

DFS Aviation Services

REMOTE TOWER SOLUTIONS



DFS Aviation Services

DAS Services

DAS can be your **advisor** or **full-service provider** from strategy to live operations for individual **Remote Tower Solutions**.

Remote Tower Control (RTC) Center

RTC Centers **centralize ATC of multiple airports** in a single facility. The use of high-resolution cameras, sensors and advanced software **increases the safety and efficiency** of ATC while reducing costs and optimizing human resources.

Virtual Tower at large airports

Virtual Tower offer an innovative solution for monitoring and controlling traffic at **hub airports**. By utilizing RT technology, virtual tower have the potential to **replace conventional tower and apron services**. This reduces the need for physical infrastructure and increases operational flexibility.

Multi Remote Operations

Multi Remote Operations enable the simultaneous control and monitoring of **several airports from a single control room**. This is a promising concept for small airports with a low number of flight movements.

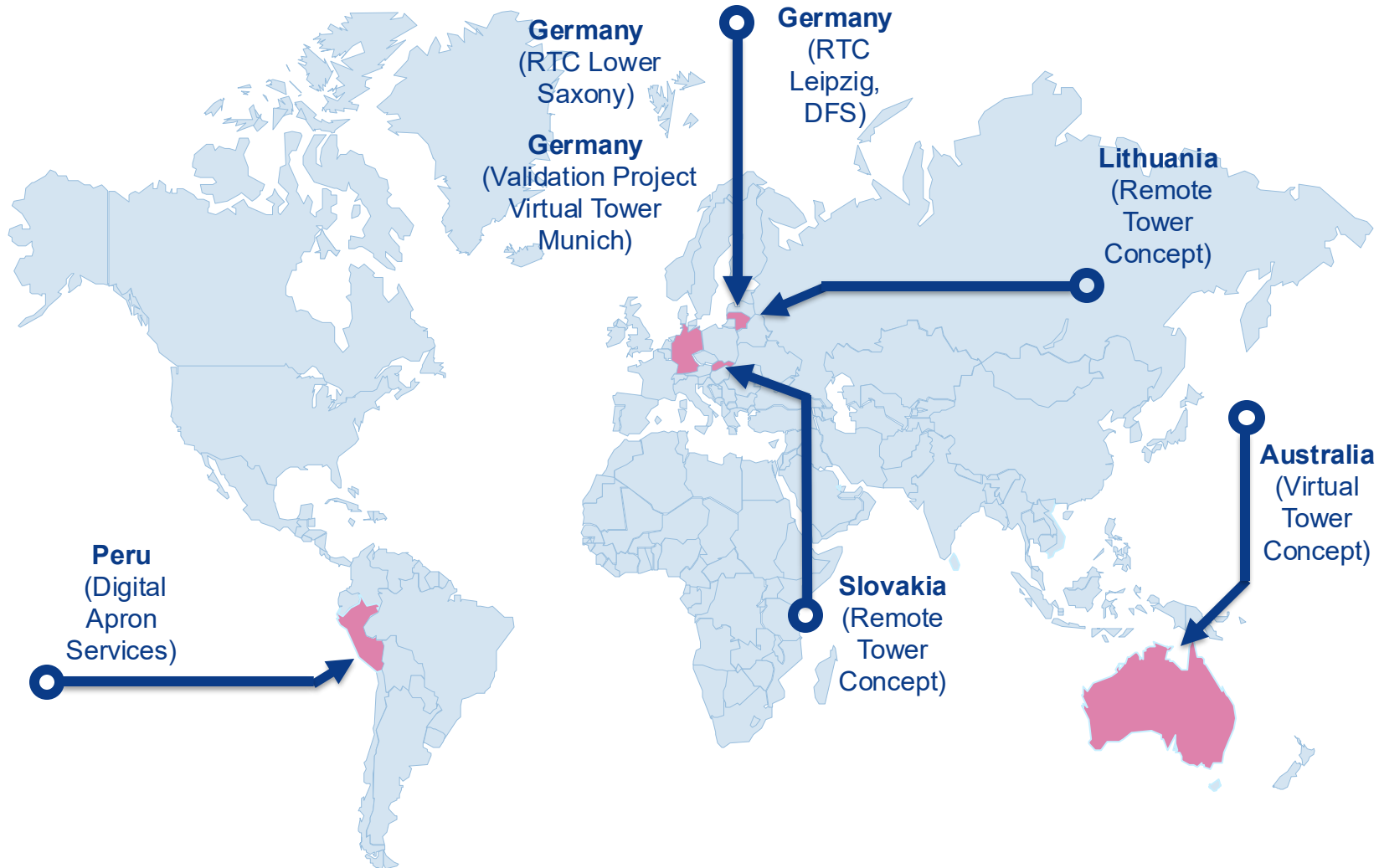
RTC Research

Remote Tower Control Research focuses on the **development of technologies and methods** for the remote control of airports. DAS and its partners develop innovative solutions that improve efficiency and safety in air traffic.

