Drone*Boost*: an overview

In the past couple of years, the usage of drones in The Netherlands has increased significantly. This increase is likely to shoot up even further in the coming decades. Drones offer great opportunities to tackle challenges within various societal domains, like healthcare, ports and offshore industries, and agriculture. Likewise, in the field of safety and inspection and national security, drones provide considerable added value. The use of drones can aid in reducing healthcare costs, combat labour market shortages and increase productivity. In addition, drones could make a valuable contribution to making organisations more sustainable. Drones therefore offer enormous potential. With the Drone*Boost* initiative we are committed to fully unlocking their social added value.

Drone*Boost* focuses on societal impact

Drone*Boost* is dedicated to boosting the Dutch drone ecosystem. Instead of focusing on individual technologies or applications, we aim to strengthen a dynamic and coherent drone ecosystem - a network in which companies, governments, and knowledge institutions work together seamlessly and harness synergies.

Grasping existing opportunities and removing current barriers doesn't happen automatically. Promising innovations often stall in the development phase, public prerequisites - like infrastructure - are not available in time, or valuable knowledge is scattered across the sector. With Drone*Boost*, we aim to minimize and avoid these obstacles.

A joint approach centred around Use Cases

Drone*Boost* uses a joint approach focused on enabling specific use cases. A use case is a set of drone applications within a specific field, such as healthcare or agriculture. In total, we are working on enabling five use cases:

- **Healthcare Logistics:** The healthcare sector faces challenges such as labour shortages, centralization of care facilities, and rising costs. Drones could be part of an efficient solution. This use case focuses on deploying drones to make healthcare logistics more efficient and cost-effective.
- **Port and Offshore Logistics:** Current logistics processes in ports are often complex, labour-intensive, and lack data integration across the chain. Companies in this sector seek ways to optimize processes, reduce costs, and mitigate risks. This use case involves creating a drone network for port and offshore activities to increase operational autonomy, efficiency, and safety.
- **Agriculture:** The agricultural sector is under pressure to balance economic activity with its environmental, ecological, and climate impact. Modern technology plays a crucial role in this necessary transition. This use case promotes the use of drones in agriculture to improve both efficiency and sustainability.
- **Emergency Services and Surveillance:** Traditional incident response and inspection procedures face inefficiencies, such as long response times and limited visibility in hard-to-reach areas. This use case explores how drones can support faster, safer, and more effective emergency response and surveillance.
- **Defence and Dual-Use:** The armed forces face complex challenges in executing missions in dynamic and often hazardous environments. Traditional manned systems have limitations in range and flexibility, and personnel safety is paramount. Drones offer a solution to make missions safer and more effective. This use case focuses on faster and broader adoption of drones within the Dutch armed forces.

Creating the Right Conditions

To make these five use cases successful, the right conditions are essential, such as legislation, infrastructure, and testing facilities. Though each use case has its own sector-specific applications, often they share similar requirements. That's why, in addition to the use cases, Drone*Boost* also works on establishing the following common prerequisites through so-called public projects, or enabler-projects:

- **Beyond Visual Line of Sight (BVLOS) Flying:** This project aims to enable safe and efficient BVLOS drone flights in the Netherlands through integration with manned air traffic, with minimal restrictions for all airspace users.
- **U-Space:** This project focuses on safely and effectively integrating drones into airspace using digital infrastructure, automated services, and data exchange between various airspace users and service providers.
- **Permits:** The goal here is to reduce regulatory pressure for drone operations in Dutch airspace.
- **Ground Infrastructure:** This project is about developing policy and regulations for ground infrastructure that enable safe and efficient take-off, flight, and landing of drones, both large and small.
- **Knowledge Exchange:** Aims to facilitate and accelerate knowledge development in the drone sector, for example by creating a knowledge exchange platform, to strengthen the Dutch drone ecosystem.
- **Human Capital:** Ensuring timely, sufficient availability of well-trained personnel to support sector growth.
- **Research & Organiation:** This project involves establishing a program office to oversee DroneBoost's daily operations.

By realizing these five use cases and seven enabler-projects, we give a significant *boost* to the Dutch drone ecosystem.

Cost-benefit analysis

Through a societal cost-benefit analysis, Drone*Boost* has mapped out the expected societal value. Results show that every €1 invested yields between €1.15 and €1.70 in return. Total gains range between €33 million and €154 million.

Moreover, Drone*Boost* offers a valuable push toward solving three major challenges facing the Netherlands:

- Strengthening Open Strategic Autonomy:
  Drones are advanced airborne computer systems and play an increasing role in modern security and defense challenges. By developing and applying advanced drone technology rooted in European values, Drone*Boost* helps reduce technological dependence on non-European countries.
- Preserving Sustainable Earning Power:
  The Netherlands' ten top sectors contribute more than 25% of the national GDP and 50% of exports. Drone*Boost* enables drone applications that support these sectors - such as High Tech Systems & Materials, Logistics, Agri & Food, and Life Sciences & Health - thus strengthening our economy and global competitiveness.
- Tackling Climate and Environmental Challenges:
  The Netherlands is committed to the goals of the Paris Agreement and national Climate Agreement, particularly reducing CO_2 emissions. The country is also addressing challenges in water management, air quality, biodiversity, and the circular economy. Drones can replace traditional fossil-based methods, reducing emissions of CO_2, nitrogen, and particulates, and improving environmental management.

There are also areas where Drone*Boost* may have both positive and unintended negative effects, such as privacy and noise perception. These are key considerations we closely monitor and actively address within the use cases and public projects.

Figure 1. Use cases and enablers

Ready for Take-off!

With a horizon set to 2035, we envision an ambitious trajectory. Drone*Boost* provides a strategic roadmap to accelerate development and strengthen the Dutch drone ecosystem. The true success of Drone*Boost* requires coordinated and joint efforts from all stakeholders - governments, knowledge institutions, businesses, and societal partners. Together, we will unlock the potential of drones, ensuring they are not just a technological innovation but a strategic pillar for a safe, prosperous, and sustainable country.

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