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Airneth report 22: The Possible Effects of Unmanned Aerial Vehicles on Mobility and Infrastructure

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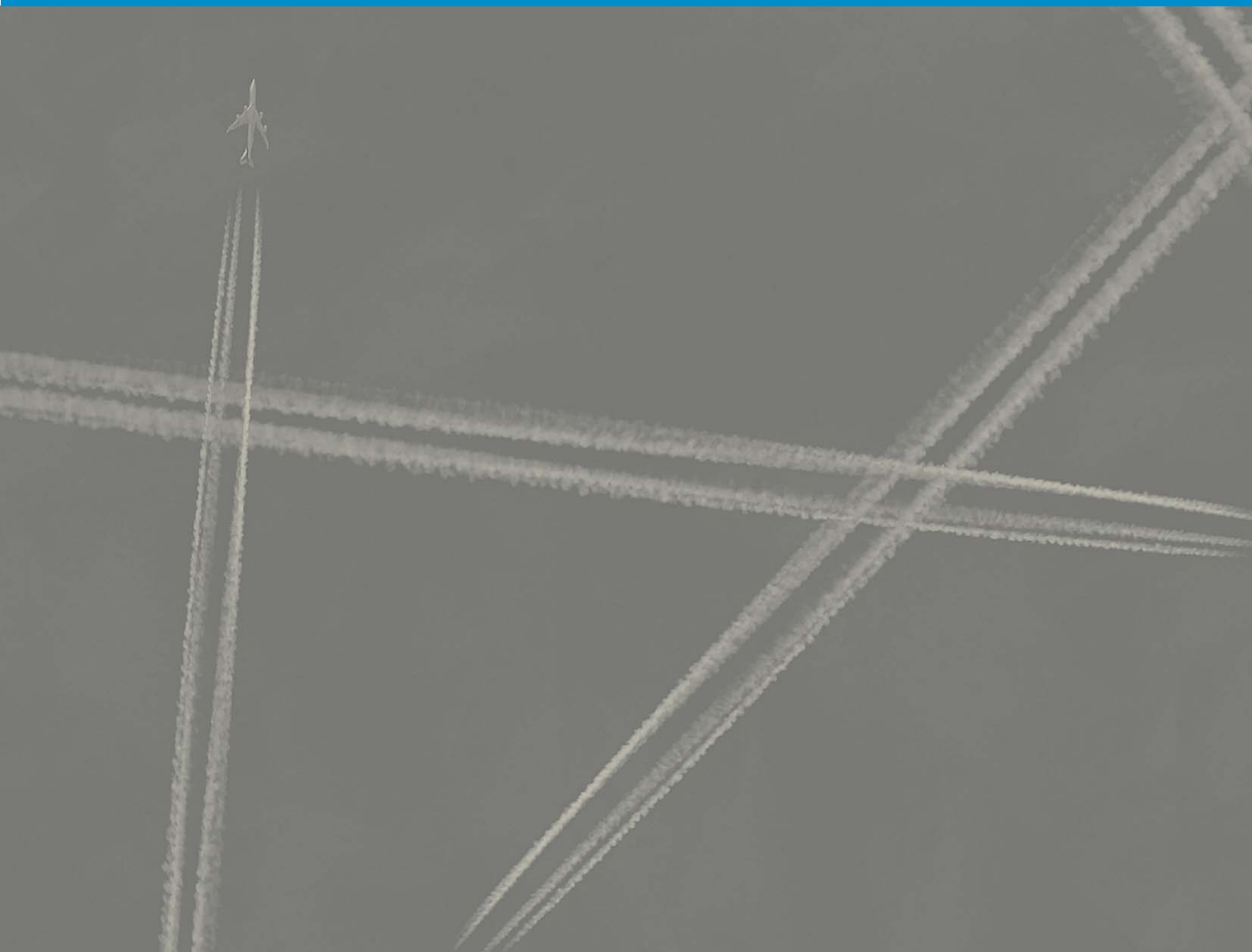

Report of the Discussion on The Possible Effects of Unmanned Aerial Vehicles on Mobility and Infrastructure

This document summarizes the discussion held during the seminar "The Possible Effects of Unmanned Aerial Vehicles on Mobility and Infrastructure". It does not necessarily represent the views or opinions of Airneth, the KiM Netherlands Institute for Transport Policy Analysis and the Dutch Ministry of Infrastructure and the Environment. For a good understanding of the discussion, it might be helpful to first familiarize yourself with the various presentations held during the seminar, which can be found on the Airneth website.

