

Project Air Mobility:

Currently, there are intensive global efforts to develop efficient air transportation. It is important for Sweden to keep pace with this transformation.

This project aims to achieve this transformation in collaboration with various partners, using European standards and regulations to further develop air traffic and airport infrastructure.

This will be accomplished through an open testbed, facilitating environmentally friendly, integrated transportation.



AIR MOBILITY

Drone Count

27

Drones Using DAA

0

Average DAA

%

Fast Forward

13x

Add Saved Content

Add Manned Traffic

Add Recorded Path

Add Point-to-Area Service

VINNOVA



SAAB



ERICSSON



li.u LINKÖPINGS
UNIVERSITET



Research
Institutes
of Sweden

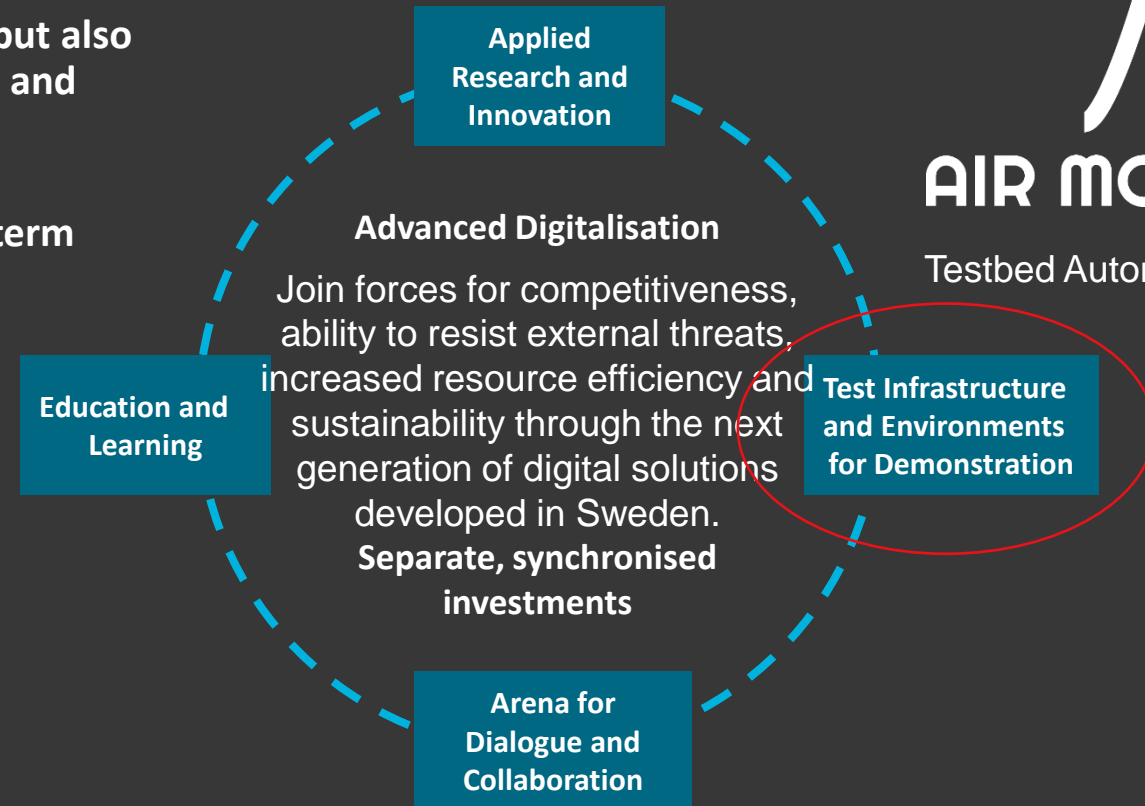


Four areas form a whole

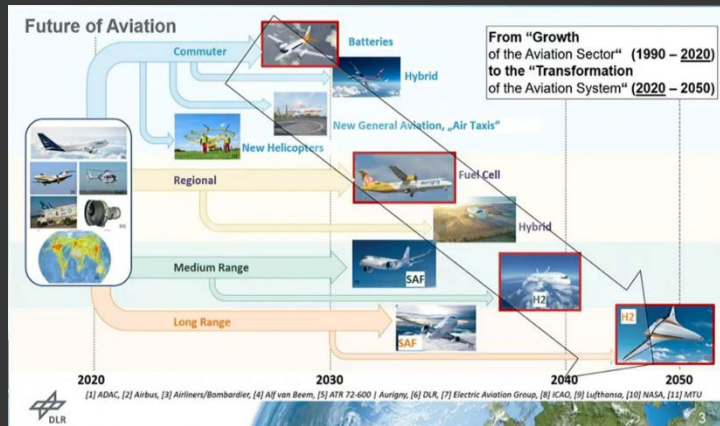
Each area contributes individually to the programme's goals, but it is the synergies and the long-term perspective that will create the major effects.

