

# UNPACKING SESAR SOLUTIONS REMOTE TOWER SERVICES

12-13 JUNE 2014, DUBLIN AIRPORT



**Eamonn Brennan**  
Irish Aviation Authority  
IAA

Hosted by:



#SESAR



# Remote Tower Services

**Eamonn Brennan, Chief Executive, Irish Aviation Authority**

**Unpacking SESAR Solutions**

**12-13 June 2014, Dublin Airport**

**Firstly.....**

# **IAA Overview**





# Agenda for Presentation



IAA Perspective



Key Metrics



Regulatory Perspective



IAA Opportunities



Next Steps



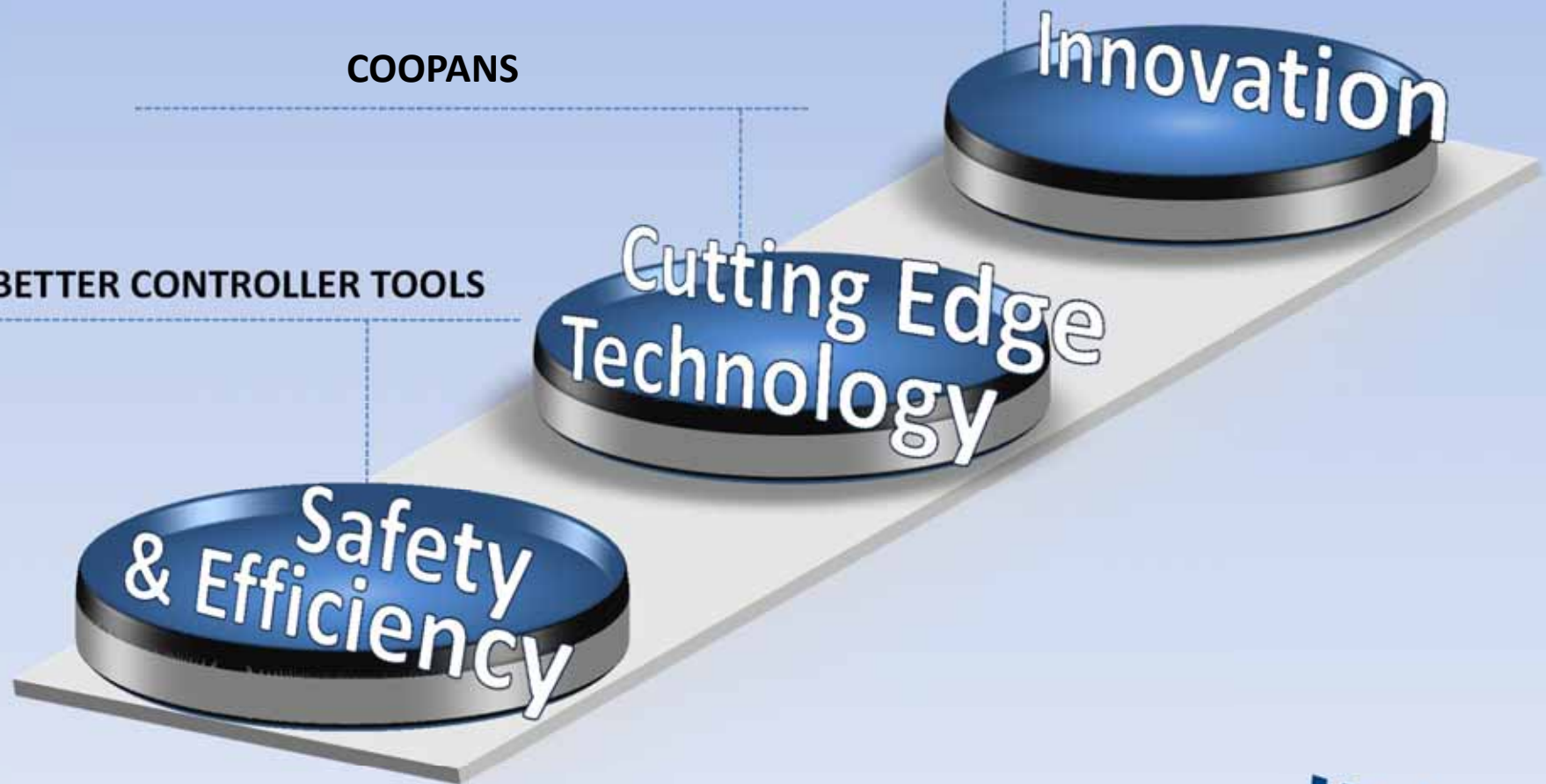


# IAA Perspective

RVSM/FREE ROUTE / POINT MERGE / AIREON

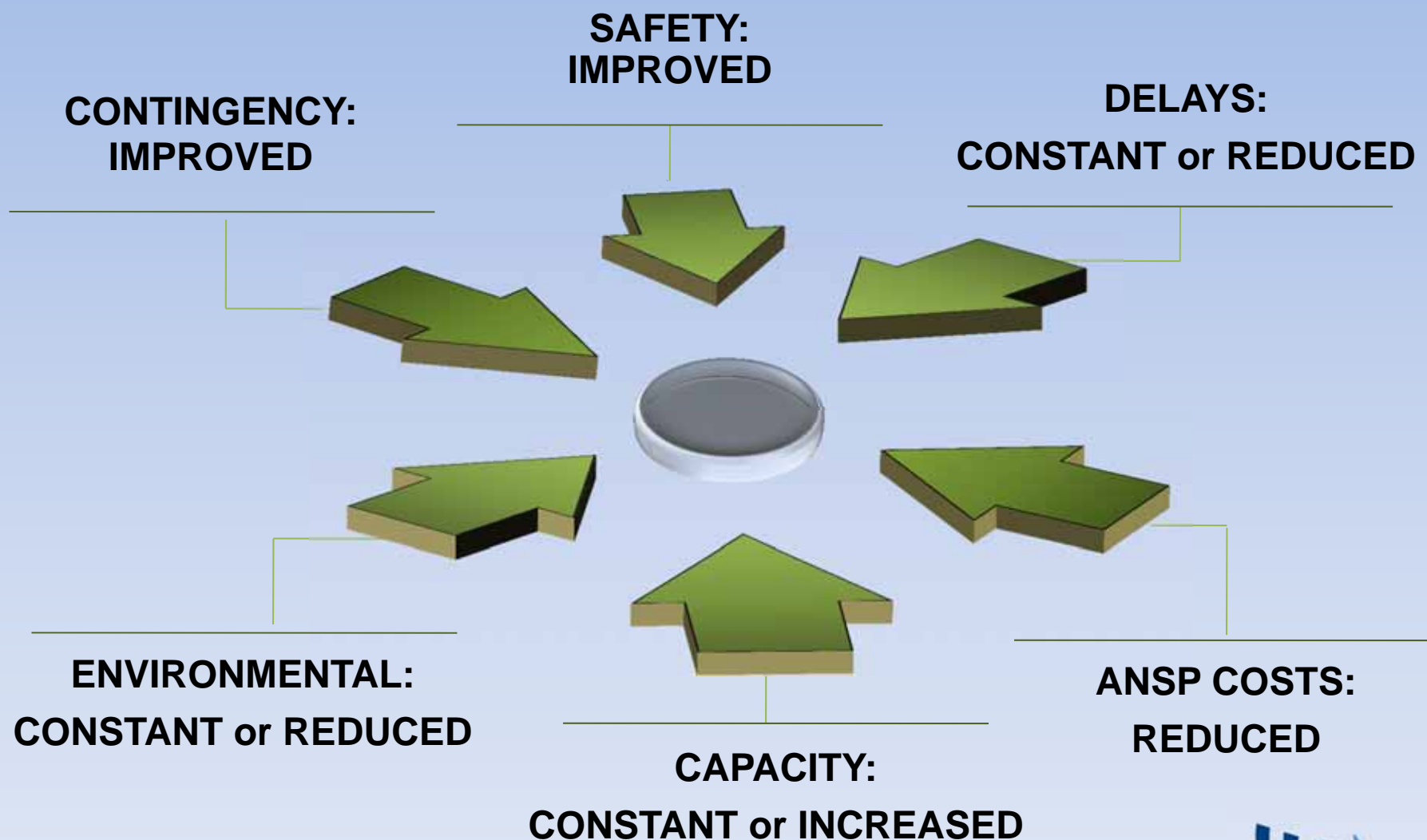
COOPANS

BETTER CONTROLLER TOOLS





