Operational Service and Environment Definition (OSED) - Digital Integrated Briefing

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Abstract

This document provides the final Operational Service and Environment Definition (OSED) after the execution and assessment of all the validation exercises by the 13.02.02 Project, in the frame of the AIM/MET ENB-02.01.02 Operational Focus Area (OFA). It states user requirements for Digital Integrated Briefing systems, as enabled by the availability of fully digital aeronautical data and meteorological data. The document also includes specific operational requirements for Digital NOTAM, as key enabler for the enhancement of pilot briefing services. Both the pre-flight briefing and in-flight briefing updates are considered in the scope of this OSED. The pre-flight phase is considered validated and is being delivered as SESAR Solution #34. The in-flight update of the briefing, although it has clear operational benefits, will require further validation in particular with regard to cost and bandwidth limitations for ground to air data link.

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Executive summary

This document provides the final Operational Service and Environment Definition (OSED) after the execution and assessment of all the validation exercises by the 13.02.02 Project, in the frame of the AIM/MET ENB-02.01.02 Operational Focus Area (OFA). It provides user requirements for Digital Integrated Briefing systems, based on the availability of digital aeronautical data and digital meteorological data.

The document also includes the operational requirements for Digital NOTAM services, which is a key enabler for the enhancement of pilot briefing services and was the subject of the previous phases of Project 13.02.02. This is done in a separate section, for traceability purpose. Automatic data verification, widespread use of graphical views, sorting of information (e.g. by phase of flight) are intrinsically part of the digital integrated briefing concept.

Currently, the pre-flight briefing is usually provided in the form of a 'bulletin' given to the pilot, which contains the list of valid NOTAMs. Automatic filtering/sorting capabilities are limited to some NOTAM “qualifiers”, which are allocated by the issuing NOTAM office. Commercial products for use in the airlines flight operations centres can do a more advanced filtering, according to the user needs. However, the free text part of the NOTAM, where the actual information is provided, is not suitable for querying and filtering. The graphical representation of the NOTAM information is quite limited. NOTAM are typically displayed as a circle representing an “area of possible influence”.

For the MET section, the graphical representation of the MET information (e.g. METAR, TAF, SIGMET) is missing or quite limited. MET information is typically reported in the ‘bulletin’ as coded text or as significant weather charts, with no possibility to filter information (e.g. in one specific area) or query additional parameters to overlap in the same map.

Overall, the current briefing system no longer satisfies the ATM needs for timely and accurate aeronautical and meteorological information updates. Based on digital NOTAM and digital MET data, the briefing could be radically improved:

- with digital NOTAM data, through more precise automatic filtering/sorting, by replacing/supplementing the NOTAM text with graphical information;
- with digital MET data, through more precise and updated meteorological information, by integrating the MET information in graphical charts and including additional information in synthetic views.

Aircraft are expected to be increasingly equipped with Electronic Flight Bag (EFB) devices, which support the pilot in flight and on the ground through the provision of flight documentation and situational awareness applications. The pre-flight briefing could take place directly on the EFB, using data provided by digital briefing applications on the ground and updated over a data link during the flight.

Provision, processing and retrieval of the digital NOTAM will be enabled by access to defined services made available through SWIM (System Wide Information Management) network and concepts.

This document has been produced starting from the P13.02.02 OSED of the previous project phase (VP-462), which was updated based on the results of previous validation exercises and expanded with meteorological data requirements.

The briefing requirements for the meteorological sections are organised in two parts:

- Digital Integrated Briefing requirements for MET data:

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  - requirements related to meteorological messages, i.e. messages that can be displayed in the formatted text (as currently done) in the Digital Integrated Briefing, as backup or in conjunction with the graphical representation (where applicable);
  - requirements for the visualization of meteorological charts that can be available in the interactive Digital Integrated Briefing;
  - requirements related to meteorological information that can be displayed as graphical representations to visualise in synthetic views the formatted text messages.
- On-Board Briefing requirements for MET section: requirements related to retrieval and updating of meteorological information and air-reports for on-board briefing device.

The pre-flight phase is considered validated and is being delivered as SESAR Solution #34. With regard to in-flight updates, although there are clear operational benefits (such as fuel savings due to route optimisation enabled by updated aeronautical and MET information), this will require further validation in particular with regard to cost and bandwidth limitations for ground to air data link.

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1 Introduction

1.1 Purpose of the document

This document defines the operational services, their environment, scenarios and use cases and requirements for Digital Integrated Briefing. The OSED is used as the basis for assessing and establishing operational, safety, performance and interoperability requirements for the related systems further detailed in section 6 Requirements of this document. The OSED identifies the operational services supported by several entities within the ATM community and includes the operational expectations of the related systems.

I The requirements contained in this document are linked with the operational concept defined in the Project 07.02 Step 2 Network Operations DOD [D07] [5], in the scope of the Operational Focus Area (OFA) ENB02.01.02 AIM/MET.

The OSED includes the identification of the information service requirements that support the provision of Digital Integrated Briefing in a SWIM environment.

Through the defined Information Exchange Requirements (IER) specified in section 6.2, the OSED serves as input to WP 8.3 projects as operational requirements for input to the ISRM.

A separate Safety and Performance Requirements (SPR) document will not be provided by this sub-work package. Instead, section 6.2 includes Safety and Performance Requirements in relation to the Information Exchange Requirements.

1.2 Scope

This OSED details the operational concept for the Digital Integrated Briefing elements of the Aeronautical Information Management Sub-system.

This final OSED is based on the results of all validation exercises executed in the frame of the AIM/MET ENB-02.01.02 Operational Focus Area (OFA). As compared to the previous OSED produced by project P13.02.02 D19, this document clarifies some of the use cases, provides additional references to the Network-DOD D29 [6] and states the final validation status of the retained requirements. This includes the associated Information Exchange Requirements and Safety and Performance Information Exchange Requirements.

The concept of Digital Integrated Briefing has as key enablers the availability of Digital NOTAM and digital MET data. The Digital NOTAM production chain was described in the previous OSED (P13.02.02, D10, OSED Phase 2). It includes data origination, data publication, data collection by end-user service providers and data usage. The corresponding detailed production chain for meteorological information is described in the 11.2.1 MET-DOD document D22 [20]. On this basis, the Digital Integrated Briefing concept is considered feasible in all flight phases.

While the ground phase (IS-0205) is considered defined and validated to a sufficient level for enabling industrialisation, the in-flight phase (IS-0206) is limited to the information (requirements, use cases, validation results) that were made available by the P11.01. The latest OSED provided by P11.01.02 (D08) does not provide yet specific requirements for Digital Integrated Briefing. A final OSED P11.01.02 (D10) is in preparation, with a planned delivery date in September 2016, thus not available at the time of writing of the P13.02.02 OSED. The P11.01.02 OSED is not expected to change use cases or requirements defined in this OSED. This was a clear result of the joint Validation Exercise (EXE-461) during which no discrepancies have been observed between the concepts used by P11.1 and the content of the P13.02.02 OSED. The P11.01.02 final OSED is only expected to only refine the use cases and requirements dealing with the in-flight phase and the FOC environment. It can be considered as a complementary document, not as a replacement of a part of this document.

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The Validation Reports provided by P11.05.01 (D32 and D33) indicate “V2 maturity” level for the in-flight validations, as the prototype has not been integrated into full operational systems (air-ground connectivity to SWIM is not mature).

Project 9.48 that has also contributed to the validation roadmap of the AIM/MET ENB-02.01.02, through exercise EXE-09.48-VP-811, with “V2 maturity” level. This exercise has addressed the “AIS/MET” service described in the RTCA DO-308 / EUROCAE ED-151 OSED for AIS & MET Data Link Services [14]. Therefore, the in-flight phase of the Digital Integrated Briefing concept is only partially covered in this final OSED and further research and development remains to be done before industrialisation.

Overall, it can be considered that the requirements defined in this document are not for a particular physical system and should be applicable to any instantiation of a Digital Integrated Briefing system, both in the ANSP/ARO and in the FOC/WOC operational areas.

1.3 Intended readership

The intended audience are the SWP 13.02.02 partners, WP 7.2, WP 8, WP9, WP 11, WP12, SJU and the general public.

1.4 Structure of the document

Chapter 1 provides general information about the document (purpose, scope, intended audience) and editorial information (glossary of terms, acronyms, etc.).

Chapter 2 provides high level overview of the Digital Integrated Briefing operational concept and its relations with the SESAR Operational Focus Areas;

Chapter 3 compares the key elements of the current operating method (traditional PIB) with the new operating method based on Digital Integrated Briefing.

Chapter 4 describes the operational deployment context and indicates the roles and responsibilities of the different actors.

Chapter 5 provides an overview of the operational scenarios for Digital Integrated Briefing applications including specific use cases.

Chapter 6 indicates operational, information exchange, safety and performance requirements for the Digital Briefing applications in order to guide the development of prototypes and support their verification and validation.

Reference documents are listed in Chapter 7.

1.5 Background

The following sources have been used:

- Digital NOTAM Preliminary Business Case, edition 1.1, 15/09/2009, EUROCONTROL [7]
- Digital NOTAM Event Specification, edition 1.0, 08/06/2011, EUROCONTROL [9]
- EAD Digital NOTAM Concept of Operations, edition 0.2 (draft), June 2011, EUROCONTROL [13]
- www.eurocontrol.int/aim Web site

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For the Digital Integrated Briefing, with regard to meteorological section, the following sources have been used:

- ICAO Annex 3, Meteorological Service for International Air Navigation, Eighteenth Edition - July 2013 [16]
- ECA Paper, PILOTS' VISION ON WEATHER, presented by IFALPA, Montréal, 7 to 18 July 2014 [17]
- ICAO EUR Doc 010 – Harmonized Access to AIS and MET Services relating to pre-flight planning, Second Edition, June 2003. [19]
- ICAO Doc 10003 Manual on the Digital Exchange of aeronautical meteorological information [21]

1.6 Glossary of terms

The following specific terms used in this document:

Aerodrome Warning = information of meteorological conditions which could adversely affect aircraft on the ground, including parked aircraft, and the aerodrome facilities and services. It is only available at the aerodrome concerned. Aerodrome Warnings are related to the occurrence or expected occurrence of one or more of the following phenomena:

— tropical cyclone
— thunderstorm
— hail
— snow (including the expected or observed snow accumulation)
— freezing precipitation
— hoar frost or rime
— sandstorm
— dust storm
— rising sand or dust
— strong surface wind and gusts
— squall
— frost
— volcanic ash
— tsunami
— volcanic ash deposition
— toxic chemicals
— other phenomena as agreed locally

(Source: ICAO Annex 3)

AIRMET = warnings in abbreviated plain language for a specified flight information region (FIR) or a sub-area thereof. It gives a concise description concerning the occurrence and/or expected occurrence of strong wind, low visibility, thunderstorms, significant clouds, moderate icing and moderate turbulence, which are not included in the last issued GAMET area forecast and which may affect the safety of low-level aircraft operations (up to flight level 100). Not every State/provider issues AIRMET. *(Source: ICAO Annex 3)*

AIR-REPORT = a report from an aircraft in flight prepared in conformity with requirements for position, and operational and/or meteorological reporting. *(Source: ICAO Annex 3)*

(pre-flight or in-flight) Briefing = A service that provides to flight operations personnel, including flight crews, the necessary aeronautical information and weather information concerning the route stages originating at the aerodrome/heliport. *(Source: ICAO Annex 15)*

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Note: in this document and in the SESAR context, the term "briefing" is used with a wider meaning than it is used in the ICAO Annex 3, where the term "briefing" is limited to a verbal briefing on the weather situation. In this document and in the SESAR context, the term "briefing" encompasses all forms (verbal, documents, charts, self-briefing applications) that may be used in the pre-flight and in-flight phases, for informing the crews on the weather situation and for providing aeronautical information (baseline and updates).

Digitally Enhanced PIB (ePIB) = A Pre-Flight Information Bulletin created from digital data (AIS/NOTAM, MET, ATFM), presenting the information per phase of flight, highlighted/prioritised based on user preferences and using text/graphics that facilitate the understanding of the information by the end user.

Note: In future, it is expected that information such as sector capacities, dynamic restrictions, etc. might need to be communicated to the pilot as part of the pre-flight briefing and as in-flight updates. However, there is no clear-cut separation between "ATFM data" and "aeronautical data". For example, flight restrictions are published through the normal AIS channels and are frequently seen as just a component of the aeronautical data. Therefore, although "ATFM data" is mentioned explicitly in several places in this document, its use is similar to the use of aeronautical data in general.

Digital NOTAM = A data set made available through digital services containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to systems and automated equipment used by personnel concerned with flight operations.

GAMET area forecast = An area forecast in abbreviated plain language for low-level flights for a flight information region or sub-area. Not every State/provider issues GAMET. *(Source: ICAO Annex 3)*

MET REPORT = Local routine report is issued typically at hourly or half-hourly periods. It contains operationally relevant information and it is only available at the aerodrome concerned. *(Source: ICAO Annex 3)*

METAR = aviation routine weather report issued at hourly or half-hourly intervals. It is a description of the meteorological elements observed at an airport at a specific time. *(Source: ICAO Annex 3)*

OPMET Information = OPerational METeorological data such as aerodrome reports, aerodrome forecasts, SIGMET information, AIRMET information, GAMET information, Volcanic ash and tropical cyclone advisories, air-reports and administrative. *(Source: ICAO Annex 3)*

SIGMET = Information concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations. *(Source: ICAO Annex 3)*

SPECI = aviation special weather report issued when there is significant deterioration or improvement in airport weather conditions, such as significant changes of surface winds, visibility, cloud base height and occurrence of severe weather. The format of the SPECI report is similar to that of the METAR and the elements used have the same meaning. *(Source: ICAO Annex 3)*

SPECIAL = Local special report is issued when an operationally significant change in RVR is observed. It is only available at the aerodrome concerned. *(Source: ICAO Annex 3)*

TAF = An aerodrome forecast issued at a specified time, consisting of a concise statement of the expected meteorological conditions at an aerodrome for a specified period. *(Source: ICAO Annex 3)*

(Text) NOTAM = A message that complies with the current ICAO Standards and Recommended Practices (SARPS) for NOTAM, as stated in the ICAO Annex 15 to the Convention on International Civil Aviation.

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(Traditional) PIB = A Pre-Flight Information Bulletin compiled using NOTAM messages according to the current ICAO Annex 15 requirements and recommended practices.

Wind Shear Warning = Wind shear warnings give concise information on the observed or expected existence of wind shear which could adversely affect aircraft on the approach path or take-off path or during circling approach. *(Source: ICAO Annex 3)*

SIGWX = Forecasts of significant en-route weather phenomena issued in portable network graphics (PNG) format or in binary code form using the BUFR code form prescribed by WMO. *(Source: ICAO Annex 3)*

1.7 Acronyms and Terminology

Term	Definition
ADD	Architecture Definition Document
ADEP	Aerodrome of Departure
ADES	Aerodrome of Destination
ADEXP	ATS Data Exchange Presentation.
ADQ	Aeronautical Data Quality (European Commission Regulation)
AFTN	Aeronautical Fixed Telecommunications Network
AIFS	Aeronautical Information Feature Service
AIM	Aeronautical Information Management
AIMSL	Aeronautical Information Management Service Layer
AIS	Aeronautical Information Services
AIP	Aeronautical Information Publication
AIRM	ATM Information Reference Model
AIRMET	Information concerning en-route weather phenomena which may affect the safety of low level aircraft operations up to FL 100 (FL 150 in mountainous areas).
AIXM	Aeronautical Information Exchange Model
ALTN	Alternate or Alternating
AMHS	Aeronautical Message Handling System
ARO	Aerodrome Reporting Office
ATC	Air Traffic Control

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Term	Definition
ATFM	Air Traffic Flow Management
ATIS	Automatic Terminal Information Service
ATM	Air Traffic Management
CDM	Collaborative Decision Making
CFSP	Commercial Flight Plan Service Provider
CONOPS	Concept of Operations
CNS	Communication/Navigation/Surveillance
DIB	Digital Integrated Briefing
DMAN	Departure Manager
DOD	Detailed Operational Description
EAD	European AIS Database
ECA	European Cockpit Association
E-ATMS	European Air Traffic Management System
EFB	Electronic Flight Bag
FAA	Federal Aviation of Administration of United States
FIR	Flight Information Region
FOC	Flight Operations Centre
FPL	Filed flight plan
ePIB	Digitally Enhanced Pre-flight Information Bulletin (PIB)
ICAO	International Civil Aviation Organization
IER	Information Exchange Requirements
INO	International NOTAM Operations
INTEROP	Interoperability Requirements
IRS	Interface Requirements Specification
ISRM	Information Services Reference Model
LDA	Landing Distance Available
OI	Operational Improvements

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Term	Definition
OCD	Operational Concept Description
OFA	Operational Focus Areas
OSED	Operational Service and Environment Definition
MET	Aeronautical Meteorological
METAR	Aerodrome routine meteorological report (in meteorological code)
NOTAM	NOtice To AirMen
OPMET	Operational meteorological (information)
PIB	Pre-Flight Information Bulletin
SESAR	Single European Sky ATM Research
SESAR Programme	The programme which defines the Research and Development activities and Projects for the SJU.
SDO	Static Data Operations
SIGMET	Information concerning en-route weather phenomena which may affect the safety of aircraft operations
SIGWX	Significant Weather Chart
SJU	SESAR Joint Undertaking (Agency of the European Commission)
SJU Work Programme	The programme which addresses all activities of the SESAR Joint Undertaking Agency.
SPECI	Aerodrome special meteorological report (in meteorological code)
SPECIAL	local SPECIAL report
SPR	Safety and Performance Requirements
SWIM	System Wide Information Management
TAD	Technical Architecture Description
TAF	Terminal Aerodrome Forecast
TS	Technical Specification
TODA	Take-off distance available
TORA	Take- off run available
WFS	Web Feature Service

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Term	Definition
WMO	World Meteorological Organisation
WMS	Web Map Service
WS	Web Service
WXXM	Weather Information Exchange Model
XML	eXtensible Markup Language

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2 Summary of Operational Concept

This section addresses WHAT is to be developed in the scope of the Digital Integrated Briefing, seen as an operational improvement. It details in simple terms and plain language the operational concept in the scope of the addressed ENB02.01.02 AIM/MET Operational Focus Area.

2.1 Mapping tables

Table 1 lists the Operational Improvement steps within the associated Operational Focus Area addressed by the OSED, with reference to the Integrated Roadmap DS-15.

Relevant OI Steps ref. (coming from the Integrated Roadmap)	Operational Focus Area name / identifier	Story Board Step	Master or Contributing (M or C)	Contribution to the OIs short description
IS-0205	ENB02.01.02	1	M	The information required for ***pre-flight*** pilot briefing on the ground (including at gate) is assumed to be fully available in digital format. An ePIB application/service complying with the functional requirements stated in this OSED deliver the full benefits envisaged by this OI: enhanced filtering, sorting and graphical possibilities offered by the digital data.
IS-0206	ENB02.01.02	2	C	The information required for pilot briefing ***updates in-flight*** is available in digital format, through air-ground data link (SWIM compliant). Application/services complying with the functional requirements stated in this OSED are expected to contribute to the benefits expected from in-flight updates of AIS, MET and ATFM information.
IS-0901-A		1	C	The use of SWIM-compliant services in applications complying with the information exchange requirements stated in this OSED will contribute to the validation of the ***ground-ground SWIM concept benefits***.

Table 1: List of relevant OIs within the OFA

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Table 2 indicates the P07.02 DOD D29 [6] scenarios and use cases that are relevant for the Digital Integrated Briefing operational concept. No such use cases or scenarios could be identified in the deliverable of the other contributing projects (P9.48, P11.01).

Scenario identification	Use Case Identification	Reference to DOD section where it is described
Medium/Short Term	UC-NP-01 Submission of iSBT/iSMT	4.2.2.2
Medium/Short Term	UC-NP-02 Update iSBT/iSMT	4.2.2.2
Medium/Short Term	UC-NP-05 iSBT/iSMT distribution	4.2.2.2

Table 2: List of relevant DOD Scenarios and Use Cases

Table 3 identifies the relevant P07.02 DOD D29 [6] operational environment description. This is limited to the "network" view, including the ARO environment and does not specifically cover the FOC/WOC environments. No relevant DOD environment description could be found in the deliverables of the contributing projects (P9.48, P11.01).

Operational Environment	Class of environment	Reference to DOD section where it is described
Operational Environment	N/A	Chapter 3

Table 3: List of relevant DOD Environments

Similarly, due to the fact that P07.02 DOD [D29] [5] does not specifically outline processes and services, no reference can be identified here. This situation might be improved later, once a more complete DOD becomes available.

DOD Process / Service Title	Process/ Service identification	Process/ Service short description	Reference to DOD section where it is described
N/A			

Table 4: List of the relevant DOD Processes and Services

Table 5 lists the existing P07.02 DOD D07 [5] and P07.02 DOD D29 [5] requirements that are explicitly allocated to the AIM/MET ENB01.02.01 and are relevant for the Digital Integrated Briefing operational concept.

DOD Requirement Identification	DOD requirement title	Reference to DOD section where it is described
REQ-07.02-DOD-0001.0025	Digital NOTAM dissemination	D29 [5] 6.1
REQ-07.02-DOD-0001.0026	Digital MET dissemination	D29 [5] 6.1
REQ-07.02-DOD-0001.0027	Digital Integrated Pre-flight Briefing	D29 [5] 6.1
REQ-07.02-DOD-0002.0130	Digital NOTAM in flight phase	D07 [5] 6.1.7
REQ-07.02-DOD-0002.0131	Digital meteorological data in	D07 [5] 6.1.7

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DOD Requirement Identification	DOD requirement title	Reference to DOD section where it is described
	flight phase	
REQ-07.02-DOD-0002.0132	Digital Integrated Briefing accessible in the cockpit.	D07 [5] 6.1.7

Table 5: List of the relevant DOD Requirements

2.2 Operational Concept Description

In order to plan and execute a flight in a safe and efficient manner, the flight personnel involved in the process, including flight crews, need to be aware of the status and eventual constraints existing in the environment where the flight will be executed. This includes:

- aeronautical information, such as information about the capabilities, status and condition of the infrastructure and services available at the departure, arrival, alternate and emergency airports along the route; information about the terminal and en-route airspace organisation, routes, navigation aids, services and any other constraints;

- weather information, both current and forecast.