The areas create a strength within the programme but also spillover effects to other businesses, authorities and organisations.

The four areas contribute to – both short and long term technical solutions.



And Why a Testbed for Air Mobility / Autonomous Airport



Aircrafts with different

- Propulsion
- Fuel
- Crew
- Automation



And new

- Reasons
- Behaviors
- Business
- Operators
- Airports
- Traffic management
- Routs



Vision

The autonomous airport improves safety, efficiency, profitability and the passenger's comfort as well as contributes to increased sustainability for air travel.

Through digitalization, automation and artificial intelligence, transportation of passengers and goods from door to door respectively manufacturer to customer is performed in a reliable, secure and efficient manner.

In addition, the autonomous airport has mixed and integrated airport mgmt. (conventional and for new services) as well as provides availability as a service and infrastructure for all, incl. in sparsely populated areas.



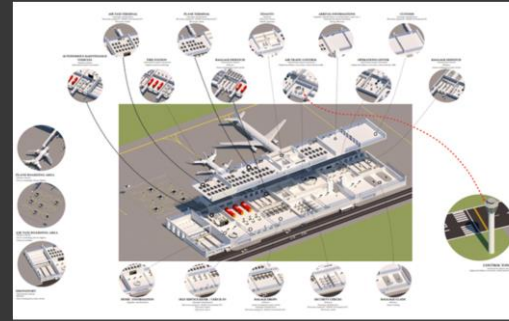
Purpose of a Testbed

Realization of smart, digital and environmentally friendly Advanced Air Mobility requires research and development of infrastructure for both new technology and new working methods combined with new regulations.

- Technical Research and Development
 - Digital cloud solution and a physical arena
- Demonstrations
- Tests
- Regulations and standards
- Communications and collaborative work.



Roadmap



2022 - 2023

2024 - 2026

2025 - 2030

Step 1

Basic **infrastructure** based on developed tools.

Use-case **Last Mile Delivery**

Technology and regulations

Step 2

Collaboration conventional airport

UTM integration demonstration

Additional **safety** use-cases

Automated Airport Services.

AI and digital functions in traffic management.

New power sourcing

Involvement of the society.

Step 3, 4, 5 etc

City pair demonstrations

Mixed ATM and UTM

Integrated unmanned vehicles for **service and operation**

Seamless transportation of passengers and goods

Advanced traffic management algorithms.

Green travel (elec, hydrogen)

Involvement of the society.

Vision

The autonomous airport improves safety, efficiency, profitability and the passenger's comfort as well as contributes to increased sustainability for air travel.

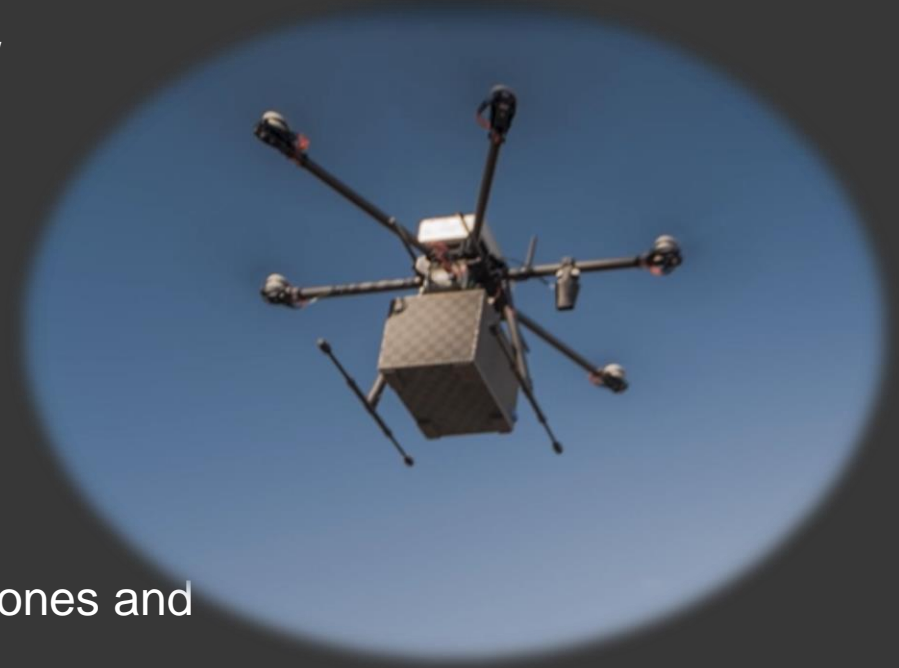
Through digitalization, automation and artificial intelligence, transportation of passengers and goods from door to door respectively manufacturer to customer is performed in a reliable, secure and efficient manner.