# Remote Towers – Key Metrics





# Remote Tower Regulatory Perspective

- **Supervision of Remote Tower Developments**
- **Ensuring that Safety Objectives are set and met**
- **Ensuring that Performance Objectives are set and met**
- **Providing agreement to put Remote Towers into service**
- **1 Remote Tower to cover two airports?**





# Remote Tower Opportunities

## Benefits



- IAA Opportunities

**Overseas  
Airports**



**Regional  
Airports**



**Cork & Shannon  
Towers**





# Remote Tower Next Steps

**SJU Large Scale  
Demonstrations**



**Industrialisation**



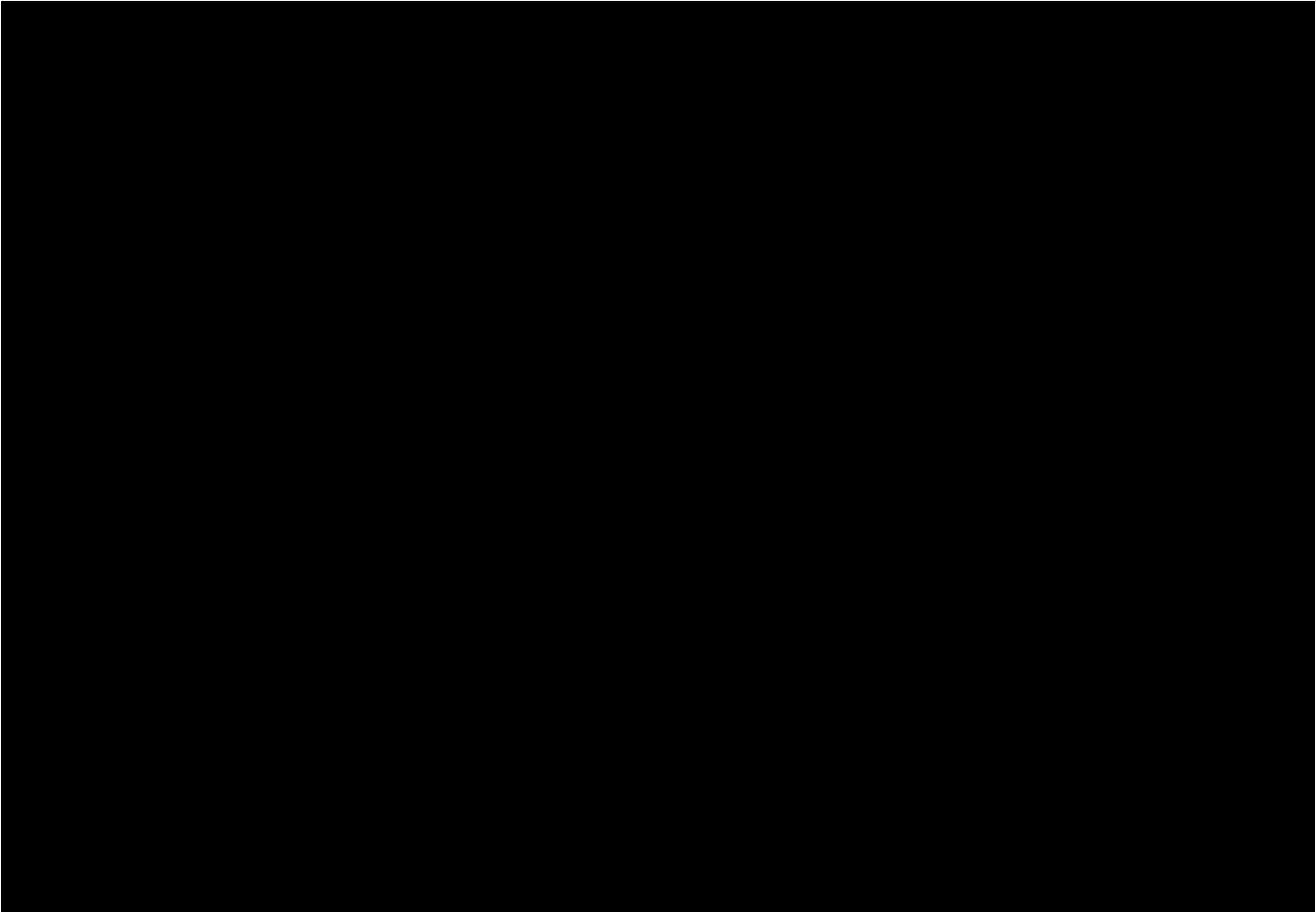
# Finally.....

