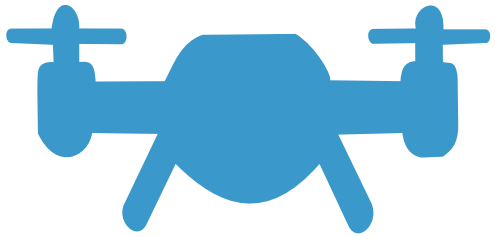
WEBINAR I: CONCEPTS & TECHNICAL FRAMEWORK

Project VERTIFIED

DLR procurement process for building vertiport infrastructure

Why are we talking about Vertiports today?

$ 4,800 million expected market volume*



Aircraft are currently being developed

U-Space and UTM systems are currently being designed.

1,500+
vertiports are needed in Europe**

Operators and business models are ready

* Europe Advanced Air Mobility Market Share by Size and Growth 2030
** "The world needs 1,500 vertiports but just 300 planned" – Roland Berger study

Agenda

Webinar 1:
Concepts & Technical Framework

8th June 2026, 12.30 – 14.00 CET

12:30 PM	**Welcome & Introduction**	Julia Arndt
12:45 PM	**Project Presentation**	Samiksha Nagrare
01:05 PM	**Q&A**	
01:10 PM	**Concepts & Design**	Samiksha Nagrare
01:30 PM	**Q&A**	
01:35 PM	**Procurement Outlook**	Oguzhan Nohutcu
01:45 PM	**Q&A – Call to Action**	
01:55 PM	**Goodbye - Preview**	Julia Arndt

Webinar I

Concepts & Framework

8th June 2026

Webinar II

Requirements & Procurement

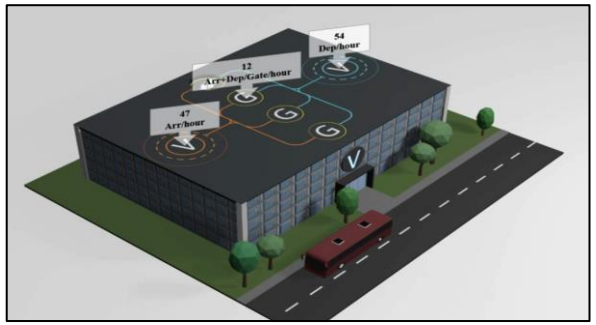
29th June 2026

Introduction

Deutsches Zentrum
für Luft- und Raumfahrt
German Aerospace Center

- National center for aerospace, energy and transportation research of Germany
- Founded in 1969 and headquartered in Cologne
- Present in 35 locations with 54 research institutes and 11.786 employees
- Research Fields:
    1. Space Research and Technology
    2. Transportation
    3. Energy
    4. Aeronautics
    5. Security
    6. Digitalization

- Innovative Air Mobility (IAM) projects
    1. HorizonUAM: Research on comprehensive future urban air traffic
    2. IAM-OSA: Integrating sustainable air mobility into transportation systems
    3. VERTIFIED: Developing and validating infrastructure for vertiports



DLR's IAM Framework: Core Projects

	HorizonUAM 2020-2023	IAM-OSA 2025-2027	VERTIFIED 2024-2028
Scope & Focus	Urban Air Mobility (UAM) fundamentals, eVTOL modeling & initial public acceptance.	Scale UAM to regional networks (IAM), multi-modal systems, and autonomous fleets.	Physical & digital vertiport infrastructure, ground interfaces, and capacity optimization.
Key Technology	Air taxi vehicle design concepts, 4D trajectory modeling, and tower integration.	System-of-Systems simulation, AI-driven autopilots, and acoustic profiling.	Vertiport operational manager tools, terminals, and ground infrastructure.
Validation Sites	Airspace simulator runs, Hamburg model city scaling, and laboratory trials.	Regional transport model networks, Virtual Reality flight decks, and simulation grids.	National Experimental Test Center, Cochstedt and simulated airport environments.
Primary Benefit	Consolidated UAM expertise across 10 institutes with global agencies (NASA).	Enables safe, ecologically accepted regional air transit without pilot bottlenecks.	Standardizes ground regulations to draft guidance for international civil aviation authorities.

Project VERTIFIED

Vertiport Research Infrastructure for Innovation Exploration and Demonstration

- **Objective:**
  Development and implementation of flexible, modular vertiport research infrastructure
- **Duration and participation:**
  07/2024 – 06/2028 (48 months)
  Participation from 6 DLR institutes/facilities and stakeholder cooperation
- **Main content:**
  - ✓ Requirements engineering and concept development for vertiport prototypes
  - ✓ Physical research infrastructure for vertiports at DLR site in Cochstedt
  - ✓ Experimental system for vertical take-off and landing capable vehicle (VCA)
  - ✓ U-space services development
  - ✓ Urban and airport integration of vertiports
  - ✓ Flight testing for passenger and cargo use cases

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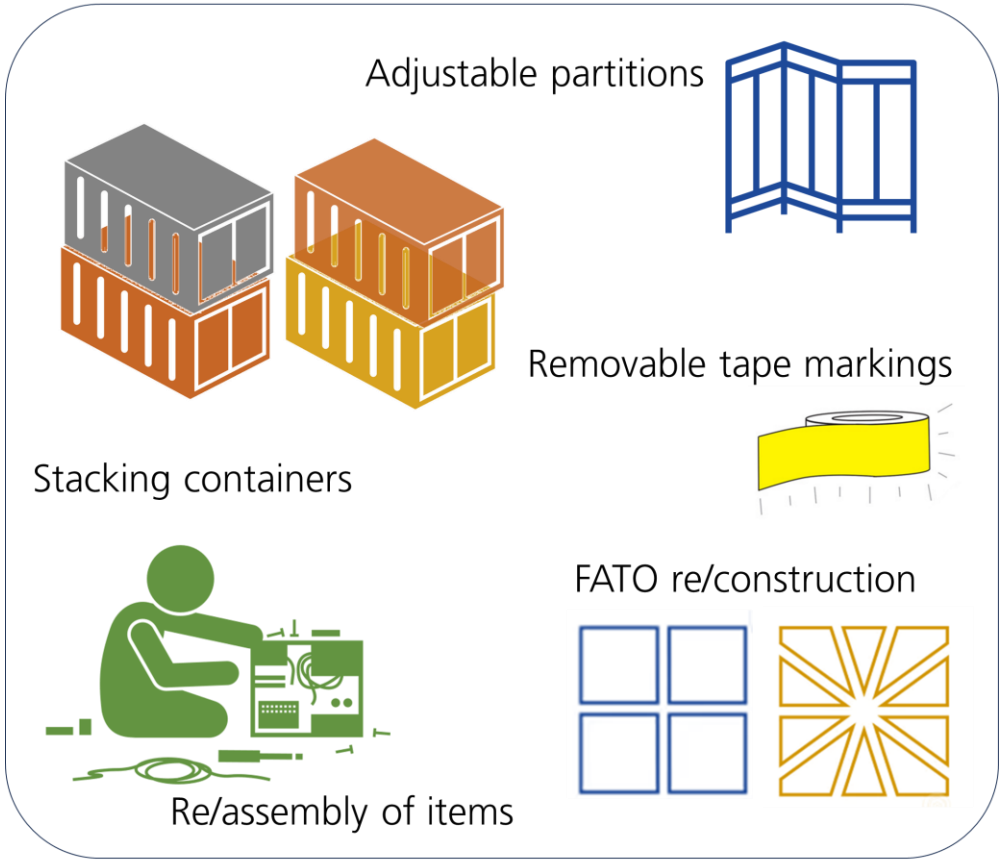
Modular vertiport infrastructure

What are they?

- Pre-fabricated, scalable units that can be quickly assembled and adapted
- Include individual components that can be added or removed as needed

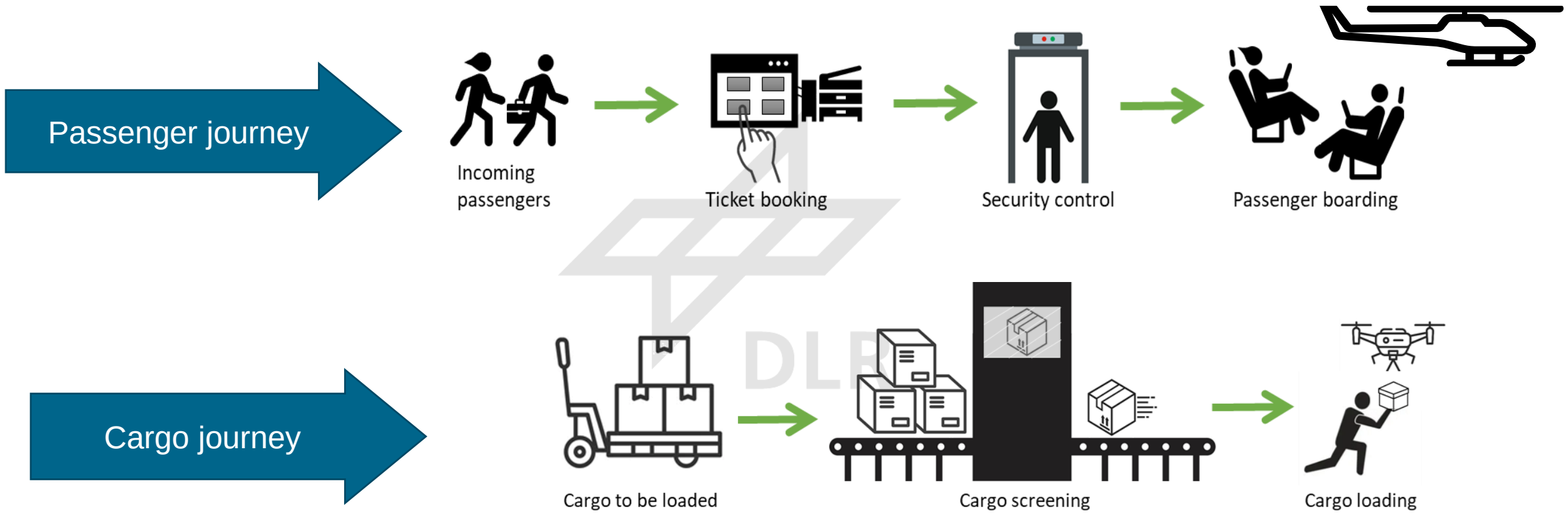
Benefits

- Scalable as per the FATO requirements
- Quickly deployable
- Cost efficient with part replacement
- Flexible installation on different structures
- Goes in hand with the regulations
- Reusable at any location



