

H2020 5GASP Project

Grant No. 101016448

## D7.6.1 Annual Dissemination Report

**Abstract.** This document is a report of the dissemination during the 1<sup>st</sup> year of the project. It summarizes the project dissemination achievements, including participation in the conferences, publishing scientific papers, activities in social media.

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## Disclaimer

This document has been produced in the context of the 5GASP Project. The research leading to these results has received funding from the European Community's H2020 Programme under grant agreement number 101016448.

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## Executive Summary

This report provides a summary of the outcomes to date towards dissemination, standardization and impact assessment during the first year. It also creates an opportunity for the project partners to review their exploitation planning and refine their strategic intentions for exploitation of the outcomes of the project.

Industrial Communication and Dissemination activities have established all necessary social media channels along with the project website. Content for social media and the website comes from the deliverables as well as blogs from partners and video content.

The consortium members participated in industry events such as EuCNC 2021 conference, 5GPPP activities (5G Automotive WG and 5G PPP SME WG) as well as organized two 5GASP NetAppCommunity webinars.

Scientific dissemination during the 1st year of the project included the organization of two scientific workshops and publishing eight papers.

To present the project to the wider audience, the 5GASP partners prepared two press releases and a leaflet and worked on the project social media channels and webpages and achieved the following results: the NetAppCommunity portal – 1080 pageviews, Twitter – 43 followers, LinkedIn – 104 followers, YouTube – 713 views.

In general, the dissemination activities have helped to reach a large number of people from academia, industry, civil society, media, etc. In particular, 1200 people from the scientific community, 150 people from the industry, 100 people from the civil society, 300 people from the general public and 150 people from other sectors. In total, 1900 people have been reached with the 5GASP dissemination activities.

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## List of Acronyms

5GPPP – 5G Infrastructure Public Private Partnership  
V2X – Vehicle-to-everything  
PPDR – Public Protection & Disaster Relief  
SEO – Search Engine Optimisation  
URLLC – Ultra Reliable and Low Latency Communications  
mMTC – massive Machine Type Communications  
5G-TOURS – H2020 project  
OSM – Open Source MANO  
NFV MANO – Network Function Virtualization MANO  
ISO – International Standardisation Organisation  
5G-Tours – SmarT mObility, media and e-health for toURists and citizenS (Horizon2020 project)

## 1. Introduction

### 1.1. Objective of this document

This deliverable describes the dissemination activities undertaken within WP7 in the first year of the project. These activities include:

- Academic dissemination through presenting new scientific results in journal papers and at conferences;
- Dissemination to the industrial partners through business networks and professional communities;
- Dissemination to the wider audience at the project website, social media, the NetAppCommunity portal, and the Community events.

This document presents the dissemination strategy, which supports different types of activities, as well as the results of this strategy implementation.

### 1.2 Organisation of this document

The rest of the document is organized as follows:

Section 2 provides the dissemination strategy of the project;

Section 3 describes the results of academic dissemination presented in journal papers and conference papers;

Section 4 presents dissemination events, in particular, NetAppCommunity events;

Section 5 discusses standardization activities, dissemination through 5GPPP and professional networks;

Section 6 describes the ways of the dissemination through social media and networking platforms;

Section 7 presents the project website;

Section 8 presents the NetAppCommunity portal;

Section 9 provides information of the press releases;

Section 10 provides information of the project leaflets;

Section 11 discusses the ways of dissemination within the project consortium;

Section 12 summarize the dissemination activities being fulfilled during the first year of the project implementation.

## 2. Dissemination Strategy

Due to the high potential impact that 5GASP aims to achieve in the NetApps domain, the consortium will devote major efforts on project results' exploitation and dissemination. The goal of dissemination activity is to promote the visibility of 5GASP project, disseminating its results into multiple domains. Within the project was identified the main target audience, which contains verticals (V2X, PPDR and others), industry, SMEs, software developers, MNOs, research institutes, academia etc.

This section determines three main phases of the dissemination activity:

- Elaboration of the initial dissemination strategy
- Implementation of the dissemination strategy
- Review of the dissemination strategy and its improvement

## 2.1. The 1st project year strategy

5GASP consortium is applying a cascaded dissemination and exploitation strategy where the following activities are embraced:

- Internal dissemination: It represents partners' internal dissemination activities, comprised of internal workshops and training activities as well as the availability of the 5GASP results (e.g. deliverables on business analysis, tools developed, etc.) within the partner's 'data lake'.
- Focused dissemination: This type of dissemination is addressed to stakeholders directly or indirectly related to the project, i.e. SMEs, startups, industrial software vendors and operators working in Software Networks. Main instruments to apply this type of dissemination will be presentations/discussions during regular consultancy services of the project's industrial and SME partners, workshops and conferences.
- Extended dissemination: This is addressing the broader research community, the European 5G Industry, end-users and the wider public that could benefit from the project. Its aim is to inform and stimulate interest on 5GASP open platform, its DevOps, testing innovations and the NetAppStore. Wider dissemination includes:
  - **Scientific dissemination.** This type of dissemination includes publication in high visibility journals, participation in scientific conferences and H2020 ICT events including summits and clustering activities.
  - **Web activity.** The effective wider dissemination will also be supported by the set-up of the project's web site, which will present 5GASP's results and demos, the project achievements at international conferences and in scientific journals, the participation in public workshops and/or exhibitions.
  - **Networking Events.** Tradeshows, industrial fora, etc. remain a top networking tools, as they gather companies within a specific industry into one location for demonstrating their latest products and services. Rarely open to the public, these events give companies the chance to establish or strengthen relationships with key industry partners, customers and prospects; identify market trends and opportunities; and, gain an understanding of what their competition is offering in the market.
  - **Social Media Marketing.** Social media marketing focuses on providing users with content they find valuable and want to share across their social networks, resulting in increased visibility and traffic. Social media shares of content, videos and images also influence SEO efforts in that they often increase relevancy in search results within social media networks like Twitter, LinkedIn, YouTube and ResearchGate and search engines like Google.
  - **Content Marketing.** Content marketing emphasizes education over selling to influence buying behavior. This strategic marketing approach focuses on creating and distributing information relevant to prospects' needs in order to

attract those best aligned with – and most likely to purchase – your product or service.

A table summarizing the targets of the project for different dissemination and communication activities, as well as the objectives reached so far, is given below (Table 1).

Table 1. Project lifetime targets and current number of dissemination activities

Category	KPI	Target	Current status (year 1)
<b>Standardization and industry fora</b>	Standards and industry groups impacted	3GPP, ETSI	Acheived (See Section 5)
<b>Industrial dissemination</b>	Participation in industry events	MWC, EuCNC and at least two others	Partially Acheived (EuCNC 2021)
	Organization and attendance of 5GASP NetApp community webinars	6	Partially Acheived – 2 (See Section 4)
	5GPPP activities	Participation in the 5G Automotive WG of the 5G-PPP and in 5G PPP SME WG	Acheived (See Section 5)
<b>Scientific dissemination</b>	Organization of scientific events and attendance	Two scientific workshops with 20+ attendants	Acheived – 2 workshops (See Section 3)
	Number of publications	More than 20	Partially achieved – 8 (See sections 3)
<b>Communication to the general public</b>	Number of press-releases	6	Partially achieved – 2 (See Section 9)
	Web site visits outside the consortium	More than 75% of the visits coming outside the consortium	Achieved (See Section 7)
	Social media channels used	Twitter, LinkedIn, YouTube	Achieved (See Section 6)
	Blog posts	20+	Partially achieved – 5 (See Section 8)

As shown in Table 1, at the current stage of the project not all the objectives related to the number of the dissemination activities have been achieved. 5GASP partners are not taking leading roles in the contribution to the standards. Currently partners have contributed to 3GPP and ETSI.

The number of dissemination activities related to international journals and conference papers has reached 8 contributions. Regarding the number of keynotes and panels together with the participation in 5G events, dissemination has already reached the number of 9. The targeted number of workshops in major IEEE conferences has been reached, and during the next year has to be organized at least one more scientific workshop on the majoring conference. Partners are working on patents applications and open software development but these positions are still missed at the moment.

Verticals are not yet impacted in appropriate way. Communication to the general public is on-going. Because of COVID-19 influence 5GASP partners have to start searching for the new dissemination channels: blog posts, press releases, webinars.

Finally, all the targeted public deliverables were submitted and made available in the project website. These dissemination activities have helped to reach a large number of people from academia, industry, civil society, media, etc. In particular, 1200 people from the scientific community, 150 people from the industry, 100 people from the civil society, 300 people from the general public and 150 people from others sectors. In total, 1900 people have been reached with the 5GASP dissemination activities.

## 2.2. Development of the 2nd project year strategy

According to the results of the first year, it has to be mentioned that the developed dissemination strategy of the project was almost fully implemented in life and target KPIs are met, but in any case the new objectives and implementation plan have to be developed for the second year. Some lessons learned in the first year have to be taken into account and new dissemination channels and methods can be applied. This section aims to identify new objectives for the dissemination strategy for the second project year and implementation plan accordingly.

### 2.2.1. Objectives

It becomes obviously, that all the partners will be involved in the dissemination activities mainly through the NetAppCommunity dedicated to promoting and hosting of community engagement events. Of course, the project's website, together shall be updating periodically and used for dissemination. Also, more conventional approaches such as targeted mailings, participation in seminars, etc. should be applied as well. A dissemination and exploitation plan will be elaborated with the purpose of ensuring the use of the results of the 5GASP project among the most pre-eminent players.

To establish the 5GASP project as the leading initiative for Europe's competitiveness in the NetApp sector, as it was for the first year, the next main directions will be followed:

- Internal dissemination;
- Focused dissemination;
- Extended dissemination.

So, the main objectives for the second project year can be listed as it follows:

- **New NetApp Community members engagement.** To build the real community among the project partners and other stakeholders have to be involved a lot of new

companies, academia, etc. This may be achieved through the direct communication with SMEs, startups, industrial software vendors and operators working in Software Networks. Main instruments to apply this type of dissemination will be presentations/discussions during regular consultancy services of the project's industrial and SME partners, workshops and conferences.

