



**GANP STUDY GROUP (GANP-SG)**  
**ASBU PANEL PROJECT TEAM (ASBU PPT)**

**Virtual, 21 to 28 October 2021**

**GANP ASBU Framework Campaign Report seventh edition of the GANP**

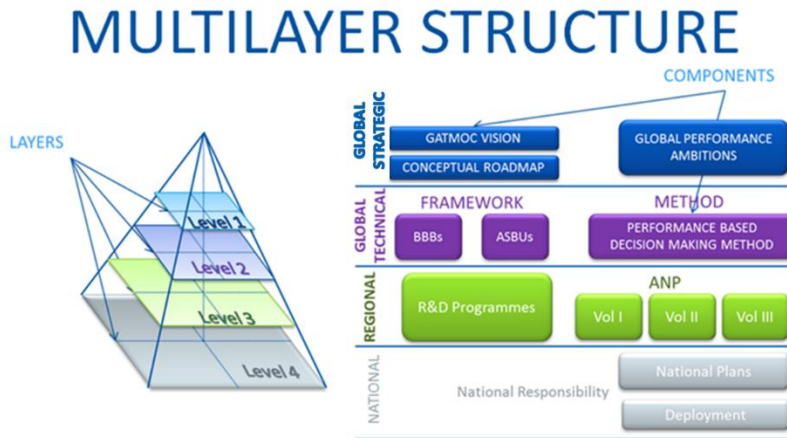
(Presented by the Chair)

**1. INTRODUCTION**

1.1 The future of the global air navigation system needs to be planned, in order to achieve an interoperable system, for all users during all phases of flight that meets agreed levels of safety, provides for optimum economic operations, is environmentally sustainable and meets national security requirements. To that end, the aviation community has come together to define a Global Air Navigation Plan (GANP).

1.2 The GANP, defines the way to achieve this global vision while, at the same time, serves as an instrument for all aviation stakeholders to define collaboratively air navigation implementation strategies based on specific operational requirements to advance the capabilities of their air navigation system ensuring interoperability of systems and harmonization of procedures.

1.3 The global air navigation system involves complex interactions between many stakeholders with different operational requirements and expectations, and national air navigation systems with different maturity levels and availability of resources. In addition, the global vision cannot be achieved directly, but by intermediate steps that need to be established. Therefore, in order to address these challenges, the GANP comprises a multilayer structure (see Figure 1), as follows:



**Figure 1 GANP Multilayer structure**

- The Global Strategic Level is the front door for all stakeholders to ICAO. It is a document written in executive language and endorsed at the highest political level. It contains, among others, performance ambitions in the 11 key performance areas based on global traffic forecast, traffic flows, challenges and traffic characteristics and a conceptual roadmap to achieve the global vision.
- The Global Technical Level is the core of the GANP. Its key component is a performance based decision-making method to define air navigation implementation strategies within a global framework of specific operational improvements. The global framework is maintained in an information warehouse, from which reports can be derived and consists of the basic services to be provided for international civil aviation plus other specific upgrades of these services.
- The Regional Level comprises ICAO Regional Air Navigation Plans (Vol I, II and III) and other Research and Development Programmes.
- The National Level is the level where States are responsible for the development of national air navigation plans following the performance based decision-making method and its deployment.

## 2. GANP WORKING ARRANGEMENTS

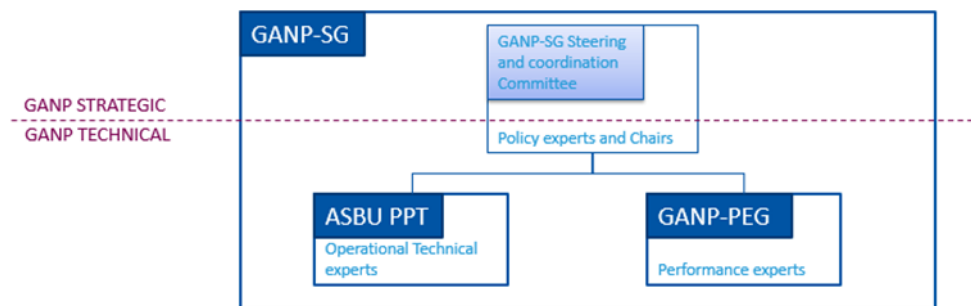
2.1 The Thirteenth Air Navigation Conference (AN-Conf/13) agreed with the format and direction of the draft Sixth Edition of the GANP and requested ICAO to consider the establishment of a study group comprised of Member States from all regions and industry to undertake work on future editions of the GANP (AN-Conf/13 Recommendation 1.1/1 refers). The establishment of the GANP-SG was approved by the Air Navigation Commission on 12 June 2019 with the following objectives:

- a) serve as a coordination point for all GANP development activities by subsuming pre-existing teams working on the GANP;
- b) ensure stability and coherence within the multilayer structure of the GANP;
- c) update, as necessary, the strategy embedded in the GANP in order to, based on major identified challenges, continue to provide high-level direction for a performance-driven evolution of the air navigation system;

- d) update the technical content of the GANP embedded in the Aviation system block upgrade (ASBU) framework, taking into account evolving technologies and requirements as needed, following the defined maintenance process, in order to support technical managers through a safe and cost-effective modernization of the air navigation system;
- e) update the performance framework through development of performance objectives and key performance indicators to support and verify the benefits achieved from the deployment of operational improvements;
- f) pursue the alignment of global, regional and national air navigation planning;
- g) consider air navigation planning matters within a broader aviation planning framework;
- and
- h) strengthen the relationship with the Global Aviation Safety Plan (GASP) and Global Aviation Security Plan (GASeP).

2.2 Recognizing the need for ICAO to expedite the work on performance related to the GANP, AN-Conf/13 also recommended ICAO to consider establishing a group of performance experts under the new GANP Study Group (AN-Conf/13 Recommendation 4.3/1 refers).

2.3 Based on the above, the first meeting of the GANP-SG agreed to work under the structure presented in Figure 2.



**Figure 2 GANP Working Structure**

### **3. THE ASBU PANEL PROJECT TEAM (ASBU PPT)**

3.1 The ASBU-PPT reports to the GANP Study Group (GANP-SG).

3.2 The ASBU-PPT develops consolidated ASBU framework update proposals by processing change requests. The processing includes verification of the received information (completeness and accuracy), representativeness of the request (submitted by a Stakeholder group and/or ICAO working arrangement), analysis of the request (feasibility, alignment with strategic level, impact), preparation and support of consultation (if needed) and development of ASBU change specifications.

3.3 The ASBU-PPT maintains alignment with the GANP Strategic Level. If an ASBU framework change proposal implies a change to the strategic level, the ASBU-PPT shall seek approval (from the GANP-SG) to this change before implementing it in the ASBU framework.

3.4 The ASBU-PPT reviews and maintains overall consistency and completeness of the ASBU framework and develop change proposals for improvements.

3.5 The ASBU-PPT maintains awareness on the practical use of the ASBU framework and if necessary develop guidance and propose improvements to the portal to facilitate its use.

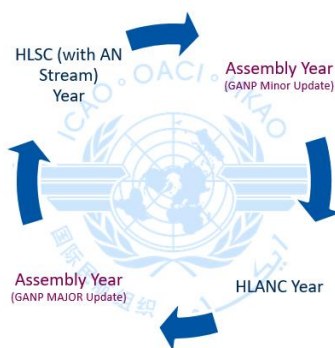
3.6 The ASBU-PPT develops recommendations and guidance for packaging ASBU elements to provide maximum value to Stakeholders.

3.7 The ASBU-PPT improves and maintains the link between the ASBU framework and the GANP Performance Framework as maintained and guided by the GANP-PEG.

3.8 On a periodic basis, the ASBU-PPT reviews the ASBU maintenance process and when necessary proposes improvements.

#### 4. GANP TIMELINES AND EVENTS

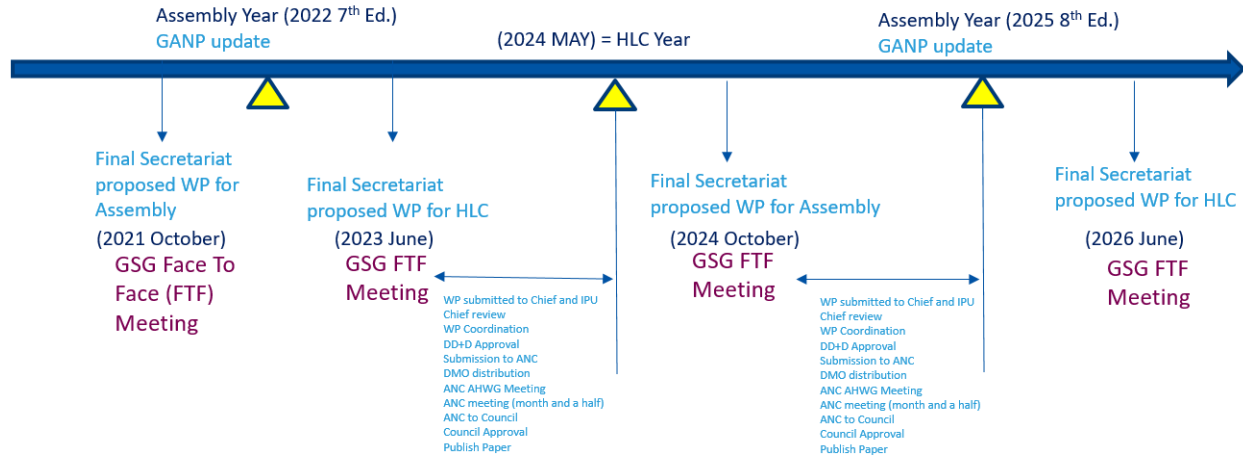
4.1 The 39th session of the ICAO Assembly agreed to expand the GANP lifecycle through three-year minor and six-year major updates as relevant. In addition, in order to maximize the input from the aviation community, the GANP is updated following ICAO's global air navigation events schedule. According to this schedule there would be a High Level Safety Conference, with an air navigation stream, before a minor update of the GANP and a High Level Air Navigation Conference before a major update of the GANP. The High Level Conferences would take place between two ICAO Assembly sessions (see Figure 3).



**Figure 3 ICAO Air Navigation Global Events schedule**

Based on these timelines, the GANP-SG meets face to face every year except in Assembly years around October or June depending if the peer review is for an Assembly or a Conference (see

## Proposed Coordination/peer review mechanism



4.2 Figure 4 and Figure 5). These meetings would serve as peer review mechanism towards the next editions of the GANP.

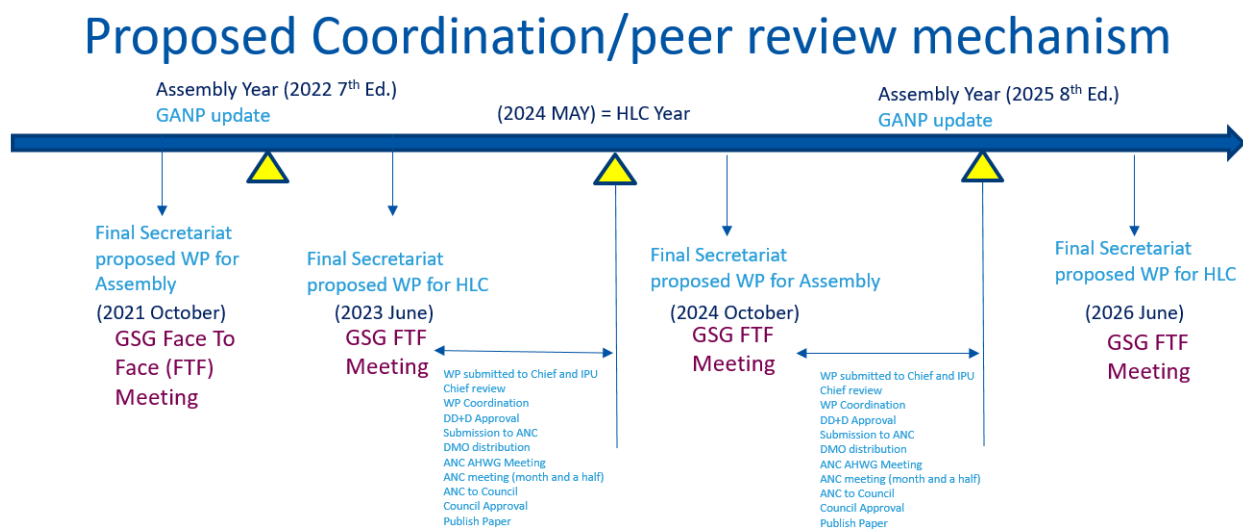
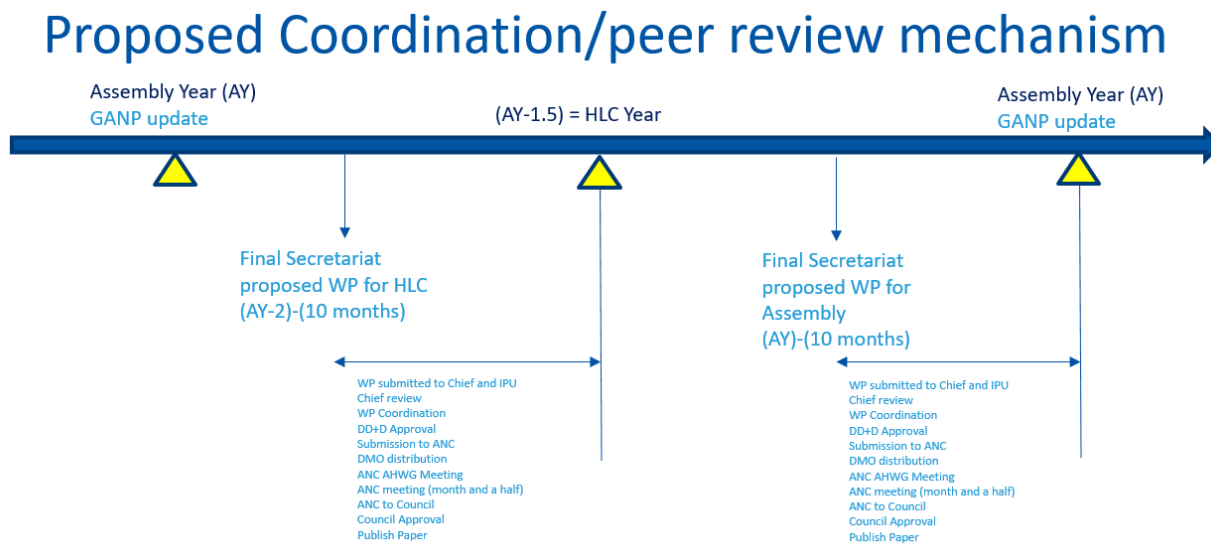


Figure 4 Next proposed peer review



**Figure 5 Proposed generic peer review mechanism**

4.3 The ASBU PPT schedules its meetings and plan its deliverables and future work based on the GANP-SG coordination/peer review mechanism.

4.4 The main goal of the ASBU PPT is to review the ASBUs framework in order to make it more comprehensive, coherent and useful for implementation. In addition, this review should incorporate the most recent developments regarding the evolution of the air navigation system.

## 5. ASBU FRAMEWORK MAINTENANCE PROCESS

5.1 The 39<sup>th</sup> session of the ICAO Assembly agreed on the expansion of the GANP lifecycle through three-year minor and six-year major updates, as relevant, in order to provide for stability. The sixth edition of the GANP, endorsed at the 40<sup>th</sup> Assembly, constituted a major update of the GANP, therefore, the seventh edition of the GANP, to be endorsed by the 41<sup>st</sup> session of the ICAO Assembly should be a minor update.

5.2 In addition, the 40<sup>th</sup> session of the ICAO Assembly approved the ASBU Framework Maintenance Process available in [Appendix A](#). As part of this process the ASBU Framework would be updated in three year cycles (synchronized with Assembly years) and the next update and subject of this report was a minor update.

## 6. MINOR UPDATE

6.1 The scope of the minor update was to:

- Update of ASBU Framework content from a factual perspective e.g. processing of delays, change in descriptions;
- Review of consistency, completeness and understanding;

- Prepare scope/plan for next (major) update.

6.2 Although the number of change requests may imply a substantial update of the framework, the scope of these changes is the one highlighted in the previous paragraph.

## 7. CAMPAIGN APPROACH

7.1 The update was organized through a campaign with the ASBU PPT as working arrangement. The campaign was chaired by Mr. Henk Hof, EUROCONTROL. Ms. Olga de Frutos, Technical Officer of the Air Navigation Bureau (ANB) from ICAO Headquarters, Montreal, served as Secretary of the meeting.

7.2 The campaign followed a series of steps:

7.3 **First step** of the campaign was to review/renew the PPT Membership which was especially necessary now since the long period between now and the last PPT meeting (working on V6). The PPT consisted of subject matter experts. For each ASBU Thread a Thread Leader (TL), who was also member of the ICAO working arrangement responsible for the development of ICAO provisions/material corresponding to the Thread, was nominated. An overview of the ASBU PPT membership is provided in [Appendix B](#).

7.4 **Second step** was to review and update the process as well as the scope of the campaign. This was reflected in an updated version of the Handbook for the review of the ASBU Framework.

7.5 **Third step** was to launch the development of Change Requests (CRs) which started with informing the Working Arrangements of the update campaign through the TLs. A standard WP was developed and made available to TLs who could tailor the contents for their group(s).

7.6 **Fourth step** was to develop the CRs and respond to any issue/question that may come up. A series of 4 ASBU PPT teleconferences took place to review progress and to ensure that suitable CRs were received. **Fifth Step** was the PPT review of the CRs which included a peer review focusing on dependencies and consistency. This took place during 2 ASBU PPT sessions (Initial assessment and Final assessment) and resulted in an updated set of agreed CRs. Also proposals were reviewed for the scope, plan and approach for the next update campaign.

7.7 **Sixth Step** was the final step and consisted of the final review of CRs (outstanding actions) and the review of the campaign report (this report) which also includes a proposal for the scope, plan and approach for the next update campaign. The Campaign report is a record of the campaign and was submitted to the Second meeting of the GANP Study Group for endorsement.

## 8. CHANGE REQUEST SUBMITTED

8.1 The deadline for submission of change requests was the first week of October. Fourteen change requests for the update of the ASBU Framework, one change request for the update of the BBB Framework and a change request on the dependencies were submitted.

8.2 The analysis of whether the change requests met the minimum criteria to be accepted was performed by the chair and the Secretary on 14 October 2021. All change requests were accepted.

8.3 The ASBU Framework Change Request are available in [Appendix C](#) and a summary by thread is provided hereafter:

THREAD	STATUS
ACAS	NO CHANGE REQUIRED
ACDM	CR SUBMITTED
APTA	CR SUBMITTED
CSEP	CR SUBMITTED
FRTO	NO CHANGE REQUIRED
GADS	CR SUBMITTED
NOPS	NO CHANGE REQUIRED
OPFL	CR SUBMITTED
RATS	CR SUBMITTED
RSEQ	CR SUBMITTED
SNET	NO CHANGE REQUIRED
SURF	NO INFO
TBO	NO CHANGE REQUEST FOR THIS MINOR UPDATE
WAKE	CR SUBMITTED
AMET	CR SUBMITTED
DAIM	CR SUBMITTED
FICE	CR SUBMITTED
SWIM	CR SUBMITTED
ASUR	CR SUBMITTED
COMI	CR SUBMITTED
COMS	NO CHANGE REQUIRED
NAVS	NO CHANGE REQUIRED

8.4 The ASBU Framework dependencies Change Request is available in [Appendix D](#).

8.5 The change request to the BBB Framework was submitted within the AIS BBBs and is available in [Appendix E](#).

## 9. INITIAL ASSESSMENT

9.1 The initial assessment of the change requests by the ASBU PPT took place virtually using MS Teams on 21 October 2021.

9.2 ASBU Framework Change Requests

9.2.1 A Change Request ID was assigned to each Change Request submitted as follows:

- Initial Assessment Existing ASBU Elements/Threads Change Requests: <<IA-E-THREAD-CR/#>>



- Initial Assessment New ASBU Elements/Threads Change Requests: <<IA-N-THREAD/ELEMENT-CR/#>>
- Initial Assessment Secretariat Change Request: <<IA-S-THREAD-CR/#>>

9.2.2 The ASBU PPT reviewed the Change Requests submitted and provided the following comments to the different change requests:

CHANGE REQUEST ID		COMMENTS
<b>EXISTING ASBU THREADS AND ELEMENTS</b>		
1	IA-E-ACDM-CR/1	
2	IA-E-ACDM-CR/2	The enablers date should refer to the date of publication of the provisions. The delay on the availability year of the enabler implied a jump of Block.
3	IA-E-ACDM-CR/3	
4	IA-E-ACDM-CR/4	The enablers date should refer to the date of publication of the provisions. The delay on the availability year of the enabler implied a jump of Block.
5	IA-E-SWIM-CR/1	
6	IA-E-SWIM-CR/2	
7	IA-E-SWIM-CR/3	
8	IA-E-SWIM-CR/4	
9	IA-E-SWIM-CR/5	
10	IA-E-SWIM-CR/6	
11	IA-E-SWIM-CR/7	
12	IA-E-SWIM-CR/8	
13	IA-E-SWIM-CR/9	
14	IA-E-SWIM-CR/10	
15	IA-E-SWIM-CR/11	
16	IA-E-SWIM-CR/12	
17	IA-E-SWIM-CR/13	
18	IA-E-SWIM-CR/14	
19	IA-E-SWIM-CR/15	
20	IA-E-SWIM-CR/16	
21	IA-E-SWIM-CR/18	
22	IA-E-SWIM-CR/19	
23	IA-E-SWIM-CR/20	
24	IA-E-METP-CR/1	
25	IA-E-METP-CR/2	
26	IA-E-METP-CR/3	
27	IA-E-METP-CR/4	
28	IA-E-METP-CR/5	The new information provided may imply a dependency on A/G SWIM element.
29	IA-E-METP-CR/6	
30	IA-E-METP-CR/7	
31	IA-E-METP-CR/8	The new information provided may imply a dependency on A/G SWIM element.
32	IA-E-METP-CR/9	
33	IA-E-METP-CR/10	

34	IA-E-METP-CR/11	The new information provided may imply a dependency on A/G SWIM element.
35	IA-E-METP-CR/11	
36	IA-E-GADS-CR/1	
37	IA-E-GADS-CR/2	
38	IA-E-GADS-CR/3	
39	IA-E-GADS-CR/4	
40	IA-E-GADS-CR/5	
41	IA-E-GADS-CR/6	
42	IA-E-GADS-CR/7	
43	IA-E-GADS-CR/8	
44	IA-E-GADS-CR/9	
45	IA-E-GADS-CR/10	
46	IA-E-GADS-CR/11	
47	IA-E-GADS-CR/12	
48	IA-E-DAIM-CR/1	
49	IA-E-DAIM-CR/2	This element should be moved to B2 as there should not be need dependencies of elements in B1 on elements in B2. If the dependency is an optional or a benefit this could happen but not if the dependency is a need.
50	IA-E-DAIM-CR/3	
51	IA-E-FICE-CR/1	
52	IA-E-FICE-CR/2	
53	IA-E-FICE-CR/3	
54	IA-E-FICE-CR/4	Dependencies on the information elements are necessary despite how the information is provided. Criteria for the standardization on SWIM dependencies: If an element A depends on element B, which is dependent on SWIM provider, element A is dependent on SWIM consumer. An element is dependent on SWIM provider if it provides information via SWIM.
55	IA-E-FICE-CR/5	
56	IA-E-FICE-CR/6	Dependencies on the information threads.
57	IA-E-FICE-CR/7	
58	IA-E-FICE-CR/8	
59	IA-E-FICE-CR/9	Dependencies on the information threads.
60	IA-E-FICE-CR/10	
61	IA-E-FICE-CR/11	
62	IA-E-FICE-CR/12	
63	IA-E-FICE-CR/13	
64	IA-E-FICE-CR/14	
65	IA-E-FICE-CR/15	
66	IA-E-FICE-CR/16	Dependencies on the information threads.
67	IA-E-FICE-CR/17	
68	IA-E-FICE-CR/18	
69	IA-E-FICE-CR/19	
70	IA-E-RSEQ-CR/1	The enablers date should refer to the date of availability. The delay on the availability year of the enabler implied a jump of Block.
71	IA-E-RSEQ-CR/2	The enablers date should refer to the date of availability. The delay on the availability year of the enabler implied a jump of Block.

72	IA-E-RSEQ-CR/3	The enablers date should refer to the date of availability. The delay on the availability year of the enabler implied a jump of Block.
73	IA-E-ASUR-CR/1	
74	IA-E-CSEP-CR/1	
75	IA-E-RATS-CR/1	
76	IA-E-WAKE-CR/1	
77	IA-E-WAKE-CR/2	
78	IA-E-WAKE-CR/3	The enablers date should refer to the date of availability. The delay on the availability year of the enabler implied a jump of Block.
79	IA-E-WAKE-CR/4	The enablers date should refer to the date of availability. The delay on the availability year of the enabler implied a jump of Block.
80	IA-E-WAKE-CR/5	The enablers date should refer to the date of availability. The delay on the availability year of the enabler implied a jump of Block.
81	IA-E-WAKE-CR/6	The enablers date should refer to the date of availability. The delay on the availability year of the enabler implied a jump of Block.
82	IA-E-WAKE-CR/7	The enablers date should refer to the date of availability. The delay on the availability year of the enabler implied a jump of Block.
83	IA-E-WAKE-CR/8	
84	IA-E-WAKE-CR/9	The enablers date should refer to the date of availability. The delay on the availability year of the enabler implied a jump of Block.
85	IA-E-WAKE-CR/10	The enablers date should refer to the date of availability. The delay on the availability year of the enabler implied a jump of Block.
86	IA-E-WAKE-CR/11	The enablers date should refer to the date of availability. The delay on the availability year of the enabler implied a jump of Block.
87	IA-E-COMI-CR/1	If the dependency is an optional or a benefit, an element can have a dependency on another element in a future block, but if the dependency is a need, it must have a dependency on an element of the same or previous blocks. Dependency option refers to alternative.
88	IA-E-COMI-CR/2	If the dependency is an optional or a benefit, an element can have a dependency on another element in a future block, but if the dependency is a need, it must have a dependency on an element of the same or previous blocks. Dependency option refers to alternative.
89	IA-E-COMI-CR/3	If the dependency is an optional or a benefit, an element can have a dependency on another element in a future block, but if the dependency is a need, it must have a dependency on an element of the same or previous blocks.
90	IA-E-COMI-CR/4	If the dependency is an optional or a benefit, an element can have a dependency on another element in a future block, but if the dependency is a need, it must have a dependency on an element of the same or previous blocks.
91	IA-E-COMI-CR/5	If the dependency is an optional or a benefit, an element can have a dependency on another element in a future block, but if the dependency is a need, it must have a dependency on an element of the same or previous blocks.
92	IA-E-COMI-CR/6	If the dependency is an optional or a benefit, an element can have a dependency on another element in a future block, but if the dependency is a need, it must have a dependency on an element of the same or previous blocks.
93	IA-E-COMI-CR/7	
94	IA-E-COMI-CR/8	The infrastructure does not depend on the meteo, what depends on the meteo is the performance of the infrastructure, which should be

		informed by the AIM service to the operational threads using this infrastructure. Therefore this dependency should be reflected in the operational threads using this information.
95	IA-E-COMI-CR/9	The infrastructure does not depend on the meteo, what depends on the meteo is the performance of the infrastructure, which should be informed by the AIM service to the operational threads using this infrastructure. Therefore this dependency should be reflected in the operational threads using this information.
96	IA-E-COMI-CR/10	If the dependency is an optional or a benefit, an element can have a dependency on another element in a future block, but if the dependency is a need, it must have a dependency on an element of the same or previous blocks.
97	IA-E-COMI-CR/11	If the dependency is an optional or a benefit, an element can have a dependency on another element in a future block, but if the dependency is a need, it must have a dependency on an element of the same or previous blocks.
98	IA-E-COMI-CR/12	If the dependency is an optional or a benefit, an element can have a dependency on another element in a future block, but if the dependency is a need, it must have a dependency on an element of the same or previous blocks.
99	IA-E-COMI-CR/13	If the dependency is an optional or a benefit, an element can have a dependency on another element in a future block, but if the dependency is a need, it must have a dependency on an element of the same or previous blocks.
100	IA-E-COMI-CR/14	The infrastructure does not depend on the meteo, what depends on the meteo is the performance of the infrastructure, which should be informed by the AIM service to the operational threads using this infrastructure. Therefore this dependency should be reflected in the operational threads using this information.
101	IA-E-COMI-CR/15	The infrastructure does not depend on the meteo, what depends on the meteo is the performance of the infrastructure, which should be informed by the AIM service to the operational threads using this infrastructure. Therefore this dependency should be reflected in the operational threads using this information.
<b>NEW ASBU ELEMENTS</b>		
102	IA-N-OPFLB3/?-CR/1	Dependencies and performance assessment missing. Main purpose too long.
103	IA-N-OPFLB3/?-CR/2	Dependencies and performance assessment missing. Element title too verbose.
104	IA-N-OPFLB2/?-CR/3	Dependencies and performance assessment missing. Element title too verbose.
105	IA-N-OPFLB3/?-CR/4	Dependencies and performance assessment missing. Element title too verbose.
106	IA-N-APTAB3/?-CR/1	Performance Assessment missing. Element title too verbose.
107	IA-N-APTAB3/?-CR/2	Performance Assessment missing.
<b>SECRETARIAT CHANGE REQUESTS</b>		
108	IA-S-APTA-CR/1	
109	IA-S-APTA-CR/2	

### 9.3 ASBU Framework dependencies Change Requests

9.3.1 During the initial assessment the ASBU PPT reviewed the definition of the dependencies as follows.

9.3.2 Dependencies are meant to provide a sketch of the architecture that is required to provide the improvements and most importantly the operational improvements presented in the GANP. It is a sketch because the dependencies highlight the changes to the basic architecture assumed to be in place as part of the basic building blocks and the requirements of the annexes. But this sketch does allow an aviation planner at the state, region or global level to understand that an improvement comes in a “shopping cart” of supporting elements.

9.3.3 There are three types of dependencies – Need, Option, and Benefit

- Need – The use of need says that an element (A) cannot be implemented without this supporting element (B). To implement A, B must also be in the shopping cart.
- Option – The use of option says that element A can be implemented with element B optionally. To implement A, B may be in the shopping cart as an alternative supporting element. As an option B replaces another choice. This optional choice may be explicit, for instance element C is also listed as an option, but more likely as an alternative for an existing capability that is implicitly part of the larger architecture already in place. B may be as examples -cheaper, have greater availability, lower latency, etc. - all characteristics that are desirable but not required.
- Benefit – The use of benefit says that element A can be implemented without element B but element A is better when B is included in the shopping cart. It is the “buyers often purchase” selection. Unlike the option category B does not replace any other element, its presence provides a performance improvement to A.

9.3.4 Evolution – The use of evolution says the element A is a direct improvement of element B in all aspects of B. Evolution is a subcategory of need. The key to using evolution is that A needs B in the shopping cart and that it needs B in its totality. It is used only within a thread. Element A can also be an evolution of element C within a thread. This acknowledges that element A is a consolidation of B and C.

9.3.5 Dependencies can also be information, technology or operational

- If an element (A) has a technology need or option dependency on a technology thread element (B), A should be reflected in the enablers of B (for consistency)
- If an element (A) has an information need or option on another element (B), the connection means for the exchange of info between A and B should be reflected in the enabler.
- If known, it may be the existing system i.e. part of the BBB and they may not know how to characterize.

9.3.6 Inheritance

9.3.6.1 Inheritance has a transitive property for most needs – that is if A depends on B and B depends on C then A depends on C and C does not have to be listed in the dependency table. When B is

added to the shopping cart C is also added with the same dependency. If the dependency type has change for C either option to need, or benefit to option or need, then C is listed with the new dependency. So if C is listed as an option for B, but when we turn to A we find C is a need, then list C as a need because on C as an option would not be inherited.