Another World First for IAA

From Concept to Successful  
Demonstration in 6 Months

## FlightFest





# Remote Towers

**THANK YOU FOR YOUR ATTENTION  
QUESTIONS?**



# UNPACKING SESAR SOLUTIONS REMOTE TOWER SERVICES

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**Ingrid Cherfils**  
**Anders Erzell**

Swedish Transport Agency

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#SESAR

# Remote Tower System

Dublin, June 12-13, 2014



# The role of the Swedish Transport Agency





# Governmental Transportation Policy

A wide-body jet airplane, likely a SAS aircraft, is parked on a snowy tarmac. The sky is a mix of orange and blue, indicating sunset or sunrise. In the background, there is an airport terminal building and a tall control tower. The ground is covered in snow, and a small orange cone is visible in the foreground.

# Strategy for the Swedish Transport Agency

# Joint efforts

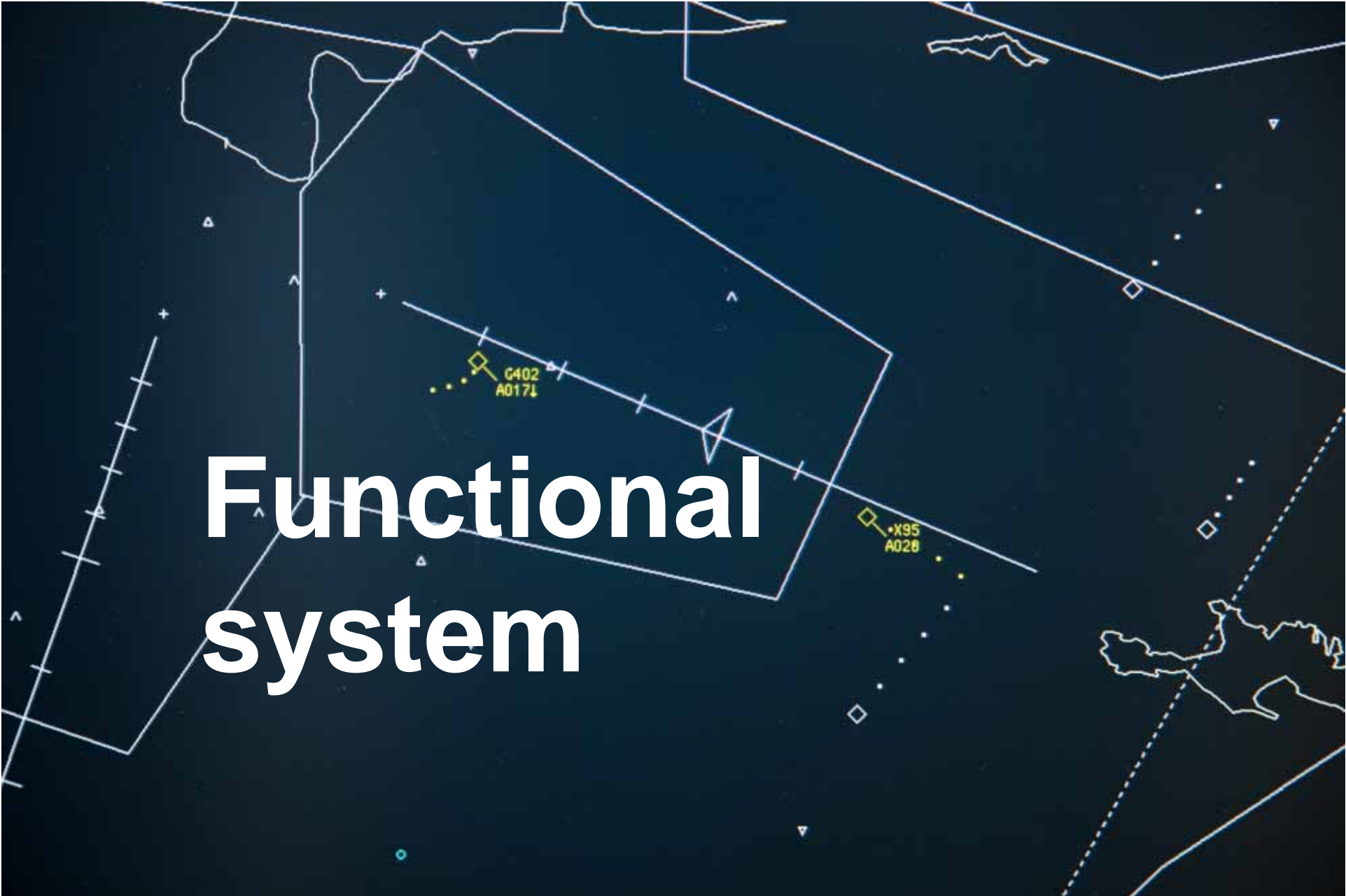




# A safety-related change



# Safety oversight

An aerial photograph of a coastal region, likely in Sweden, showing a network of roads and a functional system. The system is represented by a series of yellow lines and markers. Two specific points are labeled: 'G402 A017L' and 'X95 A028'. The text 'Functional system' is overlaid in large white letters.

# Functional system

# National law TSFS 2012:6



# Approval process



# Situation today



# Next step



# Lessons learned

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## Willem Zuidfeld

International Federation of air Traffic  
Controller's Association  
IFATCA

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international federation of  
air traffic controllers' associations

# IFATCA's view on the concept of Remote Tower Services

Willem Zuidveld  
Tower/Approach Controller  
Rotterdam - The Hague Airport

Willem Zuidveld  
[environment.coord@ifatca.org](mailto:environment.coord@ifatca.org)





international federation of  
air traffic controllers' associations

# IFATCA and Remote Tower Services:

Representing 121 air traffic controllers' associations, with a combined membership of over 50,000 air traffic controllers from around the world.