The briefing requirements are slightly different in the planning and execution phases. In the ***flight planning phase***, the need is for a wider area to be covered, with focus on those elements that can lead to the definition of an optimal route. For commercial aviation and for military flights, the planning phase is generally executed by specialised services (FOC/WOC, external service providers, etc.), using databases and software applications that support the work of the flight planning operator. In many aspects this is no longer seen as a "briefing" process. Still, the ICAO Standards and Recommended Practices oblige States to provide support through briefing (at the ARO) for this planning phase, so that a standard service is available worldwide. General aviation is still an important user of such briefing services for the flight planning purpose.

In the ***flight execution phase***, the route is already planned and, in the case of FMS equipped aircraft, it will be followed automatically to a large extent. However, the flight crew needs to be aware on eventual constraints and changes that might require human intervention during the flight. This includes the evolution of the weather situation along the route and possibly the unavailability of certain procedures/services/navaids, certain airspace activities that might require tactical re-routing, constraints on the airport surface where the navigation is done manually, possibilities for emergency/alternate landing, etc. The geographical scope of the information is narrower, possibly reduced to some tens of nautical miles left/right of the planned trajectory.

The flight crew is supported during the flight execution phase through:

- the pre-flight briefing package, which is done on the ground, including at the gate (in the cockpit), in the hours/minutes that precede the departure;

- the in-flight briefing package, which was limited in the past to the information received already in the pre-flight phase and was basically using the documentation handed over to the crew before the flight. With the increased availability of air-ground data link, information updates are now possible in the cockpit. The initial focus is on the weather changes, which by their nature are much more dynamic than the aeronautical information. Most of the aeronautical information necessary for the flight execution is known before the flight and will remain unchanged during the flight. The limited amount of aeronautical information messages that contain relevant updates might also be transmitted through data link, as an additional benefit to the capability for transmitting weather updates.

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The Digital Integrated Briefing (DIB) concept proposes several key improvements in the briefing process, which are applicable in all briefing phases, both on the ground and in the air:

- integrate the presentation of the dynamic updates with the baseline data, in order to facilitate the understanding of the impact that the dynamic updates have on the execution of the flight. This is particularly important for the airport situation, where the current way of presenting the information separates the NOTAM (contained in the PIB) and the airport layout (contained in a map of the flight manual).

- a radical change in the format/tools used for presenting the information, in particular concerning NOTAM messages. Based on the expected availability of digital NOTAM data, the information contained in the NOTAM messages can now be rendered graphically and can be integrated in airport/en-route maps, prioritised/filtered for each particular flight;

- grouping of the aeronautical and weather information per phase of flight, including merged presentation of certain information elements (such as wind direction, temperature, visibility, etc.), in particular for the airport section of the briefing.

Figure 1 contains an example of how the briefing information could be presented for the departure aerodrome, using a graphical view of the aerodrome and a tabular presentation of the NOTAM events. The general layout is important, because it is totally different from the current “list of NOTAM” layout of the current Pre-flight Information Bulletin (PIB) products.

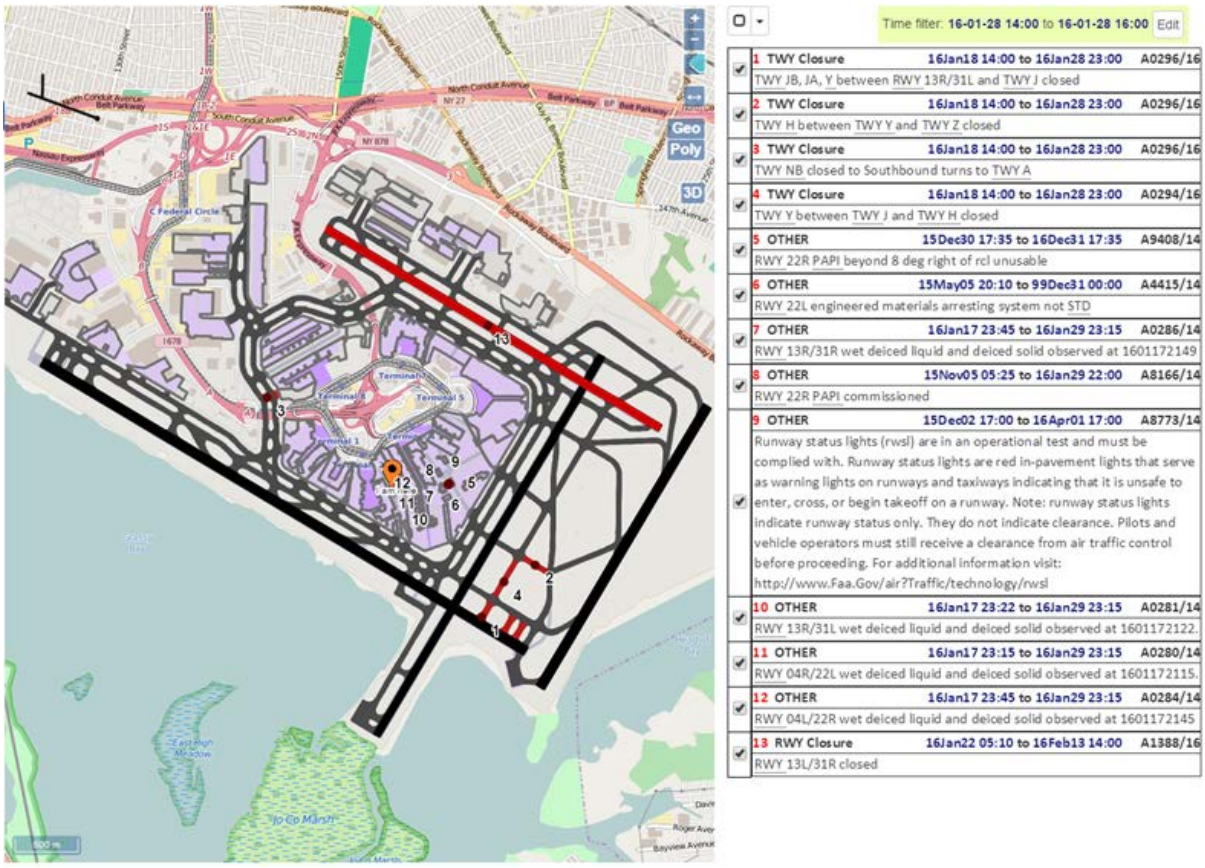

Figure 1 - ePIB content example

Such graphical presentations are made possible through the implementation of the digital NOTAM concept. In order to encode the NOTAM information digitally, all the data currently exchanged by NOTAM needs to be modelled and specified in a data exchange format. This was achieved with the Aeronautical Information Exchange Model (AIXM) (version 5.1 or later) and the development of related Digital NOTAM data encoding/decoding specifications.

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Digital NOTAM will be implemented incrementally, with the most common types of NOTAM being supported first, in order to match the gradual implementation by the end-user of their capabilities for digital NOTAM processing. The digital NOTAM concept is equally applicable to civil and military aeronautical information.

On the weather data side, MET information in digital format (IWXXM) is used for visualization. Weather charts are grouped together with the aeronautical information that is relevant for each phase of flight: departure, climb, cruise, descent, approach, taxiing, etc.

The data necessary for the provision of the DIB service is retrieved in compliance with SWIM principles and specifications. Information provision is separated from consumption, using open standards and developing functionalities in which interoperable services can be used in a flexible way.

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2.3 Processes and Services (P&S)

Figure 2 presents the high level processes that support/compose the Digital Integrated Briefing service, from data origination to the Airspace User. This diagram was created using the BPMN notation version 1.1. No processes associated with the AIM/MET ENB02.01.02 could be found in either the P07.02 DOD D07 [5] / D29 [5] or other deliverables of the contributing projects (P11.1, P9.48).

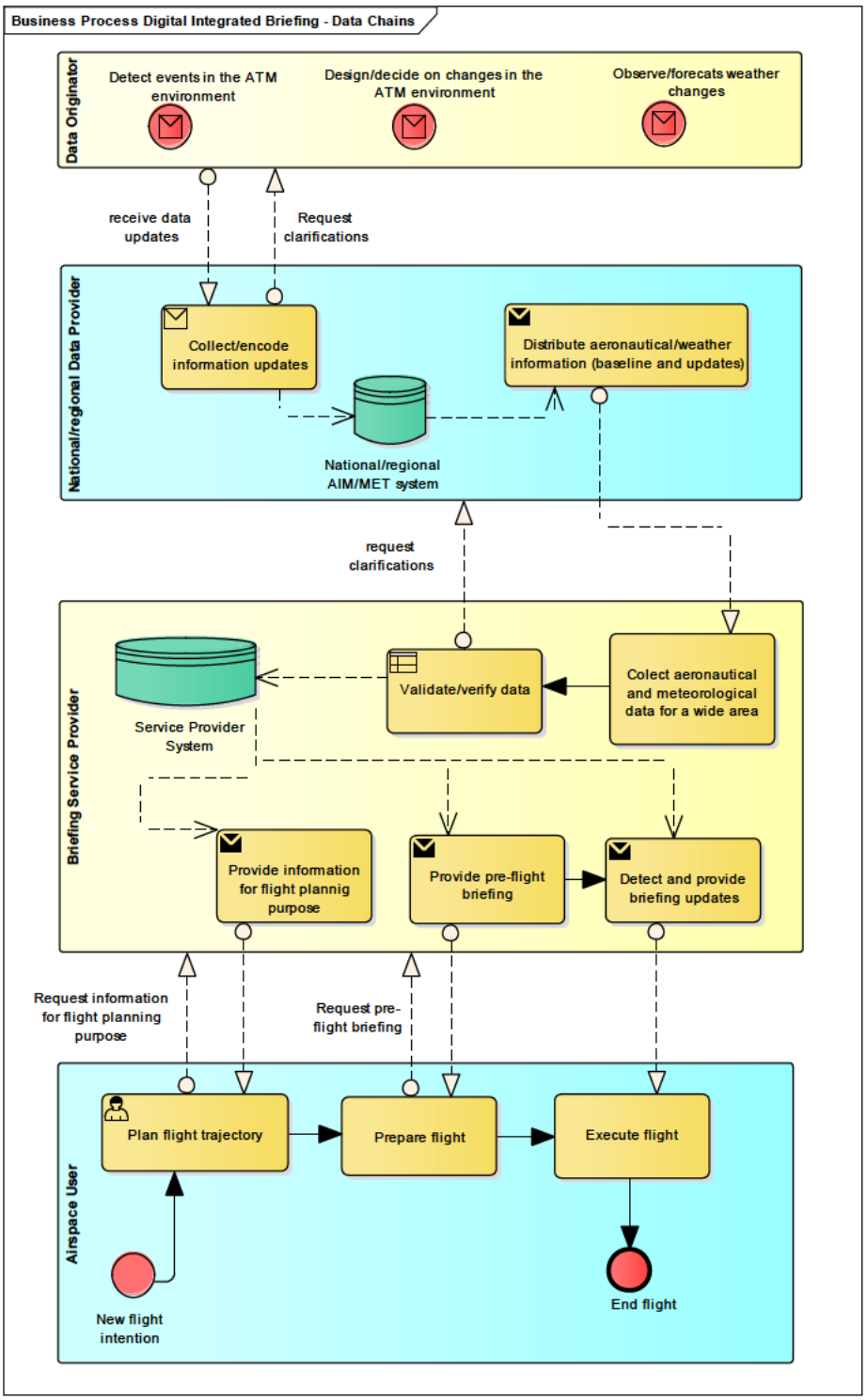

Figure 2 - Digital Integrated Briefing - data chain

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Four main roles are identified in the process:

- Data originators, who are responsible for detecting or designing changes in the ATM environment or observing/forecasting the meteorological situation. In the aeronautical information domain, the typical actors are airport managers, ANSP, national authorities, etc.

- National/Regional Data Providers, who are responsible for providing the aeronautical / meteorological data for the State territory or at regional level in cooperation with other national data providers. The typical actors are National AIS organisations and the National MET Providers. At European regional level, typical actors are the European AIS Database and the Regional Weather Forecast centres.

- Briefing service providers, who are responsible for preparing and providing the information necessary for flight planning and for the flight execution[1]. This role can be played by, for example:

    - ANSP/ATC Reporting Offices (ARO), which is a State obligation under the ICAO Convention;

    - FOC departments of AU´s, where the briefing forms an integral part of the flight planning service;

    - Commercial service providers.

- Airspace Users, who are the final beneficiaries of the Briefing Services.

[1] The provision of aeronautical information necessary for Flight Management Systems (FMS) is not included in the scope of this OSED.

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3 Detailed Operating Method

3.1 Previous Operating Method

The provision of pre-flight information services is an ICAO requirement for all aerodromes used for international flights. This service supports both the provision of the information necessary for flight planning activities and the provision of pre-flight briefing before the start of the flight. Currently (pre-SESAR), this service is based on the provision of:

- Baseline aeronautical information (AIP, flight manuals, maps and charts);
- Pre-flight Information Bulletins (PIB), which contain a summary of the NOTAM that might be of interest for a given flight planning or execution, eventually complemented with AIP Supplements;
- Meteorological information presented as maps/charts and standard ICAO messages (METAR, TAF, SIGMET, etc.)

The typical PIB will cover the data along the route and at aerodromes of departure, destination and alternate(s).

Pre-flight briefing packages are also provided by FOC or by commercial service providers. In this case, the briefing pack is as much as possible tailored to the needs of each individual flight crew, taking into consideration company policies and preferences.

In all situations, the summary of the NOTAM in force is filtered to the extent permitted by the current NOTAM format (based on the FIR or airport location and eventually on selected elements of the “Q line” (geographical position/radius of influence, vertical limits, purpose, flight rules). The presentation to the end user in the PIB retains in general the content and format of the original NOTAM messages.

On the MET side, messages (METAR, TAF and their updates) are presented in their encoded format. Significant weather charts, wind and temperature charts and sometimes synthetic views contain the relevant information along the flight route.

Due to the current limited filtering capabilities on MET information, to the size of the documents provided and to the production of the PIB in printed version, the probability of pilots not being fully aware of important and latest MET information is increasing.

Overall, the current briefing system no longer satisfies the ATM needs for timely and accurate aeronautical and meteorological information updates. NOTAM and MET information are becoming digital in order to respond to the current and future needs, through the application of modern data processing technologies.

3.2 New SESAR Operating Method

3.2.1 Digital NOTAM provision

The provision of digital NOTAM data is described in detail in the previous P13.02.02 D10 OSED. The provision of digital NOTAM will eliminate the current segregation between “static” and “dynamic” aeronautical data. Both are necessary for Digital Integrated Briefing and can now be accessed from the same source and in the same format/structure.

The introduction of digital NOTAM will be done as a complement to the existing ICAO (Text) NOTAM messages, which will continue to be issued and distributed as long as operationally required by the

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existing (legacy) systems. Thus, the provision of digital NOTAM will not impact the clients that can use or are interested to use only the current text NOTAM messages. The ICAO text NOTAM will be generated automatically from the Digital NOTAM data, thus eliminating the risk for discrepancies between the two.

As digital NOTAM will be introduced progressively by States world-wide, the provision of Digital Integrated Briefing will initially require post-digitisation effort, by the Service Providers, in order to provide a complete geographical coverage of the area in which the service is provided.

3.2.2 Digital MET data provision

Digital MET data will be used extensively for the provision of pilot briefing. The meteorological information is currently available in several message formats (METAR, TAF, SIGMET) and also in the form of maps/charts and plain text. Although end users are accustomed to these formats, information presentation/prioritisation possibilities for the briefing purpose (on-ground and on-board) and automatic detection of relevant weather phenomena are very limited.

The SESAR approach is to make the required meteorological aeronautical information available in a single format (WXXM), independent from the messages by which such information is currently published. Therefore, the accessibility of the MET information in a common data exchange format will improve the production of the enhanced Pre-flight Information Bulletin for the meteorological section by Integrated Briefing applications.

3.2.3 Digital Integrated Briefing

The availability of fully digital AIS and MET data will enable a radical change in the pre-flight and in-flight briefing services. The following guiding principles will be taken into consideration in the design of Digital Integrated Briefing services and products:

- **group the information per phase of flight**: the information will be organised for presentation in the sequential order of the flight execution, including: taxiing at the departure aerodrome, take-off, climb, cruise, descent, landing, taxiing at the destination aerodrome. Exceptional situations such as an emergency return at the departure aerodrome, emergency aerodromes along the route and alternate aerodromes at destination will also be presented separately. The presentation ‘per phase of flight’ is intended to facilitate the consultation of the information during the flight execution;
- **organise information by item concerned** (runway, gate, etc.). This grouping will be applied equally to aeronautical information and to MET information;
- **use maps/charts** for the presentation of the information, where appropriate;
- **prioritise information** by criticality, based on end user specific criteria. There will be increased possibilities for information tailoring for each specific flight, by prioritisation and filtering;
- **use upper/lower case** as appropriate, without being constrained by the “all upper case” limitation of the NOTAM and MET messages currently delivered through the AFTN network;
- **integrated presentation of MET and aeronautical data**, where appropriate (in particular for the airport information). Elements such as wind direction and intensity, visibility could be easily integrated with the images/tables that present the aeronautical information. For the en-route section, no obvious requirements for an integrated presentation have been identified, the grouping is considered sufficient;
- ensure presentation **information consistency** (e.g. if a navaid appears on multiple charts and it is unserviceable, than it should be displayed as unserviceable on all charts where it appears);
- generate **ad-hoc briefing packages in-flight**, in case of an emergency landing or re-routing to a completely new destination.

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3.2.4 Interactive briefing

The possibilities for graphical presentation and enhanced filtering/prioritisation offered by digital NOTAM and digital MET data also come with the possibility for increased interactivity between the user and the Digital Integrated Briefing applications. The increased availability of Electronic Flight Bag (EFB) devices will support interactive on-board also. It will be possible to rapidly search for and select the section of the briefing that is relevant at each given moment during the flight execution.

The flight crew will have the possibility to decide by themselves, in the pre-flight briefing phase, which is the information that they wish to see highlighted in the briefing presentation, depending on their specific needs, experience and preferences. Using the information stored before the flight in the EFB device, an ad-hoc briefing could be computed in case of re-routing to a completely new destination or in case of an emergency landing.

3.2.5 In-flight updates

In the classical pre-flight briefing concept, the main attention was put on the pre-flight phase, while in the new concept the attention is equally put on all phases of flight. This will be enabled by the possibility for the transmission of Digital NOTAM and especially meteorological information updates on board the aircraft in flight. While most of the NOTAM that are relevant for a flight exist and could be upload before the flight, the in-flight weather updates are of high interest for many airspace users. Relevant AIS/MET data link standards are being developed by RTCA/EUROCAE.

From the SESAR story-board point of view, this is considered a Step 2 operational improvement, due to the availability of SWIM-compliant air/ground data link services (only) in this step. From an implementation point of view, data-link services (such as ACARS) are already used by Airline Operational Centre functions. No investigation was made by P13.02.02 with regard to the suitability of ACARS for in-flight updates. In principle, transmission of Digital NOTAM via ACARS could be technically and operationally feasible, as only a small amount of messages would have to be transmitted. The economic viability and the technical feasibility of transmitting large amounts of MET information updates on-board the aircraft via ACARS was not discussed in this project.

The in-flight updates may come in two forms:

- As digital data updates, which will be processed directly by the EFB device on-board and will be presented in the form of an updated Digital Integrated Briefing product. The advantage of this approach is that less data need to be communicated than for a complete briefing product. The disadvantage is that the process requires more computing power from the EFB device.

- As updates of the briefing product itself, pre-calculated on the ground. The advantage would be that the generation of the updated graphics would be done on the ground, taking benefit of the larger computational power that exists there. Two approaches are possible:

    - Either the full briefing package is re-send, which might require larger bandwidth and may create a dependency on the ground centre that has created the original briefing package;

    - Or any data update is processed in the ground system and converted into small updates of the briefing package itself. This approach requires a structured format for the briefing product so that small elements can be identified and replaced with the update.

3.2.6 System- to-System Services

Interoperability is an important aspect of ensuring the safety, quality and accuracy of aeronautical and meteorological information being exchanged between different systems. Traditionally data exchange

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has been based on simple data formats that facilitate manual processing and that are designed for a single purpose (such as the text NOTAM format or METAR), and bespoke communications solutions such as AFTN.

SWIM services will be used for the provision of Digital Integrated Briefing, based on the following principles:

- Separation of information provision / consumption;
- Loose system coupling, where each of its components has, or makes use of, little or no knowledge of the definitions of other separate components;
- Using open standards;
- Using Service-Oriented Architecture (SOA): functionality is developed, packaged and implemented as a suite of interoperable services that can be used in a flexible way.

Following these principles, the SWIM implementation will involve the development of the following:

- Information Models, that define an implementation neutral definition of ATM information;
- Information Services, that define the services available to end users, include the details of payload, pattern of exchange, and quality of service (QoS);
- The SWIM Infrastructure, which is the interoperable (runtime) technical infrastructure (Ground/Ground and Air/Ground) over which data will be distributed.

3.3 Differences between new and previous Operating Methods

Some difference between the traditional pre-flight briefing services/applications and the new Digital Integrated Briefing system have been already highlighted in the previous section 3.2. The most important operational differences are discussed in this section.

3.3.1 Improved data quality

Thanks to the inherent automatic processing, the information contained in a digital NOTAM is much more suitable for automatic checks (automatic data validation, automated cross-checking with other data sources), which can ensure better compliance with ICAO standards and recommended practices and improved coherence and correctness. For example, the unavailability of a critical NAVAID could immediately raise awareness about the availability of a certain approach procedure. In the current text NOTAM world, such dependencies are difficult to identify as they largely depend on the human-operators effort.