9.3.6.2 If an element has an operational need or evolves from another element, the element does not inherit the enablers and therefore the enablers that are still necessary should be reflected in both elements. Inheritance is a tree. Block 0 can only be dependent on block 0, block 1 can only be dependent on block 0 and block1, etc.

9.3.6.3 Inheritance cannot be mutual. Element A cannot be dependent on element B and B cannot be dependent on element A. There can be circular inheritances with more elements. A may depend on B, C may depend on A, and B depend on C.

9.3.6.4 Example: A Network operation function may require AIM, so NOPS A depends on DATM B. NOPS A may determine that an airspace need to be constrained or closed. NOPS also has a element for airspace management NOPS C which depends on NOPS A for input. DATM B becomes the location where these new constraints are exposed generally to the public. So DATM B depends on NOPS C.

9.3.6.5 Finally there are elements in some threads such as COMI or SWIM which are not directly inherited through dependencies. For instance AMET may be receiving information for its forecast through SWIM or COMI as a consumer and may make it available either on SWIM or COMI as a provider. There may be alternative paths for dissemination of the information. To assume that FICE inherits SWIM consumption from AMET is not guaranteed, so FICE should list its SWIM consumption dependency also. The same thing for publishing, AMET publishing does not guarantee FICE's publishing method. Inheritance for information transfer is thus a special case.

## 9.4 BBB Framework Change Requests

9.4.1 The ASBU PPT requested during the initial assessment to define of the CNS infrastructure required to provide the different services in the end user slide.

## 10. FINAL ASSESSMENT

10.1 The final assessment of the change requests by the ASBU PPT took place virtually using MS Teams on 28 October 2021. The ASBU PPT addressed the comments provided during the initial assessment of the Change Requests and updated the change requests. Some change requests resulted in consequential change requests.

10.1.1 A Change Request ID was assigned to each updated Change Request as follows:

- Final Assessment Existing ASBU Elements/Threads Change Requests: <<FA-E-THREAD-CR/#>>
- Final Assessment New ASBU Elements/Threads Change Requests: <<FA-N-THREAD/ELEMENT-CR/#>>
- Final Assessment Secretariat Change Request: <<FA-S-THREAD-CR/#>>

- Final Assessment BBB Change Request: <<FA-BBB>>

10.2 All the change requests, as modified by the meeting, are presented in [Appendix F](#). The resolution of the change request submitted is summarized in the table hereafter.

CHANGE REQUEST ID		RESOLUTION
EXISTING ASBU ELEMENTS AND THREADS (as modified by the ASBU PPT, in Appendix F)		
1	FA-E-ACDM-CR/1	Accepted
2	FA-E-ACDM-CR/2	Accepted
3	FA-E-ACDM-CR/3	Accepted.
4	FA-E-ACDM-CR/4	Accepted
5	FA-E-ACDM-CR/5	Accepted
6	FA-E-ACDM-CR/6	Accepted
7	FA-E-ACDM-CR/7	Accepted
8	FA-E-SWIM-CR/1	Accepted
9	FA-E-SWIM-CR/2	Accepted
10	FA-E-SWIM-CR/3	Accepted
11	FA-E-SWIM-CR/4	Accepted
12	FA-E-SWIM-CR/5	Accepted
13	FA-E-SWIM-CR/6	Accepted
14	FA-E-SWIM-CR/7	Accepted.
15	FA-E-SWIM-CR/8	Accepted.
16	FA-E-SWIM-CR/9	Accepted.
17	FA-E-SWIM-CR/10	Accepted.
18	FA-E-SWIM-CR/11	Accepted.
19	FA-E-SWIM-CR/12	Accepted.
20	FA-E-SWIM-CR/13	Accepted.
21	FA-E-SWIM-CR/14	Accepted.
22	FA-E-SWIM-CR/15	Accepted.
23	FA-E-SWIM-CR/16	Accepted.
24	FA-E-SWIM-CR/17	Accepted.
25	FA-E-SWIM-CR/18	Accepted.
26	FA-E-SWIM-CR/19	Accepted.
27	FA-E-SWIM-CR/20	Accepted.
28	FA-E-AMET-CR/1	Accepted.
29	FA-E-AMET-CR/2	Accepted.
30	FA-E-AMET-CR/3	Accepted.
31	FA-E-AMET-CR/4	Accepted.
32	FA-E-AMET-CR/5	Accepted.
33	FA-E-AMET-CR/6	Accepted.
34	FA-E-AMET-CR/7	Accepted.
35	FA-E-AMET-CR/8	Accepted.
36	FA-E-AMET-CR/9	Accepted.
37	FA-E-AMET-CR/10	Accepted.
38	FA-E-AMET-CR/11	Accepted.
39	FA-E-GADS-CR/1	Accepted.
40	FA-E-GADS-CR/2	Accepted.

41	FA-E-GADS-CR/3	Accepted.
42	FA-E-GADS-CR/4	Accepted.
43	FA-E-GADS-CR/5	Accepted.
44	FA-E-GADS-CR/6	Accepted.
45	FA-E-GADS-CR/7	Accepted.
46	FA-E-GADS-CR/8	Accepted.
47	FA-E-GADS-CR/9	Accepted.
48	FA-E-GADS-CR/10	Accepted.
49	FA-E-GADS-CR/11	Accepted.
50	FA-E-GADS-CR/12	Accepted.
51	FA-E-DAIM-CR/1	Accepted.
52	FA-E-DAIM-CR/2	Accepted.
53	FA-E-DAIM-CR/3	Accepted.
54	FA-E-FICE-CR/1	Accepted.
55	FA-E-FICE-CR/2	Accepted.
56	FA-E-FICE-CR/3	Accepted.
57	FA-E-FICE-CR/4	Accepted.
58	FA-E-FICE-CR/5	Accepted.
59	FA-E-FICE-CR/6	Accepted.
60	FA-E-FICE-CR/7	Accepted.
61	FA-E-FICE-CR/8	Accepted.
62	FA-E-FICE-CR/9	Accepted.
63	FA-E-FICE-CR/10	Accepted.
64	FA-E-FICE-CR/11	Accepted.
65	FA-E-FICE-CR/12	Accepted.
66	FA-E-FICE-CR/13	Accepted.
67	FA-E-FICE-CR/14	Accepted.
68	FA-E-FICE-CR/15	Accepted.
69	FA-E-FICE-CR/16	Accepted.
70	FA-E-FICE-CR/17	Accepted.
71	FA-E-FICE-CR/18	Accepted.
72	FA-E-FICE-CR/19	Accepted.
73	FA-E-RSEQ-CR/1	Accepted.
74	FA-E-RSEQ-CR/2	Accepted.
75	FA-E-RSEQ-CR/3	Accepted.
76	FA-E-RSEQ-CR/4	Accepted.
77	FA-E-RSEQ-CR/5	Accepted.
78	FA-E-RSEQ-CR/6	Accepted.
79	FA-E-ASUR-CR/1	Accepted.
80	FA-E-CSEP-CR/1	Accepted.
81	FA-E-RATS-CR/1	Accepted.
82	FA-E-WAKE-CR/1	Accepted.
83	FA-E-WAKE-CR/2	Accepted.
84	FA-E-WAKE-CR/3	Accepted.
85	FA-E-WAKE-CR/4	Accepted.
86	FA-E-WAKE-CR/5	Accepted.
87	FA-E-WAKE-CR/6	Accepted.
88	FA-E-WAKE-CR/7	Accepted.
89	FA-E-WAKE-CR/8	Accepted.



90	FA-E-WAKE-CR/9	Accepted.
91	FA-E-WAKE-CR/10	Accepted.
92	FA-E-WAKE-CR/11	Accepted.
93	FA-E-WAKE-CR/12	Accepted.
94	FA-E-WAKE-CR/13	Accepted.
95	FA-E-WAKE-CR/14	Accepted.
96	FA-E-WAKE-CR/15	Accepted.
97	FA-E-WAKE-CR/16	Accepted.
98	FA-E-WAKE-CR/17	Accepted.
99	FA-E-WAKE-CR/18	Accepted.
100	FA-E-WAKE-CR/19	Accepted.
101	FA-E-WAKE-CR/20	Accepted.
102	FA-E-COMI-CR/1	Rejected.
103	FA-E-COMI-CR/2	Rejected.
104	FA-E-COMI-CR/3	Rejected.
105	FA-E-COMI-CR/4	Rejected.
106	FA-E-COMI-CR/5	Rejected.
107	FA-E-COMI-CR/6	Rejected.
108	FA-E-COMI-CR/7	Accepted
109	FA-E-COMI-CR/8	Accepted
110	FA-E-COMI-CR/9	Accepted
111	FA-E-COMI-CR/10	Rejected.
112	FA-E-COMI-CR/11	Rejected.
113	FA-E-COMI-CR/12	Rejected.
114	FA-E-COMI-CR/13	Rejected.
115	FA-E-COMI-CR/14	Accepted
116	FA-E-COMI-CR/15	Accepted
<b>NEW ASBU ELEMENTS (as modified by the ASBU PPT, in Appendix F)</b>		
117	FA-N-OPFLB3/?-CR/1	Accepted.
118	FA-N-OPFLB3/?-CR/2	Accepted.
119	FA-N-OPFLB2/?-CR/3	Accepted.
120	FA-N-OPFLB3/?-CR/4	Accepted.
121	FA-N-APTAB3/?-CR/1	Accepted.
122	FA-N-APTAB3/?-CR/2	Accepted.
<b>SECRETARIAT CHANGE REQUESTS (as modified by the ASBU PPT, in Appendix F)</b>		
123	FA-S-APTA-CR/1	Accepted.
124	FA-S-APTA-CR/2	Accepted.
<b>BBB FRAMEWORK CHANGE REQUEST (as modified by the ASBU PPT, in Appendix F)</b>		
125	FA-AIS BBB	Accepted.

## 11. CAMPAIGN RESULTS

11.1 The minor update of the ASBU Framework resulted in:

- 110 change requests (101 to existing ASBU threads and elements, 6 for new ASBU elements, 2 from the Secretariat and 1 to the BBBs) submitted and accepted for initial assessment

11.2 After reviewed by the ASBU PPT, these change requests resulted in:

- 125 change requests (116 to existing ASBU threads and elements, 6 for new ASBU elements, 2 from the Secretariat and 1 to the BBBs) for final assessment

11.3 Of these 125 change requests:

- 115 change requests were accepted and agreed to be implemented; and
- 10 change requests were rejected.

## 12. SCOPE, PLAN AND APPROACH FOR ASBU VERSION 7 CAMPAIGN

12.1 The scope and plan for the next update of the ASBU framework is amongst others derived from the recommendations from the 13<sup>th</sup> Air Navigation Conference. Following the maintenance approach, the next update is qualified as a “major” update i.e. GANP Version 7. This implies that it will include also structural improvements as compared to a “minor” update which is limited to “corrections”. The main update themes are introduced below.

12.2 **Development of the link between the GANP Strategic Level and the ASBU Framework.** The GANP Strategic Level includes the Conceptual Roadmap which describes, at an executive level, the evolution of the ATM through time. The objective of the GANPV7 campaign is to link the conceptual roadmap to Threads/Elements in the ASBU Framework. First an approach/method will be developed to ensure that the link can be maintained as part of future update campaigns.

12.3 **Integrate innovation opportunities in the ASBU Framework.** Innovation is a broad term to address new operations, vehicles, technology, methods etc. It is important to embrace innovation in the GANP. This will be achieved by including new concepts/operations such as Higher Airspace Operations, UTM. This can be done in different ways, for example by developing new Threads and/or integration into the existing Threads. In addition ASBU Elements will be assessed on their potential to make use of innovative methods and technology such as Machine Learning and Artificial Intelligence.

12.4 **Alignment between Global Strategic Plans.** The importance of alignment between the global strategic plans, GANP, GASP and GAsEP has been stressed many times. The objective for GANP V7 is to take a first step in aligning the GANP and the GASP by means of a common safety KPA and KPIs. The approach will be subject of discussion with the GIPEG and GASP Study Group.

12.5 **Improvement of performance perspective.** The main objective of elements in the ASBU Framework is to deliver performance benefits. Implementation decisions are often taken based on the expected performance improvements. The objective for GANP V7 is to improve the performance assessments of the elements by reviewing/updating the assessment criteria and, where, possible, refer to evidence for a performance assessment (e.g. validation results).

12.6 **Development of evolution scenarios.** The ASBU Framework consists of many elements. Several paths (scenarios) of evolution are possible. The most suitable scenario depends on the baseline and local operational characteristics. These may also provide opportunities for so-called leap frogging; jumping several evolution steps. The objective for the GANP V7 campaign is to identify typical operational environments and to develop scenarios for ATM evolution. These scenarios will be presented as guidance/example.

12.7           **Update of information.** In addition to the improvement areas introduced above, the campaign will include updates/corrections of information through Change Requests. Special focus will be on the dependencies between the elements.

### **13. CONCLUSIONS AND RECOMMENDATIONS**

13.1           The ASBU PPT has completed the first formal update campaign. 115 Change Requests have been processed and agreed for implementation.

13.2           The Changes represent updates/corrections of information and have been endorsed by the relevant ICAO working arrangements.

13.3           The GANP PPT verified the Change Requests from a consistency and completeness perspective.

13.4           The scope for the next update campaign resulting in GANP V7 has been agreed and is proposed/outlined in chapter 12 above.

13.5           The GANP Study Group is invited to:

13.5.1          Endorse the Changes to GANP Version 6 as attached in [Appendix F](#).

13.5.2          Endorse the scope for the next Campaign leading to GANP V7 as outlined in chapter 12.

## Appendix A

### ASBU Framework Maintenance Process

#### V01

#### Introduction

The objective of this guidance is to further detail the maintenance process for the ASBU framework of the GANP. It specifies the objectives, actors, and steps (including timelines, inputs and outputs) of the process.

It should be noted that the maintenance process will be reviewed by the GANP Study Group, once it is established, and is subject to continuous improvement based on lessons learned. An initial version of the maintenance process is expected to be available by October 2019.

The target audience for this guidance are the members of the aviation community<sup>1</sup> using the GANP and potentially wishing to propose a change to the ASBU framework. The term ‘members of the aviation community’ is used to refer to members representing coordinated and agreed aviation stakeholder views. The maintenance process will not be used to respond to opinions/views of individuals.

This guidance assumes that the target audience is familiar with the structure and terms used in the GANP.

#### Objectives and overview

The objective of the change management process is to keep the content of the ASBU framework of the GANP up to date and ensure transparency by tracking the definition, evaluation, approval and implementation of any amendment to it.

A proposal for change to the ASBU framework can be submitted to [ganp@icao.int](mailto:ganp@icao.int) by any member of the aviation community by filling a predefined template with the proposed changes in track change format from the original text, together with the rationale for that change. Supporting documentation should also be submitted if applicable.

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<sup>1</sup> **Aviation community.** All stakeholders involved in the provision of or requiring the use of air navigation resources. It includes:

- ICAO and other aviation standards making organizations;
- States in the role of regulators, airspace sovereigns and sometimes air navigation service providers;
- the aerodrome community;
- air navigation service providers, in charge of providing flight information service, air traffic management and air traffic flow management;
- information service providers;
- airspace users;
- State aviation;
- aircraft and equipment manufacturers;
- research and development organizations; and
- international organizations including professional staff organizations.

The ICAO Secretariat, with the support of the ASBU PPT<sup>2</sup> and/or other expert groups, will conduct an initial evaluation of the proposal to prepare it for further consideration.

If the proposal relates to ICAO Standards and Recommended Practices (SARPs) or Procedures for Air Navigation Services (PANS), the Secretariat will bring to the attention of the Air Navigation Commission (ANC) which will review and approve, modify or reject the proposal in accordance with the established process. If not related to SARPs or PANS, the ICAO Secretariat will review and accept, modify or reject the proposal with the help the ASBU PPT and/or other expert groups.

If the proposal is approved with or without modifications based on the steps mentioned above, the ICAO Secretariat will include it in the ASBU framework. If the proposal is rejected, the ICAO Secretariat will notify the originator and provide the rationale for refusal.

The update of the ASBU framework will be executed in campaigns. The duration of a campaign is 6 months<sup>3</sup>. Only proposals for change submitted prior to a campaign will be processed. Proposals for change received during a given campaign will be processed in the next Campaign. Campaign and proposals for change cut-off dates will be published on the GANP portal.

## **Maintenance process of the ASBU framework step-by-step**

### **Issue a Change Request**

All proposals for change to the ASBU framework must be issued through a formal Change Request (CR) using the attached CR template. The template can be used for proposing changes to existing content (attachment A) and/or proposing a new element (attachment B) or a new thread (attachment C). To the best ability of the originator, also consequential Changes must be submitted using the CR template. The justification should specify if the CR relates to a consequential change.

The template consists of the following fields which are further explained below:

- **Contact details**
  - Name (point of contact): the full name of the person who can be contacted on this CR and who has been nominated by the relevant aviation community to liaise on the CR.
  - Organization: the name of the organisation for which the point of contact is working
  - Position: the position of the point of contact within the organisation
  - Email
  - Telephone
  - Aviation Community: the relevant member of the aviation community submitting the CR. Only abbreviations in attachment D of the attached CR template should be used.
  - CR coordination: a description of the level of coordination of the CR within the aviation community.
  - Date of submission: the date the CR is sent to [ganp@icao.int](mailto:ganp@icao.int)
  - Version nbr: the version number of the CR. This may be relevant in case there will be multiple iterations.
- **Attachment A: CR existing content Information**
  - Reference: fill in the content item using the list of reference options in attachment D to the CR template for which the CR applies. Examples:

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<sup>2</sup> A multidisciplinary team composed of independent professionals from relevant ICAO groups of experts.

<sup>3</sup> This period may be adjusted based on experiences.

- <FRT0/Block 2> : CR applies to concept of operations for FRT0 Block 2
  - <CSEP-B2/3/DA>: CR applies to Deployment Applicability of CSEP-B2/3 element
- CR: the actual Change Request presented as current content with revision marks specifying the change. When submitting a change request, please strikethrough text proposed to be removed and shade text proposed to be included. Examples (using examples above):
  - FRT0/Block 2: The ~~most important~~ operational improvement is related to the large scale cross border Free Route Airspace (FRA) as the continuation of FRT0 B1 and with new text.
  - CSEP-B2/3/DA:
    - Operational conditions: new text
    - Main intended benefits:
      - Type: new text
      - Operational description: new text
      - Benefitting stakeholder(s): new text added
- Justification: explain as briefly as possible the reason(s) for the proposed change. Supporting material could be provided if believed useful.
- Attachment B: CR for proposing a new element
  - Justification: Provide full justification for proposed element consistent with the principles of the GANP. Please note that no proposals can be made to the structure of the GANP in order to provide stability and common understanding.
  - Provide proposed content for all items for the proposed new element.
- Attachment C: CR for proposing a new thread
  - Justification: Provide full justification for proposed thread consistent with the principles of the GANP. Please note that no proposals can be made to the structure of the GANP in order to provide stability and common understanding.
  - Provide proposed content for all items for the proposed new thread, including the content for all its elements.

A completed CR should be submitted using [ganp@icao.int](mailto:ganp@icao.int) email address.

### Acceptance and registration of CR

The CR will be accepted when:

- All relevant information has been provided and is clear/understandable
- Evidence is provided that the CR is from a member of the aviation community
- The CR is within the scope of the Change Management process (e.g. no structured change to the framework's structure)

In case of questions/doubts the point of contact will be contacted for clarification. This may result in withdrawal of the CR or an update of CR. In the latter case this should be reflected by a new date of submission and new version number.

### CR Register

Accepted CRs will be registered in the CR register and be processed during the campaign.

The CR register includes all accepted CRs with their status, assignment and resolution.

The **CR status** options are:

- Accepted: The CR has been accepted i.e. meets the criteria listed above
- Initial assessment: The CR is in the initial assessment phase
- Details assessment: The CR is in the detailed assessment phase
- Resolution: The CR is in the resolution phase
- Resolved: The CR has been resolved – changes have been implemented

The **CR assignment** indicates who is currently responsible for the CR analysis/processing. Options are:

- ICAO secretariat
- Panel Project Team
- Thread Leader
- ICAO Panel xyz

The **CR resolution** specifies all accepted changes to the ASBU framework as a result of the CR. The resolutions of all the processed CRs during a campaign will be implemented to produce the next version of the ASBU framework.

### **Initial assessment**

The objective of the Initial Assessment (IA) is to:

- Analyze the impact of the CR on other global plans.
- Analyze the impact of the CR on other parts in the ASBU framework.
- Analyze whether the CR relates to performance
- Analyze the impact of the CR on other GANP Layers e.g. on Regional Plans.
- Analyze whether the CR will imply changes to existing SARPs or need for new SARPs.
- Analyze the impact of the CR on other CR's processed during the campaign.

The IA will be performed by the ICAO secretariat supported by the ASBU PPT/ Thread Leader. The output of the IA is an IA report detailing:

- The impacts of the CRs in the various domains (see above)
- IA decision based on the findings. The CRs can be accepted for detailed assessment or rejected or amended (which results in an updated CR)
- Detailed Assessment Plan: this plan details how the retained CR's will be processed, by who and when. Also dependencies between CR's will be highlighted.
- IA request analysis from performance experts: if the CR relates to performance it will be passed for feedback to performance experts.

The IA report will be reviewed by the ASBU PPT. Following the IA phase the CR register will be updated.

### **Detailed assessment**

The objective of the Detailed Assessment (DA) is to:

- Obtain a position from the relevant panels on CRs having an impact on SARPs.
- Detail the changes to the ASBU framework resulting from the CRs
- If the CR relates to performance, gather feedback from the performance experts on the CRs
- Conduct consistency checks

The DA will be performed by the ICAO secretariat supported by the ASBU PPT/Thread Leader. The output of the DA is a DA report including:

- Final status of CRs
- Specifications of changes to ASBU framework with justifications
- Follow-up actions (if any)
- Process feedback

The DA report will be reviewed by the ASBU PPT. Following the DA phase the CR register will be updated and the changes specified in the DA report implemented in the ASBU framework.

### **Change implementation**

In this phase the changes specified in the DA report will be included in the GANP Portal and verified (quality checks). This will be done by the ICAO secretariat.

### **Process evaluation and update**

Based on the findings documented in the DA report, the Secretariat with support of the ASBU PPT may discuss and agree possible changes to the Change Management process and ways of working.

### **Roles and responsibilities**

The responsibility for the maintenance process relies with the ICAO secretariat who is supported by the following actors:

#### **ASBU Panel Project Team (PPT)**

- Consist of:
  - Independent experts nominated by States or Recognised International Organisations
  - Thread Leader (TL); nominated independent expert (see above) *and* interface with the Panel/Working Arrangement related to the ASBU thread
  - ICAO Secretariat GANP leader
  - ICAO secretariat experts; Panel secretaries (on demand)
- Main tasks:
  - Assessment of CRs as explained in this document
  - Development of change specifications for the ASBU framework
  - Development of guidance on the ASBU framework
  - Review of the maintenance process
  - Review of consistency and completeness of the ASBU framework
  - Review of alignment with the GANP Global Strategic Level
  - Review of consistency with the other strategic plans (GASP and GAsEP)
- ASBU PPT Secretary (ICAO secretariat)
  - Maintains CR register



- Liaison with CR originator
  - Update ASBU framework as specified in the DA report
- ASBU PPT Chair (elected PPT member)
  - Preparation and facilitation of meetings and maintenance process
  - Facilitation of discussions

**Thread Leader (ASBU PPT member)**

- Responsible for Thread content
- Responsible for alignment with other parts of the ASBU framework and if needed raising issues for resolution
- Responsible for liaison with the ICAO Panel/Working Arrangement related to the thread (thread leader is expected to express the views of the Panel/Working Arrangement)
- Responsible for specifying changes to thread derived from CRs

### GANP Change Request Template V01

- This template shall be used to propose changes to the GANP ASBU Framework
- Only complete Change Requests will be processed
- Change Requests can only be issued by members of the Aviation Community
- Change Requests shall be coordinated in advance with relevant aviation community members
- For proposed changes to existing threads and elements use Attachment A
- For proposed new elements use Attachment B
- For proposed new threads use Attachment C
- Contact <GANP maintenance PoC> for assistance
- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

#### Contact details

Name (point of contact)	
Organization	
Position	
Email	
Telephone	
Aviation Community *	
CR coordination**	
Date of submission	

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	
CR Status	
Assigned TL	

**Attachment A**  
**Change request to existing Threads/Elements**

**Change Request Information**

<b>Reference*</b>	<b>CR (current text with revision marks)</b>	<b>Justification</b>

\*see attachment D for reference options

**Attachment B**  
**Change Request for New Element**

Justification:

<Insert template for new element>

**Attachment C**  
**Change Proposal for New Thread**

Justification:

<Insert template for new thread>

**Attachment D****List of aviation community options:**

CAA	Civil Aviation Authority
ANSP	Air Navigation Service Provider
AIA	Accident Investigation Authority
SAR	Search And Rescue Authority
AO	Aircraft Operator
AM	Aircraft Manufacturer
APO	Airport Operator
ANF	ATM Network Function
MSP	Met Information Service Provider
IO	International Organization

**List of reference options**

<Thread>/Block<nbr>	Reference to concept of operations by block eg AMET/Block 4
<element>/MP	Main Purpose of element
<element>/NC	New Capability of element
<element>/DC	Description of element
<element>/ML	Maturity Level of element
<element>/HF	Human Factor Consideration of element
<element>/PL	Planning Layers of element
<element>/OP	Operations of element
<element>/DR	Dependencies and Relations of element
<element>/EN	Enablers of element
<element>/DA	Deployment applicability of element
<element>/PI	Performance Impact of element

## Appendix B

### ASBU PPT membership

#	First	Name	State/Organization	Email
1	Thomas	Romig	ACI	tromig@aci.aero
2	Kyoko	SATO	Japan/JCAB	<a href="mailto:satoh-k05zb@mlit.go.jp">satoh-k05zb@mlit.go.jp</a>
3	Yasuteru	KISHIMOTO	Japan/JCAB	<a href="mailto:kishimoto-y01uq@mlit.go.jp">kishimoto-y01uq@mlit.go.jp</a>
4	Bob	Lee	ICCAIA	bob.lee@lstechllc.com
5	Jean-Marc	LOSCOS	France	jean-marc.loscos@aviation-civile.gouv.fr
6	Doug	Arbuckle	FAA	doug.arbuckle@faa.gov
7	Alejandro	Rodriguez	FAA	Alejandro.Rodriguez@faa.gov
8	Anna	Von Groote	EUROCAE	anna.vongroote@eurocae.net
9	Anthony	Stevens	UK	anthony.stevens@caa.co.uk
10	Lado	Kuljanishvili	Georgian CAA	l.kuljanishvili@gcaa.ge
11	Midori	Tanino	FAA	Midori.Tanino@faa.gov
12	Hy	Zhao	China	hyzhao11@sina.com
13	Kong Beng	Kuah	CAAS	KUAH_Kong_Beng@caas.gov.sg
14	Chai Fung	Chang	CAAS	CHANG_Chai_Fung@caas.gov.sg
15	Ho	Wei Sean	CAAS	HO_Wei_Sean@caas.gov.sg
16	Coleen K.	Hawrysko	CANSO	coleen.hawrysko@canso.org
17	Nico	Voorbach	CANSO	Nico.Voorbach@CANSO.org
19	Celso	Figueiredo	IATA	figueiredc@iata.org
20	Jean-Francois	Grout	IATA	groutj@iata.org
21	Carole	Couchman	IFALPA	carolecouchman@ifalpa.org
22	Amornrat (Amo)	Jirattigalachote	AEROTHAI	amo.jirat@gmail.com
23	Steve	Bradford	FAA	Steve.Bradford@faa.gov
24	Henk	Hof	EUROCONTROL	henk.hof@eurocontrol.int
25	Albert	Secen	RTCA	ASecen@rtca.org
26	Louis	Bakienon	ASECNA	<a href="mailto:bakienonlou@asecna.org">bakienonlou@asecna.org</a>
27	Charles	Kanga	ASECNA	<a href="mailto:CKanga@icao.int">CKanga@icao.int</a>
28	Adrian	Malizia	EANA	amalizia@eana.com.ar
29	Piyawut (Toon)	Tantimekabut		<a href="mailto:piyawut@gmail.com">piyawut@gmail.com</a>
30	Ivan	Pendatchanski	EUROCONTROL	<a href="mailto:ivan.pendatchanski@eurocontrol.int">ivan.pendatchanski@eurocontrol.int</a>
31	Frederic	Rooseleer	EUROCONTROL	<a href="mailto:frederic.rooseleer@eurocontrol.int">frederic.rooseleer@eurocontrol.int</a>
32	Tim	Murphy	ICCAIA	<a href="mailto:tim.murphy@boeing.com">tim.murphy@boeing.com</a>
33	Peter	Rudolph	A4F	<a href="mailto:peter.rudolph@a4f.aero">peter.rudolph@a4f.aero</a>
34	Greg	Saccone	ICCAIA	<a href="mailto:gregory.t.saccone@boeing.com">gregory.t.saccone@boeing.com</a>
35	Betty	Castaing Martinez	Dominican Republic	<a href="mailto:bcastaing@idac.gov.do">bcastaing@idac.gov.do</a>
36	Mervyn	Fernando	CAAS	<a href="mailto:Mervyn_FERNANDO@caas.gov.sg">Mervyn_FERNANDO@caas.gov.sg</a>
37	Warren	Beeston	ICCAIA	<a href="mailto:WARREN.BEESTON@thalesgroup.com.au">WARREN.BEESTON@thalesgroup.com.au</a>
38	Jesper	Bronsvoort	Airservices Australia	<a href="mailto:Jesper.Bronsvoort@AirservicesAus">Jesper.Bronsvoort@AirservicesAus</a>

				<a href="http://tralia.com">tralia.com</a>
39	Steve	Altus	ICCAIA	<a href="mailto:stephen.s.altus@boeing.com">stephen.s.altus@boeing.com</a>
40	Vinny	Capezzuto	ICCAIA	<a href="mailto:vincent.capezzuto@aireon.com">vincent.capezzuto@aireon.com</a>
41	Patrick	Simon	Meteo France	<a href="mailto:patrick.simon@meteo.fr">patrick.simon@meteo.fr</a>
42	Rosalind	Lapsley	EUROCONTROL	<a href="mailto:rosalind.lapsley@eurocontrol.int">rosalind.lapsley@eurocontrol.int</a>
43	Alexander	Pufahl	ICAO	<a href="mailto:APufahl@icao.int">APufahl@icao.int</a>
44	Louise	Alberts	CASA	<a href="mailto:Louise.Alberts@casa.gov.au">Louise.Alberts@casa.gov.au</a>
45	Andrew	Badham	UK	<a href="mailto:Andrew.Badham@caa.co.uk">Andrew.Badham@caa.co.uk</a>
46	Diana	Liang	FAA	<a href="mailto:Diana.Liang@faa.gov">Diana.Liang@faa.gov</a>
47	Frank	Zubiel	UK	<a href="mailto:Frank.Zubiel@caa.co.uk">Frank.Zubiel@caa.co.uk</a>
48	Claude	Pichavant	ICCAIA (Airbus)	<a href="mailto:claudio.pichavant@airbus.com">claudio.pichavant@airbus.com</a>
49	Nick	Tallman	FAA	<a href="mailto:nicholas.j.tallman@faa.gov">nicholas.j.tallman@faa.gov</a>
50	Jeroen	Kroese	FOCA	<a href="mailto:Jeroen.Kroese@bazl.admin.ch">Jeroen.Kroese@bazl.admin.ch</a>
51	Keith	Maleho	South Africa	<a href="mailto:Malehok@caa.co.za">Malehok@caa.co.za</a>
52	Albert	Msithini	South Africa	<a href="mailto:MsithiniA@caa.co.za">MsithiniA@caa.co.za</a>
53	Ron	Van de Leijgraaf	The Netherlands	<a href="mailto:ron.vande.leijgraaf@minienw.nl">ron.vande.leijgraaf@minienw.nl</a>
54	Christopher	Brain	EUROCONTROL	<a href="mailto:christopher.brain@eurocontrol.int">christopher.brain@eurocontrol.int</a>
55	Harry	Daly	UK	<a href="mailto:Harry.Daly@caa.co.uk">Harry.Daly@caa.co.uk</a>



