INFRAMIX

Press Release

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INFRAMIX: Preparing road infrastructure for mixed vehicle traffic flows

Vienna, 27th May 2020

The **INFRAMIX Project** presented its results during the **final event** on May 26th, 2020. After **36 months**, not only did the **eleven partners** of this EU-funded project test and evaluate results for **three concrete scenarios** for mixed vehicle flows, but they also developed a **classifications scheme** for road operators to target their investments to support higher levels of automated vehicles on European highways. INFRAMIX has stressed the importance of **automation readiness** of European road infrastructure for the upcoming period of **mixed traffic** with automated and non-automated vehicles on highways.

How to communicate via infrastructure with automated vehicles

Within the project, eleven European partners cooperated to prepare the road infrastructure to support the **mixed traffic of conventional, connected and automated vehicles**. Already today, many vehicles with different automated driving functions are driving on our roads – we see ADAS systems such as highway chauffeur or traffic jam assist and many more enhanced functionalities. **Road infrastructure** will play a major role in managing this **transition period** to make heterogeneous traffic faster, smoother, safer, acceptable and socially beneficial for all traffic participants. "Particularly in the beginning of this transition period we expect negative effects on road efficiency and safety. Within INFRAMIX, we wanted to show the potential how to make this transition period safe and efficient," explains Martin Russ, Managing Director at AustriaTech, the project coordinator of the INFRAMIX project. The main objective of the project was to design, upgrade, adapt and test both physical and digital elements of the road infrastructure. The key outcome will be a **"hybrid" road infrastructure** that will become the basis for **future automated transport systems**. To ensure that the infrastructure and modern vehicles can communicate with each other quickly and securely in the future, ASFINAG – one of the road operators participating in the INFRAMIX project - has a running tender to equip its network with **Cooperative Intelligent Transport Systems (C-ITS)** for communication between infrastructure and vehicles.

From simulating to testing

"Within the scope of the INFRAMIX project the next generation of these **C-ITS services**, targeting driving behaviour and traffic management for a time when already lots of connected and automated vehicles are on the road, were successfully tested in Europe for the first time." says Bernd Datler, Managing Director at ASFINAG Maut Service GmbH. Therefore, INFRAMIX has investigated **three scenarios** and developed specific infrastructure related solutions: dedicated lane assignment, road works zones, and bottleneck situations.
These scenarios have been tested via simulation and on real stretches of advanced highways. Furthermore, a new traffic sign was proposed for indicating the lane dedicated to automated vehicles. **Advanced simulation tools** were implemented, for an extensive evaluation of INFRAMIX developments. Innovative traffic estimation and traffic control strategies were developed and applied. The evaluation of the INFRAMIX solutions has significantly shown that physical and digital infrastructure support will help to improve **traffic efficiency and safety**.

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Panagiotis Lytrivis, Senior Researcher at ICCS, confirmed: “The results showed overall that speed recommendations had positive impact in terms of safety, while time gap adaptions showed in some scenarios even up to 50% enhancement in traffic efficiency compared to the scenario without applying any kind of control.” The testing also showed the possibility to decrease congestion at bottlenecks and increase traffic efficiency in average by up to 14%, even with low penetration rate of connected and automated vehicles.

ISAD Classes defined

Another key outcome of INFRAMIX was the **infrastructure classification scheme (ISAD classes).** “This scheme, when first presented, hit a nerve and has since taken up considerable attention on the European level by many different stakeholders.” explains Datler. To provide for **future planning** and implementation of communication measures between infrastructure and automated vehicles, INFRAMIX implemented the ITS-G5 short range technology according to the latest C-ITS communication standards, working closely with standardization working groups. INFRAMIX implemented as well a cellular (4G) connection from infrastructure via service provider to the vehicles and hence realised a hybrid communication system. “The developed ISAD Classes aim to support and guide road operators and authorities to target investments to support higher levels of automated vehicles especially for mixed traffic in the transition period. ISAD is already a core topic today when discussing the interaction of automated vehicles and the infrastructure” stated Lytrivis.

INFRAMIX has highlighted the potential of infrastructure support when it comes to traffic safety. For example, ASFINAG will soon start to send information about lane closures, road works, speed limits, breakdowns or accidents via C-ITS directly into the vehicle.

“As a next step we will work on transferring these promising results into practice by identifying the core future infrastructure elements needed and also by adapting the legal framework towards an effective use of new technologies.” stresses Russ.

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Project Factsheet

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INFRAMIX Spanish testing days, 12th-15th September 2019. Girona, Spain. Copyright: Inframix

INFRAMIX Austrian testing days, 9th-10th May 2019, Graz, Austria. Copyright: Inframix

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