded on a cloud-hosted server).

- **Content owners**: a specific case of end-user, that in addition to consuming content also feeds the system with its own generated content. This role is of special relevance for Use Case 2, defined in 5G-MEDIA’s D2.2.

- **Media Application/Service Providers**: role that can be assigned to many types of companies, covering a wealth of services in vertical domains that may potentially be benefited from the 5G concept. These service providers are companies that offer services to end-users or other companies, considered as the consumers of a service.

- **Tele-immersive Environment Providers**: a specific type of media app/service provider relevant for Use Case 1, defined in D2.2. For example, a company offering tele-immersive games to players around the world, or a company that maintains the server for uploading and processing of video files and charging end-users for viewing or using (for other purposes) such stored content.

- **Broadcasters**: a specific type of media app/service provider relevant for Use Case 2, defined in D2.2. A broadcaster can take advantage of the 5G infrastructure for remote production and streaming distribution is considered as a Service Provider in this document.

- **Content Delivery Network Operators**: a specific type of media app/service provider relevant for Use Case 3, defined in D2.2. CDN providers require to serve content to end-users with high availability and high performance, so they may benefit from the flexibility to distributed UHD offered by 5G-MEDIA.

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• **Media HW Manufacturers**: this generic role represents those hardware manufacturers focused on the media industry, not the networks, but can benefit from the capabilities of 5G. For instance, this can include VR/AR glasses to mobile phones.

**Standards**

A Standardization organization (or standards body, Standards Developing Organization (SDO), or Standards Setting Organization (SSO)) is an organization whose primary activities are developing, coordinating, promulgating, revising, amending, reissuing, interpreting, or otherwise producing technical standards that are intended to address the needs of some relatively wide base of affected adopters.

This category includes standardisation communities within the 5G domain, but also media efforts should be considered: ETSI, IETF/IRTF, 3GPP, ITU, IEEE, CEN/CENELEC, ISO.

**Open Source**

5G-MEDIA is highly involved in the collaboration with Open Source communities. Therefore, this must represent a dedicated target group to coordinate with. Specific initiatives worth to underline are: Open Source MANO (OSM), OpenWhisk, OpenNebula, OpenID Foundation, Open Networking Foundation (ONF), Open Platform for NFV (OPNFV), Open Compute Project (OCP).

**Policy Makers**

A Policy Maker is a member of a government department, legislature, or other organization who is responsible for making new rules, laws, etc. Included in this group: European Commission (EC), Regulators, Local governments.

**Others**

This category represents all the potential initiatives that are not included previously but aim to boost the media industry via 5G. This includes national, international or industry driven projects and initiatives.
2.1.3 5G-MEDIA Stakeholder Engagement

Once the stakeholder profiles have been properly identified, the strategy considers the actual development of a community around the initiative. Proper activities for establishing, maintaining and growing an ecosystem of members that will be associated, in one way or another, to 5G-MEDIA.

In order to reach the stakeholders identified above, the following activities were implemented since the very beginning of the project, ensuring impact since quite early phases:

- Participation in significant events relevant to 5G-MEDIA;
- Organisation of specific 5G-MEDIA events;
- Contribution to conference papers, peer-reviewed articles, whitepapers, videos and demonstrations and/or talks (e.g. panels) at relevant international conferences, workshops, technical events, and industrial forums;
- Implementation of a focused dissemination and communication plan.

Given its relevance in the impact of the project, there are 3 target groups where a dedicated engagement plan is being implemented: 5G PPP Community (Section 2.1.4) and Open Source and Standardisation Communities (Section 2.1.5).

2.1.4 Report on Collaboration with 5G PPP Community

5G-MEDIA’s Task 7.3 aims at coordinating and stimulating the exchange of technical, business, economic, and societal impacts within the 5G European ecosystem. The following activities are being performed since the beginning of the project:

- 5G-MEDIA representatives have been involved in multiple 5G PPP level Working Groups\(^4\). Beyond the continuous participation in the Steering Board (via the Project coordinator) and the Technology Board (via the Technical manager), 5G-MEDIA is contributing to eight 5G PPP Working Groups (WG);
- Identification of opportunities and reuse of Phase 1 5G PPP projects solutions;
- Identification of opportunities and active collaboration with Phase 2 5G PPP projects;
- Cooperation with other initiatives closely related to the 5G PPP such as the European Technology Platforms Networld2020 and New European Media.

2.1.4.1 Participation in 5G PPP Working Groups

5G-MEDIA has a permanent representation in:

\(^4\) 5G PPP Working Groups: [https://5g-ppp.eu/5g-ppp-work-groups/](https://5g-ppp.eu/5g-ppp-work-groups/)
• **5G PPP Steering Board**: Through the Steering Board, 5G-MEDIA project coordinator is informed about the overall 5G initiatives in order to be aligned with programme objectives and ensure a global consistency across the 5G PPP projects. Collaborative activities as well as co-located events for more than one 5G Actions also initiates in this context to reach a larger group of interests.

• **5G PPP Technical Board**: Provide consolidated view on key technical aspects of the 5G PPP projects (e.g. technical specifications, architecture design) with the goal to find common ground for potential synergies among 5G PPP projects. Share knowledge about technical evaluation of the 5G PPP projects and define technical KPIs for 5G PPP projects. Oversee the technical work in different 5G PPP WGs, ensure complementarity and effectiveness of their activities.

As reported in D7.2, 5G-MEDIA targets some specific Working Groups that are of relevance for the activities of the project. Consortium partners are involved in seven 5G PPP Working Groups (WG):

• **Architecture WG**: Identify common technical issues with other 5G PPP projects and facilitate synergies among the projects.

• **Software Networks WG**: Expansion of the scope of the group to include highly demanding applications in the media sector. Deeper understanding of the practicalities of the deployment of SDN and NFV concepts, especially based on the experience of initial prototyping work by the Phase 1 projects, but also on the trials being undertaken throughout Phase 2.

• **Vision WG**: Strengthen the engagement of the Media related stakeholders into Phase 3 trials and beyond into 5G related activities; clarify the added value of 5G towards the Media stakeholders.

• **Security WG**: Consolidate a set of representative VNF forwarding Graphs for the media production and distribution use cases, which will interleave media specific functions (video sources, transcoders, caches, servers) with various network functions. Bringing the Media layer know-how into the security solution will strengthen the impact of SEC WG positioning papers on which security architectures and functions are needed, which performances are expected, which best practices can be adopted.

• **SME WG**: Raise interest from SMEs into the Media domain; strengthen contribution from SMEs into 5G MEDIA related activities.

• **NetMgmt & QoS WG**: Contribute to an update on previous dissemination material from the relevant WG on Network Management. It focuses on common issues from phase II projects, such as support for vertical, challenges and barriers and architectures. There was a contribution to a brochure presented at EuCNC 2018.

• **Trials WG**: The objectives of the WG are i) to facilitate the involvement of verticals in the trials roadmap; ii) discuss and define business principles underpinning the economic viability of trials; iii) investigate and propose how to link trials to Horizon 2020 5G PPP Phase 3 in order to get funding for parts of the overall trial roadmap. 5G-MEDIA contributed with a list of significant KPIs.
Besides the formal Working Groups, 5G-MEDIA is also participating in the “COMMS Group” dedicated to promotion and communication activities at 5G PPP level. This group is coordinated and supported by the To-Euro-5G CSA.

The activity performed in each of these groups during period 1 is summarised in Table 2.

<table>
<thead>
<tr>
<th>Name and description of the 5G PPP event/meeting</th>
<th>When</th>
<th>Where</th>
<th>Attendees (name and organization) and role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steering Board phone calls</td>
<td>Periodic (every month)</td>
<td>Conference call</td>
<td>Pasquale Andriani (ENG)</td>
</tr>
<tr>
<td>Steering Board Meeting</td>
<td>12/06/2017</td>
<td>Oulu, Finland</td>
<td>Pasquale Andriani (ENG)</td>
</tr>
<tr>
<td>Steering Board Meeting</td>
<td>20/09/2017</td>
<td>Brussels, Belgium</td>
<td>Francesco Nucci (ENG)</td>
</tr>
<tr>
<td>Steering Board Meeting</td>
<td>10/01/2018</td>
<td>Brussels, Belgium</td>
<td>Pasquale Andriani (ENG)</td>
</tr>
<tr>
<td>Steering Board Meeting</td>
<td>25/05/2018</td>
<td>Heidelberg (Germany)</td>
<td>Pasquale Andriani (ENG)</td>
</tr>
<tr>
<td>5G PPP Technology Board calls</td>
<td>Periodic (every 2-3 weeks)</td>
<td>Conference calls</td>
<td>Stamatia Rizou (SILO)</td>
</tr>
<tr>
<td>(including participation in TB Cartography calls</td>
<td>Periodic (every month)</td>
<td>Conference call</td>
<td>Stamatia Rizou (SILO), Pasquale Andriani (ENG) (remotely)</td>
</tr>
<tr>
<td>(4/12/17, 22/2/18), planning for contributions to TB (TB plans, Verticals cartography, golden nuggets)), planning contributions to EuCNC joint paper,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5G PPP Technology Board Meeting</td>
<td>13/10/2017</td>
<td>Brussels, Belgium</td>
<td>Stamatia Rizou (SILO), Ugur Acar (NET)</td>
</tr>
<tr>
<td>5G PPP Architecture WG</td>
<td>Periodic (each 2 week)</td>
<td>Conference calls</td>
<td>Stamatia Rizou (SILO), Ugur Acar (NET)</td>
</tr>
<tr>
<td>5G PPP Software Networks WG</td>
<td>24/10/2017</td>
<td>Conference call</td>
<td>David Griffin (UCL)</td>
</tr>
<tr>
<td>5G PPP Software Networks WG</td>
<td>9/1/18, 14/2/18, 28/2/18</td>
<td>Conference calls</td>
<td>David Griffin (UCL)</td>
</tr>
<tr>
<td>5G PPP SME WG phone call</td>
<td>Periodic</td>
<td>Conference calls</td>
<td>Nicola Ciulli (NXW), Jacques Magen and Giulia Pastor (IINV)</td>
</tr>
<tr>
<td>5G PPP COMMS WG</td>
<td>Periodic (every month)</td>
<td>Conference call</td>
<td>Giulia Pastor, Jose Gonzalez (IINV)</td>
</tr>
<tr>
<td>5G PPP Vision WG</td>
<td>20/10/2017</td>
<td>Conference call</td>
<td>Jacques Magen (IINV)</td>
</tr>
</tbody>
</table>
Name and description of the 5G PPP event/meeting | When | Where | Attendees (name and organization) and role
--- | --- | --- | ---
5G PPP Security WG Meeting | 11/10/2017 | F2F Meeting, Turin (IT) | Gino Carrozzo (NXW)
5G PPP Security WG. Monthly telcos with project presentations, physical meeting in Turin in Oct 2017, planning contributions to Security whitepaper version 2.0, planning contributions to Security whitepaper version 2.0 | 13/12/2017 02/02/2018 | Conference Calls | Gino Carrozzo (NXW)
5G PPP Net Mgmt & QoS WG | Periodic (every month) | Conference calls | George Agapiou (OTE)
5G PPP Trials WG | Periodic (every 3 weeks) | Conference calls | George Agapiou (OTE)

In addition to the participation in these groups, it is worth noting other relevant contributions from the project in this period:

- 5G PPP’s European 5G Annual Journal 2018⁵;
- 5G PPP Software Network WG White Paper “From Webscale to Telco, the Cloud Native Journey”⁶;
- 5G PPP Vertical Cartography and Golden Nuggets;

Information on latest progress and news from the 5G Infrastructure Association and the 5G PPP has been regularly forwarded whenever relevant to the 5G-MEDIA partners, thanks to the 5G IA Board members involved in the project (i.e. Nicola Ciulli from NXW and Jacques Magen from IINV).