## - Strong concerns on the implementation

Goals of the Federation:

- To promote safety, efficiency, and regularity in international air navigation.
- To assist and advise in the development of safe and orderly systems of air traffic control and new procedures and facilities.
- Essential issues need to be addressed

IFATCA, Technical and Operations Committee & Professional and Legal Committee:

- Working closely together with IALPA (ATS Committee) and ECA.
- Representatives participating in SESAR, and EASA.
- Representatives in ICAO ANC, Panels and Working Groups.





international federation of  
air traffic controllers' associations

# Consequences of a Network Reconfiguration Tower





international federation of  
air traffic controllers' associations

# IFATCA Policy since 2007:

**Before any Aerodrome Control Service Concept can be endorsed by IFATCA, the following requirements shall be met:**

- Contingency procedures shall be in place;
- **The introduction of Aerodrome Control Service Concepts shall be subject to a full safety analysis and relevant safety levels shall be met;**
- **Controllers shall be involved in the development of Aerodrome**

## **Control Service Concepts.**

Visual observation in ATM is defined as: Observation through direct eyesight of objects situated within the line of sight of the observer possibly enhanced by binoculars.





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air traffic controllers' associations

# IFATCA Policy adopted in 2014:

ATCOs shall not be required to provide a Remote and Virtual tower service for more than one aerodrome simultaneously



standards, procedures and equipment for Remote and Virtual  
Tower systems are required





## ECA Position:

ECA supply ECA the level support of RVT in one of the safety of flight operations, provided that Single RVT has been gained and human factor and technical implications have been thoroughly researched. Common of problems in regard to RVTed practices and definitions, especially:

- procedures are developed by ICAO covering flight procedures, contingency procedures in case of hardware malfunctions (e.g. camera, separation standards and minimum requirements of systems and controller working positions) and system downgrades sensors among others.
- Communication procedures and regulations for airspace around RVT (e.g. transponder mandatory zones)
- Avoiding holding patterns or diversions due to staff shortages
- Ensuring that real-time weather is accurately assessed and transmitted to pilots



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# Eye Strain, Fatigue, and Performance Impairment





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# Separation established with (compressed) video screens?





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***We can all recognize the possible  
benefits of Remote Tower Services,  
but do we also recognize the possible  
pitfalls?***

**Thank you for your  
attention!**

Willem Zuidveld  
[environment.coord@ifatca.org](mailto:environment.coord@ifatca.org)