Modularity aspects

Investigating use cases



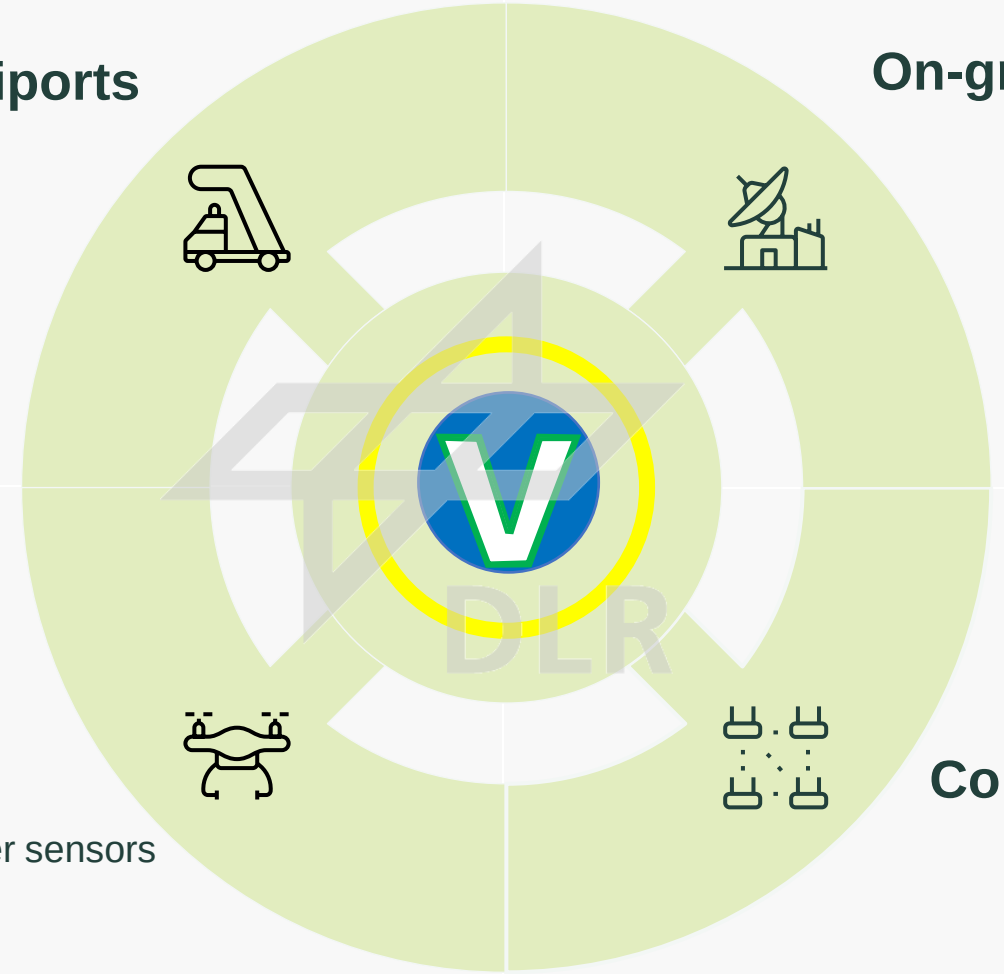
Infrastructure categories identified

Service Facilities at Vertiports

- Passenger and cargo handling
- Charging and energy supply
- Maintenance

On-ground Hard-& Software

- Operational landing systems
- Vertiport automation system
- Tracking sensors
- Fleet management tools



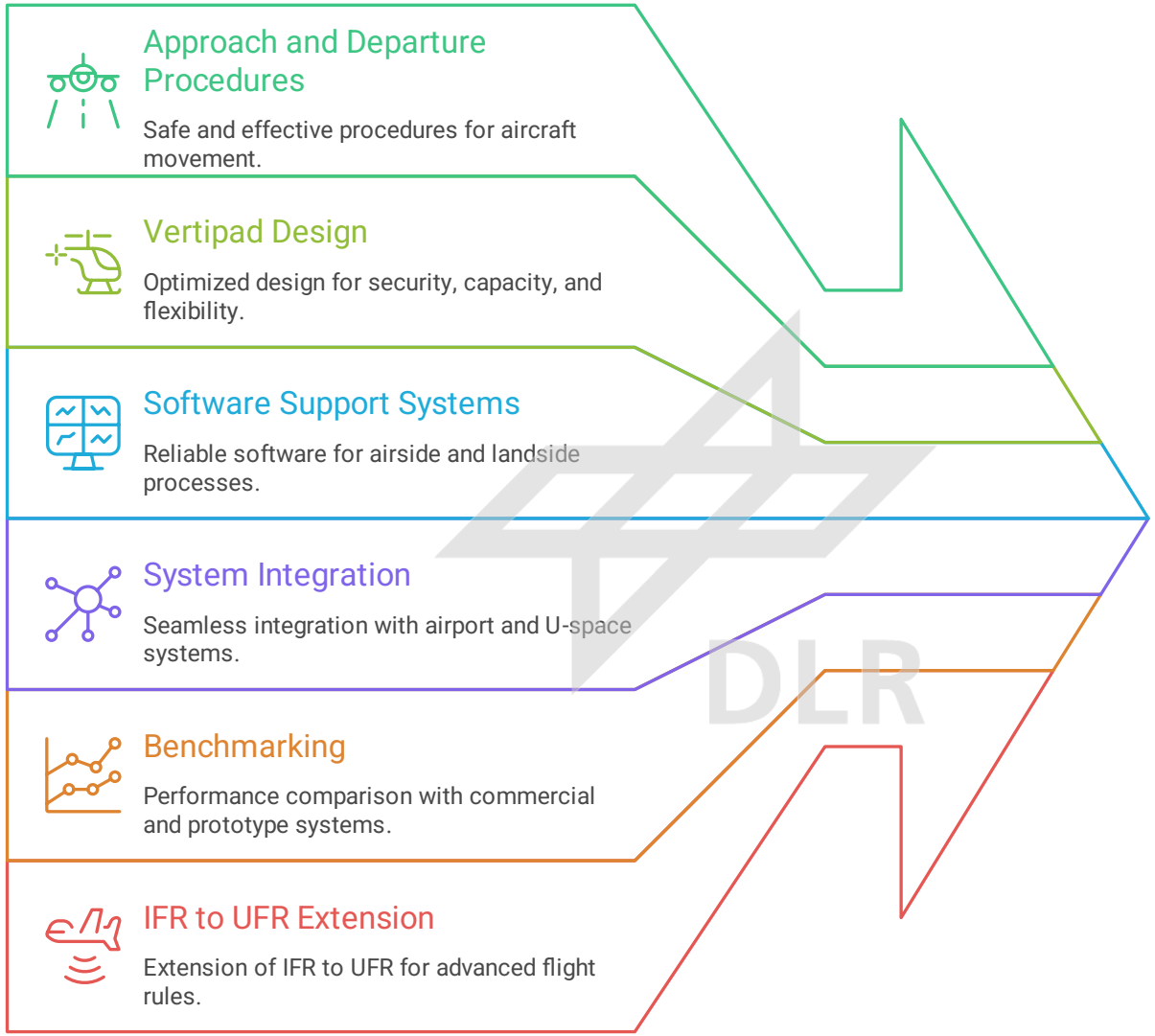
In-air Hard-& Software

- Positioning and data transfer sensors
- Flight control system
- Remote ID

Communication and safety

- U-space connectivity
- Data networking
- Real-time communication

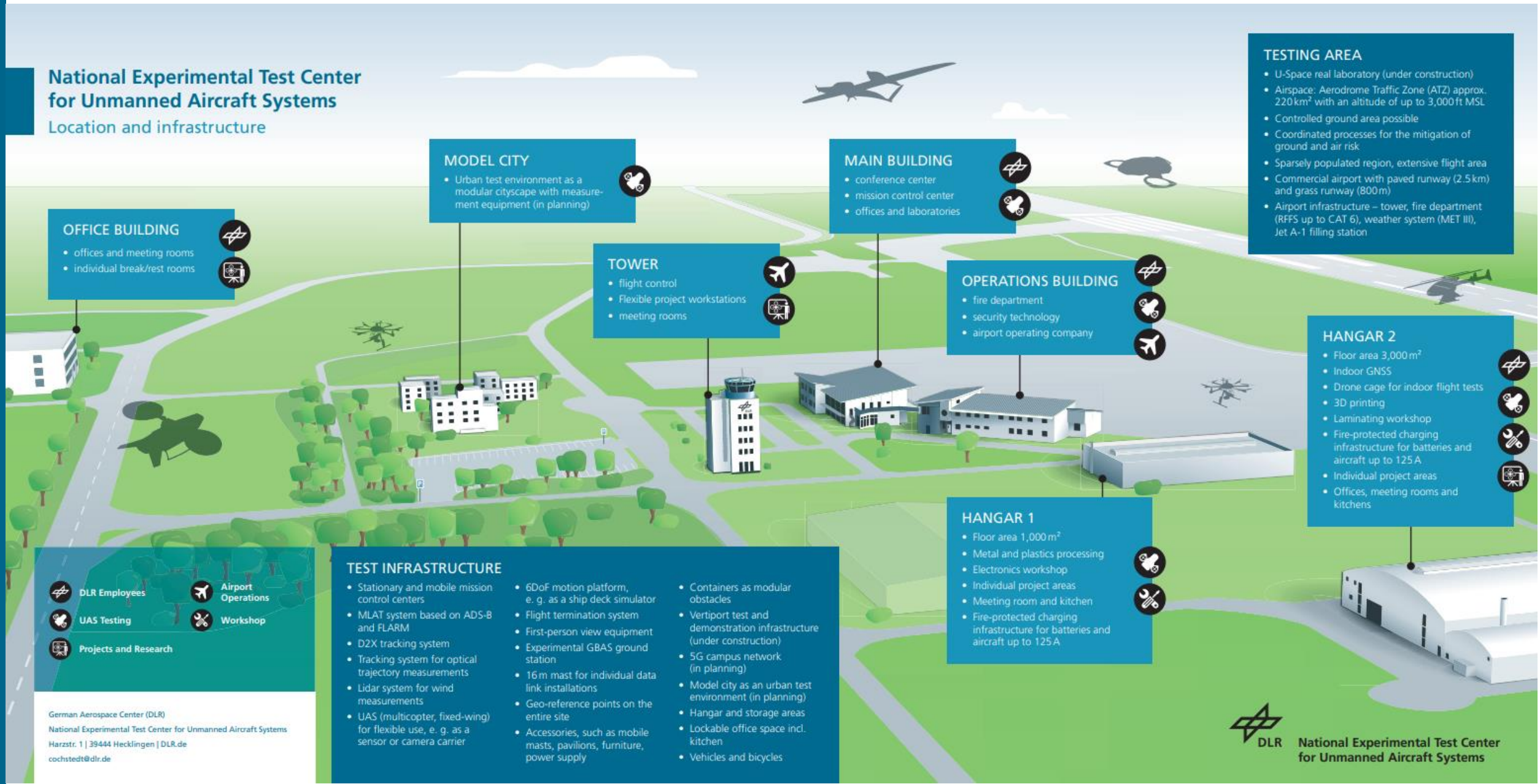
Aimed research capabilities with our vertiports



Enhanced Vertiport Operations

… and many more

Overview: DLR Cochstedt

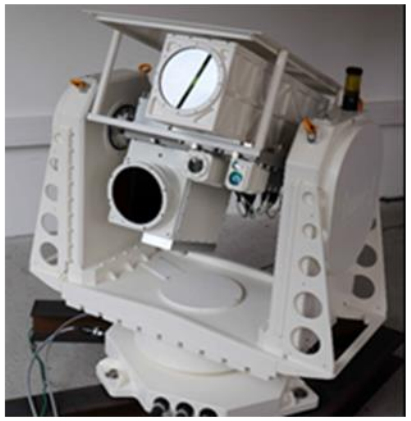


Infrastructure at DLR Cochstedt

Office containers

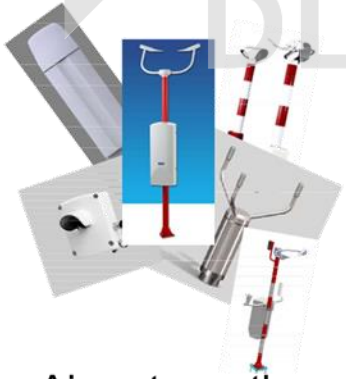
UAS hangar, workshop, charging center

Containers



Optical tracking system

Wind LiDAR



Airport weather sensors

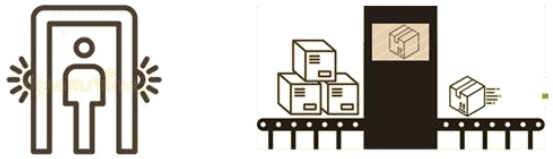
Helicopter: BO 105 (Braunschweig)