- **Dissemination to the broad research community.** This is addressing the broader research community, the European 5G Industry, end-users and the wider public that could benefit from the project. Its aim is to inform and stimulate interest on 5GASP open platform, its DevOps, testing innovations and the NetAppStore. This could be achieved through the participation in the leading conferences, publishing of the project results in the most relevant journals in the area, etc. Furthermore, 5GASP is planning to organise at least one scientific workshop during the second year.
- **Industry influence.** In this case, project will ensure the widespread dissemination of public results of the project to the stakeholders in the EU Member States and the Associated Countries. 5GASP will aim to promote the standardization of the key interfaces of its architecture into the relevant standards bodies and groups, in order to facilitate the use of the technology to stimulate its adoption by other market players beyond those involved in the consortium.
- **Building of good relationships with the media.** Consortium members will also define a target list and a strategy on how to involve opinion leaders, journalists, associations, etc., and the most suitable strategy for the dissemination of the 5GASP activities and results.

## 2.2.2. Implementation plan

To achieve the goals of the second project year dissemination strategy the next plan should be implemented.

A table summarizing the targets of the project for different dissemination and communication activities, as well as the objectives reached so far, is given below (Table 2).

Table 2. Project planning targets of dissemination activities for the second year

Category	KPI	Target
Standardization and industry fora	Standards and industry groups impacted	3GPP, ETSI
Industrial dissemination	Verticals related groups impacted	V2X, PPDR
	Participation in industry events	EuCNC
	Organization and attendance of 5GASP NetApp community webinars	3
	5GPPP activities	Participation in the 5G Automotive WG of the 5G-PPP, in 5G PPP SME WG and in 5G PPP TMV WG

<b>Scientific dissemination</b>	Organisation of scientific events and attendance	One scientific workshops with 20+ attendants
	Number of publications	More than 5
<b>Communication to the general public</b>	Number of press-releases	3
	Web site visits outside the consortium	More than 75% of the visits coming outside the consortium
	Social media channels used	Twitter, LinkedIn, YouTube
	Blog posts	10+

### 3. Academic Dissemination Results

As part of the dissemination plan, dissemination to the research community is being achieved through the publication means.

#### 3.1. Scientific Publications

5GASP partners have been publishing at high impact journals and magazines in the field. The following journal publication (see Table 3 and <https://www.5gasp.eu/publications/conferences.html>) are associated with the results in 5GASP projects.

Table 3. 5GASP Journal Publications

Reference Number	Reference
<b>J01</b>	M. Volk and J. Sterle, "5G Experimentation for Public Safety: Technologies, Facilities and Use Cases," in IEEE Access, vol. 9, pp. 41184-41217, 2021, doi: 10.1109/ACCESS.2021.3064405
<b>J02</b>	R.Odarchenko, G. Labadze. "Links between 5G PPP Projects: The road from the past to the future', <i>Scientific and practical cyber security journal</i> , 2021.

5GASP is also planning the submission for several target journals, identified as being particularly suitable for possible publications (Table 4).

Table 4. Target Journal Publications

Topic	Journal	Link
Communications, Virtualization	IEEE Transactions on Computers	<a href="https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=12">https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=12</a>
	IEEE Communications Magazine	<a href="https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=35">https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=35</a>
	Journal of Network and Computer Applications	<a href="https://www.journals.elsevier.com/journal-of-network-and-computer-applications">https://www.journals.elsevier.com/journal-of-network-and-computer-applications</a>
	International Journal of Computer and Telecommunications Networking	<a href="https://www.journals.elsevier.com/computer-networks">https://www.journals.elsevier.com/computer-networks</a>
	Journal of Cloud Computing	<a href="https://journalofcloudcomputing.springeropen.com/">https://journalofcloudcomputing.springeropen.com/</a>
	Journal of Network and Systems Management	<a href="https://www.springer.com/journal/10922">https://www.springer.com/journal/10922</a>
Software Engineering	Sensors Special issue: "Experimentation in 5G and beyond Networks: State of the Art and the Way Forward"	<a href="https://www.mdpi.com/journal/sensors/special_issues/5G_beyond_networks">https://www.mdpi.com/journal/sensors/special_issues/5G_beyond_networks</a>
	IEEE Transaction of Software Engineering	<a href="https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=32">https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=32</a>
	Journal of System and Software	<a href="https://www.journals.elsevier.com/journal-of-systems-and-software">https://www.journals.elsevier.com/journal-of-systems-and-software</a>
	ACM Transactions on Software Engineering and Methodology (TOSEM)	<a href="https://dl.acm.org/journal/tosem">https://dl.acm.org/journal/tosem</a>
Intelligent Transportation System	Empirical Software Engineering (EMSE)	<a href="https://www.springer.com/journal/10664">https://www.springer.com/journal/10664</a>
	IET Intelligent Transport Systems Journal	<a href="https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=4149681">https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=4149681</a>
	Journal of Intelligent Transportation Systems: Technology, Planning, and Operations	<a href="https://www.tandfonline.com/loi/gits20">https://www.tandfonline.com/loi/gits20</a>
	IEEE Transactions on Vehicular Technology	<a href="https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=25">https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=25</a>
	International Journal of Vehicle Autonomous Systems	<a href="https://www.inderscience.com/jhome.php?jcode=ijvas">https://www.inderscience.com/jhome.php?jcode=ijvas</a>

### 3.2. Conferences

5GASP partners have published 6 conference papers, so far. A selection of the most relevant conference papers is also available on our public website (<https://www.5gasp.eu/publications/conferences.html>). The full list of conference papers, either published or accepted, is given below (Table 5).

Table 5. 5GASP Conference Publications

Reference Number	Reference
Conference articles (Published and/or accepted)	
C01	Cristian Patachia-Sultanoiu et. All, "Advanced 5G Architectures for FutureNetApps and Verticals", in IEEE BlackSeaComm, 2021
C02	Andreea Bonea et. All, "Automated onboarding, testing and validation for NetApps and Verticals", in International Symposium on Signals, Circuits and Systems, 2021
C03	M.Nedelcu, V.Nițu, T.Petrescu," Evaluation of electromagnetic field exposure in indoor spaces where there are located base stations with distributed antenna system", EEE International Black Sea Conference on Communications and Networking, Bucharest, Romania, 2021
C04	J Gallego-Madrid, A.Hermosilla, A. F. Skarmeta, "5GASP: Security and Trust in NetApp Deployment and Operation", 2021 Joint European Conference on Networks and Communications & 6G Summit (EuCNC/6G Summit): Workshop 8 - From 5G to 6G Automated and Intelligent SecuriTy: FAST
C05	K.Trantzas, C.Tranoris, S.Denazis, R.Direito, D.Gomes, J.Gallego-Madrid, A. Hermosilla, A.F. Skarmeta, "An automated CI/CD process for testing and deployment of Network Applications over 5G infrastructure", IEEE International Mediterranean Conference on Communications and Networking (MeditCom2021)
C06	Gallego-Madrid, R.Sanchez-Iborra, A. F. Skarmeta," Security and Trust in the Integration of Network Functions within the 5G Architecture: The 5GASP Project", The 5th International Symposium on Mobile Internet Security 2021,

### 3.3. Special Stream in 5G Networks Technologies and Security on IDAACS conference

On 23rd of September 2021 was hold 5GASP and 5G-TOURS joint Special Stream in 5G Networks Technologies and Security on IDAACS conference.

This special session has covered the innovative technologies that were studied in various research projects and standardized by 3GPP in Rel 15 and Rel 16. The special session encouraged the submission of papers studying the current status of 5G research and early deployment and to assess how this relates to the initial 5G vision. The evaluation of the current solutions and/or deployment for features such 5G eMBB, URLLC (Ultra Reliable and Low Latency Communications) and mMTC (massive Machine Type Communications), Security and privacy aspects were considered as well.

Published papers in the nearest future should be accessible and provide a reality check for a wider audience.

The proposed special session was organized and technically co-sponsored by two of the flagship projects in the Phase III of the H2020/ 5GPPP initiative – 5G-TOURS and 5GASP.

Finally, there were presented 7 highly-qualified research papers related to the 5G networks technologies and security issues in 5G. This only the first edition of the special stream and 5GASP partners aim to organize more similar sessions or workshops on other major conferences in the field.

## 4. Dissemination Events

The 5GASP project includes a series of online webinars, “The Community Engagement Events”, supporting the dissemination of the 5GASP projects ambitions and deliverables to a diverse audience of SMEs, start-ups, Academia – students and researchers as well as specialists in large companies.

The scope of the dissemination events is to address the potential of the 5GASP Platform to current and future developers of NetApps and to other interested third parties who can leverage the 5G Technology and the 5GASP Platform.

In the first year of the 5GASP project, the consortium organized 2 such dissemination events in the form of online webinars. Supporting the creation of these webinars, a series of short videos was made available to explain the basic concepts of the 5G ecosystem. These videos are available in a YouTube channel with public access. Further details on the topics and links to the video content is available [1] in D6.1 – Initial report on building NetApps Community & Defining a certification process. (Ref: D6.1, Section 3, Pages 13 – 19).

The video content disseminates on the following topics related to or part of the 5GASP Platforms and Ecosystem:

- Introductory information to 5G Technology
- Introduction to the NetApp Concepts
- Software Defined Networks
- Network Function Virtualization
- OSM – Open Source MANO
- NFV MANO – Network Function Virtualization MANO
- Jenkins
- OpenSlice

This video content is publicly available and was reused in the two dissemination events held on October 13, 2021, and November 10, 2021, on the Zoom Platform and accessible for registration using the EventBrite platform.

The first event held on October 13, titled “5G – Technology updates and opportunities” addressed the main concepts and knowledge necessary to understand 5G development.

The second event held on November 10, titled “5G – Support for the next generation applications” focused on in-depth knowledge of the 5GASP platform under development and offered a case study into one of the NetApps to be developed and piloted part of the 5GASP Project.