2.1.4.2 Collaboration with 5G PPP projects

5G-MEDIA maintains active communication channels with the majority of Phase 2 projects and the 5G PPP’s CSA (To-Euro-5G project), collaborating in initiatives such as the organization and participation of workshops, or mutual promotion in social media. Such collaboration is often driven by the meetings in the Steering and Technical Boards and also facilitated when some 5G-MEDIA partners are partners in other 5G PPP projects.

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⁵ 5G PPP’s European 5G Annual Journal 2018: [https://5g-ppp.eu/annual-journal/](https://5g-ppp.eu/annual-journal/)

In this first period of the project, there are 2 collaborations to be highlighted in terms of impact:

- The organization of the dedicated workshop “Media delivery innovations using flexible network models in 5G” within the IEEE Broadband Multimedia Systems and Broadcasting (BMSB) 2018, conference co-organized by 5G-Xcast project. The conferences organised a main 5G workshop approaching the last innovations and research activities in 5G PPP, as well as hosting workshops from several 5G PPP projects.

Figure 2 – 5G-MEDIA Representation at IEEE BMSB 2018

- The participation in 4 different workshops at EuCNC 2018:

Figure 3 – Promotion banner for EuCNC 2018

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• Co-organisation of the full-day Workshop 1\(^8\), “Vertical Industries & Services for 5G”, in cooperation with the following projects: 5G-Xcast, SaT5G, 5GCity, IORL, Clear5G, 5GCAR, Global5G, IRACON and FLAME;

• Participation in Workshop 2\(^9\), “From cloud ready to cloud native transformation: What it means and Why it matters”. The workshop was endorsed by the Software Networks Working Group and supported by the projects NGPaaS, SLICENET, 5G-TRANSFORMER, MATILDA, Metro-Haul, 5G TANGO, 5GEX, 5G-PHOS and NRG5;

• Participation in Workshop 3\(^10\), “2nd Multi-provider, multi-vendor, multi-player orchestration: from distributed cloud to edge and fog environments in 5G”. The workshop provided the links between 5G PPP phase 1 projects and new 5G PPP projects conducting research in the areas of SDN and NFV multi-domain orchestration and federation, fog, edge and distributed cloud computing, empowering effective knowledge transfer, potent partnerships and mutual collaboration amongst them.

• Participation in Workshop 6\(^11\), “5th International Workshop on programmable networks: Demystifying software networks for Vertical Industries”. This workshop aimed at bringing together top researchers in the area of software networks under the umbrella of the EU H2020 5G PPP projects to share their ideas and research results, and hence create an opportunity for synergy. Some of the projects participating were 5GTANGO, MATILDA, 5GCITY, 5GESSENCE and NRG5.

As already highlighted, the cooperation with the Phase 2 project To-Euro-5G, the CSA in charge of the overall coordination of the 5G PPP in support to the 5G IA and the EC, has been happening since the beginning of the project, especially through the COMMS group and via the Steering Board and Technical Board. 5G-MEDIA contributed to the new version of the 5G PPP Phase 2 brochure\(^12\) produced by To-Euro-5G.

\(^8\) EuCNC 2018 Workshop 1: https://www.eucnc.eu/workshops/workshop-1/


\(^11\) EuCNC 2018 Workshop 6: https://www.eucnc.eu/workshops/workshop-6/

2.1.4.3 Collaboration with other initiatives

5G-MEDIA has contributed in this first period to the joint 5G Working Group established between two European Technology Platforms, the New European Media (NEM) Initiative\footnote{Cf. \url{https://nem-initiative.org/}} and NetWorld2020\footnote{Cf. \url{https://www.networld2020.eu/}}. This WG started in 2014 with the objective to push requirements from content & media domain in order to influence Network and service research (usage push) but also should have to share network and service innovation (techno push) that could offer new possibilities to content providers and creative industries.

In such context, 5G-MEDIA provided inputs to the strategic paper released by the NEM 5G joint Working Group with Networld2020 ETP, “5G Phase 3 - Media Pilots”\footnote{"5G Phase 3 - Media Pilots", NEM 5G joint Working Group with Networld2020 ETP, February 2018: \url{https://nem-initiative.org/wp-content/uploads/2018/03/nem-5g-wg-february-2018.pdf}}, which aims at describing potential pilots from the Media and Content domains that can be developed to take advantage of the future 5G networks. The working group identified ten potential pilots Suitable to verify the 5G KPIs but should also show case realistic use cases that could be conducted all around Europe during the experimental phase of 5G.

### 2.1.5 Report on collaboration with Open Source and Standardisation Communities

Starting from the preliminary plans outlined in D7.2, the engagement with Open Source and Standardisation communities during the first period can be summarised in the points below:

<table>
<thead>
<tr>
<th>Table 3 – 5G-MEDIA Contribution to Open Source and Standardisation Communities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Community</strong></td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Open Source MANO (OSM)/OpenNebula/OpenID</td>
</tr>
</tbody>
</table>

13 Cf. \url{https://nem-initiative.org/}

14 Cf. \url{https://www.networld2020.eu/}


16 Cf. \url{https://osm.etsi.org/gerrit/#/c/5805/1}
<table>
<thead>
<tr>
<th>Community</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>the official mailing list. Engineering participated to the OSM workshop in Rome in February 2018 at CNR HQ and to the 2nd OSM HackFest in Madrid in March 2018 at Intel HQ. In July 2018, the project became an official contributor to the Research activities of OSM(^\text{18}). The 5G-MEDIA Service Virtualization Platform (SVP) includes components of the ETSI MANO architecture and specifically we have selected Open Source MANO (OSM) for the functions related to Service and Resource orchestration on top of three types of VIMs (OpenStack, OpenNebula and Apache OpenWhisk). In particular, the 5G-MEDIA team is working on orchestration and lifecycle management of NS(s) and VNF(s) for media services, from which potential contributions to OSM can originate:</td>
</tr>
</tbody>
</table>
|           | • VIM plugin for OpenNebula  
|           | • VIM plugin for the serverless cloud platform OpenWhisk  
|           | • A generic App & Service catalogue to interface to multiple NFVOs, capable of managing standard formats for descriptors (ETSI NFV SOL004, ETSI NFV SOL001 draft) via standard aligned APIs (ETSI NFV SOL005) and collect catalogue elements from multiple service providers, each with its own specialised offer of VNF(s) and NS(s)  
|           | • Integration of OpenID Connect as a standard authentication protocol to support a single Identity Provider and multiple resource providers scenario with authentication based on the user profile information  
|           | • Extensions for Function as a Service emulation in vim-emu  
| OpenWhisk | A number of contributions have been produced by IBM in the form of pull requests about a lighter version of OpenWhisk – called lean OpenWhisk\(^\text{19}\) -, which has a reduced resources footprint suitable to be part of 5G-MEDIA SDK and deployment at the edge in a resource constrained environment. |


\(^{19}\) Lean OpenWhisk: [https://github.com/apache/incubator-openwhisk/pull/2984](https://github.com/apache/incubator-openwhisk/pull/2984), [https://github.com/apache/incubator-openwhisk/pull/3886](https://github.com/apache/incubator-openwhisk/pull/3886)
Community | Contribution
---|---
ETSI | Other contributions to NFV standards have been done by NXW based on the NFV/MEC know-how generated also through the work in 5G-MEDIA. In particular, NXW team has been selected by ETSI to work in:

- Three Specialist Task Forces (STF): the first - STF530 - called by ETSI NFV group to work on a Gap Analysis document between NFV IFA and OpenStack APIs, completed in September 2017; the second called by ETSI MEC group to work on developing the MEC Testing Framework, active in the period April 2017/April 2018; the third called by ETSI NFV group to work on NFV API conformance test specification, active in the period June 2018 – June 2019;
- Two NFV Plugtests as member and rapporteur of the ETSI technical support team (specifically in the 2nd NFV Plugtests run in January 2018 AND 3rd NFV Plugtests run in May 2018, both at ETSI Headquarters in Sophia-Antipolis (France).

Additionally, 5G-MEDIA participated in NFV & Zero Touch World Congress in May 2018\(^\text{20}\), explaining our contribution to the Open Source community.

![Figure 4 – 5G-MEDIA participation at NFV & Zero Touch World Congress\(^\text{21}\)](https://www.layer123.com/nfv)

\(^{20}\) Cf. [https://www.layer123.com/nfv](https://www.layer123.com/nfv)

\(^{21}\) Cf. [https://youtu.be/zKRYYm8BqYs](https://youtu.be/zKRYYm8BqYs)
2.2 Report on Dissemination activities

The dissemination plan described in D7.2 underlines the actions envisioned to raise awareness about the results of the project among a relevant target audience, creating understanding and aiming for action.

The objectives of the dissemination strategy are as follows:

- To set up the information dissemination mechanisms and priorities of 5G-MEDIA;
- To establish, maintain and grow a community around 5G-MEDIA in coordination with the stakeholder management framework (section 3.2);
- To create visibility and promote the work and results for target stakeholders by creating promotional material and information campaigns;
- To disseminate project outcomes to the widest possible community through various channels and instruments. External participation and knowledge sharing will be encouraged through networking activities and events aimed at increasing the impact potential and enriching the contribution to the project;
- To conduct liaison with other EU, national and international initiatives to maximise the impact.

