



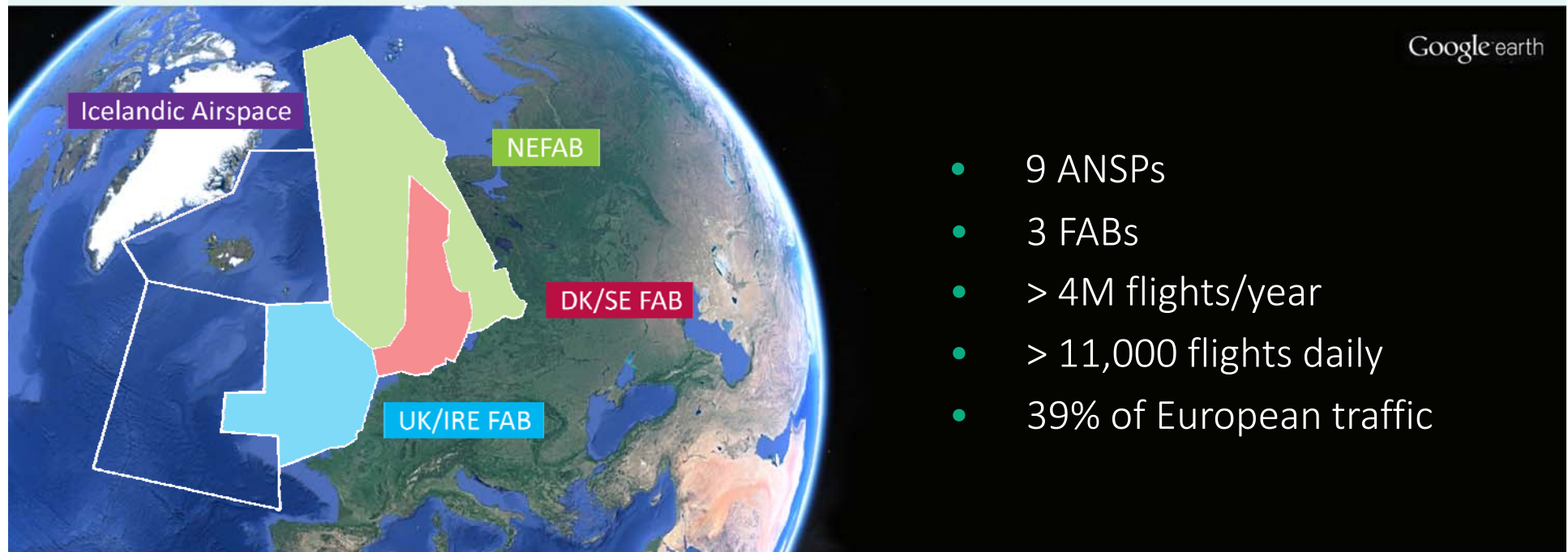
borealis
ALLIANCE



*Borealis Free Route Airspace Programme
~ Cross-Border Collaboration in Practice ~*

*Gwen Morgan - Borealis Alliance Executive Director
Lauri Hilander – Borealis Alliance & FRA Support Role*

Borealis Alliance



- 9 ANSPs
- 3 FABs
- > 4M flights/year
- > 11,000 flights daily
- 39% of European traffic



Borealis Alliance Free Route Airspace (FRA) Programme

- ***Commenced on 1st January 2015 and is expected to run until 2021, when the vision will be realised***
- ***“Free Route” within Borealis FRA takes into account EUROCONTROL definition as well as regional practices***
- ***Free Route Airspace is key to the delivery of fuel efficient and environmentally friendly user preferred routings from the eastern boundary of oceanic airspace to the western boundary of Russian airspace***
- ***Our aim is to enable airspace users to fly efficient routes which can be planned for in advance, allowing savings such as reduced fuel load to be realised***
- ***For more information please see <http://www.borealis.aero>***



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Free Route Airspace (FRA) Programme

