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It’s time for multimodality!

(*Paris, 20 April 2023*) Over the last two years, the SESAR European ‘Modus’ project has been exploring the future landscape of multimodal air-rail travel via a range of different scenarios. Now, as the project comes to the end of its journey, the consortium is pleased to be able to share the results from its multidisciplinary group of air, rail and academia experts.

The topics of multimodality, passenger experience, and inclusion, as well as creating a seamless mobility system within Europe that meets the goals of the Paris Climate Agreement, are a high priority for shaping a European transport system of the future.
In the context of increasing environmental awareness and regulatory measures, reducing capacity shortages across different modes, and the need for a more seamless and hassle-free passenger experience, how the European travellers' transport demands may evolve, and their subsequent impact on the European transport system, is still unknown. Optimising and harmonising multimodal transport is therefore of utmost importance for the future European transport system’s overall performance, especially in regard to providing a seamless and hassle-free journey for passengers as well as mitigating (air) capacity constraints.

About Modus:
Modus is a SESAR-H2020 which has received funding under grant agreement No. 891166. The project was launched in June 2020 with a runtime of 30 months, and aimed to create an integrated modelling approach for the European air and rail transport systems, enabling a comprehensive assessment of the gaps and potential solutions required to meet high-level European objectives in this area, as well as offer insights to help decision-makers move towards a European transport system of the future.

Methodology:
Modus has identified and assessed (future) drivers for both passenger demand and the supply of

transport and how these will impact which forms of travel are chosen. This made the development of multiple future mobility scenarios possible, taking aspects such as new regulation for new environmental standards, or new transport operators' business models into account, reaching beyond 2040.

Modus' multimodal approach has helped to achieve an enhanced understanding of traveller's multimodal air and rail requirements and advance and implement models to better depict passengers' door-to-door journeys across different future mobility scenarios, including a post-pandemic recovery, a significant short-haul shift from air to rail, or considering traffic growth in light of technological development.

In order to assess the multimodal performance across these scenarios, a number of experiments were designed to evaluate the impact on key (multimodal) performance indicators, including door-to-door travel times, average flight waiting times, flight delays, or gate-to-gate CO2 emissions. Assuming a shift from air to rail on connections below 500km, and only for pairs of cities with high-speed rail links already available, Modus' analysis revealed a potential shift of between 2% and 3% of the expected air demand in 2040. Furthermore, on the air transport network, flight delays could as well as network door-to-door travel times could also be reduced.

Additionally, the research results have been analysed and discussed in detail with experts from the aviation and railway sectors, via the Modus Industry Board in the form of surveys, individual interviews, and within three workshops, including dynamic sessions organised online with a total of more than 300 participants. The project results have also been shared and discussed with representatives from academia and relevant stakeholders at several international events.

The consortium:
Bauhaus Luftfahrt e.V. (BHL), École Nationale de l'Aviation Civile (ENAC), the University of Westminster (UoW), Fundacion Instituto de Investigacion Innaxis (INX), The International Union of Railways (UIC), Skymantics Europe SL (SKY), and EUROCONTROL – The European Organisation for the Safety of Air Navigation (ECTL), are partners of the Modus project who have worked together to address topic SESAR-ER4-10-2019 "ATM Role in Intermodal Transport".

The results:
One of the key results was the development of a modelling approach for the assessment of seamless door-to-door multimodality and the passenger experience in Europe and was applied to evaluate the impact of an improved, joint air-rail transport system. The Modus modelling approach can be used to assess the subsequent impact on capacities, predictability, and the environment, across different scenarios and multimodal journeys. This can provide useful support for policy makers and transport service providers in shaping future multimodal transport.

If you are interested in learning more about Modus, all of the project results (presentations, publications and recordings) are available for public viewing on the website at https://modus-project.eu/.
You can also find the final brochure at https://bit.ly/43CIeb0.

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UIC is the worldwide organisation for the promotion of rail transport at a global level and collaborative development of the railway system. It brings together some 200 members on all 5 continents, among them rail operators, infrastructure managers, railway service providers, etc. UIC maintains close cooperation links with all actors in the rail transport domain around the world, including manufacturers, railway associations, public authorities and stakeholders in other domains and sectors whose experiences may be beneficial to rail development. UIC's main tasks include understanding the business needs of the rail community, developing innovation programmes to identify solutions to those needs, as well as preparing and publishing a series of documents such as reports, specifications, guidelines and IRS that facilitate the implementation of the innovative solutions.

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