5G-CARMEN NEWSLETTER #4

December 2020

Dear Readers,

5G-CARMEN has concluded its first half of the project. The use cases, system architecture and CCAM platform are defined, the implementation, interfacing and internal simulations are already in progress. The local sites and borders in the Brenner Pass and in Kufstein are in preparation with first results from test drive and live demonstrations already being analysed. The storyboards will be further refined and adapted to the latest alignments and evolutions.

Year 2020 was very positive for 5G-CARMEN. Despite all constraints due to COVID19, the project consortium has managed to produce excellent results in line with the work plan and to disseminate them at webinars which attracted considerable numbers of participants. In this 4th edition of our Newsletter we share some of the highlights, which the consortium achieved in the second half of 2020. In the Results section, we present a summary of our latest actions, which are always reported also on our website together with our public deliverables and publications, and share news on our standardization-related work .

In the Events section, we present a number of online events, which we either organized ourselves or in which we participated as presenter.

Further progress with the evolution of the 5G technological enablers, and particularly with the 5G rollout along the corridor will be reported subsequently. Another highlight to enhance even more is the close collaboration with both other corridor projects, 5G-MOBIX and 5GCroCo (both using exclusive and independent overlay networks), in terms of joint dissemination activities, technical discussions and complementary approaches. The exchange has been intensified, e.g. via more visibility in fora like the 5G-PPP and 5GAA, but also via reaching out to the three new corridor projects, thus creating synergies.

5G-CARMEN keeps assessing the technical challenges in parallel in simulation environments, as well as to publish its innovations in the scientific and industrial communities. Finally, a techno-economic analysis including the stakeholders, markets and value chains is established and a first edition has been elaborated along with business models in order to privilege the position and competitive advantage of Europe in relation to global markets.

KEY FACTORS

Check out our latest videos!

5G CARMEN - 5G for Connected and Automated Road Mobility in the European UnioN

5G-BSA-ID. A cryptoband for secure identity management in emergency vehicles interventions

5GCARMEN Green Driving

The trial plan defines the next set of field tests with newly deployed components, pilots in 2021 comprise both in-country and cross-border scenarios. From the six levels of automation (from level 0 to level 5) defined by the Society of Automotive Engineering (SAE), the project targets for each use case a final automation level of up to SAE L4. However, in dangerous situations such as adverse weather conditions, unexpected traffic, road events or low visibility, the automation level can be downscaled, thus giving back the control to the driver.

Each of the use cases in 5G-CARMEN pursues an impact on the over-the-top providers, as well as on the society in terms of traffic safety, traffic emissions, driving coordination and driving experience. In particular, traffic safety will be improved by reducing the risk associated with traffic conditions and road events. Traffic emission reduction will exploit massive data collection from vehicles and rely on Cloud/MEC infrastructure to provide suggestions on electric zones, alternative routes with less environmental restrictions and speed adjustment. Enhanced driving coordination will be achieved by intelligently managing lane merge operations by relying on the V2X communication of CAM, DEMN and IVI messages via the MEC server and cross-border. Finally, the user and driving experience will be enhanced by exploring different network

architectures and configurations to provide the highest and consistent network quality even in cross-border scenarios. In this respect, 5G-CARMEN plans to deliver a practical approach for faster Network Reselection, applicable in every Live Network. The larger context and cellular network situation in Europe has been assessed and can be read in the Whitepaper mentioned later in this newsletter.

5G-CARMEN CALL for Ideas for SMEs

5G-CARMEN has launched a specific initiative to attract external SMEs.

SMEs are important stakeholders in the overall development chain towards future communication networks.

Business-fit between SMEs and 5G-CARMEN Consortium Members are triggered through the "Call for Ideas" concept, in which the applying SMEs are able to propose their Product/Service concept to be applied, using the 5G platform made available by 5G-CARMEN. Idea proposals are managed with periodic application campaigns with the aim to collect and evaluate best ideas to be presented in specific events to the 5G PPP community and to 5G-CARMEN project members.

Ideas and concept application are managed via the YouNoodle platform supporting "a community with over 15.000 subscribers where makers, entrepreneurs and innovators meet, interact and collaborate to build growth connections and win equity free funding to catalyse their growth", launching specific calls for proposal. In each even Call for Ideas are proposed to collect application proposals of best 5G products and solutions. Ideas will be evaluated partners and selected SMEs are invited to present their idea in events dedicated to SMEs.

