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High-tech and affordable 5G network roll-out to every corner

D5.2: Dissemination, Collaboration and standardisation report

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Abstract

This deliverable describes the dissemination collaboration and standardisation activities pursued by the Affordable5G partners in Y1 to guarantee broad and effective visibility, promotion and up-take of the project's work and outcomes. It also outlines the activities planned for Y2.

Keywords:

Communication, dissemination, stakeholders, website, social media, brand identity, liaisons

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Document Revision History

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Project	Project co-funded by the European Commission in the H2020 Programme					
Nature of the deliverable:to specify R, DEM, DEC, OTHER*R						
Dissemination Level						
PU	Public, fully open, e.g., web $$					
CI Classified, information as referred to in Commission Decision 2001/844/EC						
CO	CO Confidential to Affordable5G project and Commission Services					

* R: Document, report (excluding the periodic and final reports)

DEM: Demonstrator, pilot, prototype, plan designs

DEC: Websites, patents filing, press & media actions, videos, etc.

OTHER: Software, technical diagram, etc/



EXECUTIVE SUMMARY

The Affordable5G Work Package 5, WP5, is dedicated to "Dissemination, business modelling, opportunities for SMEs, and standardisation and 5G PPP collaboration" and aims at defining, maintaining, and coordinating the appropriate mechanisms and tools ensuring broad visibility and impact of the project's work and results. The main objective is to promote the developed project concepts and technologies, including the use cases the consortium's partners are focusing on.

This deliverable describes how Affordable5G has followed in Year 1 a comprehensive and effective approach to dissemination, communication and community building activities, as per the strategy defined in D5.1

During the first year of the Affordable5G project, the consortium has harvested fruitful results from a wide range of dissemination promotion and engagement activities. The different communication channels and dissemination tools identified at the beginning of the project were used in order to promote the main news, activities and results of the Affordable5G project. The key results are listed as follows:

- Affordable5G has participated in 8 relevant external events and presented itself to relevant stakeholders.
- Affordable5G set-up the dissemination and communication framework, including brand guidelines, website and social media launch and multimedia promotional tools, such as videos and flyers.
- 9 scientific publications have been published, presenting Affordable5G's progress.
- In total, Affordable5G has widely promoted its results and activities to more than 4,000 stakeholders (including subscribers to social media channels, website visitors and 5G PPP's mailing list).
- Affordable5G was featured in 28 news articles on specialised and general press publications.
- Over 950 unique visitors visited Affordable5G website.
- Affordable5G took part and co-organised 2 events in close collaboration with related H2020 projects within the overall 5G PPP context.

For the second year of the project, the strategic perspective of the Affordable5G dissemination and communication effort will continue to serve the overall success of the Affordable5G project and maximize the dissemination and communication impact within the communities of target stakeholders. Such effort includes:

- Continuation of the active promotion of project activities through different channels (such as project website, social media, newsletter, mailing lists of relevant other initiatives and projects.
- Conferences and ad hoc events.
- Organisation of workshops and webinars
- Publication of scientific articles and presentations in international peer-reviewed journals and conferences.

The collaboration among all partners allowed the project to maintain a high level of communication intensity despite the ongoing COVID-19 emergency, which caused some delays and cancelled several relevant events.



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ABBREVIATIONS

AI	Artificial Intelligence
CAM	Connected and Automated Mobility
CCAM	Cooperative, Connected and Automated Mobility
CNF	Containerized Network Functions
GPU	Graphics Processing Unit
loT	Internet of Things
IP	Internet Protocol
KPI	Key Performance Indicator
MANO	Management and Orchestration
MEC	Multi-access Edge Computing
MNO	Mobile Network Operator
NOS	Networking Operating System
NR	New Radio
NFVI	Network Function Virtualization Infrastructure
OPEX	Operational Expenditures
RAN	Radio Access Network
RAT	Radio Access Technology
ТСР	Transmission Control Protocol
VIM	Virtual Infrastructure Manager
VNF	Virtual Network Function
WG	Working Group
5G IA	5G Industrial Association
5G PPP	5G Infrastructure Public Private Partnership





1 INTRODUCTION

D5.2 is the Report on Dissemination, Collaboration and Standardisation activities for Year 1. This document provides in detail the dissemination and communication activities performed during the first year of the project (September 2020 to August 2021). Moreover, it presents a series of actions planned for the second year (September 2021 to August 2022). The grounding of such activities was clearly defined and guided by both the Description of Action (DoA) and Deliverable D5.1 *Dissemination and Communication Channels and Plan*. The purpose of the current deliverable is therefore two-folded:

1. to report on Affordable 5G project's dissemination, collaboration and standardisation activities held from month 1 to month 12, i.e., September 2020 – August 2021; that is an intermediate report covering the first year of the project;

2. to lay out the plan for Affordable5G's Year 2 (September 2021 to August 2022) activities related to dissemination, collaboration and standardisation activities, ensuring the fulfilment of targets and supporting the successful conclusion of the project.

The remaining part of the document, detailing the dissemination, collaboration and standardisation activities conducted during Year 1 (and the plan for Year 2), is organised as follows:

- Section 2 focuses on activities undertaken and followed in the first 12 months of the project.
- Section 3 foresees planned activities in the second year of the Affordable5G project.
- Section 4 provides insights on the coordination with other main partners.
- Section 5 focuses on the assessment of the impact created.
- Section 6 briefly summarises the key points of the document and points towards future tasks.





2 COMMUNICATION AND DISSEMINATION ACTIVITIES

2.1 Objectives and target audience

Affordable5G's dissemination and communication activities followed the tracks defined by D5.1 (Dissemination and Communication Channels and Plan, which also defines the project's target audience in details), with a specific shift towards private networks-oriented news, both in terms of website and social media animation. Some considerable focus was also directed towards Horizon Europe-related communications, which were integral part of the reported period. In general, the initial plan had to continue to consider and adapt according to COVID-19-related restrictions.

The main objectives pursued can be summarised as follows:

- Promote broad visibility and awareness about Affordable5G which includes animation
 of the project's online presence and participation to events spreading knowledge
 about the project and its results in the stakeholders' community, continuing to build a
 recognizable identity that will support further marketing efforts.
- Reach, stimulate and engage a critical mass of relevant stakeholders to ensure that the results of the project are effectively showcased, leading to validation, improvement and possibly further adoption of the developed technologies and concepts, especially towards target vertical sectors.
- Facilitate exploitation of the project's outcomes and promote the development of innovative solutions based on the Affordable5G technologies and architectures.
- Foster impactful contribution to relevant standardization bodies as appropriate and relevant to planned exploitation plans and the project's outcomes.
- Continuing to ensure close coordination with relevant 5G PPP programmes, working groups and bodies, while liaising with related initiatives in research and innovation domains such as NGI, BDVA, AIOTI, the Open-Source community, etc.