## Appendix C

### ASBU Framework Change Requests submitted and accepted

#### CHANGE REQUEST TO ASBU THREAD ACDM

- This template shall be used to propose changes to the GANP ASBU Framework
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- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

#### Contact details

Name (point of contact)	<b>Frédéric Rooseleer</b>
Organization	<b>EUROCONTROL</b>
Position	<b>ADOP Advisor – Airport Expert</b>
Email	<b>frederic.rooseleer@eurocontrol.int</b>
Telephone	<b>+32 2 729 46 62</b>
Aviation Community *	<b>ANF</b>
CR coordination**	<b>ADOP &amp; AOWG Chairs &amp; Secretaries</b>
Date of submission	<b>01/09/2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>1 September 2021</b>
CR Status	Accepted
Assigned TL	Jean-François Grout

### Change request to existing Threads/Elements

#### Change Request Information

Reference*	CR (current text with revision marks)	Justification
ACDM B1/1 /DA	Operational Procedure / Information management processes Implementation guidance References: <del>Manual on Collaborative Air Traffic Flow Management (ATFM) (Doc 9971)</del> Manual on Collaborative (total) Airport Management	Ref. document ICAO 9971 not yet updated with AOP guidance
ACDM B1/1 /DA	Applicability date for Operational procedure – <del>2019</del> 2025	Ref. document ICAO 9971 not yet updated with AOP guidance, new ADOP/AOWG job card to be proposed
ACDM B1/2 /DA	Operational procedures to support operations within the APOC/ Procedures for data sharing, management and decision making within the APOC. References: <del>Manual on Collaborative Air Traffic Flow Management (ATFM) (Doc 9971)</del> <del>Manual on the System-wide Information Management (SWIM) Concept (Doc 10039)</del> Manual on Collaborative (total) Airport Management	Ref. document ICAO 9971 not yet updated with APOC guidance
ACDM B1/2 /DA	Applicability date for Operational procedure – <del>2019</del> 2025	Ref. document ICAO 9971 not yet updated with APOC guidance, new ADOP/AOWG job card to be proposed

## CHANGE REQUESTS TO THE ASBU THREAD SWIM

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- For proposed new threads use Attachment C
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### Contact details

Name (point of contact)	<b>Jean-François Grout</b>
Organization	<b>IATA</b>
Position	<b>IMP Chair</b>
Email	<b><a href="mailto:groutj@iata.org">groutj@iata.org</a></b>
Telephone	<b>+15144458318</b>
Aviation Community *	<b>International Organisation</b>
CR coordination**	<b>ICAO IMP</b>
Date of submission	<b>27 September 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>27 September 2021</b>
CR Status	Accepted
Assigned TL	Jean-François Grout

### Change request to existing Threads/Elements

#### Change Request Information

Reference*	CR (current text with revision marks)	Justification
SWIM B2/1 EN	Change 2021 date by 2023 for all enablers with a 2021 date	Provisions will be delivered to ICAO in 2021 for publication in 2023
SWIM B2/1 EN Procedures for how to publish and access a Service overview	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation.	Name of the manual changed
SWIM B2/1 EN Procedures for quality Management system	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed
SWIM B2/1 EN Automated systems with logon and authentication mechanisms	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed
SWIM B2/2 EN	Change 2021 date by 2023 for all enablers with a 2021 date	Provisions will be delivered to ICAO in 2021 for publication in 2023
SWIM B2/2 EN Procedures to access registry and information services	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed
SWIM B2/2 EN Automated systems capable of accessing a registry	Replace the description to say: Guidance Material provided in the manual on SWIM Implementation version published in 2023	It is not currently addressed in the 2021 version of volume II. Maybe in the next iteration.
SWIM B2/3	Modify the title to reflect PANS-IM and say: SWIM service registry	Alignment with PANS-IM
SWIM B2/3 MP, NC, DC, EN	Replace registry buy SWIM service registry	Alignment with PANS-IM
SWIM B2/3 EN	Change 2021 date by 2023 for all enablers with a 2021 date	Provisions will be delivered to ICAO in 2021 for publication in 2023
SWIM B2/3 EN Automated system capable of operating and managing a registry	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed
SWIM B2/3 EN Procedures to populate	Replace ICAO Doc 10039 - Future Manual on System Wide Information	Name of the manual changed

the registry	Management (SWIM) Vol II by Manual on SWIM implementation	
SWIM B2/3 EN Procedures to find the registry	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed
SWIM B2/4 EN	Change 2021 date by 2023 for all enablers with a 2021 date	Provisions will be delivered to ICAO in 2021 for publication in 2023
SWIM B2/4 EN Procedures to access registry and information services	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed
SWIM B2/4 EN Procedures for the exchange of non-safety critical information with the aircraft	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed
SWIM B2/5 EN Procedure to provide access to SWIM information consumers	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed
SWIM B2/5 EN Interconnection of SWIM registries	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed
SWIM B3/1 EN Procedures to access registry and information services	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed
Procedures for the exchange of safety critical information with the aircraft	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed

\*see attachment D for reference options

### Attachment D

#### List of aviation community options:

CAA	Civil Aviation Authority
ANSP	Air Navigation Service Provider
AIA	Accident Investigation Authority
SAR	Search And Rescue Authority
AO	Aircraft Operator
AM	Aircraft Manufacturer
APO	Airport Operator
ANF	ATM Network Function
MSP	Met Information Service Provider

#### List of reference options

<Thread>/Block<nbr>	Reference to concept of operations by block eg AMET/Block 4
<element>/MP	Main Purpose of element
<element>/NC	New Capability of element
<element>/DC	Description of element
<element>/ML	Maturity Level of element
<element>/HF	Human Factor Consideration of element
<element>/PL	Planning Layers of element
<element>/OP	Operations of element
<element>/DR	Dependencies and Relations of element
<element>/EN	Enablers of element
<element>/DA	Deployment applicability of element
<element>PI	Performance Impact of element

## CHANGE REQUESTS FOR THE ASBU THREAD AMET

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### Contact details

Name (point of contact)	<b>Rosalind Lapsley</b>
Organization	<b>EUROCONTROL</b>
Position	<b>Meteorological Expert</b>
Email	<b>Rosalind.lapsley@eurocontrol.int</b>
Telephone	<b>+32 2 729 36 17</b>
Aviation Community *	<b>MET</b>
CR coordination**	<b>Representing METP</b>
Date of submission	<b>29 September 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>29 September 2021</b>
CR Status	Accepted
Assigned TL	Rosalind Lapsley

### Change request to existing Threads/Elements

#### Change Request Information

Reference*	CR (current text with revision marks)	Justification
AMET-B2/1 (NC)	Further development of space weather <del>and radioactive material</del> observation services. Further development of services for terminal areas. Implementation of information services to support a data-centric environment information set. Higher spatial and temporal resolution of meteorological observations. Automated observations which will support user-defined services using observation products derived from meteorological information in ICAO Meteorological Information Exchange Model (IWXXM) form.	METP do not have development plans related to radioactive material observations, as these originate from IAEA or RSMC.  Other changes simply improve the wording without changing the material intent.
AMET-B2/1 (DC)	It is assumed that Aircraft will be equipped for is assumed in the area of meteorological information display capabilities, such as EFBs. Taking advantage of enhanced aircraft connectivity to maximise observation functionality of aircraft.	Improved wording without changing the material intent.  Introducing improvements to aircraft-based observations.
AMET-B2/1 (PL)	To include “post operations”	To support post-incident analysis
AMET-B2/2 (NC)	Further development of space weather <del>and radioactive material</del> services. Further development of forecast and warning services for terminal areas. Phenomena-based meteorological information is no longer constrained by Flight Information Regions (FIRs). Implementation of a data-centric information set. Higher spatial and temporal resolution of meteorological forecasts and warnings. Automated user-defined forecast and warning products services derived from meteorological information in ICAO Meteorological Information Exchange Model (IWXXM) form. Further development of probabilistic information derived from ensemble prediction	METP/5 action to suspend development activities for dispersion modelling of radioactive release until new updates from regional implementation are available – this may be reintroduced at a later date.  Other changes simply improve the wording without changing the material intent.



	systems and how this type of information can be presented or integrated into user's decision processes.	
AMET-B2/2 (DC)	<p>A significant evolution is planned for volcanic ash information. Next generation volcanic ash cloud forecasts will be fully implemented, which It will allow decision makers to use provide both deterministic and probabilistic forecasts for contamination levels that will allow decision makers to use, taking into account their risk management practices and the quantitative exposures allowed by the engine manufacturers. Specifically, the addition of probabilistic forecasts will provide decision makers with an assessment of the likelihood of the volcanic ash exceeding a defined magnitude (or threshold) at a particular time and place. The probabilistic element further helps decision makers apply their own operational constraints (i.e. business rules) to determine the risk to their operations.</p> <p>Enhanced global MET forecasts will be provided under the World Area Forecast System (WAFS), which will include higher resolution and probabilistic information. Enhanced higher resolution regional MET forecasts will also be provided. Forecast services for the terminal area will be further enhanced with the accuracy, resolution and frequency to support ATM operations within those areas.</p> <p>Evolving the nature of enroute hazard forecasting into the future SWIM</p>	<p>Improved wording without changing the material intent.</p> <p>Correcting a typo</p> <p>Longstanding action of the</p>

	<p>environment, will require the development of new services, which is planned for this module. These will be supported by new forecasting methodologies to ensure global and regional consistency and will involve a harmonised and coordinated approach between MET service providers. This module will build and demonstrate the concept, based on defined user requirements, as well as design the infrastructure and system architecture.</p> <p>This enhanced global, regional and terminal area information will be integrated into flight planning, flight management and ATM decision support systems, including systems for air traffic control around and at airports.</p>	<p>METP to develop concept of hazardous weather information service (HWIS) [formerly Regional Hazardous Weather Advisory Centre]. This module will lay the developmental foundations and demonstration, with implementation expected to commence in the latter period of B2/2.</p> <p>Correcting typo</p>
AMET-B2/4 (NC)	<p>Implementation of a data-centric meteorological information services, integrated into the System Wide Information Management (SWIM) environment. User-defined services products derived from meteorological information in ICAO Meteorological Information Exchange Model (IWXXM) form. Wider use of secure web services and message brokers as part of the transition from decommissioning of fixed line and satellite dissemination systems. Commencement of the use of business-to-business services that allows integration of meteorological information into ATM systems. <del>Increased use of air-to-air datalink for transmission of upper air meteorological observation in near real time.</del></p>	<p>Improving terminology to be consistent</p> <p>Any future aircraft advisory service of this type would likely require quality controlled information, and therefore air-to-air data communications would not be the most appropriate solution.</p>
AMET-B2/4 (DC)	<p>New 3<sup>rd</sup> paragraph: In coordination with stakeholders, the development of guidance on visualisation of some MET information, where deemed appropriate.</p>	<p>METP/5 action will recommend this joint activity to ANC.</p>
AMET-B3/1 (NC)	Further development of space weather	

	<p>information service and of observation services for terminal areas. Higher spatial and temporal resolution of meteorological observations.</p> <p>Observations to support tactical routing decisions under environmental considerations i.e. contrail or noise avoidance, if required.</p>	<p>Possible future considerations to minimise environmental impact of flights, will likely require observational support.</p>
AMET-B3/1 (DC)	<p>Recognising that space weather affecting the earth's surface or atmosphere poses a hazard to communications and navigation systems especially satellite-based systems and may also pose a radiation risk to flight crew members and passengers, this module builds on AMET-B2 for space weather information services in support of safe and efficient international air navigation.</p>	<p>Correcting a typo</p>
AMET-B3/1 (PL)	<p>To include "post operations"</p>	<p>To support post-incident analysis – and to be consistent with B2/1</p>
AMET-B3/2 (DC)	<p>New 3<sup>rd</sup> paragraph: Enroute SWIM services that are produced collaboratively (between MET providers) will provide tailored information on hazards.</p>	<p>To include a reference that this module will continue the global deployment of HWIS from B2/2, by integrating more States into the production process.</p>

### CHANGE REQUESTS FOR THE ASBU THREAD GADS

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- For proposed new threads use Attachment C
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- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

#### Contact details

Name (point of contact)	<b>Henk Hof</b>
Organization	<b>EUROCONTROL</b>
Position	<b>Chair GADSS Advisory Group</b>
Email	<b>Henk.hof@eurocontrol.int</b>
Telephone	<b>+32 476 412 804</b>
Aviation Community *	<b>SAR</b>
CR coordination**	<b>Coordinated in GADSS AG</b>
Date of submission	<b>20 July 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>20 July 2021</b>
CR Status	Accepted
Assigned TL	Henk Hof

### Change request to existing Threads/Elements

#### Change Request Information

Reference*	CR (current text with revision marks)	Justification
GADS-B1/2	Change name to “Operational Control Directory”	Name was changed during the implementation. Consistent with Annex 11 and 12 amendments
GADS-B1/2/NC	Change to: “Access to point of contact information of ATSUs, Aircraft Operators and Rescue Coordination Centres”	Change reflects current situation
GADS-B1/2/EN	Change enabler name to: “procedures for Operational Control Directory” Update references with Annex 11 and Annex 12	
GADS-B2/1	Change name to: “Location of an aircraft in Distress”	Consistent with Annex 6
GADS-B2/1/DC	Change to: The localisation of an aircraft in distress is one of the Global Aeronautical Distress and Safety System (GADSS) functions. This function uses on board systems to broadcast aircraft position (latitude and longitude), or distinctive distress signals from which the aircraft position and time can be derived. The aircraft position information will be transmitted, without the need for flight crew action, at least once every minute, when an aircraft is in a distress condition.  An aircraft is in a distress condition when it is in a state that, if the aircraft behaviour event is left uncorrected, may result in an accident. The operator is responsible for ensuring that this information is made available to the actors involved in the emergency.	Consistent with Annex 6 GADSS Concept is being updated
GADS-B2/1/ML	Change to ready for implementation	Consistent with applicability dates and industrial developments
GADS-B2/1/EN	Change Autonomous Distress Tracking (ADT) to “location of aircraft in distress”  /training: changed Autonomous Distress Tracking and ADT to “location of aircraft in distress”	Consistent with Annex 6
GADS-B2/1/EN	Change last 3 dates to 2023	Consistent with industry plans
GADS-B2/2/NC	Change to “Access to location of aircraft in distress data”	Consistent with Annex 6,11 and 12

GADS-B2/2/ML	Change to Ready for implementation	Consistent with applicability dates and industrial developments
GADS-B2/3/DC	Delete: (ref, GADSS ConOPS V6)	ConOps will be replaced with GADSS Manual
GADS-B2/4/ML	Change to ready for implementation	Consistent with applicability dates and industrial developments

## CHANGE REQUESTS FOR THE ASBU THREAD DAIM

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- For proposed new threads use Attachment C
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- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

### Contact details

Name (point of contact)	<b>Roy Tuomela</b>
Organization	<b>ICAO Information Management Panel (IMP)</b>
Position	<b>AIM Working Group Rapporteur</b>
Email	<b>roy.tuomela@casa.gov.au</b>
Telephone	<b>+61 434 664 716</b>
Aviation Community *	<b>CAA</b>
CR coordination**	<b>ICAO IMP AIM Working Group</b>
Date of submission	<b>27 July 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>27 July 2021</b>
CR Status	Accepted
Assigned TL	Roy Tuomela

### Change request to existing Threads/Elements

#### Change Request Information

Reference*	CR (current text with revision marks)	Justification
DAIM/DC  B1/1	<p>This element ensures that processes, procedures and systems are improved to allow for an enhanced quality of aeronautical information products and services. This element includes:</p> <ol style="list-style-type: none"> <li>1. Full move into an automated data-centric environment so that the management, processing, verification, usage and exchange can be done in a structured, automatic manner and human intervention is reduced.</li> <li>2. Aeronautical data and information is of high quality if it is aggregated and provided by authoritative sources. This requires to properly control relationships along the whole data chain from the origination to the distribution to the next intended user (formal arrangements with data originators, neighbouring States, data and information service providers and others).</li> </ol>	<p>Descriptions 1 and 2 can be deleted as QMS, WGS-84 and AIRAC are long-standing standards in Annex 15. Consequently, renumber 2 and 3.</p>
DAIM/DR  B1/7	<p><b>Type of ASBU Element Dependencies</b></p> <p>Relation-operational need <a href="#">DAIM-B1/1 - Provision of quality-assured aeronautical data and information</a></p> <p>Relation-information need <a href="#">DAIM-B1/2 - Provision of digital Aeronautical Information Publication (AIP) data sets</a></p> <p>Relation-information need <a href="#">DAIM-B1/4 - Provision of digital obstacle</a></p>	<p>SWIM Dependencies should be added as digital NOTAM can be provided or consumed through a SWIM information service similar to digital data set services. Propose add:</p> <p>SWIM-B2/1 - Information service provision SWIM-B2/2 - Information service consumption.</p>



	<p><a href="#">data sets</a></p> <p>Relation- information need <a href="#">DAIM-B1/5 - Provision of digital aerodrome mapping data sets</a></p> <p>Relation- information need <a href="#">DAIM-B1/6 - Provision of digital instrument flight procedure data sets</a></p> <p>Relation- operational need <a href="#">SWIM-B2/1 - Information service provision</a></p> <p>Relation- operational need <a href="#">SWIM-B2/2 - Information service consumption</a></p>	
DAIM/DR B2/5	<p><b>Type of ASBU Element Dependencies</b></p> <p>Evolution <a href="#">DAIM-B1/7 - NOTAM improvements</a></p> <p>Relation- operational need <a href="#">SWIM-B2/1 - Information service provision</a></p> <p>Relation- operational need <a href="#">SWIM-B2/2 - Information service consumption</a></p>	<p>SWIM Dependencies should be added as the replacement to the current NOTAM system, the Operational Reporting Information Service (ORIS), is intended to be provided and consumed through a SWIM information service. Propose add:</p> <p>SWIM-B2/1 - Information service provision SWIM-B2/2 - Information service consumption.</p>

### CHANGE REQUESTS FOR THE ASBU THREAD FICE

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- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

#### Contact details

Name (point of contact)	<b>Steve Bradford</b>
Organization	<b>Federal Aviation Administration</b>
Position	<b>Chief Scientist</b>
Email	<b>Steve.Bradford@faa.gov</b>
Telephone	<b>202-267-1218</b>
Aviation Community *	<b>ANSP</b>
CR coordination**	<b>ATMRPP Chair and Secretary</b>
Date of submission	<b>10 October 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>10 October 2021</b>
CR Status	Accepted
Assigned TL	Steve Bradford

### Change request to existing Threads/Elements

#### Change Request Information

Reference*	CR (current text with revision marks)	Justification
<FICE-B2/1/EN>	<p>Enabler Name: Procedures for the provision and use of FFICE Planning Service</p> <p>Description: Procedures for FF-ICE flight data exchange, preliminary flight plan, flight plan update, flight plan revaluation, flight cancellation and flight data request. References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965 - Manual on Flight and Flow Information for a Collaborative Environment (FF-ICE) 1<sup>st</sup>2<sup>nd</sup> Edition</p>	The enabler should reference Doc 9965 1st Edition
<FICE-B2/1/EN>	<p>Enabler Name: Flight Information Exchange Model (FIXM) Version 4.2.0</p> <p>Enabler Description: References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 1<sup>st</sup>2<sup>nd</sup> Edition.</p> <p>Enabler Year: 202049</p>	FIXM version 4.2.0 was released in 2020, and the enabler should reference Doc 9965 1st Edition
<FICE-B2/1/EN>	<p>Enabler Name: Capability to process FFICE data exchange</p> <p>Enabler Description: Upgrade the ground system to process FF-ICE data exchange using FIXM and including assignment/recognition of GUFI. References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 1<sup>st</sup>2<sup>nd</sup> Edition.</p>	The enabler should reference Doc 9965 1st Edition
<FICE-B2/1/EN>	<p>Enabler Name: Capability to obtain and use necessary information for FF-ICE Services</p> <p>Enabler Description: Upgrade the ground system to use AMET and DAIM information obtained via SWIM services to determine constraints applicable to a flight. References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services, and ICAO Doc 9965 - FF-ICE Manual 1<sup>st</sup>2<sup>nd</sup> Edition, Annex 3 - Meteorological Service for</p>	The enabler should reference Doc 9965 1st Edition, and the description should also reference Annex for MET and AIM

	International Air Navigation, PANS AIM, and Annex 15 – Aeronautical Information Services	
<FICE-B2/2/EN>	<p>Enabler Name: Flight Information Exchange Model (FIXM) Version 4.2.0</p> <p>Enabler Description: References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965-FF-ICE Manual 1<sup>st</sup>2<sup>nd</sup> Edition.</p> <p>Enabler Year: 202019</p>	FIXM version 4.2.0 was released in 2020, and the enabler should reference Doc 9965 1st Edition
<FICE-B2/2/EN>	<p>Enabler Name: Capability to obtain and use necessary information for FF-ICE Services</p> <p>Enabler Description: Upgrade the ground system to use AMET and DAIM information obtained via SWIM services to determine constraints applicable to a flight. References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services, and ICAO Doc 9965 - FF-ICE Manual 1<sup>st</sup>2<sup>nd</sup> Edition, Annex 3 - Meteorological Service for International Air Navigation, PANS AIM, PANS IM, and Annex 15 – Aeronautical Information Services</p>	The enabler should reference Doc 9965 1st Edition, and the description should also reference Annex for MET, AIM, and SWIM
<FICE-B2/2/EN>	<p>Enabler Name: Training requirements for the filing service</p> <p>Enabler Year: 202218</p>	The training requirements cannot be completed until the applicability date of the capability
<FICE-B2/3/EN>	<p>Enabler Name: Flight Information Exchange Model (FIXM) Version 4.2.0</p> <p>Enabler Description: References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965-FF-ICE Manual 1<sup>st</sup>2<sup>nd</sup> Edition.</p> <p>Enabler Year: 202019</p>	FIXM version 4.2.0 was released in 2020, and the enabler should reference Doc 9965 1st Edition
<FICE-B2/3/EN>	<p>Enabler Name: Capability to obtain and use necessary information for FF-ICE Services</p> <p>Enabler Description: Upgrade the ground system to use AMET and DAIM information obtained via SWIM services to determine constraints applicable to a flight. References: PANS-ATM ICAO</p>	The enabler should reference Doc 9965 1st Edition, and the description should also reference Annex for MET, AIM, and SWIM

	Doc 4444 - Procedures for Air Navigation Services, and ICAO Doc 9965 - FF-ICE Manual 1 <sup>st</sup> 2 <sup>nd</sup> Edition, Annex 3 - Meteorological Service for International Air Navigation, PANS AIM, PANS IM, and Annex 15 – Aeronautical Information Services	
<FICE-B2/4/EN>	<p>Enabler Name: Flight Information Exchange Model (FIXM) Version 4.2.0</p> <p>Enabler Description: References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 1<sup>st</sup>2<sup>nd</sup> Edition.</p> <p>Enabler Year: 202019</p>	FIXM version 4.2.0 was released in 2020, and the enabler should reference Doc 9965 1st Edition
<FICE-B2/5/EN>	<p>Enabler Name: Flight Information Exchange Model (FIXM) Version 4.2.0</p> <p>Enabler Description: References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 1<sup>st</sup>2<sup>nd</sup> Edition.</p> <p>Enabler Year: 202019</p>	FIXM version 4.2.0 was released in 2020, and the enabler should reference Doc 9965 1st Edition
<FICE-B2/6/EN>	<p>Enabler Name: Flight Information Exchange Model (FIXM) Version 4.2.0</p> <p>Enabler Description: References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 1<sup>st</sup>2<sup>nd</sup> Edition.</p> <p>Enabler Year: 2019</p>	FIXM version 4.2.0 was released in 2020, and the enabler should reference Doc 9965 1st Edition
<FICE-B2/7/EN>	<p>Enabler Name: Flight Information Exchange Model (FIXM) Version x.x.x 4.2.0</p> <p>Enabler Year: 202419</p>	The flight and flow information content will be contained in a future version of FIXM
<FICE-B2/7/EN>	<p>Enabler Name: Capability to support the assignment/recognition of GUF</p> <p>Enabler Description: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 2nd Edition.</p> <p>Enabler Year: 202418</p>	The enabler should reference Doc 9965 2nd Edition in 2024
<FICE-B2/7/EN>	<p>Enabler Name: FDP system able to process FIXM</p>	The enabler should reference Doc 9965 2nd Edition in 2024

	<p>Enabler Description: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 2nd Edition.</p> <p>Enabler Year: 202418</p>	
<FICE-B2/7/EN>	<p>Enabler Name: FDP system that accesses AMET and DAIM information via SWIM services.</p> <p>Enabler Description: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services, Annex 3 - Meteorological Service for International Air Navigation, PANS AIM, PANS IM, and Annex 15 – Aeronautical Information Services</p>	The enabler should reference Annex for MET, AIM, and SWIM
<FICE-B2/8/EN>	<p>Enabler Name: Flight Information Exchange Model (FIXM) Version x.x.x 4.2.0</p> <p>Enabler Year: 202418</p>	The flight and flow information content will be contained in a future version of FIXM
<FICE-B2/8/EN>	<p>Enabler Name: Capability to support the assignment/recognition of GUF</p> <p>Enabler Description: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 2nd Edition.</p> <p>Enabler Year: 202418</p>	The enabler should reference Doc 9965 2nd Edition in 2024
<FICE-B2/8/EN>	<p>Enabler Name: FDP system able to process FIXM</p> <p>Enabler Description: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 2nd Edition.</p> <p>Enabler Year: 202418</p>	The enabler should reference Doc 9965 2nd Edition in 2024

### CHANGE REQUESTS FOR THE ASBU THREAD RSEQ

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- For proposed changes to existing threads and elements use Attachment A
- For proposed new elements use Attachment B
- For proposed new threads use Attachment C
- Contact <GANP maintenance PoC> for assistance
- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

#### Contact details

Name (point of contact)	<b>Piyawut Tantimekabut</b>
Organization	<b>AEROTHAI</b>
Position	<b>ATMOPSP Advisor / ATMOPSP Focal Point for GANP-SG</b>
Email	<b>piyawut@gmail.com</b>
Telephone	<b>+66 8 9697 5859</b>
Aviation Community *	<b>ANSP</b>
CR coordination**	<b>ATMOPSP</b>
Date of submission	<b>10 October 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>10 October 2021</b>
CR Status	Accepted
Assigned TL	Piyawut Tantimekabut

**Change request to existing Threads/Elements****Change Request Information**

<b>Reference*</b>	<b>CR (current text with revision marks)</b>	<b>Justification</b>
RSEQ-B2/2 Arrival Management in terminal airspace with multiple airports	Applicability date changed to 2026	Supporting SESAR Operational Improvement TS- 0303 – Arrival Management into Multiple Airports have new timing of 2022-2026 No associated Job Card
RSEQ-B3/1 Departure Management in terminal airspace with multiple airports	Applicability date changed to 2032	Supporting SESAR Operational Improvement TS- 0302 – Departure Management from Multiple Airports have revised timing of 2028-2032 No associated Job Card
RSEQ-B3/2 Extended arrival management supporting overlapping operations into multiple airports	Applicability date changed to 2032	Supporting SESAR Operational Improvement TS- 0305B – Arrival Management Extended to En-Route Airspace – Impact of Overlapping AMAN Operations for En Route ATC have revised timing of 2028- 2032 No associated Job Card



## CHANGE REQUESTS FOR THE ASBU THREAD ASUR

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### Contact details

Name (point of contact)	<b>Doug Arbuckle</b>
Organization	<b>Surveillance Panel</b>
Position	<b>Chair (FAA Chief Scientist for Surveillance Services)</b>
Email	<b><a href="mailto:doug.arbuckle@faa.gov">doug.arbuckle@faa.gov</a></b>
Telephone	<b>+1-757-846-4225</b>
Aviation Community *	<b>IO (ANSP)</b>
CR coordination**	<b>Factual change (no need for coordination)</b>
Date of submission	<b>22-Sep-2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>22-Sep-2021</b>
CR Status	Accepted
Assigned TL	Doug Arbuckle

**Change request to existing Threads/Elements****Change Request Information**

<b>Reference*</b>	<b>CR (current text with revision marks)</b>	<b>Justification</b>
ASUR-B1/1/ML	Ready for implementation	Space-based ADS-B data is being used by multiple ANSPs for ATC separation and the enabling ICAO provisions to do so are in place (No SARPs changes were needed; PANS-ATM has been amended)

## CHANGE REQUESTS FOR THE ASBU THREAD CSEP

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- For proposed new threads use Attachment C
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- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

### Contact details

Name (point of contact)	<b>Jean-Marc Loscos</b>
Organization	<b>Surveillance Panel</b>
Position	<b>AIRB WG chair (SP Member for France)</b>
Email	<b><a href="mailto:Jean-marc.loscos@aviation-civile.gouv.fr">Jean-marc.loscos@aviation-civile.gouv.fr</a></b>
Telephone	<b>+33 562 14 5206</b>
Aviation Community *	<b>IO (ANSP)</b>
CR coordination**	<b>Factual change (no need for coordination)</b>
Date of submission	<b>7-OCT-2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>7-OCT-2021</b>
CR Status	Accepted
Assigned TL	Jean-Marc Loscos

**Change request to existing Threads/Elements****Change Request Information**

<b>Reference*</b>	<b>CR (current text with revision marks)</b>	<b>Justification</b>
CSEP B2/1 IM procedure	In the list of enablers change the year 2022 in <b>2025</b> for Operational procedure and for Regulatory provisions	The original date of 2022 was based on trials planned in 2020 and 2021 which had to be postponed due to COVID-19. The SP meetings were also rescheduled accordingly.