Fence

Ground Movement Equipment

Project Requirements

Dedicated vertiport hardware

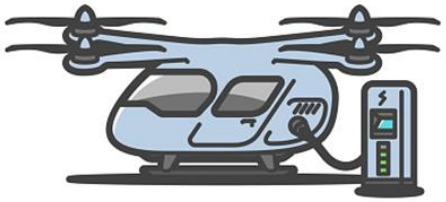


Passenger and cargo screening

Operations control center

Communication equipment

Wildlife and drone detection cameras

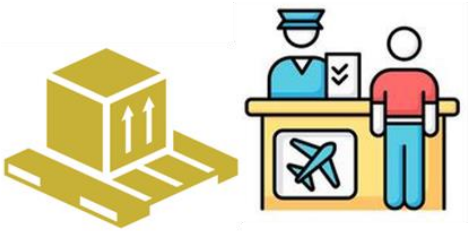


Charging station

Windsock

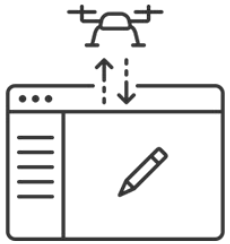
ATC communication

Network



Passenger and cargo processing

Medical and firefighting



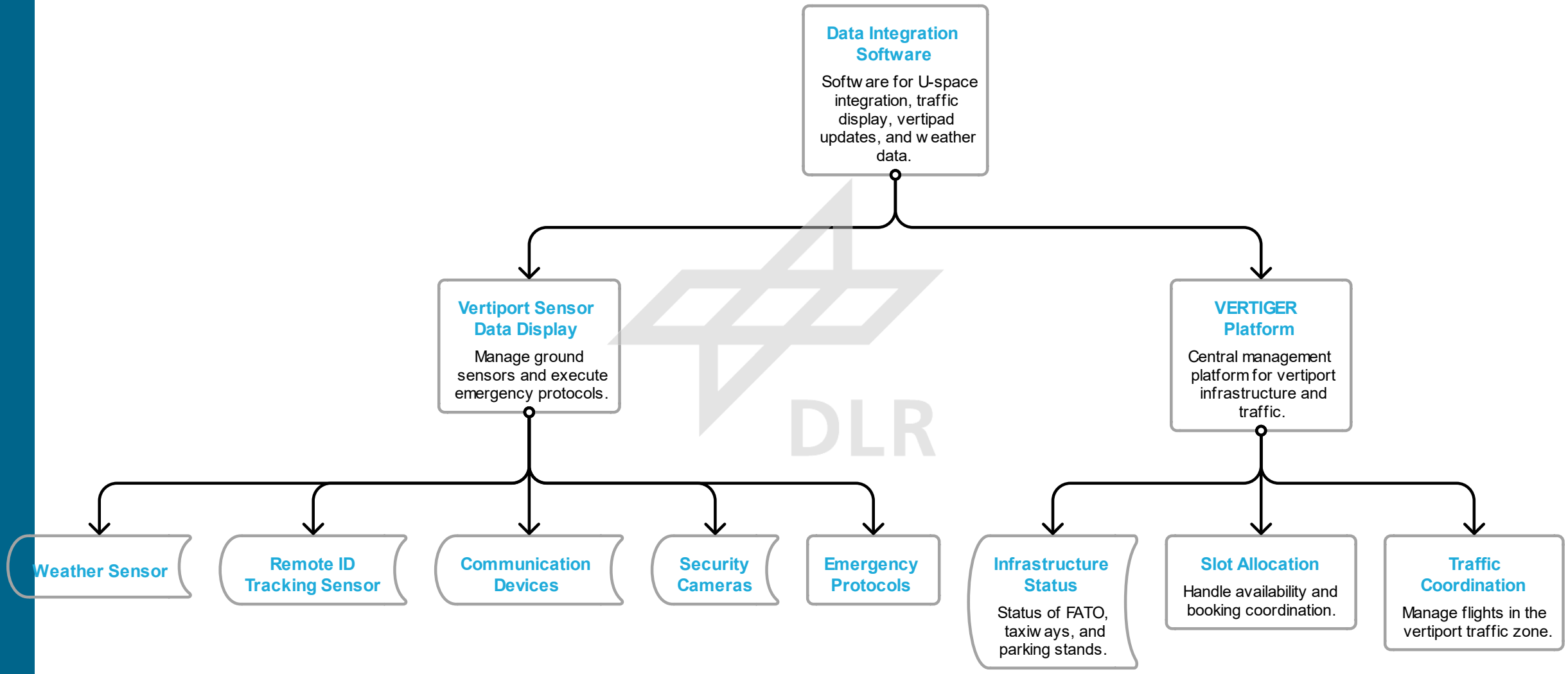
U-space services

Cargo and VCA transport

Vertiport beacon

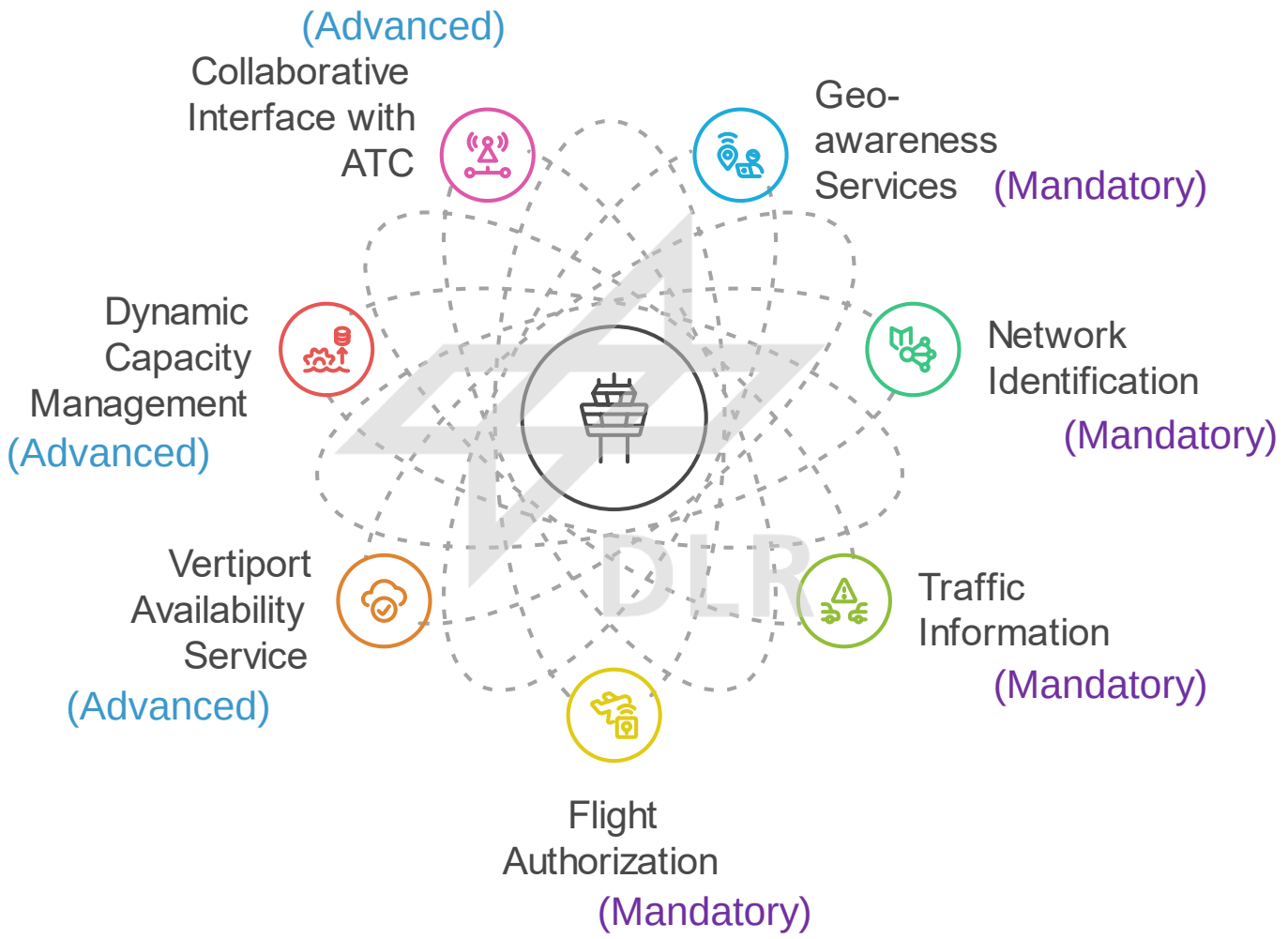
Modular city

Sensor and software requirement



U-space services for vertiports

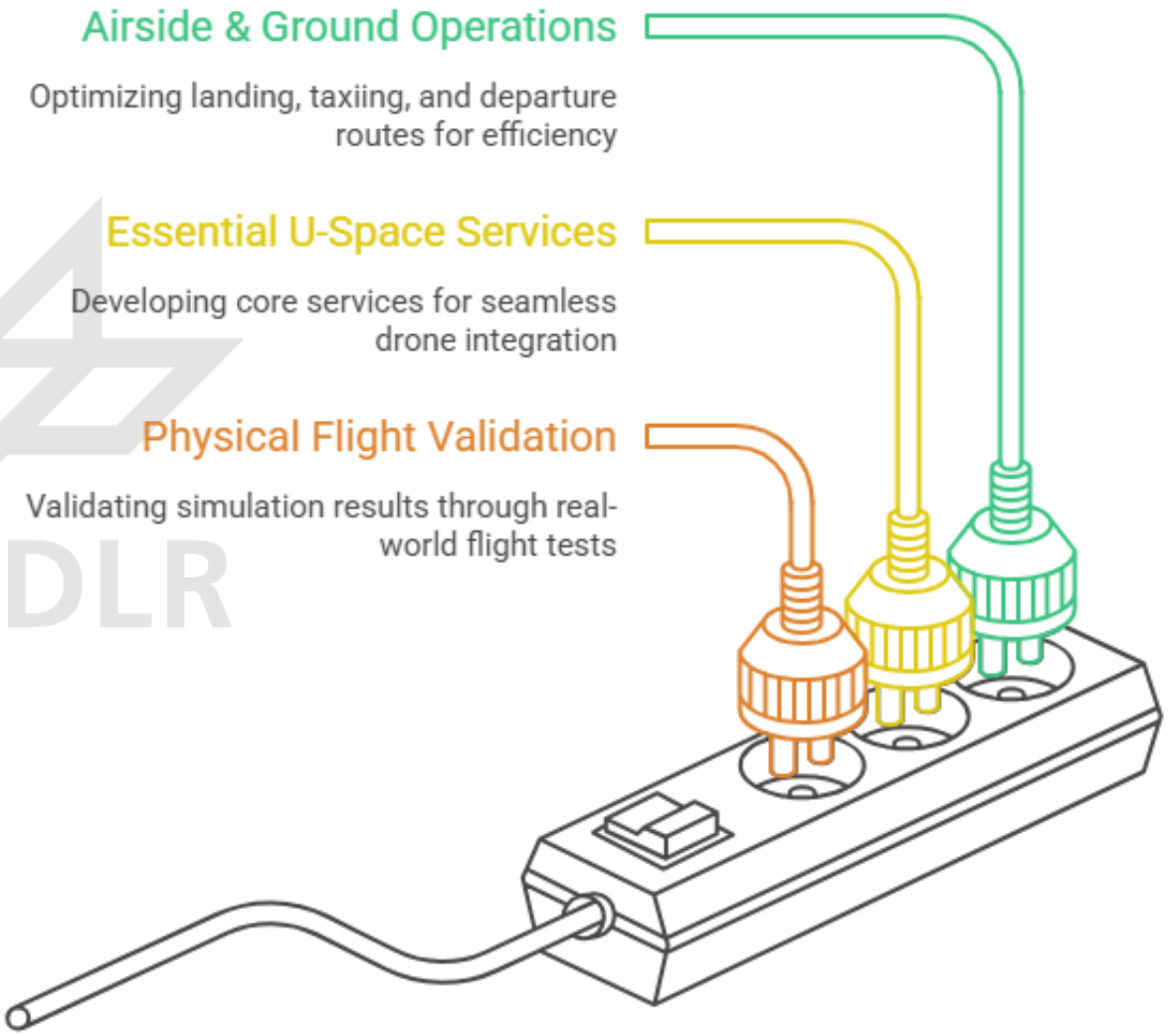
Advanced Services



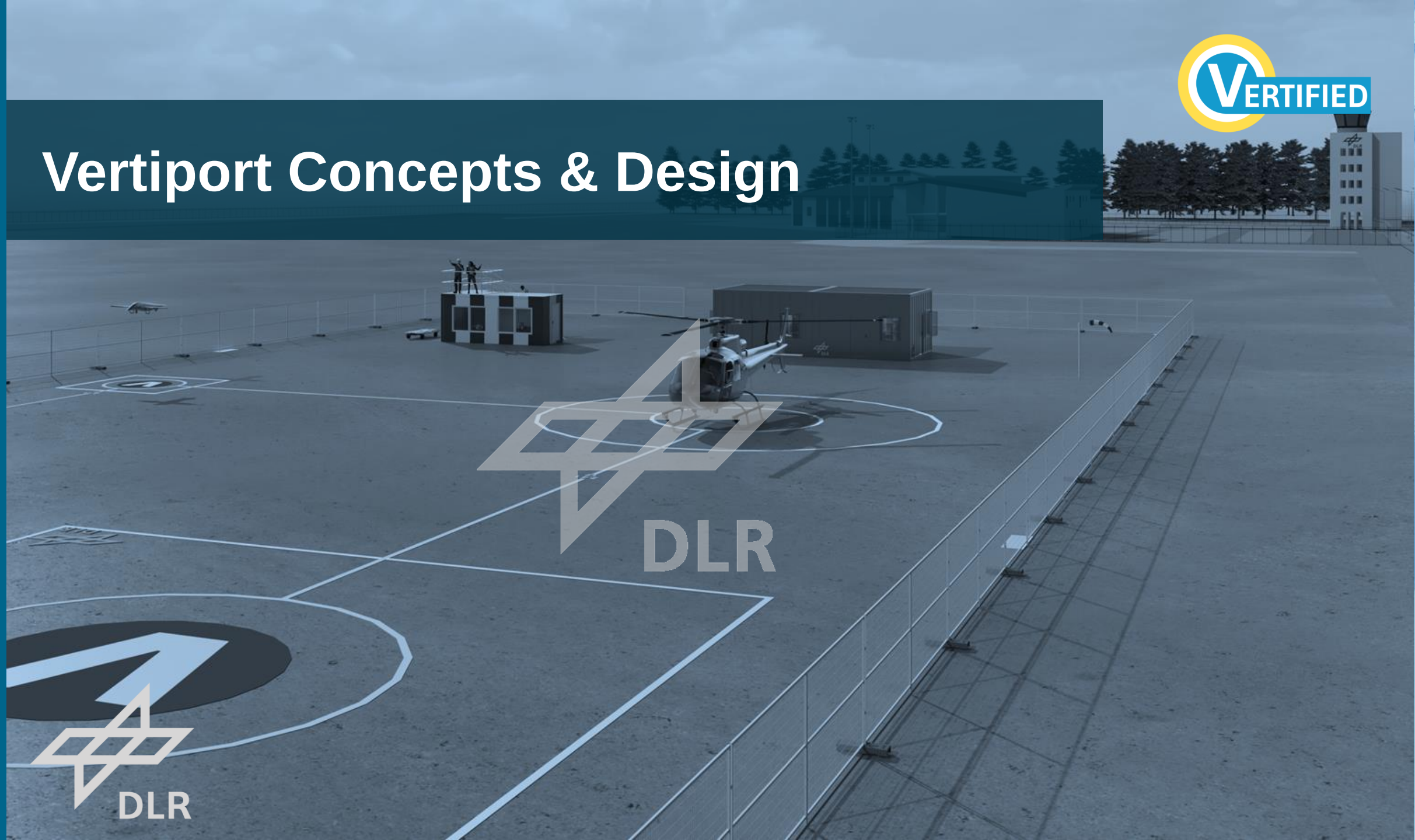
Mandatory Services

Vertiport Operations and Simulations

