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## **Euro-5g** – Supporting the European 5G Initiative

# D3.4: Final report on communication and public relation activities including promotion strategy update

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#### Abstract

D3.4 Final report on communication and public relations activities, including promotion strategy update - (M24) - summarises all WP3 activities during the project.

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## **Executive Summary**

Deliverable D3.4 Final report on communication and public relations activities, including promotion strategy update – (M24) - summarises all WP3 activities during the project.

The promotion strategy is managed and updated through the "5G PPP innovative information system", which maintains a dynamic 5G PPP web site highlighting the new achievements and developments within the European 5G PPP. The web site provides a "one-stop" shop for 5G PPP activities within the European landscape. It is based upon the existing <a href="www.5gppp.eu">www.5gppp.eu</a> website. The 5G PPP web site contains sub-sections on publications, information on 5G conferences, workshops, webinars, 5G European R&D projects, international 5G activities outside Europe, regulation and spectrum news, press releases and articles.

Main publications supporting the promotion are the following:

- The European 5G Annual Journal (two issues).
  - First edition in 2016 (Electronic version of the first version in July 2016, paper version in October 2016 with updates from 5G PPP projects).
  - The second edition will be distributed in September 2017.
- Quarterly 5G PPP newsletters published on the 5G PPP portal (https://5g-ppp.eu). The
  newsletters present the main issues in discussion, interviews with programme and project
  representatives, and summary of main achievements in the period as well planned activities
  for upcoming periods.
- Monthly newsflashes published in order to provide brief updates on the programme to a wide public.
- Updated communication and public relations plan for the second project year.

Euro-5G carried on the work already started in previous projects such as NetSoc and 5-Alive in the production of promotional material.

Active communication has been maintained across the whole project duration via several channels:

- The 5G PPP Twitter account that has served as promotional channels for events and publications as led by the EURO-5G consortium, but also to advertise outcomes, events and activities of the various ongoing Phase 1 projects and related EC initiatives and news.
- The dedicated 5G PPP communication and projects mailing lists that have been used to facilitate coordination among all ongoing projects and that help promoting efforts at the broad community level.
- The dedicated Networld2020 SME Working Group mailing list that has been specifically relevant for reach and coordination of SME-related activities.
- Dedicated videos that have been produced by EURO-5G to broadly promote the 5G PPP Phase 1 projects' achievements.

## **Table of Contents**

Execut	tive Summary	3
Table	of Contents	4
List of	Figures	5
List of	Tables	6
Abbre	viations	7
1	Introduction	8
1.1	Objective of the document	8
1.2	Structure of the document	8
2	Strategy Definition and Implementation	9
2.1	Collection of inputs / interaction with projects	9
2.1.1	Maintenance of information flow	9
2.1.2	Communications and Dissemination mail list	9
2.2	Dissemination and awareness creation activities	9
2.2.1	Web site	9
2.2.2	Further web channels	10
2.2.3	Targeted events and communities	11
3	Support for 5G PPP Spokesperson	12
3.1	Promotion and Communication	12
3.2	Public relations and media contacts	12
3.3	Participation in and organisation of events	13
4	Main Promotional Tools and Activities	14
4.1	The European 5G Annual Journal	14
4.2	Newsletters and newsflashes	16
4.2.1	Quarterly newsletters	17
4.2.2	Monthly newsflashes	18
4.3	Web and Social media channels	19
4.3.1	Events	19
4.3.2	News / 5G PPP press releases	23
4.4	Additional Distribution channels	24
5	Promotion Material	25
5.1	PR material for the 2 <sup>nd</sup> Global 5G Event	25
5.2	Promotional material for the MWC 2017 Event	28
5.3	PR material for SMEs	29
5.4	5G PPP roll-up	30
5.5	Videos	31
6	Conclusions and Next Steps	33

## **List of Figures**

Figure 1: The 5G PPP portal	10
Figure 2: The 5G PPP YouTube channel	10
Figure 3: First electronic edition of the European 5G Annual Journal	14
Figure 4: Joint announcement by Flex5GWare and 5G-Crosshaul	24
Figure 5: the $2^{ m nd}$ Global 5G event general design theme and logo	25
Figure 6: the 2 <sup>nd</sup> Global 5G event hotel signage	25
Figure 7 External banner and monolith	26
Figure 8: Backdrop and podium	26
Figure 9: Roll-up	27
Figure 10: Agenda	27
Figure 11: bag and solar charger	28
Figure 12: Volunteer's t-shirt and event's agenda	28
Figure 13: badges	28
Figure 14 Brochure and flyer cover page	29
Figure 15: Cover Page of the SME brochure	30
Figure 16: 5G PPP roll-up	31

List	of	<b>Tabl</b>	les
------	----	-------------	-----

## **Abbreviations**

3GPP	Third Generation Partnership Project
5G-PPP	5G Private Public Partnership
5GRUS	Icom-Invest Russian 5G initiative
EC	European Commission
FIF / CeFIMS	Future Internet Forum/Coordination of the European Future Internet for Member States (ceFIMS CONNECT Coordination Action project was initiated in March 2014 within the European Commission Framework Programme's Objective ICT-2013.1.7 Future Internet Research and Experimentation FIRE)
ICT	Bilateral projects
INCO	International scientific cooperation
RAN	Radio Access Network
SME	Small and Medium Enterprises
ITU	International Telecommunication Union

#### 1 Introduction

D3.4 Final report on communication and public relations activities, summarises all WP3 activities carried out during the project. This task was led by IDATE, supported by InterInnov (responsible for the promotion material), 5G-IA, Nokia Net, Orange and Martel (responsible for coordination of communication via Twitter and dedicated COMMS mailing lists).

## 1.1 Objective of the document

This document reports on the activities related to the promotion strategy of the project covering its definition and implementation, the support for the 5G PPP spokesperson, the publications and promotion material, as well as the communication and dissemination activities performed during the two years of the project.