Policy making
The UAV industry will benefit when policy embraces the perspectives of all the stakeholders. For this, the government should get into a dialectic process with the stakeholders, think task-oriented and design regulation around those tasks. The goal should be to put the Netherlands on the map as a leader in UAV technology and applications, instead of a follower.

At the moment the Dutch government is designing an integrated freight vision, which does not look at each modality in isolation, but as a coherent system. It is advised to integrate unmanned cargo aircraft into freight policy. Regulation for UAVs in general is insufficient; specific rulemaking is required for unmanned cargo aircraft.

Various ministries are currently responsible for regulation to bring the UAV industry forward The Ministry of Economic Affairs for instance is responsible for policy on (technological) innovation, whereas the responsibility for integrating UAVs safely into the airspace rests with the Ministry of Infrastructure and the Environment. After the upcoming elections, it would be more efficient to move the responsibility for digital infrastructure to the Ministry of Infrastructure and the Environment. This would be similar to the German model, where the Digital and Infrastructure Ministry is responsible for transport as well as digital infrastructure.

Cooperation and coordination
The Ministry of Defense follows the development of UAV technology for civilian purposes with great interest. In the future they may use this technology for re-supply and humanitarian missions. The civilian UAV industry on the other hand can benefit from the knowledge that the Military has gathered over the years. The challenges that the civilian industry is faced with are partly similar to those of the Military, such as how to integrate unmanned aircraft into controlled airspace. The solutions to such challenges are often IT solutions that work for any type of UAV regardless of its use. Cooperation between the Ministry of Defense and the civilian UAV industry can help to overcome these challenges.

Currently the Ministry of Foreign Affairs has to provide the funds for humanitarian aid missions with UAV's, but the Ministry of Defense has the technical knowledge to evaluate such missions. Better coordination between the Ministries of Defense and Foreign Affairs is required to successfully conduct humanitarian UAV missions.

Research
The majority of the companies working on unmanned cargo aircraft are relatively small start-ups. These small companies lack the financial resources to conduct fundamental market research to determine what technical capabilities are demanded by the market. More precompetitive

research in the area of unmanned cargo aircraft can bring the industry forward.[1] The government can help to facilitate such research.

Organizations such as FAA, ICAO and SESAR all have the objective to integrate UAVs into controlled airspace. More money is needed however for R&D and for upgrading ATC infrastructure and facilities to be able to handle all the UAVs. The panelists believe that implementing Single European Sky (SES) would provide ample capacity to accommodate the future growth in manned and unmanned aviation. Also, unmanned cargo aircraft can operate in unused lower airspace.

Unmanned cargo aircraft do not require a crew and can therefore be deployed on any route for which there is a demand for transporting cargo. This means that these cargo aircraft will not fly according to a schedule, but will be routed dynamically based on cargo demand. To do so efficiently, requires a system in which a flight plan can be filed quickly and the required airspace can be allocated. This requires more flexibility in the administrative process of filing and approving a flight plan. Research is needed on how to speed up this process.

Funding

The UAV industry is still in its infancy. Large sums of money are being invested in developing new technology, software and applications, although nobody quite knows how the industry will evolve and look like in ten years' time. In a way it is therefore comparable to the development of the internet in the mid-nineties, when internet companies were investing heavily in new infrastructure and websites, although it was still unsure how people would eventually use the internet.

Like any new industry, the UAV industry will eventually mature. For now it is important to get UAVs into the air, test different technologies and design regulation around it. As soon as regulation is in place and an attractive technology becomes available that makes commercial sense, there will be demand for this technology. Finding sufficient funding for good product ideas that work commercially, should not be a problem.

[1] Precompetitive research is research by competing companies in the early stages of product development.