# UNPACKING SESAR SOLUTIONS REMOTE TOWER SERVICES

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## Niclas Gustavsson

LFV

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#SESAR

# **LFV presents Air Traffic Services 2.0**

## **Unpacking SESAR Solutions**

Dublin 2014

Niclas Gustavsson

Director Business Development

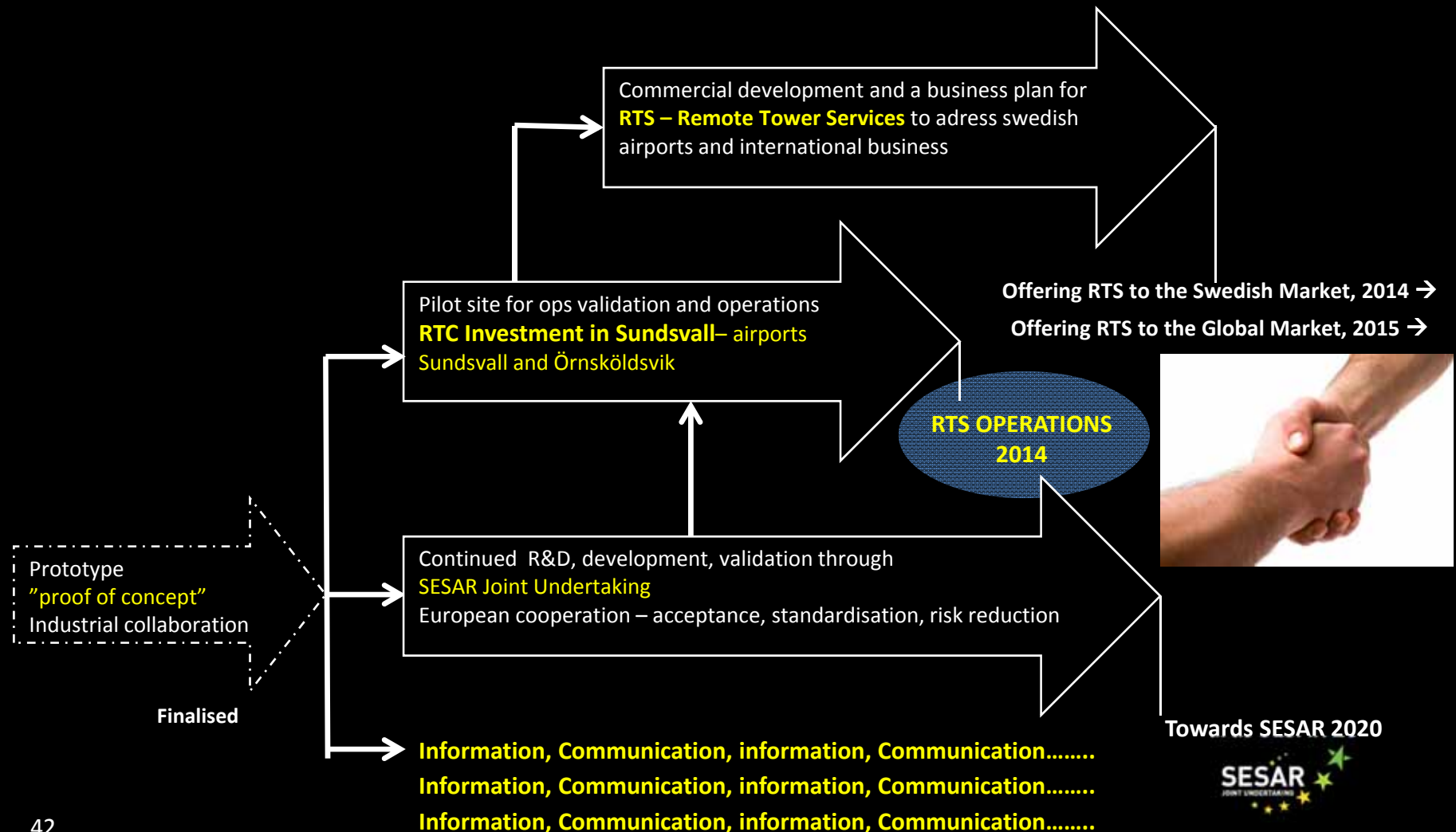
LFV



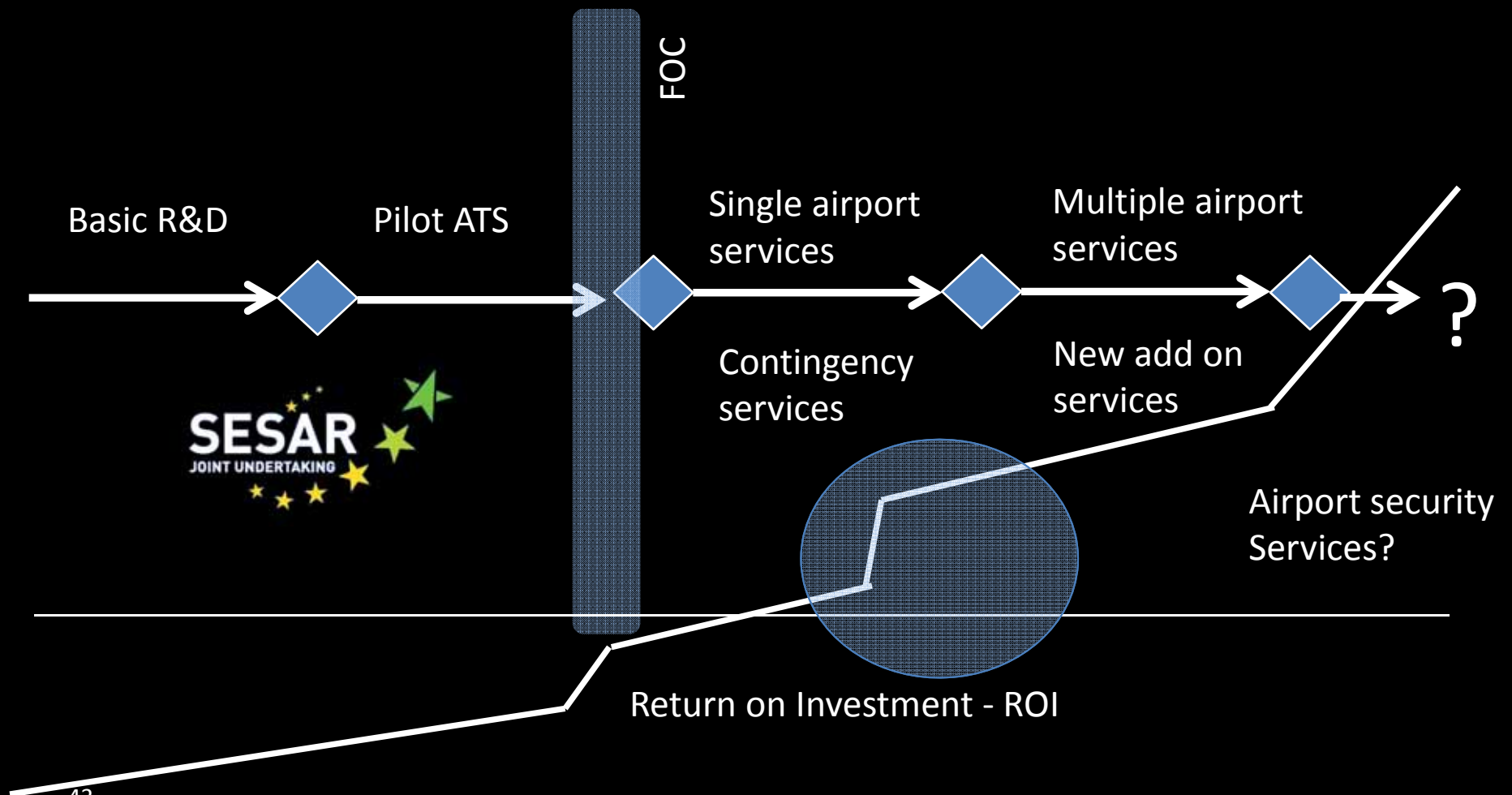
## A changing environment for ANSPs – time to act !



# Remote Tower Service – the way to get there !



# Remote Tower Services – evolution of the business case



SAFELY GUIDING AIR TRAFFIC INTO THE FUTURE



# To see is to believe!

## RTC facility in Sundsvall – serving two airports



To see is to believe!  
Do I need to invest in a new tower ? – no a mast with cameras!



14 Cameras  
2 Zoom cameras  
2 Signal lights  
2 Microphones

## Team work to make it happen !

Airports

Airlines

SESAR

Staff org.

Regulator

Industry

LFV board

Media

"the  
champions"