2.2.1 Channels and measures

To cope with these objectives during the first period the project leveraged an effective and comprehensive set of channels and measures, presenting its key results at M15 in Table 4:

<table>
<thead>
<tr>
<th>Channel</th>
<th>Measure</th>
<th>Key Results M15</th>
</tr>
</thead>
</table>
| Material | Project Documentation | • 17 public deliverables accessible via the website  
  • Dissemination guidelines for internal purposes (c.f. Annex I – Revised Dissemination Guidelines) |
| | Scientific and/or technical publications | • 12 technical publications  
  • 1 technical poster |
| | Contribution to non-scientific and non-peer-reviewed publication | • 5G PPP European 5G Annual Journal 2018  
  • 5G PPP Software Network WG White Paper “From Webscale to Telco, the Cloud Native Journey”  
  • 5G PPP Vertical Cartography and Golden Nuggets  
  • NEM-Networld2020 white paper “5G Phase 3 - Media Pilots”  
  • 5G PPP Phase 2 projects brochure |
## Channel | Measure | Key Results M15
---|---|---
**Events** | Participation to Conferences, Workshops | • 28 events, which includes 19 conferences, 8 workshops and 1 brokerage event
| Organisation of workshops | • 1 full-day workshop co-organised at EuCNC 2018
| | • 1 workshop fully-organised at BMSB 2018
| Exhibition | • 1 Use Case demo presented at EuCNC 2018
**5G PPP Ecosystem** | Steering Board | • Periodic phone calls
| | • 4 physical meetings
| Technical Board | • Periodic phone calls
| | • 1 physical meeting
| **Working Groups** | • 8 Working Groups: Architecture WG, Software Network WG, Vision WG, Security WG, SME WG, Trial WG, NetMgmt & QoS WG and COMMS WG
| | • Periodic phone calls
| | • 1 physical meeting
| **Collaboration 5G PPP Projects** | • *Details in Section 2.1.4.2*
**Open Source and Standardisation Communities** | Technical contribution | • *Details in Section 2.1.5*

### 2.2.2 Participation in events

5G-MEDIA brings the consortium the opportunity to identify, select and participate in events related to the following target sectors, communities or interest:

- 5G and 5G PPP at European level;
- Media and Entertainment, Broadcasters;
- Communication Network, Software Defined Networks (SDN), Network Function Virtualisation (NFV);
- Serverless Computing, Edge computing, DevOps.

Throughout this reporting period (M1-M15), 5G-MEDIA has actively participated in a total number of 22 events, interacting with target stakeholders and promoting the outcomes of the project. Table 5 sums up the information of those one covered between M17 to M15 in chronological order. The events where 5G-MEDIA participated from M1 to M6 were already reported in D7.2.
<table>
<thead>
<tr>
<th>Name of the event</th>
<th>When</th>
<th>Where</th>
<th>Attendees (name and organization)</th>
<th>Type of event</th>
<th>Target stakeholders</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT Proposers’ Day</td>
<td>08-10/11/2017</td>
<td>Budapest (Hungary)</td>
<td>Jose Gonzalez (IINV)</td>
<td>Brokerage Event</td>
<td>• 5G Industry</td>
<td>This networking event centres on European ICT Research &amp; Innovation with a special focus on the Horizon 2020 Work Programme for 2018-20</td>
</tr>
<tr>
<td>EBU Cloud Intelligence Seminar</td>
<td>20-21/11/2017</td>
<td>Geneva (Switzerland)</td>
<td>Madeleine Keltsch (IRT)</td>
<td>Conference/Seminar</td>
<td>• Media Industry</td>
<td>Research on virtual media functions for 5G-MEDIA applications</td>
</tr>
<tr>
<td>NEM Summit 2017</td>
<td>29/11/2017</td>
<td>Madrid (Spain)</td>
<td>Pasquale Andriani (ENG)/ Federico Alvarez (UPM)</td>
<td>Conference</td>
<td>• 5G Industry</td>
<td>Presentation of the paper &quot;Media industry meets 5G: the 5G-MEDIA project in 5G PPP phase 2&quot; and dissemination in different round tables</td>
</tr>
<tr>
<td>II Conference on Innovation and Digital Transformation</td>
<td>14/12/2017</td>
<td>Madrid (Spain)</td>
<td>Gabriel Solsona (RTVE)</td>
<td>Conference</td>
<td>• Media Industry</td>
<td>Shown the lines of innovation in which RTVE is participating, including where 5G-Media project has been announced</td>
</tr>
<tr>
<td>FITCE</td>
<td>15/12/2017</td>
<td>Thessaloniki (Greece)</td>
<td>George Agapiou (OTE)</td>
<td>Conference</td>
<td>• 5G Industry</td>
<td>Bring the 5G-Media infrastructure use case testing benefits to the awareness of the audience</td>
</tr>
<tr>
<td>OSM Tutorial @OSM-MR#4 Rome</td>
<td>5/02/2018</td>
<td>Rome (Italy)</td>
<td>Pasquale Andriani, Francesco Iadanza (ENG)</td>
<td>Workshop</td>
<td>• 5G Industry</td>
<td>Up to date knowledge about ETSI Open Source Mano initiative</td>
</tr>
<tr>
<td>Name of the event</td>
<td>When</td>
<td>Where</td>
<td>Attendees (name and organization)</td>
<td>Type of event</td>
<td>Target stakeholders</td>
<td>Impact</td>
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</tr>
<tr>
<td>Mobile World Congress 2018</td>
<td>26/02-01/03/2018</td>
<td>Barcelona (Spain)</td>
<td>Jose Gonzalez (IIIN)</td>
<td>Conference</td>
<td>ALL</td>
<td>World's largest exhibition for the mobile industry, featuring representatives from mobile operators, device manufacturers, technology providers, vendors and content owners from across the world</td>
</tr>
<tr>
<td>IEEE INFOCOM 2018</td>
<td>15-19/04/2018</td>
<td>Hawaii (USA)</td>
<td>Truong Khoa Phan (UCL)</td>
<td>Conference</td>
<td>5G Industry, Global 5G, Others</td>
<td>Dissemination of the research activities performed within 5G-Media</td>
</tr>
<tr>
<td>NFV &amp; Zero Touch World Congress</td>
<td>24-26/04/2018</td>
<td>San Jose, CA (USA)</td>
<td>Patrick Lopez (TID)</td>
<td>Conference</td>
<td>5G Industry, Standards, Global 5G, Open Source</td>
<td>Principal conference for network transformation in USA</td>
</tr>
<tr>
<td>SELFNET Industry Workshop</td>
<td>24/05/2018</td>
<td>Heidelberg (Germany)</td>
<td>Pasquale Andriani (ENG)</td>
<td>Workshop</td>
<td>5G PPP</td>
<td>First-hand information on the innovative network management framework developed by 5G PPP project SELFNET.</td>
</tr>
<tr>
<td>5G Forum</td>
<td>25-26/04/2018</td>
<td>Malaga (Spain)</td>
<td>Pere Vila (RTVE), Adolfo Muñoz (RTVE), Jose Manuel Menendez (UPM)</td>
<td>Conference</td>
<td>5G Industry, Media Industry, 5G PPP, Others</td>
<td>First multidisciplinary conference around 5G technology in Spain</td>
</tr>
<tr>
<td>Name of the event</td>
<td>When</td>
<td>Where</td>
<td>Attendees (name and organization)</td>
<td>Type of event</td>
<td>Target stakeholders</td>
<td>Impact</td>
</tr>
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<td>--------------------------------------------------------</td>
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<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>25th NEM General Assembly</td>
<td>30/05/2018</td>
<td>Brussels (Belgium)</td>
<td>David Jimenez (UPM)</td>
<td>Conference</td>
<td>• Media Industry</td>
<td>NEM Strategies and talks on media related topics</td>
</tr>
<tr>
<td>QoMeX 2018</td>
<td>29/05-01/06/2018</td>
<td>Sardinia (Italy)</td>
<td>Dimitrios Zarpalas (CERTH)</td>
<td>Conference</td>
<td>• 5G Industry</td>
<td>Dissemination of the research activities performed within 5G-Media</td>
</tr>
<tr>
<td>ACM SYSTOR 2018</td>
<td>4-6/06/2018</td>
<td>Haifa (Israel)</td>
<td>David Breitgand (IBM)</td>
<td>Conference</td>
<td>• 5G Industry</td>
<td>An opportunity to socialise 5G-MEDIA approach while emphasising value of cloud native FaaS technology to VNF orchestration in 5G-MEDIA scenarios</td>
</tr>
<tr>
<td>IEEE Broadband Multimedia Systems and Broadcasting (BMSB) 2018</td>
<td>08/06/2018</td>
<td>Valencia (Spain)</td>
<td>Alexandros Doumanoglou (CERTH), Madeleine Keltsch (IRT), Gino Carrozzo (NXW), Juan Pedro Lopez (UPM)</td>
<td>Conference</td>
<td>• 5G Industry</td>
<td>Dissemination of 5G-Media architecture, UC1, UC2 and UC3</td>
</tr>
<tr>
<td>BMSB Workshop “Media delivery innovations using flexible network models in 5G”</td>
<td>08/06/2018</td>
<td>Valencia (Spain)</td>
<td>Alexandros Doumanoglou (CERTH), Madeleine Keltsch (IRT), Gino Carrozzo (NXW), Juan Pedro Lopez (UPM)</td>
<td>Workshop</td>
<td>• 5G Industry</td>
<td>Dissemination of 5G-Media architecture, UC1, UC2 and UC3</td>
</tr>
<tr>
<td>Name of the event</td>
<td>When</td>
<td>Where</td>
<td>Attendees (name and organization)</td>
<td>Type of event</td>
<td>Target stakeholders</td>
<td>Impact</td>
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</tr>
<tr>
<td><strong>Industrial Dissemination Day at OTEAcademy</strong></td>
<td>22/06/2018</td>
<td>Athens (Greece)</td>
<td>Antonis Gkortzis (SILO)</td>
<td>Workshop</td>
<td>5G Industry, Others</td>
<td>Promotion of the project among young researchers of the Marie Curie Programs “5G-Wireless” and “5G-AuRA”</td>
</tr>
<tr>
<td><strong>EUCNC 2018</strong></td>
<td>18-21/06/2018</td>
<td>Ljubljana (Slovenia)</td>
<td>Stamatia Rizou (SILO), Pasquale Andriani (ENG), David Breitgand (IBM), Gino Carrozzo (NXW)</td>
<td>Conference</td>
<td>5G Industry, 5G PPP, Policy Makers, Others</td>
<td>Promotion of the technical outcomes achieved among the 5G community</td>
</tr>
<tr>
<td><strong>EuCNC 2018 Workshop 1 “Vertical Industries &amp; Services for 5G”</strong></td>
<td>18/06/2018</td>
<td>Ljubljana (Slovenia)</td>
<td>Pasquale Andriani (ENG)</td>
<td>Workshop</td>
<td>5G Industry, 5G PPP, Policy Makers, Others</td>
<td>Promotion of the technical outcomes achieved among the 5G community</td>
</tr>
<tr>
<td><strong>EuCNC 2018 Workshop 2 “From cloud ready to cloud native transformation: What it means and Why it matters”</strong></td>
<td>18/06/2018</td>
<td>Ljubljana (Slovenia)</td>
<td>David Breitgand (IBM)</td>
<td>Workshop</td>
<td>5G Industry, 5G PPP, Policy Makers, Others</td>
<td>Promotion of the technical outcomes achieved among the 5G community</td>
</tr>
<tr>
<td>Name of the event</td>
<td>When</td>
<td>Where</td>
<td>Attendees (name and organization)</td>
<td>Type of event</td>
<td>Target stakeholders</td>
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<tr>
<td>EuCNC 2018 Workshop 3 “2nd Multi-provider, multi-vendor, multi-player orchestration: from distributed cloud to edge and fog environments in 5G”</td>
<td>18/06/2018</td>
<td>Ljubljana (Slovenia)</td>
<td>Stamatia Rizou (SiLO)</td>
<td>Workshop</td>
<td>• 5G Industry</td>
<td>Promotion of the technical outcomes achieved among the 5G community</td>
</tr>
<tr>
<td>EuCNC 2018 Workshop 6 “5th International Workshop on programmable networks: Demystifying software networks for Vertical Industries”</td>
<td>18/06/2018</td>
<td>Ljubljana (Slovenia)</td>
<td>Gino Carrozzo (NXW)</td>
<td>Workshop</td>
<td>• 5G Industry</td>
<td>Promotion of the technical outcomes achieved among the 5G community</td>
</tr>
</tbody>
</table>
2.2.3 Technical Dissemination