In addition, the autonomous airport has mixed and integrated airport mgmt. (conventional and for new services) as well as provides availability as a service and infrastructure for all, incl. in sparsely populated areas.



First use case Last Mile Delivery

- Urban Air Mobility is expected to become a reality in Europe now and within next coming years.
- New Technologies
 - Electric propulsion and enhanced battery capacity
 - Vertical take-off and landing systems
- Regulations and Standards in EU (EASA). U-Space.
- The first commercial operations to be the delivery of goods by drones and transport of passengers will be a reality.



All in all, this is a good start to an infrastructure for the project

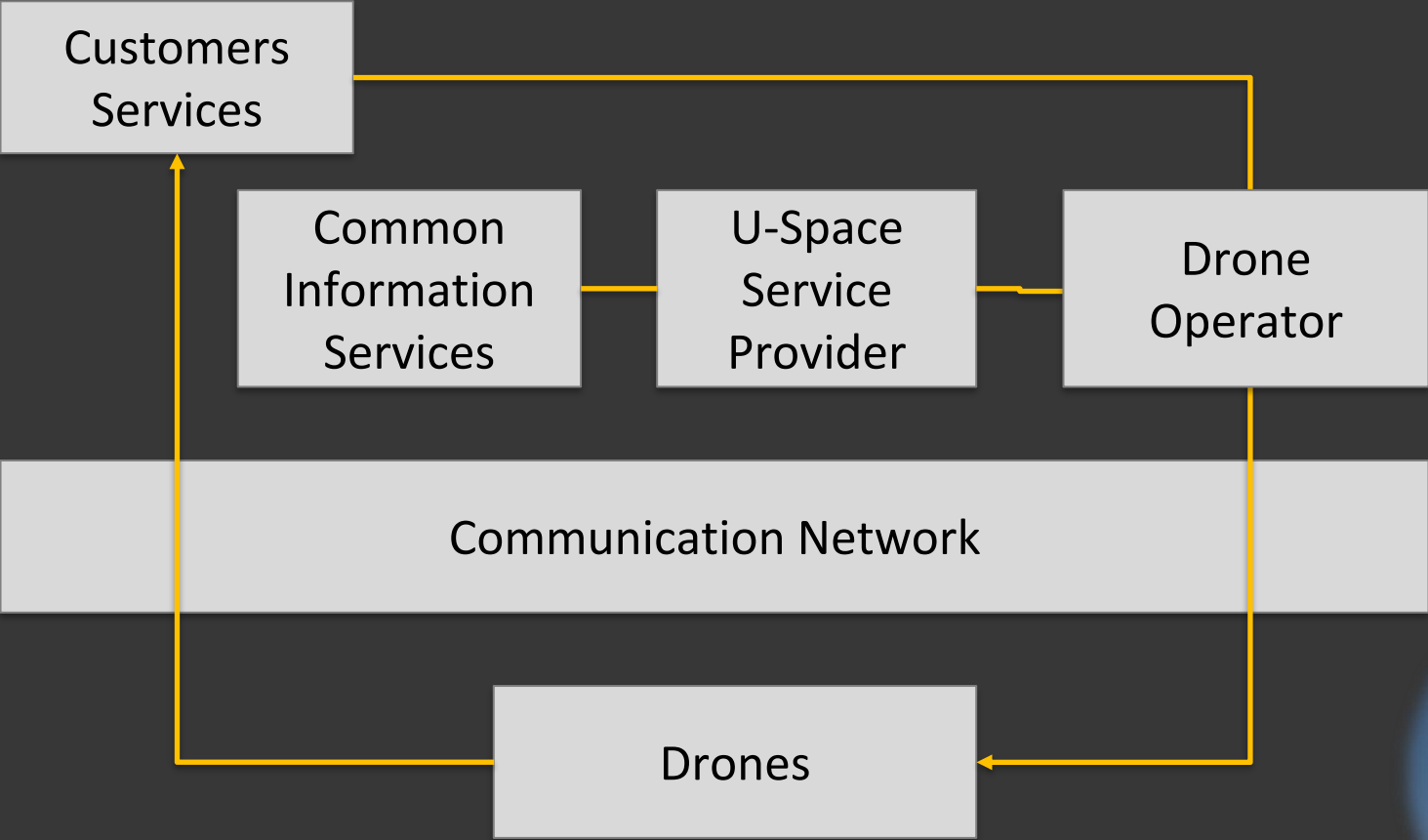
- **Big need**
- **Necessary experience.**