By improving the quality and the availability of the information, digital NOTAM will reduce the number of situations when the end user receives incomplete or inconsistent information and needs to go back to the originator in order to validate the information or to request additional clarification.

On the user side, the use of digital data for both aeronautical and MET information based on standardized data models will enable extensive data verification. Commonly agreed business rules can be converted in data verification rules, which will enable the detection of missing data or the provision of unexpected data elements (and which might risk to not be processed by the Digital Integrated Briefing application). This will give the necessary confidence to the airspace users that all the necessary data is present in the briefing product that they received.

3.3.2 Improved information selection and prioritisation

There is constant increase in the number of NOTAM issued in Europe and world-wide, as depicted in Figure 3.

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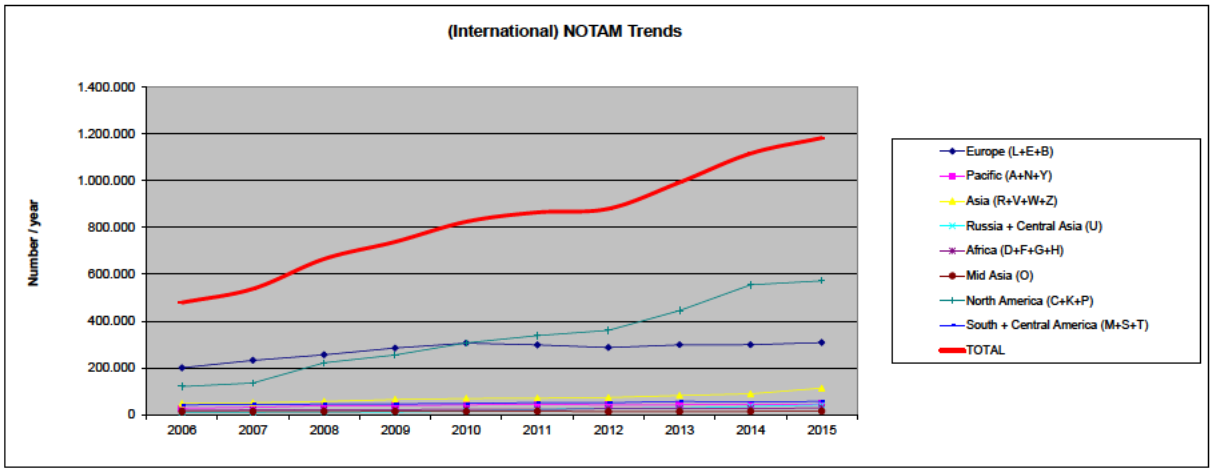

Figure 3 - Number of NOTAM issued world-wide (EAD data)

Today more than 30,000 NOTAM (on average) are in force at any moment world-wide. Due to the current limited information filtering capabilities of the text NOTAM format, the NOTAM summary component of a PIB is typically in the range of 10-50 pages for a cross-European flight. Between 40% and sometimes up to 90% of the information given in PIB produced in the ARO environment has no direct impact on the flight for which it was provided. Due to the size of the documents provided the probability of pilots not being aware of important and pertinent NOTAM is increasing.

Digital NOTAM and digital MET information are expected to significantly improve the data selection possibilities, so that only the really relevant NOTAM and MET information are presented to the pilot. Digital data enables data selection based on the properties of the feature affected and the exact condition. For example, attributes such as “night SID”, “fuel type”, the exact shape of a restricted area, etc. can be used for digital NOTAM based filtering, eliminating irrelevant information from the PIB. The provision of digital meteorological information will allow for filtering of required data to create the briefing bulletin tailored to the users’ need (e.g. required time horizon, resolution, timing and location of significant weather events).

Another aspect is that today the NOTAM publisher estimates the radius of impact of a NOTAM. It is a single value ("one size fits all"), which is obviously not an efficient approach. However, it is the only possibility that exists today, with the current NOTAM standards. With digital NOTAM, the end user is empowered to make this judgment himself. There is no need for "impact estimation" by the NOTAM publisher, because the end user can automatically filter the data in much more detail and decide what is important for his flight.

However, it shall be kept in mind that with more powerful filtering capabilities also come the challenges that the end user can inadvertently filter out critical information. Therefore, the filtering Criteria shall be carefully defined and implemented with due care to mitigate such risks (for example, an option for removing any advanced filtering could be included). Prioritisation/highlighting of the key information might be a more acceptable option, instead of filtering.

3.3.3 Improved information presentation

Although supposed to be human readable, there are frequent complaints from pilots, especially from general aviation, that NOTAM text is difficult (if not impossible) to decipher, due to extensive use of abbreviations, poor English, use of text that is open to interpretation, use of upper case format, etc.

Digital NOTAM and digital MET data are expected to radically improve the way that the information is presented to the end user, in particular by providing a graphical way for information visualisation. The saying that “*a picture is worth a thousand words*”, rarely applies as well as it does for pre-flight briefing! Hence, new briefing systems will have to be based on the visualization of information and the

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fusing of different sources of information. Digital NOTAM and MET data can be used for example in order to present an updated aerodrome chart to the pilot or to the air traffic controller, containing graphical depictions of the work in progress areas, closed taxiways or runways, runway in use, visibility, wind, temporary obstacles, etc.

3.3.4 Reduced briefing effort and time for Airspace Users

Currently, the aeronautical information comes through two separate channels (AIS documents and NOTAM). During the flight preparation phase and during the pre-flight briefing, airspace users have to integrate the two separate information sets into a consolidated operational picture. This requires time and effort. Eventually, the flight crew might simply abandon this process for some information items that are too complex or too time consuming. The typical example is a VFR pilot who is confronted with a series ad-hoc restricted area published by NOTAM and who would not have the time for plotting all these areas on a map in order to be aware where they are actually located. Similar examples can be given for IFR pilots, such as in the case of complex airport works and their impact on landing, taxiing and take-off operations.

Fully Digital AIS and Digital NOTAM data will enable the automatic creation of the integrated view, which presents the actual situation of the operational environment. Graphical presentation, in the form of maps and charts, will facilitate the understanding of this integrated picture, reducing the time and effort spent by the airspace users in the briefing phase.

Digital Integrated Briefing based on will also better satisfy the information needs of helicopter pilots and other airspace users who execute flights on short-notice. As opposed to Airline operations, where the information for the flight is prepared hours in advance, helicopter operators not only have less time but also more information to read and understand, as they are flying closer to the ground. The information elements affecting flights below FL 30 are much more numerous than the information affecting the overflying traffic. Users will win time before take-off and they will immediately get the useful and relevant information. This is applicable especially in emergency / rescue and military operations, where very limited time is available for the flight preparation.

3.3.5 More options for emergency/alternates

Trying to limit the amount of NOTAM included in the pre-flight information bulletin has led to the creation of “narrow route briefings”, which typically include only the events that affect locations within a narrow tunnel (such as 25 NM)around the planned trajectory. The narrow route PIB provided to the pilot as a paper or electronic PIB, but with a fixed content. In the rare situations when a significant change in the pre-planned flight is made during the flight or when looking for an emergency landing option, the narrow route PIB will frequently miss the NOTAM information affecting the new destination or a part of the route to that destination.

With EFB devices and digital NOTAM/MET data, data for a much wider area can be available on-board, beyond what was presented in the narrow route bulletin. This could be used for the ad-hoc creation of a new in-flight briefing, taking into consideration the trajectory change. For example, if a technical event requires the aircraft to Land As Soon As Possible, then the nearby airports information relevant to the flight trajectory is needed. In business aviation, if the destination becomes unavailable (e.g. due to weather), the pilot will ask the client where would like to land (choosing among suitable aerodromes around the destination aerodrome and fuel permitting). Therefore, the EFB should be able to upload not only the information of the planned alternates but also the information related to adjacent areas to the trajectory (including the suitable airports in those areas).

3.3.6 Safety benefits

The graphical presentation of the briefing information will make it easier to understand for airspace users. This will lead to a reduction in the number of incidents that are sometimes due to the lack of informational awareness, such as airspace infringements, attempts to use a closed runway

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excursions, attempts to use a closed airport surface, temporary changes in operational procedures, etc.

The issue of very large PIB (20-30 pages for a cross-European flight) is frequently mentioned by pilots as a difficulty when trying to comply with the legal obligation for reading and understand all the NOTAM that can affect their flight, while they are also under time pressure to fulfil other pre-departure tasks. The graphical presentation of digital NOTAM data should facilitate the task of understanding the actual situation at the airport. A visual “work in progress” symbol on the airport map is much easier to spot as compared with the same information presented in the PIB text.

In-flight updates of MET information will enable the pilot to take the better tactical decisions with regard to the trajectory ahead, beyond the “curtain” imposed by the on-board MET radar. This is particularly important for long inter-continental flights that pass through the intertropical convergence zone or other areas with potential for rapid changes in the MET situation. This shall reduce the number of situations where the aircraft is confronted with dangerous weather conditions that might affect the safety of the flight or the comfort of the passengers.

One additional improvement is the capability of digital data for automatic translation in national languages. Currently, such translations imply a manual effort, which is time consuming and error prone. Fully structured, digital data is suitable for automatic translation and generation of translated text descriptions, increasing the comprehensibility of the information for the recreational flying community, who does not always master the technical English terminology.

3.3.7 Capacity benefits

Aeronautical information cannot directly increase capacity. However, poor information quality (in its broadest sense) often results in the extension of protection volumes and surfaces, with the consequent loss of capacity. Better pilot awareness, enabled by more comprehensible and always up-to-date Digital Integrated Briefing will reduce the incidents that sometimes lead to capacity loses.

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4 Detailed Operational Environment

4.1 Operational scenario

As explained in 1.2 Scope, Digital Integrated Briefing designates a service that supports both flight planning and pre-flight briefing activities with the necessary AIS/MET information. The diagram in Figure 4 shows the main clients and the interfaces between a Digital Integrated Briefing service and other subsystems.

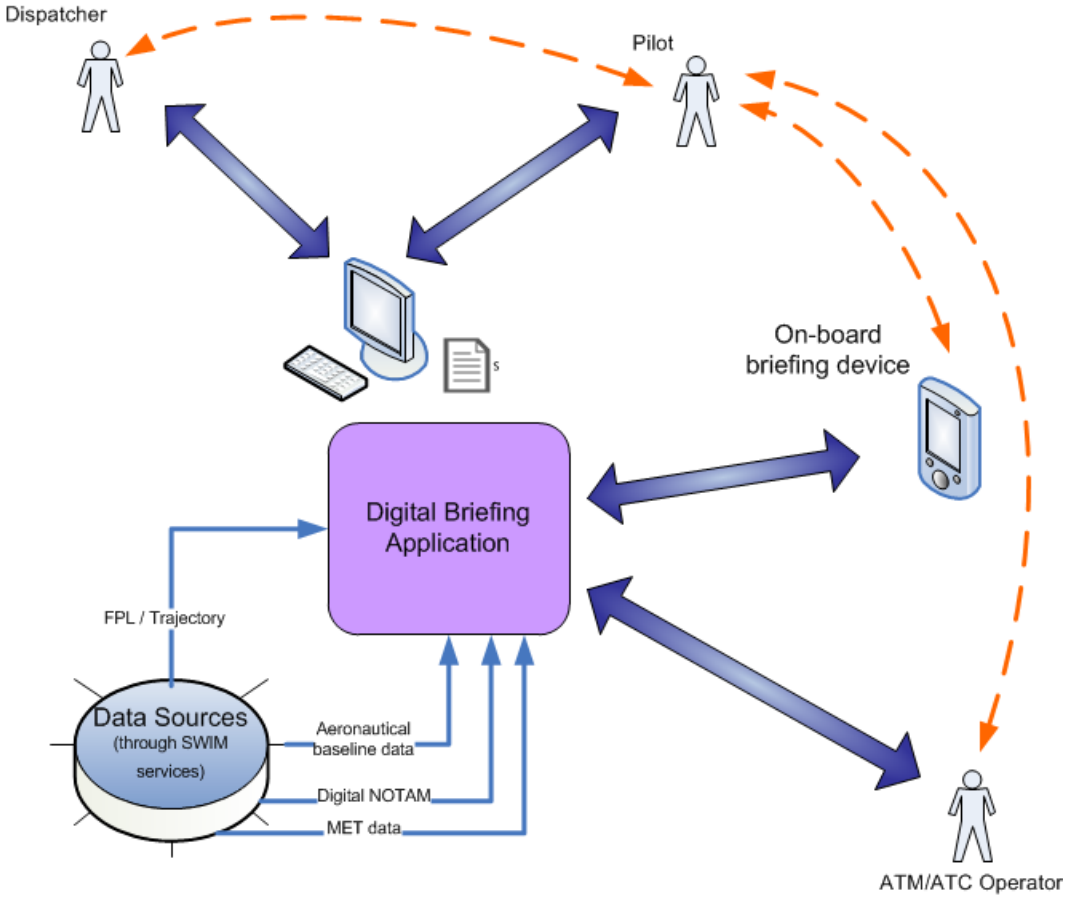

Figure 4 - Digital Integrated Briefing system and actors

Note that Digital Briefing Application is a generic concept that can be implemented as a stand-alone application (at ARO) or as part of an airline FOC system, an ATC system, etc. The Digital Briefing Application does not have to be single one; discrete instances of it can exist at various locations within the ATM system.

4.2 Roles and Responsibilities

The definitions of the roles and the main changes are mentioned in the table below, together with the actors that play these roles. Where possible, the actors identified in this table are based on the "SESAR WPB4.2 Actors - Roles and Responsibilities" as defined in [22]. However, the current version of that document does not identify all the actors that could perform the four key roles of the Digital Integrated Briefing data chain.

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Role	*Actors performing the role*	*What will change)*
Data Originator = *responsible for detecting or designing changes in the ATM environment or observing/forecasting the meteorological situation*	• Airport Duty Officer [B.4.2] • Air Traffic Services Operations Supervisor [B.4.2] • Airspace Manager [B.4.2] • Airspace designer [B.4.2] (including Procedure Designer) • Local Weather Data Centres • CNS Service Providers	Increased provision of digital data
Data Provider = *responsible for providing the aeronautical / meteorological data for the State territory or at regional level in cooperation with other national data providers. The typical actors are National AIS organisations and the National MET Providers. At European regional level, typical actors are the European AIS Database and the Regional Weather Forecast centres.*	• National AIS • Military AIS • Airport Duty Officer [B.4.2], if delegated authority for SNOWTAM promulgation • National MET data providers • European AIS Database • Regional weather forecast centres	Increased provision of digital data
Dispatcher = *responsible for flight planning, for assembling the AIS/MET information necessary for flight execution and for identifying relevant AIS/MET updates during the flight execution.*	• Flight Dispatcher [B.4.2] • ANSP/ATC Reporting Offices (ARO) • Commercial Flight Service Providers (CFSP) • Flight Data Operator [B.4.2] • Airline Operations and Control Centre [B.4.2]	Increased use of graphical devices for the consultation of the information. Increased accessibility to data about the actual ATM system status. Automatic data quality checks prior to its use. Decreased workload.
Pilot = members of the flight crews and airspace users who are *the final beneficiaries of the briefing services.*	• Flight Crew [B.4.2] • Airport Duty Officer [B.4.2]	Increased use of graphical devices for the consultation of the information. Increased data filtering capabilities. Increased support from automatic devices.
ATM/ATC operator = en-route, approach, etc. air traffic controller and air traffic management operators who are also required to get an AIS/MET briefing before starting their duties	• ATC Sector Executive Controller [B.4.2] • Tower Runway Controller [B.4.2] • Tower Ground Controller [B.4.2] • Flow manager [B.4.2]	Increased use of graphical devices for the consultation of the information. Increased accessibility to data about the actual ATM system status.

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4.3 Constraints

4.3.1 Global implementation

By its nature, Digital Integrated Briefing requires the availability of world-wide digital NOTAM and digital MET data and it will be successful only if implemented as a global specification. This was always kept in mind during the pre-SESAR phase of the project and has led to the joint development of the Digital NOTAM Event Specification between Eurocontrol and FAA. The concept was presented from the early development stages to ICAO and the provision of digital NOTAM on a global scale was included by ICAO in the “AIS to AIM Transition Roadmap” document.

The result of this effort is that new AIM systems developed world-wide (for example, in Australia, Brazil, South Africa, etc.) in the last few years include AIXM 5 and Digital NOTAM capabilities. However, on short to medium term, Digital NOTAM will probably not be available globally and there will be a need for NOTAM digitisation services to be put in place by service providers active in the AIS/AIM domain in order to offer sufficient data for the deployment of Digital Integrated Briefing solutions. Such services are similar to the current NOTAM Processing service of the European AIS Database (EAD), for example.

4.3.2 Legal aspects

The provision of “digital briefing” comes with the typical legal challenges of using digital data. Currently, the crew brings the pre-flight documents during the flight and in case of incident investigation the commander can show which information they had received. If information updates are communicated digitally, it is important to be able to demonstrate which information was communicated and actually seen by the eyes of the end user. This might include the need to record “acknowledgments” from the end user that a piece of information was seen and understood.

This is the role of “legal recording” functions, which are captured in this document as functional requirements. However, this document does no analyse the legal implications of using digital data for briefing or the “acknowledgement” mechanism mentioned above. It is expected that the lessons learned for similar services in other parts of the aviation industry will be applied.

Another aspect to be kept in mind is the existence, during a long transition period, of both text and digital NOTAM. This is not a new aspect in the AIS world. The same issue exists today, for example when content from the AIP (such as frequencies, identifiers, locations, etc.) is reproduced in a NOTAM. It is the responsibility of the NOTAM Provider to ensure the perfect coherence between the two formats, in accordance with the ICAO Standards and Recommended Practices.

In order to facilitate implementations, the Digital NOTAM Event Specification includes rules for the automatic generation of text NOTAM from the digital NOTAM. This ensures the consistency of the text with the digital encoding. In case of discrepancies, the legal responsibilities should be clearly known. It is expected that the same principles applied currently for the provision and use of static digital data will also be applied to Digital NOTAM. These aspects are not discussed in this document.

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5 Use Cases

5.1 Use case 1 – Pilot Briefing (on ground)

The diagram in Figure 5 shows the intended functions of the Digital Integrated Briefing service when used for direct Pilot briefing on ground, before the flight. A separate use case is defined for the situation where a briefing operator/dispatcher (ARO, FOC/WOC, etc.) uses the system in order to prepare a briefing package that will be provided, possibly including a verbal briefing, to the pilot. The flight planning activity, when executed by a pilot in the ARO environment, is also not retained in this Use Case because it is considered that the Pilot would play the "Dispatcher" role, which is already covered in the next Use Case.

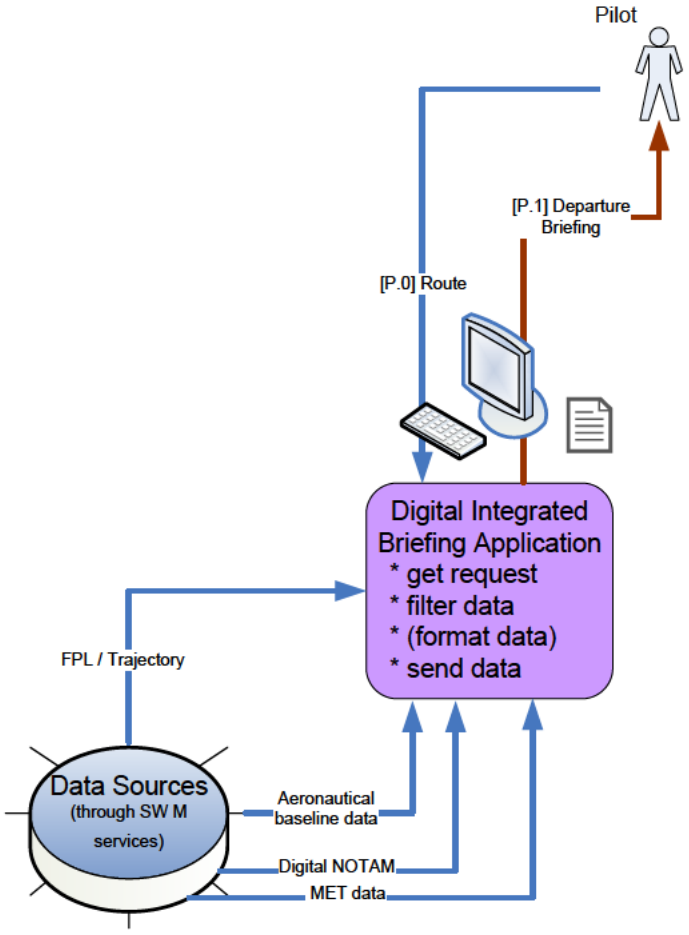

Figure 5 - Pilot briefing

In essence, the pre-flight briefing serves the pilot in two ways:

- To establish whether a flight is actually feasible and safe to be executed. A flight can become unfeasible if the opening hours of an aerodrome would not be suitable, if the weather does not satisfy minima or for other reasons.
- To become aware of the current operating situation, as it may be a basis for decision-making during the flight.

Both are supported by a "**Departure Briefing**", which contains less information, limited to significant events along the route as compared to a complete flight-planning briefing package.

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Therefore, the intended functions of the Digital Briefing service when used directly by a Pilot are described in the following table:

ID	***Title***	***Description***
P.1	Departure Briefing	The digital briefing service enables the Pilot to become aware of the baseline capabilities, the organisation and the current status of the aeronautical infrastructure, airspace, route network and meteorological situation that is relevant for the planned flight trajectory. Note that this intended function implies the existence of a planned trajectory (FPL or route data) as a pre-requisite. The "[P.0] Route" functionality is shown on the diagram, which allows the pilot to provide the intended flight trajectory and/or other input parameters for the briefing service. Where appropriate, the information presentation is in the form of maps/charts. When presented interactively, it also includes the possibility to provide the same information in printed format.

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5.2 Use case 2 – Dispatcher Briefing

The diagram in Figure 6 shows the intended functions of the Digital Integrated Briefing service when used by an airline dispatcher or by an ARO operator for preparing a flight and the necessary information package for the pilot. A pilot and other members of a flight crew could also play this role, when they are themselves responsible for the flight planning activities.