The purpose of this activity is to ensure that technical achievements and experimental findings of the project will be known and exploited by the larger research community and 5G related industry stakeholders. This effort is coordinated among all the 5G-MEDIA technical partners, taking into consideration their specific objectives and fields of expertise. Partners are encouraged to constantly identify and propose new opportunities.

Table 6 shows the achievements accomplished between M1-M15, with a total number of 13 technical publications. 5G-MEDIA made the decision to make available the technical documentation through OpenAIRE\(^\text{22}\), a H2020 European initiative with the mission to promote open scholarship and substantially improve the discoverability and reusability of research publications and data. Additionally, the outcomes are linked in the 5G-MEDIA website\(^\text{23}\).

\(^{22}\) OpenAIRE 5G-MEDIA page: https://www.openaire.eu/search/project?lang=en&projectId=corda__h2020::0cf2e209d7ace632ffdd5653ea738df73

\(^{23}\) 5G-MEDIA Publications: http://www.5gmedia.eu/outcomes/publication/
### Table 6 - Technical dissemination activities (M1-M15)

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Journal / Book / Conference</th>
<th>DOI</th>
<th>Repository Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of Experience for 3-D Immersive Media Streaming</td>
<td>Doumanoglou, Alexandros; Griffin, David; Serrano, Javier; Zioulis, Nikolaos; Phan, Truong Khoa; Jiménez, David; Zarpalas, Dimitrios; Alvarez, Federico; Rio, Miguel; Daras, Petros</td>
<td>Transactions on Broadcasting 64(2) 379 - 391</td>
<td>10.1109/TBC.2018.2823909</td>
<td><a href="https://zenodo.org/record/1290724">https://zenodo.org/record/1290724</a></td>
</tr>
<tr>
<td>Media industry meets 5G: the 5G-MEDIA project in 5G PPP phase 2</td>
<td>Andriani, Pasquale; Nucci, Francesco Saverio; Pantelopoulos, Stelios; Rizou, Stamatia; Griffin, David; Alvarez, Federico; Jimenez, David; Daras, Petros; Zarpalas, Dimitris; Fernandez, Estanislao; Neudel, Ralf; Gonzalez, José; Fritzsch, Igor; Carrozzo, Gino; Tsirakis, Christos; Prieto, Óscar; Acar, Ugur; Breitgand, David</td>
<td>NEM Summit 2017, Madrid, Spain, 29-30 November 2017 (Session Opening Plenary Session of the NEM Summit 2017)</td>
<td>10.5281/zenodo.1147623</td>
<td><a href="https://zenodo.org/record/1147624">https://zenodo.org/record/1147624</a></td>
</tr>
<tr>
<td>Subjective quality assessment of textured human full-body 3D-reconstructions</td>
<td>Zioulis, Nikolaos; Doumanoglou, Alexandros; Christakis, Emmanouil; Zarpalas, Dimitrios; Daras, Petros</td>
<td>International Conference on Quality of Multimedia Experience (QoMEX), Sardinia, Italy, 29 May - 01 June 2018 (Session OSS - Video &amp; 3D, Part 3)</td>
<td>10.5281/zenodo.1319964</td>
<td><a href="https://zenodo.org/record/1319964">https://zenodo.org/record/1319964</a></td>
</tr>
<tr>
<td>Remote production and mobile contribution over 5G networks: scenarios, requirements and approaches for broadcast quality media streaming</td>
<td>Keltsch, Madeleine; Prokesch, Sebastian; Oscar Prieto, Gordo; Serrano, Javier; Phan, Truong Khoa; Fritzsch, Igor</td>
<td>IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB), Valencia (Spain), 6-8 June 2018</td>
<td>10.29007/n4ll</td>
<td><a href="https://zenodo.org/record/1299183">https://zenodo.org/record/1299183</a></td>
</tr>
<tr>
<td>Title</td>
<td>Authors</td>
<td>Journal / Book / Conference</td>
<td>DOI</td>
<td>Repository Link</td>
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<tr>
<td>A service platform architecture enabling programmable edge-to-cloud virtualization for the 5G Media industry</td>
<td>Rizou, Stamatia; Athanasoulis, Panagiotis; Andriani, Pasquale; Iadanza, Francesco; Carrozzo, Gino; Breitgand, David; Weit, David; Griffin, David; Jimenez, David; Acar, Ugur; Gordo, Oscar Prieto</td>
<td>IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB), Valencia (Spain), 6-8 June 2018</td>
<td>10.29007/bn68</td>
<td><a href="https://zenodo.org/record/1299197">https://zenodo.org/record/1299197</a></td>
</tr>
<tr>
<td>Virtual CDNs over 5G networks: scenarios and requirements for ultra-high definition media distribution</td>
<td>Carrozzo, Gino; Moscatelli, Francesca; Solsona, Gabriel; Gordo, Oscar Prieto; Keltsch, Madeleine; Schmalohr, Martin</td>
<td>IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB), Valencia (Spain), 6-8 June 2018</td>
<td>10.29007/c5r4</td>
<td><a href="https://zenodo.org/record/1299211">https://zenodo.org/record/1299211</a></td>
</tr>
<tr>
<td>Utilitarian Placement of Composite Services</td>
<td>Phan, Truong Khoa; Rocha, Miguel; Griffin, David; Rio, Miguel</td>
<td>IEEE Transactions on Network and Service Management, vol. 15, no. 2, pp. 638-649, June 2018</td>
<td>10.1109/TNSM.2018.2798413</td>
<td><a href="https://zenodo.org/record/1237802">https://zenodo.org/record/1237802</a></td>
</tr>
<tr>
<td>A System Architecture for Live Immersive 3D-Media Transcoding over 5G Networks</td>
<td>Doumanoglou, Alexandros; Zioulis, Nikolaos; Griffin, David; Serrano, Javier; Phan, Truong Khoa; Jimenez, David; Zarpalas, Dimitrios; Alvarez, Federico; Rio, Miguel; Daras, Petros</td>
<td>IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB), Valencia (Spain), 6-8 June 2018</td>
<td>10.29007/t9pb</td>
<td><a href="https://zenodo.org/record/1304910">https://zenodo.org/record/1304910</a></td>
</tr>
<tr>
<td>Virtualized Module for Distributed Quality Assessment Applied to Video Streaming in 5G Networks Environments</td>
<td>López, Juan Pedro; Jimenez, David; Rodrigo, Juan Antonio; Sanchez, Nuria; Menendez, Jose Manuel; Alvarez, Federico; Lalueza, José María</td>
<td>IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB), Valencia (Spain), 6-8 June 2018</td>
<td>10.29007/pntm</td>
<td><a href="https://zenodo.org/record/1303988">https://zenodo.org/record/1303988</a></td>
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<tr>
<td>DR-Cache: Distributed Resilient Caching with Latency Guarantees</td>
<td>Li, Jian; Phan, Truong Khoa; Chai, Wei Koong; Tuncer, Daphne; Pavlou, George; Griffin, David; Rio, Miguel</td>
<td>IEEE INFOCOM. (In press), Honolulu, HI, USA, 15 April 2018 - 19 April 2018</td>
<td>10.5281/zenodo.1303988</td>
<td><a href="https://zenodo.org/record/1237804">https://zenodo.org/record/1237804</a></td>
</tr>
<tr>
<td>Towards Serverless NFV for 5G Media Applications</td>
<td>Breitgand, David; Weit, Avi; Rizou, Stamatia; Griffin, David; Acar, Ugur; Carrozzo, Gino; Zioulis, Nikolaos; Andriani, Pasquale; Iadanza, Francesco</td>
<td>11th ACM International Systems and Storage Conference (SYSTOR), Haifa (Israel), 4-6 June 2018</td>
<td>10.1145/3211890.3211916</td>
<td><a href="https://zenodo.org/record/1299116">https://zenodo.org/record/1299116</a></td>
</tr>
<tr>
<td>Title</td>
<td>Authors</td>
<td>Journal / Book / Conference</td>
<td>DOI</td>
<td>Repository Link</td>
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</tr>
<tr>
<td>On the Feasibility of Using Current Data Centre Infrastructure for Latency-sensitive Applications</td>
<td>Griffin, David; Phan, Truong Khoa; Maini, Elisa; Rio, Miguel; Simoens, Pieter</td>
<td>IEEE Transactions on Cloud Computing</td>
<td>10.1109/TCC.2018.2822271</td>
<td><a href="http://discovery.ucl.ac.uk/10046771/">http://discovery.ucl.ac.uk/10046771/</a></td>
</tr>
</tbody>
</table>
2.3 Report on Communication activities

Communication activities involve strategic and specific measures for promoting the project itself and its activities. In addition to the mentioned key stakeholders, the communication plan will target a multitude of audiences, including the public society.