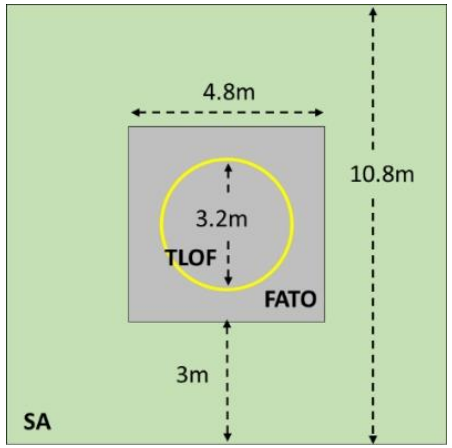
- ✓ Integrate Airside Logic: Merging traditional airport traffic control workflows with vertipad management.
- ✓ Deploy U-Space Architecture: Standardizing the mandatory and advanced digital communication links.
- ✓ Bridge the Gap: Directly matching simulation data with physical test flight measurements to verify system reliability.

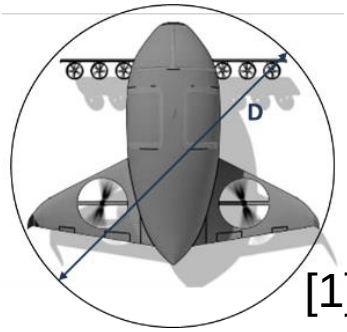


Vertiport Concepts & Design



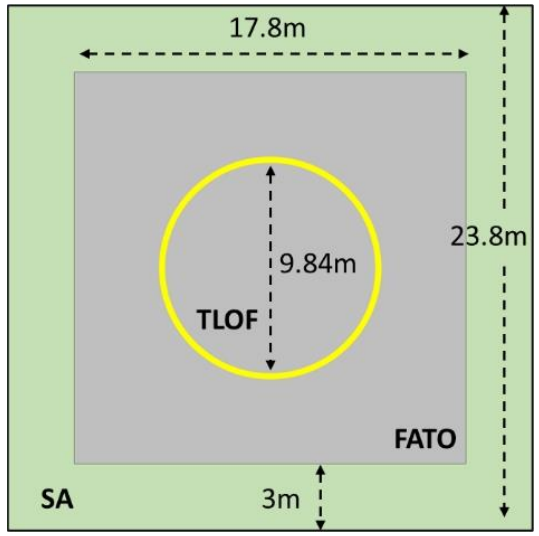
FATO dimensions





[1]

Benchmark VCA



Eurocopter BO 105

Urban vertiport

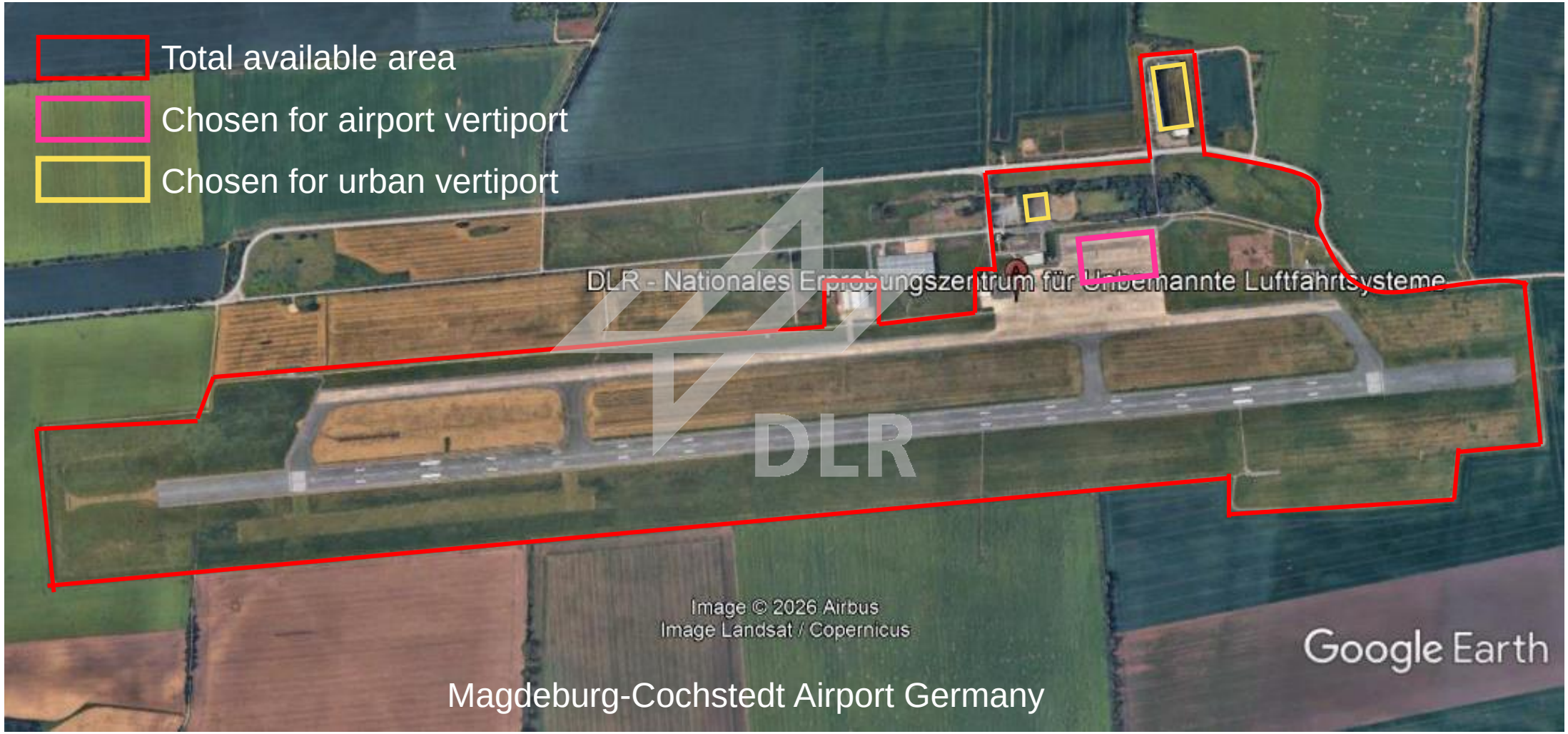
- Elevated to at least 3m height
- Integrated to handle up to a D value of 3.5m
- Integrated into modular urban environment
- Positioned on elevated platform (e.g. containers) for roof-top effect