#### 1.2 Structure of the document

This document is divided into five main parts:

- Section 1 details the objective of this document and its structure.
- Section 2 presents the strategy definition and implementation.
- Section 3 details support for 5G PPP spokesperson.
- Section 4 presents the main publications to support the promotion, including zoom in to communication and social media animation.
- Section 5 lists activities developed for promotion material.

## 2 Strategy Definition and Implementation

This section describes how the various publications have been promoted and disseminated, the targeted audiences, targeted events and communities, etc.

## 2.1 Collection of inputs / interaction with projects

The objective was to support and coordinate promotions & Public Relations activities among the 5G PPP projects, the 5G Infrastructure Association and Networld2020.

#### 2.1.1 Maintenance of information flow

We have established direct contacts with 5G European R&D projects and a dedicated team is tracking 5G activities on a regular basis in order to quickly integrate important news. The communication flow also includes wide community, e.g. by through liaison with the Networld2020 ETP and other relevant communities and stakeholders.

#### 2.1.2 Communications and Dissemination mail list

A 5G PPP Communications and Dissemination mail list has been established "Comms@5g-ppp.eu" in order to allow the coordinated interaction among all ongoing 5G PPP projects about common presentation materials, brochures, flyers, webs, tweets, etc., and preparations for joint events. This approach has been proved to be an effective way of fostering for synergies and coordinated efforts, in view of Info Days, Global 5G Events, EuCNC participation, etc.

#### 2.2 Dissemination and awareness creation activities

#### **2.2.1** Web site

As part of the comprehensive communication strategy, the "5G PPP innovative information system" maintains a dynamic 5G web site with a dedicated focus on achievements and developments within the European 5G-Initiative. The web site provides a "one-stop" shop for 5G activities. It is based upon the existing www.5gppp.eu website and is hosted by Eurescom.

The 5G web site contains sub-sections on publications, information on 5G conferences, workshops, webinars, 5G European R&D projects, international 5G activities outside Europe (e.g. Japan, South Korea, China, USA), regulation and spectrum news, press releases and articles.

A specific sub-section has been hosting electronic Newsletters and Newsflashes since September 2015. It is regularly updated when new content from project's partners or from other 5G PPP projects is made available (monthly for newsflashes).

The Events section gives the opportunity to highlight conferences or workshops in which 5G PPP projects are involved or to mention conferences where 5G experts present thoughts or research results.

News on projects is also emphasised and relayed.



Figure 1: The 5G PPP portal

Periodic reports such as quarterly newsletters and monthly intra-program updates are keeping the community and the partners/stakeholders informed about 5G PPP progress.

#### 2.2.2 Further web channels

A dedicated YouTube channel where all 5G PPP projects can post their own videos has been set up (<a href="https://www.youtube.com/channel/UCY8mTTwrDoMl35vGkiKq1Eg">https://www.youtube.com/channel/UCY8mTTwrDoMl35vGkiKq1Eg</a>). The videos are also relayed on the 5G PPP web site (<a href="https://5g-ppp.eu/video/">https://5g-ppp.eu/video/</a>).

49 videos have been realised by Euro 5G project and uploaded on the YouTube channel.

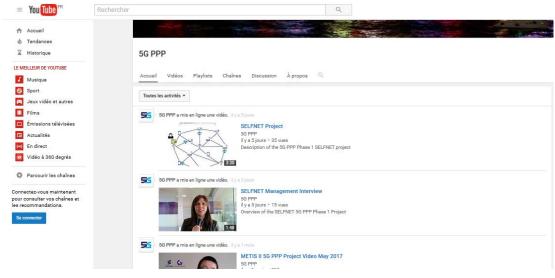


Figure 2: The 5G PPP YouTube channel

A 5G PPP Twitter account has also been created and is regularly used to relay information about relevant information concerning MoUs, conferences, events, press releases from H2020 projects, international 5G news, EC initiatives and information, standardization news, etc.

## 2.2.3 Targeted events and communities

Information on targeted events and communities can be found in deliverable D1.3.

## 3 Support for 5G PPP Spokesperson

Since May 2016, the 5G Infrastructure Association has hired two staff members: Jean-Pierre Bienaimé as Secretary-General and Alessandro Bedeschi as Head of Office. The notice of appointment including a short summary of their professional profile is available at <a href="https://5g-ppp.eu/5g-i-a-appointments/">https://5g-ppp.eu/5g-i-a-appointments/</a>

The Secretary General works in close cooperation with the Board and the Head of Office and is responsible for the overall leadership and management of the 5G Infrastructure Association. The Secretary General is also the Spokesperson of the association and represents the 5G IA and 5G PPP in international fora and events in Europe and worldwide.

EURO-5G CSA is a key interlocutor and ally of the Spokesperson to ensure very good visibility, reputation and recognition of the 5G IA and 5G PPP. Jean-Pierre Bienaimé and EURO-5G CSA have immediately started to work together on strategic issues and have progressively intensified their collaboration on several 5G PPP activities. EURO-5G and the Spokesperson cooperate in the framework of an agreed comprehensive communication strategy.

The main areas where the EURO-5G CSA provides strong support to the Spokesperson, are:

- Promotion and Communication.
- Public relations and media contacts.
- Participation in and organisation of events.

#### 3.1 Promotion and Communication

The Spokesperson has to implement promotion and communication strategies to position the Association and 5G PPP as leading organisations for 5G development in Europe. Such strategies involve different media and a multitude of promotional and communication tools developed by Euro-5G thanks to the technical and creative know how of its project partners. These tools and publications are described in detail in this document and the aim is to continue improving their use, working together to communicate even more effectively both within the 5G PPP and externally.

EURO-5G has worked intensively on the development of promotion material to give visibility to 5G PPP, inform and catch the attention of a broad and heterogeneous public. Taking stock of the work done, the Spokesperson and Euro-5G have joined forces to further define both a general promotion strategy supporting the entire 5G PPP and more specific actions for targeted events, projects and initiatives.