Sometimes, the briefing service provided to a pilot is a mix of the Use Cases 5.1 & 5.2. E.g. the dispatcher prepares a "flight package" for the crew some 12 hours ahead of the flight. The crew will then according to the situation autonomously request updated information just prior to the flight.

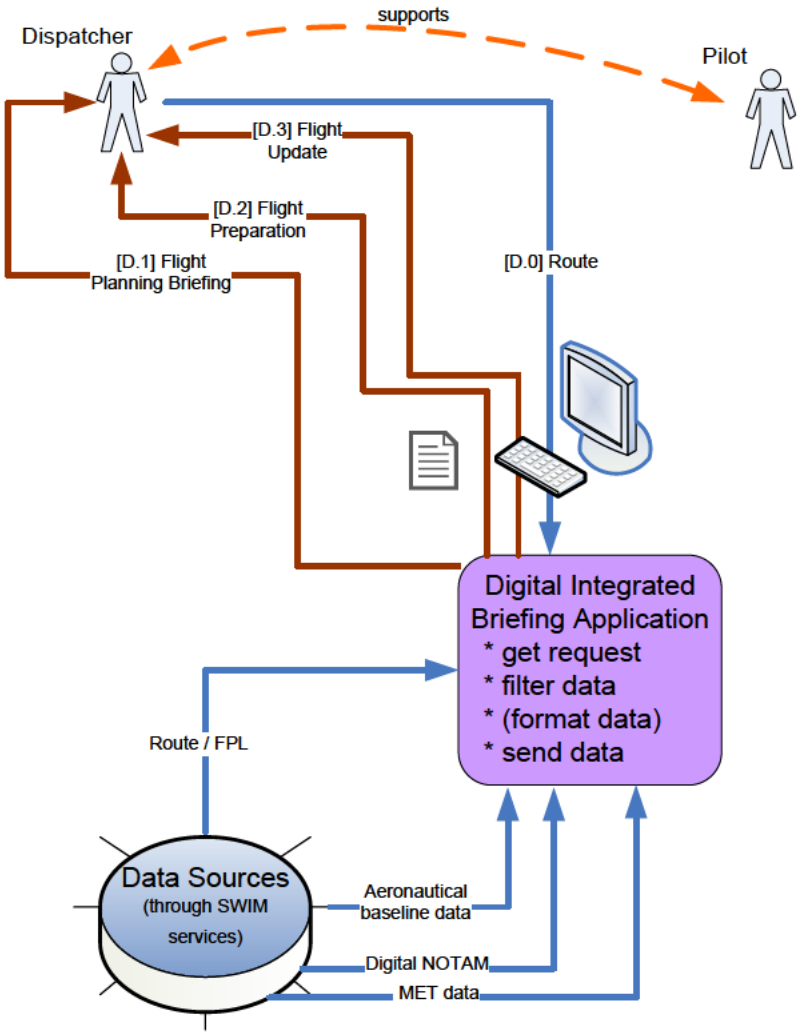

Figure 6 - Dispatcher flight preparation

The intended functions of the Digital Briefing Application, when used by a Dispatcher/ARO Operator, are described in the following table:

ID	*Title*	*Description*
D.1	Flight Planning Briefing	The digital briefing service enables the Dispatcher to retrieve and understand the information (AIS, MET, ATFM data) that is needed in order to decide upon the feasibility of an intended flight and for the identification

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		of an optimal flight plan. Note that this intended function also requires support for route generation, submission, and validation, which are not in the scope of the Digital Integrated Briefing service. However, the "[D.0] Route" functionality is shown on the diagram, which allows the Dispatcher to provide the intended flight trajectory and/or other input parameters for the briefing service. Where appropriate, the information presentation is in the form of maps/charts. When presented interactively, it also includes the possibility to provide the same information in printed format.
(D.2)	Flight Preparation	The digital briefing service application enables the Dispatcher to retrieve and understand the information (AIS, MET, ATFM data) that is needed in order to prepare the departure briefing package for a pilot. Note that this intended function also requires support for route generation, submission, and validation, which are not in the scope of the Digital Integrated Briefing service. However, the "[D.0] Route" functionality is shown on the diagram, which allows the pilot to provide the intended flight trajectory and/or other input parameters for the briefing service. Where appropriate, the information presentation is in the form of maps/chart. It also enables the output of an information package on a physical media (paper and/or electronic).
(D.3)	Flight Update	The digital briefing service enables the Dispatcher to become aware of any change in the current status of the aeronautical infrastructure, airspace, route network and meteorological situation that needs to be considered or communicated to the pilot, in order to ensure the safety and the efficiency of a flight that is in execution. Where appropriate, the information presentation is in the form of maps/charts and presented interactively.

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5.3 Use case 3 – On-board Briefing Device

The diagram in Figure 7 shows the intended functions of the Digital Integrated Briefing service when connected with an on-board briefing device, which provides pilot briefing capabilities before departure and during the flight.

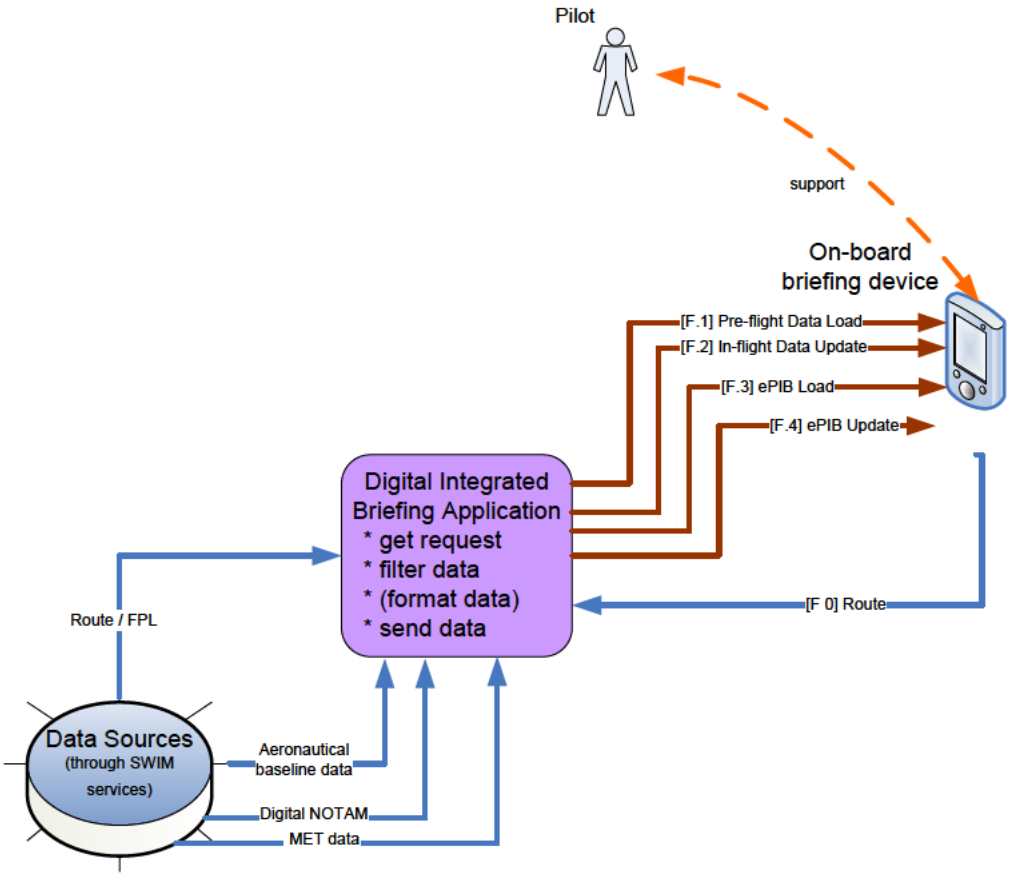

Figure 7 - On-board briefing device

Two possibilities exist:

- either the ePIB is created by the EFB device, including the recalculation of the ePIB when relevant data updates are received. This may be applied in situations with low bandwidth for in-flight updates, but it requires more computational power on the device;
- or the ePIB and further updates to it are created on the ground and transmitted as a final product to the on-board device. This may be applied when there is sufficient bandwidth for in-flight updates.

The intended functions supporting the two scenarios are described in the following table:

ID	*Title*	*Description*
F.1	Pre-flight Data Load	The digital briefing service enables an On-board briefing device to request and get the data about the baseline capabilities/organisation and current status of the aeronautical infrastructure, airspace, route network and meteorological situation, which is needed for pilot briefing not only along the

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		planned flight trajectory but also in the event of a re-routing.
F.2	In-flight Data Update	The digital briefing service enables providing to an On-board briefing device in-flight any relevant updates of the data provided during the Pre-flight Data Load, via data link.
F.3	ePIB Load	The digital briefing service enables an On-board briefing device to request and get an initial ePIB upload. This will typically take place at the gate, before the flight.
F.4	ePIB Update	The digital briefing service enables an On-board briefing device to subscribe for and get ePIB updates in-flight, when relevant data updates are received on the ground.

5.4 Use case 4 – Controller Briefing

The diagram in Figure 8 shows the intended functions of the Digital Briefing Application when used by an ATC or ATM operator.

Note: *The intended function and the detailed requirements for Controller Briefing have not been rigorously researched and reviewed in the frame of the Project 13.02.02, as the project focus was put on the flight crew briefing. However, they are included here for completeness sake, as result of initial discussions with ATC experts. All requirements that refer to ATC/ATM operator shall be considered as "draft",*

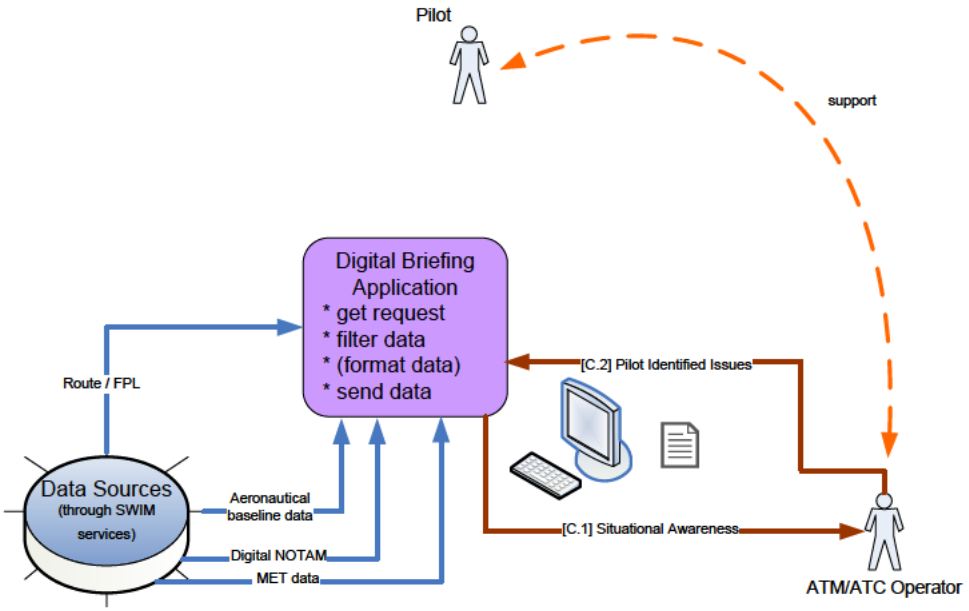

Figure 8 - Controller briefing

The intended functions of the Digital Integrated Briefing service, when used by an ATC/ATM Operator, are described in the following table

ID	*Title*	*Description*
C.1	Situational Awareness	The digital briefing service enables the ATC/ATM operator to be aware of and to inform the pilot on request about the status of the aeronautical infrastructure, airspace, route network and meteorological situation that is relevant for a specified area of

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		interest.
C.2	Pilot Identified Issues	The digital briefing service enables an ATC/ATM operator to report back to the Service Provider concerned about safety critical discrepancies observed by pilots, during the flight or at landing time landing, between the information received from a Digital Briefing application and the real status of the aeronautical infrastructure, airspace, route network and meteorological situation.

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6 Requirements

This section describes the functional requirements for the operational services described in this OSED.

In the definition of the requirements:

- the word “shall” indicates a requirement (mandatory)
- the word “should” indicates a “nice-to-have” functionality (optional)
- the word “may” indicates a possible functionality, which might have to be considered on a case-by-case basis, for each particular implementation (possibility)

6.1 Functional requirements

This OSED is focused on the Digital Integrated Briefing function, with the specific requirements being stated in section 6.1.1. In the initial phases of the Project 13.02.02, the previous OSED documents have also included requirements for Digital NOTAM production tools, as an essential enabler for the Digital Integrated Briefing. In order to facilitate the traceability of the previous OSED requirements, these are listed in section 6.1.2.

This final OSED clarifies the functional requirements for Digital Integrated Briefing and indicates their final status, as result of the validation exercises executed by all the projects that have contributed to the AIM/MET ENB02.01.02. While for the pre-flight phase (IS-0205) the concept is considered validated to ”V3” maturity level to allow industrial deployment, the in-flight updates phase (IS-0206) only “V2” maturity can be claimed.

6.1.1 Digital Integrated Briefing

6.1.1.1 General requirements

This section (6.1.1.1) describes the functional requirements applicable to the Digital Integrated Briefing service in all possible forms (static, interactive, on the ground, on-board, etc.).

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0074
Requirement	The End Users shall be able to become aware of the baseline capabilities/organisation and current status of the aeronautical infrastructure, airspace, route network and meteorological situation that is relevant for the planned flight trajectory or in an area of interest.
Title	Departure Briefing
Status	<Validated>
Rationale	The End Users (Pilots, Dispatcher/ARO Operator, ATC/ATM operator) shall be enabled to retrieve from a designated interface access to the necessary AIS, MET and ATFM data for the planned flight trajectory. (Intended Function P.2, D.1, D.2, C.1) Post-validation note: *Although MET information (METAR/TAF/SIGMET) was available during the validation exercises, the airspace users commented that some MET products were missing. They would have liked to see significant weather charts and wind charts. To be considered for industrialisation*.
Category	<Functional>

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Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0046
Requirement	The End Users shall be able to input a flight route to be used as query parameter for selecting the briefing data.
Title	Query parameter-FPL
Status	<In Progress>
Rationale	End Users (Pilots, Dispatcher/ARO operator, ATC/ATM operators) specific query parameters are used to filter and retrieve only the required data, to customize and eliminate irrelevant information in the briefing. (Intended Function P.2, D.1, F.1) Post-validation note: use of FPL as selection criteria was verified with the ePIB prototypes. Further filtering criteria may identified during industrialisation, also taking into consideration the preferences/ constraints of particular clients.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0049
Requirement	The End Users shall be able to specify a user profile (stored locally or remotely) to be considered when retrieving the briefing data. This includes the elements: *) preferred routes; *) aircraft type(s); *) aircraft equipment (could be retrieved through registration number); *) pilot qualification(s); *) information prioritisation preferences (business rules that are the result of a risk assessment approach, which could be linked to a company Safety Management System)
Title	User profile
Status	<In Progress>
Rationale	End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators) shall be facilitated by storing user profiles for commonly used queries, to be used when retrieving data. (Intended Function P.1, P.2, D.1, F.1, C.1) Post-validation note: The validation platforms did not fully support this functionality. However, airspace users supported the usefulness of the requirement, which shall be considered for the industrialisation phase.

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Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0069
Requirement	The user shall be able to see at any moment the selected query parameters generating the ePIB information.
Title	Display of ePIB query parameters
Status	<Validated>
Rationale	The display of query parameters will show the basis for the generated information to the End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators). (Intended Function P.1, P.2, D.1, F.1, C.1) Modified after the execution of EXE-13.02.02-VP-462
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0059
Requirement	The End Users shall be able to create a Pre-Flight Information Bulletin (PIB) as defined by ICAO Annex 15 and enhanced by regional specifications, such as the Integrated Briefing concept developed by Eurocontrol.
Title	Traditional Pre-flight Information Bulletin
Status	<In Progress>
Rationale	The provision of the traditional PIB in text format is requested by the current ICAO standards. The new briefing products (Enhanced PIB, Interactive Briefing, etc.) can be provided as alternatives to the current PIB. (Intended Function P.1, P.2, D.1, D.2, C.1)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

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Identifier	REQ-13.02.02-OSED-0201.0060
Requirement	The user shall see the ePIB information organised per phase of flight, based on a specified route trajectory, displaying information for the following phases: • Aerodrome of departure • En-route phase • Aerodrome of destination • Alternate aerodromes
Title	ePIB organisation for information
Status	<Validated>
Rationale	The data is filtered to display information in the order of operations, using specified trajectory parameters for filtering and displaying the relevant information, organised under titles. (Intended Function P.1, P.2, D.1, F.1, C.1) Validated through EXE-13.02.02-VP-462
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0061
Requirement	The user shall see the ePIB aerodrome information organised by phases related to departure and approach/landing. For a departure aerodrome an example of organised sequence of phases would be: • Stands/push-back • Taxiing • Take-off/aborted take-off • Emergency return • Climb • Approach/landing For an aerodrome of destination or alternative aerodrome the sequence of phases would be the reversed, starting with information regarding the approach/landing
Title	Organisation of aerodrome information
Status	<Validated>
Rationale	The data is filtered to display to the End Users ((Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators) the aerodrome information in the order of operation, organised by titles. (Intended Function P.1, P.2, D.1, F.1, C.1) Validated through EXE-13.02.02-VP-462
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

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<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0062
Requirement	The user shall see an aerodrome map for each aerodrome phase, displaying graphically NOTAM information concerning: • Stands/push-back/parking • Taxiways • Runways • Obstacles
Title	Graphical display of aerodrome data
Status	<Validated>
Rationale	The graphical display of the NOTAM information will improve the situational awareness for the End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators) of the event to supplement the text provided in the NOTAM. (Intended Function P1, P.2, D.1, F.1, C.1) Validated through EXE-13.02.02-VP-462
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0440
Requirement	A user of the Digital Integrated Briefing service shall see aeronautical data that is up-to-date at the start of the flight, covering both the current status and the known changes for the entire flight time (with a time buffer to be specified by the user).
Title	Use up-to-date aeronautical data at departure
Status	<Validated>
Rationale	In order to produce an operationally accurate briefing service, the ePIB shall use up-to-date data. This covers both the “static” and the “dynamic” data elements, such as contained in Digital NOTAM messages. Static data may be necessary for creating the graphics and any other elements of the briefing package.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

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[REQ]

Identifier	REQ-13.02.02-OSED-0401.0460
Requirement	A user of the Digital Integrated Briefing service shall see MET data that is up-to-date at the start of the flight, covering both the current status and forecast information for the entire flight time (with a time buffer to be specified by the user).
Title	Use up-to-date weather data at departure
Status	<In Progress>
Rationale	Rationale In order to produce an operationally accurate briefing service, the ePIB shall use up-to-date data. This covers both the current status and the forecast data elements, such as contained in the relevant MET messages. Post-validation note: Although MET information (METAR/TAF/SIGMET) was available during the validation exercises, the airspace users commented that some MET products were missing. They would have liked to see significant weather charts and wind charts. To be considered for industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0490
Requirement	When data non-complying with the stated quality requirements is identified, the Digital Briefing Service provider shall inform the data provider.
Title	Notify uncompliant data to the provider
Status	<In Progress>
Rationale	This will ensure that the data provider and the data originator are made aware of the situation, so that they can take corrective action or at least to provide complementary information that would allow the Digital Briefing Service provider to use the data under certain circumstances instead of just discarding it.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0500
Requirement	When data non-complying with the stated quality requirements needs to be used (because no other data is available), the ePIB shall explicitly flag such data.
Title	Identify uncompliant data

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Status	<Validated>
Rationale	Sometimes certain data needs to be used even if it does not comply with accuracy, precision or other numerical requirements (because no other data is available). Such data shall be used with caution and in any case the end user shall be made aware that some data does not satisfy the quality requirements and that the resulting briefing information/image might be slightly different from the actual situation. The user shall apply in this case additional means (visual, voice interrogation, etc.) in order to compensate for the lack of accuracy of the Digital Integrated Briefing service. Post-validation note: Airspace users had some difficulties to accept that low quality data has a direct safety or flight efficiency impact. However, the principle of raising data quality issues is validated.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0040
Requirement	The Digital Integrated Briefing Service Provider shall be able to provide on request information about all actions performed during the reception and processing of aeronautical and MET data: acknowledgement / verification results / annotation / feed-back sent, etc.
Title	Legal recording actions
Status	<In Progress>
Rationale	The application shall support the Service Provider through legal recording for traceability purpose. This is also important for incident/accident investigation situations. (Intended Function S.3) Post-validation note: not implemented on any validation platform. To be considered during the industrialisation phase.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0068
Requirement	The Pre-Flight Bulletin (ePIB) shall graphically represent and display relevant meteorological data, per phase of flight.
Title	Graphical view of MET data

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Status	<Validated>
Rationale	The ePIB shall integrate the available MET data related to the selected query parameters by the End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators), for enroute, dep/dest/alt aerodromes, where appropriate. (Intended Function P.2, D.1, F.1, C.1)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0010
Requirement	Briefing end users shall be able to quickly find in the enhanced Pre-flight Information Bulletin (ePIB) the following messages: • METAR/SPECI (including trend forecasts as issued in accordance with regional air navigation agreement) • TAF for departure, en-route, destination and alternative aerodrome(s) of the flight.
Title	METAR/SPECI and TAF messages
Status	<Validated>
Rationale	End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) need the latest available METAR/SPECI and TAF related to the selected query parameters for departure, en-route, destination and alternative aerodrome(s).
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0020
Requirement	Briefing end users shall be able to quickly find in the enhanced Pre-flight Information Bulletin (ePIB) SIGMET messages containing information concerning the occurrence or expected occurrence of specified en-route whether phenomena.
Title	SIGMET messages
Status	<Validated>
Rationale	Rationale End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) need the latest available SIGMET relevant for the flight trajectory and for the information on the occurrence of the specified weather phenomena, since they may affect the safety of aircraft operations during the flight.