2.2 **Promotional materials**

The Affordable5G project supported impact creation activities through a number of dissemination channels and marketing materials. This section details the promotional materials developed during Year 1, which are all available for consultation and download on the project website's dedicated area.

2.2.1 **Project leaflet**

The Affordable5G project overview was designed in June 2021 to be featured at Mobile World Congress (250 printed copies) and has been also made available for download on the project's website (30 downloads). The planned creation of a project poster and a project roll-up for events was kept on hold due to the unfeasibility/cancellation of most physical events in the current COVID-19 emergency.







Figure 1: Affordable5G Project Overview Leaflet (Front and back views)

2.2.2 Videos

In the first reporting period Affordable5G released 3 videos which have been uploaded on the Affordable5G YouTube channel and mirrored on Affordable5G's website. They are available to all the partners to be used at presentations and events. So far, the Affordable5G YouTube Channel reached a total of **123 views**.

• The video "<u>Affordable5G in a nutshell</u>", is an explainer video-format presentation of Affordable5G's vision, objectives and consortium, featuring animated graphics and infographics. The video was released online to promote the project presentation at the joint EuCNC/6G Summit and was published in June 2021.



Figure 2: Screenshot from the video "Affordable5G in a nutshell"



• The video "<u>Affordable5G – High-Tech and affordable 5G Private Network Roll-Out to</u> <u>every corner</u>" is a video-format presentation of Affordable5G's vision, objectives, use cases and pilots at the joint 2021 EuCNC/6G Summit, featuring Dr. Sergio González Díaz, from Affordable5G partner Atos. It was then published in June 2021.

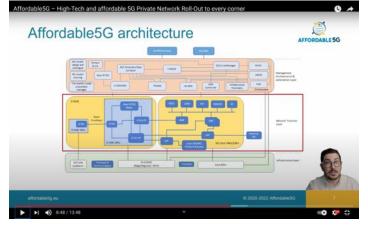


Figure 3: Screenshot from the video "Affordable5G – High-Tech and affordable 5G Private Network Roll-Out to every corner""

• The video "<u>Affordable5G in a nutshell (Short version</u>)", is a shortened 2-minute edit of the animated explainer video-format presentation previously released. The video was released online to promote partners presence at the Mobile World Congress and was published at the end of June 2021.



Figure 4: Screenshot from the video "Affordable5G in a nutshell (Short version)"

2.3 Online dissemination

2.3.1 Website

Affordable5G's official website (<u>https://www.affordable5g.eu/</u>) was set up at the beginning of the project (M1). The website contents have been constantly updated with the projects' news (28), events, publications and new promotional resources made timely available online. Until today (August 2021), the website has yielded **954 unique visitors, who generated 3,889 page views**. The average of page view per user is approximately 2.46 (pages). Regarding





specific pages on the website, **the most popular one** (except for the homepage) **is the "Consortium" page, with 291 views** (249 unique page views).

The figures below provide the details: Figure 5 (Traffic Overview), Figure 6 (Visit Duration), Figure 7 (Top Visited Pages) and Figure 8 (Visits per Country).

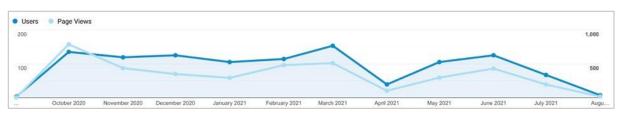


Figure 5: Website Statistics Traffic Overview



Figure 6: Website Statistics Visit Duration

P	age 3		Page Views \circ \downarrow	Unique Page Views	Avg. Time on Page	Entrances	Bounce Rate	% Exit 3
1.	1	æ	1,095 (28.16%)	890 (26.90%)	00:01:17	850 (53.70%)	40.24%	41.55%
2.	/consortium/	æ	291 (7.48%)	249 (7.53%)	00:01:54	53 (3.35%)	45.28%	39.52%
3.	/vision-objectives/	æ	246 (6.33%)	210 (6.35%)	00:01:30	32 (2.02%)	75.00%	35.77%
4.	/experimental-platforms/	æ	194 (4.99%)	178 (5.38%)	00:01:23	33 (2.08%)	57.58%	42.27%
5.	/emergency-communication/	æ	173 (4.45%)	137 (4.14%)	00:01:31	30 (1.90%)	60.00%	32.95%
6.	/smart-cities/	æ	133 (3.42%)	115 (3.48%)	00:02:17	24 (1.52%)	66.67%	30.83%
7.	/publications/	æ	111 (2.85%)	103 (3.11%)	00:00:27	24 (1.52%)	79.17%	45.05%
8.	/whats-new/	æ	106 (2.73%)	85 (2.57%)	00:00:29	11 (0.69%)	90.91%	25.47%
9.	/deliverables/	æ	103 (2.65%)	98 (2.96%)	00:01:02	9 (0.57%)	66.67%	35.92%
10.	/newsletter/	æ	93 (2.39%)	67 (2.03%)	00:01:05	36 (2.27%)	50.00%	49.46%

Figure 7: Website Statistics Top Visited pages





Country	Users % Users	
1. 🧮 Spain	165 📘 17.05%	
2. 🔚 Greece	119 📕 12.29%	
3. 📑 United States	106 📘 10.95%	
4. D Switzerland	75 🚦 7.75%	
5. France	61 🚦 6.30%	
6. 🥅 Germany	48 4.96%	
7. III Italy	42 4.34%	
8. China	35 3.62%	
9. 🦲 Portugal	33 3.41%	
10. T Netherlands	28 2.89%	

Figure 8: Website Statistics - Top 10 on visits from different countries

2.3.2 Social media

The social media activity has been concentrated on Twitter (<u>@affordable5g</u>) and LinkedIn (<u>https://www.linkedin.com/company/67087201</u>). These social media channels proved to be effective to disseminate the most relevant information about the project, reaching specific audiences.

Twitter

So far, Affordable5G's Twitter account **has attracted 94 followers** (including project partners, similar projects, interested stakeholders, etc.). Among all around 290 Tweets have been posted. Affordable5G also follows 67 accounts, mostly initiatives and organizations in similar fields or of approximate nature where partners have been involved. The figure here below shows the current homepage of the Affordable5G Twitter account.



Figure 9: Screenshot of the Affordable5G Twitter Account





LinkedIn

LinkedIn has been active since the beginning of the project and has gathered **85 followers so far**. It is mostly used to share the latest progress of Affordable5G, echoing key promotional messages from the project website and sharing relevant news from the project's partners, relevant projects and the European Commission. It has posted over 70 discussions.