The communication plan that 5G-MEDIA is implementing was defined in D7.2 and follows the following objectives:

- Set up internal communication mechanisms among the partners of the consortium;
- Support the external promotion of 5G-MEDIA and its outcomes, managing the branding;
- Deliver top level messages about the project to all identified and relevant stakeholders;
- Raise awareness to non-specialised audiences of the added value of 5G-MEDIA;

The following communication measures have been put in place in the first period of the project:

- Operational since M2 and documented in D7.1
- 16 posts
- 8,426 Views
- 2,581 Unique Visitors
- 1 Twitter account, with 480+ followers and 240+ tweets
- 1 LinkedIn account, with 280 connections, 292 followers and 1 Discussion Group
- 1 YouTube channel, with 581 views and 568 minutes of Watch time
- 1 referral from SDxCentral

<table>
<thead>
<tr>
<th>Channel</th>
<th>Measure</th>
<th>Status M15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online</td>
<td>Project Website</td>
<td>• Operational since M2 and documented in D7.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 16 posts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 8,426 Views</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2,581 Unique Visitors</td>
</tr>
<tr>
<td></td>
<td>Social Media</td>
<td>• 1 Twitter account, with 480+ followers and 240+ tweets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 1 LinkedIn account, with 280 connections, 292 followers and 1 Discussion Group</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 1 YouTube channel, with 581 views and 568 minutes of Watch time</td>
</tr>
<tr>
<td></td>
<td>Other media</td>
<td>• 1 referral from SDxCentral</td>
</tr>
<tr>
<td>Promotional Material</td>
<td>Brochures/ Flyers</td>
<td>• 3 versions of the 5G-MEDIA Project brochure</td>
</tr>
<tr>
<td></td>
<td>Graphic Material</td>
<td>• 3 versions of Stakeholder map</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 3 diagrams for the UCs</td>
</tr>
<tr>
<td></td>
<td>Newsletter</td>
<td>• 2 Newsletters</td>
</tr>
<tr>
<td></td>
<td>Multimedia Material</td>
<td>• 6 videos produced</td>
</tr>
<tr>
<td></td>
<td>Brand and Templates</td>
<td>• Refinement of project logo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reference colour palette</td>
</tr>
</tbody>
</table>
2.3.1 Project website

The 5G-MEDIA website is available at the following reference [http://www.5gmedia.eu/] and its full report can be found in 5G-MEDIA’s D7.1. The website is one of the most relevant entry points of the project as it contains basic information about the initiative, such as objectives, technical approach, consortium, use cases, outcomes, news, and contact information. It is highly important to provide an easy-to-understand and clean access for the audience willing to discover more about the project.

Since its publication in M2 (July 2017), this resource has registered a total number of:

- 8,426 Views
- 2,581 Unique Visitors

The website is divided in the following sections:

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
</table>
| Home | Entry point of the site. It contains:
  - A dynamic video banner that highlights some key aspects of the project
  - Lightweight description of project goals
  - Twitter feed
  - Overview of partners
  There are a couple of sub-sections that refer to the ‘Technical approach’ and the ‘Stakeholder map’. |

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25 NOTE: These indicators refer to 17 August 2018
### Section Description

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partners</td>
<td>Description of each consortium partner, with references to their websites.</td>
</tr>
<tr>
<td>Use Cases</td>
<td>Dedicated pages for the 3 use cases, briefly describing their scenarios. It has been embedded their new diagrams and the reference to the self-explanatory videos published in YouTube.</td>
</tr>
</tbody>
</table>
| Outcomes | Section dedicated to publish the outcomes of the project. It is divided in:  
- Deliverables, with the links to all public deliverables of the project  
- Publication, with the links to all technical publications  
- Other material, with references to other outputs of potential interest |
| News | Articles promoting activities of the project. The following blog posts have been published on the website at the time of writing (please note that the blog posts published from M1 to M6 are available in D7.2, submitted at M6):  
- 5G-MEDIA First Brochure (December 2017)  
- 5G-MEDIA Participation @NEM Summit 2017 (December 2017)  
- 5G-MEDIA @MWC18 (February 2018)  
- 5G-MEDIA Technical Publications (May 2018)  
- 5G-MEDIA Activities: May & June 2018 (May 2018)  
- 5G-MEDIA at EUCNC 2018 (May 2018)  
- IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (June 2018)  
- 5G-MEDIA Technical Dissemination Activities carried out by CERTH (July 2018)  
- 5G-MEDIA Year 1 Achievements (July 2018) |

It is worth noting that each blog post published on the 5G-MEDIA website have also been published as a “news” in the 5G PPP website, thanks to the synergic coordination with the To-Euro-5G CSA.

In all the posts published on the 5G-MEDIA social media accounts (Twitter and LinkedIn) the website link is included, with reference to the relevant page and section of the website. The objective is clearly to drive and increase traffic to the 5G-MEDIA website. In all the promotional and editorial material, including video, printed and e-versions, the website address is clearly indicated.

**Website statistics**

Figures below show some relevant statistics registered from the performance of the website since its launched in M2. They reflect how:

- The project has been gaining traction over its lifetime (Figure 5);
• The communication strategy has kept a constant activity flow (Figure 6). The month with the highest activity was June 2018 with 1,046 visits and 341 visitors;

• The sections that registered more traffic (Figure 7). This information will support the refinement of the website for period 2;

• How other sites refer to the website (Figure 8). Special mention goes to the referrals from SDxCentral\(^{26}\), the Trusted News & Resource Site for Software-defined Everything (SDx), SDDC, SDN, SDS, Containers NFV, Cloud and Virtualization;

• The broad geographical spectrum of the audience, covering not only Europe but also the United States, South Korea or India for instance (Figure 9).

![Figure 5 – 5G-MEDIA Website ‘All time Views’ \(^{27}\)](image)

![Figure 6 – 5G-MEDIA Website ‘Views and Visitors 2017-2018’ \(^{27}\)](image)

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\(^{26}\) Cf. [https://www.sdxcentral.com/](https://www.sdxcentral.com/)

\(^{27}\) NOTE: These indicators refer to 17 August 2018
2.3.2 Promotional material

2.3.2.1 5G-MEDIA Brochure

The first version of the project brochure was published at M6 and reported in D7.2. Since then, the brochure has been revised twice, refining its design and content to make it more appealing and easier-to-read, giving a use case centric vision. The new versions follow the structure:

- Objectives + Impact: one-page summary of the main objectives and impacts targeted by the project
D7.4 Report on dissemination, communication and community building activities and updated plan (version 1)

- One page per use case (Figure 10): introducing the use case in general terms, along with its scenarios. The use case diagrams have now the same layout and the text is more marketing-oriented (Section 2.3.2.4).
- Reference: one page with main references of the project, such as partners, 5G PPP, European Commission logo and different project channels.

Version 2\(^{28}\) was distributed at the 5G IA booth during the MWC18 (February 2018), while Version 3\(^{29}\) was ready for the workshop during the IEEE International Symposium on Broadband Multimedia Systems and Broadcasting, and EuCNC 2018 (June 2018).

2.3.2.2 5G-MEDIA First newsletter

As planned in D7.2, the first newsletter was prepared at M7 and sent on January 15\(^{th}\), 2018, via MailChimp, a marketing automation platform and an email marketing service.

This newsletter is composed of two main parts:

- 5G-MEDIA Highlights and
- 5G-MEDIA Participation in European Events

and it is available in the 5G-MEDIA website for download\(^{30}\).

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Subscription strategy

The first newsletter was sent to the 5G PPP COMMS mailing list (composed of more than 90 members) and to the 5G-MEDIA mailing list, asking the partners and our colleagues from the 5G PPP to forward it to their contacts. After that, a subscription strategy was put in place, to gather more subscriptions. This subscription strategy has been composed of two main parts:

- Twitter and LinkedIn campaigns
- Inform the 5G PPP COMMS mailing list about the procedure to subscribe to the 5G-MEDIA newsletter

Thanks to this campaign, the project has obtained 39 verified subscribers.

2.3.2.3 5G-MEDIA Second newsletter

The second 5G-MEDIA newsletter was published at the beginning of August 2018 as a recap of Period 1 achievements of the project.


Figure 11 – 5G-MEDIA 2nd Newsletter
It contains references to:

- The article ‘5G-MEDIA Year 1 Achievements’\textsuperscript{31} that highlights all those technical advances made by the project in this first period
- The 6 videos produced by the project
- The technical publications
- The contribution to the ‘European 5G Annual Journal 2018’
- The latest articles posted in the website

2.3.2.4 Branding and graphic material

Following the mandate to implement a more aggressive marketing material, the project defined a common ‘look-&-feel’ strategy which included some key lines of action:

- A reference palette of colours, which applies to all kind of promotional channel and material

\begin{figure}[h]
\centering
\includegraphics[width=0.8\textwidth]{5g_media_colours.png}
\caption{5G-MEDIA Colour Palette}
\end{figure}

- A refinement of the logo for social media channels

\begin{figure}[h]
\centering
\includegraphics[width=0.8\textwidth]{5g_media_logo.png}
\caption{5G-MEDIA Logo}
\end{figure}

- A reference photo header, free of use for commercial and non-commercial purposes granted by Unsplash\textsuperscript{32}.

\textsuperscript{31} Cf. http://www.5gmedia.eu/2018/07/24/5g-media-year-1-achievements/
\textsuperscript{32} Cf. https://unsplash.com/photos/JNuKylKXlh8U
A common layout for the main diagrams produced by the project, starting with the Use Cases.

Figure 14 – 5G-MEDIA Header

Figure 15 – 5G-MEDIA Use Case 1 Diagram

Figure 16 – 5G-MEDIA Use Case 2 Diagram
2.3.2.5 Multimedia material

As planned in D7.2, 5G-MEDIA produced a “flash video” which has been embedded as banner in the homepage of our website. The video lasts 44 seconds and gives a few highlights and keywords about the project, to make the website’s homepage more dynamic and appealing.

In addition to this, a set of video interviews has been performed at M9 during the Plenary Meeting in Istanbul.