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Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0040
Requirement	Briefing end users should be able to quickly find in the enhanced Pre-flight Information Bulletin (ePIB) AIRMET messages, if available, containing warnings in abbreviated plain language for low-level flights for FIR or sub-area affected by the flight.
Title	AIRMET messages
Status	<In Progress>
Rationale	End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) need the latest available AIRMET, if available, related to the selected query parameters relevant for the type of flight. Post-validation note: similar to REQ-13.02.02-OSED-0401.0020, but for other type of MET message. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0050
Requirement	Briefing end users should be able to quickly find in the enhanced Pre-flight Information Bulletin (ePIB) local aerodrome warnings.
Title	Local aerodrome warnings
Status	<In Progress>
Rationale	End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) need the latest available local aerodrome warnings related to the selected query parameters relevant for the selected aerodrome. Note that this info today is not available on 'public' networks per se. Post-validation note: similar to REQ-13.02.02-OSED-0401.0020, but for other type of MET message. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

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[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0060
Requirement	Briefing end users shall be able to quickly find in the enhanced Pre-flight Information Bulletin (ePIB) wind shear warnings.
Title	Wind shear warnings
Status	<In Progress>
Rationale	End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) need the wind shear warnings related to the selected query parameters. Note that this info today is not available on 'public' networks per se. Post-validation note: similar to REQ-13.02.02-OSED-0401.0020, but for other type of MET message. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0070
Requirement	Briefing end users shall be able to quickly find in the enhanced Pre-flight Information Bulletin (ePIB) volcanic ash cloud advisory information.
Title	Volcanic ash cloud advisory information
Status	<In Progress>
Rationale	Rationale End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) need the volcanic ash cloud advisory information impacting the safety of the specific flight trajectory. Post-validation note: similar to REQ-13.02.02-OSED-0401.0020, but for other type of MET data. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

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Identifier	REQ-13.02.02-OSED-0401.0080
Requirement	Briefing end users shall be able to quickly find in the enhanced Pre-flight Information Bulletin (ePIB) tropical cyclones advisory information.
Title	Tropical cyclones advisory information
Status	<In Progress>
Rationale	End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) need the the tropical cyclones advisory information impacting the safety of the specific flight trajectory. Post-validation note: similar to REQ-13.02.02-OSED-0401.0020, but for other type of MET data. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0090
Requirement	Briefing end users shall be able to quickly find in the enhanced Pre-flight Information Bulletin (ePIB) SIGWX forecasts information concerning the accidental release of radioactive materials into the atmosphere, if any, impacting the flight trajectory.
Title	Information on accidental release of radioactive materials
Status	<In Progress>
Rationale	End users (Pilots, Dispatchers/ARO operators, On-board briefing devices, ATC/ATM operators) might require SIGWX forecasts information concerning the accidental release of radioactive materials into the atmosphere, if any, in the area(s) impacting the flight trajectory. Post-validation note: similar to REQ-13.02.02-OSED-0401.0020, but for other type of MET data. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0110
Requirement	Briefing end users should be able to quickly look at the significant weather charts (SIGWX) including the overlapped path of the whole flight route.
Title	Graphical view of significant weather chart including the whole route

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Status	<In Progress>
Rationale	End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) need the significant weather charts related to the selected query parameters including the representation of the flight route. Post-validation note: Not implemented on any validation platform. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0130
Requirement	Briefing end users should be able to quickly look at AIRMET, if available, including flight route.
Title	Graphical view of AIRMET
Status	<In Progress>
Rationale	End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) need graphical representation of the available AIRMET, if available, related to the selected query parameters. Post-validation note: Not implemented on any validation platform. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0140
Requirement	Briefing end users should be able to quickly look at wind and temperature charts for specific flight levels, including the representation of the flight route.
Title	Title Graphical view of the high-level wind and temperature charts including the whole route
Status	<Validated>
Rationale	End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) need to visualize the latest available high-level wind and temperature charts related to the selected query parameters, including the flight route as reference for the specific flight.

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Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0150
Requirement	Briefing end users should be able to quickly look at local aerodrome warnings, overlaid on the airport map, if available at the aerodrome concerned.
Title	Graphical view of local aerodrome warnings
Status	<In Progress>
Rationale	End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) might need a graphical representation of local aerodrome warnings, if available at the aerodrome concerned, to support the assessment of the impacted areas and improve awareness. Post-validation note: such data was not available during the validation exercises. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0160
Requirement	Briefing end users should be able to quickly look at wind shear warnings related to landing and take off portions of the flight route, overlaid on the map.
Title	Graphical view of wind shear warnings
Status	<In Progress>
Rationale	End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) need a graphical representation of wind shear warnings to support the assessment of the impact on the landing/take off phases and to improve awareness. Post-validation note: such data was not available during the validation exercises. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

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<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0170
Requirement	Briefing end users should be able to quickly look at volcanic ash cloud charts, including the display of the flight trajectory.
Title	Graphical view of volcanic ash cloud.
Status	<Validated>
Rationale	End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) need a graphical representation of volcanic ash cloud to support the assessment of the impact on the flight and improve awareness.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0180
Requirement	Briefing end users should be able to quickly look at tropical cyclones charts, including the display of the flight trajectory.
Title	Graphical view of the tropical cyclones
Status	<In Progress>
Rationale	End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) need a graphical representation of tropical cyclones to support the assessment of the impact on the flight and improve awareness. Post-validation note: such data was not available during the validation exercises. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0200
Requirement	Briefing end users should be able to quickly look at meteorological satellite images, with an overlay of the flight route.
Title	Graphical view of meteorological satellite images
Status	<In Progress>

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Rationale	Pilots might use meteorological satellite images related to the selected query parameters, including the flight route path. Post-validation note: such data was not available during the validation exercises. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0210
Requirement	Briefing end users should be able to quickly look at ground-based weather radar information, with an overlay of the flight route.
Title	Graphical view of ground-based weather radar information.
Status	<In Progress>
Rationale	Pilots might use ground-based weather radar information related to the selected query parameters, including the flight route path. Post-validation note: such data was not available during the validation exercises. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0250
Requirement	Briefing end users should be able to quickly retrieve and display the following standard meteorological forecasts: • Aerodrome forecasts (TAF, 9 - 30 hrs) • Landing forecasts (TREND, 2 hrs) • Forecasts for take-off • Area forecasts for low-level flights
Title	Meteorological forecasts
Status	<In Progress>

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Rationale	End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) might need to receive the following forecasts: Aerodrome forecasts, Landing forecasts, Forecasts for take-off and Area forecasts for low-level flights. Post-validation note: such data was not available during the validation exercises. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0260
Requirement	Briefing end users should be able to quickly retrieve and display the following reports: • Local routine report (MET REPORT) • Local special reports (SPECIAL)
Title	Meteorological forecasts
Status	<In Progress>
Rationale	End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) might need to receive the local routine and special reports related to the selected query parameters. Post-validation note: such data was not available during the validation exercises. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0070
Requirement	The enhanced Pre-Flight Bulletin (ePIB) should include at its end the list of the acronyms & abbreviations that have been used.
Title	Acronyms and Abbreviations
Status	<Validated>
Rationale	Including the acronym and abbreviations will improve the readability of the NOTAM information for the End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators) (Intended Function P.2, D.1, F.1, C1)
Category	<Functional>

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Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0051
Requirement	The End Users shall be able to request a briefing update. This provides a simple means of acquiring the differences between a previously generated full briefing and the equivalent briefing that would be created if the same request were made now.
Title	Request Briefing updates
Status	<In Progress>
Rationale	This allows the End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators) to quickly view the amendments from the previous briefing. (Intended Function P.2, D.1, D.2, F.1, F.2, C.1) Post-validation note: not implemented on any of the validation platforms. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0002.0032	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0052
Requirement	The End Users shall be able to specify comparison rules for a briefing update: *) comparison with the original briefing; *) comparison with the latest briefing.
Title	Rules for briefing updates
Status	<In Progress>
Rationale	This allows the End User (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators) to quickly view the amendments from the previous briefing. (Intended Function P.2, D.1, D.2, F.1, F.2, C.1) Post-validation note: not implemented on any of the validation platforms. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

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[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0002.0032	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0053
Requirement	The End Users shall be able to specify the frequency of the briefing update: *) Ad hoc request based on a previous full or update briefing; *) At a specified time interval, e.g. hourly - meaning that update is sent every hour, even if the generated briefing does not contain changes; *) On event - meaning that a briefing update is sent every time that a new Digital NOTAM is received and it matches the selection criteria specified by user (this applies in particular for on-board briefing devices) *) The user shall also be able to specify the time at which the briefing update will cease to be provided.
Title	Frequency of briefing updates
Status	<In Progress>
Rationale	This allows the End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators) to retrieve only the required data, to customize and eliminate irrelevant information in the briefing, and only view amendments from the previous briefing. (Intended Function P.2, D.1, D.2, F.1, F.2, C.1) Post-validation note: not implemented on any of the validation platforms. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0002.0032	<Partial>

6.1.1.2 Interactive Briefing

The requirements contained in this sub-section complement the general requirements for Digital Integrated Briefing, for the specific case when the ePIB is presented on a computer screen. With an interactive application the users will have more capabilities to select/prioritise the information and their preferred representation.

An interactive briefing device can range from a desktop computer on the ground to a portable device or an Electronic Flight Bag (EFB) system on board the aircraft. This section is applicable to all such devices, when they offer the possibility for the user to dynamically modify/customise the ePIB information presentation according to their needs. Specific requirements for on-board devices are contained in the next sub-section (6.1.1.3).

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0073

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Requirement	The End Users shall be able to consult through an interactive application on a computer the information (AIS, MET, ATFM data) that is needed in order to decide on the feasibility of an intended flight.
Title	Flight-Planning Briefing
Status	<Validated>
Rationale	The End Users (Pilot, Dispatcher/ARO operator) shall be enabled to retrieve from a designated interface access to the necessary AIS, MET and ATFM data in order to decide on the feasibility of an intended flight. (Intended Function P.1, D.1, D.2)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0075
Requirement	To the maximum possible extent, the user of an Interactive Briefing application shall see graphical information (maps/charts, diagrams, video).
Title	Graphical information by Interactive Briefing
Status	<Validated>
Rationale	The graphical view of the information increases the situational awareness for the End Users (Pilots, Dispatcher/ARO Operator, ATC/ATM operator). (Intended Function P.1, P.2, D.1, D.2, C.1)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0078
Requirement	The ePIB shall display Digital NOTAM graphically following the specifications developed by the SAE International, Committee G-10A Aeronautical Information System. This shall be done on the condition that such specifications already exist at the time of the prototype development.
Title	Graphical NOTAM visualisation standard (SAE-G10)
Status	<Validated>
Rationale	SAE-G10A is in the process of developing specifications for the graphical display of NOTAM on board. This includes both human factors recommendations and graphical symbols. Such specifications are directly applicable to the ePIB. Eurocontrol and Airspace Users are participating in the development of these requirements on behalf of P13.2.2. (Intended Function P.3, D.3, C.2, F.3, R.1)
Category	<Functional>

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Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0100
Requirement	Briefing end users should be able to quickly visualise in the enhanced Pre-flight Information Bulletin (ePIB) a synthetic view of TAF showing the worst case of meteorological conditions that are forecasted in the aerodrome, using the following classification: • VMC (Visual Meteorological Conditions): Ceiling: >=1500 ft AGL, Visibility: >=5 km • MVMC (Marginal Visual Meteorological Conditions): Ceiling: 1000 to 1500 ft AGL, Visibility: 1.5 km to 5 km • IMC (Instrument Meteorological Conditions): Ceiling: 500 to 1000 ft AGL, Visibility: 800 m to 1.5 km • LIMC (Low Instrument Meteorological Conditions): Ceiling: <500 ft AGL, Visibility: <800 m Comment: it would be good to see a representation of TAF values on the airport thresholds for LVP and or Cross-wind operations. So don't apply the generic thresholds but use the published ones.
Title	Graphical synthetic view of TAF
Status	<In Progress>
Rationale	End users, in particular pilots, might make use of a synthetic view of the terminal aerodrome forecast showing the worst case meteorological condition that could occur at the selected aerodrome. This would enhance the readability of the TAF in the ePIB. Post-validation note: functionality not supported by any validation platform. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0220

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Requirement	Briefing end users should be able to look at synthetic/integrated view containing along the procedure's waypoints the following forecasts: • upper wind; • upper-air temperature and humidity; • geopotential altitude of flight levels; • flight level and temperature of tropopause; • direction, speed and flight level of maximum wind; • SIGWX phenomena Including: • vertical flight profile; • orography profile.
Title	Synthetic/integrated viewcontaining along the procedure's waypoints relevant meteorological information for the flight.
Status	<In Progress>
Rationale	End Users (Pilots, Dispatchers/ARO operators, ATC/ATM operators) consider beneficial to have a synthetic/integrated view of relevant meteorological information for the flight including, in the same picture, vertical flight profile and orography profile. Post-validation note: functionality not implemented on any validation platform. To be considered during industrialisation.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

6.1.1.3 On-Board Briefing Device

SESAR Projects 9.48 and 11.01.02 contributed to the definition and partial validation of the in-flight phase of the Digital Integrated Briefing concept. A final OSED P11.01.02 (D10) is in preparation, with a planned delivery date in September 2016, thus not available at the time writing time of the P13.02.02 OSED. That OSED is expected to provide more detailed functional requirements for the in-flight phase.

When an on-board electronic device (such as an Electronic Flight Bag – EFB) is used for pilot briefing, in addition to an initial data load before the flight such a device can also benefit from in-flight updates, through air-ground data link. From a technical point of view, two possibilities exist for the ePIB production:

- the ePIB is created by the device itself, including the recalculation of the ePIB when relevant data updates are received. This requires a relatively high computational power on the device. An initial data upload takes place on the ground before the flight and limited data updates are transmitted in-flight. Exhaustive information about the route, destination airport, and all possible alternates is stored directly into the on-board device, which the pilot could consult when necessary. Through data link, these could be updated with the latest information while in the air;

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- the ePIB and further updates to it are created on the ground and transmitted to the on-board device. If there is sufficient bandwidth, a complete ePIB replacement might be transferred in-flight. Otherwise, just limited updates of the ePIB product are calculated and transmitted, which requires a mechanism by which portions of the ePIB product can be modified independently.

The operational requirements for the two different scenarios are similar, as detailed below.

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0410
Requirement	Prior to the start of the flight, an on-board briefing device shall enable the flight crew to become aware of the current status and of the known or forecasted changes in the aeronautical infrastructure, airspace, route network and meteorological situation, which are relevant for the planned flight trajectory or in the event of a re-routing.
Title	On-board device initial briefing
Status	<In Progress>
Rationale	An on-board briefing device should enable the flight crew, prior to the start of the flight, to consult the relevant aeronautical and meteorological data, including both actual and forecast, as relevant for their intended flight trajectory. Post-validation note: the in-flight phase was not subject yet to V3-maturity validation exercises.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0002.0132	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0420
Requirement	During the flight execution, an on-board briefing device shall enable the flight crew to become aware of the current status of the aeronautical infrastructure, airspace, route network and meteorological situation, which are relevant for actual location of aircraft.
Title	On-board device actual position briefing
Status	<In Progress>
Rationale	An on-board briefing device shall adapt the information presented to the flight crew to the current phase of flight. Post-validation note: the in-flight phase was not subject yet to V3-maturity validation exercises.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0002.0132	<Partial>

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[REQ]

Identifier	REQ-13.02.02-OSED-0401.0430
Requirement	During the flight phase, an on-board briefing device shall enable the flight crew to become aware of live updates to the status of the aeronautical infrastructure, airspace, route network and meteorological situation, which are relevant for the remaining of the flight.
Title	On-Board device in-flight updates
Status	<In Progress>
Rationale	An on-board briefing device should be able to receive in-flight updates and to integrate the new information in the ePIB presented to the flight crew. Post-validation note: the in-flight phase was not subject yet to V3-maturity validation exercises.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0002.0130	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0002.0131	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0450
Requirement	A user of the Digital Integrated Briefing service shall get all relevant aeronautical data updates that occur during the flight time (with a time buffer to be specified by the user).
Title	Use in-flight aeronautical data updates
Status	<In Progress>
Rationale	Optionally, in order to maintain the accuracy of the briefing service during the whole flight, the ePIB should also use data updates received after the start of the flight. This is optional because there might exist technical limitations that prevent in-flight data updates from being provided. If this is not possible, it is assumed that the information will be received by the pilot through other channels (voice communication, notification messages not integrated in the briefing service, etc.) Post-validation note: the in-flight phase was not subject yet to V3-maturity validation exercises.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0002.0130	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-AIMP.1010	<Partial>

[REQ]

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Identifier	REQ-13.02.02-OSED-0401.0470
Requirement	A user of the Digital Integrated Briefing service should see all MET data updates that occur during the flight time (with a time buffer to be specified by the user).
Title	Use in-flight weather data updates
Status	<In Progress>
Rationale	Optionally, in order to maintain the accuracy of the briefing service during the whole flight, the ePIB should also use data updates received after the start of the flight. This is optional because there might exist technical limitations that prevent in-flight data updates from being provided. If this is not possible, it is assumed that the information will be received by the pilot through other channels (voice communication, notification messages not integrated in the briefing service, etc.) Post-validation note: the in-flight phase was not subject yet to V3-maturity validation exercises.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0002.0131	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-AIMP.1010	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0280
Requirement	Pilots shall be able to quickly retrieve and display on the on-board briefing device air-reports (Routine air-reports and Special air-reports) produced by other aircraft.
Title	Air-reports for On-Board Briefing Device
Status	<In Progress>
Rationale	Pilots and crew members should receive and visualize the air-reports on local meteorological phenomena produced other aircraft that have just flown close to the same area. The reports are used to enhance pilot awareness on the phenomena that have been just occurring in the same area and might affect the flight. Post-validation note: the in-flight phase was not subject yet to V3-maturity validation exercises.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0002.0131	<Partial>

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6.1.2 [Traceability] Digital NOTAM production tools

The following table contains functional requirements for tools used for Digital NOTAM production, which covers the Data encoding, Verification and publication use cases. These are listed in this document for traceability purpose and with their Status updated as result of the SESAR validation progress.

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0001
Requirement	If the Digital NOTAM to be encoded concerns an airport related feature, the Data Originator and NOTAM Provider should be supported by a graphically displayed layout of the airport concerned. As a minimum, this shall contain the layout of the runways, the identification of their thresholds, the airport reference point and the layout of the terminal area
Title	Graphical display Airport features for encoding
Status	<Validated>
Rationale	The displayed graphical airport features (such as a RWY, TWY, etc.) provides the means for the Data Originator and NOTAM Provider to understand the airport context in which the Digital NOTAM is provided. This awareness combined with the expertise of the operator can help identifying certain information errors. (Intended Function O.1, N.1) Validated through EXE-13.02.02-VP-460
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0002
Requirement	If the Digital NOTAM to be encoded concerns an airspace related feature, the Data Originator and NOTAM Provider should be supported by a graphically display of the route and airspace structure within the FIR(s), CTR(s) or TMA(s) concerned. As a minimum, this shall contain the outer boundary and the identification of the airspace, the international airports locations and identifications and any airspace and route data that is critical for assessing the impact of the event on the existing route/airspace structure.
Title	Graphical display Airspace features for encoding
Status	<Validated>
Rationale	The displayed graphical airspace features (such as a restricted area, a route segment, a navaid etc) provides the means for the Data Originator and NOTAM Provider to understand the airspace context in which the Digital NOTAM is provided. This awareness combined with the expertise of the operator can help avoiding certain information errors. (Intended Function O.1, N.1) Validated through EXE-13.02.02-VP-460
Category	<Functional>
Validation Method	<Real Time Simulation>

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Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0003
Requirement	A graphical presentation of the airport/airspace context should include the possibility for the Data Originator and the NOTAM Provider to visualise graphically and/or as text annotations the information about the operational status of the features in the viewport.
Title	View of features operational status
Status	<In Progress>
Rationale	The operational status of airport/airspace is of high importance and should be made available through easy access and a graphical display for enhanced situational awareness. Note that there may be situations where it would be desirable to view the information as text annotations even if it's possible to present it graphically. (Intended Function O.1, N.1)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0004
Requirement	The Data Originator and the NOTAM Provider shall see the feature affected by the Digital NOTAM that is being currently encoded visibly highlighted.
Title	Visual highlight of affected encoded feature
Status	<Validated>
Rationale	The highlighted feature will enable the Data Originator and NOTAM Provider to easy spot the subject that is affected by the change. This can prevent certain data encoding errors, such as using a wrong feature. (Intended Function O.2, O.3, N.4) Validated through EXE-13.02.02-VP-460
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

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[REQ]

Identifier	REQ-13.02.02-OSED-0201.0005
Requirement	For those aeronautical information elements that can be presented graphically, the Data Originator shall be able to graphically select the feature(s) that are affected by the Digital NOTAM encoding.
Title	Encoding through graphical interface
Status	<In Progress>
Rationale	Graphically selecting a feature is much faster and more user friendly than having to search in the database for a feature, using keywords. However, this might be limited to only those features that cand be represented graphically. (Intended Function O.2)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0006
Requirement	If the Digital NOTAM encoding by the Data Originator modifies the shape, size or another element that is visible in the graphical view for a feature, the Data Originator shall see the corresponding graphical element updated as necessary.
Title	Updated graphical view
Status	<In Progress>
Rationale	The Data Originator shall be able to rely on that the graphical view of the information is according to the valid NOTAM encoding. This can help identifying certain typing errors (such as a mistyped airspace border coordinate). For example, if a runway length is affected, the Data Originator shall see the graphical element representing the runway (a rectangle) being resized. (Intended Function O.3)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0007
Requirement	The Data Originator and NOTAM Provider shall be able to retrieve and see the baseline data that is valid at the start of validity of the Digital NOTAM that is currently encoded.