Figure 10: Screenshot of the Affordable5G LinkedIn Account

2.3.3 Newsletter

Three Newsletters have been edited and distributed to stakeholders through Affordable5G's mailing lists as well as made available on the project website. So far, **34 stakeholders have subscribed** to receive Affordable5G's Newsletters. In terms of further analysis on the efficiency of the communication:

- The 1st newsletter (November 2020) was sent to 20 subscribers / 60% opens / 25% clicks
- The 2nd newsletter (February 2021) was sent to 27 subscribers / 66% opens / 29% clicks
- The 3rd newsletter (May 2021) was sent out to 27 subscribers / 51% opens / 11% clicks

A **4**th **newsletter** is being prepared at the time of writing and will be issued at the end of August 2021 – It will feature the recently released project videos and report on activities at EuCNC/6G Summit and Mobile World Congress 2021; it will also include information on recent scientific publications and on upcoming events.

1) Newsletter 1 (November 2020)

The 1st newsletter of Affordable5G, published in November 2020, informed stakeholders on the project's kick-off, presented its consortium members, and offered links to the project website pages presenting Affordable5G's use cases.







Figure 11: Screenshot of Affordable5G's 1st Newsletter

2) Newsletter 2 (February 2021)

The 2nd newsletter of Affordable5G, published in February 2021, reported on the first event participations of the project: the Affordable5G presentation at the 22nd INFOCOM World Conference (November 2020) and at the 5G PPP "New 5G Core Technologies Innovation Projects" webinar (February 2021) and presented profiles on consortium partners.



Figure 12: Screenshot of Affordable5G's 2nd Newsletter





3) Newsletter 3 (May 2021)

The 3rd newsletter of Affordable5G, published in May 2021, advertised project partner's presence at the joint EuCNC/6G Summit virtual event and informed on Affordable5G's closure on the analysis of its architectural components. Additional partners' profiles and market-related news were also featured.



Figure 13: Screenshot of Affordable5G's 3rd Newsletter

2.4 Events

2.4.1 Affordable5G workshops and webinars

Affordable5G co-organised the **"5G Private Networks" webinar at the joint EuCNC/6G Summit** event in June 2021. The webinar counted around 70 participants and saw project partner Atos presenting Affordable5G's objectives and achievements among 11 other EUfunded projects working in the 5G domain: a key event in terms of synergies with similar projects and endeavours.

As part of 5G PPP, In February 2021 Affordable 5G took part in the **"5G PPP's New 5G Core Technologies Innovation Projects"** webinar: project partner NKUA presented Affordable5G with a focus on innovation acceleration in the development and take up of 5G. 8 more 5G Core Technologies projects were featured and the attendance reached 150 participants.

Due to the current COVID-19-related restrictions, many events targeted for co-location of the planned promotional workshops were cancelled, making organisation unfeasible.

More information on the future strategy regarding workshops and webinars can be found in section 3 of this document.





2.4.2 Events attended

Affordable5G's partners have attended or participated to a total of **8 events** in the first half of the project, giving keynote presentations and promoting the projects achievements. Table 1 below summarises the events attended. These events' participation has been reported in the News and Events sections of the project's website and promoted through the social media channels.

Title of event	Date, location	Target group	Estimated No of attendees	Disseminati on activity	Partner attending
5G The Next Generation of Telecommun ication Will Change Everything	28 July 2021 Online	Industry, Researchers, Network operators, Manufacturers, Investors	100	Project presentation	REL
Mobile World Congress 2021	28 June – 1 July 2021 Barcelona, Spain	Industry, Researchers, Journalists	100,000	Booths, Partners' presentations	NBC, i2CAT, UBI, CELL
ChipEX 2021	21-22 June 2021 Tel Aviv, Israel	Industry, Researchers, Manufacturers, Investors	1,000	Booth	REL
EuCNC/6G Summit webinar "5G Private Networks"	8 – 11 June 2021 Online	Policy makers, Researchers, Industries	70	Project presentation, Specific results presentation	ATOS, ATH
5G FORUM 2021	4-6 May 2021 Online	Industry, Researchers, Manufacturers, Investors	526	Presentation of Malaga platform and supported projects (including Affordable5g)	UMA
5G PPP webinar "New 5G Core Technologie	16 February 2021 Online	Policy makers, Researchers, Industries	150	Project presentation	NKUA





Title of event	Date, location	Target group	Estimated No of attendees	Disseminati on activity	Partner attending
s Innovation Projects"					
UPTIME 2021 – The Annual Private 5G & LTE World Community Conference	27 January 2021 Online	Industry, Researchers, Network operators, Manufacturers	835	Project presentation	ATH
22nd INFOCOM World Conference	4 - 6 November 2020 Athens, Greece	Policy makers, Industry, Researchers	81	Project presentation	8BE, INC

Table 1: Events attended by Affordable5G in the first half of the project

2.5 Journals and conference publications

Affordable5G's partners have been active in submitting scientific papers to conference publications and scientific journals, Within Y1, **9 papers** have been published. The papers are available on the project's website, in a dedicated section.

Publication title/topic	Submitted to	Leading partner
"Network Neutrality in Content Cache Sharing: A Bankruptcy Problem Formulation" A. Antonopoulos, PV. Mekikis, E. Kartsakli	IEEE ICC 2021	NBC
"WIP: Demand-Driven Power Allocation in Wireless Networks with Deep Q-Learning" A. Giannopoulos, S. Spantideas, N. Kapsalis, P. Gkonis, P. Karkazis, L. Sarakis, P. Trakadas and C. Capsalis	WoWMoM 2021	NKUA
"Power Control in 5G Heterogeneous Cells considering User Demands using Deep Reinforcement Learning" A.E. Giannopoulos, S. Spantideas, C. Tsinos, P. Trakadas	5G-PINE 2021 (6th Workshop on 5G - Putting Intelligence to the Network Edge)	NKUA
"Al and ML – Enablers for Beyond 5G Networks"	White paper	NKUA, ATOS