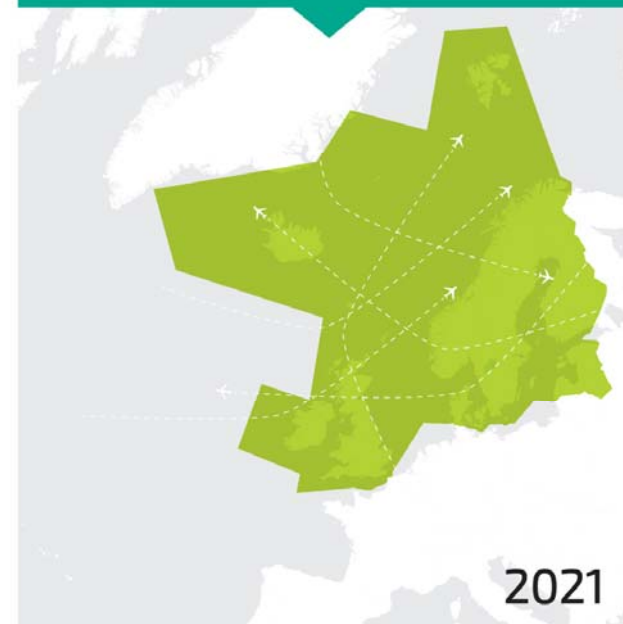


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Present status of Borealis FRA



Final vision of Borealis FRA – 2021



North European FRA (NEFRA)



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- NEFRA is the North European FRA Programme for implementing **seamless interface** between FRA in two Functional Airspace Blocks (FABs): DK-SE FAB and NEFAB
- NEFRA programme, launched in March 2013, delivered the following:
 - Common Flight Planning Rules in FRA across the two FABs in November 2015
 - Seamless FRA interface between Estonia, Denmark, Finland, Latvia and Sweden in June 2016 for flights above FL285
 - Seamless FRA interface for flights above FL285 between six States and two FABs in May 2017
- This is the largest and first FRA across two FABs where airlines can plan and fly their preferred trajectories across state and FAB borders
- Airspace users will perceive the whole area as one continuous FRA

Borealis FRA Implementation Steps



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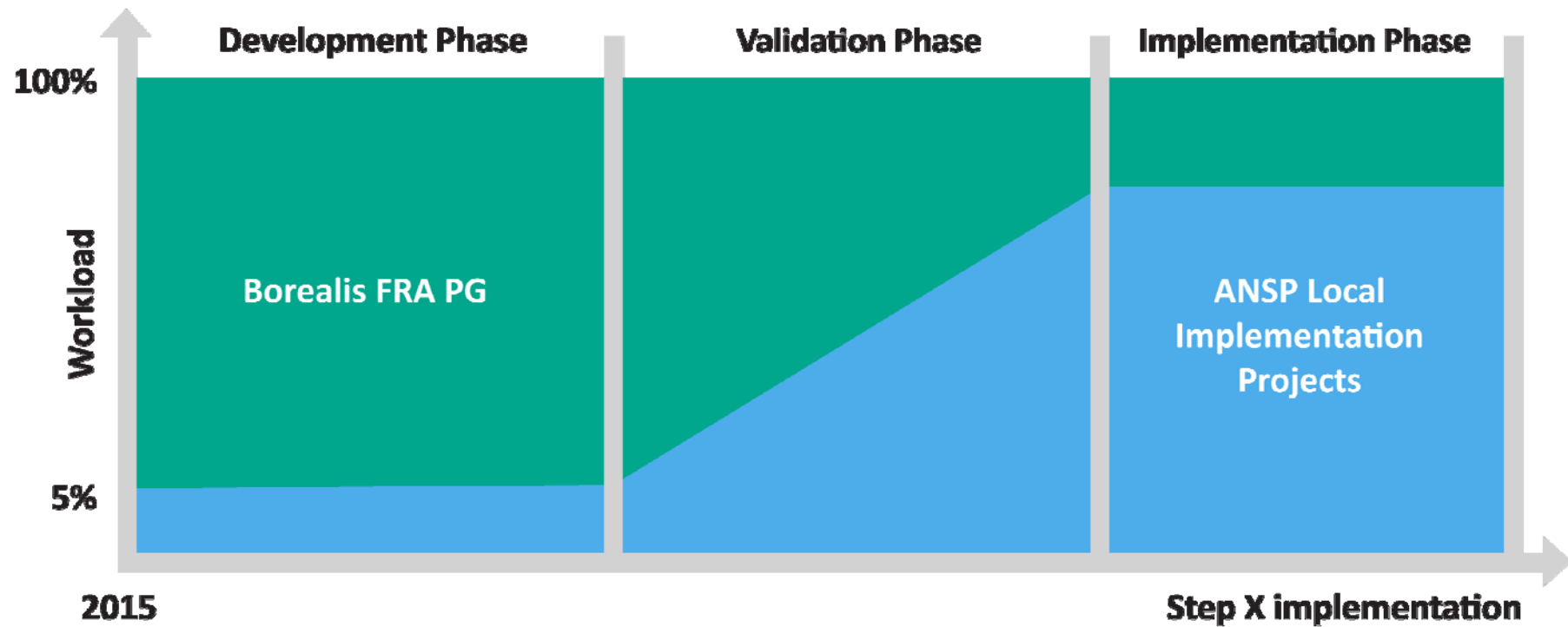
- *4/7 implementation steps remain (2018 – 2021)*