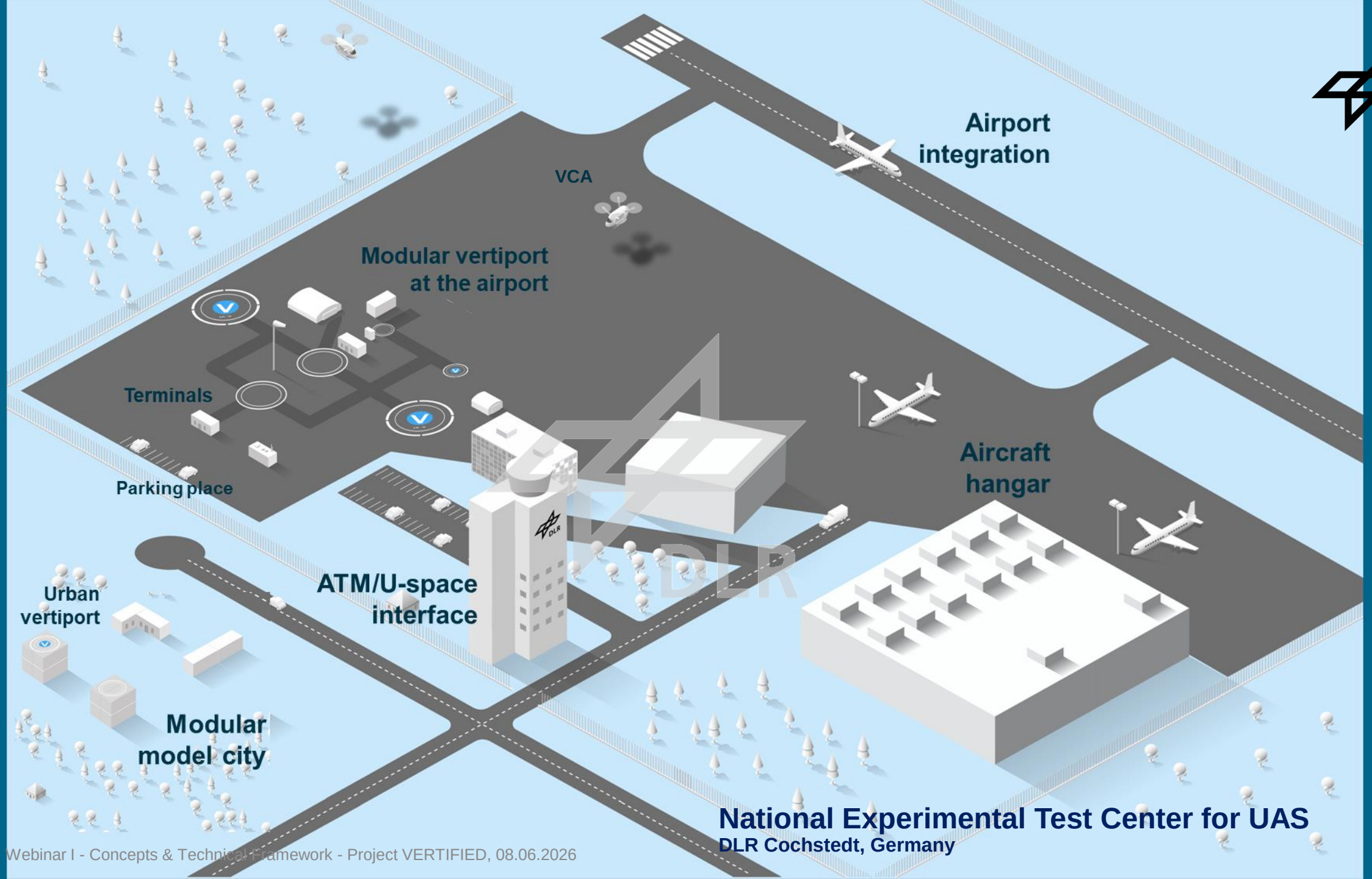
Vertiport at the airport

- Surface level vertiport, positioned inside an airport
- Integrated to handle up to a D value of 12m
- Utilization of Eurocopter BO 105 as a test vehicle for passenger use case

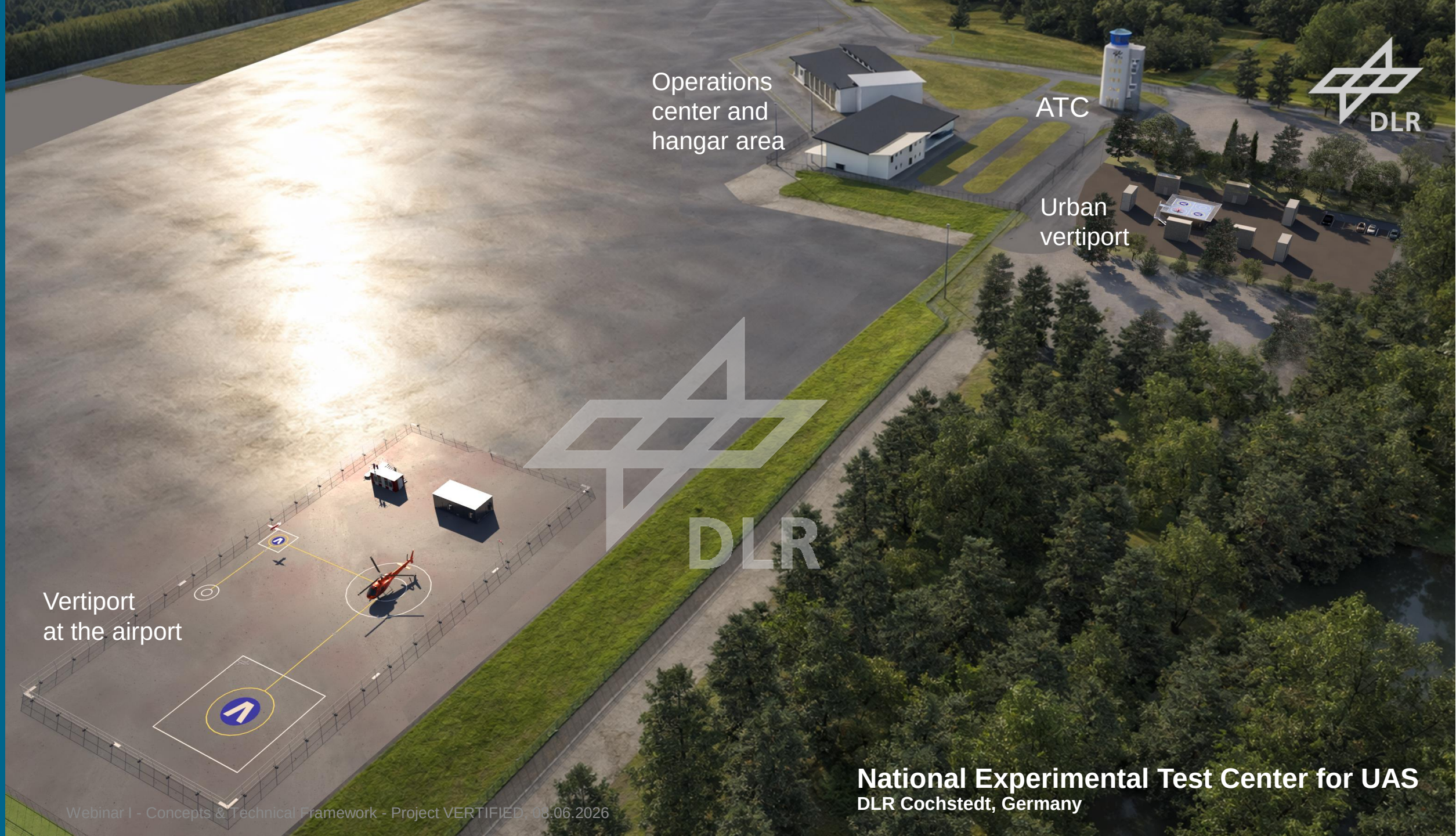
[1] EASA, "Vertiports Prototype Technical Specifications for the Design of VFR Vertiports for Operation with Manned VTOL-Capable Aircraft Certified in the Enhanced Category (PTS-VPT-DSN)", Cologne, Germany: European Union Aviation Safety Agency, 2021.

Area available for vertiports in Cochstedt





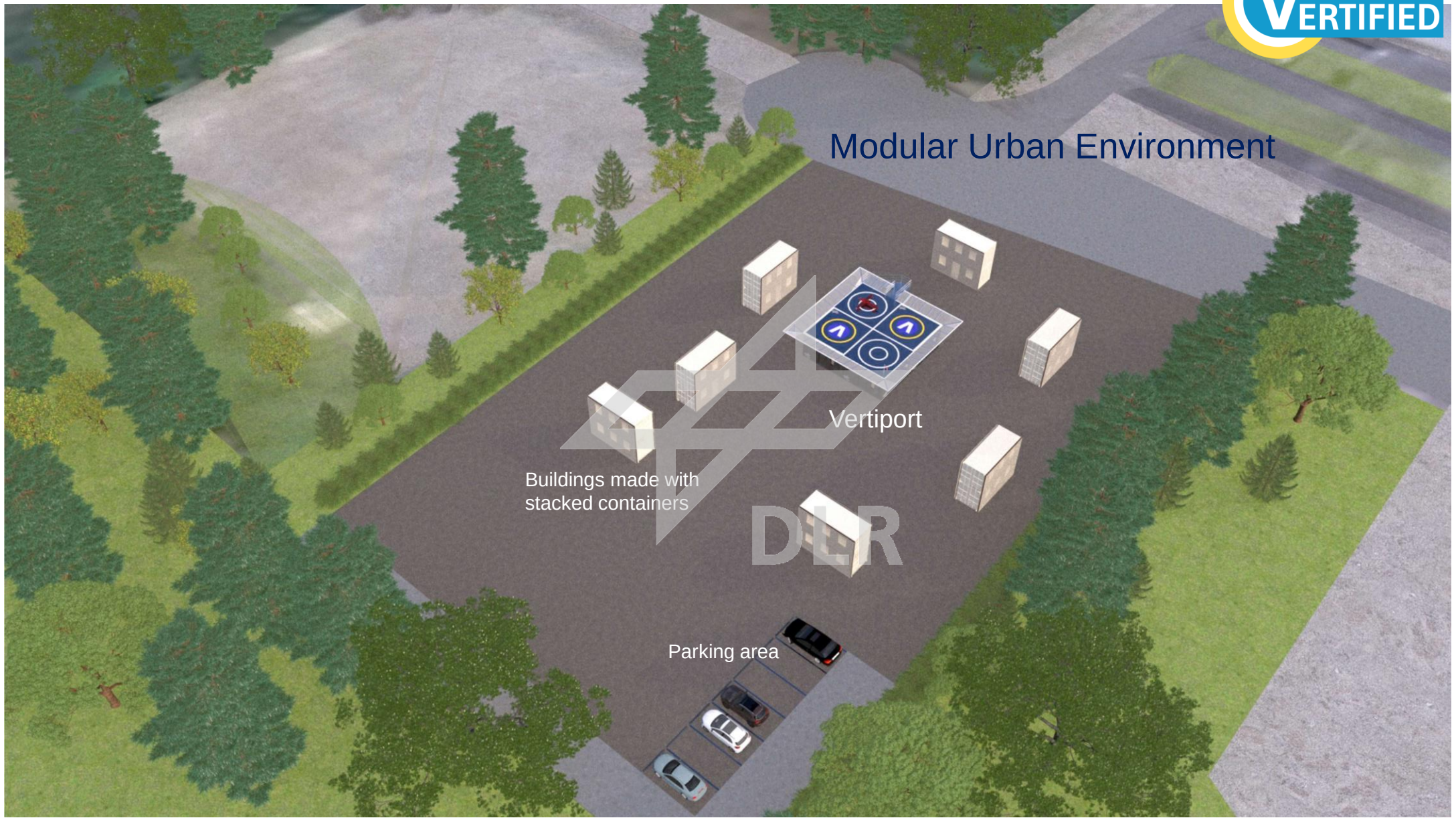
National Experimental Test Center for UAS
DLR Cochstedt, Germany