Publication title/topic	Submitted to	Leading partner
5G PPP Technology Board (AFFORDABLE5G contributors: J. Martrat, P. Trakadas, A. Giannopoulos, S. Spantideas)		
"Joint Energy-efficient and Throughput- sufficient Transmissions in 5G Cells with Deep Q-Learning" S. Spantideas, A. Giannopoulos, N. Kapsalis, A. Kalafatelis, C. Capsalis, P. Trakadas	2021 IEEE International Mediterranean Conference on Communications and Networking (MeditCom)	NKUA
Cost-Efficient 5G Non-Public Network Roll-Out: The Affordable5G Approach L. Sarakis, P. Trakadas, J. Martrat, S. Prior, O. Trullols-Cruces, E. Coronado, M. Centenaro, G. Kontopoulos, E. Atxutegi, P. Gkonis, S. Gonzalez-Diaz, A. Antonopoulos, S. Siddiqui, P. Merino	2021 IEEE International Mediterranean Conference on Communications and Networking (MeditCom)	NKUA
"On the Performance Evaluation of 5G MIMO Networks employing NOMA via System-Link Level Simulations" P. Gkonis, P. Trakadas, L. Sarakis, A. Giannopoulos, S. Spantideas, N. Capsalis	4th World Symposium on Communication Engineering (WSCE 2021)	NKUA
 "A Cost-Efficient 5G Non-Public Network Architectural Approach: Key Concepts and Enablers, Building Blocks and Potential Use Cases" P. Trakadas, L. Sarakis , A. Giannopoulos, S. Spantideas , N. Capsalis, P. Gkonis, P.Karkazis, G. Rigazzi, A. Antonopoulos, M. A. Cambeiro, S. Gonzalez-Diaz and L. Conceição 	Sensors (MDPI)	NKUA, ATOS, NBY, NEM
"On the Performance Limitations of Realistic Massive MIMO Deployments in 5G mmWave Wireless Cellular Networks" S. Lavdas, P. Gkonis, P. Trakadas and L. Sarakis	IEEE 94th Vehicular Technology Conference: VTC2021-Fall	NKUA

Table 2: Publications in Y1

2.6 Affordable5G in the press

Through the involvement of the partners, Affordable5G received coverage via **28 news articles** featured in international publications. All articles can be also accessed via the <u>press</u> <u>clipping</u> section of the project website.



Publication	Publication URL	Leading partner
European 5G Annual Journal 2021	https://5g-ppp.eu/annual-journal/	ATOS
Yahoo! Finance	https://finance.yahoo.com/news/adva-joins- affordable5g-build-high-080000417.html?guccounter=1	ADVA
Associated Press	https://apnews.com/press-release/business- wire/technology-business-europe-corporate-news- products-and-services- d532caddc6594465abbee842fd2d6f1f	ADVA
ANSA.it	https://www.ansa.it/sito/notizie/economia/business_wire /news/2020-12-01_101104330.html	ADVA
Finanzen.net	https://www.finanzen.net/nachricht/aktien/adva-joins- affordable5g-to-build-high-performance-and-cost- effective-mobile-networks-9567710	ADVA
Benzinga	https://www.benzinga.com/pressreleases/20/12/b18588 800/adva-joins-affordable5g-to-build-high-performance- and-cost-effective-mobile-networks	ADVA
Market Screener	https://www.marketscreener.com/quote/stock/ADVA- OPTICAL-NETWORKING-S-435663/news/ADVA-joins- Affordable5G-to-build-high-performance-and-cost- effective-mobile-networks-31906836/	ADVA
Wallstreet Online	https://www.wallstreet-online.de/nachricht/13218393- adva-schliesst-affordable5g-initiative-aufbau- leistungsfaehiger-kostenguenstiger-mobilfunknetze	ADVA
FinanzNachrichte n.de	https://www.finanznachrichten.de/nachrichten-2020- 12/51384154-adva-joins-affordable5g-to-build-high- performance-and-cost-effective-mobile-networks- 004.htm	ADVA
Finanztreff.de	https://www.finanztreff.de/news/business-wire-adva- schliesst-sich-affordable5g-initiative-fuer-aufbau- leistungsfaehiger-un/22659237	ADVA
Business Wire	https://www.businesswire.com	ADVA





Publication	Publication URL	Leading partner
Finanzen.ch	inanzen.chhttps://www.finanzen.ch/nachrichten/aktien/adva-joins- affordable5g-to-build-high-performance-and-cost- effective-mobile-networks-1029851887	
Finanz und Wirtschaft		
Yahoo! Finanzas - España	https://es.finance.yahoo.com/news/adva-joins- affordable5g-build-high-080000417.html?guccounter=1	ADVA
Boerse Express	https://www.boerse-express.com/news/articles/adva- schliesst-sich-affordable5g-initiative-fuer-aufbau- leistungsfaehiger-und-kostenguenstiger- mobilfunknetze-an-271363	ADVA
Telecom TV (Video)	https://www.telecomtv.com/content/etsi-r-and-sd- event/how-do-we-put-europe-to-the-forefront-of-6g- research-and-innovation-40186/	ATOS
Telecom TV	https://www.telecomtv.com/content/open- networking/adva-joins-affordable5g-to-build-high- performance-and-cost-effective-mobile-networks- 40350/	ADVA
Picante	https://picante.today/latest- news/2020/12/01/179056/adva-joins-affordable5g-to- build-high-performance-and-cost-effective-mobile- networks/	ADVA
Presse Box	https://www.pressebox.com/inactive/adva-ag-optical- networking-headquarters/ADVA-schliesst-sich- Affordable5G-Initiative-fuer-Aufbau-leistungsfaehiger- und-kostenguenstiger-Mobilfunknetze- an/boxid/1034782	ADVA
Sparda Bank	http://gisweb.vwd.com/sparda/nachrichten_detail.htn?u =5362793&aktiv=markt&id=22659237&kunde=20619ex t	ADVA
Moneyspecial	http://www.moneyspecial.de/286/news_news.htn?id=22 659237&offset=0&sektion=ir_business_wire	ADVA





Publication	Publication URL	Leading partner
NovumPR	https://www.novumpr.nl/2020/12/01/adva-joins- affordable5g-to-build-high-performance-and-cost- effective-mobile-networks/	ADVA
Financial.de	http://www.financial.de/news/unternehmensnews/busin ess-wire-news-adva-schliest-sich-affordable5g- initiative-fur-aufbau-leistungsfahiger-und- kostengunstiger-mobilfunknetze-an/	ADVA
Presse-Blog	https://www.presse-blog.com/2020/12/01/adva- schliesst-sich-affordable5g-initiative-fuer-aufbau- leistungsfaehiger-und-kostenguenstiger- mobilfunknetze-an/	ADVA
It-it-prof.de	https://www.it-it-prof.de/2020/12/01/adva-schliesst-sich- affordable5g-initiative-fuer-aufbau-leistungsfaehiger- und-kostenguenstiger-mobilfunknetze-an/	ADVA
Initiative Mittelstand	https://www.immittelstand.de/2020/12/01/adva- schliesst-sich-affordable5g-initiative-fuer-aufbau- leistungsfaehiger-und-kostenguenstiger- mobilfunknetze-an/	ADVA
News-Blast	https://www.news-blast.com/2020/12/adva-schliesst- sich-affordable5g-initiative-fuer-aufbau- leistungsfaehiger-und-kostenguenstiger- mobilfunknetze-an/	ADVA
HightechBox	https://www.hightechbox.de/2020/12/01/adva-schliesst- sich-affordable5g-initiative-fuer-aufbau- leistungsfaehiger-und-kostenguenstiger- mobilfunknetze-an/	ADVA

