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Agenda Item 3: Performance Framework for Regional Air Navigation Planning and Implementation

3.4: CNS

THE ICAO PROVISIONS IN VARIOUS ANNEXES AND THE PROCEDURES FOR AIR NAVIGATION SERVICES (PANS) CONCERNING FF-ICE SERVICES AND SWIM-APPLICABLE FROM 28 NOVEMBER 2024

(Presented by the Secretariat)

SUMMARY

This paper presents information about the amendments of the ICAO provisions in various Annexes and the Procedures for Air Navigation Services (PANS) concerning the initial implementation of the flight and flow — information for a collaborative environment (FF-ICE) services and SWIM, applicable from 28 November 2024.

Strategic Objectives:

- B: ***Air Navigation Capacity and Efficiency*** — *Increase the capacity and improve the efficiency of the global aviation system*

1. INTRODUCTION

1.1 The flight and flow- information for a collaborative environment (FF-ICE) concept was intended to address limitations and constraints of the current flight planning mechanism and enable the transition to a fully collaborative environment where a flight trajectory is shared and optimised during all phases of a flight (i.e. trajectory-based operations (TBO) environment).

1.2 The FF-ICE concept has been transposed into ICAO provisions as **six defined services** (*planning service, **filing service (mandatory service)**, trial service, **flight data request service (mandatory service)**, notification service and publication service*), which can be implemented incrementally and voluntarily. Each service must be supported by an associated set of harmonised procedures and standardised messages. While focusing primarily on interactions prior to departure, these provisions are intended to cover broad areas of applicability in the lifecycle of a flight and allow for successive incremental additions to the provisions. Where the implementation is determined, two of the FF-ICE services (filing service and flight data request service) shall be provided as a minimum since **these services are pre-requisite to replace the current flight planning mechanism**, commonly known as the ICAO flight plan 2012 (**FPL2012**).

1.3 Furthermore, the **FF-ICE services are required to use information services which, in the context of system-wide information management (SWIM), address machine-to-machine interaction in a service-oriented architecture.**

1.4 This paper shares information about relevant amendments related to the implementation of FF-ICE services in various Annexes and PANS for Member States/Administrations information and necessary action.

2. DISCUSSION

2.1 Proposals for amendment (PfA) of **Annexes 3, 4, 10, Volumes II and III, 15, PANS-ABC, PANS-AIM, as well as the publication of the first edition of PANS-IM**, concerning aeronautical information management, system-wide information management and information security were shared through ICAO SL Ref.: AN 2/36-23/6 **13 February 2023.**

2.2 The proposals for amendment were raised from the second meeting of the Information Management Panel (IMP/2) organised by subject as they relate to aeronautical information management, system-wide information management and information security. **The proposed first edition of PANS-IM provided the necessary interoperability and harmonisation of a modern means of exchanging information, based on a service-oriented architecture, to all members of the air traffic management (ATM) community** following the character and temporality of the information and the specific needs of each member. Moreover, it included the removal of any barrier between systems and data domains so that unified interfaces can be used and, therefore seamless access to global information can be provided.

2.3 Information security is a fundamental aspect of information management. The loss of confidentiality, integrity and availability of the information may impact the safety of flight operations. For this reason, the newly proposed PANS-IM includes **a series of information security procedures.** The proposal also includes consequential **amendments to Annex 10, Volumes II and III, and PANS-AIM.**

2.4 The proposals for amendment of **Annexes 2, 10, Volume II, PANS-ATM (Doc 4444), PANS-AIM (Doc 10066)** and consequential amendments to **Annexes 1, 6, Parts I, II and III, 9, 11, 16, Volume IV, PANS-OPS, Volume III (Doc 8168), and PANS-ABC (Doc 8400)** concerning the initial implementation of the flight and flow — information for a collaborative environment (FF-ICE) services were shared through SL AN 13/2.5, AN 2/33.1-22/108 dated **29 December 2022.**

2.5 The proposals focus primarily on interactions **prior to departure** as envisioned in the FICE thread of the Aviation System Block Upgrades (ASBU) framework. They were intended to cover broad areas of applicability in the lifecycle of a flight and allow for successive incremental additions to the provisions to cater for the evolution of the FF-ICE services. Regarding an appropriate document for hosting new requirements or procedures, the current structure of provisions related to “flight plans” and “flight planning” was used as a reference. Accordingly, the main proposals for amendment were made to Annex 2, Annex 10, Volume II, PANS-ATM (Doc 4444) and PANS-AIM (Doc 10066).

