5GLOGINNOV

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Position paper from the 5G-LOGINNOV project

Actions to ensure the priority roll out of 5G networks on EU hinterland and port area

The 5G-LOGINNOV project has developed 5G related innovative products and services in three different EU port areas acting as Project's Living Labs. During the realisation of these innovations some roadblocks or gaps were detected that prevent early deployment, scalability, and further efficiency in the ports. This position paper sets a number of deployment requirements and actions to overcome these gaps.

The 5G-LOGINNOV project's vision is to optimise freight and traffic operations at ports and logistics hubs by using new innovative concepts, applications and devices supported by 5G technologies, Internet of Things (IoT), data analytics, next generation traffic management, Cooperative, Connected and Automated Mobility (CCAM) and the 5G logistics corridor. These operations will ensure port areas and city-ports can handle upcoming and future capacity, cope with traffic congestion, environmental challenges while developing economic and innovative business opportunities for the region.

The gaps were identified together with the project partners and plausible solutions were developed through a series of workshops with relevant stakeholder such as the 5G Infrastructure Public Private Partnership (5G PPP), the European Partnership on Connected, Cooperative and Automated Mobility (CCAM), the Digital Transport and Logistics Forum (DTLF) and the Alliance for Logistics Innovation through Collaboration in Europe (ALICE).

The identified roadblocks are classified under the following categories:

- Technical gaps
- Infrastructure and installation
- Regulatory gaps
- Administrative issues
- Training and expertise
- Business models

A complete list of the gaps and recommendations identified can be found in the project's deliverable *D4.4 Lessons learned and recommendations for stakeholders* that will be published on the project's website.

Required actions

The following requirements are formulated to ensure the successful deployment and transferability of the innovations realised in each 'Living Lab' of the 5G-LOGINNOV project. To increase the operational efficiency and to maximise the return on investment several priority actions are to be understood by Public Authorities and the European Commission. Within the 6 categories created and mentioned previously, various calls to action are presented:

1. Enhance Technical and Data requirements of the Infrastructure.

To promote efficient 5G integration in ports, it is crucial to ensure compatibility with legacy infrastructure and the availability of data. Actions include implementing the Open Communication Interface for Road Traffic Control (OCIT) Standard Data Protocol for Equipment Across EU Ports, encouraging cities to collaborate on a common data interface for legacy standards, ensuring the longevity of traffic information equipment, and emphasizing low-latency performance with measures such as streamlining regulatory processes and monitoring Service Level Agreements (SLAs). Comprehensive coverage actions aim to support 5G deployment in ports and their hinterlands. These actions encourage collaboration between mobile network operators and transportation authorities to improve connectivity, with a focus on both near and far hinterland areas. Balancing the focus on different sectors, including maritime, ports, and hinterlands, is essential for regional integration and economic development.

2. Focus on Training and Capacity Building.
Efficient and successful implementation of 5G technologies in critical areas, such as ports and hinterland regions, hinges on a multifaceted approach. This includes the establishment of specialized training and knowledge-sharing programs, capacity-building initiatives, and awareness campaigns. These efforts are vital for promoting expertise development, thereby facilitating seamless 5G deployment and operation. Additionally, addressing the shortage of skilled personnel, especially in Science, Technology, Engineering, and Mathematics (STEM) fields, becomes paramount to ensure the success of 5G deployment. Moreover, it is indispensable to create a dedicated fund designed to support research and development endeavours, specifically tailored for innovative business models in the context of 5G deployment in ports and hinterland regions. Furthermore, the creation of an inventory of best practices can further augment the overall effectiveness of these initiatives.

3. Guarantee Equipment Availability along the Supply Chain.
The lack of industrial-grade equipment posed challenges during 5G-LOGINNOV project developments. To address this, actions focused on strengthening the Internet of Things (IoT) market for industrial-grade equipment and solutions are needed. This involves fostering collaboration among industry stakeholders, research institutions, and startups, establishing industry-wide standards for industrial-grade 5G equipment, and ensuring a diversified and reliable supply chain through the active engagement of mobile network operators.

4. Support the establishment of Private 5G Networks, their realization and integration into existing networks.
The development of private 5G networks presents unique challenges, emphasizing the need to streamline spectrum assignment processes for private entities, encouraging the implementation of network slicing for versatility, and fostering collaboration between private networks and public infrastructure. This approach enables customization, efficient resource utilization, and additional features, all while leveraging existing public networks for cost-effectiveness and enhanced connectivity.

5. Close the gaps in Regulation and Legislation.
Comprehensive regulatory and legislative actions aim to support 5G deployment in ports and their hinterlands. These actions urge regulatory authorities to set clear guidelines and targets for network coverage, capacity, and quality of service. Actions also include implementing robust and up-to-date legislation, ensuring agility in legislative updates to adapt to emerging threats. Collaboration with relevant stakeholders is essential to formulate comprehensive cybersecurity regulations that protect critical infrastructure, sensitive data, and communication networks, ensuring the safety and privacy of citizens and businesses.

Conclusion

These consolidated actions provide a comprehensive approach to address the challenges and gaps preventing the priority rollout of 5G networks in European Union hinterland and port areas, fostering innovation, resilience, and sustainability in these crucial domains. By publishing this position paper, a call to action, a first step has been set in the process of improvement and further successful deployment of the innovations across European ports and hinterlands. An attempt was made to detect the most relevant deployment strategies by crosslinking the existing relevant policy landscape with the established recommendations from the project.
As a final recommendation for deployment, the existing EU policy framework on Connecting Europe Facility (CEF) is an ideal initiative that can embrace the formulated actions.