Table 3: Affordable5G in the press in the first half of the project

2.7 Affordable5G collaboration with relevant projects and initiatives

As stated in D5.1, Affordable5G has been retained through the 5G-PPP ICT-42-2020 (5G PPP Phase 3, Part 5 – 5G Core Technologies innovation) call, and is therefore actively collaborating with other 5G PPP projects, as well as non 5G PPP projects in the overall 5G ecosystem. Beside related actions in the context of Affordable5G's online presence (such as advertisement of events, cross sharing and re-sharing, etc.), the project sought out collaboration and





participation to shared events, as previously detailed in section 2.4.1. An overview for Affordable5G project is featured in the official 5G PPP Phase 3 projects brochure, made publicly available through the initiative's website (<u>https://5g-ppp.eu/wp-content/uploads/2021/06/5GPPP_Phase3_Brochure_WEB-2.pdf</u>).

A collaboration between Affordable5G and ICT-17 5GENESIS has been clearly established (concerning the 5GENESIS Malaga platform, specifically).

The consortium has also been in talks, through partners Athonet and Nemergent Solutions, with the EU-funded Fudge-5G project, with the aim of a potential collaboration.





3 PLAN OF ACTIVITIES FOR THE 2ND HALF OF THE PROJECT

Affordable5G's dissemination and communication plan will continue to be coordinated by the Task 5.1 leader (Martel) with the contribution and support of all the partners. Dissemination and Communication activities will be run both at consortium level and at partners' level, based on each organization expertise, existing network and relevant exploitation plan.

3.1 Affordable5G workshops and webinars planned

We envisage to **organize at least 4 additional workshops and 2 more Webinars by M24**, pursuing co-location with major events and coordination on this with other 5G PPP/5G projects and related national and international initiatives.

The consortium has already discussed the best approach for these events' organisation and it was agreed to have them co-located with major relevant conferences in order to maximise their impact and attendance. The workshops and webinars will be conducted privileging the engagement and active participation of the audience. In order to push the impact further – and in light of the current COVID-19-related restrictions - we will look at alternative solutions for live streaming and recording of the events (e.g., YouTube Live), in order to also reach a remote audience and make the projects' outputs as widely available as possible. Tables 4 and 5 here below summarize the envisioned workshops timeline and communication objectives.

Event	Month	Objective	Target participants
2021 IEEE International Mediterranean Conference on Communications and Networking (MeditCom)	M13	Presenting Affordable5G results	50-100
5G PPP workshop at IEEE 5G World Forum	M14	Presenting Affordable5G results	50-100

Table 4: Affordable5G workshops and webinars in the second half of the project

3.2 Events participation planned

Table 5 below presents a list of events for which participation in the second half of the project has been planned or that will be in the radar of Affordable5G for communication and dissemination activities:

Title of event	Date, location	Target group	Estimated No of attendees	Dissem ination activity	Partner attending
MPLS + SD + NFV + AI Net World 2021	28-30 September 2021 Online	Industry, Journalists, Researchers	1,000	Project presenta tion	TBD





		_		D	
Title of event	Date, location	Target group	Estimated No of attendees	Dissem ination activity	Partner attending
ITS World Congress	11-15 October 2021 Hamburg, Germany	Industry, Journalists, Researchers, Policy Makers, General Public	15,000	Project presenta tion, Booth	TBD
BAPCO 2021	12-13 October 2021 Coventry, UK	Industry, Journalists, Researchers	2,000	Booth	NEM
IEEE 5G World Forum	13-15 October 2021 Montreal, Canada and Online	Industry, Researchers, Policy Makers	1,000	5G PPP worksho p	TBD
Layer123 World Congress: Service Beyond SDN and Network Virtualization	11-14 October 2021 Online	Industry, Researchers	1,000	Project presenta tion	TBD
CCW Critical Communication s World	3-5 November 2021 Madrid, Spain	Industry, Journalists, Researchers	5,000	Booth	NEM
MWC 2022	28 Feb-3 March 2022 Barcelona, Spain	Industry, Researchers, Network operators, Manufacturer s, Investors	100,000	Booth	REL, CELL
5G FORUM 2022	May 2022 Malaga, Spain	Industry, Researchers, Network operators, Manufacturer s, Investors	500	Presenta tion	UMA



Title of event	Date, location	Target group	Estimated No of attendees	Dissem ination activity	Partner attending
Smart City Expo World Congress 2021	16-18 November 2021, Barcelona Spain	Industry, Researchers, Network operators, Manufacturer s, Investors	10000	Booth	CELLNEX

Table 5: Events participation planned for the second half of the project

3.3 Scientific publications planned

The table below presents the list of publications (Journals and Conferences) planned or targeted for the second half of the project.

Publication Type	Submission to
Conference scientific publication	The 16th International Conference on Availability, Reliability and Security (ARES 2021)
Conference scientific publication	IEEE VTC Spring 2022
Journal scientific publication	IEEE Access
Magazine scientific publication	IEEE Network
Conference scientific publication	TACAS 2022
Conference scientific publication	IEEE International Conference on Communications

Table 6: Relevant Journals and Conferences publications targeted for the second half of the project

3.4 Communication activities M13-M24

3.4.1 Online Communication

Continuous work will be dedicated to the online presence, populating and keeping Affordable5G's website updated. The social media will continue to be animated with the project's and partners' news and sharing relevant contents of the EC and other 5G-related initiatives.

3.4.2 **Promotional materials**

WP5 might update the project overview flyer, or create new specific ones, according to the consortium's needs (i.e., new achievements to be communicated), especially considering the envisioned return to physical events from Autumn 2021. The creation of a project poster and a roll-up has also been planned for upcoming partner's event participations, from November 2021 onwards.





3.4.3 Videos

Affordable5G plans to release at least 3 new videos in the second half of the project, as indicated in the KPIs table. These will include a full recording of each of the planned webinars and of workshops, if conducted online or live-streamed.

Plans made during the first half of the project to shoot video on location at partners' facilities (in conjunction with physical meetings) have been discarded due to COVID-19-related restrictions, but any future occasion to newly pursue this objective would be taken into consideration.

