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FF-ICE Awareness webinar for AFI States
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FF-ICE AWARENESS WEBINAR
FOR AFI STATES

Highlights on requirements/status for FF-ICE in the AFI region

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HIGHLIGHTS ON REQUIREMENTS

- ❑ Core functional requirements

- ❑ Operational phase support

- ❑ Security and Compliance

- ❑ Regional Adaptations

- ❑ Infrastructure and Resilience

- ❑ Implementation Phasing

- ❑ Funding & Resource Allocation

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Core functional requirements

- **Flight Information Management System (FIMS)**

Requirement: A centralized platform to aggregate, validate, and disseminate flight data (e.g., flight plans, weather, airspace status) across stakeholders.

ICAO Doc 9965 (Vol I & II) outlines FIMS as the backbone for FF-ICE, enabling multi-phase data sharing (strategic to post-ops).

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Core functional requirements

- ## <u>Standardized Data Exchange</u>

Requirement: Adoption of ICAO-prescribed formats (FF-ICE/1 for strategic data, FF-ICE/2 for tactical updates) using FIXM (Flight Information Exchange Model) and AIXM (Aeronautical Information Exchange Model).

Annex 11 (Air Traffic Services) and Doc 9965 emphasize interoperability through common data standards.

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Core functional requirements

- **Collaborative Decision-Making (CDM) Tools**

Requirement: Real-time dashboards for stakeholders (ANSPs, airlines, airports) to adjust plans based on shared data (e.g., slot management, flow constraints).

ASBU Block 0 (CDM) and Doc 9971 (Manual on CDM).

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Core functional requirements

- **Interoperability with Legacy Systems**

Requirement: APIs/adapters to integrate FF-ICE with existing AFI systems (e.g., ATC automation, airport ops tools).

Regional Consideration: Address heterogeneous infrastructure (e.g., SACAA vs. less-equipped states).

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Operational Phase Support

- **Strategic Phase (Up to D-2)**

Requirement: Support early submission of flight intent (route, payload, preferred trajectories).

FF-ICE/1 in Doc 9965.

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Operational Phase Support

- **Pre-Tactical (D-1) and Tactical (D-Day) Phases**

Requirement: Real-time updates (FF-ICE/2) for weather, delays, and airspace restrictions.

Regional Consideration: Optimize for low-bandwidth areas (e.g., asynchronous messaging).

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Operational Phase Support

- **Post-Operations Analysis**

Requirement: Tools for performance review (e.g., delay causation, route efficiency).

Doc 9854 (Global ATM Operational Concept) performance framework.

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Security and Compliance

- **Data Security**

Requirement: Encryption (TLS/SSL), role-based access control (RBAC), and audit trails.

Annex 17 (Security) and Doc 9985 (ATM Security Manual).

- **Regulatory Compliance**

Requirement: Automated checks for adherence to AFI Regional ANP (Doc 7474) and Yamoussoukro Decision (open skies).

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Regional Adaptation

- **<u>Offline/Redundant Capabilities</u>**

Requirement: Caching mechanisms and fallback protocols for intermittent connectivity.

Regional Consideration: AFI's varying telecom infrastructure (e.g., SATCOM reliance).

- **<u>Multilingual Support</u>**

Requirement: French/English/Arabic interfaces to align with AFI linguistic diversity.

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Regional Adaptation

- **Capacity Building**

Requirement: Embedded training modules and simulation tools for ANSPs. User-Centered Design: Intuitive interfaces tailored to roles (e.g., pilots, dispatchers, controllers).

AFI Region's Aviation Training Roadmap.

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Infrastructure Resilience

- **<u>Redundancy and Disaster Recovery</u>**

Requirement: Geographically distributed servers and backup power systems.

Contingency Plans: Backup systems and recovery protocols for cyber incidents or outages.

Regional Consideration: AFI's vulnerability to power outages and Cybercrimes.

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Implementation Phasing

Requirement: Prioritize foundational elements (FIMS, data standards) before advanced CDM features.

ASBU Block 0-2 modularity in Doc 9750

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Funding & Resource Allocation

- Securing financial support from governments, development banks and public-private partnerships.
- Leveraging initiatives like the ICAO AFI Plan to address infrastructure gaps

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STATUS OF FF-ICE ROLLOUT

The rollout is a work in progress characterized by;

- Pilot Projects and Trials

- Planning and Requirement-Gathering

- Challenges

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Pilot Projects and Trials:

- Some countries with more developed aviation sectors—such as South Africa—have initiated pilot programs or feasibility studies. These pilots aim to test the system's integration with existing operations and evaluate its benefits in real-world settings.

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Planning and Requirement-Gathering:

- In several other nations, stakeholders are still in the planning phase. Here, efforts are focused on mapping out the technical requirements, assessing infrastructure needs, and securing regulatory approvals before any large-scale deployment.

- Regional and Continental Initiatives:
There are ongoing discussions among regional bodies and international partners to harmonize standards and foster collaboration. Such efforts are essential for a system designed to operate seamlessly across national borders.

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Challenges:

•   Infrastructure Variability: The diversity in technological infrastructure across AFI countries poses a challenge in achieving uniform implementation.

•   Regulatory Harmonization: Aligning multiple regulatory frameworks remains a key hurdle.

•   Funding and Investment: Securing adequate resources for both pilot projects and broader rollouts is an issue.

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Applicable ICAO Documents

- Doc 9965: FF-ICE technical specifications.

- Doc 9750: (GANP).

- Doc 9854: Global Air Traffic Management Operational Concept.

- Doc 7474: (AFI ANP): Regional airspace requirements.

- Annexes 11: Air Traffic Services.

- Annex17: Security.

- Doc 9971: Manual on collaborative ATFM (CDM best practices).

- Doc 9985: ATM Security Manual.

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Thank You!