2.6 The major changes introduced to the flight plan provisions with the applicability date of November 2012 **were meant to be an interim measure** pending transitioning to implementing the FF-ICE concept. Therefore, no further intermediary investment related to the existing flight planning system was recommended. In this regard, the proposed amendment intended to ensure no impact on airspace users and air traffic services (ATS) providers unless they elect to provide and/or use the FF-ICE services to avoid the intermediary system modification that would generate significant cost and could delay transitioning to the implementation of the FF-ICE services.

2.7 The introduction of the FF-ICE services required a **new term**, “**preliminary flight plan**”, which can be submitted prior to filing a flight plan for a **collaborative flight planning** between a unit providing FF-ICE planning service and an operator or designated representative. Considering this new type of flight plan is not necessarily provided to an ATS unit, the proposal amended the definition of “flight plan” to make it generic about to whom the information is provided to accommodate the anticipated filing of flight plans using FF-ICE services.

2.8 The proposal considered the flight plan evolving into different types (**operational, preliminary, filed and current flight plan**), each of which had a specific audience and purpose, as this was an essential foundation for the FF-ICE and TBO concepts. In addition, the proposal intended to clarify the difference between the existing terms “filed flight plan” and “current flight plan”, which often led to different interpretations among controllers and pilots.

2.9 All provisions concerning “flight plan” and “flight planning” contained in Annexes and PANS were reviewed and consequential amendments were proposed to various Annexes and PANS. These amendments were to support the mixed-mode operation where the existing flight planning mechanism and FF-ICE services co-exist and ensure the correct use of the term “flight plan” and when applicable, specific types of flight plan.

2.10 Following the consultation of the proposals for amendment concerning **both FF-ICE and SWIM with States and international organisations** (as described in 2.1 and 2.2), the proposals for the amendment were further modified to accommodate the comments received during the consultation. These amendments were reviewed by the Air Navigation Commission and adopted/approved by the ICAO Council.

2.11 State Letters informing the adoption and approval of relevant Annexes and PANS concerning FF-ICE services and SWIM were shared by following Letters:

1. Amendment 179 to **Annex 1- SL 2024/28**
2. Amendment 48 to **Annex 2- SL 2024/29**
3. Amendment 49 to **Annex 6 Part I- SL 2024/34**
4. Amendment 41 to **Annex 6 Part II- SL 2024/35**
5. Amendment 25 to **Annex 6 Part III- SL 2024/36**
6. Amendment 93 to **Annex 10, Vol II- SL 2024/24**
7. Amendment 92 to **Annex 10, Vol III- SL 2024/25**
8. Adoption of Amendment 53 to **Annex 11- SL 2024/31**
9. Adoption of Amendment 43 to **Annex 15- SL 2024/40**
10. Approval of Amendment 34 to the *Procedures for Air Navigation Services- ICAO Abbreviations and Codes (PANS-ABC, Doc 8400)- SL 2024/46*
11. Approval of Amendment 12 to the *Procedures for Air Navigation Services — Air Traffic Management (PANS-ATM, Doc 4444) - SL 2024/41*
12. Approval of Amendment 3 to the *Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066)- SL 2024/42*
13. Approval of the first edition of the *Procedures for Air Navigation Services — Information Management (PANS-IM, Doc 10199)- SL 2024/39*
14. Approval of Amendments 11, 10, 3 to the *Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168)*, Volumes I, II, III respectively- **SL 2024/45**

2.12 The ICAO provisions in various Annexes and the Procedures for Air Navigation Services (PANS) concerning FF-ICE services and SWIM are expected to become applicable on **28 November 2024**. The guidance material is also expected to become available for this applicability date.

2.13 Toward regional efforts to support APAC States/Administration for initiating work on FF-ICE R/1, the APANPIRG/33 Meeting held from 22-24 November 2022 in Bali, Indonesia acknowledged **Decision ATM/SG/10-3: Establish FF-ICE Operational Requirements Small Working Group**, to prepare a set of harmonised operational requirements of Flight and Flow Information for a Collaborative Environment (FF-ICE) and recommend an approach to devise an FF-ICE implementation strategy for Asia/Pacific, aligned with Asia/Pacific Seamless ANS objectives. The **Decision ATM/SG/11-4: Establish FF-ICE Ad hoc group** was further acknowledged at the APANPIRG/34 meeting held in Hong Kong China from 11-13 December 2023 to develop a comprehensive FF-ICE implementation strategy for the Asia Pacific region, which includes studying successful FF-ICE developments in other regions, sharing use case scenarios to enhance understanding, establishing regional operational requirements and processes, providing guidance for mixed-mode environments, and outlining timeframes and a roadmap.