Enabler category	Enabler Type	Enabler name	Description/references	Stakeholders	Year
Operational procedures	Operations	Procedures for the use of IM	PANS-ATM/PANS-OPS IM Procedure (to be developed)	ANSP	2025
...	...	...	...	...	...
Regulatory Provisions	Certification	IM Certification	ICAO ANNEX 10 Technical Requirements (to be developed) ICAO DOC9994 (2018)	CAA Aircraft Manufacturer Aircraft Operator	2025

## CHANGE REQUESTS FOR THE ASBU THREAD RATS

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### Contact details

Name (point of contact)	<b>Katariina Syväys</b>
Organization	<b>IFATCA</b>
Position	<b>Remote Tower Task Force Coordinator</b>
Email	<b><a href="mailto:katariina.syvays@ifatca.org">katariina.syvays@ifatca.org</a></b>
Telephone	<b>+358-45-882 5308</b>
Aviation Community *	<b>IO</b>
CR coordination**	<b>ATMOPS</b>
Date of submission	<b>3 October 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>3 October 2021</b>
CR Status	Accepted
Assigned TL	Katariina Syväys

**Change request to existing Threads/Elements****Change Request Information**

<b>Reference*</b>	<b>CR (current text with revision marks)</b>	<b>Justification</b>
RATS/B1	RATS Remote ATS to be changed into DAATS (Digital Aerodrome Air Traffic Services)	The word “remote” incorrectly implies that this technology cannot be used at the aerodrome. There is an active WG within ATMOPS Panel with an existing Job Card that is using the term Digital Aerodrome Air Traffic Services (DAATS) as correctly reflecting this technology. The ASBU Thread should be renamed accordingly

## CHANGE REQUESTS FOR THE ASBU THREAD WAKE

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- For proposed new threads use Attachment C
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- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

### Contact details

Name (point of contact)	<b>Frédéric Rooseleer</b>
Organization	<b>EUROCONTROL</b>
Position	<b>WTSWG Member</b>
Email	<b><a href="mailto:frederic.rooseleer@eurocontrol.int">frederic.rooseleer@eurocontrol.int</a></b>
Telephone	<b>+32 2 729 46 62</b>
Aviation Community *	<b>ANF</b>
CR coordination**	<b>WTSWG</b>
Date of submission	<b>2 October 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>2 October 2021</b>
CR Status	Accepted
Assigned TL	Frédéric Rooseleer

### Change request to existing Threads/Elements

#### Change Request Information

Reference*	CR (current text with revision marks)	Justification
WAKE-B2/1	New Capabilities: <del>Replacement</del> <del>Alternative to</del> of the <del>3</del> <del>4</del> aircraft wake turbulence categories defined in ICAO PANS-ATM by 7 aircraft wake turbulence groups based on safety and operational requirement criteria.	Alignment with published PANS-ATM amendment 9
WAKE-B2/2	Description: This element defines a dependent paired approach procedure to parallel runways, with centre lines spaced less than 760m (2500ft) apart, threshold staggers, and/or glide path height differences, under ILS Category I minimums, or the minimums depicted for an RNAV or LPV approach. It covers airports <del>exploiting</del> applying the ICAO <del>34</del> Wake Turbulence Categories or <del>Revised</del> Wake Vortex Separation of <del>7</del> wake turbulence aircraft groups.	Alignment with published PANS-ATM amendment 9
WAKE-B2/2 Dependent parallel approaches based on WTG	Applicability date – <del>2022</del> 2028	Provisions and supporting guidance documentation to be developed and available
WAKE-B2/3 Independent segregated parallel operations based on WTG	Applicability date – <del>2022</del> 2028	Provisions and supporting guidance documentation to be developed and available
WAKE-B2/4 Wake turbulence separation minima based on leader/follower static pair-wise	Applicability date – <del>2024</del> 2030	Provisions and supporting guidance documentation to be developed and available
WAKE-B2/5 Enhanced dependent parallel approaches	Applicability date – <del>2024</del> 2030	Provisions and supporting guidance documentation to be developed and available
WAKE-B2/6 Enhanced independent segregated parallel operations	Applicability date – <del>2024</del> 2030	Provisions and supporting guidance documentation to be developed and available
WAKE-B2/7 Time based wake separation minima for arrival based on leader/follower static pair-wise	Title update: Time based wake separation minima for Final Approach <del>arrival based on</del> leader/follower static pair-wise	To align with Proposal for Amendment to PANS-ATM for Time-Based Separation for final approach, and clarify the scope of



	<p>Description update:</p> <p>This element defines a new set of time based wake turbulence separations on final approach under ATS surveillance service, derived from distance-based separation (DBS) minima, allowing a dynamic DBS application for stabilizing landing rates across headwind conditions. <del>for frequent aircraft pairs based on the performance characteristics of the leading aircraft generating wake turbulence and the following aircraft that might encounter the wake turbulence.</del></p> <p>It consists of a <del>leader / follower wise static matrix of aircraft type</del> optimized wake separation pairings that can be exploited by the ATCO with system support, <del>increase runway throughput,</del> for enhancing resilience and mitigating the impact of strong headwinds.</p> <p><del>Existing categorisation systems may be used to determine separation minima for types of aircraft pairs not specifically included in the pairwise separation matrix</del></p>	<p>application (not only restrict to the application with Static pair-wise minima -B2/4)</p>
<p>WAKE-B2/8</p> <p>Time based wake separation minima for departure based on leader/follower static pairwise</p>	<p>Applicability date – <del>2024</del> 2030</p>	<p>Provisions and supporting guidance documentation to be developed and available</p>
<p>WAKE-B3/1</p> <p>Time based dependent parallel approaches</p>	<p>Applicability date – <del>2026</del> 2030</p>	<p>Provisions and supporting guidance documentation to be developed and available</p>
<p>WAKE-B3/2</p> <p>Time based independent segregated parallel operations</p>	<p>Applicability date – <del>2026</del> 2030</p>	<p>Provisions and supporting guidance documentation to be developed and available</p>

### CHANGE REQUESTS FOR THE ASBU THREAD COMI

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- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

#### Contact details

Name (point of contact)	<b>Brent Phillips</b>
Organization	<b>Federal Aviation Administration (FAA)</b>
Position	<b>Senior Systems Engineer</b>
Email	<b>Brent.phillips@faa.gov</b>
Telephone	<b>703-726-8658</b>
Aviation Community *	<b>CAA</b>
CR coordination**	<b>ICAO CP, EUROCONTROL, FAA Data Comm</b>
Date of submission	<b>3/11/2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>3/11/2021</b>
CR Status	Accepted
Assigned TL	Brent Phillips

### Change request to existing Threads/Elements

#### Change Request Information

Reference*	CR (current text with revision marks)	Justification
COMI-B0/1	<b>Type of Dependencies:</b> Relation-technology option <b>ASBU Element:</b> <del>COMI B1/2 — VHF Data Link (VDL)</del> <del>Mode 2 Multi Frequency</del>	Misaligned dependencies
COMI-B0/1	<b>Type of Dependencies:</b> Relation-technology option <b>ASBU Element:</b> <del>COMI B1/3 — SATCOM Class B Voice and Data</del>	Misaligned dependencies
COMI-B0/2	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B1/2 — VHF Data Link (VDL)</del> <del>Mode 2 Multi Frequency</del>	Misaligned dependencies
COMI-B0/2	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B1/3 — SATCOM Class B Voice and Data</del>	Misaligned dependencies
COMI-B0/2	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B3/1 — VHF Data Link (VDL)</del> <del>Mode 2 Connectionless</del>	Misaligned dependencies
COMI-B0/7	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B1/1 — Ground Ground Aeronautical — Telecommunication Network/Internet — Protocol Suite (ATN/IPS)</del>	
COMI-B1/1	<b>New Capabilities:</b> It enables the efficient integration of technologies with improved integrity to support future air to ground aeronautical safety services and regularity of flight communications.	There is no air/ground IPS in block 1. It comes later hence the future adjective
COMI-B1/3	<b>Type of Dependencies:</b> Relation-technology need <b>ASBU Element:</b> <del>AMET B1/1 — Meteorological observations information</del>	Not current. Dependencies rely on COMI not vice versa
COMI-B1/3	<b>Type of Dependencies:</b> Relation-technology need <b>ASBU Element:</b> <del>AMET B1/2 — Meteorological forecast and warning information</del>	Not current. Dependencies rely on COMI not vice versa

COMI-B2/1	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B3/1 — VHF Data Link (VDL) Mode 2 Connectionless</del>	Misaligned dependencies
COMI-B2/1	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B3/2 — SATCOM Class A voice and data</del>	Misaligned dependencies
COMI-B2/1	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B3/4 — Links meeting requirements for safety critical communication</del>	Misaligned dependencies
COMI-B2/1	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B3/3 — L band Digital Aeronautical Communication System (LDACS)</del>	Misaligned dependencies
COMI-B3/2	<b>Type of Dependencies:</b> Relation-technology need <b>ASBU Element:</b> <del>AMET B2/1 — Meteorological observations information</del>	Misaligned dependencies
COMI-B3/2	<b>Type of Dependencies:</b> Relation-technology need <b>ASBU Element:</b> <del>AMET B2/2 — Meteorological forecast and warning information</del>	Misaligned dependencies

## CHANGE REQUESTS FOR THE ASBU THREAD OPFL AND APTA

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### Contact details

Name (point of contact)	<b>Harry Daly</b>
Organization	<b>UK CAA</b>
Position	<b>SASP Member</b>
Email	<b>Harry.daly@caa.co.uk</b>
Telephone	<b>0044 (0) 3301382276</b>
Aviation Community *	<b>CAA</b>
CR coordination**	<b>ICAO SASP</b>
Date of submission	<b>27 September 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>27 September 2021</b>
CR Status	Accepted
Assigned TL	Harry Daly

### Change Request for New Element

**Justification:** The SASP has been working on Job Cards that provide for operational improvements which are not reflected in the GANP.

#### Change Request Information

OPFL-B3/?	Helicopter RNP 0.3 Terminal and En-Route Operations	Operational
Main Purpose?	Existing PBN track separation guidance for fixed wing airplane routes does not fully serve the helicopter IFR mission profiles which may require routes to be established at low altitude in mountainous and obstacle-rich environments or over densely populated regions with approaches to Points-In-Space (PINS) or helipads/heliports in airspace not typically used for fixed wing operations. Unlike fixed wing aircraft, helicopter normal operating capability, i.e. en-route cruising speed and manoeuvring ability is suited to RNP 0.3 for en-route as well as the terminal environment. Studies have shown that increasing the availability of IFR service to helicopter operations has the potential to decrease the risk of accidents for helicopter operations in marginal weather conditions.	
New Capabilities?	Facilitating arrivals and departures, and en-route IFR Helicopter operations in terrain rich environments.	
Description?	Evolution of lateral track separation for parallel helicopter RNP 0.3 routes to facilitate safe and efficient IFR helicopter operations in all phases of flight.	
Maturity Level?	Validation	
Human Factor Considerations	1. Does it imply a change in task by a user or affected others? Yes  2. Does it imply processing of new information by the user? Yes  3. Does it imply the use of new equipment? No  4. Does it imply a change to levels of automation? Yes	
PLANNING LAYERS? <u>Tactical-During ops</u>		OPERATIONS? <u>Departure Arrival Enroute</u>
DEPENDENCIES AND RELATIONS?	ASBU Element  TBC	
Type of Dependencies		
TBC		

Element					
Category	Type	Name	Description/Reference	Year	Stakeholder
Regulatory provisions	National regulatory framework	National framework amendment for performance-based separation provisions for helicopter	National regulation amendment for performance-based separation provisions for helicopter specific navigation capability. References: DOC. 4444 –	2028	CAA

		specific navigation capability	Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM)		
Operational Procedure	Design	PBN procedures design and use.	These operational procedures should be designed and used as specified in Doc 8168 (PANS-OPS Vol II and I) or equivalent.	2028	ANSP
Operational Procedure	Design	PBN procedure validation, approval and publication	A flight inspection and/or validation of the procedures might be required before publication. The publication of the procedures should follow Annex 4. References: ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design).	2028	ANSP CAA
Operational Procedure	Operations		Procedures for the crew to follow to fly a PBN approach. Defined in the Ops Manual. Reference: Doc 9613 (PBN Manual)	2028	Aircraft operator
Operational Procedure	Separation		Procedures for separation. Defined in the Ops Manual. Reference: PANS-ATM	2028	ANSP
Operational Authorization		Operational Authorization for PBN specification	Aircraft operator flying a PBN procedure should have an operational authorization related to the specified performance of the procedure, as described in Doc 9997 (PBN Ops Approval Manual).	2022	CAA Aircraft operator
Airborne capabilities	Navigation	Helicopter capability RNP 0.3	Helicopters should be equipped with RNP 0.3. Reference: Doc 9613 (PBN Manual)	2021	Aircraft Manufacturer Aircraft operator
Training		Training requirements for Helicopter RNP 0.3 Terminal and En-Route Operations	Crew trained to fly the procedure. References: As defined in Doc 9613 (PBN Manual). For Air traffic controllers. References: PANS-ATM. References: PANS-OPS Vol II and Doc 9992 Manual on the Use of Performance-Based Navigation (PBN) in		ANSP Aircraft operator

			Airspace Design		
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Deployment applicability		
Operational conditions	For operations of helicopters in terminal and en-Route in complex urban environment or areas with abrupt terrain. Preserving safety and providing access to helicopters for emergency purposes for example.	
Main intended benefits		
Type	Operational description	Benefitting stakeholder(s)
Direct benefits	Safety	Aircraft operator General citizen
	Access	Aircraft operator General citizen
Indirect benefits	Environment	General citizen

OPFL-B3/?	Expansion of upper limit of the Reduced Vertical Separation Minima (RVSM) band of flight levels	Operational
Main Purpose?	<p>The demand for flights in the existing RVSM band of flight levels (FL290-FL410) has increased to the point where, at certain altitudes, it is generating congestion similar to that which prevailed before the implementation of RVSM.</p> <p>The introduction of RVSM added six flight levels, the immediate impact and benefit of which were mostly observed in the FL 330 to FL 370 band of flight levels as this is where the majority of civil flights operated. Initially the upper levels of RVSM airspace were sparsely occupied. With the proliferation of modern civil aircraft capable of efficient operations at higher flight levels, occupation of FL 400 and FL 410 has increased with routing options becoming limited as a result of congestion, with consequent inefficiency and fuel burn/emissions affected adversely. Expansion of the upper bound of the RVSM band of flight levels will provide alleviation from level congestion.</p>	
New Capabilities?	Expansion of the upper bound of the RVSM band of flight levels will provide alleviation from level congestion, and a consequent increase in access to optimal flight levels.	
Description?	The availability of additional usable flight levels will increase airspace efficiency while decreasing congestion at lower flight levels. This will result in reduced fuel burn and consequently reduce greenhouse gas emissions.	
Maturity Level?	Validation	
Human Factor Considerations	<p>1. Does it imply a change in task by a user or affected others? Yes</p> <p>2. Does it imply processing of new information by the user? Yes</p> <p>3. Does it imply the use of new equipment? Yes</p>	



4. Does it imply a change to levels of automation? Yes	
PLANNING LAYERS? <b>Tactical-During ops</b>	OPERATIONS? <b>Enroute</b>
DEPENDENCIES AND RELATIONS?  Type of Dependencies  TBC	ASBU Element  TBC

Element					
Category	Type	Name	Description/Reference	Year	Stakeholder
Regulatory provisions	National regulatory framework	National framework amendment for allowing qualified aircraft to operate at the additional RVSM levels	National regulation amendment for allowing qualified aircraft to operate at the additional RVSM levels. References: Annex 2, Annex 11; Annex 6; DOC. 4444 – Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM).	2028	CAA
Operational Procedure	Design and operations	Procedures for the use of additional RVSM levels	Design and use of additional flight levels. Reference: Annex 2	2028	ANSP
Operational Authorization		Operational Authorization for extended RVSM	Aircraft operator flying an additional RVSM level should have an authorization as per Doc 9760.	2028	CAA Aircraft operator
Airborne capabilities	Altimeter	Height keeping capability	Aircraft should be quipped with appropriate height keeping capability. Reference: Doc 9937.	2028	Aircraft Manufacturer Aircraft operator
Training		Training requirements for the expansion of upper limit of the Reduced Vertical Separation Minima (RVSM) band of flight levels	Crew trained to fly the procedure. References: Annex 6. For Air traffic controllers. References: PANS-ATM.	2028	ANSP Aircraft operator

#### Deployment applicability

**Operational** Oceanic and continental en-route environments. To increase capacity and to allow a more

conditions	optimum flight level.	
Main intended benefits		
Type	Operational description	Benefitting stakeholder(s)
Direct benefits	Efficiency	Aircraft operator
	Capacity	Aircraft operator ANSP
	Access	Aircraft operator
Indirect benefits	Environment	General citizen

<b>OPFL-B2/?</b>		<b>Separation minima using ATS surveillance systems where VHF voice communications are not available</b>	<b>Operational</b>
Main Purpose?	<p>With the advent of Space-based ADS-B data in oceanic and remote continental areas, there are projected Capacity, Efficiency and Environmental advantages in SADS-B derived separation minima.</p> <p>ICAO has published reduced lateral and longitudinal separation minima that capitalize on the increased frequency of position information update, while retaining the procedural foundation of requiring aircraft to remain on tracks to ensure separation, thereby making accessible such capacity, efficiency and environmental advantages.</p>		
New Capabilities?	Implementation of the new lateral and longitudinal separation minima will provide alleviation from level congestion, and a consequent increase in access to optimal flight levels.		
Description?	The availability of additional usable flight levels will increase airspace efficiency while decreasing congestion at lower flight levels. This will result in reduced fuel burn and consequently reduce greenhouse gas emissions.		
Maturity Level?	Ready for implementation		
Human Factor Considerations	<p>1. Does it imply a change in task by a user or affected others? Yes</p> <p>2. Does it imply processing of new information by the user? Yes</p> <p>3. Does it imply the use of new equipment? Yes</p> <p>4. Does it imply a change to levels of automation? Yes</p>		
<b>PLANNING LAYERS?</b> <b>Tactical-During ops</b>		<b>OPERATIONS?</b> <b>Enroute</b>	
<b>DEPENDENCIES AND RELATIONS?</b>			
Type of Dependencies		ASBU Element	
		TBC	

TBC	
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Element					
Category	Type	Name	Description/Reference	Year	Stakeholder
Regulatory provisions	National regulatory framework	National framework amendment for new separation standard	National regulation amendment for new separation standard. References: DOC. 4444 – Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM)	2020	CAA
Operational Procedure	Separation		Procedures for separation. Defined in PANS-ATM.	2020	ANSP
Airborne capabilities	Navigation	RNP4/RNP2	Aircraft should be equipped with RNP4/RNP2. Reference: Doc 9613 (PBN Manual)	2020	Aircraft Manufacturer Aircraft operator
Airborne capabilities	Communication	RCP 240	Aircraft should be equipped with RCP 240. Reference: ICAO Doc 10037 Edition 1 Global Operational Datalink Manual (GOLD)	2020	Aircraft Manufacturer Aircraft operator
Airborne capabilities	Surveillance	Surveillance capability for the new separation minima	Surveillance capability such as ADS-B OUT transponder. Reference: Annex 10 Vol IV.	2020	Aircraft Manufacturer Aircraft operator
Ground system infrastructure	Surveillance	Surveillance system for the new separation minima	To support the separation application. Reference: Annex 10 Vol IV.	2020	ANSP
Ground system infrastructure	ATC systems	ATC tool for separation minima	Ground tools/capabilities that assist the air traffic controller in providing separation.	2020	ANSP
Training		Training requirements for separation minima using ATS surveillance systems where VHF voice communications are not available	For Air traffic controllers. References: Annex 1, PANS-ATM. And for crew for awareness.	2020	ANSP Aircraft operator.

#### Deployment applicability

Operational conditions	Oceanic and continental en-route environments. To increase capacity and to allow a more optimum flight level.	
Main intended benefits		
Type	Operational description	Benefitting stakeholder(s)
Direct benefits	Efficiency	Aircraft operator
	Capacity	Aircraft operator ANSP
	Access	Aircraft operator
Indirect benefits	Environment	General citizen

<b>OPFL-B3/?</b>	<b>Target-to-target separations using Space-based ADS-B data</b>	<b>Operational</b>
Main Purpose?	<p>With the advent of Space-based ADS-B data in oceanic and remote continental areas, there are projected Capacity, Efficiency and Environmental advantages in SADS-B derived separation minima.</p> <p>A “radar-like” target-to-target separation minima that capitalizes on the increased frequency of position information updates but makes use of datalink communications capability (for circumstances where VHF communications do not exist) will offer increased flexibility and free aircraft from needing to adhere to specific tracks.</p>	
New Capabilities?	Implementation of the target-to-target separation minima will provide alleviation track adherence requirements associated with procedural separation minima. And offer a consequent increase in access to optimal flight levels.	
Description?	The availability of the flexibility offered by target-to-target separation will increase airspace efficiency, resulting in reduced fuel burn and consequently reduced greenhouse gas emissions.	
Maturity Level?	Validation	
Human Factor Considerations	<p>1. Does it imply a change in task by a user or affected others? Yes</p> <p>2. Does it imply processing of new information by the user? Yes</p> <p>3. Does it imply the use of new equipment? Yes</p> <p>4. Does it imply a change to levels of automation? Yes</p>	
<b>PLANNING LAYERS?</b> <b>Tactical-During ops</b>		<b>OPERATIONS?</b> <b>Enroute</b>
DEPENDENCIES AND RELATIONS?	ASBU Element  TBC	
Type of Dependencies		
TBC		

Element					
Category	Type	Name	Description/Reference	Year	Stakeholder
Regulatory provisions	National regulatory framework	National framework amendment for target to target separation	National regulation amendment for target to target separation. References: DOC. 4444 – Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM)	2024	CAA
Operational Procedure	Separation	Target to target separation	Procedures for target to target separation. Defined in PANS-ATM.	2024	ANSP
Airborne capabilities	Communication	RCP 240	Aircraft should be equipped with RCP 240. Reference: ICAO Doc 10037 Edition 1 Global Operational Datalink Manual (GOLD)	2024	Aircraft Manufacturer Aircraft operator
Airborne capabilities	Surveillance	Surveillance capability for the new separation minima	Surveillance capability such as ADS-B OUT transponder. Reference: Annex 10 Vol IV.	2024	Aircraft Manufacturer Aircraft operator
Ground system infrastructure	Surveillance	Surveillance system for the new separation minima	To support the separation application. Reference: Annex 10 Vol IV.	2024	ANSP
Ground system infrastructure	ATC systems	ATC tool for target to target separation	Ground tools/capabilities that assist the air traffic controller in providing target to target separation.	2024	ANSP
Training		Training requirements for target to target separation	For Air traffic controllers. References: Annex 1, PANS-ATM. And for crew for awareness.	2024	ANSP Aircraft operator.

Deployment applicability		
Operational conditions	Oceanic and continental en-route environments. To increase capacity and to allow a more optimum flight level.	
Main intended benefits		
Type	Operational description	Benefitting stakeholder(s)
Direct benefits	Efficiency	Aircraft operator
	Capacity	Aircraft operator ANSP
	Access	Aircraft operator

<b>Indirect benefits</b>	Environment	General citizen
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APTA-B3/?	Parallel approaches without vertical guidance	Operational
Main Purpose?	Simultaneous independent parallel approach paths to parallel or near parallel runways based on RNP capabilities are based on 3D operations. The use of A-RNP and/or RNP APCH to provide demonstrated track keeping performance will safely provide lateral performance and could enable the removal of the vertical guidance requirement for specific operations. This would enable improved access, provide flexibility in degraded environments and could optimized the vertical profile leading to increased operational efficiency and reduced noise nuisance.	
New Capabilities?	Independent closely spaced 2D RNP approach operations.	
Description?	This element overcomes the necessity to require 3D operations for parallel approach operations providing increased flexibility and supporting aircraft in a degraded environment.	
Maturity Level?	Validation	
Human Factor Considerations	1. Does it imply a change in task by a user or affected others? Yes 2. Does it imply processing of new information by the user? Yes 3. Does it imply the use of new equipment? No 4. Does it imply a change to levels of automation? No	
<b>PLANNING LAYERS?</b> <b>Tactical-During ops</b>		<b>OPERATIONS?</b> <b>Arrival</b>
DEPENDENCIES AND RELATIONS?	ASBU Element  APTA-B0/1 - PBN Approaches (with basic capabilities)  APTA-B1/1 - PBN Approaches (with advanced capabilities)  AMET-B2/1 - Meteorological observations information  AMET-B2/2 - Meteorological forecast and warning information	
Type of Dependencies		
Relation-operational need		
Relation-operational benefit		
Relation-information need		
Relation-information need		

Element					
Category	Type	Name	Description/Reference	Year	Stakeholder
Regulatory provisions	National regulatory framework	National framework amendment for	National regulation amendment for parallel approaches without	2026	CAA

		parallel approaches without vertical guidance	vertical guidance. References: DOC. 4444 – Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM)		
Operational Procedure	Design	PBN procedures design and use for parallel approaches without vertical guidance.	These operational procedures should be designed and used as specified in Doc 8168 (PANS-OPS Vol II and I) or equivalent.	2026	ANSP
Operational Procedure	Design	PBN procedure validation, approval and publication for parallel approaches without vertical guidance.	A flight inspection and/or validation of the procedures might be required before publication. The publication of the procedures should follow Annex 4. References: ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design).	2026	ANSP CAA
Operational Procedure	Operations	SOPs for parallel approaches without vertical guidance.	Procedures for the crew to follow to fly a PBN approach. Defined in the Ops Manual. Reference: Doc 9613 (PBN Manual)	2026	Aircraft operator
Operational Procedure	Operations	Contingency procedures for parallel approaches without vertical guidance.	Procedures for the crew to follow in case of abnormal events. Defined in the Ops Manual. Reference: Doc 9613 (PBN Manual)	2026	Aircraft operator
Operational Procedure	Separation	Application of separation for parallel approaches without vertical guidance.	Procedures for separation. Reference: PANS-ATM	2026	ANSP
Operational Authorization		Operational Authorization for PBN specification	Aircraft operator flying a PBN procedure should have an operational authorization related to the specified performance of the procedure, as described in Doc 9997 (PBN Ops Approval Manual).	2022	CAA Aircraft operator
Airborne capabilities	Navigation	PBN Approaches (with basic capabilities)	PBN Approaches (with basic capabilities). Reference: Doc 9613 (PBN Manual)	2021	Aircraft Manufacturer Aircraft operator

Training		Training requirements for parallel approaches without vertical guidance.	Crew trained to fly the procedure. References: As defined in Doc 9613 (PBN Manual). For Air traffic controllers. References: PANS-ATM.	2026	ANSP Aircraft operator
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Deployment applicability		
Operational conditions	Airports with simultaneous independent parallel approach paths to parallel or near parallel runways without the need for vertical guidance. To enhance access and capacity at aerodromes with parallel or near parallel runways.	
Main intended benefits		
Type	Operational description	Benefitting stakeholder(s)
Direct benefits	Safety	Aircraft operator General citizen
	Access	Aircraft operator General citizen Airport operator
	Capacity	Aircraft operator ANSP Airport operator
Indirect benefits	Environment	General citizen

APTA-B3/?		Implementation of A-RNP to support non-complex simultaneous independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured.	Operational
Main Purpose?	To provide additional flexibility to support parallel approach operations where RNP AR operations may not be cost effective or practicable.		
New Capabilities?	The advent of A-RNP may allow RNP 0.3 to be coded in the initial and intermediate segments of an approach allowing PBN to provide more flexibility in supporting parallel approach operations for non-AR operators at aerodromes with parallel runway spacings of 2224 m or greater.		
Description?	Parallel approach operations (Mode 1) not designed iaw 'Established on RNP AR APCH' must be established on the Final Approach course or track before the No Transgression Zone (NTZ) can be invoked and the 1000' vertical separation cancelled. The performance of RNP APCH outside of the Final Approach Segment (FAS) is $\pm 1\text{NM}$ and this performance effectively minimizes the use of the RNP APCH application to support parallel approach without significant additional safety work. The A-RNP specification will provide a required navigational performance of $\pm 0.3$ throughout the terminal airspace (missed approach might be an exception). This means that provided the aircraft are aligned with the runway centreline, by requiring A-RNP prior to the Final Approach the NTZ can be invoked earlier, the 1000' separation cancelled, and aircraft can start their final descents from higher altitudes (and		



	greater distances from the threshold). This should be both a cost efficiency (fuel burn) and environmental (noise) benefit.
Maturity Level?	Validation
Human Factor Considerations	1. Does it imply a change in task by a user or affected others? Yes 2. Does it imply processing of new information by the user? Yes 3. Does it imply the use of new equipment? Yes 4. Does it imply a change to levels of automation? Yes
PLANNING LAYERS? Tactical-During ops	OPERATIONS? Arrival
DEPENDENCIES AND RELATIONS?	
Type of Dependencies	ASBU Element
Relation-operational need	APTA-B0/1 - PBN Approaches (with basic capabilities)
Relation-operational benefit	APTA-B1/1 - PBN Approaches (with advanced capabilities)
Relation-information need	AMET-B2/1 - Meteorological observations information
Relation-information need	AMET-B2/2 - Meteorological forecast and warning information

Element					
Category	Type	Name	Description/Reference	Year	Stakeholder
Regulatory provisions	National regulatory framework	National framework amendment for A-RNP for independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured.	National regulation amendment for A-RNP for independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured. References: DOC. 4444 – Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM). SOIR Manual (9643).	2026	CAA
Operational Procedure	Design	PBN procedures design and use for A-RNP for independent parallel approaches where the	These operational procedures should be designed and used as specified in Doc 8168 (PANS-OPS Vol II and I) or equivalent. SOIR Manual (9643).	2026	ANSP

		runway spacing of $\geq 2224\text{m}$ can be assured.			
Operational Procedure	Design	PBN procedure validation, approval and publication for A-RNP for independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured.	A flight inspection and/or validation of the procedures might be required before publication. The publication of the procedures should follow Annex 4. References: ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design).	2026	ANSP CAA
Operational Procedure	Operations	SOPs for A-RNP for independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured.	Procedures for the crew to follow to fly a PBN approach. Defined in the Ops Manual. Reference: Doc 9613 (PBN Manual)	2026	Aircraft operator
Operational Procedure	Operations	Contingency procedures for A-RNP for independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured.	Procedures for the crew to follow in case of abnormal events. Defined in the Ops Manual. Reference: Doc 9613 (PBN Manual)	2026	Aircraft operator
Operational Procedure	Separation	Application of separation for A-RNP for independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured.	Procedures for separation. Reference: PANS-ATM	2026	ANSP
Operational Authorization		Operational Authorization for A-RNP	Aircraft operator flying a PBN procedure should have an operational authorization related to the specified performance of the procedure, as described in Doc 9997 (PBN Ops Approval Manual).	2022	CAA Aircraft operator

Airborne capabilities	Navigation	PBN Approaches for A-RNP	PBN Approaches for A-RNP. Reference: Doc 9613 (PBN Manual)	2026	Aircraft Manufacturer Aircraft operator
Training		Training requirements for A-RNP for independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured.	Crew trained to fly the procedure. References: As defined in Doc 9613 (PBN Manual). For Air traffic controllers. References: PANS-ATM.	2026	ANSP Aircraft operator

Deployment applicability		
Operational conditions	Airports with non-complex simultaneous independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured. To provide additional flexibility to support parallel approach operations where RNP AR operations may not be cost effective or practicable.	
Main intended benefits		
Type	Operational description	Benefitting stakeholder(s)
Direct benefits	Flexibility	Aircraft operator Airport operator ANSP
	Access	Aircraft operator General citizen Airport operator
	Capacity	Aircraft operator ANSP Airport operator
Indirect benefits	Safety	Aircraft operator
	Environment	General citizen

### CHANGE REQUESTS FOR THE ASBU FRAMEWORK

- This template shall be used to propose changes to the GANP ASBU Framework
- Only complete Change Requests will be processed
- Change Requests can only be issued by members of the Aviation Community
- Change Requests shall be coordinated in advance with relevant aviation community members
- For proposed changes to existing threads and elements use Attachment A
- For proposed new elements use Attachment B
- For proposed new threads use Attachment C
- Contact <GANP maintenance PoC> for assistance
- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

#### Contact details

Name (point of contact)	<b>Olga de Frutos Martin</b>
Organization	<b>ICAO Secretariat</b>
Position	<b>AN Technical Officer</b>
Email	<b>odefrutos@icao.int</b>
Telephone	<b>+15149548219</b>
Aviation Community *	<b>International Organisation</b>
CR coordination**	<b>All ANB</b>
Date of submission	<b>21 October 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>21 October 2021</b>
CR Status	Accepted
Assigned TL	Olga de Frutos Martin

## Change request to existing Threads/Elements

### Change Request Information

The sixth edition of the GANP establishes, through the aviation system block upgrade (ASBU) enablers, a direct relationship between the ASBU framework and the ICAO provisions. For example, the surveillance systems thread, ASUR, has three ASBU elements in Block 0<sup>4</sup>, the first one of them, ASUR-B0/1, is Automatic Dependent Surveillance – Broadcast (ADS-B). This ASBU element then has 6 enablers (see Figure 1), which identify the necessary ground system infrastructure, airborne system capabilities and training required for the implementation of ADS-B. Furthermore, they specify the Standards and Minimum Operational Performance Specifications (MOPS) required from the ground and airborne systems, as well as the guidance material developed by ICAO, which support their implementation (see description/reference column within Figure 6). Finally, they specify the year by which they were available for implementation, as well as the stakeholders responsible for implementation to allow coordination and cost allocation during a cost benefit analysis (CBA).