Martel's personnel would provide remote video-making services in case travel to location is not feasible: either gathering live-action footage from partners (or other venues) or designing animated infographic-type videos as an alternative.

3.5 Dissemination and communication in times of COVID-19

The current COVID-19 outbreak brought about opportunities and challenges for the community building and communication activities of Affordable5G. To ensure that project outcomes will not be significantly affected by event cancellations due to COVID-19, we will keep on carefully rethinking our events' planning and related communication. Although an ease on restrictions is at nearing, face-to-face partners meetings and events might still have to be organized as a virtual event. The Affordable5G consortium closely monitors the current COVID-19 situation, trying to anticipate early on the next steps that need to be taken.



4 5G PPP COLLABORATION, STANDARDIZATION AND OPEN-SOURCE COMMUNITIES

4.1.1 **5G PPP collaboration (Lead i2CAT)**

Affordable5G is actively collaborating in different Working Groups (WG) of the 5G PPP initiative, as shown in Table 7, which lists the WGs that the project is following and the representative partner during the first year. To materialize this participation, the different representatives attend regularly the meetings organized in each WG and get involved in different joint activities such as white papers, brochures and presentations. In this respect, Table 8 lists the activities in which the project has participated during the first year.

#	5GPPP WGs	Affordable 5G representative	Related WP
1	Steering Board	Josep Martrat (ATOS)	All
2	Technical Board	Panagiotis Trakadas (NKUA)	All
3	Architecture WG	Panagiotis Trakadas, Lambros Sarakis (NKUA)	WP1,2,3
4	Software Networks WG	Josep Martrat, Sergio González (ATOS)	WP1,2,3
5	5G-Pre- standardization WG	Giovanni Rigazzi (i2CAT), Josep Martrat, Aurora Ramos (ATOS)	All
6	SME WG	Israel Koffman (RunEL), Eneko Atxutegi (NEM)	WP5
7	5G-IA - Trials WG	Pedro Merino (UMA), Raul González (Cellnex)	WP4
8	5G-IA - Vision and Societal Challenges WG	Ioannis Neokosmidis, Theodoros Rokkas (INC)	WP1,5

Table 7. List of 5GPPP WGs covered by Affordable5G

#	5GPPP activity	Link	Affordable 5G contribution
1	AI/ML white paper	https://5g-ppp.eu/wp- content/uploads/2021/05/AI- MLforNetworks-v1-0.pdf	Contribution to section on Demand- Driven Power Allocation in 5G- enabled Wireless Networks
2	5G PPP Projects Phase III Brochure	https://5g-ppp.eu/wp- content/uploads/2021/06/5GPPP Phase3_Brochure_WEB-2.pdf	Description of the project objectives, challenges, applications and expected impact.





#	5GPPP activity	Link	Affordable 5G contribution
3	ICT 42 webinar 16 Feb. 2021	https://5g-ppp.eu/wp- content/uploads/2021/01/Afforda ble5G_ICT42_Webinar_16Feb20 21.pdf	General presentation of the project.
4	SME WG meeting 1 March 2021	N/A	Presentation of roles of SMEs in Affordable 5G
5	Trials WG meeting 9 April 2021	N/A	Presentation of recent 5G Trials and Pilots in projects run by U. Malaga

Table 8. Affordable5G contributions to 5GPPP

4.1.2 Standardization plan and contributions for Year 1 (lead ATOS)

Affordable5G is an active participant of multiple Standard Development Bodies (SDOs) covering diverse areas and technologies that are not only applicable but essential to the committed objectives of the project. Table 9 shows the Key Technology development areas that Affordable5G has contributed to, through its partners, during its first year. The specific SDOs which are relevant to each of the areas are also indicated.

#	Key Technology development area of the project	Target SDOs		
1	RAN	3GPP, O-RAN		
2	Non-Public-Networks (NPN)	3GPP		
3	5G Core	3GPP		
4	Mission Critical Services	3GPP, ETSI		
5	Hardware Acceleration	RISC-V		
6	NFV (Network Function Virtualization)	ETSI, CNFC		
7	CIM (Context Information Management)	ETSI		
8	MEC (Multi-Access Edge Computing)	ETSI, CNFC		
9	CDP (City Digital Profile)	ETSI		

Table 9. Target SDOs for Affordable 5G in Year 1

Next, we present a brief description of the scope covered by each of the targeted SDOs during this period, highlighting the relevance to the project:





- **3GPP:** The 3rd Generation Partnership Project (3GPP) is the main organization, representing multiple standardization bodies, that focuses on cellular communications technologies. Similarly, to Affordable5G's scope, this organization covers the design of an end-to-end system, and therefore the project's interest in its activities around Access and Core domains and Non-Public Networks is pivotal.
- ETSI: The European Telecommunication Standardization Institute (ETSI) produces standards across multiple domains of the Telecommunications and IT industry. There are four specification groups that are especially relevant to Affordable5G, namely: NFV (Network Function Virtualization), CIM (Context Information Management), MEC (Multiaccess Edge Computing), CDP (City Digital Profile).
- O-RAN: The O-RAN Alliance promotes efforts towards the specification of an open architecture and interfaces within the RAN network focusing on increasing its intelligence and reducing traditional vendor lock-ins in this domain. This is particularly relevant to the project in its objective to demonstrate a truly affordable end to end system.
- **RISC-V:** RISC-V Foundation promotes the definition of open-source licensed RISC-V ISA (Instruction Set Architecture) as a free to use architecture that can however be extended and incorporate licensed enhancements. Within Affordable5G, this is especially interesting for the tasks related to hardware acceleration.
- **CNFC:** Cloud Native Computing Foundation (CNCF) serves as a promoter for projects under the Linux Foundation, with its focus around container technologies. In the scope of Affordable5G, the main interest lies around the progress of projects versing around containerized workloads in edge computing environments.

Table 10 presents a detailed list of specific contributions to standardization efforts, indicating a description of the realized activity, the targeted SDO, and project's WPs that are relevant to the contribution.