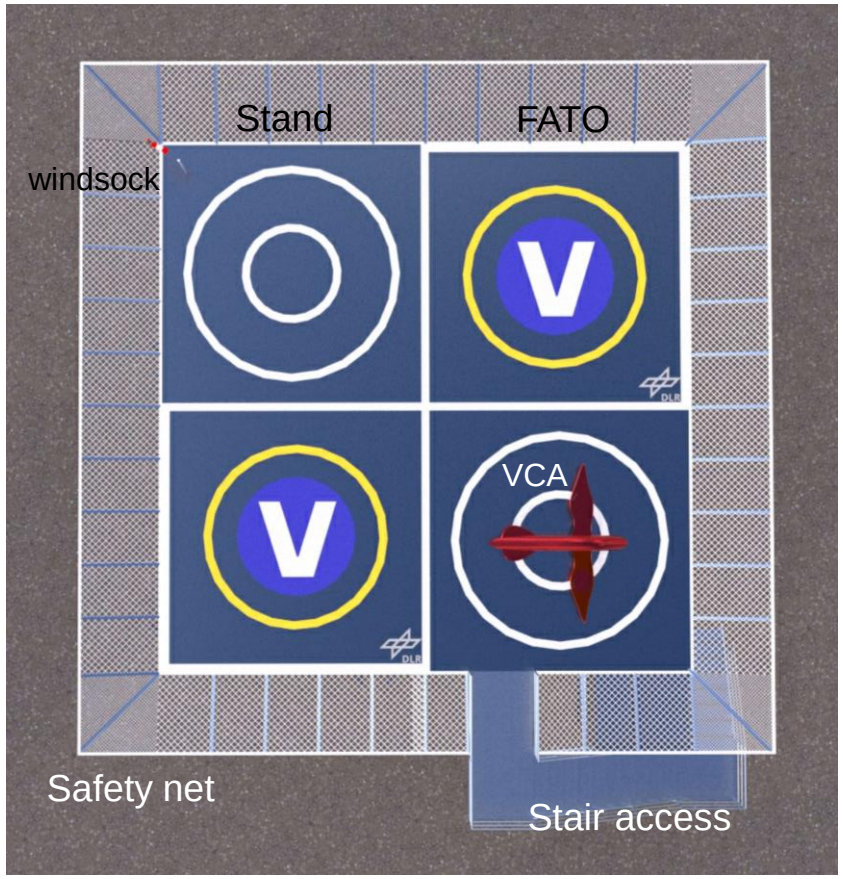
National Experimental Test Center for UAS
DLR Cochstedt, Germany

Concept: urban vertiport

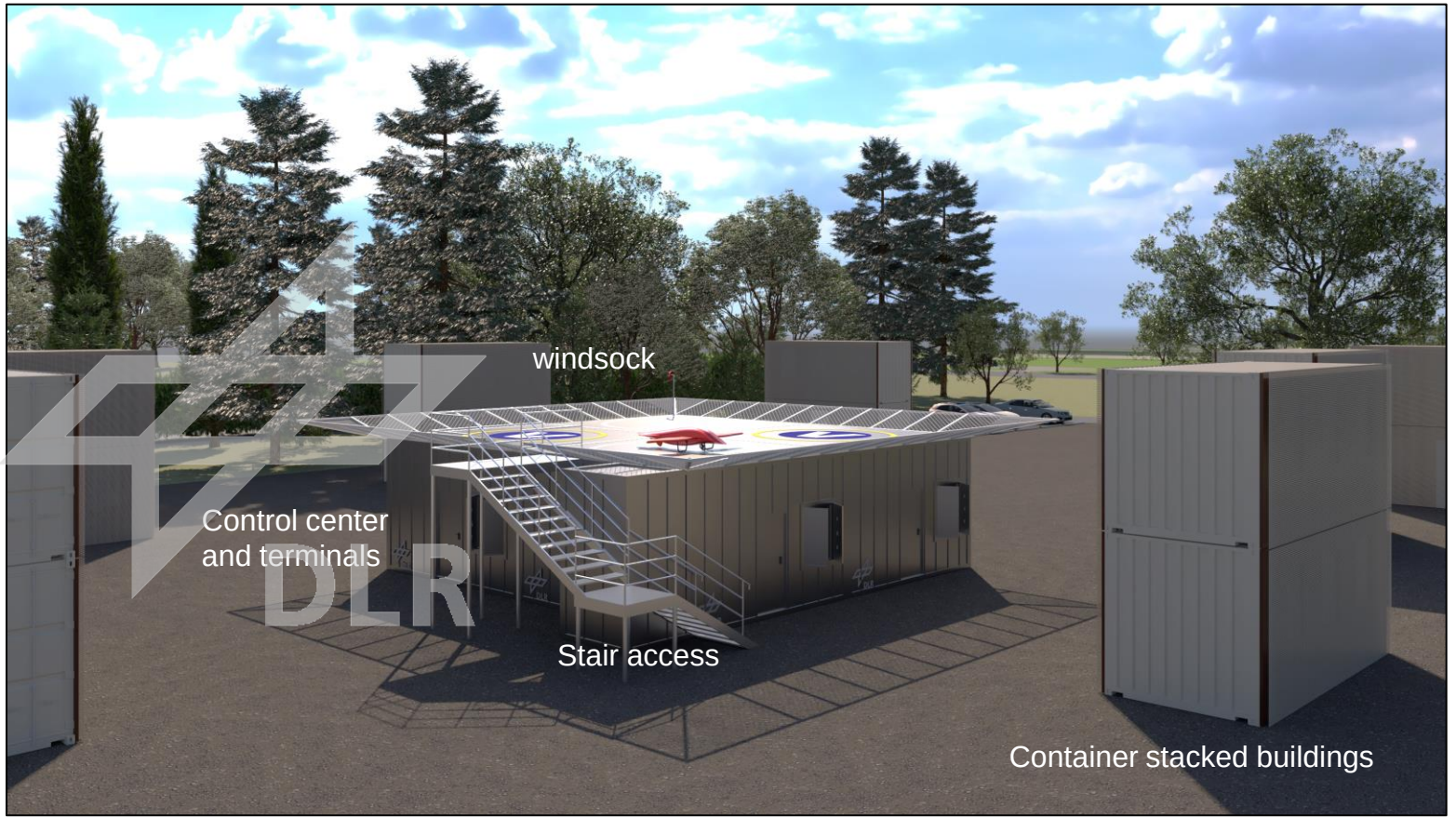
Illustrative concept #1: urban vertiport