The T7.2 team performed the following interviews:

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Questions asked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Coordinator</td>
<td>Could you please explain:</td>
</tr>
<tr>
<td></td>
<td>1. The key objectives of the projects to the general public (please, use a language which is comprehensible to a non-technical audience, the technical part will be covered by the technical manager)</td>
</tr>
<tr>
<td></td>
<td>2. The benefits and innovations the project will bring to the society and the economic impact on Media industry</td>
</tr>
<tr>
<td></td>
<td>3. How 5G-MEDIA is facing the new challenges of the media sector by leveraging on 5G systems</td>
</tr>
</tbody>
</table>
Interviewee | Questions asked
--- | ---
Technical Manager | Could you please explain:
1. The key technical objectives of the project and the key potential technical achievements to a large audience composed of the main 5G-MEDIA stakeholders
2. The technical areas where 5G-MEDIA is advancing the state of the art beyond current research and industry solutions (and those of ongoing projects)
3. How 5G-MEDIA is contributing to the 5G PPP mission and challenges

Use Case Leaders | Could you please explain:
1. The objectives of your UC
2. The impact of 5G-MEDIA on the UC
3. Describe BRIEFLY the different Scenarios of the UC

Video promotion

A dedicated promotional campaign has been put in place to disseminate and promote the video interviews.

This campaign is composed of two main steps:

- Step 1: Promotion of the 5 videos on Twitter, LinkedIn, COMMS mailing list
- Step 2: Promotion of the “Video of the day”. We promoted with the #videooftheday one video per week

2.3.3 5G-MEDIA Social media channels

5G-MEDIA is present in the following social media:

2.3.3.1 Twitter

Twitter (@5GPPPSGMEDIA) is used as one of the main communication channels of the project. It allows 5G-MEDIA to inform its community about its achievements, participation in events, publications etc.

Tweets related to any 5G-MEDIA activity are often referring to the 5G PPP Twitter account (@5GPPP). Thanks to this approach, the 5G-MEDIA tweets are also retweeted by the 5G PPP account and they can reach a broader audience (the 5G PPP twitter account counts more

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33 5G-MEDIA Twitter Account: https://twitter.com/5GPPPSGMEDIA
than 3000 followers). Specific attention has been also paid to the reference of the most appropriate hashtags and accounts on a case-by-case basis to broaden visibility, since they can be a very useful tool for acquiring new followers, but they need to be carefully chosen. Examples of these are the #5G, @EU_H2020, #Media and Twitter accounts from Phase 2 projects. The implementation of this strategy has led to increase of the number of followers x4 from M6 to M15.

The screenshot below shows the current number of followers (485) and tweets (243) at M15\(^3^4\).

![Figure 18 – 5G-MEDIA Twitter Profile](image)

Between the period May 2 – July 31 2018, the account registered a total amount of 82.7K impressions. The Top Tweets are shown below.

![Figure 19 – 5G-MEDIA Top Tweets](image)

\(^3^4\) NOTE: These indicators refer to 17 August 2018
2.3.3.2 LinkedIn

LinkedIn is another social channel selected to promote the activities of the project given its professional scope. The 5G-MEDIA account is used to share some updates and publish brief articles related to the project. In M15, the profile has achieved a total number of 280 connections and 292 followers, with a total of 15 posts and 4 articles.

![Figure 20 – 5G-MEDIA LinkedIn Profile](image)

In addition to the activity of the profile, a LinkedIn Discussion Group was created at M5, with 43 members at M15. The purpose of this Group is to incentivize discussions around the project, but also to disseminate the 5G-MEDIA news in the context of LinkedIn. Each brief article published on the 5G-MEDIA LinkedIn Discussion Group is also posted on the 5G PPP LinkedIn Group to reach a broader audience.

2.3.3.3 YouTube

To better promote the videos produced within the project, a dedicated YouTube channel was created. The goal for such channel is to bring together all the multimedia material

35 5G-MEDIA LinkedIn account: [https://www.linkedin.com/in/5gmedia/](https://www.linkedin.com/in/5gmedia/)
36 NOTE: These indicators refer to 17 August 2018
37 5G-MEDIA Discussion Group: [https://www.linkedin.com/groups/12071114](https://www.linkedin.com/groups/12071114)
38 5G PPP Discussion Group: [https://www.linkedin.com/groups/12011028](https://www.linkedin.com/groups/12011028)
39 5G-MEDIA YouTube Channel: [https://www.youtube.com/channel/UCcPC6hVOmArVNgKrq3HDbw](https://www.youtube.com/channel/UCcPC6hVOmArVNgKrq3HDbw)
generated by the project, from short self-explanatory videos to video demos of the use cases. With a total number of 6 videos uploaded, the channel has registered a total number of 581 views, with 568 minutes of Watch time.

![YouTube Channel](https://www.youtube.com/watch?v=ZYeZjq8hGdk)

**Figure 21 – 5G-MEDIA YouTube Channel**

The videos from the channel have the following information:

<table>
<thead>
<tr>
<th>Title</th>
<th>5G-MEDIA Project - Introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaker</td>
<td>Francesco Saverio Nucci - Project Coordinator</td>
</tr>
<tr>
<td>Link</td>
<td><a href="https://www.youtube.com/watch?v=ZYeZjq8hGdk">https://www.youtube.com/watch?v=ZYeZjq8hGdk</a></td>
</tr>
<tr>
<td>Watch time (minutes)</td>
<td>112 (19.5%)</td>
</tr>
<tr>
<td>Views</td>
<td>114 (19.6%)</td>
</tr>
<tr>
<td>Title</td>
<td>5G-MEDIA Project - Technical Objectives</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Speaker</td>
<td>Stamatia Rizou - Technical Manager</td>
</tr>
<tr>
<td>Link</td>
<td><a href="https://www.youtube.com/watch?v=mKfyRtvbpas">https://www.youtube.com/watch?v=mKfyRtvbpas</a></td>
</tr>
<tr>
<td>Watch time (minutes)</td>
<td>91 (15.8%)</td>
</tr>
<tr>
<td>Views</td>
<td>83 (14.3%)</td>
</tr>
</tbody>
</table>

| Title                          | 5G-MEDIA Project Use Case 1 - Immersive Applications + Virtual Reality                               |
| Speaker                       | Nick Zioulis - UC1 Leader                                                                            |
| Link                          | [https://www.youtube.com/watch?v=WOCad-9d4vM](https://www.youtube.com/watch?v=WOCad-9d4vM)          |
| Watch time (minutes)          | 136 (23.6%)                                                                                         |
| Views                         | 156 (26.8%)                                                                                         |
### 5G-MEDIA Project Use Case 2 - Smart + Remote Media Production

**Speaker:** Gordana Polanec-Kutija - UC2 Leader  
**Link:** [https://www.youtube.com/watch?v=CYLKFRr8jr0](https://www.youtube.com/watch?v=CYLKFRr8jr0)  
**Watch time (minutes):** 124 (21.6%)  
**Views:** 110 (18.9%)

### 5G-MEDIA Project Use Case 3 - Ultra HD over Content Delivery Network

**Speaker:** Gino Carrozzo - UC3 Leader  
**Link:** [https://www.youtube.com/watch?v=Xpt6t_2pcjw](https://www.youtube.com/watch?v=Xpt6t_2pcjw)  
**Watch time (minutes):** 96 (16.8%)  
**Views:** 98 (16.8%)
In addition to this, 5G-MEDIA also published the **UC3 demo video “Ultra HD over CDN”**\(^{40}\), which has been presented at the 5G PPP/SME booth by Nextworks during EuCNC 2018.

![UC3 demo video “Ultra HD over CDN”](https://www.youtube.com/watch?v=RSTvx-tKLNw)

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**3 5G-MEDIA Planned activities and next steps for Period 2**

This section will provide an overview of those actions planned for the second period of the project (M16-M30) in terms of Community Building, Dissemination and Communication strategies. Such activities will be reported in D7.6 - Report on dissemination, communication and community building activities and updated plan (version 1) on M30.

### 3.1 Community Building activities

5G-MEDIA will continue strengthening the bonds and the collaboration with the target stakeholders defined in the current version of the stakeholder map. Although a new version is not necessarily envisioned, the project may consider a next iteration by taking into consideration the evolution of activities in WP2-WP6, as well as T7.1.

In terms of engagement, the relationship with the 5G PPP and the Open Source and Standardisation Communities will remain as a cornerstone covered in T7.3 and T7.4 respectively.

#### 3.1.1 Collaboration with 5G PPP Community

As a Phase 2 project, 5G-MEDIA will maintain a high involvement with the multiple branches of the 5G PPP:

\(^{40}\) 5G-MEDIA Demo: Ultra HD over CDN: [https://www.youtube.com/watch?v=RSTvx-tKLNw](https://www.youtube.com/watch?v=RSTvx-tKLNw)
• Contribution to the Steering and Technical Boards, as well as to the 6 Working Groups where the project has initiated some kind of participation. The expected outcomes will be in the form of dissemination activities and opportunities for collaboration with other projects;

• Active collaboration with 5G PPP Phase 2 projects, including the CSA To-Euro-5G. A synchronised collaboration with these projects will foster win-win situations, reaching a broader outreach and creating opportunities for dissemination and communication (e.g. workshops, technical publications, social media). Special focus will go to reference conferences with an expected high participation from the community, such as MWC 2019 and EuCNC 2019;

• Liaison with the projects starting from the upcoming Phase 3 - Advanced 5G validation trials across multiple vertical industries. “The challenge is to get the European 5G Vision of ‘5G empowering vertical industries’ closer to deployment with innovative digital use cases involving cross industry partnerships. It requires technological and business validation of 5G end to end connectivity and associated management from two perspectives: i) within the set of requirements specific from one application domain; ii) across all sets of heterogeneous requirements stemming from concurrent usages of network resources by different vertical domains”. Hence, Phase 3 projects will have a significant relevance for the scope of 5G-MEDIA, especially in terms of sustainability.