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Title	Valid Baseline data retrieval
Status	<Validated>
Rationale	The Data Originator and NOTAM Provider shall have information available of the feature for traceability and verification of the NOTAM change. (Intended Function O.2, O.3, N.4) Validated through EXE-13.02.02-VP-460
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0008
Requirement	The Data Originator and NOTAM Provider shall be able to encode the Digital NOTAM data in accordance with the relevant scenario of the Digital NOTAM Event Specification. This is an interoperability requirement.
Title	Encoding according to the Digital NOTAM Event Specification
Status	<Validated>
Rationale	The Digital NOTAM Event Specification operational scenarios specifies rules for the encoding the structured encoding of the information in AIXM 5.1. These rules have been developed with input from international NOTAM experts and are intended for world-wide adoption. Non-compliance with these technical rules can make the Digital NOTAM unusable by the clients.. (Intended Function O.2, O.3, O.4, O.6, N.2, N.3, N.4, N.6) Validated through EXE-13.02.02-VP-460
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0009
Requirement	When encoding Digital NOTAM data, the Data Originator and NOTAM Provider shall not be required to manually input baseline data that is necessary for the completeness of the Event encoding. Such data shall be automatically retrieved and used by the application.
Title	No manual input by operator of Baseline data
Status	<Validated>
Rationale	The Data Originator and NOTAM Provider shall be enabled to encode the information through a human-machine interface that minimises the need for data typing. (Intended Function O.2, O.6, N.3, N.4) Validated through EXE-13.02.02-VP-460

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Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0010
Requirement	When encoding a Digital NOTAM data, the Data Originator and NOTAM Provider shall not be required to manually input values that are already available as pre-defined lists or that are the result of defined consistency rules.
Title	No manual input by operator of Pre-defined values
Status	<Validated>
Rationale	The Data Originator and NOTAM Provider shall be enabled to encode the information through a human-machine interface that minimises the need for data typing. (Intended Function O.2, O.6, N.3, N.4) Validated through EXE-13.02.02-VP-460
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0011
Requirement	Where allowed by data accuracy/data resolution requirements, for geometrical and geographical data, the Data Originator should be enabled to graphically define the shape or position of an element that is needed for the Digital NOTAM encoding, for example by drawing on a map the borders of a temporary restricted area that is being designed with the application.
Title	Graphical definition of shapes and positions
Status	<In Progress>
Rationale	A graphical tool enables a visual check while designing shapes and positions, which reduces the risk for large errors. However, this is not possible for those geographical/geometrical elements that are the result of a computational process. (Intended Function O.2, O.6)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A

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<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0012
Requirement	The NOTAM Provider and the Data Originator shall see the equivalent Text NOTAM automatically generated from the Digital NOTAM, applying the decoding rules contained in the Digital NOTAM Event Specification.
Title	Text NOTAM generation
Status	<Validated>
Rationale	Text NOTAMs will be issued in parallel with the digital NOTAM, and an automatic generation avoids a separate system for the Data Originator and NOTAM Provider. (Intended Function O.2, O.3, O.4, O.6, N.2, N.3, N.4, N.6) Validated through EXE-13.02.02-VP-460
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0015
Requirement	The Data Originators' and NOTAM Providers' digital NOTAM encoding shall at the end of the encoding process be automatically checked against violation of defined business rules (data consistency checks) or data which is statistically out of range (data plausibility checks). As a minimum, the data verification rules specified for the relevant event in the Digital NOTAM Event Specification shall be applied.
Title	Data check
Status	<Validated>
Rationale	The Digital NOTAM application shall support the Data Originator and NOTAM Provider through automatic data checking and verification against pre-defined business rules. (Intended Function O.3, N.4)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0016
Requirement	The Data Originator and NOTAM Provider shall be notified of the partial or total failure of a data verification check.
Title	Data check failure

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Status	<Validated>
Rationale	The Digital NOTAM application shall support the Data Originator and NOTAM Provider through automatic data checking and verification against pre-defined business rules. (Intended Function O.3, N.4, N.5) Validated through EXE-13.02.02-VP-460
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0017
Requirement	Ahead of any attempt for sending Digital NOTAM encoded data to the next intended user, the Data Originator and the NOTAM Provider shall be informed of the result of automatic data verification.
Title	Data check communication to Data Originator/NOTAM Provider
Status	<Validated>
Rationale	The Digital NOTAM application shall support the Data Originator and NOTAM Provider through automatic data checking and verification against pre-defined business rules. (Intended Function O.3, O.4, N.6) Validated through EXE-13.02.02-VP-460
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0018
Requirement	The Data Originator shall be able to dismiss particular error or warning messages that are considered not applicable in a particular data encoding situation.
Title	Dismiss error or warning messages
Status	<Validated>
Rationale	The Digital NOTAM application shall support the Data Originator through automatic data checking and verification against pre-defined business rules. However, due to the complexity of the data, some verifications are only possible if a tolerance level (such as " false reports" in 10 % of the cases, etc.) are accepted. In the end, the Data Originator holds the responsibility to disregard errors or warning, based on operational instructions and on their own judgement of the actual situation. (Intended Function O.4, O.6) Validated through EXE-13.02.02-VP-460

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Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0019
Requirement	The Data Originator shall be able to send the Digital NOTAM proposal to another level of the Data Origination chain or the NOTAM Provider through a direct digital connection.
Title	Digital connection for sending digital NOTAM proposal
Status	<In Progress>
Rationale	The Data Originator shall be able to digitally communicate all related operations regarding the digital NOTAM proposal with the next intended user. (Intended Function O.4, O.6)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0020
Requirement	The Data Originator should be able to check if the Digital NOTAM proposal reception was acknowledged by the recipient system.
Title	Acknowledge of digital NOTAM Proposal reception
Status	<In Progress>
Rationale	The Data Originator should be able to check the digitally communication with the recipient system. (Intended Function O.4, O.5)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0021
Requirement	The NOTAM Provider shall be able to receive a Digital NOTAM proposal provided by a Data Originator through a direct digital connection.

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Title	Receive digital NOTAM proposal from Data Originator
Status	<In Progress>
Rationale	The NOTAM Provider shall be able to communicate all related operations regarding the digital NOTAM proposal digitally with the Data Originator. (Intended Function N.2, O.5)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0022
Requirement	The NOTAM Provider shall be able to annotate a Digital NOTAM proposal.
Title	Digital NOTAM proposal annotation
Status	<In Progress>
Rationale	The NOTAM Provider shall be able to add annotations of local interest, including the possibility to flag the data following detection of possible inconsistencies. (Intended Function N.5)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0023
Requirement	The NOTAM Provider shall be able to send feed-back to the Data Originator of a Digital NOTAM proposal, in the form of : *) requests for clarification; *) an improved Digital NOTAM proposal; *) a proposal to abandon the issuing of a NOTAM (because it does not qualify as a NOTAM); *) the final published Digital NOTAM; *) etc.
Title	Digital NOTAM proposal feed-back to Data Originator
Status	<In Progress>
Rationale	The NOTAM Provider shall be able to communicate all related operations regarding the digital NOTAM proposal digitally with the Data Originator. (Intended Function N.5)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

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[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0024
Requirement	The Data Originator shall be able to visualise the feedback received from the NOTAM Provider (or another level of the Data Origination chain) on a Digital NOTAM proposal.
Title	Visualised Digital NOTAM proposal feed-back
Status	<In Progress>
Rationale	A visual view of the user's feedback creates a increased understanding of the content. (Intended Function O.5)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0026
Requirement	The Data Originator and NOTAM Provider shall be able to perform legal recording actions of all steps performed during the date encoding and transmission: input from the responsible authority, data sent out, acknowledgement / feed-back received.
Title	Legal recording actions
Status	<In Progress>
Rationale	The application shall support the Data Originator and NOTAM Provider through legal recording for traceability the processes performed. (Intended Function O.3, N.4)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0027
Requirement	The NOTAM Provider shall be able to retrieve the legal recording data, on request.
Title	Legal recording data retrieval
Status	<In Progress>

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Rationale	The application shall support the NOTAM Provider by retrieving the legal recording for traceability. (Intended Function N.6)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0077
Requirement	The Data Originator and NOTAM Provider should be able to create and store templates for frequently occurring digital NOTAM event types.
Title	Digital NOTAM Templates
Status	<In Progress>
Rationale	This will make it easier and faster for the operator to encode events that occur frequently and which require the input of a significant amount of identical data. This is particularly expected to occur for ad-hoc airspace reservations, airport / runway usage restrictions, etc. It is less required for simpler events, such as navaid outages, airport closures, etc. when the amount of data input is less important. (Intended Functions O.2, N3)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0079
Requirement	The Data Originator shall be able to send a message to the NOTAM Provider requesting an update to a NOTAM Proposal.
Title	Update NOTAM Proposal Request
Status	<In Progress>
Rationale	This will enable the NOTAM Originator to alert the NOTAM Provider that an update to a NOTAM proposal is under preparation, in order for the NOTAM Provider to consider the publication process of the previously sent NOTAM proposal. The previously sent NOTAM Proposal could by the time of the update request in the publication process still be subject to modification, whereas the publication process would be stopped, pending the update to be sent. The update request could also include the request for “replacement” or “cancel” of a Digital NOTAM proposal, for an Event that was already officially published (Intended Function O.4, N.2)
Category	<Functional>

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Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0080
Requirement	The Data Originator shall be able to send an update to a NOTAM Proposal previously sent to the NOTAM Provider.
Title	Send Update NOTAM Proposal
Status	<In Progress>
Rationale	This will enable the Originator to update a previously sent NOTAM proposal, in response to the NOTAM Providers feed back or based on the Originators own request to update the proposal. (Intended Function O.6)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0025	<Partial>

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6.2 Information Exchange Requirements

This section describes the subset of the operational requirements associated with information exchange. The requirements develop the information exchange needs which are applicable to the Operational Focus Area addressed by this OSED.

New information elements, which were not present in the AIRM at the time when they have been identified by the Project, are listed in Appendix A for traceability purpose.

[IER]

Identifier	Name	Issuer	Intended Addressees	Information Element	Involved Operational Activities	Interaction Rules and Policy	Status	Rationale	Satisfied DOD Requirement Identifier	Service Identifier
IER-13.02.02-OSED-0001.0001	Register Digital NOTAM Originator	Data Originator	NOTAM Provider	User Credentials	NOTAM Publication	Data Originator must be authorised by NOTAM Provider	<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0025 <Partial>	
IER-13.02.02-OSED-0001.0002	Store Digital NOTAM Proposal	Data Originator	NOTAM Provider	Digital Event Data	NOTAM Publication	Data Originator must be authorised by NOTAM Provider; Data Originator must have responsibility for event reference	<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0025 <Partial>	
IER-13.02.02-OSED-0001.0003	Update Digital NOTAM Proposal	Data Originator	NOTAM Provider	Digital Event Data	NOTAM Publication	Data Originator must have stored original proposal	<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0025 <Partial>	

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Identifier	Name	Issuer	Intended Addressees	Information Element	Involved Operational Activities	Interaction Rules and Policy	Status	Rationale	Satisfied DOD Requirement Identifier	Service Identifier
IER-13.02.02-OSED-0001.0004	Send Digital NOTAM Proposal Feedback	NOTAM Provider	Data Originator	Proposal Feedback	NOTAM Publication	Data Originator must monitor for new NOTAM Provider feedback; Data Originator must have stored original proposal	<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0025 <Partial>	
IER-13.02.02-OSED-0001.0005	Request NOTAM Provider Data Clarification	Service Provider	NOTAM Provider	NOTAM Data Clarification	NOTAM Publication	Addressee must be responsible for issuing referenced NOTAM	<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0025 <Partial>	
IER-13.02.02-OSED-0001.0006	Request NOTAM Service Data Clarification	End User	Service Provider	NOTAM Data Clarification	NOTAM Publication	Addressee must be responsible for issuing referenced NOTAM	<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0027 <Partial>	
IER-13.02.02-OSED-0001.0007	Register Service Provider for Digital NOTAM	Service Provider	NOTAM Provider	User Credentials; NOTAM Filters	NOTAM Publication	Service Provider must be authorised by NOTAM Provider	<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0025 <Partial>	
IER-13.02.02-OSED-0001.0008	Register End User for Digital NOTAM	End User	NOTAM Provider	User Credentials; NOTAM Filters	NOTAM Publication	End User must be authorised by NOTAM Provider	<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0025 <Partial>	

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Identifier	Name	Issuer	Intended Addressees	Information Element	Involved Operational Activities	Interaction Rules and Policy	Status	Rationale	Satisfied DOD Requirement Identifier	Service Identifier
IER-13.02.02-OSED-0001.0009	Send Digital NOTAM	NOTAM Provider	Service Provider; End User	Digital Event Data	NOTAM Publication	Addressee must be registered for Digital NOTAM; Addressee must monitor for new Digital NOTAM	<Validated>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0025 <Partial>	
IER-13.02.02-OSED-0001.0010	Request Briefing (*see Note 1*)	End User	Service Provider (Digital Briefing Application)	Briefing Filters; Briefing (ePIB)	Flight Planning, Flight Operations		<Validated>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0027 <Partial>	
IER-13.02.02-OSED-0001.0011	Request Flight Planning Briefing	End User (Pilot; ARO/Dispatcher)	Servide Provider (Digital Briefing Application)	Briefing Filters; Briefing (ePIB)	Flight Planning		<Validated>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0027 <Partial>	
IER-13.02.02-OSED-0001.0012	Request Departure Briefing	End User (Pilot; ARO/Dispatcher)	Service Provider (Digital Briefing Application)	Briefing Filters; Briefing (ePIB)	Flight Planning		<Validated>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0025 <Partial>	
IER-13.02.02-OSED-0001.0013	Request Flight Preparation Briefing	End User (Pilot; ARO/Dispatcher)	Service Provider (Digital Briefing Application)	Briefing Filters; Briefing (ePIB)	Flight Planning		<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0025 <Partial>	
IER-13.02.02-OSED-0001.0014	Request Situation Briefing	End User	Service Provider (Digital Briefing Application)	Briefing Filters; Briefing (ePIB)	Flight Operations		<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0025 <Partial>	
IER-13.02.02-OSED-0001.0015	Register for Flight Updates	End User	Service Provider (Digital Briefing Application)	User Credentials; Briefing Filters	Flight Operations	Issuer must be authorised to receive flight updates	<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0002.0132 <Partial>	

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Identifier	Name	Issuer	Intended Addressees	Information Element	Involved Operational Activities	Interaction Rules and Policy	Status	Rationale	Satisfied DOD Requirement Identifier	Service Identifier
IER-13.02.02-OSED-0001.0016	Send Flight Updates	Service Provider (Digital Briefing Application)	End User	Briefing Data	Flight Operations	Client must monitor for new Flight Updates	<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0002.0132 <Partial>	
IER-13.02.02-OSED-0001.0017	Request Pre-Flight Data Load	End User	Service Provider (Digital Briefing Application)	Flight Trajectory Data; Briefing Data	Flight Operations	Briefing Data based on flight trajectory	<Validated>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0002.0130 <Partial>	
IER-13.02.02-OSED-0001.0018	Send Reporting Information	End User	Service Provider (Digital Briefing Application)	Pilot Findings	Flight Operations	Application must monitor for new Reporting Information	<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0025 <Partial>	
IER-13.02.02-OSED-0001.0019	Register Data Provider for Pilot Findings	Other ATM Data Provider	Service Provider (Digital Briefing Application)	User Credentials	Post-Flight Reporting	Data provider must be authorised to receive pilot findings	<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0025 <Partial>	
IER-13.02.02-OSED-0001.0020	Register Data Originator for Pilot Findings	Data Originator	Service Provider (Digital Briefing Application)	User Credentials	Post-Flight Reporting	Data originator must be authorised to receive pilot findings	<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0025 <Partial>	
IER-13.02.02-OSED-0001.0021	Send Pilot Findings	Service Provider (Digital Briefing Application)	Other ATM Data Provider; Data Originator	Pilot Findings	Post-Flight Reporting	Addressee must monitor for new Pilot Findings; Addressee must be responsible for reported elements	<In Progress>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0025 <Partial>	

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Identifier	Name	Issuer	Intended Addressees	Information Element	Involved Operational Activities	Interaction Rules and Policy	Status	Rationale	Satisfied DOD Requirement Identifier	Service Identifier
IER-13.02.02-OSED-0001.0022	Request Flight Plan	Service Provider (Digital Briefing Application)	Other ATM Data Provider (Flight Trajectory Mgt System)	Flight Plan	Flight Planning; Flight Operations		<Validated>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0027 <Partial>	
IER-13.02.02-OSED-0001.0023	Request Flight Trajectory Data	Service Provider (Digital Briefing Application)	Other ATM Data Provider (Flight Trajectory Mgt System)	Flight Trajectory Data	Flight Planning; Flight Operations	Flight trajectory data based on flight plan	<Validated>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0027 <Partial>	
IER-13.02.02-OSED-0001.0024	Request Aeronautical Info Data	Service Provider (Digital Briefing Application)	Other ATM Data Provider (Aeronautical Info Provider)	Aeronautical Info Data	Flight Planning; Flight Operations	Features near flight trajectory + departure and destination airports	<Validated>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0027 <Partial>	
IER-13.02.02-OSED-0001.0025	Request Meteo Data	Service Provider (Digital Briefing Application)	Other ATM Data Provider (Meteo Data Provider)	Meteo Data	Flight Planning; Flight Operations	Weather conditions along flight trajectory only	<Validated>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0027 <Partial>	
IER-13.02.02-OSED-0001.0027	Request Airport Map with graphical NOTAM	Service Provider (Digital Briefing Application)	Other ATM Data Provider (Airport Map Provider)	Airport Map	Flight Planning; Flight Operations	The service must be available on request to provide airport maps (graphic) with overlayed NOTAM information	<Validated>	This OSED (sections 2.3 and 5)	REQ-07.02-DOD-0001.0027 <Partial>	

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Identifier	Name	Issuer	Intended Addressees	Information Element	Involved Operational Activities	Interaction Rules and Policy	Status	Rationale	Satisfied DOD Requirement Identifier	Service Identifier
IER-13.02.02-OSED-0001.0028	METAR / SPECI provision	MET Provider	Aircraft Operator	METAR/SPECI	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<Validated>	End user needs to have in the briefing weather conditions for departure, en-route, destination and alternative aerodrome(s) of the flight.	REQ-07.02-DOD-0001.0026 <Partial>	METAR
IER-13.02.02-OSED-0001.0029	TAF provision	MET Provider	Aircraft Operator	TAF	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<Validated>	End user needs to have in the briefing aerodrome forecast for departure, en-route, destination and alternative aerodrome(s) of the flight	REQ-07.02-DOD-0001.0026 <Partial>	TAF
IER-13.02.02-OSED-0001.0030	SIGMET provision	MET Provider	Aircraft Operator	SIGMET	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<Validated>	End user needs to have in the briefing specified en-route weather phenomena which may affect the safety of aircraft operations	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0031	GAMET provision	MET Provider	Aircraft Operator	GAMET	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	End user needs to have in the briefing forecast in abbreviated plain language for low-level flights	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0032	AIRMET provision	MET Provider	Aircraft Operator	AIRMET	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<Validated>	End user needs to have in the briefing warnings in abbreviated plain language for low-level flights	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0033	Significant weather charts provision	MET Provider	Aircraft Operator	Significant weather charts	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	End user needs to have in the briefing significant weather charts.	REQ-07.02-DOD-0001.0026 <Partial>	

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Identifier	Name	Issuer	Intended Addressees	Information Element	Involved Operational Activities	Interaction Rules and Policy	Status	Rationale	Satisfied DOD Requirement Identifier	Service Identifier
IER-13.02.02-OSED-0001.0034	Wind and temperature chart provision	MET Provider	Aircraft Operator	WINTEM	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	End user needs to have in the briefing wind and temperature charts for specific flight levels	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0035	Local aerodrome warnings provision	MET Provider	Aircraft Operator	Local aerodrome warnings	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	End user needs to have in the briefing weather data containing local aerodrome warnings	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0036	Wind shear warnings provision	MET Provider	Aircraft Operator	Wind shear warnings	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	End user needs to have in the briefing wind shear which could adversely affect aircraft on the approach path or take-off path or during circling approach	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0037	Volcanic ash cloud advisory information provision	MET Provider	Aircraft Operator	Volcanic ash cloud advisory information	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	End user needs to have in the briefing volcanic ash cloud advisory information relevant to the whole route	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0038	Tropical cyclones advisory information provision	MET Provider	Aircraft Operator	Tropical cyclones advisory information	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	End user needs to have in the briefing tropical cyclones advisory information relevant to the whole route	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0039	Meteorological satellite images provision	MET Provider	Aircraft Operator	Meteorological satellite images	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	End user needs to have in the briefing weather data containing satellite images	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0040	Ground-based weather radar information provision	MET Provider	Aircraft Operator	Ground-based weather radar information	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	End user needs to have in the briefing weather radar information including the route	REQ-07.02-DOD-0001.0026 <Partial>	

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Identifier	Name	Issuer	Intended Addressees	Information Element	Involved Operational Activities	Interaction Rules and Policy	Status	Rationale	Satisfied DOD Requirement Identifier	Service Identifier
IER-13.02.02-OSED-0001.0041	Radioactive materials information provision	MET Provider	Aircraft Operator	Radioactive materials information	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	End user needs to have in the briefing information concerning the accidental release of radioactive materials into the atmosphere, if any, impacting the flight trajectory.	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0042	Landing forecast provision	MET Provider	Aircraft Operator	Landing forecast	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	End user would like to have in the briefing landing forecast	REQ-07.02-DOD-0001.0026 <Partial>	AirportMETForecast
IER-13.02.02-OSED-0001.0043	Forecast for take-off provision	MET Provider	Aircraft Operator	Forecast for take-off	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	End user would like to have in the briefing forecast for take-off	REQ-07.02-DOD-0001.0026 <Partial>	AirportMETForecast
IER-13.02.02-OSED-0001.0044	Area forecasts for low-level flights provision	MET Provider	Aircraft Operator	Area forecasts for low-level flights	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	End user would like to have in the briefing forecast for low-level flights	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0045	Space-weather data provision	MET Provider	Aircraft Operator	Space-weather data	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	End user needs to have in the briefing space-weather data	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0046	MET REPORT / SPECIAL provision	MET Provider	Aircraft Operator	MET REPORT / SPECIAL provision	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	End user would like to have in the briefing MET REPORT / SPECIAL	REQ-07.02-DOD-0001.0026 <Partial>	

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Identifier	Name	Issuer	Intended Addressees	Information Element	Involved Operational Activities	Interaction Rules and Policy	Status	Rationale	Satisfied DOD Requirement Identifier	Service Identifier
IER-13.02.02-OSED-0001.0047	Upper wind data provision	MET Provider	Briefing Application	Upper wind data	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	Briefing application needs to have upper wind data to be integrated in the synthetic/integrated view containing relevant meteorological information	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0048	Upper-air temperature and humidity data provision	MET Provider	Briefing Application	Upper-air temperature and humidity data	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	Briefing application needs to receive upper-air temperature and humidity data to be integrated in the synthetic/integrated view containing relevant meteorological information	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0049	Geopotential altitude of flight levels data provision	MET Provider	Briefing Application	Geopotential altitude of flight levels data	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	Briefing application needs to receive geopotential altitude of flight levels data to be integrated in the synthetic/integrated view containing relevant meteorological information	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0050	Flight level and temperature of tropopause data provision	MET Provider	Briefing Application	Flight level and temperature of tropopause data	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	Briefing application needs to receive flight level and temperature of tropopause data to be integrated in the synthetic/integrated view containing relevant meteorological information	REQ-07.02-DOD-0001.0026 <Partial>	

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Identifier	Name	Issuer	Intended Addressees	Information Element	Involved Operational Activities	Interaction Rules and Policy	Status	Rationale	Satisfied DOD Requirement Identifier	Service Identifier
IER-13.02.02-OSED-0001.0051	Direction, speed and flight level of maximum wind data provision	MET Provider	Briefing Application	Direction, speed and flight level of maximum wind data	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	Briefing application needs to receive direction, speed and flight level of maximum wind data to be integrated in the synthetic/integrated view containing relevant meteorological information	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0052	Vertical flight profile provision	Airspace Users	Briefing Application	Vertical flight profile data	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	Briefing application needs to receive vertical flight profile data to be integrated in the synthetic/integrated view containing relevant meteorological information	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0053	Orography profile provision	ANSP	Briefing Application	Orography profile data	Flight Planning; Flight Operations	Addressees must have permission to receive such information.	<In Progress>	Briefing application needs to receive orography profile data to be integrated in the synthetic/integrated view containing relevant meteorological information	REQ-07.02-DOD-0001.0026 <Partial>	
IER-13.02.02-OSED-0001.0054	Routine air-reports / Special air-reports provision	MET Provider	Aircraft Operator	Routine air-reports / Special air-reports	Flight Operations	Addressees must have permission to receive such information.	<In Progress>	On-board briefing application can receive and visualize routine air-reports / special air-reports produced by other aircraft flying into an area affected by relevant phenomena.	REQ-07.02-DOD-0002.0131 <Partial>	

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Table 6: IER Information Exchange Requirements.