The following table (Table 6) details the Events Topics of Dissemination, the audience type and the participation. A more detailed representation [2] of this information is available in D6.1, Section 3. (Ref: D6.1, Section 3, Subsections 3.1 and 3.2)

Table 6. Dissemination Events in 2021

Event Name	Topics Disseminated	Participation from the 5GASP Consortium	Audience Types	Audience Numbers
5G – Technology updates and opportunities	<ul style="list-style-type: none"> <li>• The 5GASP Project Presentation</li> <li>• The ambitions of the 5GASP Project</li> <li>• The 5GASP Platform and Components</li> <li>• Expected Use-Cases and Developments</li> <li>• Software Defined Networks</li> <li>• Network Function Virtualization</li> <li>• Continuous Integration / Continuous Delivery Tools</li> </ul>	<ul style="list-style-type: none"> <li>• Representatives of each partner</li> <li>• Invited guest speakers from outside of the Consortium, representing Industry</li> </ul>	<ul style="list-style-type: none"> <li>• Students</li> <li>• PhDs</li> <li>• SMEs</li> <li>• Start-Ups</li> <li>• Subject Matter Experts</li> </ul>	259 registered
5G – Support or the next generation applications	<ul style="list-style-type: none"> <li>• The Status of 5G – Discussion Panel</li> <li>• 6G Developments</li> <li>• Case-Study for the Virtual On-Board Unit Provision NetApp for the Automotive Vertical NetApps</li> <li>• A discussion on the commercial perspectives for 5GASP and NetApps</li> </ul>	<ul style="list-style-type: none"> <li>• Representatives of each partner</li> <li>• Invited guest speakers from outside of the Consortium representing the 5G Infrastructure Association</li> </ul>	<ul style="list-style-type: none"> <li>• Students</li> <li>• PhDs</li> <li>• SMEs</li> <li>• Start-Ups</li> <li>• Subject Matter Experts</li> </ul>	185 registered

Feedback has been collected and received from the participants, for each event, averaging 8/10 scores on a recommendation scale, as represented by the EventBrite Platform.

The series of Community Events will continue in 2022 and 2023.

In October and November 2021, Neobility presented its NetApp (NeoBus) & 5GASP at several events:

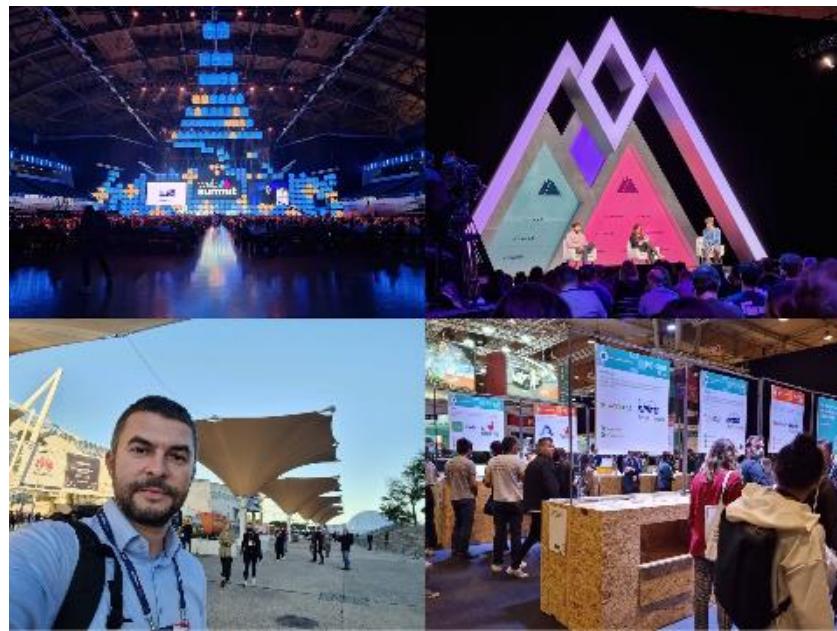
- 19-25 October - Andalusia - Romania Business & Economics Forum 2021, Seville
- 1-6 November - Web Summit, Lisbon
- 15-18 November - Smart City Expo World Congress 2021, Barcelona

In Seville and Madrid (Figure 1), at the invitation of the Romanian Embassy, Neobility had the pleasure of meeting with several partners to discuss opportunities of implementing technological components of Neobility's portfolio, out of which NeoBus running on 5G Technology was the highlight. Main interest expressed was from two major municipalities, as well as a potential regional partnership. In this scope, generic agreements are to be signed in the near future. 5GASP can contribute towards creating *truly* Smart Cities while municipal leaders can encourage telecom operators to invest in deploying next generation infrastructure in their municipalities.



Figure 1. Andalusia - Romania Business & Economics Forum 2021

Web Summit in Lisbon (Figure 2) was another great opportunity to meet and establish technological and business exchanges. Here the focus was more on private innovative enterprises/startups, synergy-driven cooperations could be launched as a result. Interest from some of these companies towards 5G technology and 5GASP existed and was also directed towards following the 5GASP and Neobility social channels.



*Figure 2. Web Summit 2021*

Smart City Expo World Congress 2021 in Barcelona (Figure 3) was a true success in terms of size, keynotes and general attendance. Neobility had the chance to connect with over 20 partners in terms of private, public as well as associations. As such, Neobility will be expanding the experimental partnerships with municipalities in Spain to new cities throughout Europe as well as signin on private enterprises to join these pilot phases using 5G Technology and contributing to Smart Cities. Partners were surprised to hear that NeoBus was built and onboarded as a NetApp using 5GASP that takes care of orchestration, management, automation and edge computing.



*Figure 3. Smart City Expo World Congress 2021*

In conclusion, Neobility will continue to attend other events, in 2022 and 2023, to promote its NetApp (NeoBus) and 5GASP to municipalities, enterprises & startups.

## 5. Industrial Fora Related Activities

In parallel to the internal stakeholder engagement, we have also developed a plan to engagement with a much wider set of external stakeholders, outside the consortium but relevant to the 5GASP project and the use cases that are being identified.

The external stakeholder engagement will also promote the proposed NetApp community concept and generate a list of potential members of the community.

The stakeholder engagement will continue throughout the life of the project.

To date, the bulk of the engagement has been with the internal stakeholders, but we are now progressing to the wider, non-partner, engagement with the wider number of potentially interested institutions.

5GASP partners who are members of different standardization bodies have been contributing to the standardization to promote the project's results.

The following table (Table 7) give a global view of what was the targeted KPIs and the current status.

Table 7. Contributions to the standardization bodies summary

#	Contributing partner(s)	Type of Standardization Activity (meeting participation, TDoc)
1	YoGoKo	Following ETSI (TC ITS), ISO (TC 204) and CEN (TC 278) activities related to the application of 5G in the automotive sector (for time critical and non-time critical road safety, traffic efficiency and other types of services which either require localized communications (cellular V2X with 5G-NR) or long-range communications (legacy 5G with or without slicing))
2	OdinS	Participating in the 5G Automotive WG of the 5G-PPP. This WG has now become 5G for CAM WG and depends directly on the 5G Infrastructure Association (5G-IA). Hence OdinS will be following it.

The consortium continues working on industrial fora related activities.

## 6. Dissemination in the Social Media

The project is using Twitter (<https://twitter.com/5gasp>) as a key tool for dissemination in social media. Not only news related to the project or published in the website, but also the main activities related to NetApp Community are continuously shared through this platform. The current number of tweets, followers and links on twitter are also observed in the following Figure 4.



Figure 4. Twitter profile

Linkedin is another social media tool used to promote the 5GASP work, milestones and achievements. The possibility to share posts and news with longer extension than on Twitter makes of Linkedin an attractive social network to share the project progress with a higher level of detail. The release of new project deliverables, news articles related to project meetings and the participation in different events are continuously announced through this platform. 5GASP is present on Linkedin under the name of '5GASP : 5G Application & Services experimentation and certification Platform' (<https://www.linkedin.com/company/5gasp-5g-application-services-experimentation-and-certification-platform>). 5GASP profile visitors come from different professional sectors, showing the project impact on different fields. 5GASP LinkedIn profile page is shown on the Figure 5.

The screenshot shows the LinkedIn profile of the 5GASP page. At the top, there's a navigation bar with icons for Home, My Network, Jobs, Messaging, Notifications, Me, and Admin tools. A banner at the top of the page reads "5GASP : 5G Application & Services experimentation and certification Platform" with a "Super admin view" button. Below the banner, there's a large header image of a network mesh. The main content area includes a "Start a post" button and tabs for Page posts, Hashtags, Employee posts, and Ads. On the left, there's a sidebar with analytics: Last 30 day activity (29 unique visitors, -29%), New followers (19, -20%), Post impressions (2.1K, -37%), and Custom button clicks (5, -58%). To the right, there are sections for "Invite Connections To Follow" and "Manage" (Events like "SG - Support for Next Generation..." and "SG - Technology Updates &...").

Figure 5. LinkedIn profile

A YouTube channel (<https://www.youtube.com/channel/UCpW5SBPkyk66X-GNpQVzb6A>) has been created to capture presentations from e.g. industry forum demonstrations, workshops, and test-bed trials. Also, 5GASP YouTube is a source of the educational videos, created by the partners and educational webinars of 5GASP NetApp Community. Figure 6 presents the project profile.

The screenshot shows the YouTube channel profile for "5GASP". The channel has 35 subscribers. The "HOME" tab is selected, showing a grid of video thumbnails. The first video in the grid is titled "The Status of 5G - discussion panel" and has 6 views. Other visible video titles include "Get involved further - the 5GASP NetApp Community", "NetApp Case Study: Virtual On-Board Unit Provisioning...", "The 5GASP Architecture", "Get involved further - the 5GASP Community", and "Continuous Integration - Continuous Delivery: CI-CD...". Below the video grid, there are sections for "Created playlists" (including "2nd 5GASP Educational Webinar" and "1st 5GASP Educational Webinar") and "MORE FROM YOUTUBE" (including "YouTube Premium").

Figure 6. 5GASP profile on YouTube

Some channel statistics you can find on Figure 7 and Figure 8.