Illustrative concept #1: Perspectives



Top view

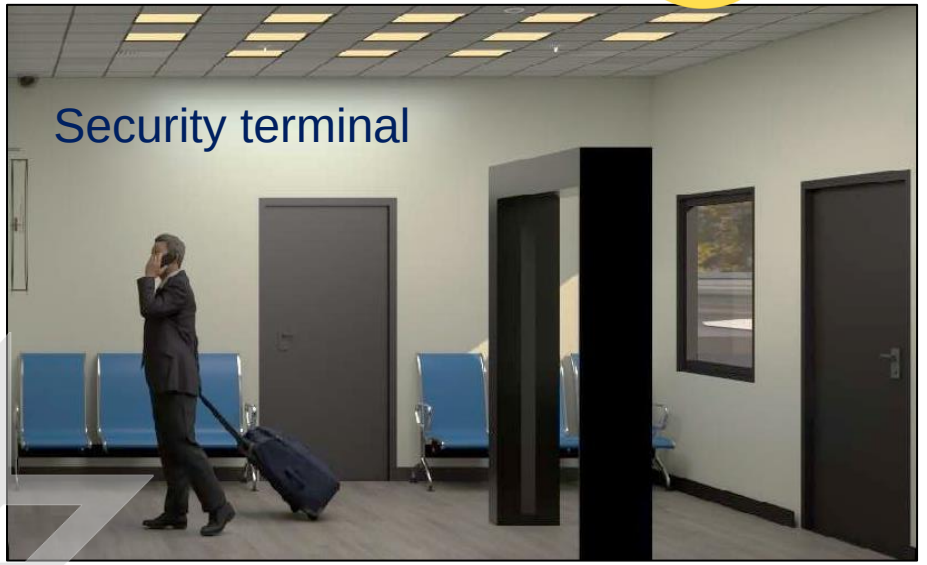


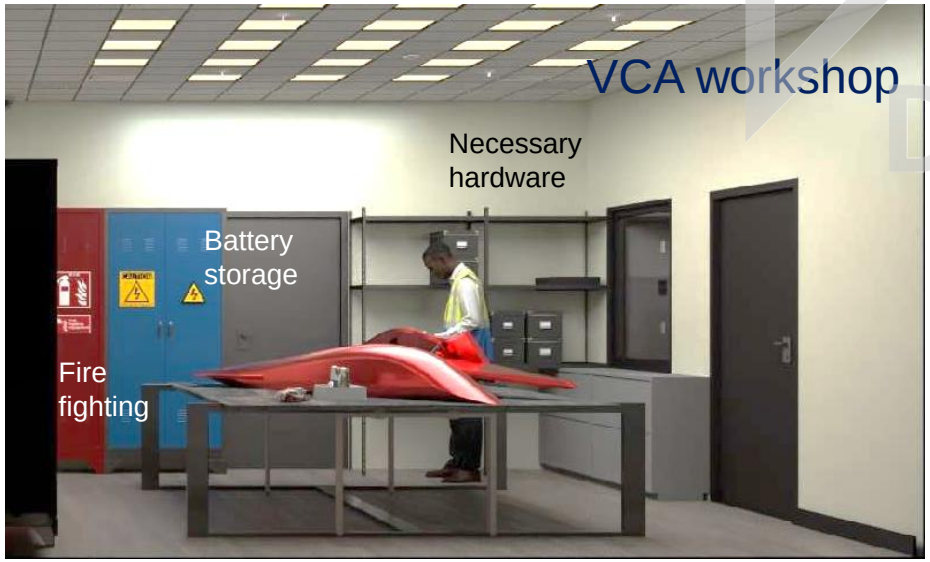
Side view

Illustrative concept #2: urban vertiport

Generated with Google Gemini

Mobile spaces for different operations



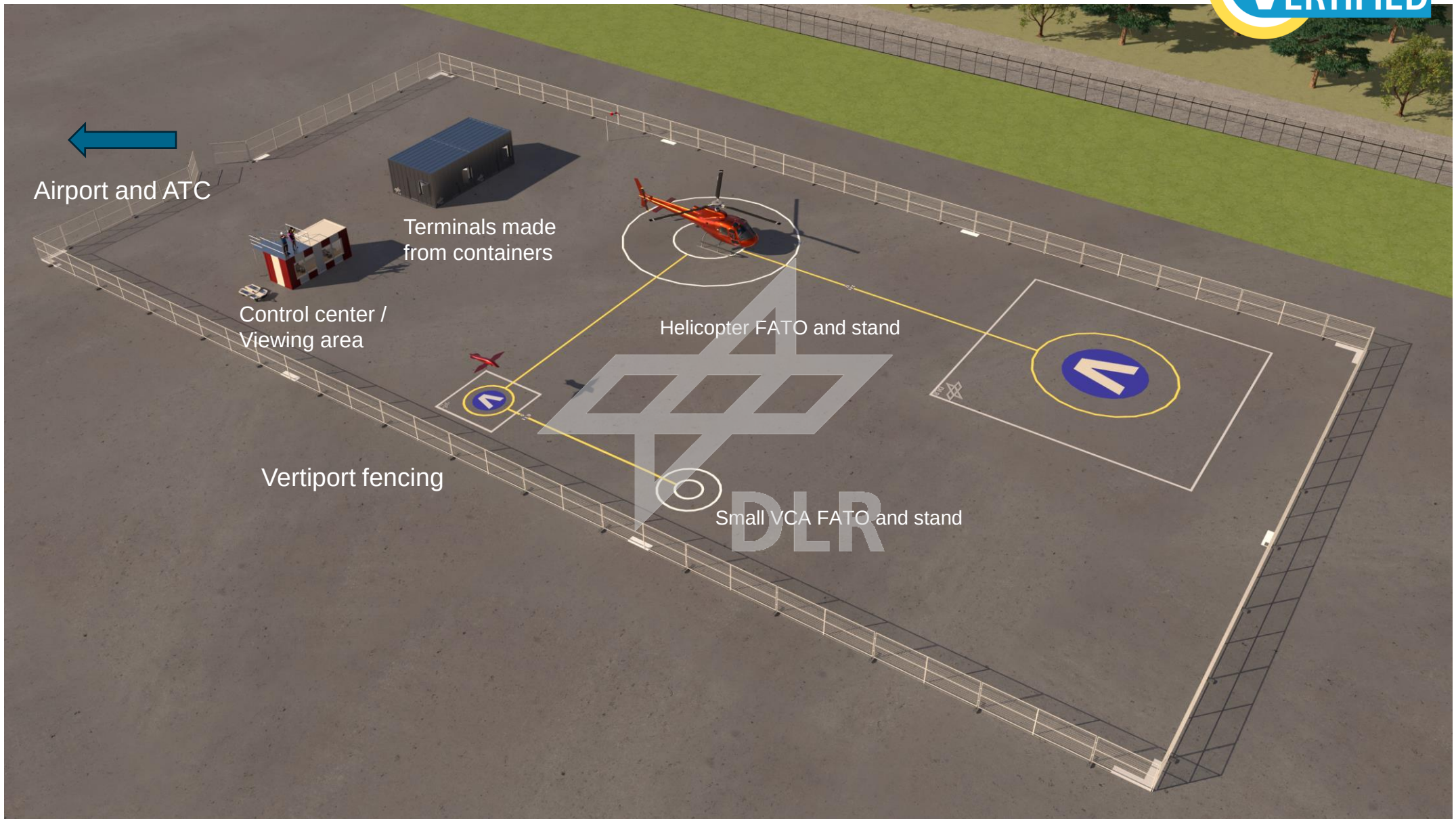


Possible future for the urban vertiport

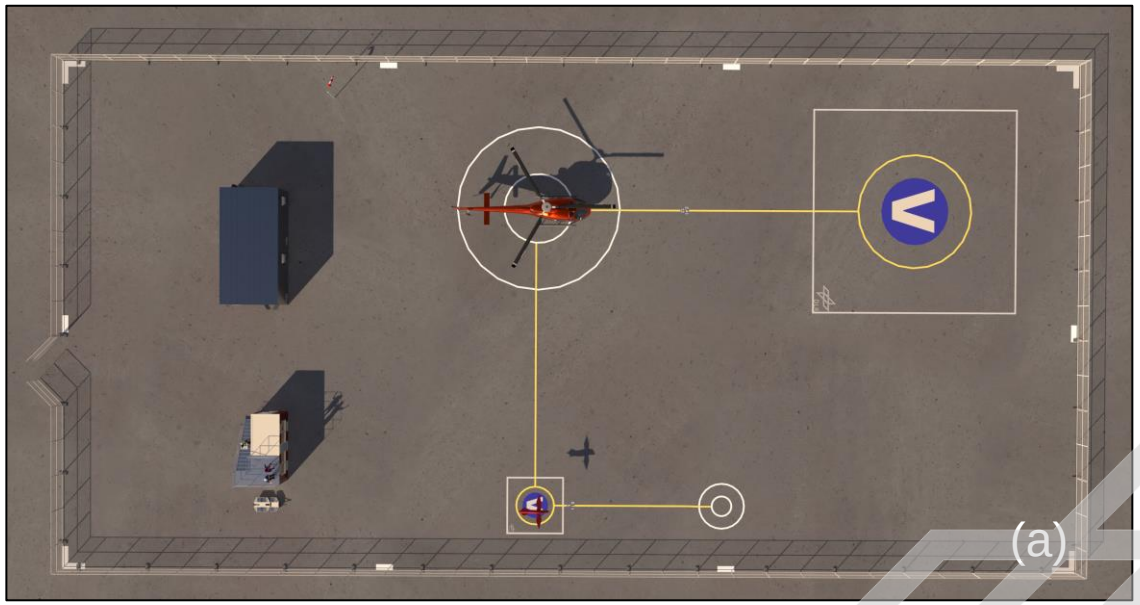
Generated with Google Gemini

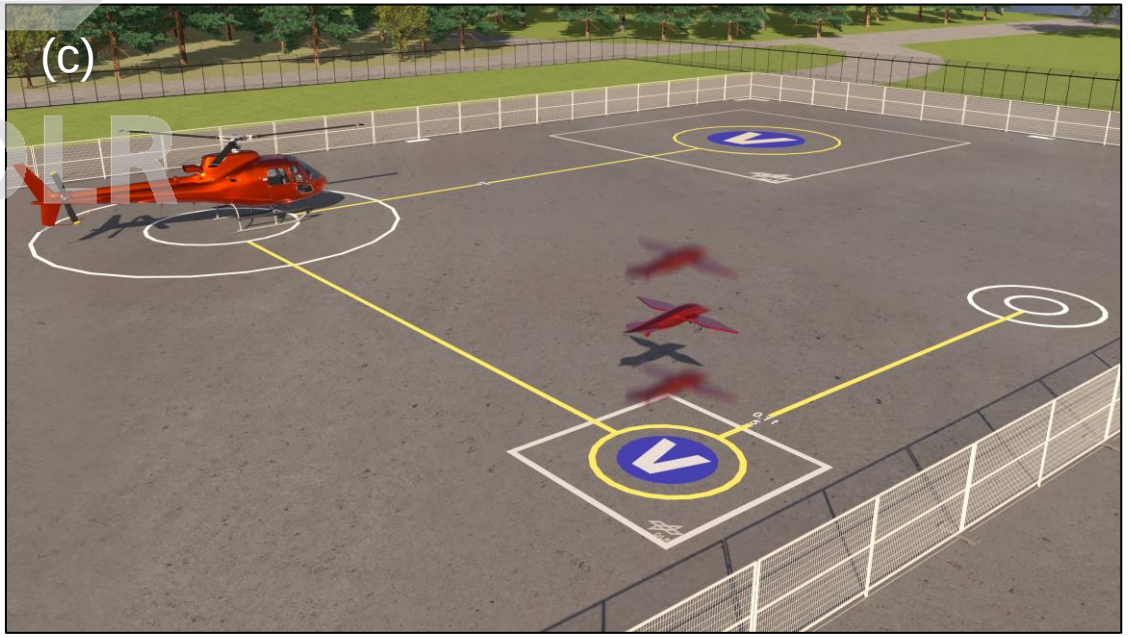
Concept: vertiport at the airport

Illustrative concept #3: vertiport at the airport

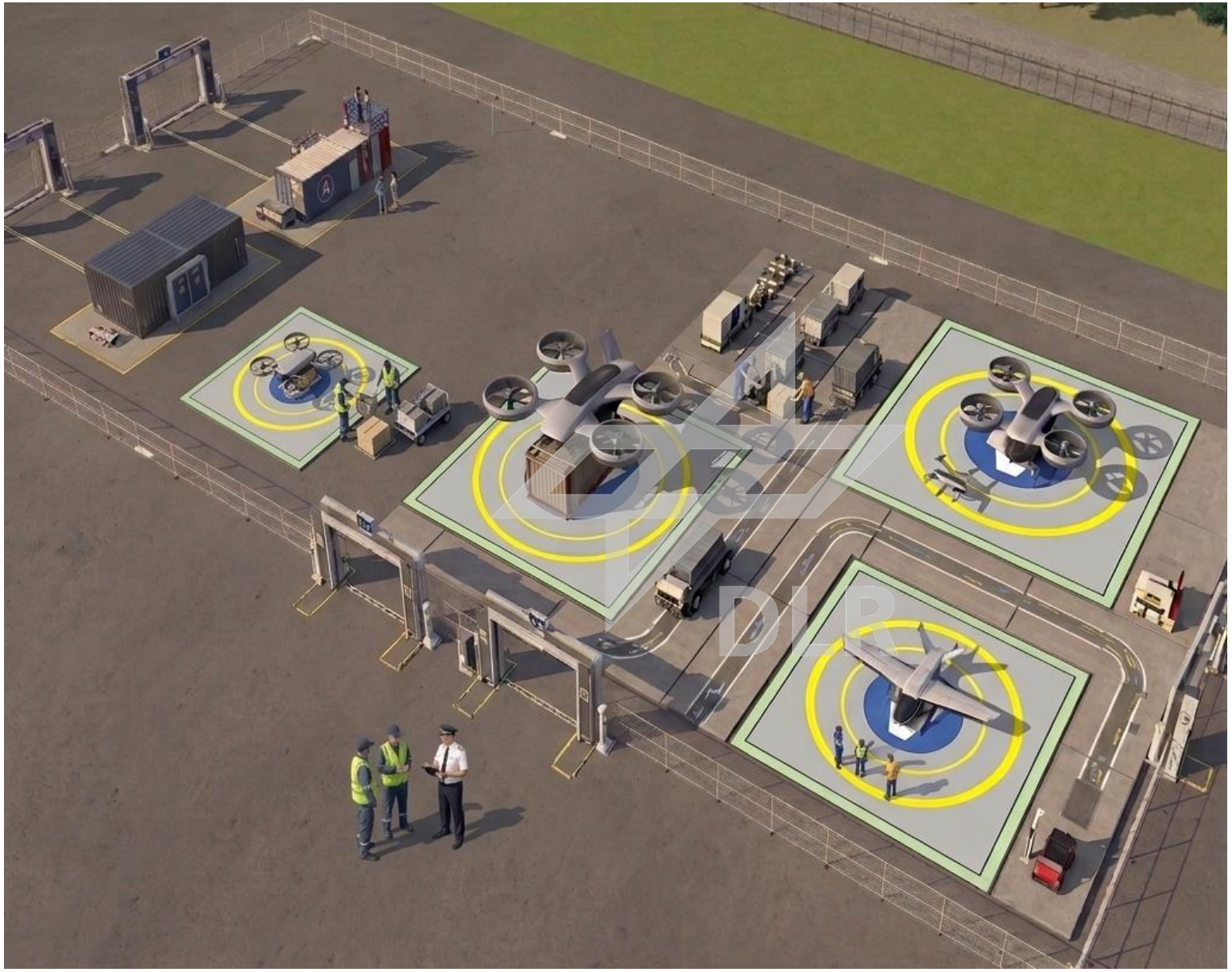


Illustrative concept #3: Perspectives





Illustrative concept #4: vertiport at the airport



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Possible future of the vertiport at the airport

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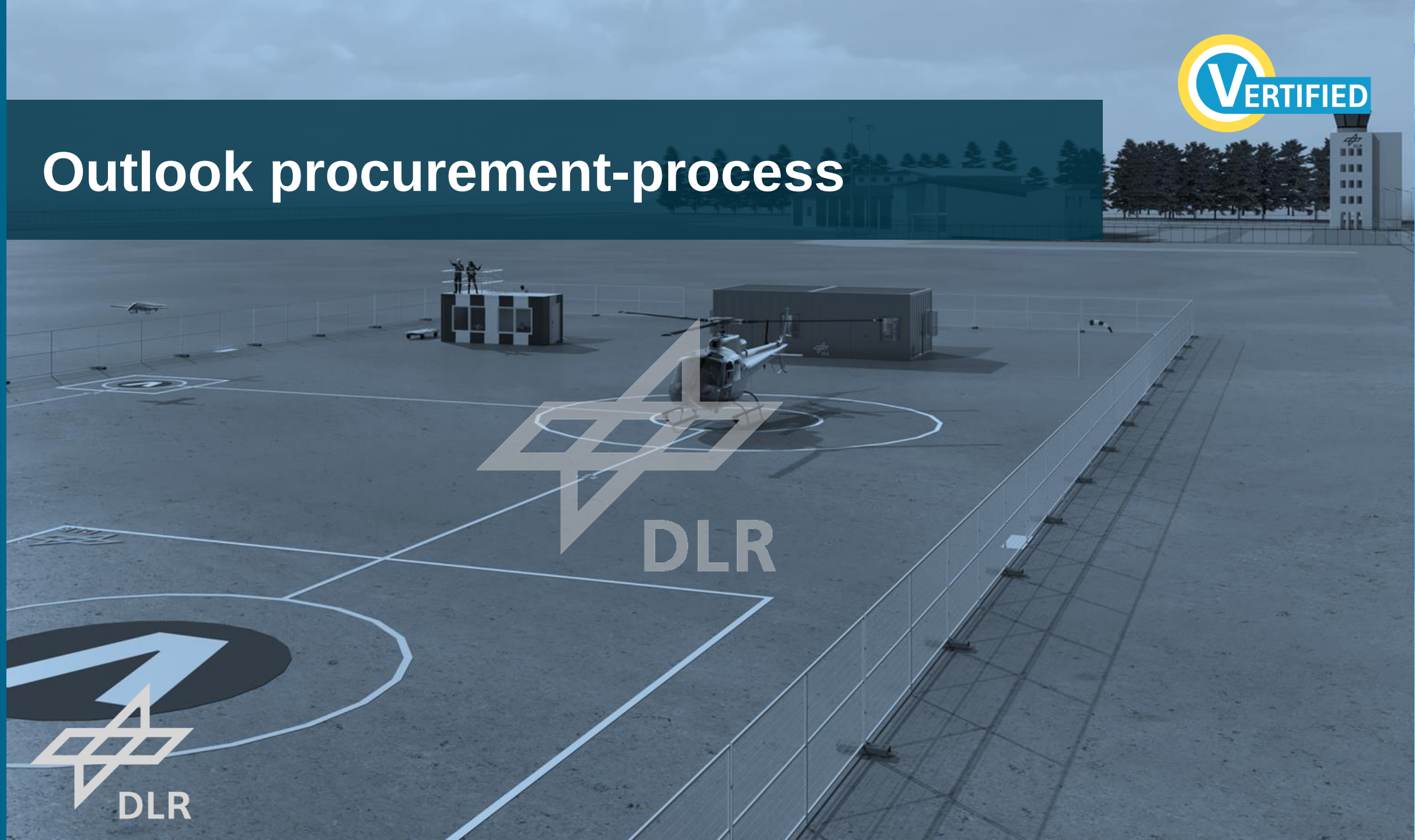
Outlook procurement-process



Procurement Framework

Planned procurement for modular urban and airport vertiport demonstrators

INVESTMENT VOLUME

1 M€

EXPECTED TENDER PUBLICATION

July 2026

OPEN TO

International

all countries eligible

PROCUREMENT PROCEDURE

Competitive Dialogue

Complex and innovative project benefiting from market expertise

Planned Procurement Scope

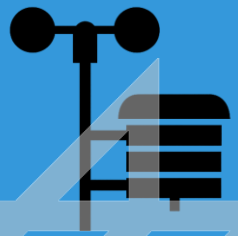
A modular vertiport research infrastructure covering all key elements of future vertiport ecosystems

Airside Infrastructure

- Landing & movement areas
- Visual guidance & Airfield lighting systems

Landside Infrastructure

- Modular operational facilities