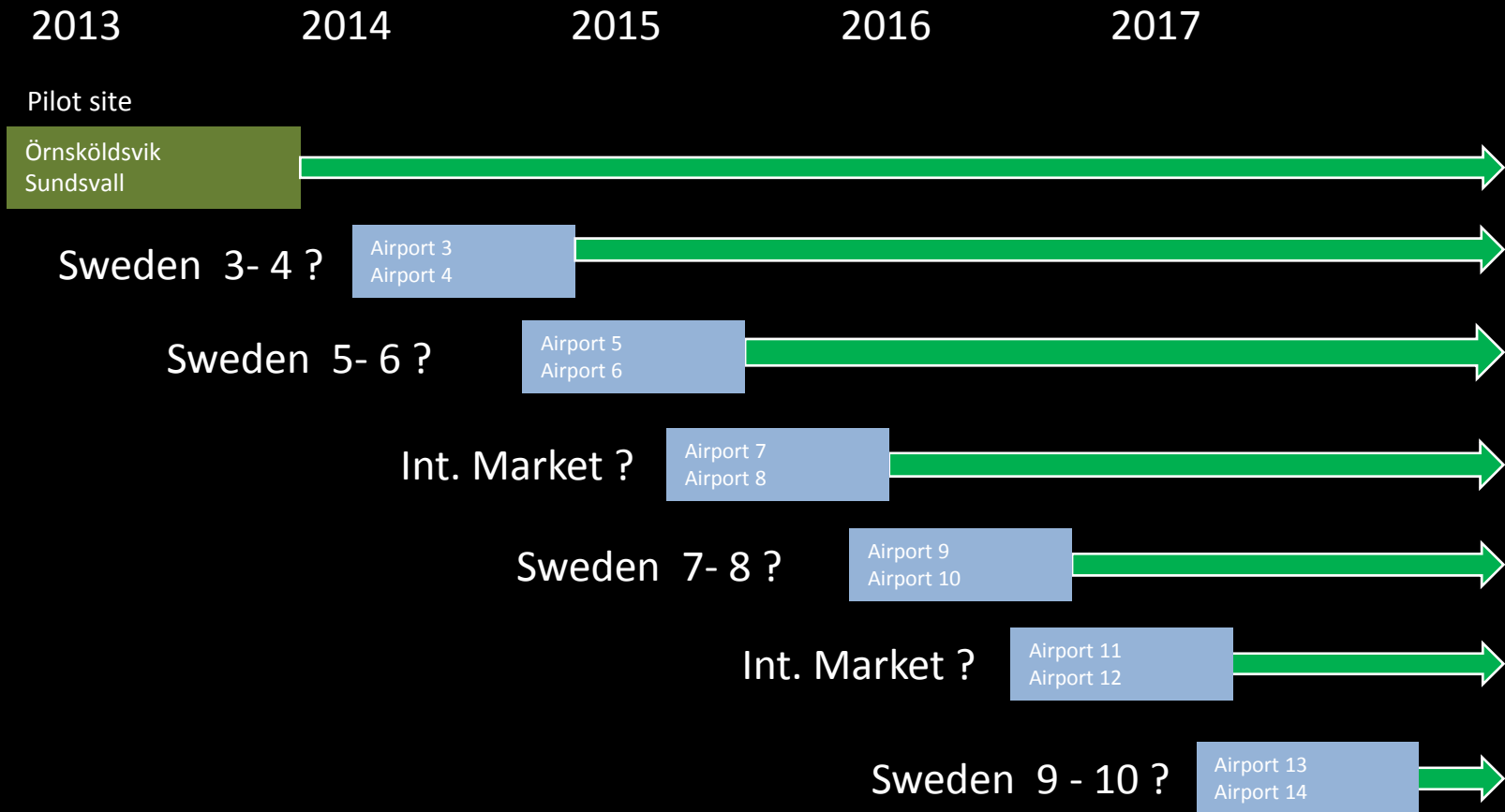


## Towards approval and operations 2014





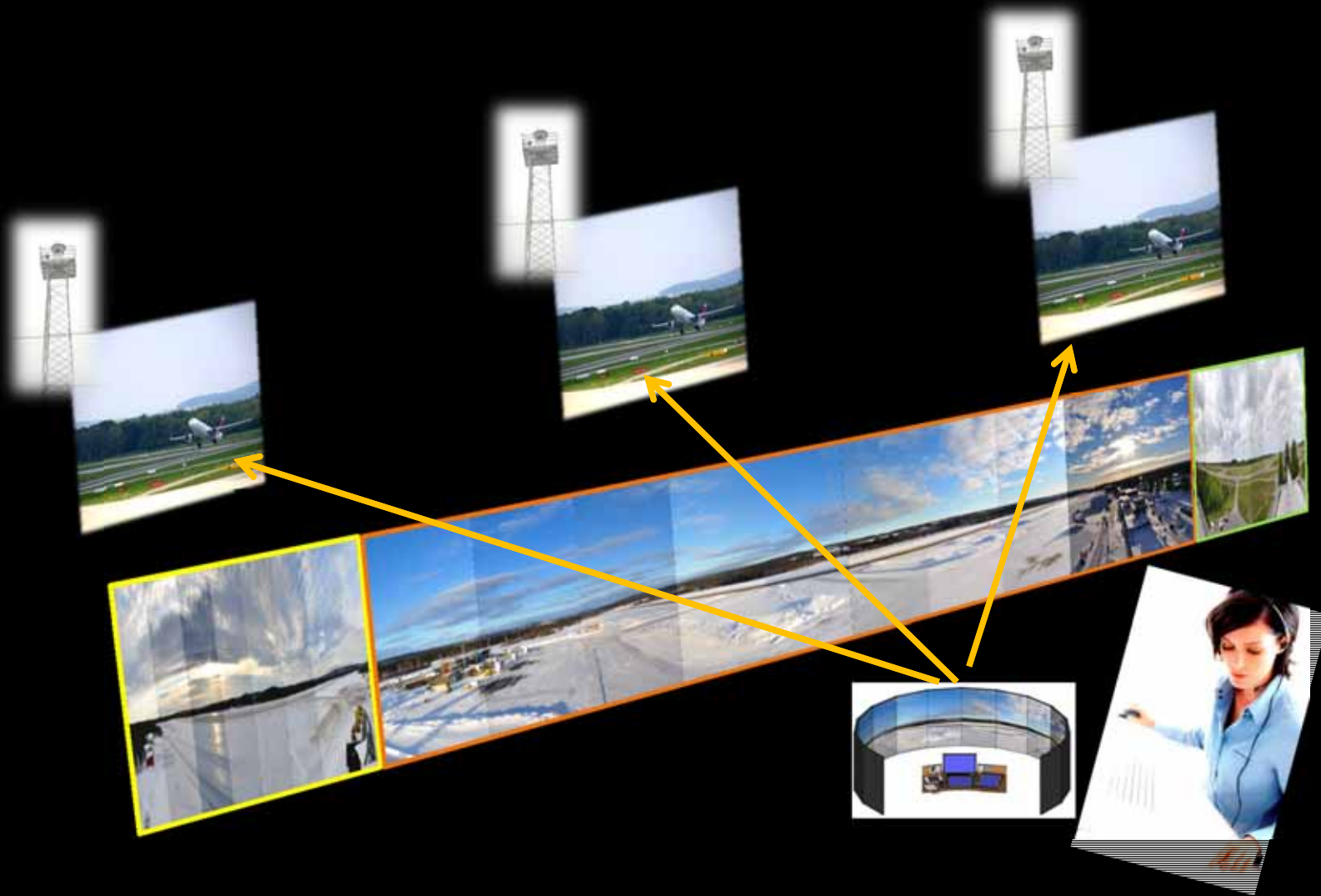
## RTS Roll out plan – the customers decision



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# The Challenge and the prize for the industry !