DFS Aviation Services



WORLDWIDE.



7

Remote Tower
Projects
Worldwide

2

RTC Centers in
Operation

7

Years of RTC
Operational
Experience

DAS RTC CENTER



- Construction of our own **RTC Center** in Braunschweig, Germany, with the potential to connect up to **6 airports**.
- Execution of all necessary steps from strategy development and **CWP/HMI design** to training, **regulatory approval** and transition.

RTC LUTHANIA



DFS Aviation Services (DAS) & Oro Navigacija (ON)

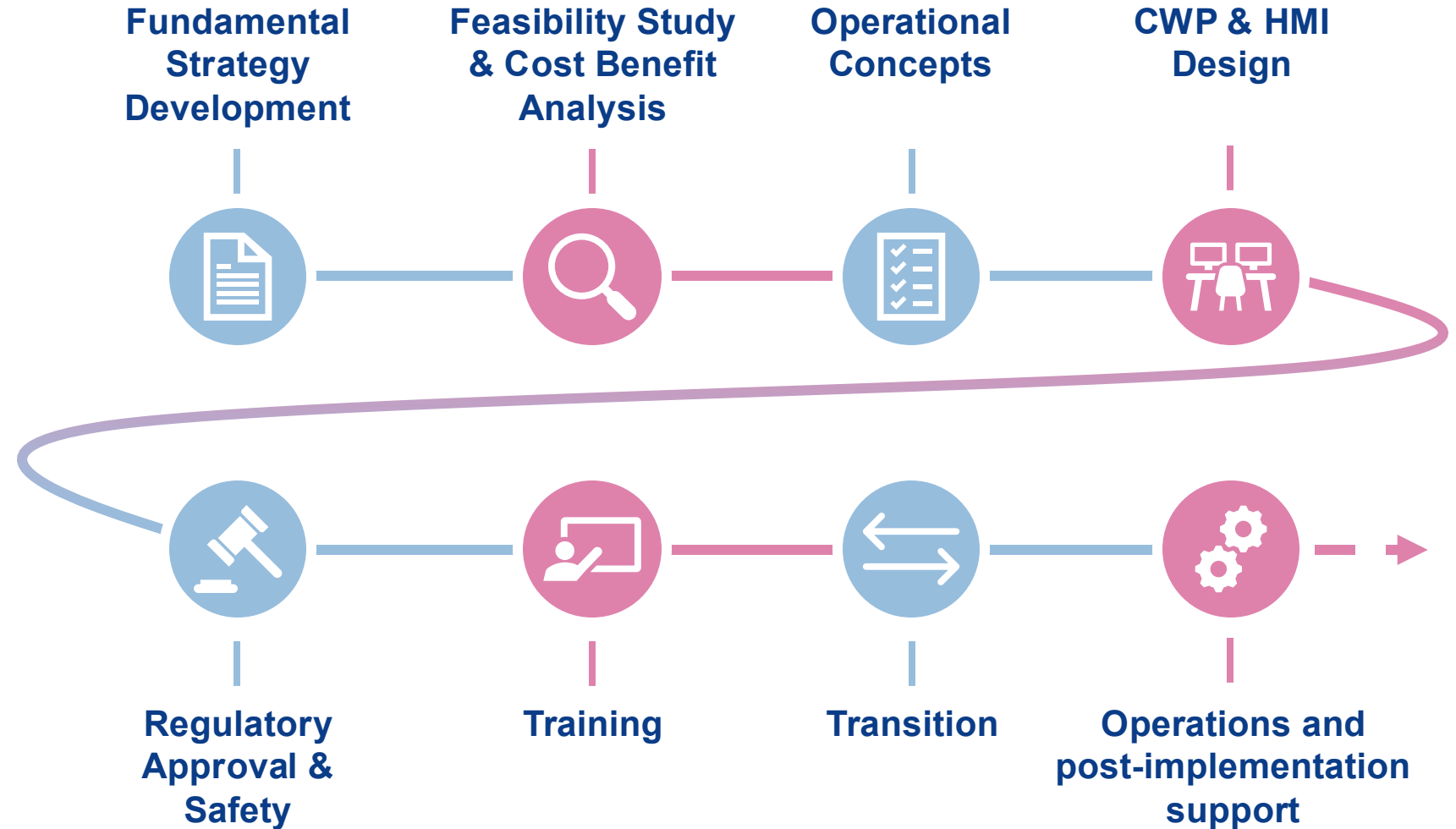


All project phases successfully completed within four months



- Assessment of **feasibility of Remote Tower solutions** for the airports of Vilnius, Kaunas, Palanga and Siauliai.
- Definition of **scope**, analysis of **feasibility** for different RDT use cases, evaluation of **costs** as well as **concept development**.

ROAD TO YOUR SOLUTION





FUNDAMENTAL STRATEGY DEVELOPMENT

WHAT?

For a remote tower project, the first step is to find the most suitable strategy. This includes defining the desired objectives, scope as well as the time horizon. Should the implementation of an RTC project result in cost savings or is it about the effective provision of air traffic control services from one Center, where tower and approach are to be merged?