The 'Shared Workspace System' provided by EURO-5G is an excellent platform to exchange documents and work efficiently on collaborative projects and is widely used by the Spokesperson in his interactions with 5G PPP partners.

#### 3.2 Public relations and media contacts

Building positive and trusted relations with 5G stakeholders at European and international level and conveying clear messages and information targeted to different audiences including journalists, are pre-requisites to raise awareness on the importance of 5G PPP's work and its achievements.

EURO-5G and the Spokesperson have cooperated in the preparation of press releases and their distribution through website, social media and an impressive mailing list of selected media contacts provided by EURO-5G. This successful experience once more demonstrated that EURO-5G's expertise plays a key role in achieving the expected results in terms of 5G PPP's visibility, outreach and network building.

EURO-5G and Jean-Pierre Bienaimé jointly develop this strategic field of activity, with a special focus on media relations.

Twenty press releases linked to the Global Events and Mobile World Congress have been distributed.

## 3.3 Participation in and organisation of events

5G IA and 5G PPP participate and are involved in the organisation of several events in Europe and worldwide including conferences, exhibitions, and workshops. These are great opportunities to present the progress made by the projects and working groups, demonstrate advanced solutions, exchange information and ideas on 5G development with partners and stakeholders.

Having the right supporting material at these events is essential in order to promote 5G PPP and disseminate information in an influential and highly professional way. Also in this case, the roles and work of EURO-5G and the Spokesperson are closely linked.

On 9 and 10 November 2016, the "2nd Global 5G Event" took place in Rome. 5G PPP was hosting the event, which was jointly organised by five leading regional associations worldwide: 5G Americas, 5G Forum, 5G Mobile Forum, IMT-2020 PG and the 5G Infrastructure Association. Jean-Pierre Bienaimé and EURO-5G worked on the creation of promotion and information material that significantly contributed to the successful organisation of this important event. Besides the conference program with international speakers and sessions on specific 5G topics, the event hosted an exhibition area where 5G PPP projects as well as industry and operators presented demos of the progress made in their respective area of research and on possible 5G applications. The European 5G Annual Journal (see section 4.1) was distributed at the event in Rome to further inform decision-makers and the business and research community on 5G PPP initiatives.

More Details regarding the "2nd Global 5G Event" are provided in deliverable D4.3 Final Liaison Report.

#### 4 Main Promotional Tools and Activities

In addition to standard methods of dissemination, such as websites and emails, we decided to annually publish an Annual Journal and send quarterly newsletters and monthly newsflashes.

Quarterly, monthly publications and flashes are the main means for dissemination of technical results oriented towards specialist staff.

The idea is to produce a large pile of publications during all the project duration. About 1/3 of publications should be released each year. All partners are involved in the dissemination process and papers.

A visual layout was designed for all the papers before starting (a template was defined for the enewsletters and also used for newsflashes after being adapted).

#### 4.1 The European 5G Annual Journal

The European 5G Annual Journal (two issues) - is a communication tool targeted at promoting Euro5G actions and initiatives through a high-profile, reliable, and informative medium. It will be produced in collaboration with the H2020 projects to extract their exceptional achievements and to present them in the best possible way for broad public, but also presenting technical programme achievements on high-level for wide spectrum of researchers and managers.

The electronic version of the first edition was posted on the 5G PPP web site in July 2016 is presented hereafter:

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Euro-5g - Supporting the European 5G Initiative

## The European 5G Annual Journal



Figure 3: First electronic edition of the European 5G Annual Journal

#### Hereafter follows the EURO-5G Annual Journal structure:

A.1	Editorial 3
A.1 A.2	Executive summary 6
	·
В	Context 8  H2020 5C projects 11
C	H2020 5G projects 11
C.1	5G Norma 11
C.2	METIS-II 12
C.3	5G-Crosshaul 14
C.4	5G-XHaul 15
C.5	5G-ENSURE 17
C.6	CHARISMA-5G 19
C.7	mmMAGIC 21
C.8	VirtuWind 22
C.9	SONATA 25
C.10	Fantastic 5G 27
	Our ambition: A flexible 5G air interface for efficient service coexistence 27
	The road towards the 5G flexible air interface 27
	First project results 27
C.11	Flex5Gware 28
D	5G initiatives 29
E	5G Thematic chapter 31
E.1	5G and the Factories of the Future 31
E.1.1	Socio-economic drivers for Horizon 2020 31
E.1.2	How 5G can be a catalyst 31
E.1.3	Business and policy aspects 31
E.2	5G and the Automotive Vision 33
E.2.1	Socio-economic drivers for Horizon 2020 33
E.2.2	How 5G can be a catalyst 33
E.2.3	Business and policy aspects 33
E.3	5G and Energy 35
E.3.1	Socio-economic drivers for Horizon 2020 35
E.3.2	How 5G can be a catalyst 35
E.3.3	Business and policy aspects 35
E.4	5G and e-health 37
E.4.1	Socio-economic drivers for Horizon 2020 37
E.4.2	How 5G can be a catalyst 37
E.4.3	Business and policy aspects 37
E.5	Energy efficiency brought about by 5G PPP 39
E.5.1	Lean System Control Plane (LSCP) 39