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# UNPACKING SESAR SOLUTIONS REMOTE TOWER SERVICES

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## Hans Hedde

DFS

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#SESAR

# Remote Tower Control (RTC)

**An innovative solution for the provision of air traffic services**

Hans Hedde, Business Unit TWR

Dublin, 13<sup>th</sup> June 2014



**DFS** Deutsche Flugsicherung

# Contents

- DFS Tower Environment
- Implementation Plan and Motivation
- DFS Conclusions
- Outlook and Opportunities

# Overview DFS Tower



- 16 international airports
- Candidate RTC TWR
  - Saarbrücken
  - Erfurt
  - Dresden
  - Münster / Osnabrück
  - Bremen

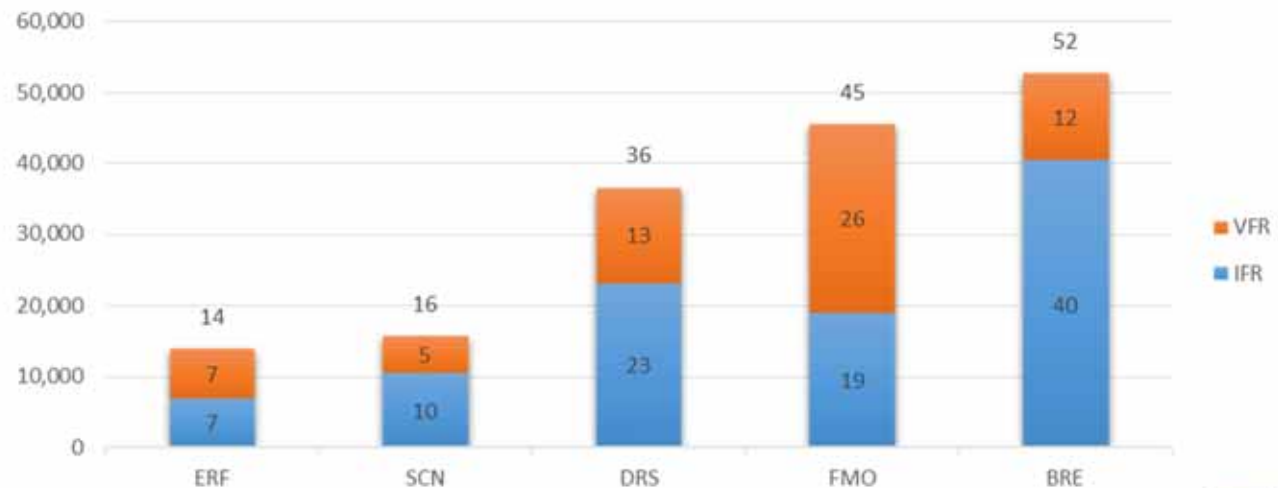
● Headquarters  
● Tower

# DFS Remote Tower Environment

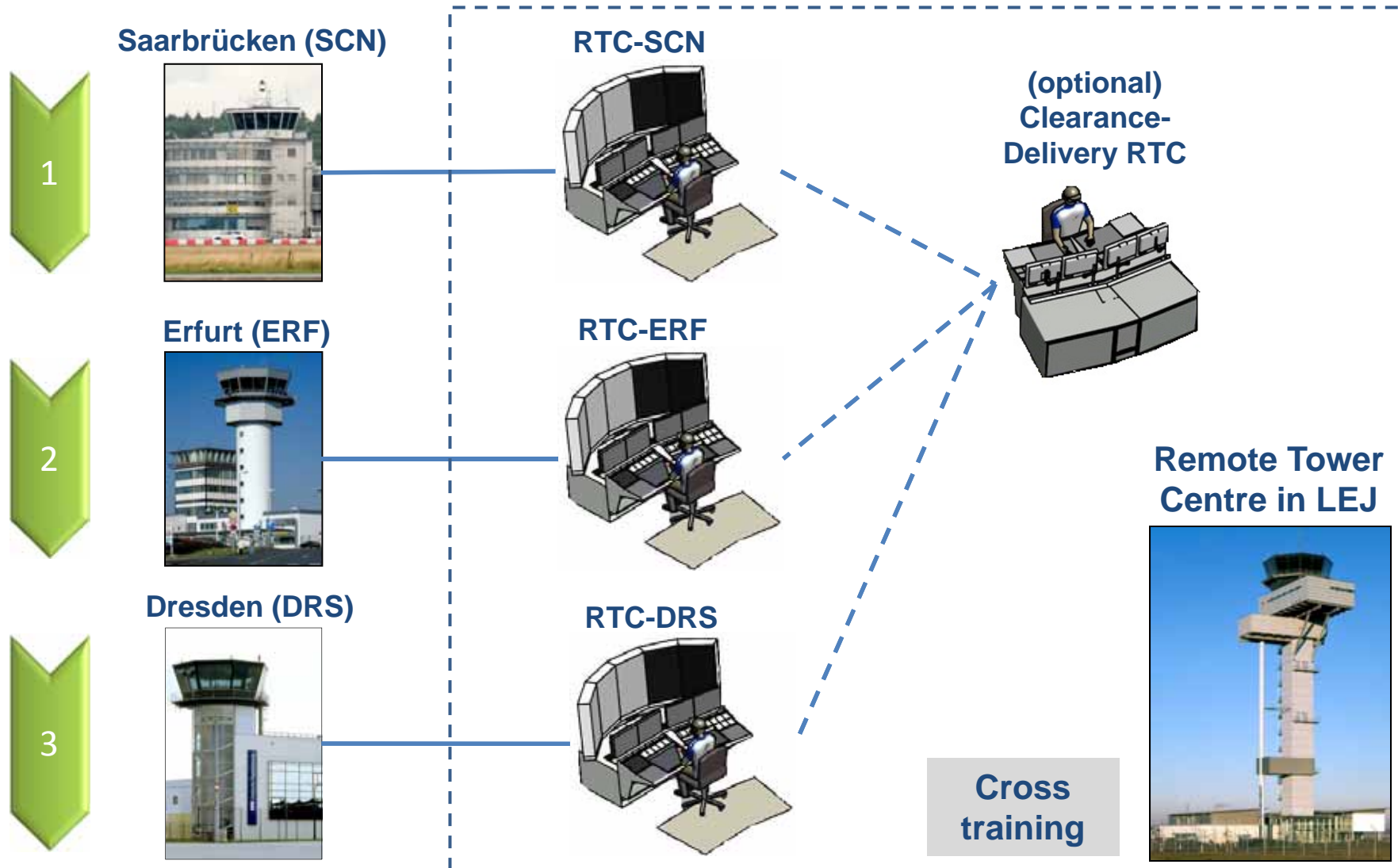
## Aerodrome Control Services

- Stand alone TWR with ATS service
- Approach unit is part of ACC
- Meteorological service provided by German MET agency (DWD)
- Manifold traffic (e.g. police and rescue helicopter, flight training etc.)
- Service in general 7 days, 24 hours (exceptions apply)