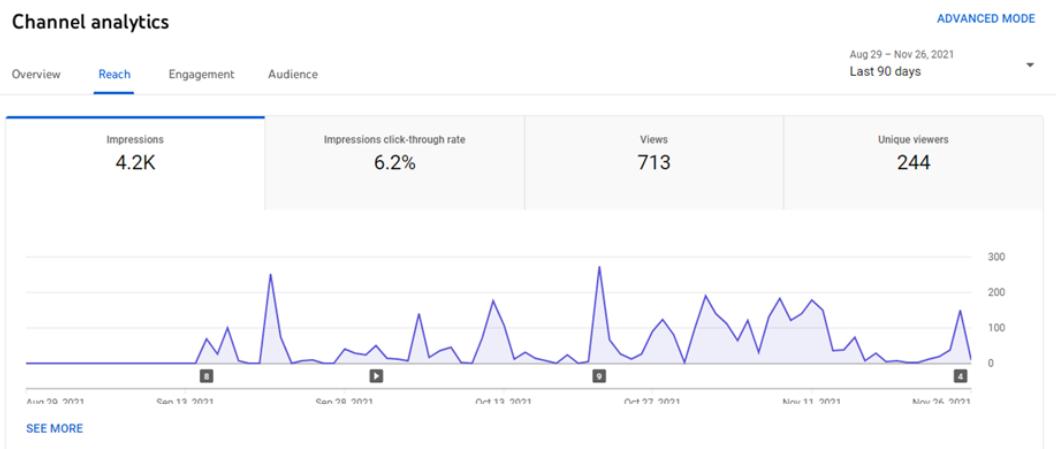
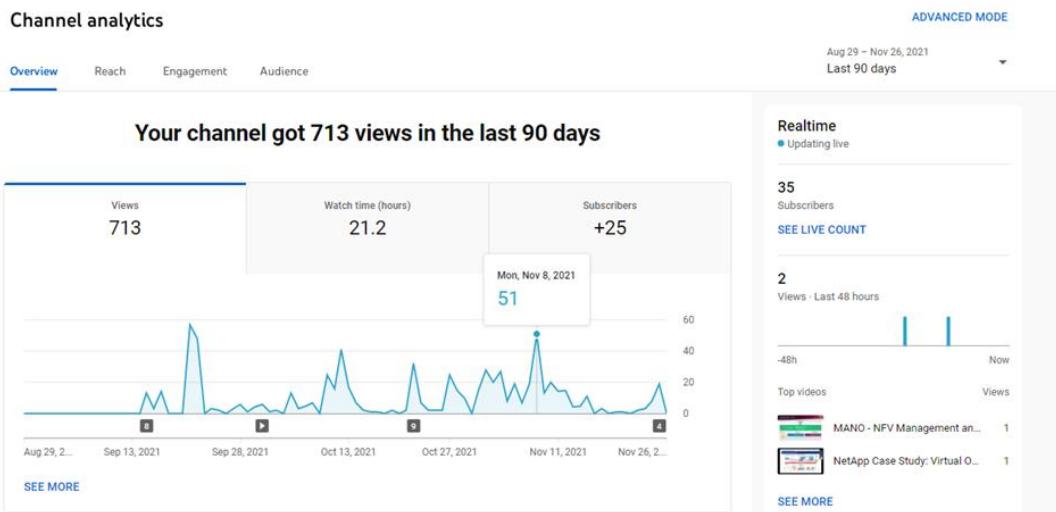


Figure 7. YouTube channel analytics (last 90 days period)

Your top videos in this period

Video	Average view duration	Views
1 About 5G Sep 15, 2021	1:15 (17.9%)	148
2 A NetApp in the context of the 5G System Sep 15, 2021	2:47 (27.6%)	103
3 What is the NetApp Sep 15, 2021	0:32 (2.9%)	77
4 Intro - About 5GASP project Oct 22, 2021	2:19 (43.9%)	50
5 Software defined networking Sep 15, 2021	1:41 (41.7%)	42
6 Network function virtualisation Sep 15, 2021	1:39 (48.4%)	39
7 NFV MANO Sep 15, 2021		

Figure 8. YouTube channel statistics (last 90 days period)

There are now three existing playlists on 5GASP YouTube channel (Table 8).

Table 8. Existing 5GASP videos

#	Video title
<b>Playlist “5GASP educational videos”</b>	
1	About 5G
2	What is the NetApp
3	Software defined networking
4	Network function virtualisation
5	OSM
6	NFV MANO
7	Jenkins
8	How to write the NetApp descriptor
9	Openslice
<b>Playlist “1<sup>st</sup> 5GASP educational webinar”</b>	
10	Intro - About 5GASP project
11	5G - Major developments & commercial market overview
12	What is a NetApp?
13	Software defined networking (SDN)
14	Network function virtualization (NFV)
15	MANO – NFV Management and Network Orchestration
16	About Openslice
17	Continuous Integration Continuous Delivery (CI-CD)
18	Get Involved Further – the 5GASP community
<b>Playlist “2<sup>nd</sup> 5GASP educational webinar”</b>	
19	The 5GASP architecture
20	NetApp Case Study: Virtual On-Board Unit Provisioning NetApp for Automotive

21	The Status of 5G - discussion panel
22	Get involved further - the 5GASP NetApp Community

## 7. Project website

The project is committed to maintain an up-to-date platform for general public access, for external dissemination of public information, such as notice of forthcoming activities such as (events) and dissemination of all project public deliverables, dissemination items, and formal content of the project. The project website is a cornerstone of the project's online presence and represents a first contact point for 5GASP.

During the first month of the project, the project website [3] has been created and is accessible under the following URL: <https://5gasp.eu>. A screenshot of the front page of 5GASP's website along with the website navigation structure is depicted in Figure 9.

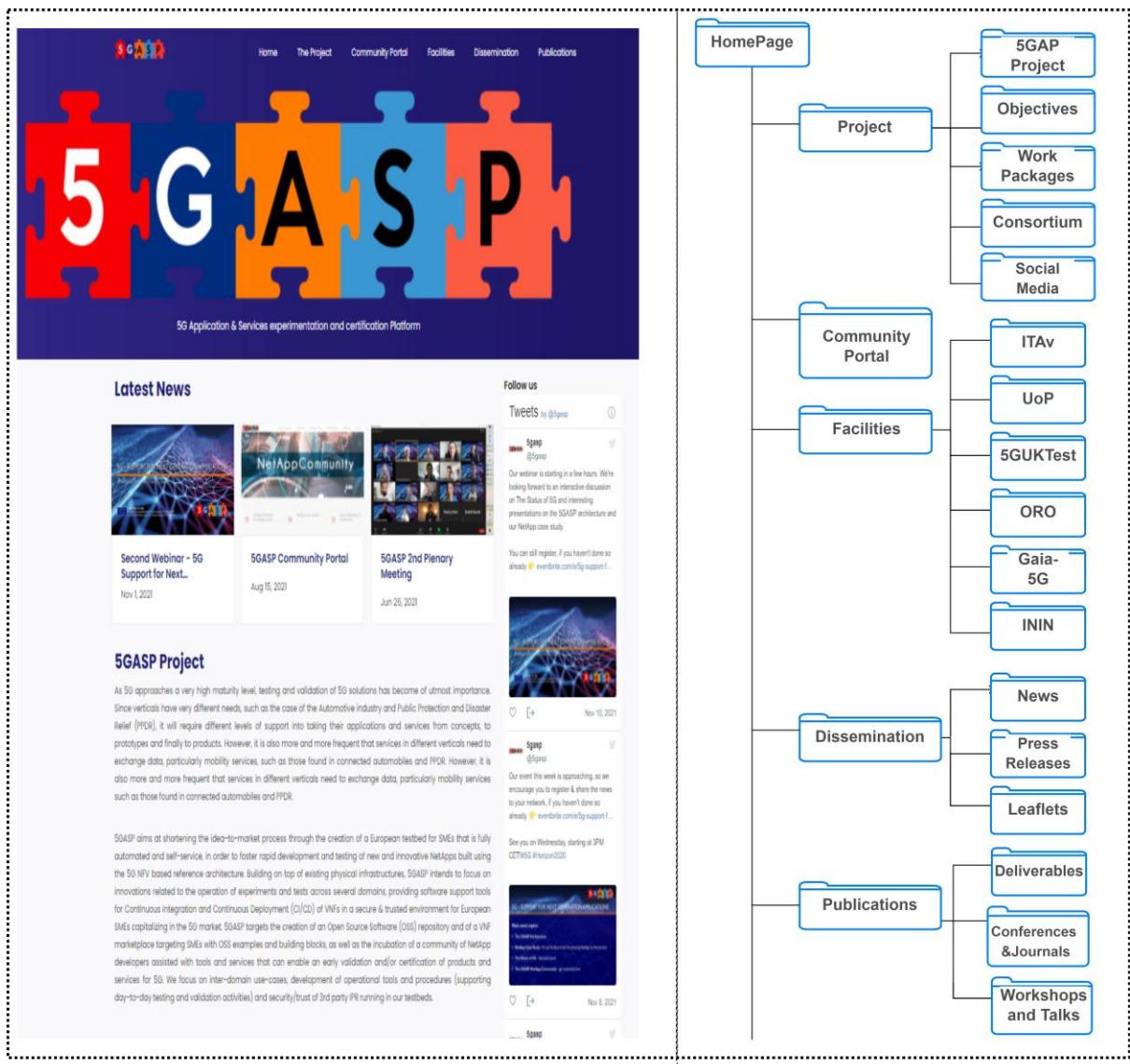


Figure 9. Screenshot of the 5GASP Website (left) and Website Structure (right)

## 7.1. Website Structure

In this section the website structure will be explained, with some detail, the main features/functions of each page.

### Home page

The home page (Figure 10) is quite simple. It has a summary of the latest news, as well as a brief description of the 5GASP project. A section with the latest Twitter posts is also present.

The screenshot displays the 5GASP Home page layout. At the top left is a section titled "Latest News" containing three cards:

- Second Webinar - 5G Support for Next...** (Nov 1, 2021)
- 5GASP Community Portal** (Aug 15, 2021)
- 5GASP 2nd Plenary Meeting** (Jun 26, 2021)

To the right of the news section is a "Follow us" sidebar featuring a Twitter feed from the account @5gasp. The sidebar includes a header "Follow us", a "Tweets by @5gasp" link, and a "5gasp" profile icon. Below the header, the first tweet is displayed, which is a promotional message for a webinar starting in a few hours. The sidebar also includes a note about still being able to register for the event via a provided link.

Below the news section is a large section titled "5GASP Project". This section contains a detailed description of the project's goals and focus areas, mentioning verticals like Automotive and Public Protection and Disaster Relief (PPDR), and the creation of a European testbed for SMEs. It also highlights the focus on inter-domain use-cases, development of operational tools and procedures, and security/trust of 3rd party IPR.

At the bottom right of the page is another Twitter post from the @5gasp account, dated Nov 8, 2021, encouraging users to register for an event.

Figure 10. Home page layout

## The Project

Inside this navbar item we can find a couple of subsections. The first, “5GASP Project” (Figure 11), only has the description present in the home page.