E.5.2	Dynamic RAN: activation/deactivation mechanisms will enable significant energy saving 39
E.6	5G and security 41
E.6.1	Why is security so important 41
E.6.2	How to implement security procedures within 5G? 41
E.7	Technical aspects: RAN design & network slicing 43
E.7.1	5G RAN architecture 43
E.7.2	SDN and NFV at the core of 5G 43
E.7.3	Network slicing, an enabler for new business opportunities 43
E.8	Standardisation 45
E.8.1	5G standardisation and specifications 45
E.8.2	Contribution of Europe to 5G development 45
E.9	Latency reduction with 5G 47
E.9.1	How to reduce latency? 47
E.9.2	How would usages evolve? 47
E.10	Backhaul /Fronthaul developments 49
E.10.1	Improvement in the RAN requires rethought backhaul and fronthaul 49
E.10.2	Toward an integrated back- and front-haul network 49
E.11	Spectrum aspects for 5G 51
E.11.1	Expected spectrum demand 51
E.11.2	Possible candidate bands 52
E.11.3	Spectrum licensing and sharing 52
F	5G chronicle 53
F.1	Verticals workshops 53
F.2	5G Multilateral Workshop on Regional Initiatives on 5G Spectrum 53
F.3	ICT 2015 in Lisbon (10-22 October 2015) 54
F.4	MWC'16 (22-25 February 2016) 54
F.5	EuCNC 2016 54
F.6	5G PPP projects jointly organised a number of workshops 54

Publication of the first edition of the Annual Journal took place in July 2016 for the e-edition on the 5G PPP web site and September 2016 for the printed edition.

#### 4.2 Newsletters and newsflashes

Newsletters and newsflashes are regularly published on the 5G PPP portal (<a href="https://5g-ppp.eu">https://5g-ppp.eu</a>).

They both present main issues in discussion, interviews and summary of main achievements and planned activities for upcoming periods. Monthly newsflashes are published in order to provide brief updates on the programme to a wide public.

#### **4.2.1** Quarterly newsletters

The newsletters present the main issues in discussion, interviews with programme and project representatives, and summary of main achievements in the period as well planned activities for upcoming periods.

The quarterly newsletter consists of 8-10 pages and is designed to act as a regular and direct link between Euro5G and other 5G PPP projects. It is also targeted at the industry. Quarterly newsletters aim at delivering summary views on hottest topics in 5G and give readers inputs on steps, achievements and potential results.

Hereafter follows the Euro5G quarterly newsletter structure.

Item name	Suggested content
Project news	Identification of recent results
	Summary of past major results (between 2 issues)
Hot topics	International cooperation announcements
	Technological achievements
	Regulatory evolutions (new spectrum management schemes, work of new frequency bands, compatibility studies)
Past events	Summary of past events
	Detailed presentation the major event/piece of news/result
Future events	Presentation of future events (2 max)

Table 1: Newsletters structure

Eight electronic newsletters have been released so far (June 2017). They can be accessed here: <a href="https://5g-ppp.eu/newsletters/">https://5g-ppp.eu/newsletters/</a>

The format of newsletters has been entirely revised as from the third edition. We have made it more user-friendly and glossier.

- The first <u>newsletter</u> is dated September 2015. It provides an overview on signed partnerships between the 5G PPP and similar 5G programs outside Europe, at country or regional levels with the South Korean Ministry of Science, 5G Americas, 5GMF in Japan, IMT-2020 (5G) Promotion Group in China.
- Newsletter #2 dated December 2015 provided a summary of the major past events including multi-lateral Memorandums of Understandings for bi-annual "Global 5G Events", workshops organised and white papers issued. A specific session focused on the five verticals covered by the 5G PPP, i.e. Health, Automotive, Factory of the Future, Energy and Media/Entertainment.
- Newsletter #3 was released in February 2016 just before the MWC in Barcelona. It focused on past and upcoming major events including ICT 2015 in Lisbon and MWC 2016 in Barcelona where 5G PPP projects were very active and showed first results and innovations and produced demos.
- Newsletter #4 dated May 2016 was published before the First 5G Global Event organised by IMT-2020 (5G) Promotion Group in Beijing (May 31-June 1<sup>st,</sup> 2016). It gave the opportunity to provide additional detailed information on the event. Major workshops or joint initiatives between 5G PPP projects were also highlighted.
- Newsletter #5 dated August 2016 provided a feedback from the First Global 5G Event in Beijing. The second Global 5G Event was announced and release of the European 5G Annual Journal was promoted.
- The sixth newsletter dated November 2016 detailed main outputs from the Second Global 5G

Event in Rome: demonstrations, booths, and photos...per project, selection of main topics for 5G and main key messages, key quotes. The third Global 5G Event was announced and upcoming events detailed.

- Newsletter #7 dated February 2017 focused on 5G trials underway and 5G PPP preparations and presence at Mobile World Congress 2017.
- Newsletter #8 dated May 2017 main focus was "EuCNC preparations on full swing!" with additional coverage of 5G US developments and upcoming events.
- The ninth issue dated July 2017 is being prepared. Its release is scheduled for mid-July. It will focus on "3<sup>rd</sup> Global 5G Event" key outputs.

#### 4.2.2 Monthly newsflashes

The monthly update consists of 3-4 pages. It focuses on updating information for the reader. It explores timelines, news of transversal topics (such as spectrum issues, radio interface & RAN design, core network, virtualisation, energy efficiency, latency, flexibility, backhaul/fronthaul developments, security issues...), the progress made in projects synthetically. Newsflashes also cover the news related to:

- International agreements and cooperation
- Standardisation news
- Regulation news
- Conferences
- Workshops
- Demos
- Press releases announcing relevant progress
- ...

Monthly newsflashes are published from month 10.

Thirteen monthly newsflashes have been made publicly available so far.

- The new user-friendly format designed for newsletters was slightly revised to be adapted to newsflashes to ensure a common visual identity. Each newsflash edition is basically made of two distinct parts. The first part deals with a specific topic, related with what's happening, and the second part focused on upcoming events' announcement.
- The first edition dated May 2016 focused essentially on the METIS-II white paper "5G RAN Architecture and Functional Design".
- The second issue dated June 2016 focused on the upcoming EUCNC 2016 conference in Athens where 5G PPP projects showed first achievements and innovations. Joint initiatives developed greatly.
- The third issue dated July 2016 on EuCNC'16.
- The fourth edition dated September 2016 advertised the 2<sup>nd</sup> Global 5G Event that took place in Rome in November 2016, preparation for phases and 3 and 5G PPP phase 1 projects' presence at the 13<sup>th</sup> IWCS (Workshop on Virtualised Coordinated Spectrum Access for 5G Communications Systems)
- The fifth issue dated October 2016 brought about again the 2<sup>nd</sup> Global 5G Event and 5G-ENSURE papers released earlier in 2016.
- The sixth issue dated November 2016 emphasised key take-aways from the 2<sup>nd</sup> Global 5G Event. Phase 1 project by phase 1 project, showcased demos, innovations demonstrated in booths were detailed.