## Traffic Volumes 2013



# Stepwise Implementation (2016 – 2018)



# Remote Tower Control – Motivation

## Increased Cost Efficiency

### Efficient use of operational staff

- More efficient shift planning (pooling of staff)
- Flexible assignment of roles

### Lower Maintenance Cost

- Centralised maintenance staff
- Centralised offices and uniform system infrastructure

### Reduced Invest Cost

- No need for new tower buildings
- ATM systems can be reused at Remote Center

## Benefit for ATCO

### Cross Training

- Job enrichment due to proficiency for several locations

### Better Information

- use of infrared cameras
- overlay information

# DFS Conclusions on Remote Tower Services (1)



Technology for visual reproduction is available

- Need for standardization has to be evaluated, e.g.
  - Latency limit of image transfer
  - Data communication with other ATM systems
  
- Harmonisation of systems useful (at least within one Remote Tower Center)
  - ATS systems used
  - HMI interface to external system, e.g.
    - airport (airfield lighting / ground communication)
    - firebrigade



# DFS Conclusions on Remote Tower Services (2)



## Training and licensing

- ADI rating module remains unchanged
- Each tower holds its own unit endorsement (incl. RTC)

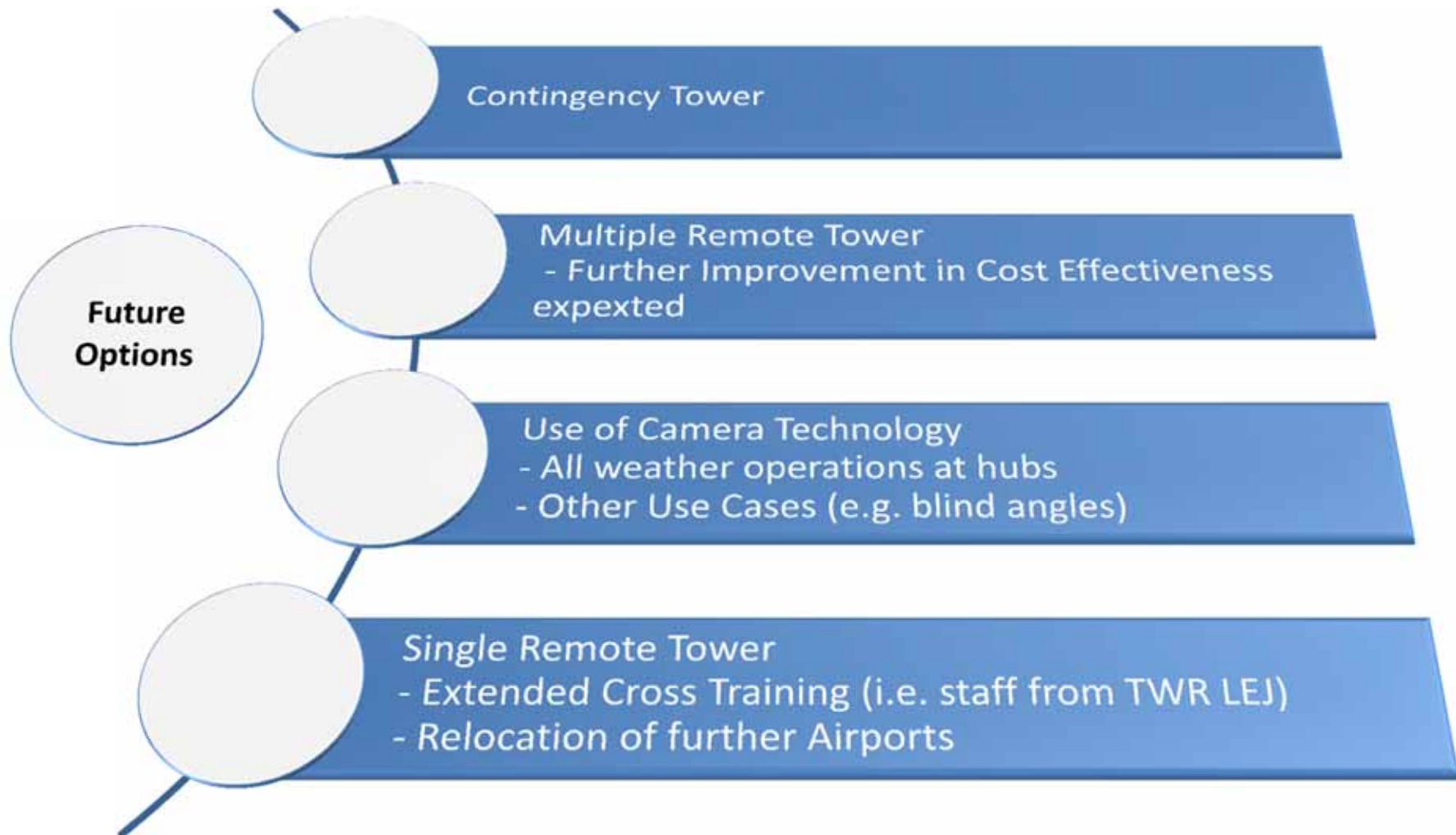


## Introduction of Remote Tower is about change management

- Stakeholders to be closely involved in the whole process
- An evolutionary process
  - start with small towers, then bigger ones and multiple remote

Remote Tower Services is one keystone to increase productivity and for cutting costs

# Remote Tower Control – Future Options



# Multiple RTC Validation (SESAR)

## DFS / DLR Validation – Multiple CWP



- General feasibility proven though still work to be done
- High amount of traffic  
→ Continuously traffic at both airports
- Solution limited to two airports
- High workload with the associated traffic
- CWP design needs to be improved

**Thank you for your attention!**

**Questions?**



**DFS** Deutsche Flugsicherung