SDM WORKSHOP

FREE ROUTE AIRSPACE

MAY, 29TH 2019, BRUSSELS

AGENDA

01 - Introduction

02 - Challenges & Limitations

03 - Best Practices

04 – System Evolution

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01 - Introduction

- CFSPs provide different flight planning solutions according their customer needs (airlines, business aviation, military operators)
- CFSPs act as data integrator (Global AIS) for AIP and NOTAM
- CFSPs enable airspace users to operate a global network, across borders, regions…
- CFSPs have implemented individual solutions to cope with dynamic airspace changes and restrictions, some are automated, some require manual effort…
- CFSPs use different algorithms to generate a trajectory and flightplan
- Final responsibility remains on the AOs which flightplan to use and if they want to change it

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02 – Challenges & Limitations

- Free Route is easy until you apply numerous restrictions.
- Complexity of FRA, RAD and FUA requires more and more iterations to identify optimum PLANNABLE trajectories.
- This has a measurable impact to calculation times which can not only be solved by additional hardware but requires software enhancements.
- Reduces flexibility for AOs to react on short notice to changes/improvements.

02 – Challenges & Limitations

- Fairly fragmented airspace in Europe with various (non/low-unified) requirements, affecting also cross-border FRA implementations, where we find lack of effective and optimum route options.
- Introduction of new and more restrictions, creating the airspace with more and more complexity, including connections to/from FRA airspace, time constraints, etc.
- Vertical connectivity often an issue as well.
- NM uses generic aircraft performance data which leads to different 4DT compared to filed flight plan

02 – Challenges & Limitations

- Free Route in many cases is a translation of current flow methodologies into an airspace on which many restrictions are applied.
- Traffic flows and corridors remain the same because the sector configurations remain rather unchanged.
- LOAs remain largely unchanged as far as we are aware.
- Given the perceived lack of change in traffic flows – couldn't the so far realized benefits have been achieved by instead improving the fixed airway network?

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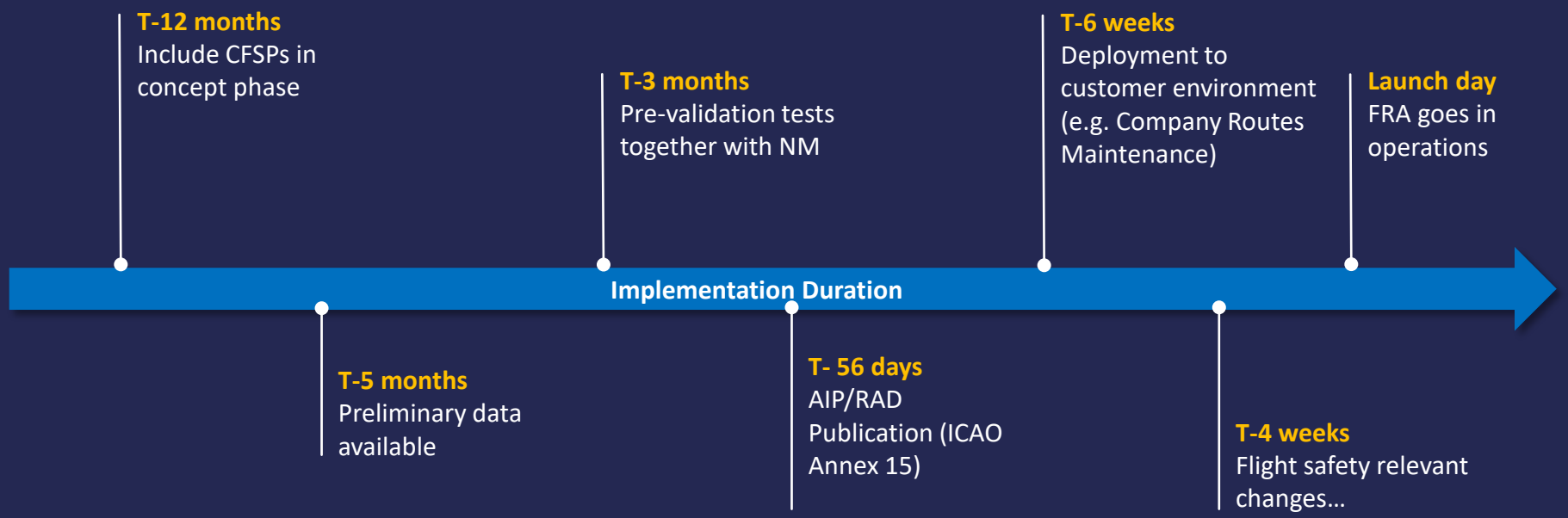
03 – Best Practices

Implementation Timelines



03 – Best Practices

CFSP Involvement

- Early involvement of CFSPs already during conception phase and for pre-validations.
- Single point of contact from ANSPs for CFSPs.

RAD housekeeping

- Removal of obsolete rules…
- Replacement of very complex rules by rather simple rules…
- Workshop proposed with algorithm specialists of CFSPs and restriction publishers to establish guidelines simplifying RAD restrictions.

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04 - System Evolution

- Jeppesen is generating dynamic trajectories and using eRAD and eAUP/eUUP via B2B data exchange
- Jeppesen does not agree that RAD simplification is required as stated in the presentation, but does agree that harmonisation is required
- Jeppesen pioneered EFPL, and is implemented in production.
- Jeppesen is ready to deliver 4D trajectory data via FF-ICE in line with the project status

04 - System Evolution

Lufthansa Systems

- Pre-validations in cooperation with our Lido/Flight 4D customers - based on preloaded data and rules in the dynamic Lido/Flight database utilizing statistical upper air data.
- Lufthansa Systems is implementing a new optimization algorithm developed together with the ZUSE Institute and will continue the research on special algorithms for Free Route.
- Lufthansa Systems is committed to deploy 4D trajectory filing. Intensive test have already been performed within the SESAR 1 and SESAR2020 program together with NM and and other (key) stakeholders and will soon be also commenced in the context of the Eurocontrol FPFDE task force in view of FF-ICE/FIXM.
- Lufthansa Systems sees the urgent need to improve ATM systems to a more automated way of handling normal flight operations to achieve an actual Free Route environment and is therefore cooperating with major FMS manufacturers on integrated solutions for the cockpit.

04 - System Evolution

- Sabre has been part of the SESAR program and worked on EFPL enablement
- This continues with the Sabre participation on SESAR Deployment (INEA program) to support deployment of 4D trajectory with the FF-ICE implementation (FIXM), rolling ASM/ATFCM as a part of AFUA concept and
- Sabre will continue evolution of the flight planning product, being one part of our entire Airline solution suite, in alignment with the global aviation industry development and requirements
- We see a potential, benefits and urgent need of the further ASM/ATFCM enhancement, however there are sometimes challenges, (i.e. all parties alignment, insufficient specification, gaps and changes in reqiurements, etc.) which prevents efficient and early adoption of such enhancements

Summary

- CFSPs are key enablers for AOs to generate the best plannable route and profile for a flight based on their operational needs and commercial interest.
- Close cooperation between all stakeholders is essential to design, develop, test and deploy new procedures and regulations.
- Variety and complexity of FRA, rules and restrictions (RAD) need to be reduced, keep it simple and keep it consistent!
- Further harmonization between the different FRA implementations is required!

Thank you for your attention!

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