- As the New Year was approaching, the December 2016 issue (#7) put forward positive 5G PPP phase 1 projects' main achievements and publications.
- In the January 2017 edition (#8), key outputs from the last 12 months were summarised and highlighted.
- The ninth issue dated February 2017 focused on preparations for MWC'17. They went into full swing for 5G PPP projects. Preparations for panels, brochures, Press Release and Press Event were highlighted.
- In March 2017 (#10 issue), 5G PPP/5G-IA achievements at the MWC'17 were described in detail: 5G PPP projects active presence was revealed on a project by project basis. 5G PPP projects indeed showcased demos, organised panels and sent keynote speakers. The 5G-IA press release was again advertised. At last, Euro-5G also highlighted what could be taken away on 5G from this 2017 MWC edition on six main topics: i)standardisation ii) technological components and enablers for 5G, iii)fixed wireless access services also seen as pre-5G services iv)5G use cases v)5G costs vi)spectrum for 5G.
- In the eleventh issue dated April 2017 #11 (April 2017), key take-aways from recent White Papers and Cross-5G PPP Workshops are put forward i.e. the 3rd cross-5G PPP workshop held in Athens early February 2017, the collaborative white paper on "Cognitive Network Management for 5G" and the 2nd International Workshop on Millimeter Wave-Based Integrated Mobile Communications for 5G Networks (mmW5G) on March 19, 2017 in San Francisco (USA). Preparations for 5G PPP workshop on 5G Architecture and RAN Integration" were also described.
- The May 2017 edition (#12) mainly covered main achievements & news from the last weeks between the MWC'17 and mid-May. The 5G-IA new statutes and the renewed board were raised. The paper on the "Future of IoT" written by 5G-IA members was also mentioned.
- The thirteen issue dated June 2017 focused on 5G PPP phase 2 which started on the 1<sup>st</sup> of June. The 21 new 5G PPP projects were listed and described in short.
- An additional edition (#14 issue) is being prepared. It will be published in July 2017.

#### 4.3 Web and Social media channels

All kind of announcements from the programme have been made to the public through the dedicated web and social media channels, including:

- The 5G PPP portal: <u>www.5gppp.eu</u>
- The dedicated YouTube channel where all 5G PPP projects can post their own videos (https://www.youtube.com/channel/UCY8mTTwrDoMl35vGkiKq1Eg)
- Twitter: https://twitter.com/5gppp

The twitter account currently counts 2,598 followers, with an increase of 100% since the beginning of the project. A 5G PPP list was created including all 5G PPP projects' Twitter accounts in order to enable a quick overview of the latest news published and allow an efficient echo system on the social media.

We published 1,753 tweets covering the news related to the events organized and/or attended by Euro 5G Events (among the others: EuCNC 2017 and EuCNC 2017, MWC 2016 and MWC 2017, 5G Mobile World, 5G Global Events), Euro 5G publications and echoed the news coming from 5G PPP projects.

#### **4.3.1** Events

Almost 100 events have been announced on the 5G PPP web site over the June 2015-June 2017 period. Many of them provide details on 5GPPP projects thoughts, early achievements and innovations. Major events (EuCNC 2015/2016/2017, ICT 2015, IEEE ICC 2016, MWC 2016, Global

5G Events, MWC 2017) gave the opportunity to 5G PPP projects to promote their work and show demos, detail papers and share their views among the community. Key topics were covering cooperation agreements and Memorandum of Understandings signed with other countries or regions, vertical industries, spectrum, standardisation, 5G architecture, joint 5G PPP initiatives, Global 5G events, trials. The Launch of phase 2 was also widely promoted.

The full list is as follows on a monthly basis (as at end June 2017):

#### June 2017

- o 2nd WS on 5G PHY/MAC layers Design and Hardware Aspects @EuCNC 2017
- SPEED-5G demo @EuCNC 2017
- COHERENT demo @EuCNC 2017
- o CHARISMA demos @EuCNC'17
- 2nd Workshop on Network Management, Quality of Service and Security for 5G Networks @EuCNC'17, June 12th
- o 5G World Summit 2017 "Inspiring the Connected World through Next-Gen Networks"
- o Introduction of 5G PPP Phase 2 @EuCNC 2017, Session 1
- o Introduction of 5G PPP Phase 2 @EuCNC 2017, Session 2
- Flex5Gware final event in Turin in June 2017 @ CLEEN 2017
- o Flex5Gware @CLEEN 2017
- o 3rd EU-Taiwan 5G Workshop
- o 5G PPP projects @EuCNC 2017 "5G: European Roadmap, Global Impact"
- 5G: "European roadmap, Global Impact" @EuCNC 2017
- Workshop "Spectrum for 5G"

#### May 2017

- 5GEx Workshop on "Multi-Provider NFV: Towards Coopetive Service Ecosystem The 5G Exchange Approach" @Network Virtualisation Europe
- 5G NORMA @4th International Workshop on 5G Architecture, Paris, 25 May 2017
- o 3rd International 5G RAN design workshop @ICC 2017 (25 May 2017, Paris)
- o Third Global 5G Event on 24-25 May 2017, Tokyo (Japan)
- o 5G-CROSSHAUL @IEEE Com Soc Webinar: NFV/SDN, Time for Real Innovations