2.14 The FF-ICE Ad hoc group did several meetings, including *Workshop with Tabletop Exercise (TTX)* (18-21 June 2024) at the ICAO APAC Office, Bangkok, to address some of the tasks defined under the Terms of reference of the FF-ICE Ad-hoc Group. Some States shared phased FF-ICE Release 1 implementation plans (2025-2030), while some sought guidance for FF-ICE Release 1 implementation. Furthermore, various meeting participants highlighted the necessity for cross-expertise collaboration for the ICAO forums, covering topics such as SWIM, FF-ICE, TBO and ATFM, which was essential to ensure effective implementation. A follow-up workshop is planned for Q1 2025 to refine regional requirements and documentation.

2.15 During the Fourteenth Air Navigation Conference (AN-Conf/14) held in Montréal, Canada, from 26 August to 6 September 2024, the Committee expressed strong support for the year 2034 as the global target date for the cessation of FPL2012. Discussing the papers “*Optimising and/or phasing out legacy systems*” and “*Transition to flight and flow – information for a collaborative environment services and cessation of FPL2012*”, the Committee approved the following recommendations:

Recommendation 3.2/1 – Phasing out and/or optimizing the use of legacy systems

That States:

- a) adopt a phased implementation plan for transitioning to modern communications, navigation and surveillance, and air traffic management systems while maintaining a minimum operation network for the provision of resilient air navigation services;

that ICAO:

- b) develop a global framework to guide Member States in phasing out and/or optimizing the use of legacy systems, ensuring consistency and interoperability;
- c) consider including a methodology to optimize the utilization of legacy systems in the communications, navigation and surveillance technology roadmap, leveraging the communications, navigation and surveillance minimum operation network concept, in a globally harmonized manner; and
- d) establish a knowledge-sharing platform for Member States to share experiences, challenges and best practices related to the transition from legacy systems to modern air traffic management technologies.

Recommendation 3.2/2 – Transition to flight and flow – information for a collaborative environment services and cessation of ICAO 2012 flight plan by 2034

That States:

- a) in support of the 2034 global cessation of the ICAO 2012 flight plan, commence the development of a national plan to transition to flight and flow – information for a collaborative environment services along with industry stakeholders;
- b) include plans for the implementation of both minimum and optional flight and flow – information for a collaborative environment services in the national air navigation plans;
- c) share experience and resources for the implementation of flight and flow – information for a collaborative environment services;
- d) and planning and implementation regional groups, consider establishing regional focus groups for coordinating the planning and implementation of flight and flow – information for a collaborative environment services and providing necessary support throughout the transition period; and
- e) support and contribute to the work of their respective planning and implementation regional group and their sub-groups to develop a regional plan to transition to flight and flow – information for a collaborative environment services on the basis of the 2034 global cessation of the ICAO 2012 flight plan;

that ICAO:

- f) amend relevant ICAO provisions and guidance material to enable the 2034 global cessation of the ICAO flight plan and associated air traffic services messages;
- g) through planning and implementation regional groups, provide guidance and support for the development of regional plans to transition to flight and flow – information for a collaborative environment to enable the 2034 global cessation of the ICAO 2012 flight plan;
- h) support inter-regional collaboration for a harmonized implementation of and transition to flight and flow – information for a collaborative environment services;
- i) monitor and support the progress of flight and flow – information for a collaborative environment services implementation and transition plan developments of States; and
- j) conduct a periodic assessment and report on the readiness of the global air traffic management community for the 2034 global cessation of the ICAO 2012 flight plan.

2.16 To enjoy the full benefits of FF-ICE services, all States are encouraged to implement the minimum set of FF-ICE services as soon as possible following the ICAO provisions that become applicable on **28 November 2024**.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) implement the minimum set of FF-ICE services as soon as possible in accordance with the ICAO provisions; and
- c) discuss any relevant matter as appropriate.

— END —