Enabler Category	Enabler Type	Enabler Name	Description / References	Stakeholders	Year
Ground system infrastructure	Surveillance	ADS-B ground stations	ADS-B ground stations receive information from aircraft and transmit it to one or more Service Delivery Points Reference material: Technical standards and guidance material: ICAO Annex 10 Volume IV Chapter 2.3 and 5 ICAO Doc. 9871 Technical Provisions for Mode S Services and Extended Squitter RTCA/EUROCAE MOPS: DO-260/ED-102, DO-260A, or DO-260B/ED-102A EUROCAE ED-129, ED-129A or ED-129B ICAO Doc. 9924 Aeronautical Surveillance Manual <a href="#">read less</a>	ANSP	2008
Ground system infrastructure	Surveillance	*Service Delivery Point(s) for ADS-B information	Service Delivery Point(s) receive ADS-B information provides it to ATC automation for processing and display to controller Reference material: Guidance material: ICAO Doc. 9924 Aeronautical Surveillance Manual <a href="#">read less</a>	ANSP	2008
Ground system infrastructure	Technical systems	HMI that supports controller awareness	Human Machine Interface (HMI) of the Air Traffic Controller Working Position (ATCo CWP) Reference: Guidance material: ICAO Doc. 9924 Aeronautical Surveillance Manual <a href="#">read less</a>	ANSP	2008
Airborne system capability	Surveillance	SSR Mode S transponder with extended squitter version 0, version 1 and version 2	Reference: Technical standards and guidance material: ICAO Annex 10 Volume IV Chapter 2.3 and 5 ICAO Doc. 9871 Technical Provisions for Mode S Services and Extended Squitter RTCA/EUROCAE MOPS: DO-260/ED-102, DO-260A, or DO-260B/ED-102A ICAO Doc. 9924 Aeronautical Surveillance Manual <a href="#">read less</a>	Aircraft manufacturer Aircraft operator	2008
Training	-	Training requirements ADS-B implementation	Depending on the ANSP implementation, some controller training on new symbology may be required. If phraseology is changed by an ANSP, then controller and pilot training on the new phraseology is required. If new ANSP equipment is installed, then training for maintenance personnel may be required (see ICAO Doc 8071). <a href="#">read less</a>	ANSP	2008
Airborne system capability	Navigation	Basic Aviation CNS receiver with RAIM	Position source. Basic Aviation CNS receiver with RAIM. Such a receiver must comply with the technical performance requirements of either [E]TSO-C129, or [E]TSO-C196, or [E]TSO-C145/-C146. (Note that the US/Europe and equivalent ADS-B mandates require more – see FAA AC 20-165 or EASA CS-ACNS). <a href="#">read less</a>	Aircraft manufacturer Aircraft operator	2008

**Figure 6. Enablers ASUR-B0/1**

In this regard, an analysis of the extensions of job cards during the 215th, 216th and 217th Sessions revealed an impact to the ASBU framework, which is detailed hereafter. In summary, most of the extensions of the job cards had no effect with respect to the GANP, as they imply jumps of ASBU elements within the block. The only ASBU element affected was APTA-B1/3 from Block 1 (2019) to Block 2 (2025). However, this extension does not imply a delay to any other ASBU element as it does not have ASBU elements dependent on it (see [Dependency Graph - ICAO GANP Portal](#)).

<sup>4</sup> Block 0 refers to all ASBU elements which were available for implementation by 2013. This implies, that the ASBU element and all the enablers associated to it, needed to be available for implementation by 2013.

PANEL	JOB CARD ID	JOB CARD TITLE	ANC SESSH	STATUS	FORMER DA	CURRENT DA	ACTION DELAYED	ASBU ELEMENT	IMPACT ASSESSMENT
CP-OPDLWG	CP-OPDLWG.001.03	Provisions related to ADS-C/CPDLC/DLIC	216-8	D	2020	2022	Update provisions in A11, A10 and PANS-ATM.	COMS-B2/1; COMS-B2/2	No impact, elements still remain in Block 2 and aligned with the dates provided in the GANP.
CP-OPDLWG	CP-OPDLWG.002.03	Performance-based communication and surveillance	216-8	D	2019	2023	Update <b>PBCS Manual</b>	COMS-B2/1; COMS-B2/2	No impact, actions delayed on guidance material. Elements still remain in Block 2.
CP-OPDLWG	CP-OPDLWG.003.02	Guidance on ATS inter-facility data communication (AIDC)	216-8	D	2017	2022	Update to guidance material Doc 9694: Review the content of the manual to ensure that valid guidance is reflected in the new G-G Data Link Manual in order to make this manual obsolete	FICE-B0/1	No impact, actions delayed on guidance material.
CP-OPDLWG	CP-OPDLWG.004.01	Guidance on SATVOICE operations	200-1						
CP-OPDLWG	CP-OPDLWG.005.02	Improvement of Long Range Voice Communications	216-8	D	2020	2022	Provide implementation strategies for SATVOICE in Satellite Voice Guidance Material (Doc 10038).	COMS-B2/3	No impact, actions delayed on guidance material. Elements still remain in Block 2.
FLTOSP	OPSP.009.06	Technology for runway safety (on-board equipment)	214-9						
FLTOSP	OPSP.018.07	Use of terms such as authorization approval and acceptance	217-6	D				OUT OF SCOPE OF THE GANP	
FLTOSP	FLTOSP.023.04	Introduce a concept of operations for using VPT based on RNAV, VPT (RNAV)	217-6	D	2020	2021	ATM Procedures for VPT in PANS-ATM	Not included in the GANP yet	No impact, actions delayed on guidance material.
FLTOSP	FLTOSP.024.04	Flight Operations in the presence of Volcanic Contamination	214-9						
FLTOSP	FLTOSP.029.04	Review and revision of the Manual of All-Weather Operations Manual (MAWO) to provide helicopter specific guidance	217-6	D	2020	2021	Manual of All WX OPS (Doc 9365)	APTA-B0/1; APTA-B0/7; APTA-B0/8; APTA-B1/1; APTA-B1/3; APTA-B2/1.	No impact, actions delayed on guidance material.
FLTOSP	FLTOSP.031.03	Review and Evaluation of Annex 6 Part III Section III International General Aviation Helicopters	217-6	D	2020	2021	As a result of required action 1, draft new Helicopter GA General and Complex Operations subsections for Annex 6 Part III	APTA-B2/3	No impact, elements still remain in Block 2 and aligned with the dates provided in the GANP.
FLTOSP	FLTOSP.038.05	Development of PBN approaches to enhance airport access and TMA efficiency	217-6						
FLTOSP	FLTOSP.044.01	Performance-based Aerodrome Operating Minima	217-6	D	2022	2024	Update A11, A14, PANS-OPS Vol II, PANS-OPS Vol II and PANS-TRG.	APTA-B1/3	This element should jump block and move to Block 2.
FLTOSP	FLTOSP.045.01	Update the Manual on the Implementation of the Security Provisions for Annex 6 (Doc 9811)	217-6	D	2020	2021	Review to take into account emerging issues as a result of CBR Threats and other changes to security provisions	OUT OF SCOPE OF THE GANP	
FLTOSP	FLTOSP.046.01	Ramp Inspections	214-9						
FLTOSP	FLTOSP.047.01	Use of electronic certificates and other documents	217-6						
FLTOSP	FLTOSP.048.01	Restructure and review of PANS OPS Vol III	217-6						
NSP	NSP.002.04	GNSS Evolution - Multi-constellations	217-9	D	2020	2022	Provisions to A10 and update of GNSS Manual (Doc 9849)	NAVS-B2/1; NAVS-B2/2; NAVS-B2/3	No impact, elements still remain in Block 2 and aligned with the dates provided in the GANP.
NSP	NSP.003.04	GNSS Evolution - SBAS	217-9						
NSP	NSP.004.04	GNSS Evolution – Advanced Receiver Autonomous Integrity Monitoring (ARAIM)	217-9						
NSP	NSP.005.04	GNSS Evolution - GBAS	217-9	D	2022	2024	Baseline development standard to A10 Vol I to support validation	NAVS-B2/1	No impact, elements still remain in Block 2 and aligned with the dates provided in the GANP.
NSP	NSP.006.05	GNSS Radio Frequency Interference	217-9						
NSP	NSP.007.03	Mitigation of Space Weather Effects	217-9	D	2020	2022	Contribute to A3 provisions. Update Doc 10100.	OUT OF SCOPE OF THE GANP	No impact, elements still remain in Block 2 and aligned with the dates provided in the GANP.
NSP	NSP.009.05	Alternative Position Navigation and Timing (APNT)	217-9	D	2022	2023	Amend provisions in A10.	Not included in the GANP yet	This JC may result in a new element (an evolution to the NAVS-B0/4).
PTLP	PTLP.001.01	CBTA implementation and new technologies in Pilot Licensing SARPs	215-12					OUT OF SCOPE OF THE GANP	
PTLP	PTLP.002.01	Qualification criteria for flight simulation training devices (FSTDs) and other simulators	215-12					OUT OF SCOPE OF THE GANP	
PTLP	PTLP.003.01	CBTA implementation and new technologies in ATCO Licensing SARPs.	215-12					OUT OF SCOPE OF THE GANP	
PTLP	PTLP.004.01	Women and minority and ethnic groups in aviation professions	215-12					OUT OF SCOPE OF THE GANP	
PTLP	PTLP.005.01	Automation Dependency	215-12					OUT OF SCOPE OF THE GANP	
PTLP	PTLP.006.01	CBTA implementation and new technologies in licensing for aircraft maintenance	215-12					OUT OF SCOPE OF THE GANP	
RPASP	RPASP.001.08	RPASP Airworthiness 2020	213-7						
RPASP	RPASP.002.07	RPASP Communications 2022	216-5						
RPASP	RPASP.003.07	RPASP Detect and Avoid (DAA) 2022	216-5	D	2020	2022	Develop technical manual related to DAA (Manual on Detect and Avoid).	ACAS-B2/1	No impact, elements still remain in Block 2 and aligned with the dates provided in the GANP.
RPASP	RPASP.004.04	RPASP Licensing 2018	209-2						
RPASP	RPASP.006.09	RPASP ATM 2022	216-5	D	2020	2022	Update standards to A15, A11, A12, A2, A4, PANS-ATM and PANS-AIM for RPAS integration in ATM operations.	DAIM-B2/4; FICE-B2/8	No impact, elements still remain in Block 2 and aligned with the dates provided in the GANP.
RPASP	RPASP.007.06	RPASP Operations 2020	213-7						
RPASP	RPASP.008.01	RPAS Aerodromes 2021	217-7						

**Based on the information above, the following change request is proposed:**

<b>CR ID</b>	<b>Reference*</b>	<b>CR (current text with revision marks)</b>	<b>Justification</b>
IA-S-APTA-CR/1	APTA-B1/3 operational procedures and training enablers	Change 2019 date by 2024 for all operational procedures and training enablers	Provisions will be delivered to ICAO in 2023 for publication in 2024
IA-S-APTA-CR/2	APTA-B1/3	APTA-B1 <sup>2</sup> /3	Change of block due to enabler availability.

## **Appendix D**

### **ASBU Framework dependencies Change Request**

*(<https://www4.icao.int/ganpportal/ASBU/Repository/Dependencies>)*

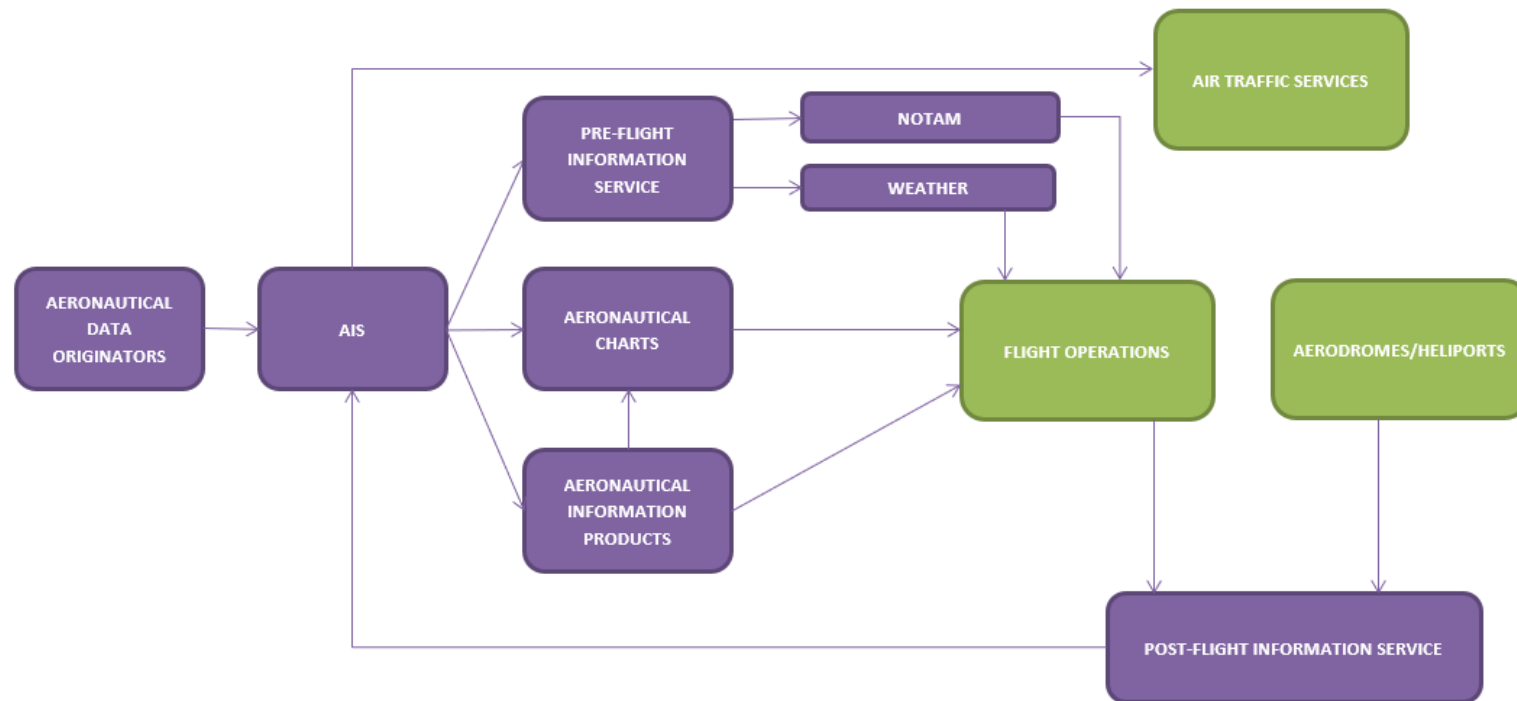


**Appendix E**

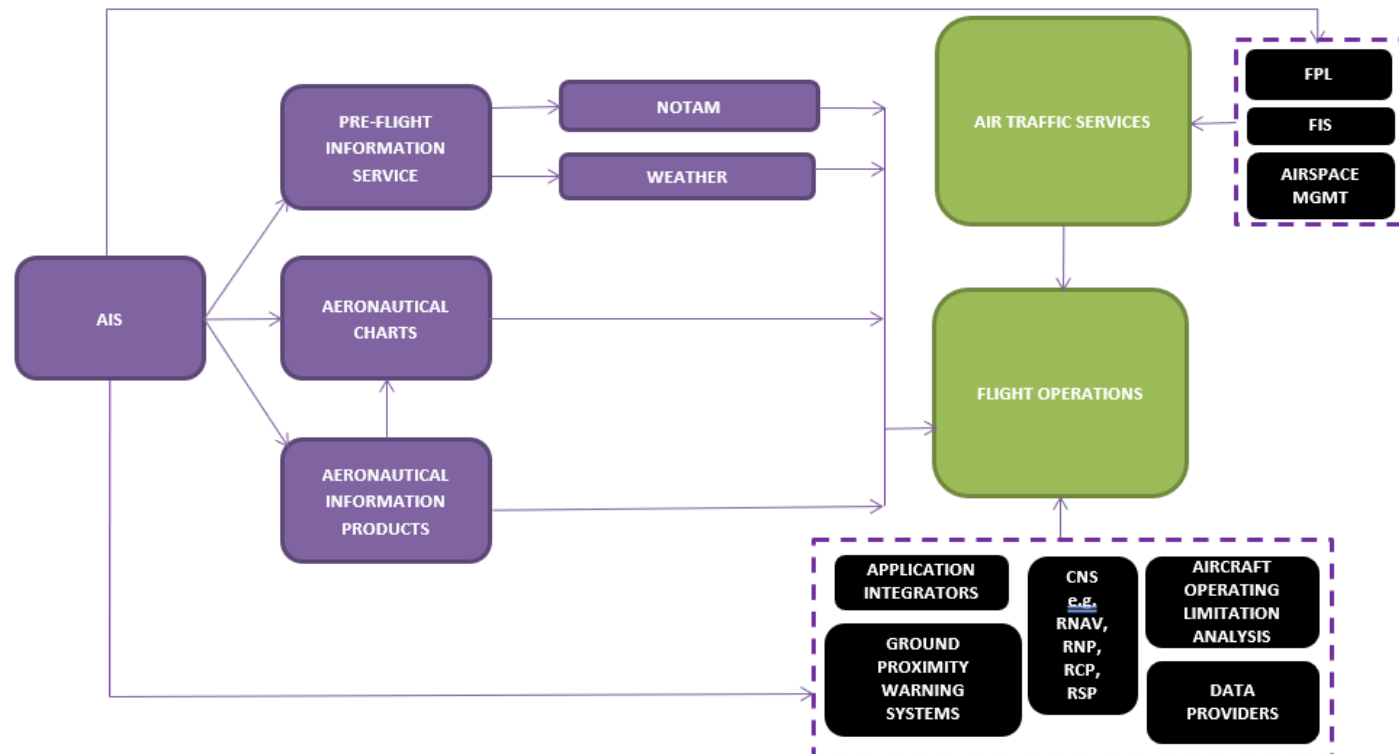
**BBB Framework Change Request**

**AERONAUTICAL INFORMATION  
MANAGEMENT**

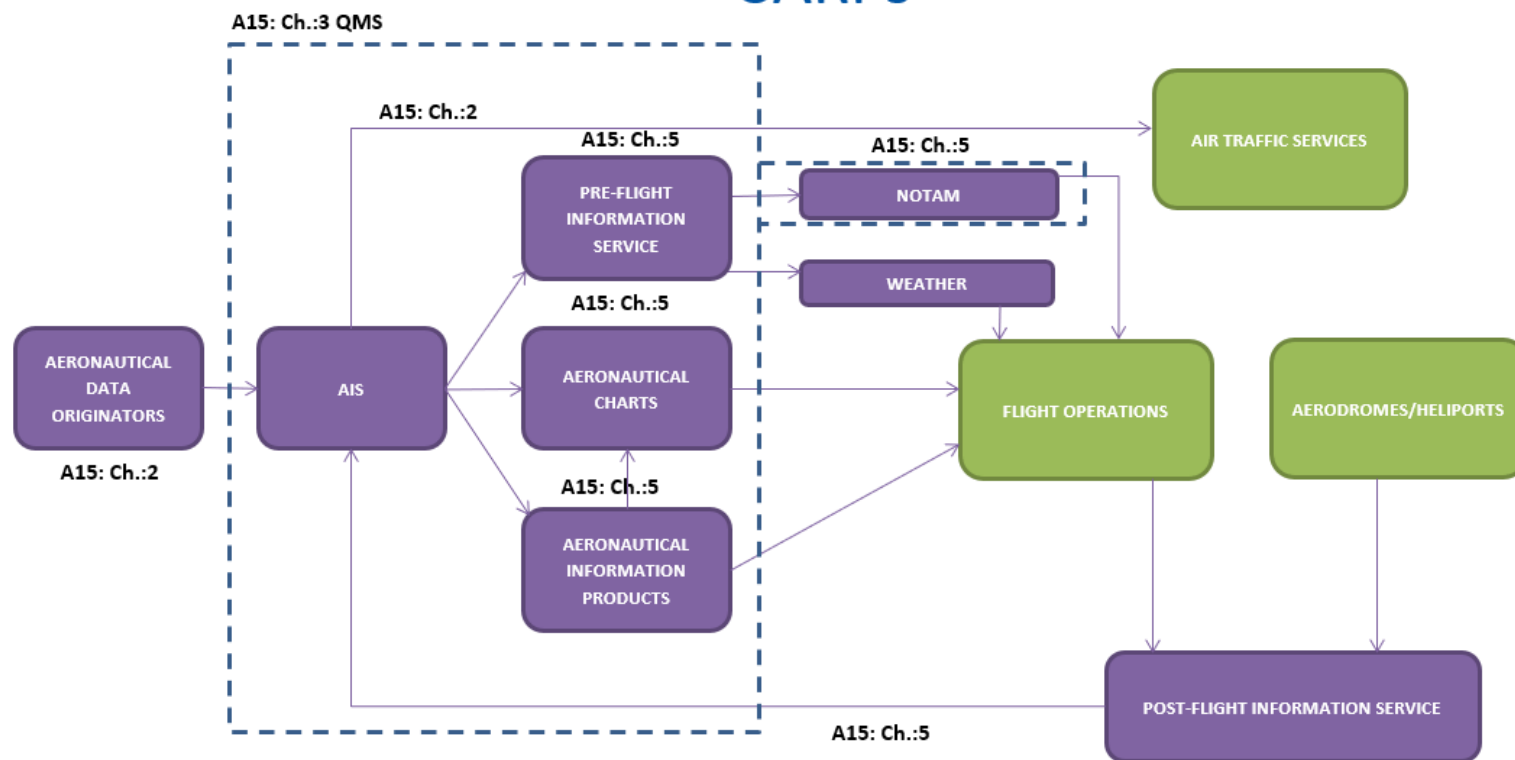
## AIM BASIC MODULES AND ELEMENTS



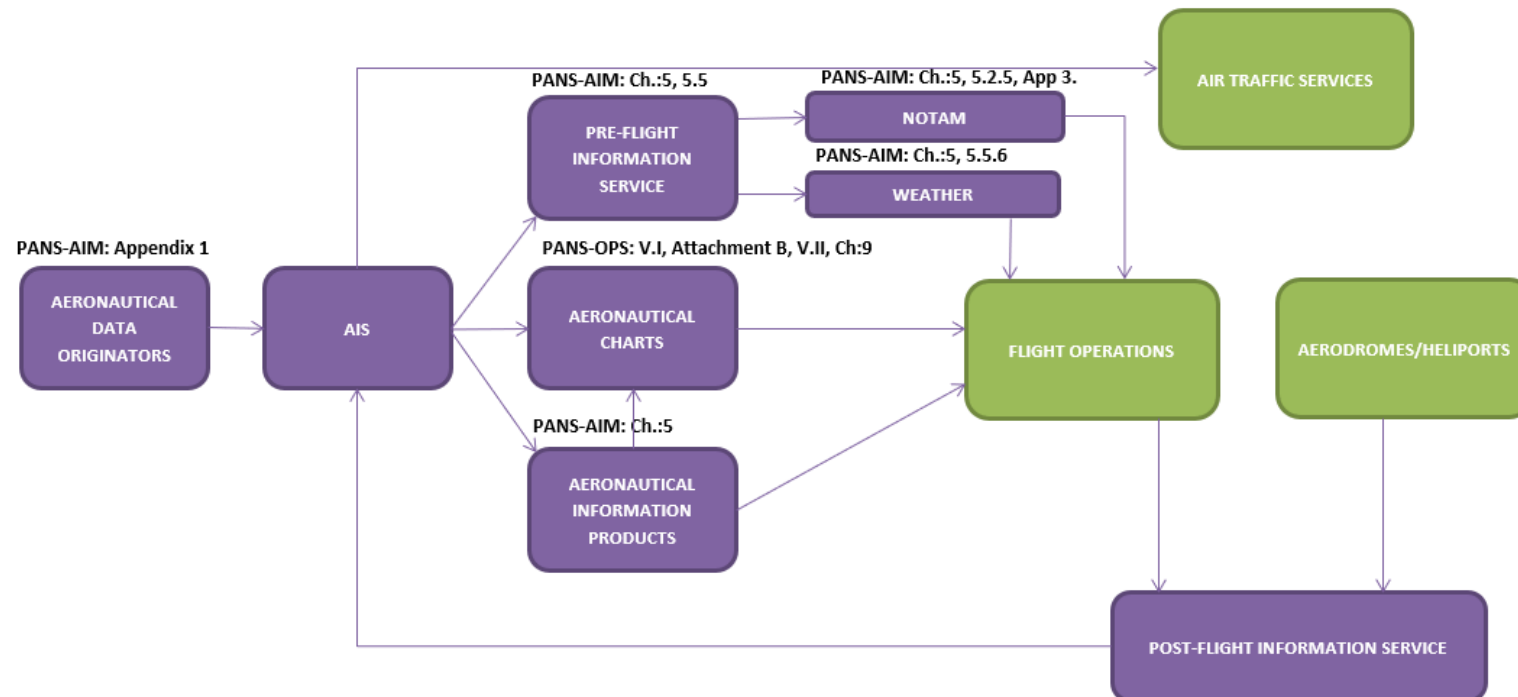
## AIS SUPPORT & END USERS



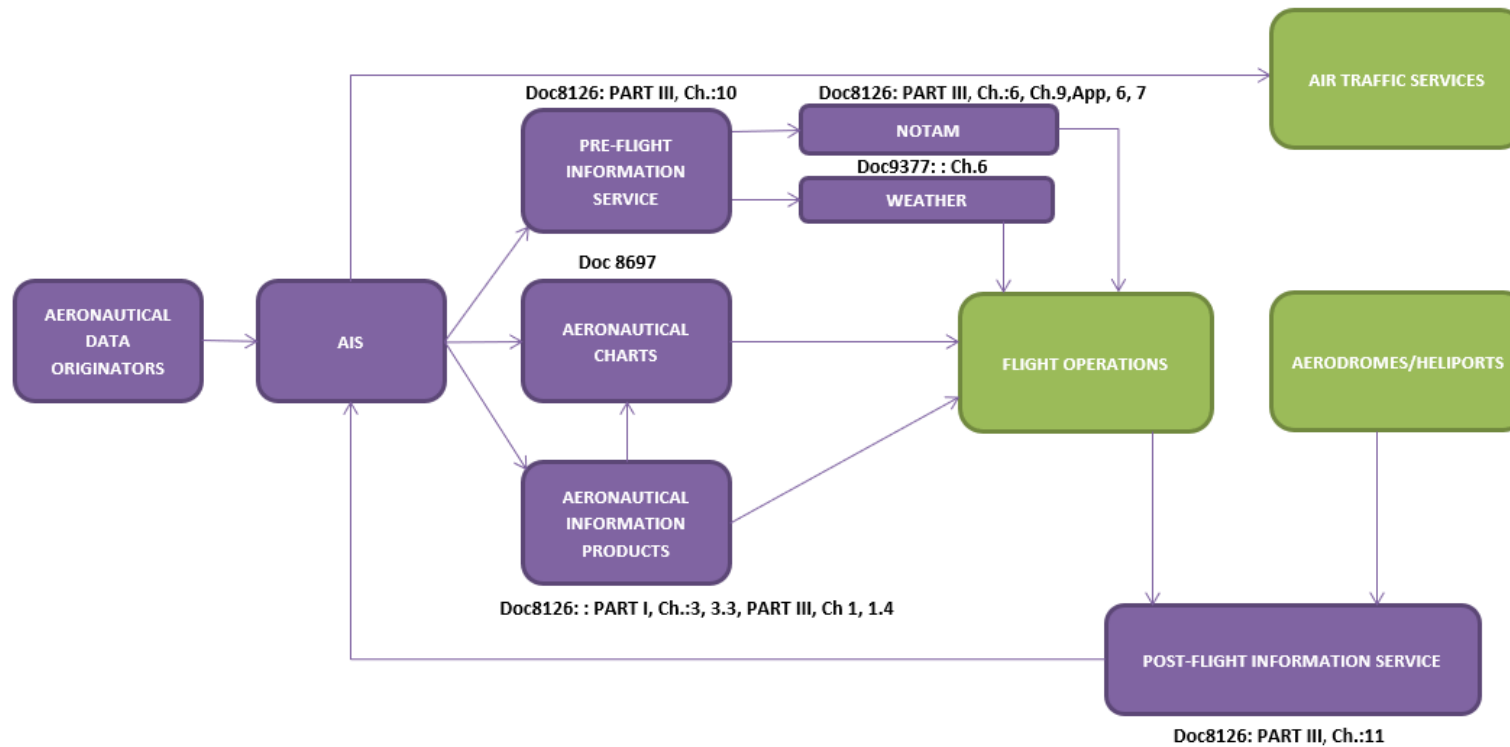
## AIS BASIC ELEMENTS/REFERENCES ICAO SARPs



## AIS BASIC ELEMENTS/REFERENCES ICAO Procedures



# AIS BASIC ELEMENTS/REFERENCES ICAO Guidance



## AIM References

- Annex 15: Aeronautical Information Services
- Annex 4: Aeronautical Charts
- PANS-Aeronautical Information Management (Doc 10066)
- Aeronautical Information Services Manual (Doc 8126)
- Aeronautical Charts Manual (Doc 8697)
- WGS-84 Manual (Doc 9674)
- AIM Quality Manual (Doc 9839)
- AIM Training Manual (Doc 9991)
- Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services (Doc 9377)

(Note: Annex 3, 11, 14 and PANS-Aircraft Operations contain information relevant to aeronautical information services)

## Appendix F

### Change Requests as modified by the meeting

#### CHANGE REQUEST TO ASBU THREAD ACDM

##### Contact details

Name (point of contact)	<b>Frédéric Rooseleer</b>
Organization	<b>EUROCONTROL</b>
Position	<b>ADOP Advisor – Airport Expert</b>
Email	<b>frederic.rooseleer@eurocontrol.int</b>
Telephone	<b>+32 2 729 46 62</b>
Aviation Community *	<b>ATM Network Function (ANF)</b>
CR coordination**	<b>ADOP &amp; AOWG Chairs &amp; Secretaries</b>
Date of submission	<b>27 October 2021 (update)</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	01/09/2021
CR Status	Accepted/ Initial assessment
Assigned TL	Frédéric Rooseleer



### Change request to existing Threads/Elements

#### Change Request Information

CR ID	Reference*	CR (current text with revision marks)	Justification	Resolution
FA-E-ACDM-CR/1	ACDM B1/1 /DA	Operational Procedure / Information management processes Implementation guidance References: <del>Manual on Collaborative Air Traffic Flow Management (ATFM) (Doc 9971)</del> Manual on Collaborative (total) Airport Management (Doc xxxx)	Ref. document ICAO 9971 not yet updated with AOP guidance	Accepted
FA-E-ACDM-CR/2	ACDM B1/1 /DA	Publication date for Operational procedure – <del>2019</del> 2025	Ref. document ICAO 9971 not yet updated with AOP guidance, new ADOP/AOWG job card to be proposed	Accepted
FA-E-ACDM-CR/3	ACDM B1/1 /DA	ACDM B4 <del>2</del> /1	Consequential change due to the FA-E-ACDM-CR/2 on A-CDM	Accepted.
FA-E-ACDM-CR/4	ACDM B1/2 /DA	Operational procedures to support operations within the APOC / Procedures for data sharing, management and decision making within the APOC. References: <del>Manual on Collaborative Air Traffic Flow Management (ATFM) (Doc 9971)</del> Manual on the System-wide Information Management (SWIM) Concept <del>(Doc 10039)</del> Manual on Collaborative (total) Airport Management	Ref. document ICAO 9971 not yet updated with APOC guidance	Accepted
FA-E-ACDM-CR/5	ACDM B1/2 /DA	Publication date for Operational procedure – <del>2019</del> 2025	Ref. document ICAO 9971 not yet updated with APOC guidance, new ADOP/AOWG job card to be proposed	Accepted
FA-E-ACDM-CR/6	ACDM B1/2 /DA	ACDM B4 <del>2</del> /2	Consequential change due to the FA-E-ACDM-CR/5 on A-CDM	Accepted
FA-E-ACDM-	ACDM B2/1	ACDM B2/4 <del>3</del>	Consequential change due to the	Accepted