#### **April 2017**

SONATA @ SOFTNETWORKING 2017

#### March 2017

- o mmMAGIC, METIS-II, 5G-Crosshaul, 5G NORMA @5G PPP Workshop on RAN Architecture and integration
- o mmMAGIC @2nd International Workshop on mmW5G (March 19, 2017)
- SONATA @The Cloud Expo Europe London 2017
- o EU-China conference on IoT and 5G Research @EXCITING Project

#### February 2017

- o 5G-PPP @ Mobile World Congress 2017
- o 5G-Crosshaul the fusion of Fronthaul and Backhaul in 5G! @MWC 2017
- o 5G Cross-Project workshop @ February 6-7, 2017, Athens

#### January 2017

o 5G-ENSURE partner B-Com @9th International Cyber Security Forum

#### December 2016

o METIS-II, FANTATIC-5G, mmMAGIC, 5G-Crosshaul, Flex5Gware @ 2nd International Workshop on 5G RAN design, 8 December, Washington DC

#### November 2016

- The Digital Trust Economy @ DigiWorld Summit, 15-17 November 2016, Montpellier (France)
- o Second Global 5G Event on 9-10 November 2016, Rome (Italy)
- o BERLIN 5G Week
- o Superfluidity's Taiwan tour (October 31st-November 2nd, 2016)

#### October 2016

- SONATA @SDN & OpenFlow World Congress
- NGMN Industry Conference and Exhibition 2016
- o Sonata@SDN &OpenFlow World Congress

#### September 2016

- o 5G PPP projects @IEEE PIMRC 2016 (4-7 September Valencia, Spain)
- o 5th 5G PPP information day: Bratislava
- o The Digital Week 2016 is heading to Bratislava (26-29 September)
- Workshop on Virtualised Coordinated Spectrum Access for 5G Communications Systems
   @13th ISWCS 2016
- o 5G PPP Phase 3: Preparation Workshop on 5G for Healthcare

#### **June 2016**

- 4th 5G PPP Phase 2 Information Day, Athens
- Key challenges for 5G Networks @CHARISMA & SESAME Summer School 2016
- o FANTASTIC-5G: Ultra-Reliable and Mission Critical Communication @EuCNC 2016
- Network Management, QoS and Security Workshop @EuCNC 2016
- Next Generation fronthaul/backhaul integrated transport networks @EuCNC 2016
- o 5G PPP project METIS-II @EuCNC 2016
- o Joint FANTASTIC-5G, mmMAGIC, Flex5Gware Workshop @EuCNC 2016
- 5G PPP projects actively contribute to EuCNC 2016
- SONATA @ the KuVS Summer School 2016 on SDN/NFV from 20 to 23 June 2016
- o 5G NORMA & KCL Summer School, 20-22 June 2016
- o 5G-ENSURE organises 1st workshop on 5G Security Standardisation, 16 June 2016
- o Superfluidity @ 22nd IEEE LANMAN, June 13-15, 2016 (Rome)
- o Workshop on Security in Virtualised Networks co-chaired by 5G-Ensure in June 2016

- o 5G PPP projects and the automotive @ITS 2016
- o EU-TW Joint 5G Workshop in Taiwan
- The First Global 5G Event: "Building 5G Technology Ecosystem"
- o 5G PPP @4th CLEEN workshop (30 May-1 June 2016): How cloudy and green will mobile networks and services be?

#### May 2016

- o 3rd 5G PPP Phase 2 Information day and Stakeholders event
- o 5G NORMA, 3rd international workshop on 5G architecture @IEEE ICC 2016, Malaysia
- Workshop jointly organised by multiple 5G PPP projects at the IEEE ICC 2016
- 5G PPP @4th CLEEN workshop (30 May-1 June 2016): How cloudy and green will mobile networks and services be? The First Global 5G Event: "Building 5G Technology Ecosystem"

#### **April 2016**

- o 5G-PPP @ "5G: expected impact" conference organised by Telenor
- 1st 5G Architecture Workshop
- o NetWorld2020 annual event
- o 5G PPP projects present at NetFutures 2016: Driving Growth in the #DigitalSingleMarket
- o 5G PPP projects @ETSI workshop on 5G: "5G, From Myth to Reality", April 21st, 2016

#### March 2016

- o 2nd 5G-PPP Phase 2 Stakeholders and Information day
- 5G-Ensure and B-COM @ETSI standardisation workshop

#### February 2016

- o 5G PPP special sessions @ MWC 2016
- o 5G PPP "5G empowering verticals" @ MWC 2016 in Barcelona

#### January 2016

- o 5G PPP Phase 2 stakeholders' meeting took place on January 21st, 2016
- o ETSI Workshop on Future Network Technologies, Jan. 27-28 2016, Sophia Antipolis

#### December 2015

- o FIRE Forum 2015: European Experimental Infrastructure Driving Innovation
- o IEEE Globecom 2015

#### November 2015

- o 2nd EAI International Conference on 5G for Ubiquitous Connectivity 5G PPP projects present at the Tweether Workshop on November 20th, 2015
- o DigiWorld Summit 2015
- o CHARISMA and 5G-XHaul at the COMBO workshop on CTTE 2015

#### October 2015

- FANTASTIC-5G TALK and PANEL "5G Multi-Service Air Interface (<6 GHz)" in NGMN INNOVATION SESSION, on Oct.13/14
- 5G-NORMA talk and panel "5G NORMA: A NOvel Radio Multiservice adaptive network Architecture for the 5G era based on Network Slicing" in NGMN Forum, Innovation

- Session, Montreal (CA) on Oct.13/14
- o ICT 2015 Innovate, Connect, Transform
- o ICT 2015 5GPPP Booth XHAUL demo
- ICT 2015 5G PPP Booth METIS-II demo
- o ICT2015 5G PPP Booth 5G NORMA demo
- Towards a 5G Connected World: A Security Insight, ICT2015 Networking session, Lisbon, 20/10/2015, Room 12, 16:50-17:35
- EC-TW workshop on the 5G Targeted opening

#### September 2015

- o 2015 IEEE 82nd Vehicular Technology Conference: VTC2015-Fall
- International Workshop on Computer-Aided Modeling Analysis and Design of Communication Links and Networks (CAMAD)
- EU project METIS-II hosts workshop on 5G system with 5G PPP projects

#### August 2015

- o IEEE PIMRC 2015
- o TRUST 2015 8th International Conference on Trust & Trustworthy Computing
- o WISTP 2015

#### **July 2015**

o 19th ITU Global Standards Collaboration (GSC) meeting

#### 4.3.2 News / 5G PPP press releases

In addition to events, the 5G PPP web site carefully relayed any piece of news disclosed by projects. As at end June 2017, a little less than an hundred news items had been released.

