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PBN – A Commercial Data and Service Provider Perspective -

Are we ready to go?

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Evolution of Procedure Design and Charting

**Analog Past**

- Ground-Navaid, Complex, Fixed paths, Non-standard, Manually flown, Paper

**Digital Future**

- Satellite-based, Simple, Flexible paths, Repeatable, Predictable, Data-driven, Electronic
The Aeronautical Data Supply Chain
... a simplified view

Data Originators

- Airports
- CNS Infrastructure
- Airspace designers
- ATC
- Others

State AIS Organizations
IAIP NOTAMs PIB etc.

Commercial Data Providers
Avionics Database Processors

End User
- Airlines
- Pilots
- Other Airspace Users

Upstream Data Operation
Downstream Data Operation

ICAO SARPs
Industry Standards
The Aeronautical Data Supply Chain
... legacy downstream data operation
The Aeronautical Data Supply Chain

... Future AIM-PBN-NDBX downstream data operation

FMS Database Processes
Standardized, optimized, binary aircraft loadable database
PBN Opportunities

Capacity and Access
- Terrain and obstacle challenged areas
- Repeatable, predictable tracks
- Reduced separation (in some cases now, much more in future)
- Closer tolerances with bordering airspaces
- Higher airport throughput

Efficiency
- Fuel/time saving routes in all phases of flight
- Fewer verbal transmissions, less ATC workload

Safety
- Auto-flight operations
- Stabilized approaches

Environmental
- Reduced fuel burn (CDO/OPD and a/c configuration)
- Noise reductions via path design and a/c configuration
- Reduced CO2 emissions
Key Issues

- **Accurate and timely source data**
  - Move to digital and AIXM

- **Maturing Regulatory frameworks and approval processes**
  - Limited global expertise
  - Lengthy environmental reviews
  - Lengthy and difficult operational approval processes
  - Slow progress to adjust separation criteria for full benefits

- **Operational**
  - Limited CAA/ANSP knowledge/ownership of 3rd party designs
  - Issues between FMS/aircraft performance vs. design of procedure
  - Controller knowledge and training
  - Mixed equipage operating environments

- **Funding** – who pays
The Future is Here

Dynamic Gate-to-Gate Charting and Procedures
Commercial Data Supplier/Designer Perspectives

Summary

- PBN greatly improves the safety, efficiency and structure of the airspace system
- PBN demands high quality aeronautical information (accuracy, resolution, integrity and timeliness)
- Open access to State aeronautical information is essential for highest integrity developments and new capability innovation
- **Qualified** Commercial Data Suppliers are key to the quality, harmonization, integration, and operational distribution of PBN data
- PBN implementation can and should accelerate