What to Focus on

- A high number of Drones simultaneously
- Areas with many drones. Start, Landing, Around geofencing zones etc.
4D-replanning / Simulation/ Prioritization.
- LVC-Concept. Simulated Drones combined with a few physical.
- Local 4 / 5G-network for identification, communication, positioning and navigation.
- System Safety and Graceful Degradation.
- Valid models with parameters for:
 - Quality
 - Weather and Wind etc



The System



Methodology

- How to start up a project like this ?
 - Project start in Post Pandemia
 - Geographic distance of the participants
 - New relations between the parties / participants in a new constellation
- Working methods are very important.
 - Continuous digital meetings
 - Needs of cloud solution 24/7. Partly today
 - WS IRL hosted by the parties
 - Two weeks with Wara-PS in Västervik



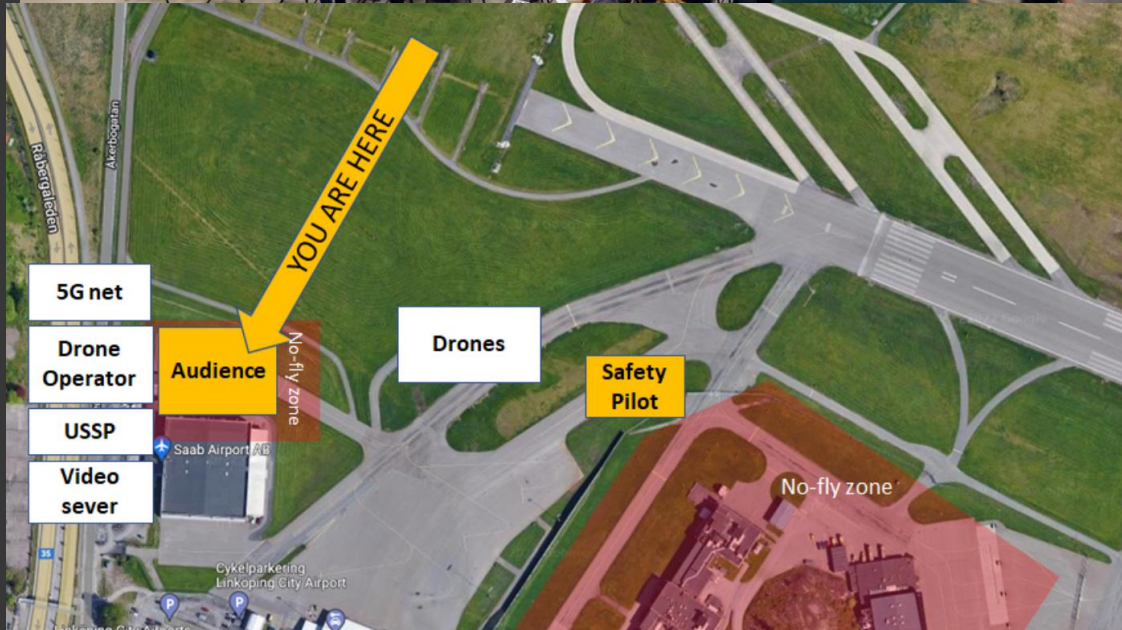
A fantastic team with good teamwork



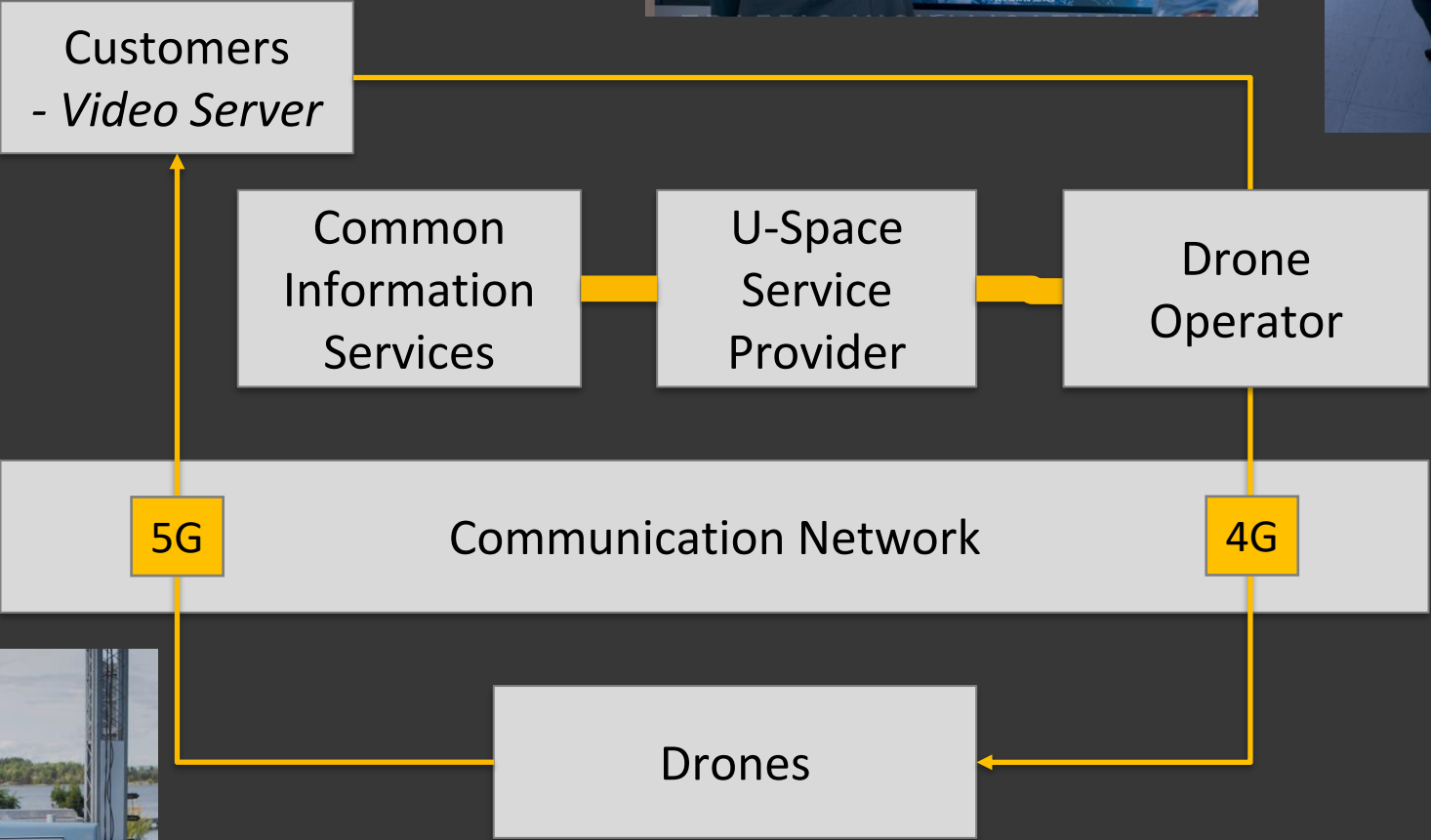