### 5GASP Project

As 5G approaches a very high maturity level, testing and validation of 5G solutions has become of utmost importance. Since verticals have very different needs such as the case of the Automotive industry and Public Protection and Disaster Relief (PPDR), it will require different levels of support into taking their applications and services from concepts, to prototypes and finally to products. However, it is also more and more frequent that services in different verticals need to exchange data, particularly mobility services, such as those found in connected automobiles and PPDR.

5GASP aims at shortening the idea-to-market process through the creation of a European testbed for SMEs that is fully automated and self-service, in order to foster rapid development and testing of new and innovative NetApps built using the 5G NFV based reference architecture. Building on top of existing physical infrastructures, 5GASP intends to focus on innovations related to the operation of experiments and tests across several domains, providing software support tools for Continuous Integration and Continuous Deployment (CI/CD) of VNFs in a secure & trusted environment for European SMEs capitalizing in the 5G market. 5GASP targets the creation of an Open Source Software (OSS) repository and of a VNF marketplace targeting SMEs with OSS examples and building blocks, as well as the incubation of a community of NetApp developers assisted with tools and services that can enable an early validation and/or certification of products and services for 5G. We focus on inter-domain use-cases, development of operational tools and procedures (supporting day-to-day testing and validation activities) and security/trust of 3rd party IPR running in our testbeds.

5GASP PROJECT

OBJECTIVES

WORK PACKAGES

CONSORTIUM

SOCIAL MEDIA

Figure 11. Project page

The “Objectives” tab (Figure 12) has a few expandable sections, each with a description of the objective. The basic Architecture of the project is also shown.

## Objectives

Acceleration of the development, testing and certification of NetApps, through the creation of a common platform, DevOps tools and a certification roadmap.

Provide state-of-the-art testbeds where applications for relevant verticals can be tested and validated in a cost-effective way.

Innovate technically by addressing inter-domain use-cases, security and trust aspects associated with NetApp deployment and Operation.

Automate the process of testing and validation, lowering cost associated with testing and certification of NetApps in telecommunication environment.

Provide all the community with state-of-the-art tools for test deployment, test automation, continuous integration and monitoring of testbeds, mainly through Open Source Software tools.

Create a practice community, where developers can share knowledge about 5G NetApps.

The socialization of NetApps developers is of outmost importance in the success of our ecosystem. Only through a tight support community, built upon trust and information sharing, can SMEs and start-ups find the proper documentation and a number of open source reference NetApps to achieve their commercial goals in this new 'softwarized' 5G business market. It is our goal to promote tighter and seamless integrated methodologies between community tools, and the development/testing mechanisms developed within 5GASP. Community Building play an important role in the foreseen outcomes of the project, as we intend that this open community can outlive the project duration and maintain the developed tools in future to come.

### Innovations:

- Creation of a NetApps Community of Practice (NetAppCommunity).

Create a business model around a marketplace of NetApps, by which all stakeholders can share revenue.

## Architecture

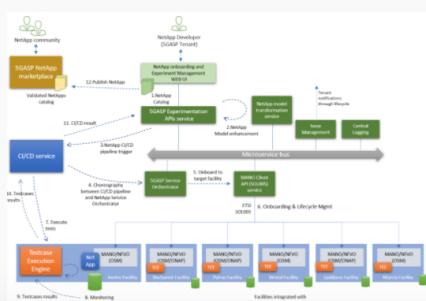


Figure 12. Project objectives page

The “Work Packages” section (Figure 13) follows a similar structure as the objectives, being also possible to expand each WP and learn more about it.

## Work Packages

WP1: Project Management +

Coordinator: IATV

Objectives:

- Establish efficient operation of all project bodies, including proper decision making and conflict resolution at all levels,
- Ensure required quality of project work and its results as well as to perform self-assessment and corresponding project monitoring, including risk management,
- Organize overall project administration and supervision of financial flows as well as communication with EC and project reporting; and,
- Provide necessary environment for collaboration within the consortium.

WP2: Reference Architecture +

WP3: Infrastructure Integration & Experimentation Enablement Start Date +

WP4: NetApps Design & Development +

WP5: NetApps Onboarding, Interoperability and Validation +

WP6: NetApps Community Building, Acceleration & Certification +

WP7: Exploitation and Dissemination +

**5GASP PROJECT**

**OBJECTIVES**

**WORK PACKAGES**

**CONSORTIUM**

**SOCIAL MEDIA**

Figure 13. Work packages page

The “Consortium” section (Figure 14) presents an explanation of the 5GASP consortium, as well as the used criteria for the members selection. After that, a table of the chosen members is displayed (Figure 15).

## Consortium

### Consortium as a whole

The 5GASP consortium of 13 members has been carefully selected to cover all the required research areas in a wellbalanced way, utilising their expertise, prior collaborations, and state-of-the-art technical background to match the project's objectives successfully. The partnership structure is based on excellence, complementarity, trans-nationality and multidisciplinary. The rationale for selecting organisations was to achieve (a) balanced consortium with an adequate inclusion of experts in all research domains of the project; (b) scientific and technical background excellence; (c) high profile organisations for user involvement in the project; (d) high exploitation and dissemination potential; (e) top quality level of management.

Overall, 5GASP asserts that (a) a critical mass of skilled resources will be committed to the project, (b) it has close collaboration and complementary strengths, and (c) the scientific team has a long track record and scientific credentialss.

**5GASP PROJECT**

**OBJECTIVES**

**WORK PACKAGES**

**CONSORTIUM**

**SOCIAL MEDIA**

Figure 14. Consortium page

## Consortium Participants

	Short Name	Full Name	Country
 instituto de telecomunicações	ITAv	Instituto de Telecomunicações	PT
 ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ UNIVERSITY OF PATRAS	UoP	University of Patras	EL
 University of BRISTOL	UNIVBRIS	University of Bristol	UK
 vmware	VMWARE	VMware Bulgaria	BG
 orange'	ORO	Orange Romania	RO
 ■■■■■ EANTC ■■■■■ EUROPEAN ADVANCED NETWORKING TEST CENTER	EANTC	European Advanced Networking Test Center	DE
 Odin S Odin Solutions	OdinS	Odin Solutions	ES
 Internet INSTITUTE	ININ	Internet Institute Ltd.	SI
 LN	LN	Lamda Networks Monoprosopi IKE	GR
 YoGoKo "You Go, We Connect"	YoGoKo	YoGoko	FR
 BundlesLab Kft "We Do Wireless"	BLB	Bundleslab Korlatolt Felelossegű Tarsasag	HU
 DriveU.auto	DriveU.auto	DriveU.auto	IL
 neobility	NEO	Neobility	RO

Figure 15. Continuation of the consortium page

Finally, it has a simple “Social Media” section (Figure 16), with links to the 5GASP social media accounts.

## Social Media

To follow the work being developed on the 5GASP Project, follow us on our social media.



5GASP PROJECT

OBJECTIVES

WORK PACKAGES

CONSORTIUM

SOCIAL MEDIA

Figure 16. Social media page

## Community Portal

This navbar item is only a link to our community portal, which will be detailed later in this document.

## Facilities

This tab (Figure 17) describes each of the physical facilities of the project partners. It has a list of expandable sections, being possible to find out more about each one.

The screenshot shows a list of facility partners, each represented by a card with a '+' icon in the top right corner. The cards are:

- ITAv - Portugal**: Describes ITAv as a Research Institution that mediates knowledge transfer from academia to industry. It mentions participation in 5GASP and various international technical societies like IEEE, IFIP, IFAC, and ACM. A 'Show more.' link is present at the bottom of the card.
- UoP - Greece**
- ORO - Romania**
- Gaia-5G - Spain**
- ININ - Slovenia**

Figure 17. Facilities section

After clicking on “show more”, a different page is displayed describing the specific facility. It characterizes important information like its location, available infrastructure, and Testbed description.

## Dissemination

This tab contemplates the news, press releases and leaflets of the project.

In the “News” section (Figure 18), there is a card-wise structure with all the news, each one clickable to see the full report.

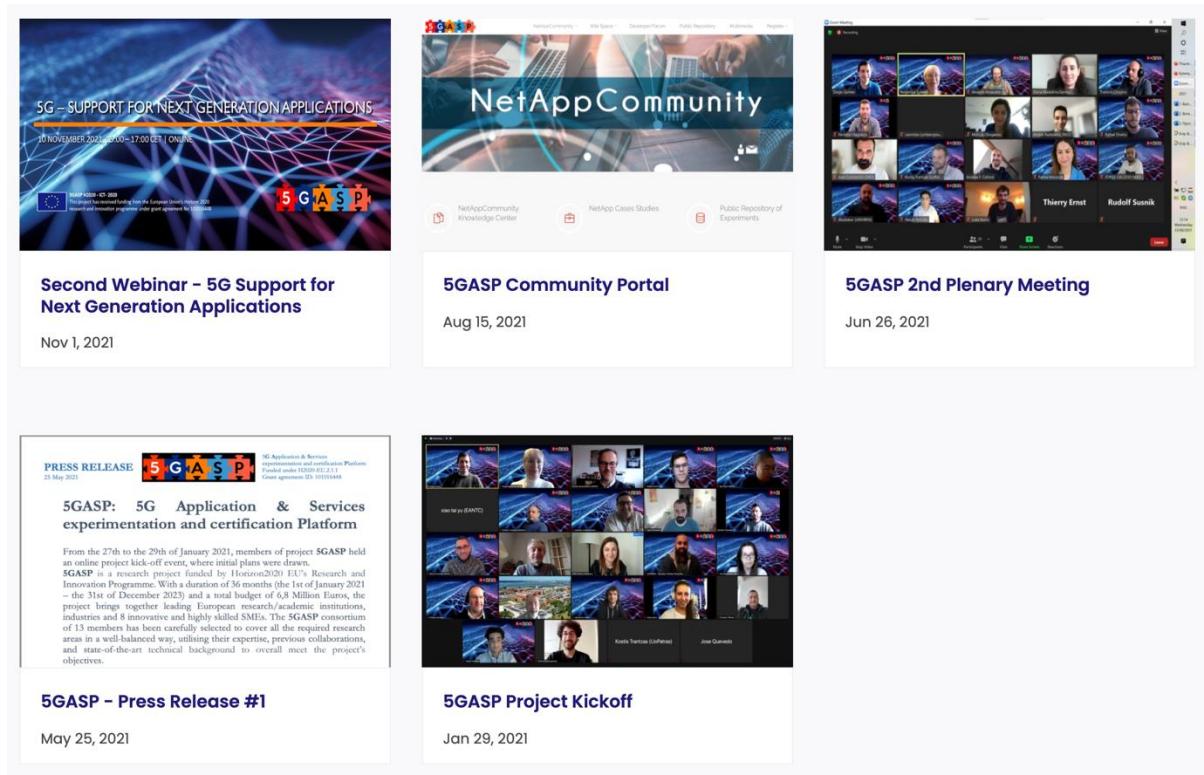


Figure 18. News section

The “Press Releases” section (Figure 19) has a list of the releases that are downloadable in pdf format.