3.1.2 Collaboration with Open Source and Standardisation Communities

Further to the ongoing contributions achieved during the first period of the project (Section 2.1.5), 5G-MEDIA envisions the following interactions in period 2:

• ETSI NFV, ETSI MEC, ETSI ZSM - to e.g. continue monitoring the NFV SOL specifications and identify their applicability to the NFV catalogue service developed in 5G-MEDIA; to continue monitoring the Multi-access Edge Computing (MEC) standard evolution and identify its applicability to 5G-MEDIA; to identify areas for Monitoring, Analysis, Planning and Execution (MAPE) loop automation into Zero touch network & Service Management (ZSM)

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41 5G PPP Phase 3 Projects: https://5g-ppp.eu/5g-ppp-phase-3-projects/
42 ETSI NFV: https://www.etsi.org/technologies-clusters/technologies/nfv
43 ETSI MEC: https://www.etsi.org/technologies-clusters/technologies/multi-access-edge-computing
44 ETSI ZSM: https://www.etsi.org/technologies-clusters/technologies/zero-touch-network-service-management
• ETSI NFV: Plans are to continue monitoring the NFV SOL specifications and identify their applicability to the 5G App & Service catalogue NXW is developing also for 5G-MEDIA;
• ETSI MEC: continue monitoring the MEC standard evolution and identify its applicability to 5G-MEDIA;
• ETSI ZSM: NXW is participant in ZSM ISG, which is started on Jan 2018. NXW is following the initial work items of ZSM which is currently dealing with high level architecture aspects. Plans are to identify areas for proposing MAPE automation in ZSM.
• OSM End User Advisory Group (EUAG) and OSM Hackfest – to continue monitoring the OSM releases and to propose the 5G-MEDIA NFV catalogue for integration in future OSM releases. ENG intends to continue monitoring the OSM releases and to contribute to the integration of standard authentication protocols such as OpenID Connect;
• IETF Network Function Virtualization (nfvrg)\(^45\) – to propose the concept of a flexible and generalized catalogue for SDN and NFV applications and functions;
  • We are using extends of ODL for various SDN control tasks in multi-site NFV environments. Under evaluation a potential demo of foreground generated in 5G-MEDIA, that could be conveyed at SDN/NFV World Congress, Open Networking Summit or OpenStack Summit in 2019
  • Once the concept of a flexible and generalized catalogue for SDN and NFV applications will be consolidated in a first implementation, it is planned to proposed and individual Internet-Draft to this group for discussion and potential adoption
• Under evaluation the possibility to contribute in the EBU alliance\(^46\) of public service media on 5G content production topic;
• OpenDayLight\(^47\) - NXW uses and extends ODL for various SDN control tasks in multi-site NFV environments. A potential demo of foreground generated in 5G-MEDIA could be conveyed at SDN/NFV World Congress, Open Networking Summit or OpenStack Summit in 2019.

\(^{45}\) IETF Network Function Virtualization (nfvrg): [https://datatracker.ietf.org/rg/nfvrg/about/](https://datatracker.ietf.org/rg/nfvrg/about/)

\(^{46}\) EBU Operating Eurovision and Euroradio: [https://www.ebu.ch/home](https://www.ebu.ch/home)

\(^{47}\) Cf. [https://www.opendaylight.org/](https://www.opendaylight.org/)
3.2 Dissemination activities

According to the plan established in D7.2, during the second period the main objective will be to improve the awareness about the project by increasing the exposure of the technical achievements, which will reach a higher readiness level and maturity. Participation in workshops, conferences and technical publications will remain as the most effective channels to promote such outcomes.

One of the most anticipated novelties in this strategy will be the inclusion of demo activities, mainly promoted by Use Case’s scenarios, whose detailed information is accessible in D6.1 - 5G-MEDIA Use Case Scenarios and Testbed. The first project’s demo was provided by UC3 at EuCNC 2018 as already reported. The second period shall include exhibition actions for all the UCs, with the objective to exhibit every specific scenario within.

To support dissemination activities, 5G-MEDIA will leverage LinkedIn’s SlideShare\(^48\), a hosting service for professional content including presentations and infographics. Presentations gave in conferences and workshops will be uploaded and promoted in social media, starting from the ones made in IEEE BMSB 2018 and EuCNC 2018. This channel will be a complement to the technical publications linked to OpenAIRE.

3.2.1 Potential participation in events

The list below (Table 9) introduces some specific events that have been already targeted as of potential interest for the project during period 2. Such list takes into consideration those events of known relevance for the 5G-MEDIA stakeholders, as well as for the consortium partners.

<table>
<thead>
<tr>
<th>Name of the event</th>
<th>When</th>
<th>Where</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>5G PPP ICT-19 Info Day</td>
<td>14/09/2018</td>
<td>Brussels (Belgium)</td>
<td>To facilitate learning about the ICT-19 call, and the expected working relationships with the new ICT-17 projects, 5G PPP has organised an information event in Brussels.</td>
</tr>
</tbody>
</table>

\(^48\) 5G-MEDIA SlideShare profile: [https://www.slideshare.net/5GMEDIAPROJECT](https://www.slideshare.net/5GMEDIAPROJECT)
### Name of the event | When | Where | Impact
--- | --- | --- | ---
#Berlin5GWeek | 12-16/11/2018 | Berlin (Germany) | One of the most influential event series for discussing the newest network and software enabling technologies such as Software Defined Networks, Network Function Virtualization, Edge Computing, Industrial IoT, and 5G in the context of various industry verticals. This year the #Berlin5GWeek will feature the 2nd Edge Computing Forum, 2nd Industrial IoT Forum, as well as the 9th FOKUS FUSECO Forum.

ICT 2018: Imagine Digital - Connect Europe | 4-6/12/2018 | Vienna (Austria) | This research and innovation event will focus on the European Union’s priorities in the digital transformation of society and industry. It will present an opportunity for the people involved in this transformation to share their experience and vision of Europe in the digital age. 5G PPP will have a 5G Demo stand and 5G-MEDIA will consider participate in it.

Mobile World Congress 2019 | 25-28/02/2019 | Barcelona (Spain) | World’s largest exhibition for the mobile industry. 5G-MEDIA will consider to invest in having or sharing an exhibition space.

IBC2019 CONFERENCE | TBC | Amsterdam (Netherlands) | The IBC Conference is an unrivalled global destination for discovering and debating the many different challenges and opportunities facing the electronic media and entertainment industry, both in its sessions and in the range of networking opportunities it affords.

IBC2019 EXHIBITION | TBC | Amsterdam (Netherlands) | Combining a world-class exhibition with specially curated feature areas and events, the IBC Exhibition provides the perfect platform for you to network and build relationships with suppliers and customers, discover the latest trends and technologies and drive your innovations and strategy.
### 3.3 Communication activities

Following the approach of the dissemination strategy, the second period should represent a boost in the visibility of the project and its results to multiple audiences, leveraging its technical advancements and implementing a set of improvements in the communication plan.

#### 3.3.1 Project website

The project website will be reviewed in order to simplify the structure and design of the homepage and different sections, but also more graphical and animated content will be included throughout the site to facilitate understanding and give a more promotional tone.

The following sections will be entirely reviewed:

- **The Use Cases’ section:** The current descriptions require to be updated with the latest advances of the use cases (D6.1) and simplified to become easier-to-read. Related promotional material will be embedded as soon as it becomes available. As example, UC3 page already contains the video of the demo from EuCNC 2018.
- **The Outcomes section:** The structure and design of this section will be completely reviewed so as to provide easier access to the different resources.

#### 3.3.2 Social Media

Social media is one of the best channels to raise awareness among a broad spectrum of public, so 5G-MEDIA will implement specific best practises to make its profiles more effective. Some of them were already introduced in period 1, but will require being carried on over time.
• **Follow more followers.** Studies show here is a tight relationship between the number of followers and the number you followed. Tools like Twiends\(^{49}\) can help connecting to more users;

• **Promoting social media accounts in all kind of marketing material.** Although this action has been put in place already, it is important to highlight the available channels;

• **Posting regularly,** increasing visibility and activity. This strategy was highly effective in period 1, going from 120 (M6) to 460+ (M15) followers in Twitter;

• **Use references and keywords in the posts.** Links to other accounts and trending hashtags, especially from the 5G PPP community and the European Commission, will provide a wider outreach, leveraging the existing audience from their accounts. Tweets with hashtags get at least 2x more engagement, and help attracting new followers who are searching for those keywords. However, it will be important not to overload the number of references or there is a risk to be seen as spam;

• **Repeat a post a number of times.** The estimate of a tweet’s lifespan is around 18 minutes, so the number of readers is limited by such timeframe. Posting the same content over a given time window -e.g. a week- will give more visibility;

• **Share actively content from the community.** The more you share people’s content, the more likely you are to be referenced, and the more followers you’re likely to attract. It will be relevant to target content related to 5G topics, not necessarily from the 5G PPP, and the Media from different sources to increase our exposure.

More in particular to the scope of 5G-MEDIA, there are to measures that will be implemented:

• **Partner of the month.** This initiative pursues to promote the specific activities performed by a given consortium partner, creating a number of posts throughout the timeframe of one month. Given the heterogeneity of the partners (e.g. academia, industry and SMEs), different approaches will be followed;

• **EU Project of the month.** Similar to the previous point, the European Commission provides a way to promote EU funded initiatives that has achieved something remarkable through the campaign #EUProjectOfTheMonth.

### 3.3.3 Promotional material

As the project continues reaching new achievements and participating in events, the promotional material must be adequate to the latest outcomes.

\(^{49}\) Cf. [https://twiends.com/](https://twiends.com/)
• **Project brochure:** at least 2 new versions of the 5G-MEDIA brochure will be designed and produced to capture the advancements of the use cases. In addition to that, 5G-MEDIA will keep contributing to 5G PPP level brochures produced throughout period 2;

• **Newsletters:** according to the communication plan, a new newsletter will be published every six months to recap about the latest activities and results of the project. Such newsletter will be distributed among the individual subscribers registered, as well as the 5G PPP related mailing lists;

• **Graphic material:** following the successful result of the common layout for the use case diagrams, the project will extend such ‘look-&-feel’ to other reference diagrams, such as the architecture. In addition, all the resources related to promotional material will be supported by a graphical component, such as roll-ups and posters, when required;

• **Multimedia material:** a second round of interviews is planned for period 2 to produce a new batch of videos, updating about the progress of the project, especially with regard to the use cases. Meanwhile, the videos published in period 1 will be enhanced in two ways:
  
  • Providing English subtitles to be included in 5G-MEDIA’s YouTube channel. This action comes from some feedback received after the publication of the videos, so the project will work to improve the accessibility of the content. The text is currently in progress and will be included in September 2018;
  
  • Providing interactivity with a service provided by the partner BitTubes. This feature will convert the videos into interactable, embedding smart content that the viewer can enable. Such option will be only ready in the website as some code is required.

Ideally, every demo of the project should have a self-explanatory video to support its exhibition. Additionally, it is expected at the time of writing this document that 5G PPP’s CSA will release a video of 5G-MEDIA from the interviews made at EuCNC 2018;

• **Templates for articles:** to publish more often articles on the website, a couple of WordPress templates will be designed to speed up the process. Post in period 1 were custom-made;

• **Presentation template:** a generic 5G-MEDIA slide set should be implemented and shared with the consortium partners when presenting at events. This will facilitate a common storytelling that can be fine-tuned with specific material.
4 Conclusions

This document reports about the core activities of WP7 during period 1, the activity in charge of coordinating the overall outreach of the project, assessing the most adequate activities for promoting its ongoing results and driving the collaboration with those ecosystems with a position to contribute or benefit from the initiative.