LEAD ANSP	STEP	Planned
Isavia	FRA for flights departing/arriving within Reykjavik FIR via Norway FIR	Completed
Isavia	FRA for flights departing/arriving within Reykjavik FIR via Scottish FIR	Completed
IAA	Extension of FRA in Shannon FIR down to FL75	Completed
Isavia	FRA for all transiting via Norway and Scottish FIRs	2018
NATS	Implementation of FRA in eight Scottish FIR sectors	2020
NATS	Full implementation of FRA in Scottish FIR and parts of London FIR	2021
NATS	Full implementation of FRA in London FIR	2021

Borealis Alliance FRA Project Group (PG)

- ***Formed in 2015 with the intention to build on the successful implementation of FRA in Shannon's Upper Airspace and to evolve further the work conducted by the NEFRA programme***
- ***Consists of nine very experienced operational experts who meet bi-monthly***
- ***Tasked to develop and maintain some of the key Borealis Alliance FRA documents***
- ***Tasked to engage on an on-going basis with the Network Manager***
- ***Internal implementation remains the responsibility of each Borealis Member (ANSP) – managing the transition from design status into operational status is crucial***
- ***FRA PG also manages the work of several expert sub-groups***

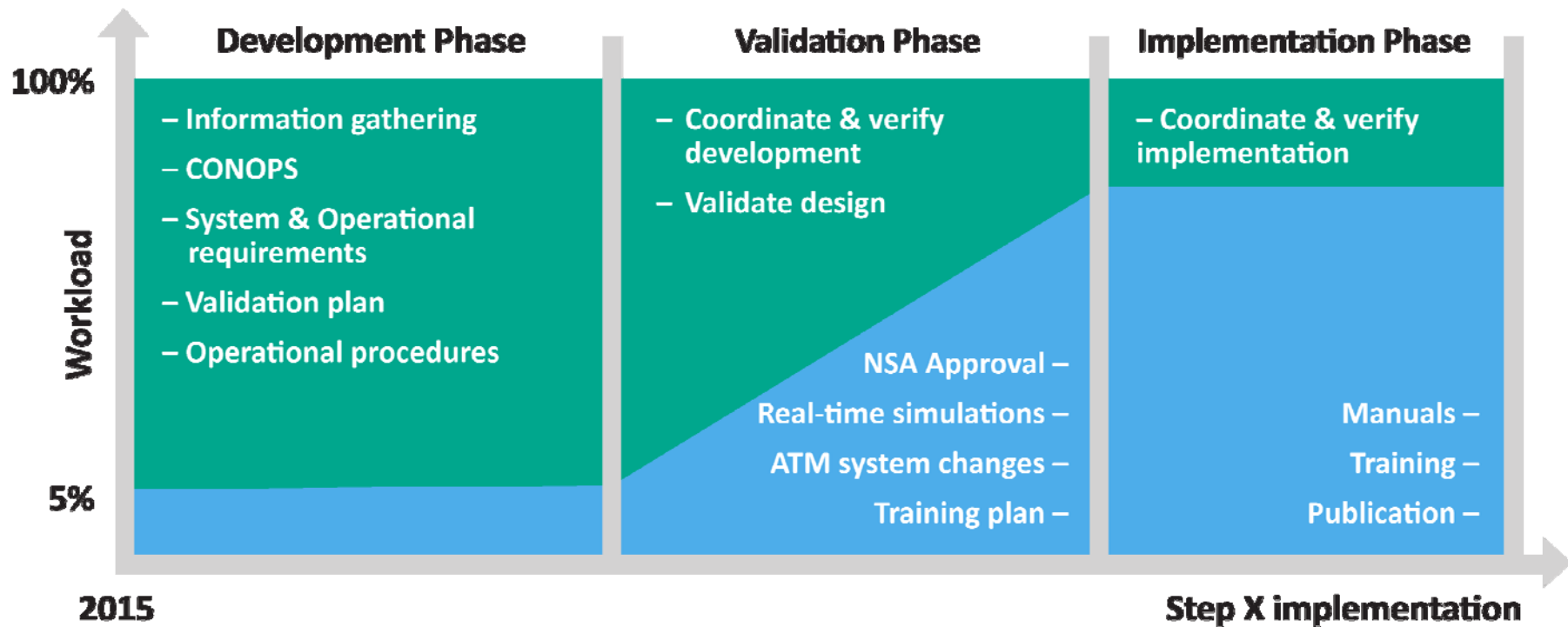
Borealis Alliance FRA - Workload Sharing