Figure 19. Press releases section

Although it is still empty, the “Leaflets” section will have the project leaflets.

## Publications

The purpose of this section is to display the deliverables, conferences, papers, workshops, and talks.

The “Deliverables” section (Figure 20) shows the user a list of all the deliverables, downloadable in pdf, up to date. This section is where this document will be posted later.

D7.1 – Website and Project Branding
D1.1 – Project Management Handbook
D7.2 – Data Management Plan
D4.1 – Initial Methodology for Designing and Developing NetApps
D2.1 – Architecture, Model Entities Specification and Design
D5.1 – Initial Report on Test Plan Creation and Testing Methodologies
D7.3 – Market Research Report
D3.1 – Experimentation Services, Middleware and Multi-Domain Facilities Continuous Integration

Figure 20. Deliverables section

The “Conferences and Papers” tab (Figure 21) has a table with all the paper publications (journals and conferences) related to the project.

Paper Type (Journal, Conference)	Title	Authors	Title of the Journal/Proc./Book	DOI	Paper Link	Relevance to the Project
Journal	5G Experimentation for Public Safety: Technologies, Facilities and Use Cases	Mojca VOLK, Janez STERLE	IEEE Access	10.1109/ ACCESS.2021.3064405	<a href="#">Link</a>	This paper studies 5G PPDR experimentation associated with novel virtualized and cloud-native 5G technologies, architectures and deployment options, as well as feasibility studies and field performance and verifications trials involving vertical-specific 5G infrastructures and applications. Key enabling technologies, such as massive multiple input multiple output (MIMO), device-to-device (D2D), network slicing and multi-access edge computing (MEC) are discussed and 5G PPDR architecture and deployment options are investigated. A dedicated 5G PPDR experimentation facility is presented, and a case study of hands-on experimentation is provided. Pilot implementation deploying 5G IOPS as part of the 5GASP project is mentioned with key technology insights (using novel cloud-native techniques to achieve distributed application deployment and required services resilience exploiting OpenStack, Kubernetes, OSM and ONAP concepts).

Figure 21. Publications section

Finally, the “Workshops and Talks” tab (Figure 22) shows all the 5GASP related workshops and talks in a card-wise presentation, with each having a link to its subscription.



*Figure 22. Workshops and talks section*

## 7.2. Website Statistics

For the website statistics, the AWStats, available at <http://awstats.5gasp.eu/>, application was used. Although it only has the statistics from the month before, this app gives very specific and complete results. With that in mind, only from November onwards statistics will be shown.

Firstly, the summary for November is presented in Figure 23.

Summary					
Reported period Month Dec 2021					
First visit	01 Dec 2021 - 10:15				
Last visit	27 Dec 2021 - 17:09				
	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Viewed traffic *	<b>418</b>	<b>484</b> (1.15 visits/visitor)	<b>823</b> (1.7 Pages/Visit)	<b>5,444</b> (11.24 Hits/Visit)	<b>581.38 MB</b> (1230.02 KB/Visit)
Not viewed traffic *			<b>1,484</b>	<b>2,966</b>	<b>66.90 MB</b>

\* Not viewed traffic includes traffic generated by robots, worms, or replies with special HTTP status codes.

*Figure 23. November summary*

### 7.2.1 When was the website visited

The history of the website basic statistics (Figure 24) shows a significant growth of the number of visitors.

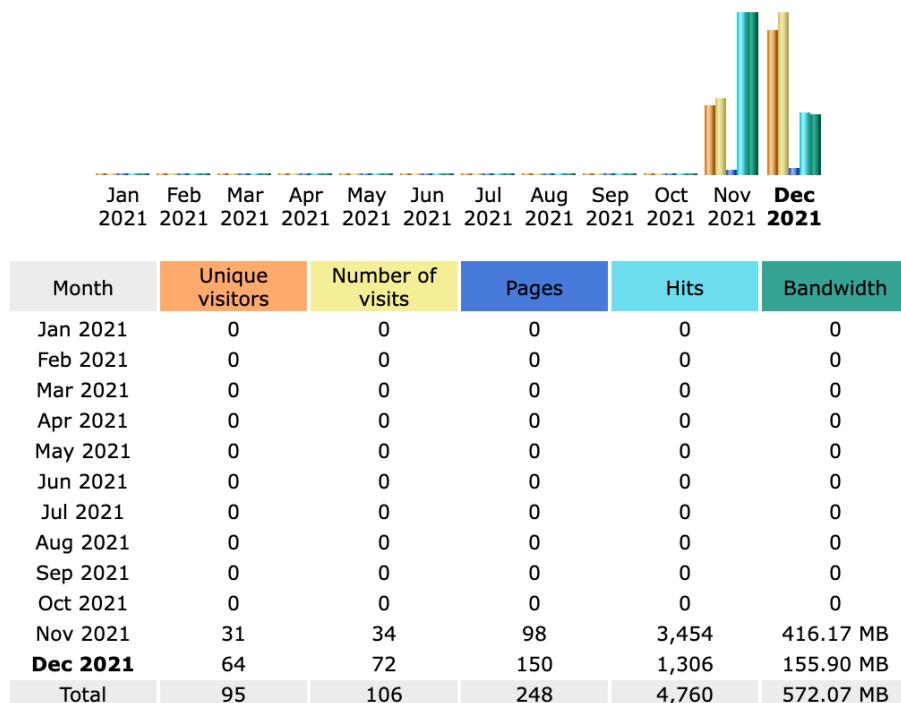


Figure 24. Visitors by month

Analyzing further, we can see that the website tends to have more visitors in the beginning of the week, between 9AM and 4PM: Figure 25 and Figure 26.

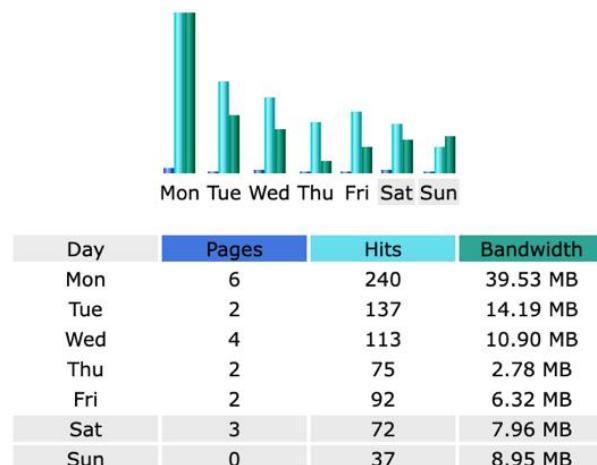
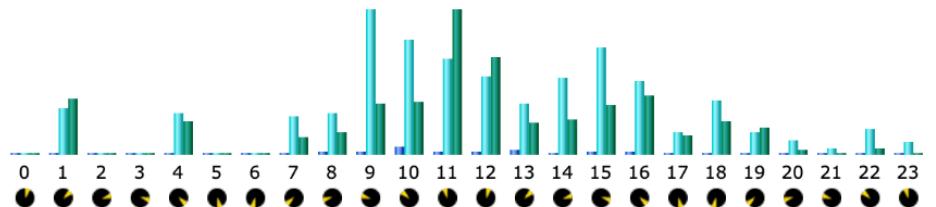


Figure 25. Visitors by day



Hours	Pages	Hits	Bandwidth	Hours	Pages	Hits	Bandwidth
00	2	2	6.32 KB	12	8	254	54.90 MB
01	0	148	31.35 MB	13	12	166	17.34 MB
02	0	0	0	14	4	250	19.87 MB
03	0	0	0	15	8	348	27.85 MB
04	0	134	18.46 MB	16	6	238	33.01 MB
05	0	2	866.96 KB	17	4	68	10.63 MB
06	2	2	44.49 KB	18	2	176	19.03 MB
07	0	124	9.37 MB	19	0	70	14.99 MB
08	6	134	12.15 MB	20	4	46	2.10 MB
09	10	470	28.40 MB	21	0	20	775.25 KB
10	22	374	29.44 MB	22	2	80	3.09 MB
11	6	310	81.67 MB	23	0	38	903.58 KB

Figure 26. Visitors by hour

## 7.2.2 Who visited the website

In the last topic we explored when the website was visited. Analyzing now who visited it, we can see the top 10 countries with the most flow: Figure 27.

Countries (Top 10) - <a href="#">Full list</a>				
	Countries	Pages	Hits	Bandwidth
🇺🇸 United States	us	293	1,322	91.66 MB
🇨🇳 China	cn	104	212	10.76 MB
🇩🇪 Germany	de	71	232	13.12 MB
❓ Unknown	unknown	46	510	70.82 MB
🇮🇪 Ireland	ie	38	38	205.43 KB
🇷🇴 Romania	ro	27	400	14.87 MB
🇺🇦 Ukraine	ua	27	434	22.98 MB
🇬🇧 Great Britain	gb	25	81	19.42 MB
🇵🇹 Portugal	pt	25	366	34.05 MB
🇸🇮 Slovenia	si	25	326	48.32 MB
Others		142	1523	255.18 MB

Figure 27. Top 10 countries

We also had some Robots/Spiders crawling our website: Figure 28.