- Flexible workspace concepts
- Passenger and cargo processing areas
- Operations & mission control

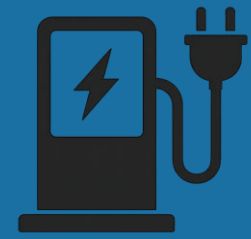


Meteorological and Environmental Systems

- Meteorological monitoring
- Environmental sensing
- Microclimate assessment

Safety, Monitoring & Digital Systems

- Surveillance systems
- Access control & safety systems
- Airspace awareness
- Digital integration



Charging Infrastructure

- Charging systems

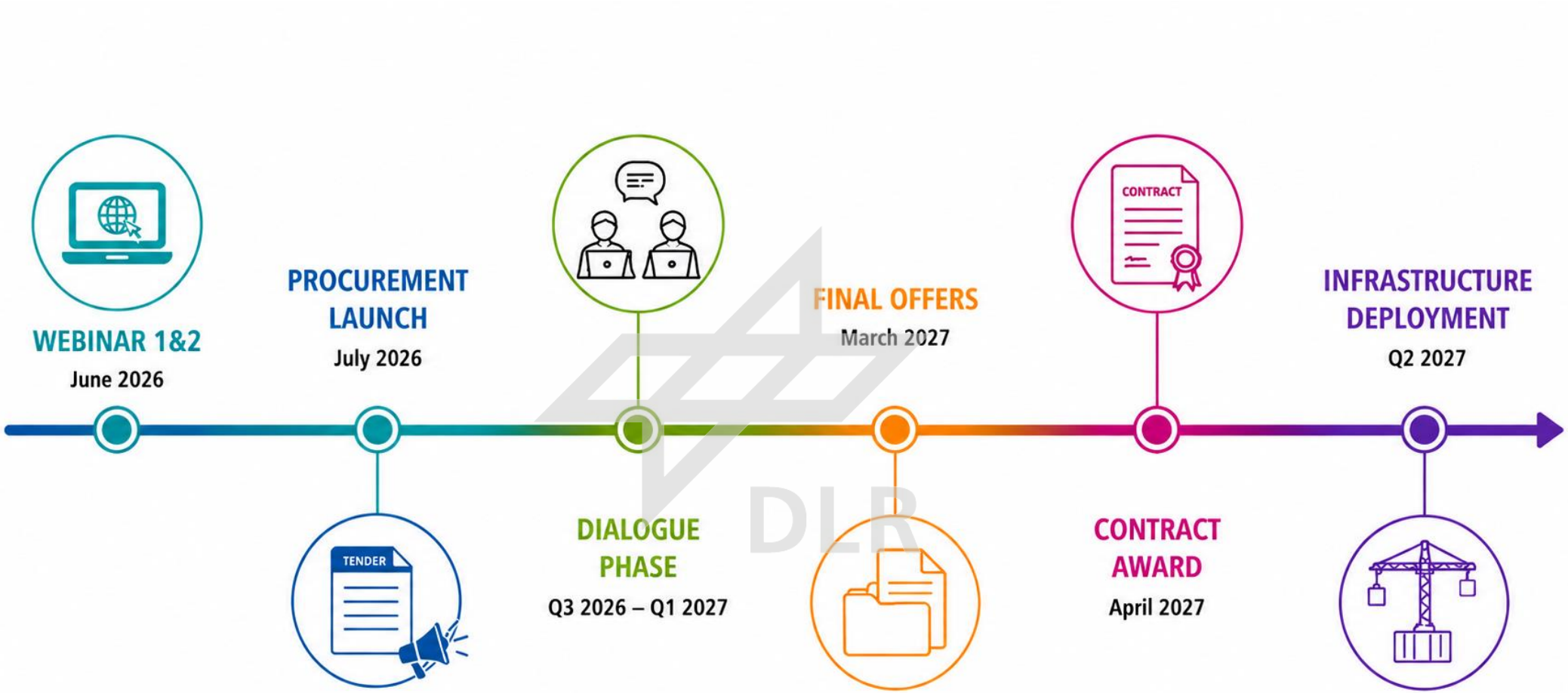
Detailed component specifications and requirements will be introduced in Webinar 2

Areas of Expertise of Potential Contributors

- Vertiport Infrastructure Development
- Modular Buildings & Facilities
- Airside Infrastructure & Lighting
- Meteorological & Environmental Systems
- Safety, Security & Monitoring Systems
- Energy & Charging Infrastructure
- Software & Digital Integration

Joint bids are welcome!
Multiple companies may submit a joint proposal

Planned Procurement Roadmap



Note:
Dates beyond the webinars are indicative and subject to change

Building the Future Together

Part 2 Webinar – 29 June, 2026

Call for Contributions | IAM Symposium 23 – 24 November 2026

Thank you

EVERYONE

for joining!

Follow us on LinkedIn for latest updates!

DLR Unmanned Aviation Research

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Impressum

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Datum:	08/06/2026
Autor:	Samiksha Nagrare, Oguzhan Nohutcu, Julia Arndt
Institut:	FL, UX, UC
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