WHY?

With the right strategy, many important fundamental questions can be answered effectively. DAS supports customers in selecting the right solution from the various remote tower concepts.



FEASIBILITY STUDY & COST BENEFIT ANALYSIS

WHAT?

The feasibility study is essential on the way towards actual project implementation. It provides an essential conceptual basis and prepares a possible tender by defining the requirements of the overall system. Key individual requirements can be identified, particularly with the help of site inspections and discussions with the various stakeholders.

WHY?

This phase also includes an analysis of the cost-benefit balance, in which the financial aspects and the realization of a successful business case are defined. Thanks to its RTC experience, DAS can optimally support the analysis of cost drivers and the identification of synergies.



OPERATIONAL CONCEPTS

WHAT?

The implementation of a remote tower project requires a set of concepts on various topics such as training and transition. The general operational concept lays the foundation on which all other concepts are built. It describes the detailed structure of the systems and their use as well as subsequent operation.

WHY?

The operating concept thus answers the "what" and "how" of the remote tower solution. DAS analyses the current traffic and operational situation at the airport in order to consider individual adjustments for remote operation. This allows the operating phases to be optimally defined and safe flight operations to be guaranteed.



CWP & HMI DESIGN

WHAT?

A key aspect is the development of the controller workstation (CWP), which must be addressed carefully at an early stage. It represents the central environment for the controller, including the new external view replacement system.

WHY?

A suitable HMI design can enable intuitive control functions and improve acceptance of the system. Intensive validation as part of a series of tests can ensure that the operational requirements for safe and efficient flight operations are met. DAS is familiar with important aspects of validation and can provide support with the operational experience gained from its own RTC projects.



REGULATORY APPROVAL & SAFETY

WHAT?

As with any other major implementation of air traffic services or ATM systems, a **comprehensive safety assessment** is required before the introduction of a remote or virtual tower solution.

WHY?

In this context, **official approval of the new remote tower solution** is also an important milestone for these projects. On the one hand, this depends on structured and reliable documentation, but also on a well-coordinated process throughout stakeholder management.



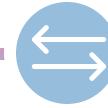
TRAINING

WHAT?

In order to be able to start operating a remote tower solution, not only is the "physical" equipment required, but the **operating personnel of the controllers and technical engineers must also be trained** accordingly.

WHY?

To this end, an **individually tailored and content-based training plan** is important in order to convey the changes to the work routine. In addition to the theoretical content, this also includes the use of a **simulation environment** with operation-specific traffic scenarios that effectively map the local requirements.



TRANSITION

WHAT?

The planning of the entire operational transition from a conventional tower to a remote tower is based on the **transition plan**. It includes the planning and control of all important milestones with regard to installation, the establishment of new services and interfaces to existing systems as well as the **acceptance and test series leading to the commissioning**.

WHY?

This allows important measures to be defined and potential risks to be identified. Extensive testing of individual systems and operating scenarios is essential for a high level of confidence in operational usability. Our **experienced transition and change management is the key to success**. Following the introduction of RTC in Germany, DAS is using its experience and knowledge to ensure a smooth transition.



OPERATIONS AND POST-IMPLEMENTATION

WHAT?

The project is not completed with the commissioning of a remote or virtual tower solution. Now it is a matter of **realising the post implementation phase and having possible fallback scenarios** ready. Have the set goals been achieved, have any additional requirements for the system arisen during the subsequent operational tests or is there a need for changes?

WHY?

These are important questions that must be answered consistently to **ensure a stable and beneficial implementation in the long term**. If further airports are to be integrated, a **thorough lessons-learned analysis** is also important. DAS benefits methodically and in terms of content from numerous project experiences.

PROJECTS.

**DAS RTC Center
Lower Saxony,
Brunswick
(EDVE, EDWE)**

**DFS RTC Center
Leipzig
(EDDR, EDDE,
EEDC (tba))**

**DFS Validation
Project Virtual
Tower Munich**



EXPERTISE.



and
many
more

”

*The first coffee - the start
of a strong partnership.*

”

Technology drives us.

”

*A network for success –
strong partnerships in aviation.*

”

*We act today for the
aviation of tomorrow.*

AHEAD.

DFS GROUP
EXPERIENCE

INTER-
DISCIPLINARY
EXPERTS

ANSP & ATCO
PERSPECTIVE

INDEPENDENT
FROM
SUPPLIERS

TURNKEY
SOLUTIONS

KNOWING
PARTNER-
SHIPS

At **DAS**, we offer more than “just” consulting services! We guide you through the whole project implementation process starting from **strategy development** to **post implementation support**. Through close collaboration, we can take on challenges based on your desired level of involvement – whether this is a **turnkey solution** or **advisory services**.

“We support the customer **from early strategy inception until implementation** and later operations. As **certified ANSP** with experience in **Remote Tower** we can assist in projects as an advisor for experienced guidance or take over the role as **full-service provider** including the technical infrastructure realisation. “



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