Film

In cooperation with WASP Wara-PS

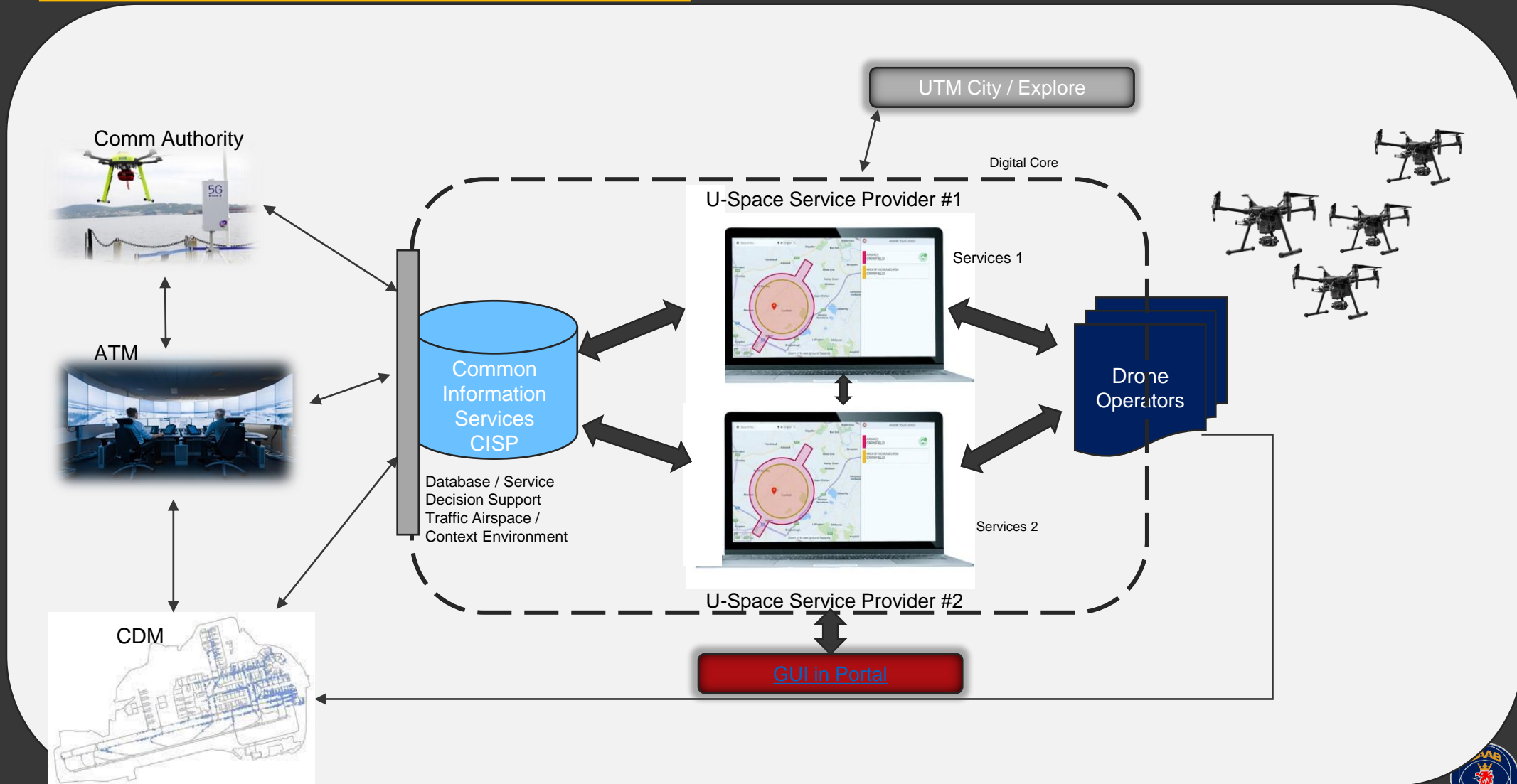
The Demo-day



The Demo-day



Next phase



THANK YOU

Drone Count

27

Drones Using DAA

0

Average DAA

%



Fast Forward

13x

Add Saved Content

Add Manned Traffic

Add Recorded Path

Add Point-to-Area Service

An oval-shaped graphic containing logos for Vinnova, SAAB, ERICSSON, LfV (Air Navigation Services of Sweden), Linköping University (li.u), and Research Institutes of Sweden (RISE).