Project Group (3/6)

- **Tasked to develop and maintain some of the key Borealis FRA documents:**
 - CONOPS
 - Programme Management Plan
 - Technical Specification Document
 - Technical Validation Document
 - Operational Validation Plan
 - Safety Assurance Report
 - Borealis FRA ATCO procedures
- **Tasked to provide an on-going engagement with the Network Manager**
- **Internal implementation remains the responsibility of each Borealis Member (ANSP) – managing the transition from design into the operations is crucial**

Workload Sharing (4/6)



Borealis Alliance FRA PG – successful collaboration

Secret of successful collaboration at expert level:

- ***Choice of experts = wealth of knowledge***
- ***At the start of the programme, regular two-day meetings ensured plenty of time for discussion and brainstorming of ideas from nine different ANSPs***
- ***Chairing and coordinating workload split between two Co-Chairs***
- ***Clear steer from the Borealis Alliance FRA Steering Group***
- ***Full support from the Alliance Executive Management***
- ***Clear transition mechanism from design into implementation – local implementation managers nominated at an early stage***

Example – development of Borealis FRA CONOPS:

- *Starting with previous work of NEFRA Programme and adjusted the concept to satisfy Members' local service requirements*
- *With more participants, more time was allowed brainstorming and discussion*
- *Focused on harmonizing the customer view – differences handled locally behind the scenes*

Project Group (6/6)

An example – development of the Borealis FRA CONOPS:

- Starting from previous work of the NEFRA Programme and adjusting the concept to satisfy everybody's local service requirements
- Trying to harmonize the customer view – differences handled locally behind the scenes
- With more participants, more time needs to be reserved for brainstorming and discussion

Collaboration with 9 State NSA Group

- ***Formed in spring 2015***
- ***Clear decision to support the Borealis Alliance FRA programme and other Borealis Alliance activities***
- ***Group meets twice a year to receive the regular updates from the Borealis Alliance FRA programme***
- ***9 State NSA Group remains an informal regulatory body that engages with the Borealis Alliance FRA programme***
- ***The formal lines of communication between ANSPs and NSAs remain via ANSPs and/or FABs***

Examples of commonly addressed issues:

- *Borealis Alliance programme's compliance with the FRA relevant regulations*
- *Common FRA publication process*
- *Review of the Borealis FRA concept*
- *Coordination of the common Borealis related NSA issues with EASA and ICAO*

Chair of 9-State NSA Group (Kari Siekkinen): "The 9-State NSA Group, established to support the Borealis Alliance's work, is a benchmark for regulatory cooperation across Europe. We are committed to working together to explore how we can best help this exciting initiative deliver for Europe's airspace users."

Borealis Alliance FRA estimated benefits (incl. NEFRA) 2022¹ (per annum)



Seamless airspace
7M Nm
>1M min



Cost savings²
€60M



Reduced fuel burn
46K t



Less emissions
146K t CO₂
641 t NO_x

1 Borealis FRA SAAM modelling results for the seven implementation steps

2 Fuel cost + Operating cost savings



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9 State NSA Group

Secret of successful collaboration at the Regulatory level:

- Wealth of knowledge and experience
- Engagement and support from EASA and EC
- Shared vision of the needs of our customers
- Trust and openness
- Building on common ground and understanding while acknowledging local challenges and differences
- Continuous exchange of information between the 9-State NSA Group and Borealis Alliance (progress reporting)

9 State NSA Group

Examples of commonly addressed issues:

- Borealis programme's compliance with the FRA relevant regulations
- Common FRA publication process
- Review of the Borealis FRA concept
- Coordination of the common Borealis related NSA issues with EASA and ICAO



Thank you for your attention!

For more information, please visit www.borealis.aero, find us on [LinkedIn](#) or contact directly:

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