CR/7			FA-E-ACDM- CR/3, FA-E- ACDM-CR/6	
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## CHANGE REQUESTS TO THE ASBU THREAD SWIM

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- For proposed new threads use Attachment C
- Contact <GANP maintenance PoC> for assistance
- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

### Contact details

Name (point of contact)	<b>Jean-François Grout</b>
Organization	<b>IATA</b>
Position	<b>IMP Chair</b>
Email	<b><a href="mailto:groutj@iata.org">groutj@iata.org</a></b>
Telephone	<b>+15144458318</b>
Aviation Community *	<b>International Organisation</b>
CR coordination**	<b>ICAO IMP</b>
Date of submission	<b>27 September 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>27 September 2021</b>
CR Status	Accepted
Assigned TL	Jean-François Grout

### Change request to existing Threads/Elements

#### Change Request Information

CR ID	Reference*	CR (current text with revision marks)	Justification	Remarks
FA-E-SWIM-CR/1	SWIM B2/1 EN	Change 2021 date by 2023 for all enablers with a 2021 date	Provisions will be delivered to ICAO in 2021 for publication in 2023	Accepted
FA-E-SWIM-CR/2	SWIM B2/1 EN Procedures for how to publish and access a Service overview	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation.	Name of the manual changed	Accepted
FA-E-SWIM-CR/3	SWIM B2/1 EN Procedures for quality Management system	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed	Accepted
FA-E-SWIM-CR/4	SWIM B2/1 EN Automated systems with logon and authentication mechanisms	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed	Accepted
FA-E-SWIM-CR/5	SWIM B2/2 EN	Change 2021 date by 2023 for all enablers with a 2021 date	Provisions will be delivered to ICAO in 2021 for publication in 2023	Accepted
FA-E-SWIM-CR/6	SWIM B2/2 EN Procedures to access registry and information services	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed	Accepted
FA-E-SWIM-CR/7	SWIM B2/2 EN Automated systems capable of accessing a registry	Replace the description to say: Guidance Material provided in the manual on SWIM Implementation version published in 2023	It is not currently addressed in the 2021 version of volume II. Maybe in the next iteration.	Accepted
FA-E-SWIM-CR/8	SWIM B2/3	Modify the title to reflect PANS-IM and say: SWIM service registry	Alignment with PANS-IM	Accepted

FA-E-SWIM-CR/9	SWIM B2/3 MP, NC, DC, EN	Replace registry buy SWIM service registry	Alignment with PANS-IM	Accepted
FA-E-SWIM-CR/10	SWIM B2/3 EN	Change 2021 date by 2023 for all enablers with a 2021 date	Provisions will be delivered to ICAO in 2021 for publication in 2023	Accepted
FA-E-SWIM-CR/11	SWIM B2/3 EN Automated system capable of operating and managing a registry	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed	Accepted
FA-E-SWIM-CR/12	SWIM B2/3 EN Procedures to populate the registry	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed	Accepted
FA-E-SWIM-CR/13	SWIM B2/3 EN Procedures to find the registry	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed	Accepted
FA-E-SWIM-CR/14	SWIM B2/4 EN	Change 2021 date by 2023 for all enablers with a 2021 date	Provisions will be delivered to ICAO in 2021 for publication in 2023	Accepted
FA-E-SWIM-CR/15	SWIM B2/4 EN Procedures to access registry and information services	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed	Accepted
FA-E-SWIM-CR/16	SWIM B2/4 EN Procedures for the exchange of non-safety critical information with the aircraft	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed	Accepted
FA-E-SWIM-CR/17	SWIM B2/5 EN Procedure to provide access to SWIM information consumers	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed	Accepted

FA-E-SWIM-CR/18	SWIM B2/5 EN Interconnection of SWIM registries	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed	Accepted
FA-E-SWIM-CR/19	SWIM B3/1 EN Procedures to access registry and information services	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed	Accepted
FA-E-SWIM-CR/20	Procedures for the exchange of safety critical information with the aircraft	Replace ICAO Doc 10039 - Future Manual on System Wide Information Management (SWIM) Vol II by Manual on SWIM implementation	Name of the manual changed	Accepted

### CHANGE REQUESTS TO THE ASBU THREAD AMET

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- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

#### Contact details

Name (point of contact)	<b>Rosalind Lapsley</b>
Organization	<b>EUROCONTROL</b>
Position	<b>Meteorological Expert</b>
Email	<b>Rosalind.lapsley@eurocontrol.int</b>
Telephone	<b>+32 2 729 36 17</b>
Aviation Community *	<b>MET</b>
CR coordination**	<b>Representing METP</b>
Date of submission	<b>29 September 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>29 September 2021</b>
CR Status	Accepted
Assigned TL	Rosalind Lapsley

### Change request to existing Threads/Elements

#### Change Request Information

CR ID	Reference*	CR (current text with revision marks)	Justification	Remarks
FA-E-AMET-CR/1	AMET-B2/1 (NC)	Further development of space weather <del>and</del> <del>radioactive material</del> observation services. Further development of services for terminal areas. Implementation of <del>information</del> services to support a data-centric <del>environment</del> <del>information set</del> . Higher spatial and temporal resolution of meteorological observations. Automated <del>observations</del> which will support user-defined <del>services</del> using <del>observation products derived from</del> meteorological information in ICAO Meteorological Information Exchange Model (IWXXM) form.	METP do not have development plans related to radioactive material observations, as these originate from IAEA or RSMC.  Other changes simply improve the wording without changing the material intent.	Accepted
FA-E-AMET-CR/2	AMET-B2/1 (DC)	It is assumed that <del>A</del> aircraft will be equipped for <del>is assumed in the area of</del> meteorological information display capabilities, such as EFBs.  Taking advantage of enhanced aircraft connectivity to maximise observation functionality of aircraft.	Improved wording without changing the material intent.  Introducing improvements to aircraft-based observations.	Accepted
FA-E-AMET-CR/3	AMET-B2/1 (PL)	To include “post operations”	To support post-incident analysis	Accepted
FA-E-AMET-CR/4	AMET-B2/2 (NC)	Further development of space weather <del>and</del> <del>radioactive material</del> services. Further development of forecast and warning services for terminal areas. Phenomena-based	METP/5 action to suspend development activities for dispersion modelling of radioactive release until new updates from regional	Accepted



		<p>meteorological information is no longer constrained by Flight Information Regions (FIRs). Implementation of a data-centric information set. Higher spatial and temporal resolution of meteorological forecasts and warnings. Automated <del>user-defined</del> forecast and warning <del>products</del> <b>services</b> derived from meteorological information in ICAO Meteorological Information Exchange Model (IWXXM) form. Further development of probabilistic information derived from ensemble prediction systems and how this type of information can be presented or integrated into user's decision processes.</p>	<p>implementation are available – this may be reintroduced at a later date.</p> <p>Other changes simply improve the wording without changing the material intent.</p>	
FA-E-AMET-CR/5	AMET-B2/2 (DC)	<p>A significant evolution is planned for volcanic ash information. Next generation volcanic ash cloud forecasts will be fully implemented, <del>which</del> <b>It will allow decision makers to use</b> <del>provide</del> both deterministic and probabilistic forecasts for contamination levels <del>that will allow decision makers to use</del>, taking into account their risk management practices and the quantitative exposures allowed by the engine manufacturers. Specifically, the addition of probabilistic forecasts will provide decision makers with an</p>	<p>Improved wording without changing the material intent.</p>	Accepted

		<p>assessment of the likelihood of the volcanic ash exceeding a defined magnitude (or threshold) at a particular time and place. The probabilistic element further helps decision makers apply their own operational constraints (i.e. business rules) to determine the risk to their operations.</p> <p>Enhanced global MET forecasts will be provided under the World Area Forecast System (WAFS), which will include higher resolution and probabilistic information. Enhanced higher resolution regional MET forecasts will also be provided. Forecast services for the terminal area will be further enhanced with the accuracy, resolution and frequency to support ATM operations within those areas.</p> <p>Evolving the nature of enroute hazard forecasting into the future SWIM environment, will require the development of new services, which is planned for this module. These will be supported by new forecasting methodologies to ensure global and regional consistency and will involve a harmonised and coordinated approach between MET service</p>	<p>Correcting a typo</p> <p>Longstanding action of the METP to develop concept of hazardous weather information service (HWIS) [formerly Regional Hazardous Weather Advisory Centre]. This module will lay the developmental foundations and demonstration, with implementation expected to commence in the latter period of B2/2.</p> <p>Correcting typo</p>	
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		<p>providers. This module will build and demonstrate the concept, based on defined user requirements, as well as design the infrastructure and system architecture.</p> <p>This enhanced global, regional and terminal area information will be integrated into flight planning, flight management and ATM decision support systems, including systems for air traffic control around and at airports.</p>		
FA-E-AMET-CR/6	AMET-B2/4 (NC)	<p>Implementation of a data-centric meteorological information services, integrated into the System Wide Information Management (SWIM) environment. User-defined services products derived from meteorological information in ICAO Meteorological Information Exchange Model (IWXXM) form. Wider use of secure web services and message brokers as part of the transition from decommissioning of fixed line and satellite dissemination systems. Commencement of the use of business-to-business services that allows integration of meteorological information into ATM systems. <del>Increased use of air-to-air datalink for transmission of upper air meteorological observation in near real time.</del></p>	<p>Improving terminology to be consistent</p> <p>Any future aircraft advisory service of this type would likely require quality controlled information, and therefore air-to-air data communications would not be the most appropriate solution.</p>	Accepted
FA-E-AMET-CR/7	AMET-B2/4 (DC)	<p>New 3<sup>rd</sup> paragraph: In coordination with stakeholders, the development of guidance on visualisation of some MET information, where</p>	METP/5 action will recommend this joint activity to ANC.	Accepted

		deemed appropriate.		
FA-E-AMET-CR/8	AMET-B3/1 (NC)	Further development of space weather information service and of observation services for terminal areas. Higher spatial and temporal resolution of meteorological observations.  Observations to support tactical routing decisions under environmental considerations i.e. contrail or noise avoidance, if required.	Possible future considerations to minimise environmental impact of flights, will likely require observational support.	Accepted
FA-E-AMET-CR/9	AMET-B3/1 (DC)	Recognising that space weather affecting the earth's surface or atmosphere poses a hazard to communications and navigation systems especially satellite-based systems and may also pose a radiation risk to flight crew members and passengers, this module builds on AMET-B2 for space weather information services in support of safe and efficient international air navigation.	Correcting a typo	Accepted
FA-E-AMET-CR/10	AMET-B3/1 (PL)	To include "post operations"	To support post-incident analysis – and to be consistent with B2/1	Accepted
FA-E-AMET-CR/11	AMET-B3/2 (DC)	New 3 <sup>rd</sup> paragraph: Enroute SWIM services that are produced collaboratively (between MET providers) will provide tailored information on hazards.	To include a reference that this module will continue the global deployment of HWIS from B2/2, by integrating more States into the production process.	Accepted

## CHANGE REQUESTS TO THE ASBU THREAD GADS

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- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

### Contact details

Name (point of contact)	<b>Henk Hof</b>
Organization	<b>EUROCONTROL</b>
Position	<b>Chair GADSS Advisory Group</b>
Email	<b>Henk.hof@eurocontrol.int</b>
Telephone	<b>+32 476 412 804</b>
Aviation Community *	<b>SAR</b>
CR coordination**	<b>Coordinated in GADSS AG</b>
Date of submission	<b>20 July 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>20 July 2021</b>
CR Status	Accepted
Assigned TL	Henk Hof

**Change request to existing Threads/Elements****Change Request Information**

<b>CR ID</b>	<b>Reference*</b>	<b>CR (current text with revision marks)</b>	<b>Justification</b>	<b>Remarks</b>
FA-E-GADS-CR/1	GADS-B1/2	Change name to “Operational Control Directory”	Name was changed during the implementation. Consistent with Annex 11 and 12 amendments	Accepted
FA-E-GADS-CR/2	GADS-B1/2/NC	Change to: “Access to point of contact information of ATSUs, Aircraft Operators and Rescue Coordination Centres”	Change reflects current situation	Accepted
FA-E-GADS-CR/3	GADS-B1/2/EN	Change enabler name to: “procedures for Operational Control Directory” Update references with Annex 11 and Annex 12		Accepted
FA-E-GADS-CR/4	GADS-B2/1	Change name to: “Location of an aircraft in Distress”	Consistent with Annex 6	Accepted
FA-E-GADS-CR/5	GADS-B2/1/DC	Change to: The localisation of an aircraft in distress is one of the Global Aeronautical Distress and Safety System (GADSS) functions. This function uses on board systems to broadcast aircraft position (latitude and longitude), or distinctive distress signals from which the aircraft position and time can be derived. The aircraft position information will be transmitted, without the need for flight crew action, at least once every minute, when an aircraft is in a distress condition.  An aircraft is in a distress condition when it is in a state that, if the aircraft behaviour event is left uncorrected, may result in an accident. The operator is responsible for ensuring that this information is made available to the actors involved in the emergency.	Consistent with Annex 6 GADSS Concept is being updated	Accepted
FA-E-	GADS-	Change to ready for	Consistent with	Accepted

GADS-CR/6	B2/1/ML	implementation	applicability dates and industrial developments	
FA-E-GADS-CR/7	GADS-B2/1/EN	Change Autonomous Distress Tracking (ADT) to “location of aircraft in distress”  /training: changed Autonomous Distress Tracking and ADT to “location of aircraft in distress”	Consistent with Annex 6	Accepted
FA-E-GADS-CR/8	GADS-B2/1/EN	Change last 3 dates to 2023	Consistent with industry plans	Accepted
FA-E-GADS-CR/9	GADS-B2/2/NC	Change to “Access to location of aircraft in distress data”	Consistent with Annex 6,11 and 12	Accepted
FA-E-GADS-CR/10	GADS-B2/2/ML	Change to Ready for implementation	Consistent with applicability dates and industrial developments	Accepted
FA-E-GADS-CR/11	GADS-B2/3/DC	Delete: (ref, GADSS ConOPS V6)	ConOps will be replaced with GADSS Manual	Accepted
FA-E-GADS-CR/12	GADS-B2/4/ML	Change to ready for implementation	Consistent with applicability dates and industrial developments	Accepted

### CHANGE REQUESTS TO THE ASBU THREAD DAIM

This template shall be used to propose changes to the GANP ASBU Framework

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- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

#### Contact details

Name (point of contact)	<b>Louise Alberts</b>
Organization	<b>ICAO Information Management Panel (IMP)</b>
Position	<b>AIM Working Group Rapporteur</b>
Email	<b><a href="mailto:louise.alberts@casa.gov.au">louise.alberts@casa.gov.au</a></b>
Telephone	<b>+61 2 6217 1216</b>
Aviation Community *	<b>CAA</b>
CR coordination**	<b>ICAO IMP AIM Working Group</b>
Date of submission	<b>27 July 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment A for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	27 July 2021
CR Status	Accepted/Initial assessment
Assigned TL	Louise Alberts



### Change request to existing Threads/Elements

#### Change Request Information

CR ID	Reference*	CR (current text with revision marks)	Justification	Remarks
FA-E-DAIM-CR/1	DAIM/DC  B1/1	<p>This element ensures that processes, procedures and systems are improved to allow for an enhanced quality of aeronautical information products and services. This element includes:</p> <ol style="list-style-type: none"> <li>3. Full move into an automated data-centric environment so that the management, processing, verification, usage and exchange can be done in a structured, automatic manner and human intervention is reduced.</li> <li>4. Aeronautical data and information is of high quality if it is aggregated and provided by authoritative sources. This requires to properly control relationships along the whole data chain from the origination to the distribution to the next intended user (formal arrangements with data originators, neighbouring States, data and information service providers and others).</li> </ol>	<p>Descriptions 1 and 2 can be deleted as QMS, WGS-84 and AIRAC are long-standing standards in Annex 15. Consequently, renumber 2 and 3.</p>	Accepted
FA-E-DAIM-CR/2	DAIM/DR  B1/7	<p><b>Type of ASBU Element Dependencies</b></p> <p>Relation-operational need <a href="#">DAIM-B1/1 - Provision of quality-assured aeronautical data and information</a></p> <p>Relation-information need <a href="#">DAIM-B1/2 - Provision of digital Aeronautical Information Publication (AIP) data sets</a></p>	<p>SWIM Dependencies should be added as digital NOTAM can be provided or consumed through a SWIM information service similar to digital data set services. Propose add:</p> <p>SWIM-B2/1 - Information service provision SWIM-B2/2 -</p>	Accepted

		<p>Relation-information need</p> <p>Relation-information need</p> <p>Relation-information need</p> <p>Information Benefit</p> <p>Information Benefit</p>	<p><a href="#">DAIM-B1/4 - Provision of digital obstacle data sets</a></p> <p><a href="#">DAIM-B1/5 - Provision of digital aerodrome mapping data sets</a></p> <p><a href="#">DAIM-B1/6 - Provision of digital instrument flight procedure data sets</a></p> <p><a href="#">SWIM-B2/1 - Information service provision</a></p> <p><a href="#">SWIM-B2/2 - Information service consumption</a></p>	<p>Information service consumption.</p> <p>Improvements are on the current system, but the dependency is for the subgroup that works on these improvements to understand the future work for SWIM, updated the dependencies to be an information benefit.</p>	
FA-E-DAIM-CR/3	DAIM/DR  B2/5	<p><b>Type of ASBU Element Dependencies</b></p> <p>Evolution</p> <p>Relation-operational need</p> <p>Relation-operational need</p>	<p><a href="#">DAIM-B1/7 - NOTAM improvements</a></p> <p><a href="#">SWIM-B2/1 - Information service provision</a></p> <p><a href="#">SWIM-B2/2 - Information service consumption</a></p>	<p>SWIM Dependencies should be added as the replacement to the current NOTAM system, the Operational Reporting Information Service (ORIS), is intended to be provided and consumed through a SWIM information service. Propose add:</p> <p>SWIM-B2/1 - Information service provision</p> <p>SWIM-B2/2 - Information service consumption.</p>	Accepted

### CHANGE REQUESTS TO THE ASBU THREAD FICE

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#### Contact details

Name (point of contact)	<b>Steve Bradford</b>
Organization	<b>Federal Aviation Administration</b>
Position	<b>Chief Scientist</b>
Email	<b>Steve.Bradford@faa.gov</b>
Telephone	<b>202-267-1218</b>
Aviation Community *	<b>ANSP</b>
CR coordination**	<b>ATMRPP Chair and Secretary</b>
Date of submission	<b>10 October 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>10 October 2021</b>
CR Status	Accepted
Assigned TL	Steve Bradford

**Change request to existing Threads/Elements****Change Request Information**

<b>CR ID</b>	<b>Reference*</b>	<b>CR (current text with revision marks)</b>	<b>Justification</b>	<b>Remarks</b>
FA-E-FICE-CR/1	<FICE-B2/1/EN>	<p>Enabler Name: Procedures for the provision and use of FFICE Planning Service</p> <p>Description: Procedures for FF-ICE flight data exchange, preliminary flight plan, flight plan update, flight plan revaluation, flight cancellation and flight data request. References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965 - Manual on Flight and Flow Information for a Collaborative Environment (FF-ICE) 1<sup>st</sup>2<sup>nd</sup> Edition</p>	The enabler should reference Doc 9965 1st Edition	Accepted
FA-E-FICE-CR/2	<FICE-B2/1/EN>	<p>Enabler Name: Flight Information Exchange Model (FIXM) Version 4.2.0</p> <p>Enabler Description: References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 1<sup>st</sup>2<sup>nd</sup> Edition.</p> <p>Enabler Year: 202049</p>	FIXM version 4.2.0 was released in 2020, and the enabler should reference Doc 9965 1st Edition	Accepted
FA-E-FICE-CR/3	<FICE-B2/1/EN>	<p>Enabler Name: Capability to process FFICE data exchange</p> <p>Enabler Description: Upgrade the ground system to process FF-ICE data exchange using FIXM and including assignment/recognition of GUFI. References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 1<sup>st</sup>2<sup>nd</sup> Edition.</p>	The enabler should reference Doc 9965 1st Edition	Accepted
FA-E-FICE-	<FICE-B2/1/EN>	Enabler Name: Capability to obtain and use necessary	The enabler should reference Doc 9965	Accepted

CR/4		<p>information for FF-ICE Services</p> <p>Enabler Description: Upgrade the ground system to use AMET and DAIM information obtained via SWIM services to determine constraints applicable to a flight.</p> <p>References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services, and ICAO Doc 9965 - FF-ICE Manual 1<sup>st</sup>2<sup>nd</sup> Edition, Annex 3 - Meteorological Service for International Air Navigation, PANS AIM, and Annex 15 - Aeronautical Information Services</p>	<p>1st Edition, and the description should also reference Annex for MET and AIM</p>	
FA-E-FICE-CR/5	<FICE-B2/2/EN>	<p>Enabler Name: Flight Information Exchange Model (FIXM) Version 4.2.0</p> <p>Enabler Description: References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 1<sup>st</sup>2<sup>nd</sup> Edition.</p> <p>Enabler Year: 202049</p>	<p>FIXM version 4.2.0 was released in 2020, and the enabler should reference Doc 9965 1st Edition</p>	Accepted
FA-E-FICE-CR/6	<FICE-B2/2/EN>	<p>Enabler Name: Capability to obtain and use necessary information for FF-ICE Services</p> <p>Enabler Description: Upgrade the ground system to use AMET and DAIM information obtained via SWIM services to determine constraints applicable to a flight.</p> <p>References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services, and ICAO Doc 9965 - FF-ICE Manual 1<sup>st</sup>2<sup>nd</sup> Edition, Annex 3 - Meteorological Service for</p>	<p>The enabler should reference Doc 9965 1st Edition, and the description should also reference Annex for MET, AIM, and SWIM</p>	Accepted

		International Air Navigation, PANS AIM, PANS IM, and Annex 15 – Aeronautical Information Services		
FA-E-FICE-CR/7	<FICE-B2/2/EN>	<p>Enabler Name: Training requirements for the filing service</p> <p>Enabler Year: 2022<del>48</del></p>	The training requirements cannot be completed until the applicability date of the capability	Accepted
FA-E-FICE-CR/8	<FICE-B2/3/EN>	<p>Enabler Name: Flight Information Exchange Model (FIXM) Version 4.2.0</p> <p>Enabler Description: References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 1<sup>st</sup><del>2nd</del> Edition.</p> <p>Enabler Year: 2020<del>49</del></p>	FIXM version 4.2.0 was released in 2020, and the enabler should reference Doc 9965 1st Edition	Accepted
FA-E-FICE-CR/9	<FICE-B2/3/EN>	<p>Enabler Name: Capability to obtain and use necessary information for FF-ICE Services</p> <p>Enabler Description: Upgrade the ground system to use AMET and DAIM information obtained via SWIM services to determine constraints applicable to a flight.</p> <p>References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services, <del>and</del> ICAO Doc 9965 - FF-ICE Manual 1<sup>st</sup><del>2nd</del> Edition, Annex 3 - Meteorological Service for International Air Navigation, PANS AIM, PANS IM, and Annex 15 – Aeronautical Information Services</p>	The enabler should reference Doc 9965 1st Edition, and the description should also reference Annex for MET, AIM, and SWIM	Accepted
FA-E-FICE-CR/10	<FICE-B2/4/EN>	<p>Enabler Name: Flight Information Exchange Model (FIXM) Version 4.2.0</p> <p>Enabler Description: References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services</p>	FIXM version 4.2.0 was released in 2020, and the enabler should reference Doc 9965 1st Edition	Accepted

		and ICAO Doc 9965- FF-ICE Manual 1 <sup>st</sup> 2 <sup>nd</sup> Edition.  Enabler Year: 202049		
FA-E-FICE-CR/11	<FICE-B2/5/EN>	Enabler Name: Flight Information Exchange Model (FIXM) Version 4.2.0  Enabler Description: References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 1 <sup>st</sup> 2 <sup>nd</sup> Edition.  Enabler Year: 202049	FIXM version 4.2.0 was released in 2020, and the enabler should reference Doc 9965 1st Edition	Accepted
FA-E-FICE-CR/12	<FICE-B2/6/EN>	Enabler Name: Flight Information Exchange Model (FIXM) Version 4.2.0  Enabler Description: References: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 1 <sup>st</sup> 2 <sup>nd</sup> Edition.  Enabler Year: 2019	FIXM version 4.2.0 was released in 2020, and the enabler should reference Doc 9965 1st Edition	Accepted
FA-E-FICE-CR/13	<FICE-B2/7/EN>	Enabler Name: Flight Information Exchange Model (FIXM) Version x.x.x 4.2.0  Enabler Year: 202449	The flight and flow information content will be contained in a future version of FIXM	Accepted
FA-E-FICE-CR/14	<FICE-B2/7/EN>	Enabler Name: Capability to support the assignment/recognition of GUF1  Enabler Description: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965- FF-ICE Manual 2nd Edition.  Enabler Year: 202448	The enabler should reference Doc 9965 2nd Edition in 2024	Accepted
FA-E-FICE-CR/15	<FICE-B2/7/EN>	Enabler Name: FDP system able to process FIXM  Enabler Description: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965-	The enabler should reference Doc 9965 2nd Edition in 2024	Accepted

		FF-ICE Manual 2nd Edition. Enabler Year: 2024 <del>18</del>		
FA-E-FICE-CR/16	<FICE-B2/7/EN>	Enabler Name: FDP system that accesses AMET and DAIM information via SWIM services.  Enabler Description: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services, Annex 3 - Meteorological Service for International Air Navigation, PANS AIM, PANS IM, and Annex 15 – Aeronautical Information Services Enabler Year: 2024 <del>18</del>	The enabler should reference Annex for MET, AIM, and SWIM	Accepted
FA-E-FICE-CR/17	<FICE-B2/8/EN>	Enabler Name: Flight Information Exchange Model (FIXM) Version <del>x.x.x 4.2.0</del> Enabler Year: 2024 <del>18</del>	The flight and flow information content will be contained in a future version of FIXM	Accepted
FA-E-FICE-CR/18	<FICE-B2/8/EN>	Enabler Name: Capability to support the assignment/recognition of GUF  Enabler Description: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965-FF-ICE Manual 2nd Edition. Enabler Year: 2024 <del>18</del>	The enabler should reference Doc 9965 2nd Edition in 2024	Accepted
FA-E-FICE-CR/19	<FICE-B2/8/EN>	Enabler Name: FDP system able to process FIXM  Enabler Description: PANS-ATM ICAO Doc 4444 - Procedures for Air Navigation Services and ICAO Doc 9965-FF-ICE Manual 2nd Edition. Enabler Year: 2024 <del>18</del>	The enabler should reference Doc 9965 2nd Edition in 2024	Accepted



### CHANGE REQUESTS FOR THE ASBU THREAD RSEQ

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- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

#### Contact details

Name (point of contact)	<b>Piyawut Tantimekabut</b>
Organization	<b>AEROTHAI</b>
Position	<b>ATMOPSP Advisor / ATMOPSP Focal Point for GANP-SG</b>
Email	<b><a href="mailto:piyawut@gmail.com">piyawut@gmail.com</a></b>
Telephone	<b>+66 8 9697 5859</b>
Aviation Community *	<b>ANSP</b>
CR coordination**	<b>ATMOPSP</b>
Date of submission	<b>10 October 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>10 October 2021</b>
CR Status	Accepted
Assigned TL	Piyawut Tantimekabut

**Change request to existing Threads/Elements****Change Request Information**

<b>CR ID</b>	<b>Reference*</b>	<b>CR (current text with revision marks)</b>	<b>Justification</b>	<b>Remarks</b>
FA-E-RSEQ-CR/1	RSEQ-B2/2 Arrival Management in terminal airspace with multiple airports	Applicability date changed to 2026	Supporting SESAR Operational Improvement TS-0303 – Arrival Management into Multiple Airports have new timing of 2022-2026 No associated Job Card	Accepted
FA-E-RSEQ-CR/2	RSEQ-B2/2 Arrival Management in terminal airspace with multiple airports	RSEQ-B23/2	Consequential change due to the FA-E-RSEQ-CR/1	Accepted
FA-E-RSEQ-CR/3	RSEQ-B3/1 Departure Management in terminal airspace with multiple airports	Applicability date changed to 2032	Supporting SESAR Operational Improvement TS-0302 – Departure Management from Multiple Airports have revised timing of 2028-2032 No associated Job Card	Accepted
FA-E-RSEQ-CR/4	RSEQ-B3/1 Departure Management in terminal airspace with multiple airports	RSEQ-B34/1	Consequential change due to the FA-E-RSEQ-CR/3	Accepted
FA-E-RSEQ-CR/5	RSEQ-B3/2 Extended arrival management supporting overlapping operations into multiple airports	Applicability date changed to 2032	Supporting SESAR Operational Improvement TS-0305B – Arrival Management Extended to En-Route Airspace – Impact of Overlapping AMAN Operations for En Route ATC have revised timing of 2028-2032 No associated Job Card	Accepted

FA-E-RSEQ-CR/6	RSEQ-B3/2 Extended arrival management supporting overlapping operations into multiple airports	RSEQ-B34/2	Consequential change due to the FA-E-RSEQ-CR/5	Accepted
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**CHANGE REQUESTS TO THE ASBU THREAD ASUR**

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**Contact details**

Name (point of contact)	<b>Doug Arbuckle</b>
Organization	<b>Surveillance Panel</b>
Position	<b>Chair (FAA Chief Scientist for Surveillance Services)</b>
Email	<b><a href="mailto:doug.arbuckle@faa.gov">doug.arbuckle@faa.gov</a></b>
Telephone	<b>+1-757-846-4225</b>
Aviation Community *	<b>IO (ANSP)</b>
CR coordination**	<b>Factual change (no need for coordination)</b>
Date of submission	<b>22-Sep-2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>22-Sep-2021</b>
CR Status	Accepted
Assigned TL	Doug Arbuckle

**Change request to existing Threads/Elements**

**Change Request Information**

<b>CR ID</b>	<b>Reference*</b>	<b>CR (current text with revision marks)</b>	<b>Justification</b>	<b>Remarks</b>
FA-E-ASUR-CR/1	ASUR-B1/1/ML	Ready for implementation	Space-based ADS-B data is being used by multiple ANSPs for ATC separation and the enabling ICAO provisions to do so are in place (No SARPs changes were needed; PANS-ATM has been amended)	Accepted

**CHANGE REQUESTS TO THE ASBU THREAD CSEP****Contact details**

Name (point of contact)	<b>Jean-Marc Loscos</b>
Organization	<b>Surveillance Panel</b>
Position	<b>AIRB WG chair (SP Member for France)</b>
Email	<b>Jean-marc.loscos@aviation-civile.gouv.fr</b>
Telephone	<b>+33 562 14 5206</b>
Aviation Community *	<b>IO (ANSP)</b>
CR coordination**	<b>Factual change (no need for coordination)</b>
Date of submission	<b>7-OCT-2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>7-OCT-2021</b>
CR Status	Acceptor
Assigned TL	Jean-Marc Loscos

### Change request to existing Threads/Elements

#### Change Request Information

CR ID	Reference*	CR (current text with revision marks)	Justification	Remarks
FA-E-CSEP-CR/1	CSEP B2/1 IM procedure	<p>In the list of enablers change the year 2022 in <b>2025</b> for Operational procedure and for Regulatory provisions</p> <p>In the stakeholders column, add Aircraft operator besides ANSP for operational procedures</p> <p>Delete the year 2018 after the DOC9994</p>	<p>The original date of 2022 was based on trials planned in 2020 and 2021 which had to be postponed due to COVID-19. The SP meetings were also rescheduled accordingly. The operational procedure is implemented by ANSP and aircraft operator (same logic as training)</p> <p>There is no need to mention the year for the Manual. The latest edition is implicitly the one to use.</p>	Accepted

Enabler category	Enabler Type	Enabler name	Description/references	Stakeholders	Year
Operational procedures	Operations	Procedures for the use of IM	PANS-ATM/PANS-OPS IM Procedure (to be developed)	ANSP Aircraft operator	2025
...	...	...	...	...	...
Regulatory Provisions	Certification	IM Certification	ICAO ANNEX 10 Technical Requirements (to be developed) ICAO DOC9994	CAA Aircraft Manufacturer Aircraft Operator	2025

### CHANGE REQUESTS TO THE ASBU THREAD RATS

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#### Contact details

Name (point of contact)	<b>Katariina Syväys</b>
Organization	<b>IFATCA</b>
Position	<b>Remote Tower Task Force Coordinator</b>
Email	<b><a href="mailto:katariina.syvays@ifatca.org">katariina.syvays@ifatca.org</a></b>
Telephone	<b>+358-45-882 5308</b>
Aviation Community *	<b>IO</b>
CR coordination**	<b>ATMOPS</b>
Date of submission	<b>3 October 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>3 October 2021</b>
CR Status	Accepted
Assigned TL	Katariina Syväys



### Change request to existing Threads/Elements

#### Change Request Information

CR ID	Reference*	CR (current text with revision marks)	Justification	Remarks
FA-E-RATS-CR/1	RATS	RATS Remote ATS to be changed into DAATS (Digital Aerodrome Air Traffic Services)	The word “remote” incorrectly implies that this technology cannot be used at the aerodrome. There is an active WG within ATMOPS Panel with an existing Job Card that is using the term Digital Aerodrome Air Traffic Services (DAATS) as correctly reflecting this technology. The ASBU Thread should be renamed accordingly.	Accepted. However, instead of DAATS, it was agreed to change it to DATS.