Contribution#	SDO (group)	Relevant WP	Description		
1	3GPP	WP4, WP5	Relevant work-related Mission Critical Services in 5G is monitored		
2	ETSI	WP4, WP5	Participation in interoperability ETSI MCX plugtest events		
3	3GPP	WP1, WP2	Relevant work regarding PHY Layer standardization updates in release 17 are monitored		
4	3GPP	WP1, WP2, WP3	Relevant work regarding MAC Layer standardization updates in release 17 are monitored		
5	3GPP	WP1, WP2, WP3	Monitoring activities of relevant 3GPP TSGs		
6	6 ETSI		and following MEC Tech calls in ETSI MEC (Multi-Access Edge Computing) ISG		

Table 10. List of contributions





4.1.3 Open-source contributions for Year 1 (Lead UMA)

#	Open- source contribution	Link	Related WP	Description
1	TSN translators design	Project website (when implementation available)	WP3	Design of the software version of translators at the UE and UPF sides to support a proof of concept of TSN over 5G
2	NWDAF	Project website (when implementation available)	WP3	Design of the Network Data Analytics Function with all related APIs in order to support network monitoring and telemetry from all architectural

Table 11. List of Affordable5G open-source contributions (in public repos)

#	Open-source project	Affordable5G upstream contribution
		Identification of additional plugins to control Affordable5G building blocks
1	OpenTAP	Identification of test plans implementing the test cases for testing integration of all the building blocks in Affordable5G

Table 12. List of target open-source projects and upstream contributions





5 DISSEMINATION AND COMMUNICATION IMPACT ASSESSMENT

5.1 KPIs, deliverables and milestones

The consortium has kept a close eye on the KPIs set at the beginning of the project, to monitor the Dissemination & Communication Results. The tables below offer details on the currently achieved and planned KPI's Deliverables and Milestones.

Measure	Indicators	Target (M24)	Means of verification	Results at M12
Flyers Posters/roll-ups	ups of dedicated (by the end of events. Electron		participation to and organisation of dedicated events. Electronic distribution via the	1 Flyer Poster and roll-up planned for M14
Project Website	N. of unique visitors to the website (average per year)	> 1500	News, Publications, Videos, Newsletters, Deliverables	Online since Sept 2020, ± 954 visitors so far 25 News published in total
Social Networks	Twitter, LinkedIn, YouTube (average new followers per year)	> 300	Keeping Affordable5G profiles on such networks active via regular posting and monitoring	94 Twitter followers 85 LinkedIn followers YouTube channel total views so far: 123
Press Releases / publication in press (by the end of the project)	N. of press releases issued to specialised and general media channels at key project milestones	> 4	A press/media kit will be developed containing detailed press releases, videos, publishable images, flyers	1
Publications	N. of peer- reviewed publications in journals,	≥ 3 per year on average	Articles and papers presented and published in high-quality venues	9





Measure	Indicators	Target	Means of	Results at M12
		(M24)	verification	
	conferences and workshops			
	No. of publications on vertical industry magazines		Articles presented and published in high quality venues	28
e-Newsletter (published every 3 months)	N. of subscribers (by the end of the project)	> 300	Recording of subscribers to the electronic newsletter	34 subscribers (further promotion planned on social media)
Videos	N. of videos published on the Affordable5G YouTube channel and average number of views	3 videos per year and 200 views per video	Introduction, informative and educational videos to support awareness creation and stakeholders' engagement	3 videos 123 views in total
Promotional Workshops - at least 5 by the end of the project	Average number of participants per workshop	50 to 80 participants per event depending on scope and co- location	Attendance proof, presented material, photos, animation of social media channels, events' reports	1
Participation in events and presentations	Number of external events partners attended to promote the project, including industrial, scientific conferences, and number of demos and or presentations given	At least 5 events per year, with at least 6 presentation	Attendance proof, presented material, photos, animation of social media channels, events' reports	8 events 8 presentations



Measure	Indicators	Target (M24)	Means of verification	Results at M12
Webinars (at least 3 by the end of the project)	Average number of participants	At least 35 participants	Attendance proof, video-streaming, presented material, photos, animation of social media channels, events' reports	1
Standardization	Contributions to standardization fora	≥ 3 per year	Attendance proof, presented material	14

Table 13: Affordable5G communication KPIs

No.	Name	Lead	Туре	Diss level	Due	Status
MS1	Affordable5G branding. Project guidelines established.	Martel	OTHER	NA	M2	Achieved
D5.1	Dissemination and Communication channels and plan	Martel	R	PU	M2	Achieved
D5.2	Dissemination, collaboration and standardization report	Martel	R	PU	M12, M24	Current document, to be updated on M24

Table 14: Affordable5G dissemination deliverables and milestones





6 CONCLUSIONS

This document presents the Affordable5G dissemination and promotion activities run in Y1 and describes a number of key activities that the project's partners are focusing on, and will follow up in the next year, in order to guarantee broad visibility of the project's work and results in the 5G domain and beyond so as to engage target stakeholders and produce relevant and durable impact.

In Y1, the Affordable5G partners have been active in several ways and pursued various promotional activities, including:

- Presentation of the Affordable5G project at several conferences and workshops and through publications on international journals.
- Online promotion of the project through the website and social media channels.
- Contribution to the 5G PPP community in the form of information about upcoming events, organised workshops/sessions and available material.
- Diffusion of Affordable5G and overall 5G related news via the project's communication channels, as well as the various partners' individual social communication means.
- Creation of a slide-based presentation of Affordable5G, as well as an introductory project's flyer released at project month 10.

The work of WP5 will continue to be intensive in the upcoming months as several efforts are planned in order to support the broad and effective promotion of various Affordable5G-driven activities.







ANNEX A – AFFORDABLE5G PRESS RELEASE (JULY 2016)



PRESS RELEASE July 9, 2021

Kicked-off in early September 2020, the EU-funded project Affordable5G is nearing the end of its first year, which saw the partners engage on a wide array of activities, bringing the research work forward, disseminating and communicating results and endeavours, and establishing connections in the wider 5G ecosystem. The project aims at creating a 5G network that will deliver a complete, disaggregated and affordable solution covering the needs of private and enterprise networks through technical innovation including Radio Access, Edge, 5G Core and Orchestration.

Looking back at an eventful year

The project further defined its use case pilots on <u>emergency communications</u>, <u>smart</u> <u>cities</u> and <u>manufacturing</u>, and crossed an important checkpoint in Spring 2021, with the closure of the analysis of architectural components. The year saw the partners also working on 10 scientific publications, some of which already released and presented through international platforms.

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Despite the restrictions imposed by the COVID-19 pandemic, partners could give the project visibility and connect with similar projects and initiatives by participation to online events - such as the virtual and joint EuCNC/6G Summit - and stepped back into the field as soon as feasible, with the presence of several partners at this year's Mobile World Congress in Barcelona, with a total reach of over 100,000 people.

Events aside, Affordable5G engaged stakeholders through continuous animation of its online presence, with over 360 between news, tweets, posts and videos published, reaching an audience of over 30,000.

The activities also focused on the private networks field, highlighting the direction of the market (*Predictions on private 5G networks*) and the key importance of Open Source (*Open Source to drive private 5G*).

What's next?