6.3 Safety and Performance Information Exchange Requirements

The Information Exchange Requirements related to Safety and Performance (SPR) are detailed below.

It should be noted that the column "Safety Criticality" defined in the SPR IER template has mostly been left blank in this section. The reason is that it is not appropriate to provide the requested values without a proper safety analysis of the Information Exchange Requirements based on a validated methodology. Reference sources have been consulted, but the only documents that have been found that would provide appropriate and relevant inputs are EUROCAE ED-175 (reference [15]) for Digital NOTAM IERs and ICAO Annex 3 App10 (reference [16]]) for Briefing IERs related to MET. Since the safety requirements listed in this document are specific to data link applications, they are only relevant to two of the listed Information Exchange Requirements.

[IER]

Identifier	Name	Content Type	Frequency	Safety Criticality	Confidentiality	Maximum Time of Delivery	Interaction Type	Free
IER-13.02.02-OSED-0001.0001	Register Digital NOTAM Originator	<Data>	occasional	<No Effect>	<Restricted>	10 seconds	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0002	Store Digital NOTAM Proposal	<Data>	2500 / hour	<No Effect>	<Public>	30 seconds	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0003	Update Digital NOTAM Proposal	<Data>	1250 / hour	<No Effect>	<Public>	30 seconds	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0004	Send Digital NOTAM Proposal Feedback	<Data>	250 / hour	<No Effect>	<Public>	30 seconds	<One-way>	
IER-13.02.02-OSED-0001.0005	Request NOTAM Provider Data Clarification	<Data>	250 / hour	<No Effect>	<Public>	30 seconds	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0006	Request NOTAM Service Data Clarification	<Data>	250 / hour	<No Effect>	<Public>	30 seconds	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0007	Register Service Provider for Digital NOTAM	<Data>	occasional	<No Effect>	<Restricted>	10 seconds	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0008	Register End User for Digital NOTAM	<Data>	occasional	<No Effect>	<Restricted>	10 seconds	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0009	Send Digital NOTAM	<Data>	2500 / hour	<No Effect>	<Public>	10 seconds	<One-way>	
IER-13.02.02-OSED-0001.0010	Request Briefing (*see Note 1)	<Data><Image>	1000 / hour	<No Effect>	<Public>	1 minute	<Two-way dialogue>	

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Identifier	Name	Content Type	Frequency	Safety Criticality	Confidentiality	Maximum Time of Delivery	Interaction Type	Free
IER-13.02.02-OSED-0001.0011	Request Flight Planning Briefing	<Data><Image>		<No Effect>	<Public>	1 minute	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0012	Request Departure Briefing	<Data><Image>		<No Effect>	<Public>	1 minute	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0013	Request Flight Preparation Briefing	<Data><Image>		<No Effect>	<Public>	1 minute	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0014	Request Situation Briefing	<Data><Image>	100 / hour	<No Effect>	<Public>	1 minute	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0015	Register for Flight Updates	<Data>	occasional	<No Effect>	<Restricted>	10 seconds	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0016	Send Flight Updates	<Data>	1250 / hour	<No Effect>	<Restricted>	1 minute	<One-way>	
IER-13.02.02-OSED-0001.0017	Request Pre-Flight Data Load	<Data>	1000 / hour	<No Effect>	<Public>	3 minutes	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0018	Send Reporting Information	<Data>	occasional	<No Effect>	<Public>	30 seconds	<One-way>	
IER-13.02.02-OSED-0001.0019	Register Data Provider for Pilot Findings	<Data>	occasional	<No Effect>	<Restricted>	10 seconds	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0020	Register Data Originator for Pilot Findings	<Data>	occasional	<No Effect>	<Restricted>	10 seconds	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0021	Send Pilot Findings	<Data>	100 / hour	<No Effect>	<Public>	30 seconds	<One-way>	
IER-13.02.02-OSED-0001.0022	Request Flight Plan	<Data>	1000 / hour	<No Effect>	<Restricted>	10 seconds	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0023	Request Flight Trajectory Data	<Data>	1000 / hour	<No Effect>	<Restricted>	10 seconds	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0024	Request Aeronautical Info Data	<Data>	1000 / hour	<No Effect>	<Public>	10 seconds	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0025	Request Meteo Data	<Data><Image>	1000 / hour	<No Effect>	<Public>	10 seconds	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0027	Request Airport Map with graphical NOTAM	<Image>	1000 / hour	<No Effect>	<Public>	10 seconds	<Two-way dialogue>	
IER-13.02.02-OSED-0001.0028	METAR / SPECI provision	<Data>	upon request	<No Effect>	<Public>	5 minutes → 0–900 km (500 NM) 10 minutes → more than 900 km (500 NM)	<One-way>	
IER-13.02.02-OSED-0001.0029	TAF provision	<Data>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	

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Identifier	Name	Content Type	Frequency	Safety Criticality	Confidentiality	Maximum Time of Delivery	Interaction Type	Free
IER-13.02.02-OSED-0001.0030	SIGMET provision	<Data><Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0031	GAMET provision	<Data><Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0032	AIRMET provision	<Data><Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0033	Significant weather charts provision	<Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0034	Wind and temperature data provision	<Data><Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0035	Local aerodrome warnings provision	<Data><Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0036	Wind shear warnings provision	<Data><Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0037	Volcanic ash cloud advisory information provision	<Data><Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0038	Tropical cyclones advisory information provision	<Data><Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0039	Meteorological satellite images provision	<Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0040	Ground-based weather radar information provision	<Data><Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0041	Radioactive materials information provision	<Data><Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0042	Landing forecast provision	<Data><Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0043	Forecast for take-off provision	<Data><Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0044	Area forecasts for low-level flights provision	<Data><Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0045	Space-weather data provision	<Data><Image>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0046	MET REPORT / SPECIAL provision	<Data>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0047	Upper wind data provision	<Data>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0048	Upper-air temperature and humidity data provision	<Data>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0049	Geopotential altitude of flight levels data provision	<Data>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	

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Identifier	Name	Content Type	Frequency	Safety Criticality	Confidentiality	Maximum Time of Delivery	Interaction Type	Free
IER-13.02.02-OSED-0001.0050	Flight level and temperature of tropopause data provision	<Data>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0051	Direction, speed and flight level of maximum wind data provision	<Data>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0052	Vertical flight profile provision	<Data>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0053	Orography profile provision	<Data>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	
IER-13.02.02-OSED-0001.0054	Routine air-reports / Special air-reports provision	<Data>	upon request	<No Effect>	<Public>	5 minutes	<One-way>	

Table 7: Information Exchange – Safety and Performance Requirements

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7 References

7.1 Annexes

Annex A: Sample ePIB (DEL_13.02.02.D10_OSED Annex A ePIB)

7.2 Applicable Documents

[1] Template Toolbox Ed.04.00.00 22/03/2014
https://extranet.sesarju.eu/Programme%20Library/SESAR%20Template%20Toolbox.dot

[2] Requirements and VV Guidelines Ed. 03.01.00 05/02/2014
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7.3 Reference Documents

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[7] Preliminary Digital NOTAM Business Case Analysis, EUROCONTROL, 2009

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[9] Digital NOTAM Event Specification version 1.0, 15/09/2009,
http://www.aixm.aero/sites/aixm.aero/files/imce/library/Digital_NOTAM_Spec/digital_notam_event_specification_1.0.doc

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Appendix A New Information Elements

A.1 Information Element for Information Exchange Requirement IER-13.2.2-OSED-0001.00(01/07/08/13/19/20)

Identifier	IER-13.2.2-OSED-0002.0001
Name	User Credentials
Description	Credentials that allow a user to be registered for a particular operation
Properties	
Rules applied	The credentials for each user must allow them to be uniquely identified
Comments	

A.2 Information Element for Information Exchange Requirement IER-13.2.2-OSED-0001.00(07/08)

Identifier	IER-13.2.2-OSED-0002.0002
Name	NOTAM Filters
Description	Filters that allow one or more Digital NOTAM to be identified
Properties	
Rules applied	
Comments	

A.3 Information Element for Information Exchange Requirement IER-13.2.2-OSED-0001.00(10/11/12/13/14)

Identifier	IER-13.2.2-OSED-0002.0003
Name	Briefing (ePIB)
Description	The briefing (ePIB) that is produced by the Digital Briefing application
Properties	
Rules applied	
Comments	Example (mock-up) of an ePIB is provided as an input to the definition

A.4 Information Element for Information Exchange Requirement IER-13.2.2-OSED-0001.00(16/17)

Identifier	IER-13.2.2-OSED-0002.0004
Name	Briefing Data
Description	The data that is required to construct a Briefing (ePIB)
Properties	
Rules applied	
Comments	Example (mock-up) of an ePIB is provided as an input to the definition

A.5 Information Element for Information Exchange Requirement IER-13.2.2- OSED-0001.00(10/11/12/13/14)

Identifier	IER-13.2.2-OSED-0002.0005
Name	Briefing Filters
Description	Filters that allow the scope of a Digital Briefing to be identified

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Properties	
Rules applied	
Comments	Example (mock-up) of an ePIB is provided as an input to the definition

A.6 Information Element for Information Exchange Requirement IER-13.2.2-OSED-0001.0004

Identifier	IER-13.2.2-OSED-0002.0006
Name	Proposal Feedback
Description	Information describing the quality and completeness of a Digital NOTAM proposal
Properties	
Rules applied	
Comments	

A.7 Information Element for Information Exchange Requirement IER-13.2.2-OSED-0001.00(05/06)

Identifier	IER-13.2.2-OSED-0002.0007
Name	NOTAM Data Clarification
Description	Identification of item(s) requiring clarification in a Digital NOTAM or NOTAM proposal
Properties	
Rules applied	
Comments	

A.8 Information Element for Information Exchange Requirement IER-13.2.2-OSED-0001.0027

Identifier	IER-13.2.2-OSED-0002.0008
Name	Airport Map
Description	Map of airport area with overlaid NOTAM information
Properties	
Rules applied	
Comments	

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Appendix B Deleted Requirements (from past phases)

This Appendix contains requirements from earlier phases of the Project 13.02.02 that are now considered deleted.

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0013
Requirement	The Data Originator and NOTAM Provider shall be able to manually modify the Text NOTAM that was automatically generated from the digital NOTAM.
Title	Text NOTAM modification
Status	<Deleted>
Rationale	Data Originator and NOTAM Provider have the responsibility to verify and modify text NOTAMs against ICAO rules before issuing. (Intended Function O.2, O.6, N.3) Conclusion from EXE-13.02.02-VP-460: not a good idea, risk of data corruption. Requirement should be deleted.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0014
Requirement	If the automatically generated Text NOTAM was modified by the Data Originator and NOTAM Provider, a visibly displayed warning shall be presented to the operator.
Title	Text NOTAM modification warning
Status	<Deleted>
Rationale	Data Originator and NOTAM Provider have the responsibility to verify and modify text NOTAMs against ICAO rules before issuing, and to keep traceability of modifications. (Intended Function O.2, O.6, N.3) Deleted as consequence of the deletion of REQ-13.02.02-OSED-0201.0013.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0025
Requirement	The NOTAM Provider shall be able to publish a Digital NOTAM in the SWIM data pool.
Title	Publish the digital NOTAM in the SWIM data pool
Status	<Deleted>

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Rationale	The objective is to make the structured data set of the digital NOTAM available to the SWIM network. (Intended Function N.6) The concept of SWIM Data Pool is not clear and it does not match the SWIM specifications. Therefore the requirements is deleted.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0028
Requirement	The Service Provider shall be able to receive all digital NOTAM that are issued by the NOTAM Providers in the area of interest. This includes both the Digital and the Text NOTAM formats.
Title	Digital NOTAM reception
Status	<Deleted>
Rationale	The Service Provider shall be able to select an area of interest and receive all valid digital NOTAMs and text NOTAMs provided in that area. (Intended Function S.1, S.2, S.3, S.4, S.5) Reason for deletion: all aeronautical data is equally necessary, not just Digital NOTAM. Replaced by new requirement.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0029
Requirement	The Service Provider shall be able to browse the Digital NOTAM database and read/visualise the data contained in any Digital NOTAM received.
Title	Access to the digital NOTAM database
Status	<Deleted>
Rationale	The Service Provider need to have availability to the digital NOTAM database for their operational need of consulting the data in the individual digital NOTAMs. (Intended Function S.1, S.2, S.3, S.4, S.5) Reason for deletion: It is a low level requirement, not relevant for OSED, Instead, there is a new requirement that all data used for digital briefing services is validated.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

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Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0030
Requirement	If a Digital NOTAM that is visualised for the Service Provider concerns an airport related feature, the application should enable displaying graphically the layout of the airport concerned. As a minimum, this shall contain the layout of the runways, the identification of their thresholds, the airport reference point and the layout of the terminal area.
Title	Graphical display Airport features for visualisation
Status	<Deleted>
Rationale	The displayed graphical airport features (such as a RWY, TWY, etc.) provides the means for the Service Provider to understand the airport context in which the Digital NOTAM is provided. (Intended Function S.2) Reason for deletion: It is a low level requirement, not relevant for OSED, Instead, there is a new requirement that all data used for digital briefing services is validated.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0031
Requirement	If a Digital NOTAM that is visualised for the Service Provider concerns an airspace related feature, the application should enable displaying graphically the route and airspace structure within the FIR(s), CTR(s) or TMA(s) concerned. As a minimum, this shall contain the outer boundary and the identification of the airspace, the international airports locations and identifications and any airspace and route data that is critical for assessing the impact of the event on the existing route/airspace structure.
Title	Graphical display Airspace features for visualisation
Status	<Deleted>
Rationale	The displayed graphical airspace features provides the means for the Service Provider to understand the airspace context in which the Digital NOTAM is provided. (Intended Function S.2) Reason for deletion: It is a low level requirement, not relevant for OSED, Instead, there is a new requirement that all data used for digital briefing services is validated.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

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[REQ]

Identifier	REQ-13.02.02-OSED-0201.0032
Requirement	The graphical presentation of the airport/airspace context should include the possibility for the Service Provider to visualise graphically (where possible) or as text annotations the information about the operational status of the features in the viewport. Note that there may be situations where it would be desirable to view the information as text annotations even if it's possible to present it graphically.
Title	View of features operational status
Status	<Deleted>
Rationale	The operational status of airport/airspace is of high importance and should be made available through easy access and a graphical display for enhanced situational awareness. (Intended Function S.2) Reason for deletion: It is a low level requirement, not relevant for OSED, Instead, there is a new requirement that all data used for digital briefing services is validated.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0033
Requirement	The feature affected by the Digital NOTAM that is being visualised for the Service Provider shall be visibly highlighted.
Title	Visual highlight of affected feature
Status	<Deleted>
Rationale	The highlighted feature will enable the Service Provider to easy spot what subject of the NOTAM that is affected by the change (Intended Function S.2, S.3) Reason for deletion: It is a low level requirement, not relevant for OSED, Instead, there is a new requirement that all data used for digital briefing services is validated.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0034
Requirement	If the Digital NOTAM encoding modifies the shape, size or another element that is visible in the graphical view for a feature, the Service Providers' graphical view should be updated as necessary, eventually enabling to graphically compare the old and the new shape.

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Title	Updated graphical view for Service Provider
Status	<Deleted>
Rationale	The Service Provider shall be able to rely on that the graphical view of the information is according to the valid NOTAM encoding. (Intended Function S.2, S.3) Reason for deletion: It is a low level requirement, not relevant for OSED, Instead, there is a new requirement that all data used for digital briefing services is validated.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0035
Requirement	The Service Provider shall be presented with the automatically generated equivalent Text NOTAM, applying the decoding rules contained in the Digital NOTAM Event Specification, so that the Service Provider can check the received text NOTAM against its digital encoding.
Title	Text NOTAM generation
Status	<Deleted>
Rationale	Text NOTAMs will be issued in parallel with the digital NOTAM, and an automatic generation avoids a separate system for the Service Provider. (Intended Function S.2, S.3) Reason for deletion: It is a low level requirement, not relevant for OSED, Instead, there is a new requirement that all data used for digital briefing services is validated.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0036
Requirement	The Service Provider shall be supported by automatically executed checks on any received digital NOTAM, that detect the violation of defined business rules (data consistency checks) or data which is statistically out of range (data plausibility checks). As a minimum, the data verification rules specified for the relevant event in the Digital NOTAM Event Specification shall be applied.
Title	Data check on received NOTAM
Status	<Deleted>

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Rationale	The Digital NOTAM application shall support the Service Provider through automatic data checking and verification against pre-defined business rules. (Intended Function S.3) Reason for deletion: It is a low level requirement, not relevant for OSED, Instead, there is a new requirement that all data used for digital briefing services is validated.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0037
Requirement	The partial or total failure of a data verification check shall be notified to the Service Provider.
Title	Data check failure on received NOTAM
Status	<Deleted>
Rationale	The Digital NOTAM application shall support the Service Provider through automatic data checking and verification against pre-defined business rules. (Intended Function S.3) Reason for deletion: It is a low level requirement, not relevant for OSED, Instead, there is a new requirement that all data used for digital briefing services is validated.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0038
Requirement	The Service Provider shall be able to annotate a received Digital NOTAM.
Title	Digital NOTAM proposal annotation
Status	<Deleted>
Rationale	The Service Provider shall be able to add annotations of local interest, including the possibility to flag the data following detection of possible inconsistencies. (Intended Function S.4) Reason for deletion: It is a low level requirement, not relevant for OSED, Instead, there is a new requirement that all data used for digital briefing services is validated.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

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[REQ]

Identifier	REQ-13.02.02-OSED-0201.0039
Requirement	The Service Provider shall be able to send feed-back to the NOTAM Provider, in the form of a requests for clarification
Title	Digital NOTAM feed-back to NOTAM Provider
Status	<Deleted>
Rationale	The Service Provider shall be able to communicate all related operations regarding the digital NOTAM with the NOTAM Provider. (Intended Function S.5) Reason for deletion: It is a low level requirement, not relevant for OSED, Instead, there is a new requirement that all data used for digital briefing services is validated.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0041
Requirement	The Service Provider shall be able to retrieve the legal recording data, on request.
Title	Legal recording data retrieval
Status	<Deleted>
Rationale	The application shall support the Service Provider by retrieving the legal recording. (Intended Function S.3) Reason for deletion: duplication, it is already covered by the extended formulation of 0201.0040.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0042
Requirement	The End Users shall be able to specify a combination of one or more airspace (FIR, TMA, etc.) and/or Airports/Heliports to be used as query parameters for selecting the ePIB data. Reason for deletion: it is more appropriate as a technical requirement, in support of a general functional requirement for ePIB data filtering.
Title	Query parameter-Airspace/Airport/Heliport
Status	<Deleted>

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Rationale	End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators)specific query parameters are used to filter and retrieve only the required data, to customize and eliminate irrelevant information in the briefing. (Intended Function P.1, P.2, D.1, F.1, C.1) Reason for deletion: it is more appropriate as a technical requirement, in support of a general functional requirement for ePIB data filtering per flight (REQ-13.02.02-OSED-0201.0046).
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0043
Requirement	The End Users shall be able to input specific NOTAM originators, subjects, NOTAM number, etc. as query parameters for selecting the ePIB data.
Title	Query parameter-NOTAM
Status	<Deleted>
Rationale	End Users (Pilots, Dispatcher/ARO operators, ATC/ATM operators) specific query parameters are used to filter and retrieve only the required data, to customize and eliminate irrelevant information in the briefing. (Intended Function P.1, D.1, C.1) Reason for deletion: it is more appropriate as a technical requirement, in support of a general functional requirement for ePIB data filtering per flight (REQ-13.02.02-OSED-0201.0046).
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0044
Requirement	The End Users shall be able to input a precise route defined as "ADEP, SID (optional), point-route-point-route-...-point, STAR (optional), ADES, ALTN, ALTN, ALTN..." to be used as query parameter for selecting the ePIB data.
Title	Query parameter-Routes
Status	<Deleted>