Robots/Spiders visitors (Top 10) - <a href="#">Full list</a> - <a href="#">Last visit</a>		Hits	Bandwidth	Last visit
40 different robots*				
AhrefsBot		452+58	10.03 MB	27 Dec 2021 - 04:04
Unknown robot identified by bot\*		199+120	1.53 MB	27 Dec 2021 - 13:52
zoominfobot		209+51	4.42 MB	25 Dec 2021 - 18:17
Googlebot		190+41	1001.92 KB	27 Dec 2021 - 17:01
YandexBot		64+84	312.36 KB	27 Dec 2021 - 10:09
bingbot		48+55	235.92 KB	27 Dec 2021 - 11:55
robot		79+11	401.72 KB	24 Dec 2021 - 23:38
Barkrowler		63+19	322.92 KB	26 Dec 2021 - 06:39
SemrushBot		25+47	131.84 KB	27 Dec 2021 - 11:49
adscanner		63+2	29.94 MB	20 Dec 2021 - 00:37
Others		304+92	12.16 MB	

\* Robots shown here gave hits or traffic "not viewed" by visitors, so they are not included in other charts. Numbers after + are successful hits on "robots.txt" files.

Figure 28. Robots/spiders

### 7.2.3 Navigation

Visits duration		Number of visits	Percent
Number of visits: 484 - Average: 72 s			
0s-30s		451	93.1 %
30s-2mn		7	1.4 %
2mn-5mn		7	1.4 %
5mn-15mn		9	1.8 %
15mn-30mn			
30mn-1h		5	1 %
1h+		2	0.4 %
Unknown		3	0.6 %

Figure 29. Visit duration

It is also possible to see the average duration of the visits, with it being 72 seconds: Figure 29.

As for the visited pages, it is natural that the home page has most of the views, although there are other pages that are also visited a substantial number of times: Figure 30.

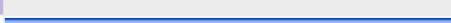
Pages-URL (Top 10) - <a href="#">Full list</a> - <a href="#">Entry</a> - <a href="#">Exit</a>		Viewed	Average size	Entry	Exit
26 different pages-url					
/	422	9.16 KB	370	335	
/project/consortium.html	30	6.93 KB	10	16	
/publications/deliverables.html	29	4.23 KB	7	18	
/publications/conferences.html	27	7.60 KB	12	8	
/project/social.html	23	4.03 KB	9	7	
/dissemination/leaflets.html	21	3.83 KB	6	7	
/facilities/b_upatras.html	20	8.42 KB	10	10	
/project/workpackages.html	19	6.41 KB	2	5	
/dissemination/news.html	18	4.21 KB	5	4	
/facilities/h_inin.html	17	6.33 KB	8	8	
Others	197	5.14 KB	45	63	

Figure 29. Most visited pages

Expectably, the most common OS and browser is Windows and Google Chrome: Figure 31.

Operating Systems (Top 10) - Full list/Versions - Unknown		Pages	Percent	Hits	Percent
Operating Systems					
 <b>Windows</b>		389	47.2 %	2,939	53.3 %
 <b>Macintosh</b>		244	29.6 %	1,768	32.1 %
 <b>Linux</b>		99	12 %	604	10.9 %
 <b>Android</b>		62	7.5 %	133	2.4 %
 <b>Unknown</b>		27	3.2 %	27	0.4 %
 <b>iOS</b>		2	0.2 %	33	0.5 %

Browsers (Top 10) - Full list/Versions - Unknown		Pages	Percent	Hits	Percent
Browsers		Grabber			
 <b>Google Chrome</b>		No	531	64.5 %	3,946
 <b>Firefox</b>		No	167	20.2 %	838
 <b>MS Internet Explorer</b>		No	52	6.3 %	55
 <b>Safari</b>		No	27	3.2 %	521
 <b>Unknown</b>		?	17	2 %	17
 <b>Opera</b>		No	12	1.4 %	93
 Mozilla		No	9	1 %	22
 <b>Netscape</b>		No	8	0.9 %	11
 iPhone (PDA/Phone browser)		No	0	0 %	1

Figure 30. Most common OS and Browsers

## 8. NetAppCommunity Portal

The NetAppCommunity portal [4] developed within WP6 is a tool for dissemination of the project results for a wider audience. This portal presents four categories of information:

1. Generic information about the NetAppCommunity
2. Expert knowledge in the field of 5G
3. Practical guidelines
4. The Community updates.

Generic information about the NetAppCommunity includes the following:

- Purpose of the NetAppCommunity;
- The Community members;
- Information about 5GASP project.

Expert knowledge is presented as:

- NetAppCommunity Knowledge Center;
- NetApp Case Studies;
- Public Repositories of Experiments;
- 5GASP documentation.

Practical guidelines is presented as:

- Certification guidelines;
- Tutorials, videos.

The portal also provides visitors the Developer Forum that is aimed at supporting communication of NetApp developers and users.

The Figure 32 shows the NetAppCommunity portal.

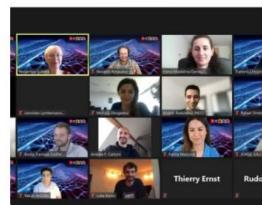
*Figure 31. NetAppCommunity Portal main page fragment*

The main page of the portal is used to disseminate announcements about the Community events, conferences, workshops and other events; to share the community news (Figure 33); to provide visitors with useful information in the field of 5G organized as a blog (Figure 34).

The blog posts are prepared by the consortium members on the regular basis according to the project dissemination activities timeline. The content in the NetAppCommunity blog is original material based on experience and vision of the project partners. In the first year of the projects, the blog posts published in the portal are prepared by ITAV, UoP, Odins, VMWare, and ORO.

## News

[View all](#)



5GASP 2nd Plenary Meeting

From the 23rd to the 25th of June, members of

### PRESS RELEASE 25 May 2021 5GASP: 5G Application & Services experimentation and certification Platform

From the 27th to the 29th of January, members of project 5GASP held an online press kick-off meeting where initial press releases were made. 5GASP is a research project funded by Horizon2020 EU's Research and Innovation Programme. With a duration of 36 months (1st of January 2021 – the 31st of December 2025) and a total budget of 6.8 Million Euros, the project will bring together 15 partners from academia, telecommunication, industries and innovative and highly skilled SMEs. The 5GASP consortium of 15 members has been carefully selected to cover all the required research areas in a well-balanced way, utilizing their expertise, previous collaborations,

### Press Release #1

The first 5GASP press release was published on



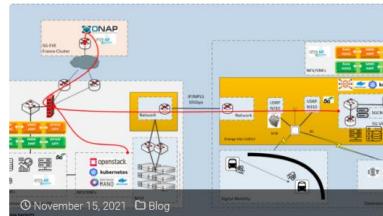
5GASP Project Kickoff

From the 27th to the 29th of January, members of

Figure 32. The Community news at the NetAppCommunity Portal

The screenshot shows the main navigation bar of the NetAppCommunity portal. Below it is a large banner with the text "NetAppCommunity" overlaid on a background image of people working on laptops. At the bottom of the page, there is a breadcrumb navigation showing "Archive for category 'Blog'".

## Category: Blog



### Automated onboarding, testing and validation for NetApps

5G aims to provide higher capacity and lower latency, as well as an increased level of programmability, control, and flexibility to meet the requirements stemming from innovative use cases from various vertical sectors. 5G requires dynamic allocation of resources, flexible deployment of functions in distributed cloud infrastructures and, at transport [...]

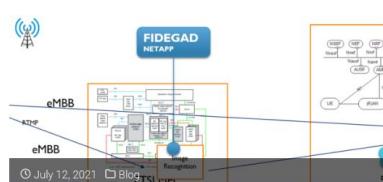
[Read more >](#)



### Role and Value of NetApp Self-Validation

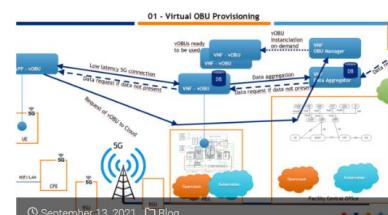
In continuation of our series of 5GASP blog articles, now that we have presented the concept of what a modern NetApp is in the context of 5GASP, as well as its design and development entail, we will outline in brief the motivation or why and how this endeavor to [...]

[Read more >](#)



### What is a NetApp

5GASP definition of a NetApp Although there does not yet exist a standard definition of what a NetApp is, in 5GASP we identified some key characteristics that shall aid to the definition of a NetApp in the context of the 5G System. Specifically, in 5GASP we consider that: A NetApp, [...]



### vOBU: Example of NetApp Design and Development

To showcase how to design and develop a NetApp, the best possible exercise is by doing it with a real NetApp that is being developed in 5GASP: the virtual On-Board Unit (vOBU). The vOBU NetApp proposes the virtualization of physical vehicle OBUs with the aim to create a MEC layer [...]

[Read more >](#)

Figure 33. The blog posts at the NetAppCommunity Portal



H2020- 101016448

The NetAppCommunity Knowledge Center is used for the dissemination of expert knowledge in the field of 5G. The content of this page is updated regularly by adding new entries of the following types:

- Abstracts of journal papers;
- Abstracts of conference papers;
- Definitions.

The authors of this content are 5GASP project members and other experts working in the field of 5G. The external experts can send their contributions to the responsible person for consideration their input and its publishing in the Knowledge Center.

To support the communication of the Community members and external visitors – developers and users of NetApps, researchers, students, the Developer Forum is available at the portal where users can ask questions and discuss NetApps development.

To allow the Community members to be visible to each other, the simple registration procedure is available on the portal. The registered members are listed at the NetAppCommunity Members page of the portal.

The Google Analytics tools allows to monitor the portal activity use. Figure 35 shows that the portal which has been recently opened to external users reached 1000 page views. The most visited pages are ‘5GASP Project’, ‘Knowledge Center’, and ‘NetAppCommunity Members’.