**CHANGE REQUESTS TO THE ASBU THREAD WAKE****Contact details**

Name (point of contact)	<b>Frédéric Rooseleer</b>
Organization	<b>EUROCONTROL</b>
Position	<b>WTSWG Member</b>
Email	<b>frederic.rooseleer@eurocontrol.int</b>
Telephone	<b>+32 2 729 46 62</b>
Aviation Community *	<b>ANF</b>
CR coordination**	<b>WTSWG</b>
Date of submission	<b>27 October 2021 (update)</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>2 October 2021</b>
CR Status	Accepted/Initial assessment
Assigned TL	Frédéric Rooseleer

### Change request to existing Threads/Elements

#### Change Request Information

ID Number	Reference*	CR (current text with revision marks)	Justification	Remarks
FA-E-WAKE-CR/1	WAKE-B2/1	New Capabilities: <del>Replacement</del> Alternative to of the aircraft wake turbulence categories defined in ICAO PANS-ATM by aircraft wake turbulence groups based on safety and operational requirement criteria.	Alignment with published PANS-ATM amendment 9	Accepted
FA-E-WAKE-CR/2	WAKE-B2/2	Description: This element defines a dependent paired approach procedure to parallel runways, with centre lines spaced less than 760m (2500ft) apart, threshold staggers, and/or glide path height differences, under ILS Category I minimums, or the minimums depicted for an RNAV or LPV approach. It covers airports <del>exploiting</del> applying the ICAO Wake Turbulence Categories or <del>Revised Wake Vortex Separation</del> of wake turbulence aircraft groups.	Alignment with published PANS-ATM amendment 9	Accepted
FA-E-WAKE-CR/3	WAKE-B2/2 Dependent parallel approaches based on WTG	Publication date – <del>2022</del> 2028	Provisions and supporting guidance documentation to be developed and available	Accepted
FA-E-WAKE-CR/4	WAKE-B2/2	WAKE-B23/21	Consequential change due to the FA-E-WAKE-CR/3	Accepted
FA-E-WAKE-CR/5	WAKE-B2/3 Independent segregated parallel operations based on WTG	Publication date – <del>2022</del> 2028	Provisions and supporting guidance documentation to be developed and available	Accepted
FA-E-WAKE-CR/6	WAKE-B2/3	WAKE-B23/32	Consequential change due to the FA-E-WAKE-CR/5	Accepted
FA-E-WAKE-CR/7	WAKE-B2/4 Wake turbulence separation	Publication date – <del>2024</del> 2030	Provisions and supporting guidance documentation to	Accepted

	minima based on leader/follower static pairs-wise		be developed and available	
FA-E-WAKE-CR/8	WAKE-B2/4	WAKE-B23/43	Consequential change due to the WAKE-CR/7	Accepted
FA-E-WAKE-CR/9	WAKE-B2/5 Enhanced dependent parallel approaches	Publication date – 2024-2030	Provisions and supporting guidance documentation to be developed and available	Accepted
FA-E-WAKE-CR/10	WAKE-B2/5	WAKE-B23/54	Consequential change due to the FA-E-WAKE-CR/9	Accepted
FA-E-WAKE-CR/11	WAKE-B2/6 Enhanced independent segregated parallel operations	Publication date – 2024-2030	Provisions and supporting guidance documentation to be developed and available	Accepted
FA-E-WAKE-CR/12	WAKE-B2/6	WAKE-B23/65	Consequential change due to the FA-E-WAKE-CR/11	Accepted
FA-E-WAKE-CR/13	WAKE-B2/7 Time based wake separation minima for arrival based on leader/follower static pair-wise	<p>Title update:</p> <p>Time based wake separation minima for Final Approach arrival based on leader/follower static pair-wise</p> <p>Description update:</p> <p>This element defines a new set of time based wake turbulence separations on final approach under ATS surveillance service, derived from distance-based separation (DBS) minima, allowing a dynamic DBS application for stabilizing landing rates across headwind conditions. for frequent aircraft pairs based on the performance characteristics of the leading aircraft generating wake turbulence and the following aircraft that might encounter the wake turbulence. It consists of a leader / follower</p>	To align with Proposal for Amendment to PANS-ATM for Time-Based Separation for final approach, and clarify the scope of application (not only restrict to the application with Static pair-wise minima -B2/4)	Accepted

		<p><del>wise static matrix of aircraft type optimized wake separation pairings that can be exploited by the ATCO with system support, increase runway throughput, for enhancing resilience and mitigating the impact of strong headwinds.</del></p> <p><del>Existing categorisation systems may be used to determine separation minima for types of aircraft pairs not specifically included in the pairwise separation matrix</del></p>		
FA-E-WAKE-CR/14	WAKE-B2/7	WAKE-B2/72	Consequential change due to the FA-E-WAKE-CR/4, FA-E-WAKE-CR/6, FA-E-WAKE-CR/8, FA-E-WAKE-CR/10, FA-E-WAKE-CR/12	Accepted
FA-E-WAKE-CR/15	WAKE-B2/8 Time based wake separation minima for departure based on leader/follower static pairwise	Publication date – 2024-2030	Provisions and supporting guidance documentation to be developed and available	Accepted
FA-E-WAKE-CR/16	WAKE-B2/8	WAKE-B23/86	Consequential change due to the FA-E-WAKE-CR/15	Accepted
FA-E-WAKE-CR/17	WAKE-B3/1 Time based dependent parallel approaches	Publication date – 2026-2030	Provisions and supporting guidance documentation to be developed and available	Accepted
FA-E-WAKE-CR/18	WAKE-B3/1	WAKE-B3/47	Consequential change due to the FA-E-WAKE-CR/4, FA-E-WAKE-CR/6, FA-E-WAKE-CR/8, FA-E-WAKE-CR/10, FA-E-WAKE-	Accepted

			CR/12, FA-E-WAKE-CR/16	
FA-E-WAKE-CR/19	WAKE-B3/2 Time based independent segregated parallel operations	Publication date – <del>2026</del> 2030	Provisions and supporting guidance documentation to be developed and available	Accepted
FA-E-WAKE-CR/20	WAKE-B3/2	WAKE-B3288	Consequential change due to the FA-E-WAKE-CR/4, FA-E-WAKE-CR/6, FA-E-WAKE-CR/8, FA-E-WAKE-CR/10, FA-E-WAKE-CR/12, FA-E-WAKE-CR/16, FA-E-WAKE-CR/18	Accepted

### CHANGE REQUESTS FOR THE ASBU THREAD COMI

- This template shall be used to propose changes to the GANP ASBU Framework
- Only complete Change Requests will be processed
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- For proposed changes to existing threads and elements use Attachment A
- For proposed new elements use Attachment B
- For proposed new threads use Attachment C
- Contact <GANP maintenance PoC> for assistance
- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

#### Contact details

Name (point of contact)	<b>Brent Phillips</b>
Organization	<b>Federal Aviation Administration (FAA)</b>
Position	<b>Senior Systems Engineer</b>
Email	<b>Brent.phillips@faa.gov</b>
Telephone	<b>703-726-8658</b>
Aviation Community *	<b>CAA</b>
CR coordination**	<b>ICAO CP, EUROCONTROL, FAA Data Comm</b>
Date of submission	<b>3/11/2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>3/11/2021</b>
CR Status	Accepted
Assigned TL	Brent Phillips

### Change request to existing Threads/Elements

#### Change Request Information

CR ID	Reference*	CR (current text with revision marks)	Justification	Remarks
FA-E-COMI-CR/1	COMI-B0/1	<b>Type of Dependencies:</b> Relation-technology option <b>ASBU Element:</b> <del>COMI B1/2 — VHF Data Link (VDL) Mode 2 Multi Frequency</del>	Misaligned dependencies	Rejected due to the definition of dependencies. See initial assessment.
FA-E-COMI-CR/2	COMI-B0/1	<b>Type of Dependencies:</b> Relation-technology option <b>ASBU Element:</b> <del>COMI B1/3 — SATCOM Class B Voice and Data</del>	Misaligned dependencies	Rejected due to the definition of dependencies. See initial assessment.
FA-E-COMI-CR/3	COMI-B0/2	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B1/2 — VHF Data Link (VDL) Mode 2 Multi Frequency</del>	Misaligned dependencies	Rejected due to the definition of dependencies. See initial assessment.
FA-E-COMI-CR/4	COMI-B0/2	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B1/3 — SATCOM Class B Voice and Data</del>	Misaligned dependencies	Rejected due to the definition of dependencies. See initial assessment.
FA-E-COMI-CR/5	COMI-B0/2	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B3/1 — VHF Data Link (VDL) Mode 2 Connectionless</del>	Misaligned dependencies	Rejected due to the definition of dependencies. See initial assessment.
FA-E-COMI-CR/6	COMI-B0/7	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B1/1 — Ground Ground Aeronautical Telecommunication Network/Internet Protocol Suite (ATN/IPS)</del>		Rejected due to the definition of dependencies. See initial assessment.
FA-E-COMI-CR/7	COMI-B1/1	<b>New Capabilities:</b> It enables the efficient integration of technologies with improved integrity to support future air to ground aeronautical safety services and regularity of flight communications.	There is no air/ground IPS in block 1. It comes later hence the future adjective	Accepted
FA-E-COMI-CR/8	COMI-B1/3	<b>Type of Dependencies:</b> Relation-technology need <b>ASBU Element:</b> <del>AMET B1/1 — Meteorological observations information</del>	Not current. Dependencies rely on COMI not vice versa	Accepted
FA-E-COMI-	COMI-B1/3	<b>Type of Dependencies:</b> Relation-technology need	Not current. Dependencies	Accepted



CR/9		<b>ASBU Element:</b> <del>AMET B1/2 — Meteorological forecast and warning information</del>	rely on COMI not vice versa	
FA-E-COMI-CR/10	COMI-B2/1	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B3/1 — VHF Data Link (VDL) Mode 2 Connectionless</del>	Misaligned dependencies	Rejected due to the definition of dependencies. See initial assessment.
FA-E-COMI-CR/11	COMI-B2/1	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B3/2 — SATCOM Class A voice and data</del>	Misaligned dependencies	Rejected due to the definition of dependencies. See initial assessment.
FA-E-COMI-CR/12	COMI-B2/1	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B3/4 — Links meeting requirements for safety critical communication</del>	Misaligned dependencies	Rejected due to the definition of dependencies. See initial assessment.
FA-E-COMI-CR/13	COMI-B2/1	<b>Type of Dependencies:</b> Relation-technology benefit <b>ASBU Element:</b> <del>COMI B3/3 — L band Digital Aeronautical Communication System (LDACS)</del>	Misaligned dependencies	Rejected due to the definition of dependencies. See initial assessment.
FA-E-COMI-CR/14	COMI-B3/2	<b>Type of Dependencies:</b> Relation-technology need <b>ASBU Element:</b> <del>AMET B2/1 — Meteorological observations information</del>	Misaligned dependencies	Accepted
FA-E-COMI-CR/15	COMI-B3/2	<b>Type of Dependencies:</b> Relation-technology need <b>ASBU Element:</b> <del>AMET B2/2 — Meteorological forecast and warning information</del>	Misaligned dependencies	Accepted

**CHANGE REQUESTS TO THE ASBU THREAD OPFL AND APTA**

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**Contact details**

Name (point of contact)	<b>Harry Daly</b>
Organization	<b>UK CAA</b>
Position	<b>SASP Member</b>
Email	<b>Harry.daly@caa.co.uk</b>
Telephone	<b>0044 (0) 3301382276</b>
Aviation Community *	<b>CAA</b>
CR coordination**	<b>ICAO SASP</b>
Date of submission	<b>27 September 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>27 September 2021</b>
CR Status	Accepted
Assigned TL	Harry Daly

### Change Request for New Element

**Justification:** The SASP has been working on Job Cards that provide for operational improvements which are not reflected in the GANP.

#### Change Request Information

OPFL-B3/?	Helicopter RNP 0.3 Terminal and En-Route Operations	Operational
Main Purpose?	Existing PBN track separation guidance for fixed wing airplane routes does not fully serve the helicopter IFR mission profiles which may require routes to be established at low altitude in mountainous and obstacle-rich environments or over densely populated regions with approaches to Points-In-Space (PINS) or helipads/heliports in airspace not typically used for fixed wing operations. Unlike fixed wing aircraft, helicopter normal operating capability, i.e. en-route cruising speed and manoeuvring ability is suited to RNP 0.3 for en-route as well as the terminal environment. Studies have shown that increasing the availability of IFR service to helicopter operations has the potential to decrease the risk of accidents for helicopter operations in marginal weather conditions.	
New Capabilities?	Facilitating arrivals and departures, and en-route IFR Helicopter operations in terrain rich environments.	
Description?	Evolution of lateral track separation for parallel helicopter RNP 0.3 routes to facilitate safe and efficient IFR helicopter operations in all phases of flight.	
Maturity Level?	Validation	
Human Factor Considerations	1. Does it imply a change in task by a user or affected others? Yes 2. Does it imply processing of new information by the user? Yes 3. Does it imply the use of new equipment? No 4. Does it imply a change to levels of automation? Yes	
PLANNING LAYERS? <u>Tactical-During ops</u>		OPERATIONS? <u>Departure Arrival Enroute</u>
DEPENDENCIES AND RELATIONS?	ASBU Element  TBC	
Type of Dependencies		
TBC		

Element					
Category	Type	Name	Description/Reference	Year	Stakeholder
Regulatory provisions	National regulatory framework	National framework amendment for performance-based separation provisions for helicopter	National regulation amendment for performance-based separation provisions for helicopter specific navigation capability. References: DOC. 4444 –	2028	CAA

		specific navigation capability	Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM)		
Operational Procedure	Design	PBN procedures design and use.	These operational procedures should be designed and used as specified in Doc 8168 (PANS-OPS Vol II and I) or equivalent.	2028	ANSP
Operational Procedure	Design	PBN procedure validation, approval and publication	A flight inspection and/or validation of the procedures might be required before publication. The publication of the procedures should follow Annex 4. References: ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design).	2028	ANSP CAA
Operational Procedure	Operations		Procedures for the crew to follow to fly a PBN approach. Defined in the Ops Manual. Reference: Doc 9613 (PBN Manual)	2028	Aircraft operator
Operational Procedure	Separation		Procedures for separation. Defined in the Ops Manual. Reference: PANS-ATM	2028	ANSP
Operational Authorization		Operational Authorization for PBN specification	Aircraft operator flying a PBN procedure should have an operational authorization related to the specified performance of the procedure, as described in Doc 9997 (PBN Ops Approval Manual).	2022	CAA Aircraft operator
Airborne capabilities	Navigation	Helicopter capability RNP 0.3	Helicopters should be equipped with RNP 0.3. Reference: Doc 9613 (PBN Manual)	2021	Aircraft Manufacturer Aircraft operator
Training		Training requirements for Helicopter RNP 0.3 Terminal and En-Route Operations	Crew trained to fly the procedure. References: As defined in Doc 9613 (PBN Manual). For Air traffic controllers. References: PANS-ATM. References: PANS-OPS Vol II and Doc 9992 Manual on the Use of Performance-Based Navigation (PBN) in		ANSP Aircraft operator

			Airspace Design		
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Deployment applicability		
Operational conditions	For operations of helicopters in terminal and en-Route in complex urban environment or areas with abrupt terrain. Preserving safety and providing access to helicopters for emergency purposes for example.	
Main intended benefits		
Type	Operational description	Benefitting stakeholder(s)
Direct benefits	Safety	Aircraft operator General citizen
	Access	Aircraft operator General citizen
Indirect benefits	Environment	General citizen

KPA	Focus Areas	Most specific performance objective(s) supported	KPI Impact	KPI	Additional comments
SAFETY	Maintain or improve safety - Maintain or improve safety in the air	OBJ19 (Maintain or improve safety) OBJ191 (Maintain or improve safety in the air) OBJ1916 (Reduce controlled flight into terrain (CFIT) and obstacle collision risk)	++	KPI20 - Number of aircraft accidents	*There is no specific safety-related KPIs in the GANP. However, this is mapped to KPI20 of the proposed safety performance framework.
EFFICIENCY	Flight time & distance - En-route distance (horizontal flight efficiency)	OBJ03 (Optimise horizontal flight efficiency in the en-route phase)	+	KPI 04*	Although KPI 04 and 05 envisage improved route selection, this ASBU element is very specific for certain combination of users (helicopter) and conditions (marginal weather). The current indicators might be unrelated – maybe new ones are needed.
CAPACITY	Capacity,	Increase planned	+	KPI 06	Having RNP 0.3 for

	throughput & utilization - En-route airspace capacity	capacity (the maximum configuration capacity established as part of [multi-year] ATM planning) OBJ11 (Optimise en-route airspace capacity) OBJ1141 (Increase planned capacity (the maximum configuration capacity established as part of [multi-year] ATM planning))			helicopters in certain areas/terminals helps to enlarge the options available for airspace planning, hence supporting higher airspace capacity.
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OPFL-B3/? Expansion of upper limit of the Reduced Vertical Separation	
Minima (RVSM) band of flight levels Operational	
Main Purpose?	<p>The demand for flights in the existing RVSM band of flight levels (FL290-FL410) has increased to the point where, at certain altitudes, it is generating congestion similar to that which prevailed before the implementation of RVSM.</p> <p>The introduction of RVSM added six flight levels, the immediate impact and benefit of which were mostly observed in the FL 330 to FL 370 band of flight levels as this is where the majority of civil flights operated. Initially the upper levels of RVSM airspace were sparsely occupied. With the proliferation of modern civil aircraft capable of efficient operations at higher flight levels, occupation of FL 400 and FL 410 has increased with routing options becoming limited as a result of congestion, with consequent inefficiency and fuel burn/emissions affected adversely. Expansion of the upper bound of the RVSM band of flight levels will provide alleviation from level congestion.</p>
New Capabilities?	Expansion of the upper bound of the RVSM band of flight levels will provide alleviation from level congestion, and a consequent increase in access to optimal flight levels.
Description?	The availability of additional usable flight levels will increase airspace efficiency while decreasing congestion at lower flight levels. This will result in reduced fuel burn and consequently reduce greenhouse gas emissions.
Maturity Level?	Validation
Human Factor Considerations	<p>1. Does it imply a change in task by a user or affected others? Yes</p> <p>2. Does it imply processing of new information by the user? Yes</p>

<p>3. Does it imply the use of new equipment? Yes</p> <p>4. Does it imply a change to levels of automation? Yes</p>	
<p>PLANNING LAYERS?</p> <p><b>Tactical-During ops</b></p>	<p>OPERATIONS?</p> <p><b>Enroute</b></p>
<p>DEPENDENCIES AND RELATIONS?</p> <p>Type of Dependencies</p> <p>TBC</p>	<p>ASBU Element</p> <p>TBC</p>

Element					
Category	Type	Name	Description/Reference	Year	Stakeholder
Regulatory provisions	National regulatory framework	National framework amendment for allowing qualified aircraft to operate at the additional RVSM levels	National regulation amendment for allowing qualified aircraft to operate at the additional RVSM levels. References: Annex 2, Annex 11; Annex 6; DOC. 4444 – Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM).	2028	CAA
Operational Procedure	Design and operations	Procedures for the use of additional RVSM levels	Design and use of additional flight levels. Reference: Annex 2	2028	ANSP
Operational Authorization		Operational Authorization for extended RVSM	Aircraft operator flying an additional RVSM level should have an authorization as per Doc 9760.	2028	CAA Aircraft operator
Airborne capabilities	Altimeter	Height keeping capability	Aircraft should be quipped with appropriate height keeping capability. Reference: Doc 9937.	2028	Aircraft Manufacturer Aircraft operator
Training		Training requirements for the expansion of upper limit of the Reduced Vertical Separation Minima (RVSM) band of flight levels	Crew trained to fly the procedure. References: Annex 6. For Air traffic controllers. References: PANS-ATM.	2028	ANSP Aircraft operator

Deployment applicability		
Operational conditions	Oceanic and continental en-route environments. To increase capacity and to allow a more optimum flight level.	
Main intended benefits		
Type	Operational description	Benefitting stakeholder(s)
Direct benefits	Efficiency	Aircraft operator
	Capacity	Aircraft operator ANSP
	Access	Aircraft operator
Indirect benefits	Environment	General citizen

KPA	Focus Areas	Most specific performance objective(s) supported	KPI Impact	KPI	Additional comments
EFFICIENCY	Vertical flight efficiency	Reduce vertical flight inefficiency during the cruise phase OBJ06 (Reduce vertical flight inefficiency during the cruise phase) OBJ062 (Reduce cruise level inefficiency attributable to altitude constraints imposed by ATM)	++	KPI 18	Direct benefits, no further comments
EFFICIENCY	Fuel Burn	OBJ08 (Reduce total fuel burn of aviation) OBJ0822 (Reduce fuel burn impact of impeded conditions)	+	KPI 16	With new more acft such as A350 or B787 flying more often in their optimal flight levels, it is likely that fuel burn efficiency will improve.
CAPACITY	Enroute	OBJ11		KPI 06	With expanded RVSM



	capacity	(Optimise en-route airspace capacity) OBJ1141 (Increase planned capacity (the maximum configuration capacity established as part of [multi-year] ATM planning))			bands, more aircraft can be accommodated in the same airspace
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OPFL-B2/?		Separation minima using ATS surveillance systems where VHF voice communications are not available		Operational
Main Purpose?	With the advent of Space-based ADS-B data in oceanic and remote continental areas, there are projected Capacity, Efficiency and Environmental advantages in SADS-B derived separation minima.  ICAO has published reduced lateral and longitudinal separation minima that capitalize on the increased frequency of position information update, while retaining the procedural foundation of requiring aircraft to remain on tracks to ensure separation, thereby making accessible such capacity, efficiency and environmental advantages.			
New Capabilities?	Implementation of the new lateral and longitudinal separation minima will provide alleviation from level congestion, and a consequent increase in access to optimal flight levels.			
Description?	The availability of additional usable flight levels will increase airspace efficiency while decreasing congestion at lower flight levels. This will result in reduced fuel burn and consequently reduce greenhouse gas emissions.			
Maturity Level?	Ready for implementation			
Human Factor Considerations	1. Does it imply a change in task by a user or affected others? Yes  2. Does it imply processing of new information by the user? Yes  3. Does it imply the use of new equipment? Yes  4. Does it imply a change to levels of automation? Yes			
PLANNING LAYERS? Tactical-During ops			OPERATIONS? Enroute	
DEPENDENCIES AND RELATIONS?		ASBU Element		

Type of Dependencies	TBC
TBC	

Element					
Category	Type	Name	Description/Reference	Year	Stakeholder
Regulatory provisions	National regulatory framework	National framework amendment for new separation standard	National regulation amendment for new separation standard. References: DOC. 4444 – Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM)	2020	CAA
Operational Procedure	Separation		Procedures for separation. Defined in PANS-ATM.	2020	ANSP
Airborne capabilities	Navigation	RNP4/RNP2	Aircraft should be equipped with RNP4/RNP2. Reference: Doc 9613 (PBN Manual)	2020	Aircraft Manufacturer Aircraft operator
Airborne capabilities	Communication	RCP 240	Aircraft should be equipped with RCP 240. Reference: ICAO Doc 10037 Edition 1 Global Operational Datalink Manual (GOLD)	2020	Aircraft Manufacturer Aircraft operator
Airborne capabilities	Surveillance	Surveillance capability for the new separation minima	Surveillance capability such as ADS-B OUT transponder. Reference: Annex 10 Vol IV.	2020	Aircraft Manufacturer Aircraft operator
Ground system infrastructure	Surveillance	Surveillance system for the new separation minima	To support the separation application. Reference: Annex 10 Vol IV.	2020	ANSP
Ground system infrastructure	ATC systems	ATC tool for separation minima	Ground tools/capabilities that assist the air traffic controller in providing separation.	2020	ANSP
Training		Training requirements for separation minima using ATS surveillance systems where VHF voice communications are not available	For Air traffic controllers. References: Annex 1, PANS-ATM. And for crew for awareness.	2020	ANSP Aircraft operator.

Deployment applicability		
Operational conditions	Oceanic and continental en-route environments. To increase capacity and to allow a more optimum flight level.	
Main intended benefits		
Type	Operational description	Benefitting stakeholder(s)
Direct benefits	Efficiency	Aircraft operator
	Capacity	Aircraft operator ANSP
	Access	Aircraft operator
Indirect benefits	Environment	General citizen

KPA	Focus Areas	Most specific performance objective(s) supported	KPI Impact	KPI	Additional comments
EFFICIENCY	Vertical flight efficiency	OBJ06 (Reduce vertical flight inefficiency during the cruise phase)	++	KPI 18	Direct benefits, no further comments
EFFICIENCY	Fuel Burn	OBJ08 (Reduce total fuel burn of aviation) OBJ0822 (Reduce fuel burn impact of impeded conditions)	+	KPI 16	With new more acft such as A350 or B787 flying more often in their optimal flight levels, it is likely that fuel burn efficiency will improve
EFFICIENCY	Flight time & distance - En-route distance (horizontal flight efficiency)	OBJ03 (Optimise horizontal flight efficiency in the en-route phase) OBJ031 (Improve route selection at the flight planning stage)	++	KPI 04	SADS-B separation minima directly increases the potential offer of routes and procedures.

EFFICIENCY	Flight time & distance - En-route distance (horizontal flight efficiency)	OBJ03 (Optimise horizontal flight efficiency in the en-route phase) OBJ031 (Improve route selection at the flight planning stage)	++	KPI 05	SADS-B separation minima directly increases the potential offer of routes and procedures.

OPFL-B3/?	Target-to-target separations using Space-based ADS-B data	Operational
Main Purpose?	<p>With the advent of Space-based ADS-B data in oceanic and remote continental areas, there are projected Capacity, Efficiency and Environmental advantages in SADS-B derived separation minima.</p> <p>A “radar-like” target-to-target separation minima that capitalizes on the increased frequency of position information updates but makes use of datalink communications capability (for circumstances where VHF communications do not exist) will offer increased flexibility and free aircraft from needing to adhere to specific tracks.</p>	
New Capabilities?	Implementation of the target-to-target separation minima will provide alleviation track adherence requirements associated with procedural separation minima. And offer a consequent increase in access to optimal flight levels.	
Description?	The availability of the flexibility offered by target-to-target separation will increase airspace efficiency, resulting in reduced fuel burn and consequently reduced greenhouse gas emissions.	
Maturity Level?	Validation	
Human Factor Considerations	<p>1. Does it imply a change in task by a user or affected others? Yes</p> <p>2. Does it imply processing of new information by the user? Yes</p> <p>3. Does it imply the use of new equipment? Yes</p> <p>4. Does it imply a change to levels of automation? Yes</p>	
PLANNING LAYERS? <u>Tactical-During ops</u>		OPERATIONS? <u>Enroute</u>
DEPENDENCIES AND RELATIONS?		ASBU Element

Type of Dependencies	TBC
TBC	

Element					
Category	Type	Name	Description/Reference	Year	Stakeholder
Regulatory provisions	National regulatory framework	National framework amendment for target to target separation	National regulation amendment for target to target separation. References: DOC. 4444 – Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM)	2024	CAA
Operational Procedure	Separation	Target to target separation	Procedures for target to target separation. Defined in PANS-ATM.	2024	ANSP
Airborne capabilities	Communication	RCP 240	Aircraft should be equipped with RCP 240. Reference: ICAO Doc 10037 Edition 1 Global Operational Datalink Manual (GOLD)	2024	Aircraft Manufacturer Aircraft operator
Airborne capabilities	Surveillance	Surveillance capability for the new separation minima	Surveillance capability such as ADS-B OUT transponder. Reference: Annex 10 Vol IV.	2024	Aircraft Manufacturer Aircraft operator
Ground system infrastructure	Surveillance	Surveillance system for the new separation minima	To support the separation application. Reference: Annex 10 Vol IV.	2024	ANSP
Ground system infrastructure	ATC systems	ATC tool for target to target separation	Ground tools/capabilities that assist the air traffic controller in providing target to target separation.	2024	ANSP
Training		Training requirements for target to target separation	For Air traffic controllers. References: Annex 1, PANS-ATM. And for crew for awareness.	2024	ANSP Aircraft operator.

Deployment applicability		
Operational conditions	Oceanic and continental en-route environments. To increase capacity and to allow a more optimum flight level.	
Main intended benefits		
Type	Operational description	Benefitting stakeholder(s)
Direct	Efficiency	Aircraft operator

<b>benefits</b>	Capacity	Aircraft operator ANSP
	Access	Aircraft operator
<b>Indirect benefits</b>	Environment	General citizen

<b>KPA</b>	<b>Focus Areas</b>	<b>Most specific performance objective(s) supported</b>	<b>KPI Impact</b>	<b>KPI</b>	<b>Additional comments</b>
EFFICIENCY	Vertical flight efficiency	OBJ06 (Reduce vertical flight inefficiency during the cruise phase)	++	KPI 18	Direct benefits, no further comments
EFFICIENCY	Fuel Burn	OBJ08 (Reduce total fuel burn of aviation) OBJ0822 (Reduce fuel burn impact of impeded conditions)	+	KPI 16	With new more acft such as A350 or B787 flying more often in their optimal flight levels, it is likely that fuel burn efficiency will improve
EFFICIENCY	Flight time & distance - En-route distance (horizontal flight efficiency)	OBJ03 (Optimise horizontal flight efficiency in the en-route phase) OBJ031 (Improve route selection at the flight planning stage)	++	KPI 04	SADS-B separation minima directly increases the potential offer of routes and procedures.
EFFICIENCY	Flight time & distance - En-route distance (horizontal flight efficiency)	OBJ03 (Optimise horizontal flight efficiency in the en-route phase) OBJ031	++	KPI 05	SADS-B separation minima directly increases the potential offer of routes and procedures.