A snapshot of the last piece of news released is shown below:

#### Joint Demo Flex5Gware and 5G-Crosshaul @CLEEN'17

#### Turin, June 21-22, 2017 - Joint Demo at Flex5Gware Final Event: "Network split with integrated fronthaul and backhaul"

The CLEEN'17 workshop demo has shown that the 5G-Crosshaul XPFEs are capable of transporting fronthaul and backhaul traffic generated by the Flex5GWare scenario. A video server located in the EPC machine streamed video to the UE, this traffic was encapsulated, forwarded, decapsulated and delivered within the LENA scenario (L2 and above) and also transported to the LTE transmitter (L1) that runs different functional splits showing the energy consumption in real time.

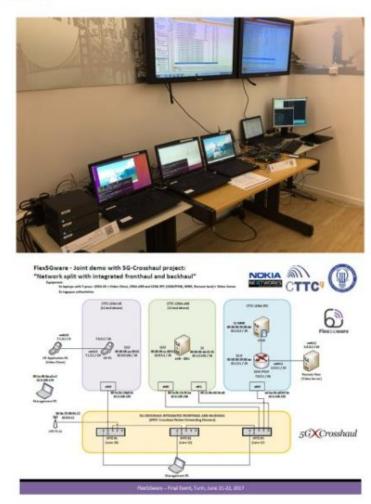


Figure 4: Joint announcement by Flex5GWare and 5G-Crosshaul

Major announcements are also disseminated on the news/press releases sub-section. The First Global 5G event was also highlighted there twice. A press release announced the event and another one covered this unique event and provided details on what happened and what was discussed. Statements from 5G organisation leaders were also mentioned. Releases of key white papers issued by projects were mentioned in the news/PR section. MoUs signatures, 5G Action plans, 5G PPP press events and releases are obviously highlighted in the news/PR sub-section.

#### 4.4 Additional Distribution channels

The European 5G Annual Journal was published on the 5G PPP portal (<a href="https://5g-ppp.eu">https://5g-ppp.eu</a>). It was also be sent by email to the European Commission, 5G PPP members and to a list of identified stakeholders. A printed version was also available in October 2016 with updates on projects' innovations and achievements.

Announcements regarding the publications of the annual or quarterly newsletters, besides the dedicated mailing lists, were also made through the social media channels.

#### 5 Promotion Material

During the second year of the project, Euro-5G produced a series of 5G PPP PR material and videos, including some PR material dedicated to SMEs.

Euro-5G focused its effort on promotional material to be made available for specific events, while keeping whenever possible the material broad enough to be used in various places and events. The promotion material was prepared for two main occasions, the "2nd Global 5G Event – Enabling the 5G Ecosphere", held on November 9th and 10th, 2016 in Rome; and the Mobile World Congress 2017 (MWC 2017) in Barcelona, 27th of February – 2nd of March 2017. During the 2nd year of the project, Euro-5G also revised the generic 5G PPP roll-up, which has been displayed at several events, and produced a dedicated NetWorld 2020 SME WG poster for the SME booth at EuCNC 2017.

#### 5.1 PR material for the 2<sup>nd</sup> Global 5G Event

Euro-5G prepared the PR material needed for the event.

To start with, the "general design theme" and the event logo were designed. Both elements were designed in line with the 5G PPP look & feel, and in line with the "general design theme" produced for the 1st Global 5G event held in China.



Figure 5: the 2<sup>nd</sup> Global 5G event general design theme and logo

Then, Euro-5G produced the following material:

#### 1. Hotel signage

The hotel signage was placed in the hotel's hall to indicate the conference's rooms.



Figure 6: the 2<sup>nd</sup> Global 5G event hotel signage

#### 2. External banner, monolith, backdrop, podium and roll-up

The external banner and monolith were positioned at the entrance of the hotel where the conference was held:





Figure 7 External banner and monolith



Euro-5G produced two backdrops: one was positioned in the conference room, and the other one behind the registration desk. A speaker's podium was also produced.



Figure 8: Backdrop and podium

We designed and printed two roll-ups: one positioned at the conference's entrance and the other one in the conference's room. As Golden Sponsor, the TIM logo appeared in the roll-up.



Figure 9: Roll-up

#### 3. Agenda

Euro-5G designed and printed the event's agenda.



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Figure 10: Agenda

#### 4. Additional material (non-printed material)

Euro-5G designed and produced a set of gadgets: bags, solar chargers, badges and t-shirts.



Figure 11: bag and solar charger



Figure 12: Volunteer's t-shirt and event's agenda



Figure 13: badges

#### 5.2 Promotional material for the MWC 2017 Event

In the scope of preparation of promotional material for the MWC 2017 event, the following was designed and printed:

- A 16-page brochure "5G innovations for new business opportunities", distributed and presented at the 5G PPP Media & Analyst Event ("5G Action Plan: from Research to Trials") at Mobile World Congress 2017. This brochure shows how the 5G PPP innovations go beyond what is announced for early 5G deployments for the eMBB service class, and how all 5G service classes are delivered over a scalable and cost efficient network. It then explains how

5G technological innovations transform the network into a secure, reliable and flexible orchestration platform across multiple technology and administrative domains. Multi-domain orchestration allows a quick end-to-end service deployment and a dynamic sharing of infrastructure resources among stakeholders, offering new business opportunities and paving the way for new business models.