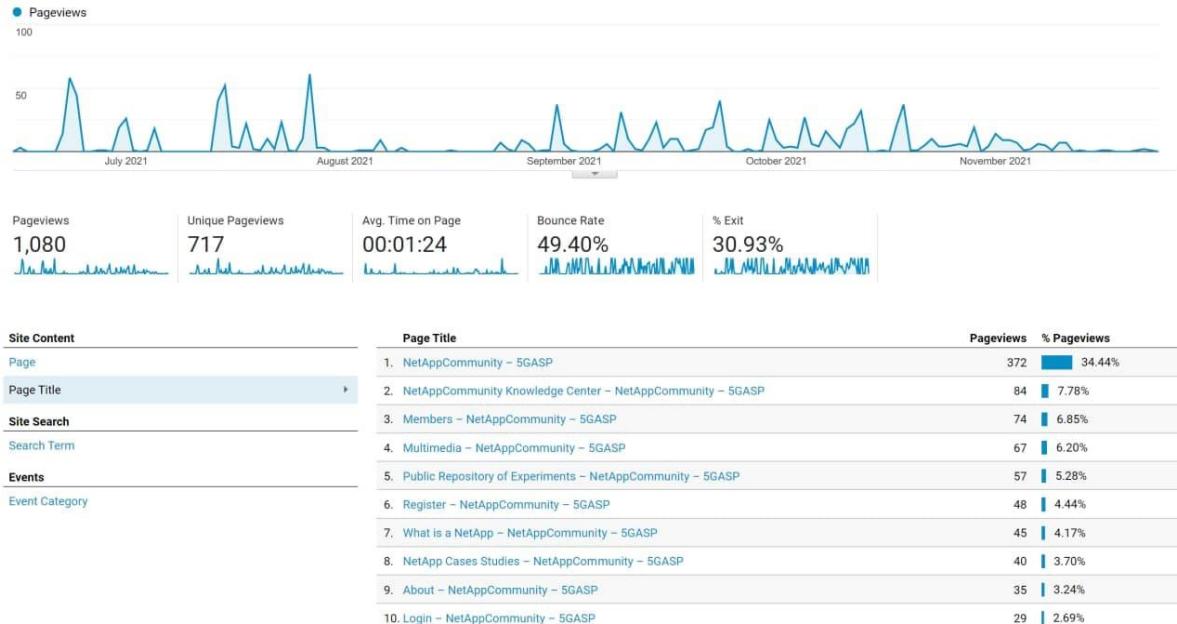


Figure 34. Google Analytics measurements of the NetAppCommunity Portal

The portal also includes ‘Multimedia’ page with videos published at the YouTube channels that helps to promote it among the NetAppCommunity visitors.

## 9. Press Releases

The preparation of the project press releases allows to support of the project dissemination activities. During the first year two press releases have been prepared.

The Press Release #1 issued on May 25, 2021 has the title ‘5GASP: 5G Application & Services experimentation and certification Platform’. This press release presents basic information about the project such as duration and budget. It defines the project objective and the main tasks. The press release also introduces the NetApps to be developed as the use cases demonstration (Figure 36).

**PRESS RELEASE** 5G Application & Services experimentation and certification Platform  
25 May 2021

**5GASP: 5G Application & Services experimentation and certification Platform**

From the 27th to the 29th of January 2021, members of project 5GASP held an online project kick-off event, where initial plans were drawn. 5GASP is a research project funded by Horizon2020 EU's Research and Innovation Programme. With a duration of 36 months (the 1st of January 2021 – the 31st of December 2023) and a total budget of 6,8 Million Euros, the project brings together leading European research/academic institutions, industries and 8 innovative and highly skilled SMEs. The 5GASP consortium of 13 members has been carefully selected to cover all the required research areas in a well-balanced way, utilising their expertise, previous collaborations, and state-of-the-art technical background to overall meet the project's objectives.

The main technical objective of 5GASP is to build and operate an Open and Inter-Domain 5G NFV-based Reference (Open5G-NFV) ecosystem of Experimental Facilities. This ecosystem will not only integrate existing facilities already proven in previous ICT projects but will also lay down the foundations for instantiating fully software-defined architectures of vertical industries. Furthermore, it will provide facilities to test and validate NetApps taking into consideration vertical-specific requirements. 5GASP will demonstrate its Open5G-NFV ecosystem for two verticals deployed across state-of-the-art 5G infrastructures: Automotive and Public Protection and Disaster Relief (PPDR); however, it will also be as generic as possible to deploy, validate and certify NetApps stemming from other verticals.

5GASP strives to leap forward via:

- Acceleration of the development, testing and certification of NetApps, through the creation of a common platform, DevOps tools and a certification roadmap for NetApps.
- Its Open5G-NFV ecosystem consisting of state-of-the-art testbeds where NetApps for different verticals can be tested and validated in a time- and cost-effective way.
- Technical innovations addressing DevOps, inter-domain use-cases, security and trust aspects associated with NetApps' deployment and operation.

5GASP PRESS RELEASE: 5G Application & Services experimentation and certification Platform  
25 May 2021

**PRESS RELEASE** 5G Application & Services experimentation and certification Platform  
25 May 2021

5GASP focuses (i) on the Automotive vertical because of its strict network requirements that require vertical-specific hardware and (ii) on the PPDR vertical because the latter caters for interesting multi-domain use-cases. In the scope of the project, specific Automotive, PPDR as well as cross-vertical use cases will be developed, resulting from the different NetApps that shall be deployed over 5GASP's Open and Inter-Domain 5G NFV-based Reference ecosystem. The NetApps, enablers of the 5GASP's use-cases, are the following:

- Virtual On-Board Unit (vOBU).
- Virtual RoadSide Unit (vRSU).
- ITS station.
- Efficient MEC handover.
- Multi-domain Migration.
- Vehicle-to-Cloud (V2C) Real-Time Communication.
- Remote Human Driving - Teleoperation for assisting vehicles in complex situations.
- Privacy Analysis of UEs' datastreams.
- 5G Isolated Operation for Public Safety.
- Vehicle Route Optimizer.
- Fire detection and ground assistance using drones.

Selected use cases will be showcased in public events to reinforce 5GASP's project mission and statement: How the 5GASP platform and its associated tools and services make it easy for a developer to deploy a NetApp with Zero-Touch Orchestration.

Find out more details regarding the milestones of the project, its timeline and the members involved at: <https://5gaspx.eu/>.

<https://5gaspx.eu/> <https://twitter.com/5gasp> <https://www.linkedin.com/company/5gaspx-5g-application-services-experimentation-and-networking-platform/> [5gasp-contact@5g-ppp.eu](mailto:5gasp-contact@5g-ppp.eu)

5GASP PRESS RELEASE: 5G Application & Services experimentation and certification Platform  
25 May 2021

Figure 35. Press Release #1

The Press Release #2 issued on September 22, 2021 has the title ‘5GASP NetApp Community’. It presents the NetAppCommunity Portal and gives the basic information of the NetAppStore Portal. Special attention in this press release is given to the Community events announcement (Figure 37).



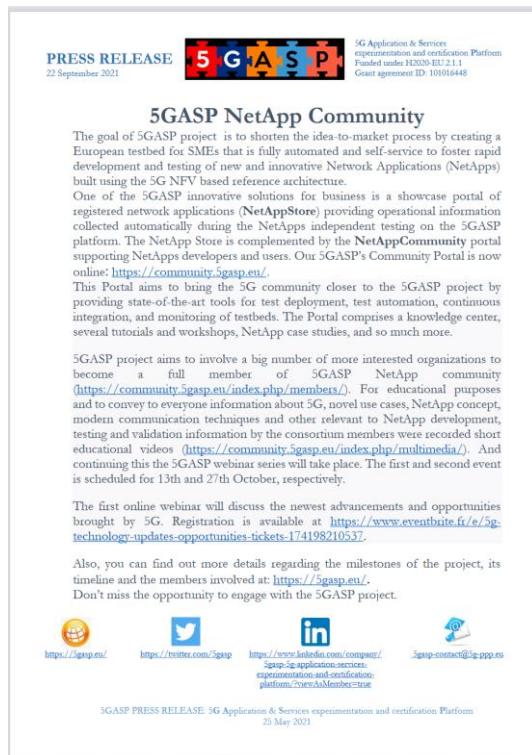


Figure 36. Press Release #2

Both press releases are available at the project website and disseminated through business network of the consortium members.

## 10. Leaflet

According to the dissemination activities plan, the Leaflet #1 has been prepared for supporting the project events (Figure 38).



Figure 37. Leaflet #1

The leaflet is shared among project partners to be used for the better visual representation of the project, its consortium, the project objectives, vision and tasks.

## 11. Dissemination among partners

For an easy communication among all project members, a set of closed-access mailing lists have been created during the first month of the project. A first general list is [all@5gasp.com](mailto:all@5gasp.com) enabling each project partner to reach all the other partners. To discriminate between the different work packages, partners have been instructed to add an indication of the targeted work group, e.g., [5GASP WP7], in the mail subject as a prefix. This mailing list is being extensively used by all partners. In addition, a specific mailing list for WP7 [wp7@5gasp.com](mailto:wp7@5gasp.com) was created, to provide a direct communication between the members collaborating for the project dissemination tasks.

For an easy online collaboration on the project tasks and a secure sharing of the documents among the partners, 5GASP uses OnlyOffice. The access to the 5GASP repository is password protected and can be reachable by partners.

The project repository provides a seamless collaboration method to work on the main milestones (reports, deliverables) and to store documentation associated with the different project work packages. It also allows partners to update concurrently and on timely manner, their contributions as well as the dissemination outcomes of the project on the different dissemination related shared spreadsheet.

Apart from the aforementioned tools for dissemination among partners, the collaboration among partners is also being performed in online meetings. Two types of meetings have been scheduled throughout the project duration being: weekly meetings targeting a set of work packages each, as well as plenary meetings targeting an overall interaction among members from all the work-packages. Noteworthy, so far, due to Covid-19 travel restrictions, all meetings were held virtually.

## 12. Conclusions

Each activity area of WP7 has progressed well. The project has so far catalogued 2 contributions across various standards bodies over the past year. Partners are also working on open software development which would be soon available in a synthetic presentation. The number of dissemination activities related to international journals and conference papers has reached 8 contributions. Regarding the number of keynotes and panels together with the participation in 5G events, dissemination has already reached the number of 9. 5GASP is planning to participate on EuCNC in different forms (conference papers, talks, joint workshop with ICT-41 projects).

Because of coronavirus COVID-19 5GASP partners have to start searching for the new dissemination channels: blog posts, press releases, webinars. All the targeted public deliverables were submitted and made available in the project website. These dissemination activities have helped to reach a large number of people from academia, industry, civil society, media, etc. The project is broadly on target time to meet initial targets and in some

areas as 5GASP moves towards use case delivery and demonstrations the greatest opportunities for engagement and dissemination lay ahead for this project.

## References

1. 5GASP D6.1 – Initial report on building NetApps Community & defining a certification process, pp 13
2. 5GASP D6.1 – Initial report on building NetApps Community & defining a certification process, pp 15-19
3. Project website, <https://www.5gasp.eu/>
4. NetAppCommunity Portal, <https://community.5gasp.eu/>