		(Improve route selection at the flight planning stage)			
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APTA-B3/?		Parallel approaches without vertical guidance	Operational
Main Purpose?	Simultaneous independent parallel approach paths to parallel or near parallel runways based on RNP capabilities are based on 3D operations. The use of A-RNP and/or RNP APCH to provide demonstrated track keeping performance will safely provide lateral performance and could enable the removal of the vertical guidance requirement for specific operations. This would enable improved access, provide flexibility in degraded environments and could optimized the vertical profile leading to increased operational efficiency and reduced noise nuisance.		
New Capabilities?	Independent closely spaced 2D RNP approach operations.		
Description?	This element overcomes the necessity to require 3D operations for parallel approach operations providing increased flexibility and supporting aircraft in a degraded environment.		
Maturity Level?	Validation		
Human Factor Considerations	1. Does it imply a change in task by a user or affected others? Yes  2. Does it imply processing of new information by the user? Yes  3. Does it imply the use of new equipment? No  4. Does it imply a change to levels of automation? No		
PLANNING LAYERS? Tactical-During ops		OPERATIONS? Arrival	
DEPENDENCIES AND RELATIONS?			
Type of Dependencies	ASBU Element		
Relation-operational need	APTA-B0/1 - PBN Approaches (with basic capabilities)		
Relation-operational benefit	APTA-B1/1 - PBN Approaches (with advanced capabilities)		
Relation-information need	AMET-B2/1 - Meteorological observations information		
Relation-information need	AMET-B2/2 - Meteorological forecast and warning information		

Category	Type	Name	Description/Reference	Year	Stakeholder
Regulatory provisions	National regulatory framework	National framework amendment for parallel approaches without vertical guidance	National regulation amendment for parallel approaches without vertical guidance. References: DOC. 4444 – Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM)	2026	CAA
Operational Procedure	Design	PBN procedures design and use for parallel approaches without vertical guidance.	These operational procedures should be designed and used as specified in Doc 8168 (PANS-OPS Vol II and I) or equivalent.	2026	ANSP
Operational Procedure	Design	PBN procedure validation, approval and publication for parallel approaches without vertical guidance.	A flight inspection and/or validation of the procedures might be required before publication. The publication of the procedures should follow Annex 4. References: ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design).	2026	ANSP CAA
Operational Procedure	Operations	SOPs for parallel approaches without vertical guidance.	Procedures for the crew to follow to fly a PBN approach. Defined in the Ops Manual. Reference: Doc 9613 (PBN Manual)	2026	Aircraft operator
Operational Procedure	Operations	Contingency procedures for parallel approaches without vertical guidance.	Procedures for the crew to follow in case of abnormal events. Defined in the Ops Manual. Reference: Doc 9613 (PBN Manual)	2026	Aircraft operator
Operational Procedure	Separation	Application of separation for parallel approaches without vertical guidance.	Procedures for separation. Reference: PANS-ATM	2026	ANSP
Operational Authorization		Operational Authorization for PBN specification	Aircraft operator flying a PBN procedure should have an operational authorization related to the specified performance of the procedure, as described in Doc 9997 (PBN Ops Approval Manual).	2022	CAA Aircraft operator



Airborne capabilities	Navigation	PBN Approaches (with basic capabilities)	PBN Approaches (with basic capabilities). Reference: Doc 9613 (PBN Manual)	2021	Aircraft Manufacturer Aircraft operator
Training		Training requirements for parallel approaches without vertical guidance.	Crew trained to fly the procedure. References: As defined in Doc 9613 (PBN Manual). For Air traffic controllers. References: PANS-ATM.	2026	ANSP Aircraft operator

Deployment applicability		
Operational conditions	Airports with simultaneous independent parallel approach paths to parallel or near parallel runways without the need for vertical guidance. To enhance access and capacity at aerodromes with parallel or near parallel runways.	
Main intended benefits		
Type	Operational description	Benefitting stakeholder(s)
Direct benefits	Safety	Aircraft operator General citizen
	Access	Aircraft operator General citizen Airport operator
	Capacity	Aircraft operator ANSP Airport operator
Indirect benefits	Environment	General citizen

KPA	Focus Areas	Most specific performance objective(s) supported	KPI Impact	KPI	Additional comments
EFFICIENCY	Additional time in terminal airspace	OBJ04 (Reduce terminal airspace transit time) OBJ042 (Reduce KPI08 (Additional time in terminal airspace))	++	KPI 08	Direct benefits, for equipped aircraft, reduced flight time can be achieved.
CAPACITY	Airport peak throughput	OBJ09 (Increase airport throughput (departures+arrivals)) OBJ091 (Increase airport arrival rate)	++	KPI 10	Direct benefits. For congested airports, this throughput is an indication of the effectively realized capacity; for

					uncongested airports it is a measure of demand
EFFICIENCY	Fuel Burn	OBJ08 (Reduce total fuel burn of aviation) OBJ0822 (Reduce fuel burn impact of impeded conditions)	++	KPI 16	Direct benefits, fuel burn efficiency could be improved.
EFFICIENCY	Level-off during descent	OBJ07 (Reduce vertical flight inefficiency during the descent phase – may reduce KPI19 (Level-off during descent)) OBJ07411 (Reduce ToD uncertainty by early assignment of landing RWY and approach procedure)	++	KPI 19	Direct benefits, fuel burn efficiency could be improved.

<b>APTA-B3/?</b> <b>Implementation of A-RNP to support non-complex simultaneous independent parallel approaches where the runway spacing of <math>\geq 2224\text{m}</math> can be assured.</b> <b>Operational</b>	
Main Purpose?	To provide additional flexibility to support parallel approach operations where RNP AR operations may not be cost effective or practicable.
New Capabilities?	The advent of A-RNP may allow RNP 0.3 to be coded in the initial and intermediate segments of an approach allowing PBN to provide more flexibility in supporting parallel approach operations for non-AR operators at aerodromes with parallel runway spacings of 2224 m or greater.
Description?	Parallel approach operations (Mode 1) not designed iaw ‘Established on RNP AR APCH’ must be established on the Final Approach course or track before the No Transgression Zone (NTZ) can be invoked and the 1000’ vertical separation cancelled. The performance of RNP APCH outside of the Final Approach Segment (FAS) is $\pm 1\text{NM}$ and this performance effectively minimizes the use of the RNP APCH application to support parallel approach without significant additional safety work. The A-RNP specification will provide a required navigational performance of $\pm 0.3$ throughout the terminal airspace (missed approach might be an exception). This means that provided the aircraft are aligned with the runway centreline, by requiring A-RNP prior to the Final Approach the NTZ can be invoked earlier, the 1000’ separation cancelled, and aircraft can start their final descents from higher altitudes (and greater distances from the threshold). This should be both a cost efficiency (fuel burn) and environmental (noise) benefit.
Maturity Level?	Validation
Human Factor Considerations	1. Does it imply a change in task by a user or affected others? Yes

	<p>2. Does it imply processing of new information by the user? Yes</p> <p>3. Does it imply the use of new equipment? Yes</p> <p>4. Does it imply a change to levels of automation? Yes</p>
<b>PLANNING LAYERS?</b> <b>Tactical-During ops</b>	<b>OPERATIONS?</b> <b>Arrival</b>
<b>DEPENDENCIES AND RELATIONS?</b>  Type of Dependencies  Relation-operational need  Relation-operational benefit  Relation-information need  Relation-information need	ASBU Element  APTA-B0/1 - PBN Approaches (with basic capabilities)  APTA-B1/1 - PBN Approaches (with advanced capabilities)  AMET-B2/1 - Meteorological observations information  AMET-B2/2 - Meteorological forecast and warning information

Element					
Category	Type	Name	Description/Reference	Year	Stakeholder
Regulatory provisions	National regulatory framework	National framework amendment for A-RNP for independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured.	National regulation amendment for A-RNP for independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured. References: DOC. 4444 – Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM). SOIR Manual (9643).	2026	CAA
Operational Procedure	Design	PBN procedures design and use for A-RNP for independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured.	These operational procedures should be designed and used as specified in Doc 8168 (PANS-OPS Vol II and I) or equivalent. SOIR Manual (9643).	2026	ANSP
Operational Procedure	Design	PBN procedure validation, approval and	A flight inspection and/or validation of the procedures might be	2026	ANSP CAA

		publication for A-RNP for independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured.	required before publication. The publication of the procedures should follow Annex 4. References: ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design).		
Operational Procedure	Operations	SOPs for A-RNP for independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured.	Procedures for the crew to follow to fly a PBN approach. Defined in the Ops Manual. Reference: Doc 9613 (PBN Manual)	2026	Aircraft operator
Operational Procedure	Operations	Contingency procedures for A-RNP for independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured.	Procedures for the crew to follow in case of abnormal events. Defined in the Ops Manual. Reference: Doc 9613 (PBN Manual)	2026	Aircraft operator
Operational Procedure	Separation	Application of separation for A-RNP for independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured.	Procedures for separation. Reference: PANS-ATM	2026	ANSP
Operational Authorization		Operational Authorization for A-RNP	Aircraft operator flying a PBN procedure should have an operational authorization related to the specified performance of the procedure, as described in Doc 9997 (PBN Ops Approval Manual).	2022	CAA Aircraft operator
Airborne capabilities	Navigation	PBN Approaches for A-RNP	PBN Approaches for A-RNP. Reference: Doc 9613 (PBN Manual)	2026	Aircraft Manufacturer Aircraft operator
Training		Training requirements for	Crew trained to fly the procedure. References: As	2026	ANSP Aircraft

		A-RNP for independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured.	defined in Doc 9613 (PBN Manual). For Air traffic controllers. References: PANS-ATM.		operator
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Deployment applicability		
Operational conditions	Airports with non-complex simultaneous independent parallel approaches where the runway spacing of $\geq 2224\text{m}$ can be assured. To provide additional flexibility to support parallel approach operations where RNP AR operations may not be cost effective or practicable.	
Main intended benefits		
Type	Operational description	Benefitting stakeholder(s)
Direct benefits	Flexibility	Aircraft operator Airport operator ANSP
	Access	Aircraft operator General citizen Airport operator
	Capacity	Aircraft operator ANSP Airport operator
Indirect benefits	Safety	Aircraft operator
	Environment	General citizen

KPA	Focus Areas	Most specific performance objective(s) supported	KPI Impact	KPI	Additional comments
EFFICIENCY	Additional time in terminal airspace	OBJ04 (Reduce terminal airspace transit time) OBJ042 (Reduce KPI08 (Additional time in terminal airspace))	++	KPI 08	Direct benefits, for equipped aircraft, reduced flight time can be achieved.
CAPACITY	Airport peak throughput	OBJ09 (Increase airport throughput (departures+arrivals)) OBJ091 (Increase airport arrival rate)	++	KPI 10	Direct benefits
EFFICIENCY	Fuel Burn	OBJ08 (Reduce total fuel burn of aviation)	++	KPI 16	Direct benefits, fuel burn efficiency

		OBJ0822 (Reduce fuel burn impact of impeded conditions)			could be improved.
EFFICIENCY	Level-off during descent	OBJ07 (Reduce vertical flight inefficiency during the descent phase – may reduce KPI19 (Level-off during descent)) OBJ07411 (Reduce ToD uncertainty by early assignment of landing RWY and approach procedure)	++	KPI 19	Direct benefits, fuel burn efficiency could be improved.

## CHANGE REQUESTS FOR THE ASBU FRAMEWORK

- This template shall be used to propose changes to the GANP ASBU Framework
- Only complete Change Requests will be processed
- Change Requests can only be issued by members of the Aviation Community
- Change Requests shall be coordinated in advance with relevant aviation community members
- For proposed changes to existing threads and elements use Attachment A
- For proposed new elements use Attachment B
- For proposed new threads use Attachment C
- Contact <GANP maintenance PoC> for assistance
- Email completed template to [ganp@icao.int](mailto:ganp@icao.int)

### Contact details

Name (point of contact)	<b>Olga de Frutos Martin</b>
Organization	<b>ICAO Secretariat</b>
Position	<b>AN Technical Officer</b>
Email	<b>odefrutos@icao.int</b>
Telephone	<b>+15149548219</b>
Aviation Community *	<b>International Organisation</b>
CR coordination**	<b>All ANB</b>
Date of submission	<b>21 October 2021</b>

\*CAA, ANSP, AIA, SAR, AO, AM, APO etc (see attachment D for options/abbreviations)

\*\*describe the level of coordination with relevant aviation community members

To be filled in by GANP Maintenance Team

CR reception date	<b>21 October 2021</b>
CR Status	Accepted
Assigned TL	Olga de Frutos Martin

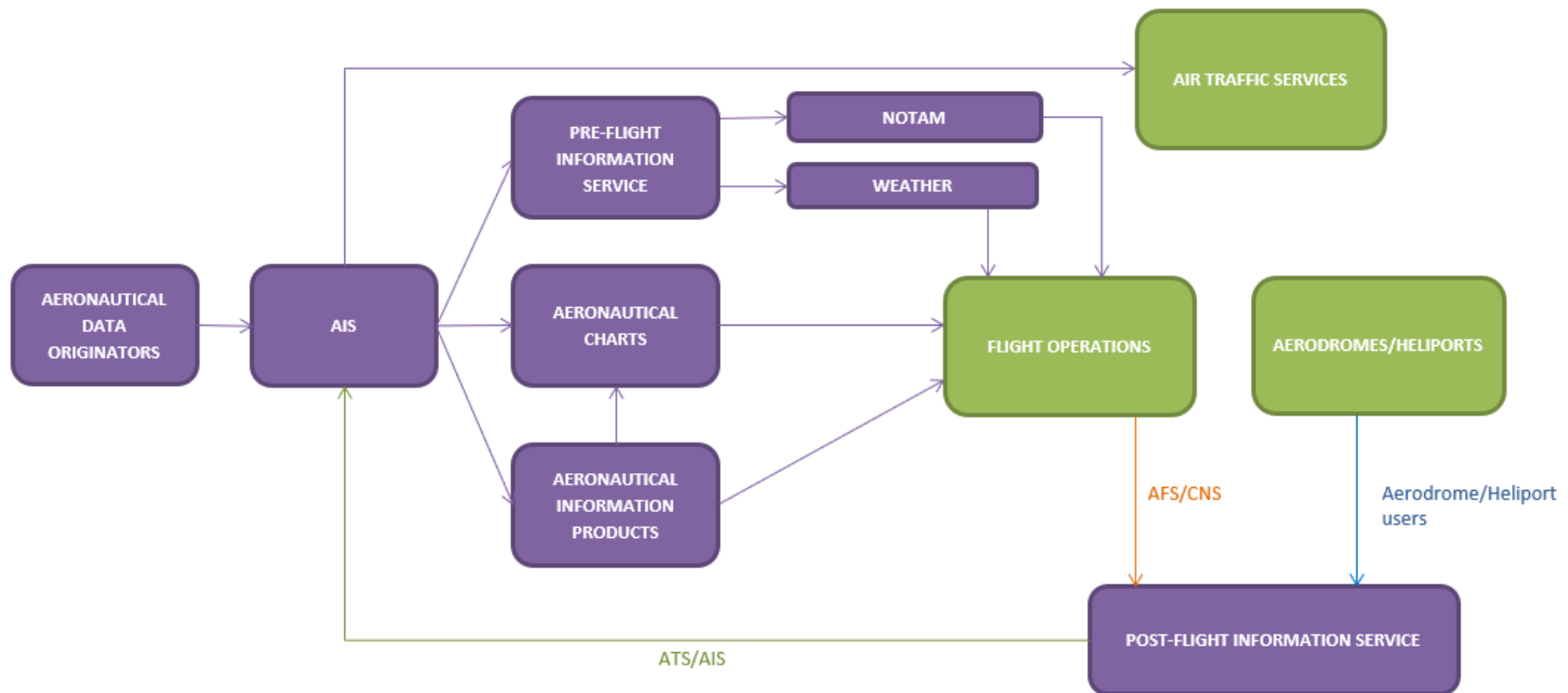
**Change request to existing Threads/Elements****Change Request Information**

<b>CR ID</b>	<b>Reference*</b>	<b>CR (current text with revision marks)</b>	<b>Justification</b>
FA-S-APTA-CR/1	APTA-B1/3 operational procedures and training enablers	Change 2019 date by 2024 for all operational procedures and training enablers	Provisions will be delivered to ICAO in 2023 for publication in 2024
FA-S-APTA-CR/2	APTA-B1/3	APTA-B1+2/3	Change of block due to enabler availability.

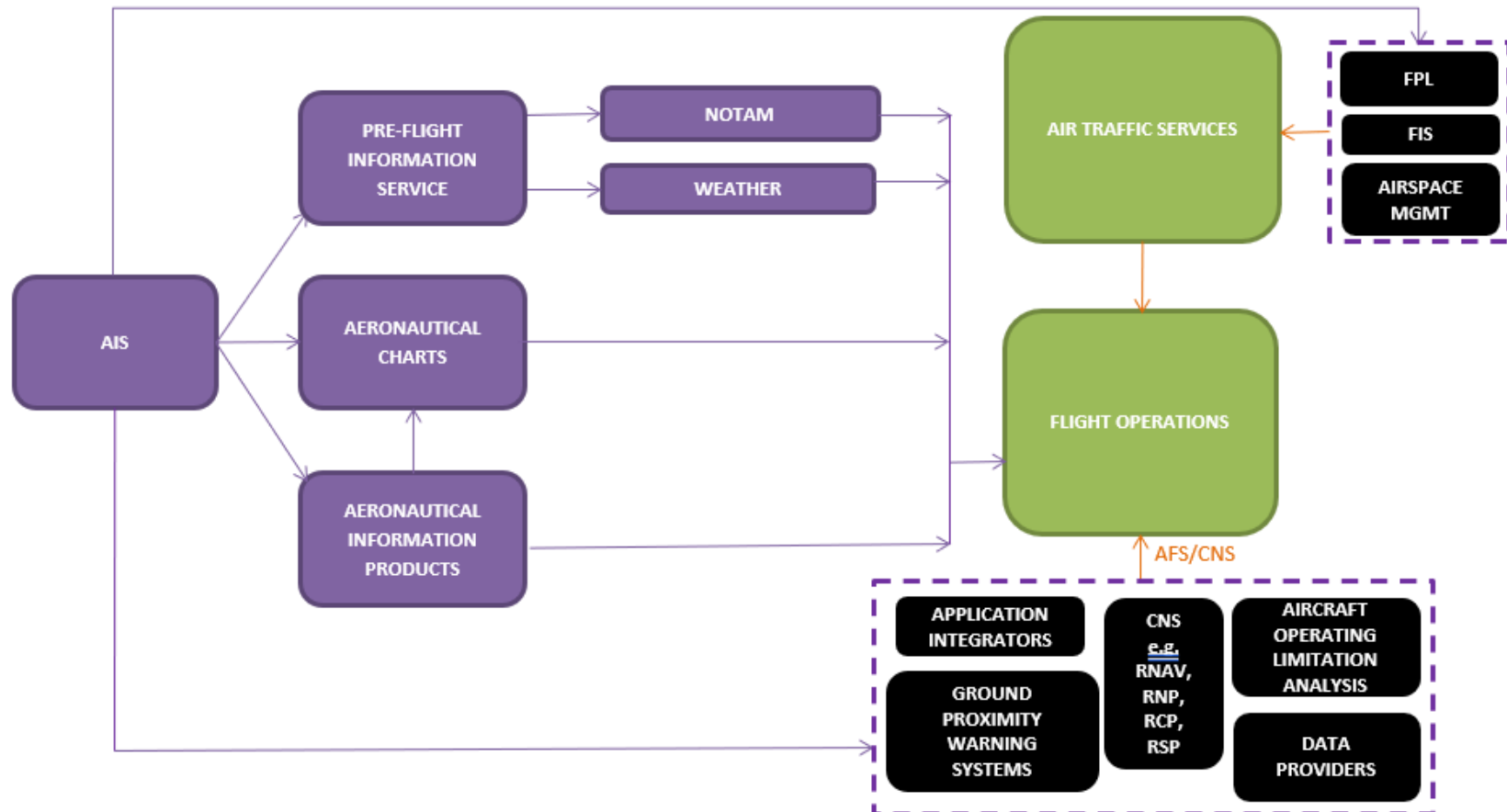


# AERONAUTICAL INFORMATION MANAGEMENT

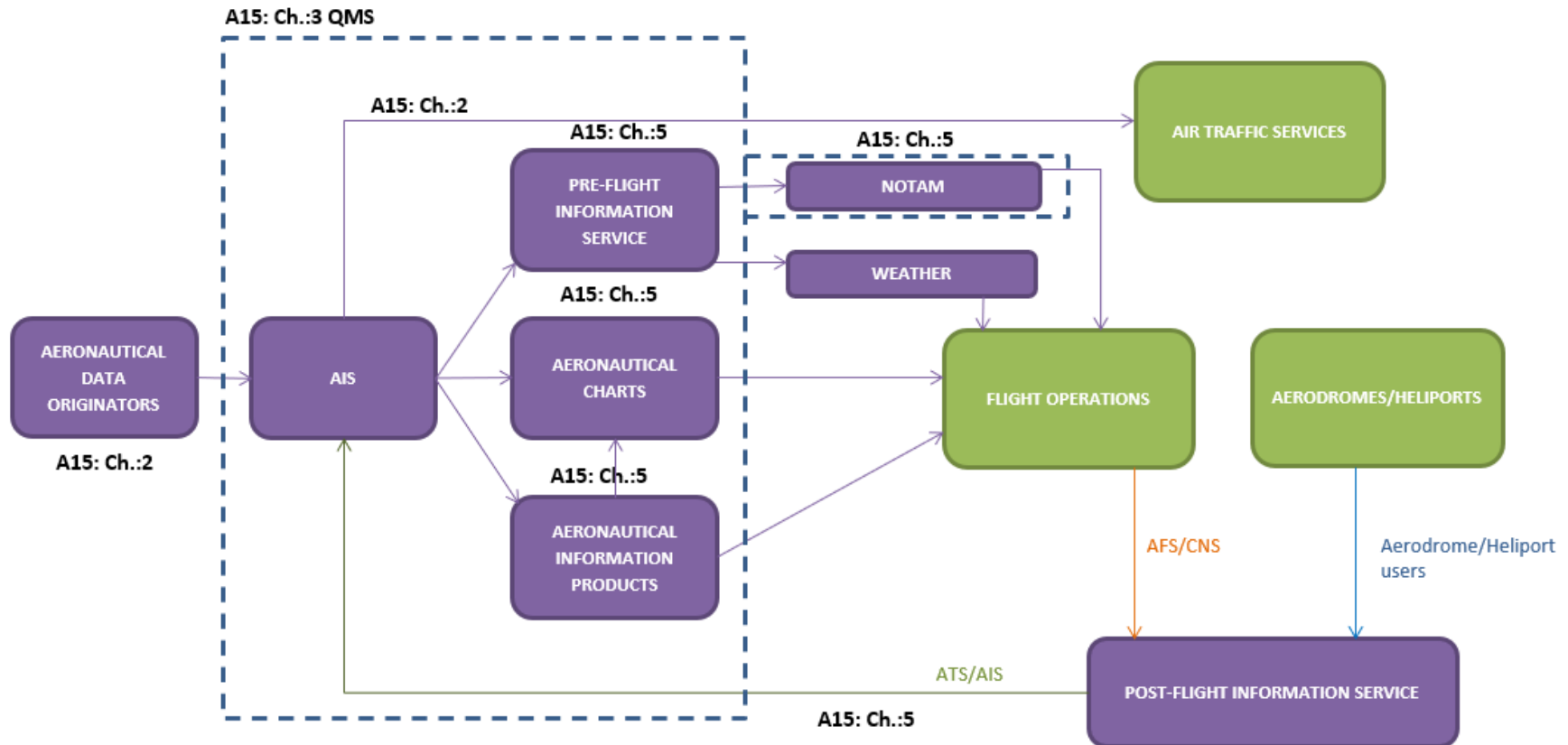
## AIM BASIC MODULES AND ELEMENTS



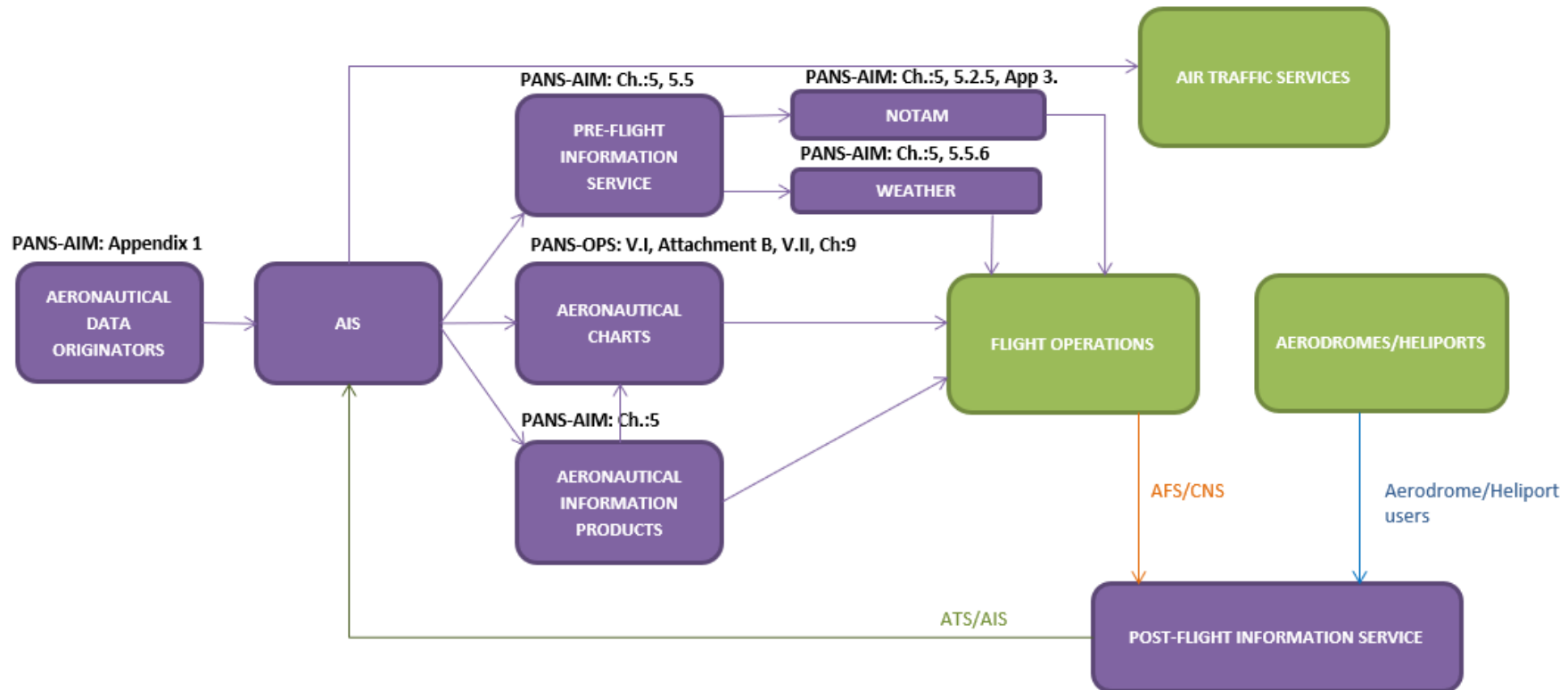
# AIS SUPPORT & END USERS



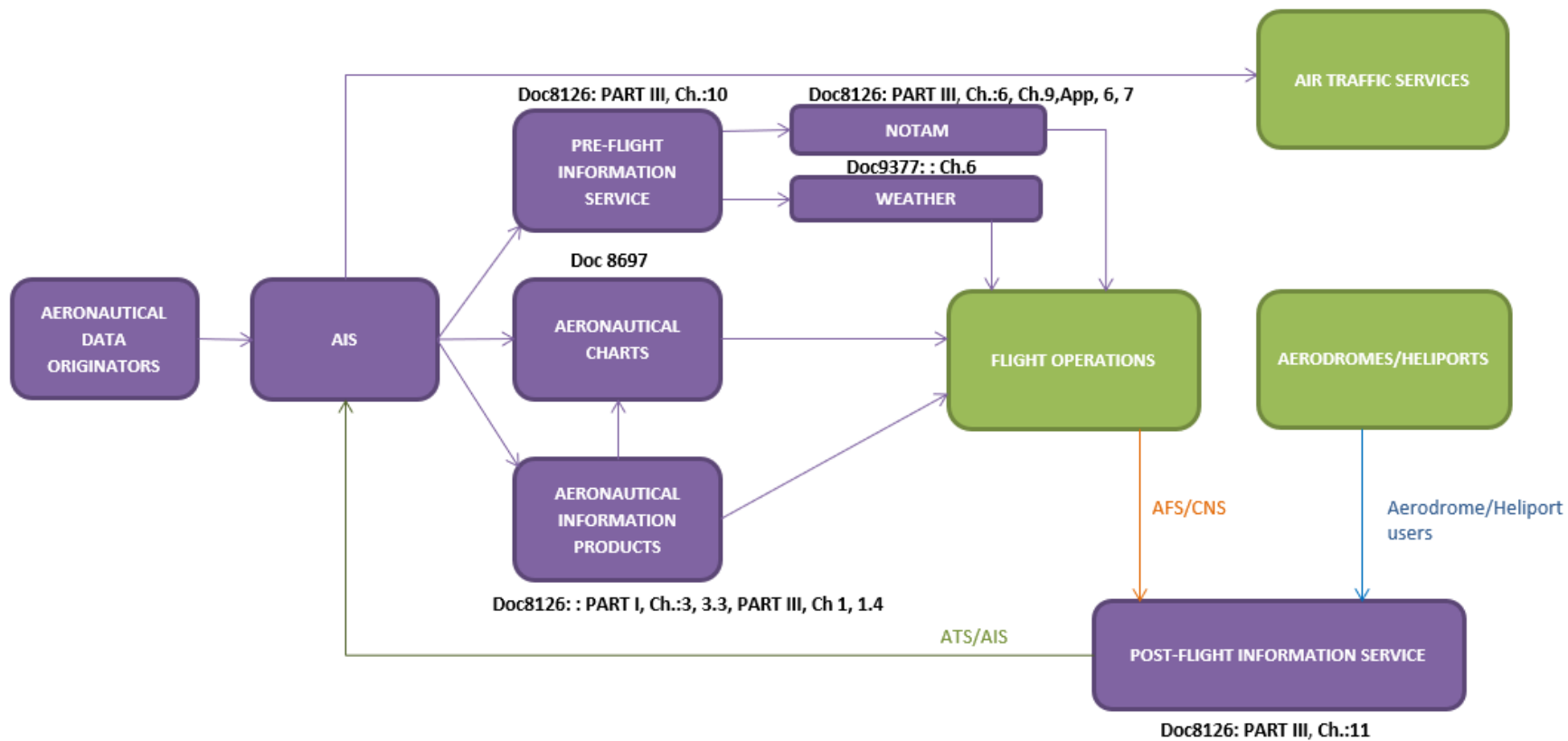
## AIS BASIC ELEMENTS/REFERENCES ICAO SARP



# AIS BASIC ELEMENTS/REFERENCES ICAO Procedures



## AIS BASIC ELEMENTS/REFERENCES ICAO Guidance



# AIM References

- Annex 15: Aeronautical Information Services
- Annex 4: Aeronautical Charts
- PANS-Aeronautical Information Management (Doc 10066)
- Aeronautical Information Services Manual (Doc 8126)
- Aeronautical Charts Manual (Doc 8697)
- WGS-84 Manual (Doc 9674)
- AIM Quality Manual (Doc 9839)
- AIM Training Manual (Doc 9991)
- Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services (Doc 9377)

(Note: Annex 3, 11, 14 and PANS-Aircraft Operations contain information relevant to aeronautical information services)

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