This platform can be reached at:

https://platform.younoodle.com/competition/5g_autonomous_driving

Standards

One of the key objectives of 5G-CARMEN is to ensure that the fundamental experience built through research and pre-deployment activities inside the consortium can be exploited to drive the development of relevant standards, and to enrich the discussion ongoing inside the main industry associations related to connected and automated driving.

To reach the maximum impact on standardisation and relevant bodies 5G-CARMEN has defined a four-step strategy:

- Observation of available standards. In the first phase of the project a comprehensive list of relevant entities, standardization bodies and associations has been identified and monitored, both in the telecommunication sector and in the automotive sector. Joint initiatives, that put together stakeholders coming from both worlds, and public authorities will also be part of the observation.

- Deriving required standards from 5G-CARMEN use cases. Based on the use cases of 5G-CARMEN, the most important input and features of standards and associations will be identified and used in 5G-CARMEN. This will include automated driving functionalities and use cases, 5G features for V2X, cybersecurity aspects, information exchange (e.g. CAM, DENM messages) and so on.

- Identification of gaps. Through the experience derived from the pre-deployment trials, missing elements or unclear information in existing standards will be identified, and potential solutions will be proposed to fill in the identified gaps.

- Recommendation to standardisation organisations. Findings and results of 5G-CARMEN consortium will be used to recommend standardisation activities and development roadmaps. Furthermore, 5G-CARMEN will report to consortia that represent stakeholders involved in the deployment of connected and automated driving services.

Deliverable 7.2 reports the outcome of the first step of this strategy; it presents an overview of the main bodies dealing with connected and autonomous

driving, highlighting the main activities relevant for 5G-CARMEN carried out in these entities and keeping track of recent and upcoming studies and results that should be monitored during the project's life span.

Latest White Paper

5G-CARMEN has published together with 5G-MOBIX and 5GCroCo, a white paper that was presented in a 5G PPP webinar on the 6th of November 2020: White paper on "5G Trials for Cooperative, Connected and Automated Mobility along European 5G Cross-Border Corridors"

The whitepaper highlights the challenges of deploying 5G enabled CCAM services at the cross-border, and details some technological solutions that can help to address these challenges.

Events for SMEs organized by 5G-CARMEN

5G-CARMEN promoted the project results in public programmes for SME support, especially through 2 specific workshops dedicated to SMEs.

IOTHINGS 2020 Event

To maximise focus and participation of 5G-CARMEN SME target audience, the 5G-CARMEN - SME Involvement program event was hosted in a major program focused on Technology and Innovation, within the framework of IOTHINGS/5G 2020 (www.iothingsmilan.com with the vision to be "the place where to experience new ways of working, of doing research, of living and of being together".

ITALIA5G

IOTHINGS

During this Conference TIM, CRF and PIIU presented opportunities and services provided by 5G-CARMEN to Innovative SMEs, high-tech Start-ups and other interested SMEs through a webinar on the 30th of October 2020, under the name of "5G-CARMEN - SME Involvement program".

In a more general view IOTHINGS events target several vertical topics related to the Internet of Things and the 5G technology, including CCAM platforms.

Innovability, the organiser of the IOTHINGS events, is known to be, since 2000, the reference point for all the players in the digital "disruptive" technologies field – such as M2M / Internet of Things, Robotics, Wearable and Wireless in the organization of trade shows, events, conventions and workshops, which offer occasion for debate, commercial exchange and networking among companies, institutions and market stakeholders.

Innovability and PIIU have particularly developed a deep and continuous knowledge of the M2M/IoT market, both in Italy and in the international arena, which allows to offer marketing services, research and consultancy also in collaboration with prestigious scientific partners and associations.

The event has been registered and is available at: https://www.iothingsmag.com/iothings-replay-italia-5g/

All proceeding of the Workshop are available at: https://iothings.world/iothings-2020-proceedings/#5gcarmen

AUTOTEQ First field test on Autonomous Driving using 5G- online Workshop for SMEs

The overall goal of 5G CARMEN is to accelerate the European ICT ecosystem by creating and supporting new businesses by unlocking the commercial potential of high-value solutions. SMEs are important stakeholders in the overall development chain towards future communication networks. Small and medium enterprises have long been accepted as the engines of economic growth and development.

The impact of SMEs in the European economy is very crucial towards the construction of a society which is free of poverty. This is why during the AUTOTEQ event 5G-CARMEN partners and invited SMEs discussed the development of innovative applications supported by 5G in the automotive sector: more than 30 experts participated to this workshop.

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5G PPP PUBLIC-PRIVATE PARTNERSHIP
HORIZON 2020
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