Affordable5G partner Nemergent Solutions SL will attend **Critical Communications World** in Madrid on November 3-5 2021: don't miss the chance to know more about the project's **emergency communication pilot** at the event, which brings missioncritical and business-critical end-users and manufacturers all together, under one roof.

Press contact and social media

- Email info@affordable5g.eu
- Twitter @affordable5g
- LinkedIn <u>https://www.linkedin.com/company/67087201/</u>



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ANNEX B – PRESS CLIPPING SELECTION

AFFORDABLE5G

AFFORDABLE5G, led by ATOS, aims at creating a 5G network that will deliver a complete and affordable solution covering the needs of private and enterprise networks through technical innovation that span across all parts of 5G network. AFFORDABLE5G leverages the need of cell densification, RU/DU/CU disaggregation on RAN, hardware acceleration, edge computing and core network virtualisation, seamlessly combined with the adoption of Open RAN, MEC deployments and open source MANO solutions, for cloud-native and micro-service based 5G roll-outs. With the combination of several European SMEs products with open interfaces. AFFORDABLE5G will offer a first-class opportunity to SMEs to become frontrunners in the global 5G competition, facilitating them in their commercialisation paths in 5G private networks. A private 5G network is a particular realisation of the 5G system designed and configured for a private use by an enterprise or an exclusive group of users. It can be deployed to cover the needs of a specific application, or multiple applications or even a vertical domain.

The project goals and achievement will be evaluated and validated in three vertical use cases that will be demonstrated in two pilots and a proof-of concept. The use cases are used to identify and characterise the system requirements that allow the selection of the network elements and the 3GPP, ETSI and O-RAN specifications that are taken as a reference in the AFFORDABLE5G system architecture led by National and Kapodistrian University of Athens.

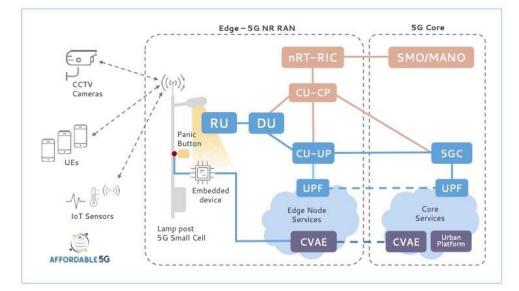


Fig. 43: AFFORDABLE5G - architecture

The first use case is related to emergency communications. Led by Nemergent Solutions, it aims to demonstrate the 5G private network concept, and the performance and reliability requirements of Mission Critical Services (MCS), allowing the owner to control their 5G network to serve a limited geographic area with optimised services using dedicated equipment. The pilot will enable the implementation, validation and demonstration of a robust solution that will leverage the cloud native functions of monitoring, flexible deployment and scaling, as well as standardised 3GPP-compliant MCS communication channels, mainly including Mission Critical Push To Talk (MCPTT), Mission Critical Video (MCVideo) and Mission Critical





Data (MCData). Network slicing capabilities and low latency in both access and transport network are key requirement here.

The scope of the scenarios within this pilot is to achieve the provisioning of a responsive service that is able to cope with drastic service consumption increase or adverse network conditions so that the first responders are able to keep communicating regardless of outages, communication demand increase, detection of poor communication quality, and other challenging events.

The second use case is related to smart cities. In this context, AFFORDABLE5G will validate the 5G technology for efficient smart city monitoring, combining IoT data collection sensors integration and edge processing. This will allow deploying new applications for enhancing urban sustainability, mobility and safety and reducing deployment costs.

Project partner Ubiwhere leads the Smart Cities use case pilot in a sports cars circuit (Circuit ParcMotor) in Castellolí (Barcelona), Spain. Ubiwhere will provide a smart urban infrastructure product, Smartlamppost, as an integrator of diverse modules delivered by the partners (such as Edge Computing processing) and its Urban Platform for unified data collected within the facilities. End-user devices, such as CCTV cameras, User Equipment's and IoT devices, will connect to the small cell via 5G NR. Here the EMBB traffic and mMTC connectivity are key elements of the scenarios. The architecture developed by Affordable 5G will allow the creation of a network and edge computing hardware marketplace for the partner entities operating in this business. In the pilot, by integrating a CCTV camera into Smartlampost, partners will become capable of assisting security agents in detecting safety issues.

The third pilot consists of two use cases covering different parts of the manufacturing process and will be demonstrated only as lab proof of concept (PoC) regarding Time Sensitive Network (TSN) and the offer of 5G LAN functionality:

- The first use case deals with Process Automation. The automation of various processes of the Factory of the Future (FoF) can be enhanced with advanced wireless features (increased data rates, reduced latency), enabled by 5G mobile networks.
- The second use case concerns the benefits arising from the introduction of TSN concept to manage Automated Mobile Robots (AMRs) and mechanical robotic arms within a manufacturing shop floor.

Affordable5G in 5G European Annual Journal 2021

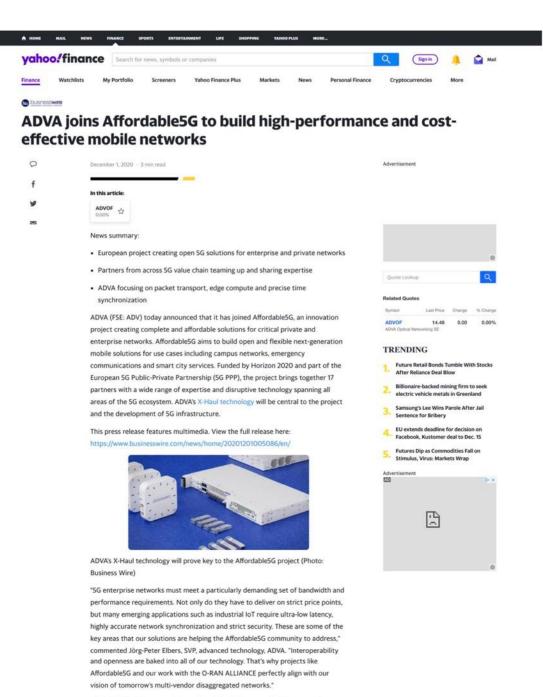












Affordable5G will create end-to-end mobile solutions specifically engineered to address the needs of private and enterprise networks. Facilitating collaboration between Europe's most innovative small and medium-sized companies, the project will use open interfaces and standard hardware platforms to bring a variety of affordable solutions to the market. ADVA is set to play a key role in the initiative, helping Affordable5G to leverage emerging technologies for disaggregated cell site gateways, edge computing and virtualization in both RAN and core networks. The project aims to produce pilot solutions related to emergency communications and smart cities in just a year's time.

Affordable5G on Yahoo! Finance (December 2020)