The outcomes in this first period has been satisfactory in terms of overall impact, exceeding expectations in several cases.

- Community building. The project has been able to identify and engage with key stakeholders; target groups with a position to influence or benefit from the project. In particular, the outstanding collaboration with the 5G PPP community, and the liaison with Open Source and Standardisation initiatives have led to high levels of visibility and transference of knowledge outside the project. One of the main objectives for the second period will be a deeper engagement with the Media Industry as group which will benefit from the advancements of 5G-MEDIA;

- Dissemination. The publication of 13 technical papers, the participation in 28 public events and the contribution to several documents at 5G PPP level and beyond have served the project to actively raise awareness about its outcomes and its position within the European 5G landscape. Dissemination activities will be enhanced in period 2 in the form of exhibition demos by leveraging the technology readiness of the architecture, tools and services, and use cases;

- Communication. With 480+ followers in Twitter, 290+ followers in LinkedIn and 2500+ unique visitors in our website, the project has gained visibility in social media during this first period. The production of 6 videos, 3 versions of the project brochure and the release of 2 newsletters have proved to be effective measures towards a greater outreach of the activities and results of the project to the general public. Period 2 will bring new strategies and a brand-new bundle of promotional material to scale up the visibility of 5G-MEDIA.

According to 5G-MEDIA’s Description of Action, WP7 contributes to project objectives 6 and 7, with the status of KPIs at M15 depicted in Table 10.

______________________________

Cf. 5G-MEDIA Description of Action. Grant Agreement number: 761699
Table 10 – 5G-MEDIA’s WP7 KPIs (M15)

<table>
<thead>
<tr>
<th>5G-MEDIA Objective</th>
<th>KPIs</th>
<th>Status M15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective 6: Actively promote widespread adoption, impact creation &amp; standardization</td>
<td>Contribution of at least 3 new drafts in IETF/IRTF</td>
<td>None at this stage</td>
</tr>
<tr>
<td></td>
<td>Participation in at least 3 ETSI and ISO/IEC working groups</td>
<td>Collaboration with 2 ETSI groups: NFV and MEC</td>
</tr>
<tr>
<td></td>
<td>Contribution to at least 2 open source projects and initiatives</td>
<td>Contribution to Open Source MANO (OSM), OpenNebula, OpenID and OpenWhisk</td>
</tr>
<tr>
<td></td>
<td>Active participation in at least 5 different 5G-PPP existing Working Groups</td>
<td>Participation in 5G PPP’s Steering and Technical Boards, Architecture WG, Software Networks WG, Vision WG, Security WG, SME WG, Trials WG, NetMgmt &amp; QoS WG and contributing to the “COMMS Group”</td>
</tr>
<tr>
<td></td>
<td>Contribute to at least 2 position and white papers issued by the 5G-PPP</td>
<td>Contribution to:</td>
</tr>
<tr>
<td></td>
<td>Commercial exploitation through participation and demonstration to at least 5 major European or International events</td>
<td>• 5G PPP’s European 5G Annual Journal 2018(^5);</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 5G PPP Software Network WG White Paper “From Webscale to Telco, the Cloud Native Journey”(^6);</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 5G PPP Vertical Cartography and Golden Nuggets;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 5G PPP Phase 2 Brochure</td>
</tr>
<tr>
<td>Objective 7: Promote the commercial exploitation of the results</td>
<td>Participation in 28 events, including:</td>
<td>Participation in 28 events, including:</td>
</tr>
<tr>
<td></td>
<td>EuCNC 2017</td>
<td>• EuCNC 2017</td>
</tr>
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<td>NEM Summit 2017</td>
<td>• NEM Summit 2017</td>
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<td></td>
<td>Mobile World Congress 2018</td>
<td>• Mobile World Congress 2018</td>
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<tr>
<td></td>
<td>IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB) 2018</td>
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<td></td>
<td>EuCNC 2018</td>
<td>• EuCNC 2018</td>
</tr>
</tbody>
</table>

\(^5\) 5G PPP’s European 5G Annual Journal 2018: [https://5g-ppp.eu/annual-journal/](https://5g-ppp.eu/annual-journal/)

### 5G-MEDIA Objective

<table>
<thead>
<tr>
<th>KPIs</th>
<th>Status M15</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Promote 5G-MEDIA offerings to at least 50 B2B customers of the consortium partners</em></td>
<td>5G-MEDIA’s Communication channels reach:</td>
</tr>
<tr>
<td></td>
<td>• 2500+ unique visitors in the website</td>
</tr>
<tr>
<td></td>
<td>• 480+ followers in Twitter</td>
</tr>
<tr>
<td></td>
<td>• 290+ followers in LinkedIn</td>
</tr>
</tbody>
</table>
5G-MEDIA - Grant Agreement number: 761699

D7.4 Report on dissemination, communication and community building activities and updated plan (version 1)

5  Annex I – Revised Dissemination Guidelines

The dissemination guidelines were slightly modified at M7 considering the 5G PPP Dissemination & Communication Guidelines produced by the To-Euro-5G CSA project.

Programmable edge-to-cloud virtualization fabric for the 5G Media industry

Dissemination and Communication Guidelines v3.0
Dissemination and communication efforts are essential for the success of 5G-MEDIA, by promoting the project’s objectives, activities and achievements. Given its relevance, every single partner in the consortium has a dedicated effort in this task (T7.2).

These guidelines will support such contribution.

1. **Internal Communication**

   The channel for internal communication is the **WP7 Mailing list**: fiveg-media-wp7@eng.it

   - All information related to dissemination & communication activities will be shared in this mailing list.

   At least one person per organisation should be registered and must attend the WP7 conference calls.

   Contact Pasquale Andriani <pasquale.andriani@eng.it> or Jose Gonzalez <jgonzalez@interinnov.eu> if you need to register.

2. **Social media**

   ➢ **Twitter Account**: the official 5G-MEDIA account is @5GPPP5GMEDIA
   ➢ **LinkedIn Discussion Group**: https://www.linkedin.com/groups/12071114

   **Twitter**

   Tweets related to any 5G-MEDIA activity (e.g. meetings, events, news) must refer to @5GPPP5GMEDIA and @5GPPP.

   The hashtags #5G, #5GIA, #H2020 should also be used.

   It is important to talk about the project in a concise, informal and positive way. Talk engagingly, and use hashtags where possible in:

   - Clear and simple language.
   - Innovative and different.
   - Speak personally
     - And don’t be afraid to use humour to be entertaining.

   **LinkedIn Discussion Group**

   All partners are kindly invited to subscribe to the 5G-MEDIA LinkedIn Discussion Group, to post on this group and to comment the posts published. All partners are also invited to subscribe to the 5G PPP Linkedin Group (https://www.linkedin.com/groups/12011028)
3. Participation in events

A partner participating in an event with impact on 5G-MEDIA should inform the WP7 partners in advance (at least two weeks prior the event, if possible) via the WP7 mailing list, in order to prepare a proper dissemination and communication campaign.

During the event, the representative shall take pictures and refer to 5G-MEDIA Twitter account while twitting, as explained in Annex I “Promotional campaign”. The campaign will be decided prior the event in agreement with T7.2 leaders.

The participation in events will be reported in the Table of Events.

After the event, the partner will be asked to fill in the table and to send a brief report – via the WP7 mailing list – on his/her participation. If possible, this report should contain a few pictures taken during the event.

4. Project website

5G-MEDIA Project Website: [www.5gmedia.eu](http://www.5gmedia.eu)

Each partner should actively contribute to populate the project website by sending periodic contributions to the WP7 mailing list. Content can include:

- Participation in events, conferences, technical publications, awards, etc.
- Brief recap of main technical achievements of the project
- News related to a given WP/Task.

5. PR Material

5G-MEDIA PR Material, Logos and Templates are available at:

5G-MEDIA Project Repository

The PR material will be available as e-documents, printing will occur as required (e.g. for events, workshops, etc.). InterInnov is in charge of this activity.

All PR material whether in electronic or paper form (as well as videos) will use the specific project logo along with the existing 5G PPP logo.

Mandatory in all PR material:

- 5G-MEDIA Logo
- 5G PPP Logo
- European Commission Logo
- 5G-MEDIA and 5G PPP website links
- Mention: “The 5G-MEDIA project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 761699”
6. Technical dissemination

All partners are welcomed to identify and propose opportunities to publish technical outcomes (articles, workshops, congresses) via the WP7 mailing list.

The technical dissemination plan is available here

7. Promotional Campaign

For each event, T7.2 leaders and the partner(s) participating in the event, will disseminate their participation by following these simple steps:

<table>
<thead>
<tr>
<th>Step I: Promotional activities to be performed before the event</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Partner responsible for this activity: InterInnov)</td>
</tr>
</tbody>
</table>

This comprises - as a first step:

- Definition of the target audience
- Development of a clear messages hierarchy

Then – 5G-MEDIA will perform the following concrete actions:

- Tweets to announce 5G-MEDIA participation in the event (n. of tweets/content will be chosen on a case-by-case basis.)
- Announcement email to be sent to the COMMS group;
- Publication of the announcement as a “news” on the 5G PPP website;
- Post the news on the 5G-MEDIA and 5G PPP LinkedIn Groups

<table>
<thead>
<tr>
<th>Step II: Promotional activities during the event</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Partner(s) responsible for this activity: partner(s) attending the event)</td>
</tr>
</tbody>
</table>

This comprises:

- Live twitting with 5G-MEDIA and/or personal account (each twit should be accompanied by a picture, if possible). If the partner is twitting with his/her personal account, he/she should not forget to mention @5GPPP5GMEDIA and @5GPPP in each tweet.
- Number of tweets (recommended):
  - 1st tweet at the beginning of the event (e.g. Attending #nameoftheevent to present @5GPPP5GMEDIA project @5GPPP #5G #hashtagrelatedtotheevent @mentiontheevent)
  - At least 2 tweets during the presentation of 5G-MEDIA (or immediately after, with a picture of the presenter. Do not forget to mention 5G-MEDIA, 5GPPP and the twitter account of the event)
  - 1 tweet at the end of the event
### Step III: Promotional activities after the event

*(Partner(s) responsible for this activity: InterInnov + partner(s) who attended the event)*

- Publication of a brief article on the 5G-MEDIA/5G PPP websites
- Tweet related to the article published
- Re-tweet from the 5G PPP Twitter account
- Post the article on the 5G-MEDIA/5G PPP LinkedIn Groups