- A 4-page- A4 flyer with the "5G innovations for new business opportunities" Executive Summary, distributed at the 5G PPP Media & Analyst Event ("5G Action Plan: from Research to Trials") at Mobile World Congress 2017.



Figure 14 Brochure and flyer cover page

In addition, the brochures and flyers were also distributed at:

- The SESAME demo at the ITALTEL booth: Hall 2 number 2G10 and
- The B-COM booth (5G ENSURE): Hall 8.0, Stand 8.0F17

#### 5.3 PR material for SMEs

Euro-5G produced a set of specific PR material dedicated to SMEs. This comprises:

- A SME brochure, and
- A NetWorld2020 SME WG poster

#### **SME** brochure

We produced a brochure dedicated to SMEs, which was broadly distributed during the 2nd Global 5G event in Rome and then at EuCNC in Oulu. Some brochures were also distributed in a few smaller events and workshops.

This SME brochure, entitled "SME Expertise and Skills in the 5G domain", is composed of:

Page 1: cover page

Page 2: highlights from Mario Campolargo (Former Director, DG CNECT, European Commission) and Werner Mohr (Chairman of the Board of Directors of the 5G Infrastructure Association) Page 3: Editorial from Jacques Magen (InterInnov, Chair of the SME Working Group) Page 5-37: Description of 33 SMEs which are part of the NetWorld2020 SMEs WG. The content was collected via the NetWorld2020 SME WG mailing list. The description of each SME is covering the following topics:

- Expertise in 5G related domains
- Expertise in vertical sectors
- Interest in international cooperation

Page 40: highlights from Bernard Barani (Deputy Head of Unit, DG CNECT, European Commission)



Figure 15: Cover Page of the SME brochure

The brochure was also posted on the 5G PPP web site at: <a href="https://bscw.5g-ppp.eu/pub/bscw.cgi/d119698/SME-A5-brochure-final-web.pdf">https://bscw.5g-ppp.eu/pub/bscw.cgi/d119698/SME-A5-brochure-final-web.pdf</a> .

#### NetWorld2020 SME WG poster



WP3 produced, in collaboration with the SME WG, a poster, entitled SME expertise and innovation in the 5G domain and beyond, which was showed first at the SME booth during the EuCNC 2017 event in Oulu. This poster provides high level information on the SME WG activities and it is composed of five main sections:

- 1. Brief introduction highlighting the importance of the SMEs in the 5G world;
  - 2. Main activities of the SME WG
  - 3. Main objectives of the SME WG
  - 4. Explanation on how to join the SME WG
  - 5. Useful links

#### 5.4 5G PPP roll-up

WP3 produced a new 5G PPP roll-up, replacing the old 5G PPP logo with the new one. In addition, the roll-up was also re-designed, to be more in line with the general 5G PPP look&feel.



Figure 16: 5G PPP roll-up

#### 5.5 Videos

As mention in D3.3, Euro-5G scheduled a set of interviews that were shot during the EuCNC 2016 event in Athens (27-30/06/2016). The interviews in Athens focused on the Phase I projects' intermediate achievements and what they planned to do in the remaining part of the project.

This set of interviews was published in the 5G PPP YouTube channel: (https://www.youtube.com/channel/UCY8mTTwrDoMl35vGkiKq1Eg).

In addition to single project interviews, a general video with the best extracts of each interview was released, and was used to open the 5G PPP Press, Media & Analyst Event at MWC 2017. The video is available at: https://www.youtube.com/watch?v=pvmyWD3KLyw.

With the same idea in mind, a set of interviews was scheduled during the EuCNC Event 2017 in Oulu (Finland). 16 Phase I projects agreed to be interviewed: Flex5Gware; CogNet; mmMagic; 5G-Crosshaul; Charisma; 5G-NORMA; Fantastic5G; 5G-EX; 5GEnsure; Speed5G; Coherent; VirtuWind; Sesame; Sonata; Selfnet; Metis II. This year, the projects were interviewed, whenever possible, at their booth, to provide more dynamism and show demos available at the booths. Interviewees were asked to respond to the following questions:

- Describe your project's 3 key achievements (preferably in relation with your demo if you have one)
- Describe (if any) your common 5G PPP achievements/results e.g. in working-groups, forums like pre standardization, standardization etc. and overall a common work with other projects in 5G PPP
- Explain what the final achievements will bring to society and businesses vs. what is already available today
- Provide information on how the work initiated within your 5G PPP project may continue

The Euro-5G team will edit these interviews during the summer 2017, and the videos will be published immediately afterwards on the 5G PPP YouTube channel, and relayed on the 5G PPP web site.

In addition to the above, the Euro-5G team interviewed eight SME representatives (Ardic, CityPassenger, InnoRoute, Montimage, Nextworks, Ubiwhere, Visiona, and WestAquila) who participated in the SME booth at EuCNC. They were asked to talk about the following:

- Brief introduction of your company
- Explanation of what your company is doing in the 5G environment and benefits of the 5G PPP Program
- Explain how you are commercialising/will commercialise your 5G product(s)/service(s)

Again, these interviews will be published on the 5G PPP YouTube channel when edited during the summer of 2017. In addition, one generic video focusing on SMEs will also be produced, with extracts from EuCNC 2016 and 2017 video interviews.

#### **6** Conclusions

This deliverable describes publications and active communication carried out during the first 24 months of the Euro-5G project.

During the overlap phase between Euro-5G and To-Euro-5G CSA (from July 2017 to the end of September 2017), communication and dissemination activities are being handed over to To-Euro-5G. The activities carried out in Work Packages 1 and 3 of Euro-5G are now gathered in Work Package 1 of To-Euro-5G.