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Rationale	End Users (Pilots, Dispatcher/ARO operator, ATC/ATM operators) specific query parameters are used to filter and retrieve only the required data, to customize and eliminate irrelevant information in the briefing. (Intended Function P.2, D.1, F.1) Reason for deletion: it is more appropriate as a technical requirement, in support of a general functional requirement for ePIB data filtering per flight (REQ-13.02.02-OSED-0201.0046).
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0045
Requirement	The End Users shall be able to specify an arbitrary area (a series of lat/long coordinates) to be used as query parameter for selecting the ePIB data.
Title	Query parameter-Area
Status	<Deleted>
Rationale	End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators)specific query parameters are used to filter and retrieve only the required data, to customize and eliminate irrelevant information in the briefing. (Intended Function P.1, D.1, C.1, F.1) Reason for deletion: it is more appropriate as a technical requirement, in support of a general functional requirement for ePIB data filtering per flight (REQ-13.02.02-OSED-0201.0046).
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0047
Requirement	The End Users shall be able to input time parameters for selecting the briefing data, retrieving data within a specified information validity time span.
Title	Query parameter-Time
Status	<Deleted>

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Rationale	End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators) specific query parameters are used to filter and retrieve only the required data, to customize and eliminate irrelevant information in the briefing. (Intended Function P.1, P.2, D.1, F.1, C.1) Reason for deletion: it is more appropriate as a technical requirement, in support of a general functional requirement for ePIB data filtering per flight (REQ-13.02.02-OSED-0201.0046).
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0048
Requirement	The End Users shall be able to retrieve FPL from the SWIM Data Pool, to be used as query parameter for selecting the briefing data.
Title	Query parameter-Retrieval FPL
Status	<Deleted>
Rationale	End Users (Pilots, Dispatcher/ARO operator, ATC/ATM operators) specific query parameters are used to filter and retrieve only the required data, to customize and eliminate irrelevant information in the briefing. (Intended Function P.2, D.1, F.1) Reason for deletion: the concept of SWIM Data Pool is unclear. SWIM compliance is a technical requirement.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0050
Requirement	The End Users shall be able to specify parameters for the generation of the briefing: *) Ad-hoc values; *) Values stored in a company profile; *) Values stored in a briefing profile; *) Values which are part of the FPL associated with the briefing; *) A combination of above possibilities.
Title	Query parameter
Status	<Deleted>

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Rationale	End Users Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators) specific query parameters are used to filter and retrieve only the required data, to customize and eliminate irrelevant information in the briefing. (Intended Function P.1, P.2, D.1, F.1, C.1)
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0054
Requirement	The End Users shall be able to specify the type of pre-flight information bulletin that should be generated: *) Traditional PIB *) Enhanced PIB *) Interactive Briefing
Title	Generating different types of PIB
Status	<Deleted>
Rationale	The provision of the traditional PIB in text format is requested by the current ICAO standards. The new briefing products (Enhanced PIB, Interactive Briefing, etc.) can be provided as alternatives to the current PIB. (Intended Function P.2, D.1, D.2, F.1, F.2, C.1) Reason for deletion: it is more appropriate as a technical requirement, in support of REQ-13.02.02-OSED-0201.0046.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	ENB02.01.02	N/A
<SATISFIES>	<ATMS Requirement>	REQ-07.02-DOD-0001.0027	<Partial>

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0055
Requirement	The End Users shall be provided feedback regarding the performance of the Digital Briefing Application, for SMS/QMS purpose.
Title	Performance feed-back on application
Status	<Deleted>

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Rationale	This is part of End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators), safety- and quality management systems requirements. (Intended Function P.3, D.3, F.3, C.2, R.1). Reason for deletion: this is not a real user requirement. It is a regulatory perspective which will be dealt with during implementations.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0056
Requirement	The End Users shall be able to perform legal recording actions of all steps performed : request input, data provided, acknowledgement / feed-back received, etc.
Title	Legal recording actions
Status	<Deleted>
Rationale	The application shall support the legal recording of the End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators) performed processes, for traceability. (Intended Function P.1, P.2, P.3, D.1, D.2, D.3, F.1, F.2, F.3, C.1, C.2, R.1) Reason for deletion: duplicate requirement with REQ-13.02.02-OSED-0201.0026
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0057
Requirement	The End Users shall be able to retrieve the legal recording data, on request.
Title	Legal recording data retrieval
Status	<Deleted>
Rationale	The application shall support the End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators) to retrieve the legal recording. (Intended Function P.1, P.2, P.3, D.1, D.2, D.3, F.1, F.2, F.3, C.1, C.2, R.) Reason for deletion: duplicate requirement with REQ-13.02.02-OSED-0201.0026
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

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[REQ]

Identifier	REQ-13.02.02-OSED-0201.0058
Requirement	The End Users shall be able to create statistical reports with regard to its use, on request.
Title	Creation of Statistical reports
Status	<Deleted>
Rationale	The application shall support the End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators) to create statistical reports of different use. (Intended Function P.1, P.2, P.3, D.1, D.2, D.3, F.1, F.2, F.3, C.1, C.2, R.1) Reason for deletion: Not a user requirement. It might eventually be quality or regulatory aspect, which will be dealt with during implementations.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0064
Requirement	The NOTAM text in the enhanced Pre-Flight Bulletin (ePIB) shall be displayed using both upper and lower case as appropriate.
Title	Use of upper and lower case
Status	<Deleted>
Rationale	Using upper and lower case will improve the readability of the information for the End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators) (Intended Function P.1, P.2, D.1, F.1, C.1) Reason for deletion: non-functional requirement, low level of detail. Not necessary at OSED level.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0063
Requirement	The user shall have access to an ePIB interactive table of content referring to the different sections of information.
Title	Interactive table of content in ePIB
Status	<Deleted>

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Rationale	An interactive table of content will enable quick access for the End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators) to the required information. (Intended Function P.1, P.2, D.1, F.1, C.1) Rationale for deletion: it is a technical requirement, in support to functional requirements such as REQ-13.02.02-OSED-0201.0060, REQ-13.02.02-OSED-0401.0010, etc.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0065
Requirement	The enhanced Pre-Flight Bulletin (ePIB) shall include NOTAM data that is valid within a specified time span, plus/minus a specified buffer which will enable the End Users to also retrieve NOTAM data that have a start or end validity close to the prescribed time window.
Title	Selected time window for generation of NOTAM the ePIB
Status	<Deleted>
Rationale	The selected time window will be the pre-requisite for the displayed information, meaning that all NOTAMs in the bulletin are valid during this time. This means that the validity period of the NOTAM does not need to be displayed for all NOTAMs. (Intended Function P.1, P.2, D.1, F.1, C.1) Reason for deletion: duplicate with REQ-13.02.02-OSED-0201.0047, which refers to the validity of all data, including NOTAM data.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0066
Requirement	The enhanced Pre-Flight Bulletin (ePIB) shall only display the validity period of the NOTAM data in the following cases: - A scheduled event - The NOTAM ends or starts within the selected time window - The NOTAM ends close to the selected time window (24 hours before and after) The NOTAM validity shall not be displayed if the information is valid for the complete selected time period, including the buffer
Title	Displayed NOTAM validity
Status	<Deleted>

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Rationale	For NOTAM who's validity period does not cover the full selected time window, the validity period shall be displayed for the End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators). (Intended Function P.1, P.2, D.1, F.1, C.1) Reason for deletion: not confirmed by the end users during the execution of the EXE-13.02.02-VP-462.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0067
Requirement	The enhanced Pre-Flight Bulletin (ePIB) shall display the validity period of the NOTAM data graphically, such as a time bar representing the selected time window, where the validity period of the information is marked.
Title	Graphical representation of NOTAM validity period
Status	<Deleted>
Rationale	The graphical view of information validity decreases the interpretation of validity in text for the End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators). (Intended Function P.1, P.2, D.1, F.1, C.1) Reason for deletion: not confirmed by the users during the execution of EXE-13.02.02-VP-462
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0071
Requirement	An On-board briefing device shall be able to retrieve a digital data package that contains information extracted from the SWIM Data Pool in response to a request from that device. The request is for an initial upload data concerning the current status of the aeronautical infrastructure, airspace, route network and meteorological situation, which is needed for pilot briefing along the planned flight trajectory or in the event of a re-routing.
Title	Pre-flight Data Load
Status	<Deleted>
Rationale	On-board devices and navigation displays will be able to integrate digital information and to present it graphically, improving the situational awareness for the crew. The in-flight updates will enable the transmission of the data updates that occur after departure. (Intended Function F.1, F.2) Reason for deletion: it is a technical aspect, not a user requirement.
Category	<Functional>

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Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0072
Requirement	An On-board briefing device shall be able to retrieve any relevant updates to the digital data package provided in the initial Pre-flight Data Load, extracted from the SWIM Data Pool.
Title	In-flight Data Update
Status	<Deleted>
Rationale	On-board devices and navigation displays will be able to integrate digital information and to present it graphically, improving the situational awareness for the crew. The in-flight updates will enable the transmission of the data updates that occur after departure. The communication channel through which the data is provided is outside the scope of this requirement and of this project in general (Intended Function F.2). Reason for deletion: technical enabler, not user requirement. There is a new requirement now for in-flight updates to maintain awareness.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0201.0076
Requirement	The End Users shall be able to encode data about discrepancies between the information received and the actual status of the aeronautical infrastructure, airspace, route network and meteorological situation as experienced during the flight.
Title	Pilot Finding en-coding
Status	<Deleted>
Rationale	This will enable the End Users (Pilots, Dispatcher/ARO operator, On-board briefing devices, ATC/ATM operators) to input their feedback on the received data in a digital format. (Intended Function P.3, D.3, C.2, F.3, R.1) Reason for deletion: not confirmed by the users during the execution of EXE-13.02.02-VP-462
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

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[REQ]

Identifier	REQ-13.02.02-OSED-0201.0081
Requirement	The Data Originator and NOTAM Provider should be able to manually modify the Q line of the Text NOTAM that was automatically generated from the digital NOTAM. The extent by which the Q line elements might be manually modified depends on the type of event. For certain event categories (such as runway closure), where there is no debate about the Q code to be used, it might be unnecessary to allow the free modification of the Q code.
Title	Text NOTAM modification
Status	<Deleted>
Rationale	Data Originator and NOTAM Provider have the responsibility to verify and modify the "qualifiers" of the text NOTAMs against ICAO rules before issuing, in order to ensure an appropriate insertion of the NOTAM in traditional PIB. In addition, for certain categories of NOTAM, the exact Q code to be used is a matter of national policies and local interpretations of the NOTAM rules. Therefore, a certain freedom must be given to NOTAM operators for modifying the Q line automatically generated by the application according to the local rules and NOTAM practices. (Intended Function O.2, O.6, N.3) Conclusion from EXE-13.02.02-VP-460: not a good idea, risk of data corruption. Requirement should be deleted.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0001
Requirement	The system of the Digital NOTAM Provider shall provide a service “Store Digital NOTAM Proposal” that can be accessed by the Digital NOTAM Originator system.
Title	Store Digital NOTAM Proposal Service
Status	<Deleted>
Rationale	This will enable the NOTAM Originator to send the digital NOTAM proposal to the intended NOTAM Provider. (Intended Function O.4, N.2) Reason for deletion: not a user requirement, just a technical aspect of the implementation.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0002

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Requirement	The system of the Digital NOTAM Originator shall provide a service “Receive Digital NOTAM Proposal Feedback” that can be accessed by the NOTAM Provider system, to send feedback on the Digital NOTAM proposal.
Title	Receive Digital NOTAM Feedback Service
Status	<Deleted>
Rationale	This will enable the NOTAM Provider authority to provide feedback on the sent NOTAM proposal to the originator, prior to publication. The sending of a Digital NOTAM proposal and the reception of feedback are specified as disconnected operations (asynchronous) since there may be a time lapse between the reception of the proposal and its processing by the NOTAM provider authority. (Intended Function O.5, N.2) Reason for deletion: not a user requirement, just a technical aspect of the implementation.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0003
Requirement	The system of the Digital NOTAM Provider shall provide a service “Update Digital NOTAM Proposal” that can be accessed by the NOTAM Originator system to send an updated NOTAM Proposal.
Title	Update Digital NOTAM Proposal Service
Status	<Deleted>
Rationale	This will enable the NOTAM Originator to update a previously sent NOTAM Proposal, before publication, after feedback from the NOTAM Provider authority. (Intended Function O.6) Reason for deletion: not a user requirement, just a technical aspect of the implementation.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0004
Requirement	The system of the digital NOTAM Provider shall provide a service “Register for Digital NOTAM” that allows Service Provider systems to register their interest in receiving published NOTAM for a given area. This shall result in published NOTAM being sent to the registered user system, both in digital and text format according to the request.
Title	Register for Digital NOTAM Service

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Status	<Deleted>
Rationale	This will enable the NOTAM Provider to automatically provide published NOTAM based on the Service Providers requirements. (Intended Function N.6, S.1) Reason for deletion: not a user requirement, just a technical aspect of the implementation.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0005
Requirement	The Service Provider system shall provide a service “Receive Digital NOTAM” that the NOTAM Provider system can access to send the Digital NOTAM that the Service Provider has registered for, in both digital and text format.
Title	Receive Digital NOTAM Service
Status	<Deleted>
Rationale	This will enable the Service Provider to receive the required NOTAM. (Intended Function N.6, S.1) Reason for deletion: not a user requirement, just a technical aspect of the implementation.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0006
Requirement	The system of the digital NOTAM Provider shall provide a service “Receive Digital NOTAM Feedback” that the Service Provider system can access to send feedback on the Digital NOTAM
Title	Receive Digital NOTAM Feedback Service
Status	<Deleted>
Rationale	This will enable the Service Provider to send requests for clarification of published NOTAM through a direct digital connection. (Intended Function N.7, S.5) Reason for deletion: not a user requirement, just a technical aspect of the implementation.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

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[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0007
Requirement	The system hosting the Digital Briefing application shall provide a service “Request Flight Planning Briefing” that the Pilot's Client system can access to retrieve a flight planning briefing.
Title	Request Flight Planning Briefing Service
Status	<Deleted>
Rationale	This will enable the Pilot to retrieve and understand the information (AIS, MET, ATFM data) that is needed in order to decide on the feasibility of an intended flight. (Intended Function P.1) Reason for deletion: not a user requirement, just a technical aspect of the implementation.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0008
Requirement	The system hosting the Digital Briefing application shall provide a service “Request Departure Briefing” that the Pilot’s Client system can access to retrieve a departure briefing.
Title	Request Departure Briefing Service
Status	<Deleted>
Rationale	This will enable the Pilot to become aware of the baseline capabilities/organisation and current status of the aeronautical infrastructure, airspace, route network and meteorological situation that is relevant for the planned flight trajectory. (Intended Function P.2) Reason for deletion: not a user requirement, just a technical aspect of the implementation.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0009

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Requirement	The system hosting the Digital Briefing application shall provide a service “Send Reporting Information” that the Pilot’s Client system, Dispatcher system, On-board Briefing device or ATC Operator's system can access to provide debriefing and post-flight report information.
Title	Send Reporting Information Service
Status	<Deleted>
Rationale	This will enable the Data Users Clients to report back to the concerned Data Provider on discrepancies between the information received from the Digital Briefing System and the real situation of the aeronautical infrastructure, airspace, route network and meteorological situation, as experienced during the flight. (Intended Function P.3, D.3, F.3, C.2) Reason for deletion: not a user requirement, just a technical aspect of the implementation.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0010
Requirement	The system hosting the Digital Briefing application shall provide a service “Request Flight Preparation Briefing” that the Dispatcher's Client system can access to retrieve the flight preparation briefing.
Title	Request Flight Preparation Briefing Service
Status	<Deleted>
Rationale	This will enable the Dispatcher to retrieve the information (AIS, MET, ATFM data) that is needed in order to plan a flight and prepare the departure briefing package for a pilot. (Intended Function D.1) Reason for deletion: not a user requirement, just a technical aspect of the implementation.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0011
Requirement	The system hosting the Digital Briefing application shall provide a service "Register for Flight Updates" that the Dispatcher's Client system and On-board Briefing device can access to register their interest in receiving Flight Updates.
Title	Register for Flight Updates Service
Status	<Deleted>

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Rationale	This will enable the Dispatcher to become aware of any change in the current status of the aeronautical infrastructure, airspace, route network and meteorological situation that needs to be considered or communicated to the pilot. (Intended Function D.2, F.2) Reason for deletion: not a user requirement, just a technical aspect of the implementation.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0012
Requirement	The Dispatcher's Client system or an On-board device shall provide a service “Receive Flight Updates” that the system hosting the Digital Briefing application can access to provide flight update information.
Title	Receive Flight Updates Service
Status	<Deleted>
Rationale	This will enable the Digital Briefing system to send flight update information to registered Dispatcher systems or On-board devices. (Intended Function D.2, F.2) Reason for deletion: not a user requirement, just a technical aspect of the implementation.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0013
Requirement	The system hosting the Digital Briefing application shall provide a service “Request Pre-flight Data Load” that an On-board Briefing device can access to retrieve the required data for pilot briefing.
Title	Request Pre-flight Data Load Service
Status	<Deleted>
Rationale	This will enable the On-board Briefing device to request and get the data about the baseline capabilities/organisation and current status of the aeronautical infrastructure, airspace, route network and meteorological situation, which is needed for pilot briefing not only along the planned flight trajectory but also in the event of a re-routing. (Intended Function F.1) Reason for deletion: not a user requirement, just a technical aspect of the implementation.

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Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0014
Requirement	The system hosting the Digital Briefing application shall provide a service “Request Situation Briefing” that the ATC Operator’s client system can access to retrieve the situational information.
Title	Request Situation Briefing Service
Status	<Deleted>
Rationale	This will enable the ATC/ATM operator to be aware of and to inform the pilot on request about the status of the aeronautical infrastructure, airspace, route network and meteorological situation that is relevant for a specified area of interest. (Intended Function C.1) Reason for deletion: not a user requirement, just a technical aspect of the implementation.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0015
Requirement	The system hosting the Digital Briefing application shall provide a service "Register for Pilot Finding" that the Data Provider system or Data Originator system can access to register their interest in receiving information on pilot findings.
Title	Register for Pilot Findings Service
Status	<Deleted>
Rationale	This will enable the Briefing system to send to the concerned Data Provider/Originator systems feedback received from pilots concerning discrepancies between the information received and the actual status of the aeronautical infrastructure, airspace, route network and meteorological situation as experienced during the flight. (Intended Function R.1) Reason for deletion: not a user requirement, just a technical aspect of the implementation.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

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[REQ]

Identifier	REQ-13.02.02-OSED-0301.0016
Requirement	The Data Provider system or Data Originator system shall provide a service “Receive Pilot Findings” that the system hosting the Digital Briefing application can access to provide Pilot Findings information.
Title	Receive Pilot Findings Service
Status	<Deleted>
Rationale	This will enable the concerned Data Provider/Originator systems to get feedback received from pilots concerning discrepancies between the information received and the actual status of the aeronautical infrastructure, airspace, route network and meteorological situation as experienced during the flight. (Intended Function R.1) Reason for deletion: not a user requirement, just a technical aspect of the implementation.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0017
Requirement	The system of the Data Originator and NOTAM Provider shall be able to connect to a generic Aeronautical Information Feature Service (AIFS) in order to retrieve the baseline data necessary for the Digital NOTAM (pre-)encoding
Title	Request baseline aeronautical feature data
Status	<Deleted>
Rationale	The digital encoding of most Digital NOTAM events takes the form of a temporary change of some properties (such as operational status) of existing features. This requires accessing the corresponding feature baseline information (airport, airspace, runway, navaid, etc.). A dedicated "generic feature service" has already been defined by the Information Service Reference Model (ISRM) for this purpose. (Intended Function O1,O2, N1, N3, S2) Reason for deletion: technical requirement, not for OSED level.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0301.0018

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Requirement	The system of the Data Originator and NOTAM Provider shall be able to connect to a generic Aeronautical Feature Information Service in order to retrieve the actual (baseline and temporary status) data necessary for the Digital NOTAM verification.
Title	Request actual aeronautical feature data
Status	<Deleted>
Rationale	The Digital NOTAM provider will system will execute a verification of the Digital NOTAM events, before promulgation, in order to identify eventual discrepancies or conflicts with data published by neighbouring areas of responsibility. This requires accessing the corresponding feature baseline information (airport, airspace, runway, navaid, etc.) and their actual status at the time when the Digital NOTAM will become valid. A dedicated "generic feature service" has already been defined by the Information Service Reference Model (ISRM) for this purpose, including both baseline and temporary information updates Intended Function O3, N4, S3) Reason for deletion: technical requirement, not for OSED level.
Category	<Functional>
Validation Method	<Live Trial>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

[REQ]

Identifier	REQ-13.02.02-OSED-0401.0480
Requirement	A user of the Digital Integrated Briefing service shall see data that complies with the necessary quality requirements (completeness, coherency, resolution, accuracy, etc.).
Title	Data quality verification
Status	<Deleted>
Rationale	In order to ensure the quality of the briefing service the data shall be verified against clearly stated business rules. This is particularly important for dynamic data updates (such as Digital NOTAM), in order to ensure that the data is fully compliant with the pre-defined coding scenarios. Otherwise, there is a risk that some data is either overlook or misinterpreted by the automated systems involved in the production of the ePIB Reason for deletion: not a functional requirement. It is sufficient to keep REQ-13.02.02-OSED-0401.0490.
Category	<Functional>
Validation Method	<Real Time Simulation>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

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