NAS Enterprise Architecture

Data and Information Management Integrated Views v3.0

Baseline

February 2025



Overview

What are the Integrated Views?

• The NAS EA Integrated Views present an Executive View that depicts the evolution of the National Airspace System (NAS) for a focused area of interest and incorporates applicable inter-related content from the NAS EA such as Roadmaps, Improvements, Increments, Support Activities (preimplementation research, demonstrations, analyses), as well as relevant external references (e.g. ICAO, DoD, NASA). The views contribute towards our holistic and integrated understanding of the complex inter-relationships necessary for effective planning, analysis, and decision-making, across the enterprise, portfolio, and specific investments.

Guidelines for Understanding the Data & Information Integrated Views

• The Data and Information Management (D&IM) Integrated Views present an Executive View (EV) of the evolution of Air Traffic Management (ATM) information and information products in the National Airspace System (NAS). The views incorporate content from the Business & Technology, Service and NAS Infrastructure Roadmaps, and Support Activities, reflective of the ATM Information Evolution. Additionally, relevant Aviation System Block Upgrades (ASBUs) from the International Civil Aviation Organization (ICAO) Global Air Navigation Plan (GANP) provide global strategic planning context. The views are intended to focus on the sharing and consumption of digital information and the availability of digital information products via investments that enable access, integration, publication, and distribution through applications/services rather than on production capabilities such as data generation and collection. Guided by principles of a service-based architecture and enterprise information management, the integrated views offer a holistic and integrated high-level view of what is needed for an information-centric future NAS that meets the needs of diverse consumers, operators, and service providers.

For more information, please contact:

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Data and Information Management Integrated Views Swimlane Descriptions

2016 2017 2018 201	19 2020	2021	2022	2023	2024	2025	2024	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Roadmap Lege

2019 2020 2021	Timeline
XYZ	System / Service / Support Activity
XYZ	NextGen Project (denoted by G CIP number)
XYZ	Project
XYZ	Planned (Unfunded) System/Service/Project*
X	Decommission
	System successor
	System in Draw-Down Mode
	ICAO Aviation System Block Upgrade (ASBU)
	ICAO Concept Release Continuing BTI
	Current Business & Technology Environment
	(CBTE) - Arrow indicates sustainment
	Current Operation (CO) - Triangle indicates fu operational availability
	Operational Improvement or BTI with <i>Initial</i> Operational Availability status
	Operational Improvement or BTI with Development status
	Operational Improvement or BTI with Concept Exploration and Maturation status
	Operational Improvement or BTI with <i>Planned</i> status
	Operational Improvement or BTI Increment timeframe

end	Decision Point Fill Colors
Timeline	AMS (CRDR, IARD, IID, FID, BCD)
System / Service / Support Activity NextGen Project (denoted by G CIP number)	Policy
Project Planned (Unfunded) System/Service/Project*	Strategy (JRC)
Decommission	Strategy (Other)
System successor System in Draw-Down Mode ICAO Aviation System Block Upgrade (ASBU) ICAO Concept Release Continuing BTI	Decision Point Owned by Another Roadmap Regulatory Milestone
Current Business & Technology Environment (CBTE) - Arrow indicates sustainment	Decision Point Border Styles
Current Operation (CO) - Triangle indicates full operational availability	Future Baselined Completed 🔆 Planned / Unfunded
Operational Improvement or BTI with <i>Initial</i> <i>Operational Availability</i> status	
Operational Improvement or BTI with Development status	

BASELINE

Data & Info Mgmt Integrated View – Aeronautical Information

2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 CY **ICAO Alignments** ICAO ASBU B0-Digital ICAO ASBU B2-Digital ATM/AIM ICAO ASBU B1-Digital ATM/AIM ATM/AIM AIXM **Support Activities** Opportunity Investigation for Data Analytics **B&T Roadmaps** ATM Enterprise Information Management (9011) Current Enterprise Information Management (901101) Trusted, Managed, and Governed Data and Information (901102) Data/Information Architectures Support the Future of the NAS (901103) 01 - Aeronautical Data/Info Architecture Support for Future NAS Enhanced Data/Info Interoperability through International Coordination and Policy (Info Exchange and Info Services) (901106) 01 - Modular Exchange Standards Adoption Promotes Interoperability within the FAA/Globally **ATM Information Evolution (9014)** Current ATM Information (901401) Aeronautical Information Evolution (901402) NOTAMS 01- Digital/Machine Readable NOTAMs 02- Enhanced Digital NOTAMs 03- Advancements in Graphical NOTAMs Aeronautical Charts 04- Graphical Charting Static/Dynamic Airspace and SAA/Schedules 05- Real-Time Airspace, SAA/Schedule & Constraint Information Unstructured/Structured SOP/LOAs 07- Improved Development of Digital 06- Digital SOP/LOAs SOP/LOAs Service Roadmaps **On-Demand NAS Information (103305)** Improved Management of Special Activity Airspace (108212) 21- Improved Access to SAA Information 11- ANSP Real-Time Status for SAAs 24- Planned Airspace Constraints Advanced Automation Support for Separation Management (102160) 04- En Route Separation Tools to Support Increased Utilization of Airspace Tailored Delivery of On-Demand NAS Information (103306) 01- Static Airspace Constraints Automated Analysis of Flow Strategies (105211) 02- Probabilistic Constraint Prediction 03- Improve SAA-Based Flow Predictions FID Infrastructure Roadmaps NOTAM Mod Phase 2 FID M Mod

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FNS

Data & Info Mgmt Integrated View – Flight Information

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ICAO Alignments																									
ICAO ASBU BO-I	FICE (G/G I	ntegratio	n)						ICAO AS	SBU B2-FIC	CE (Multi C	Center G/0	G Integrati	ion)	ICAO AS	BU B3-FIC	E (Full FF	-ICE)		ICAO ASI	BU B4-FIC	E (Flight [Data Requ	est)	
FF-ICE/R1 (Plann	ning phase)		FF-ICE/	R2 (Execut	ion phase)							FF-ICE R3	B (TBD)	uuuuu		neen							
Support Activities																									
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B&T Roadmaps ATM Enterprise Info	rmation	Manage	ment (9011)																						
			ion Managem)1)																				
Tr	usted, Ma	anaged,	and Governed	l Data and	Informat	ion (9011	102)																		
Da	ata/Inforn	nation A	rchitectures S	upport the	Future o	f the NAS	5 (90110	3)																	
										– Flight Dat		itecture Su	pport for F	uture NAS											
Enl	hanced A	ccess and	d Control to [Data/Inform	nation thr	ough EIN	√ Capab	oilities and	d Service	es (90110	4)						nformatior hand and (Service for Control	·>						
Enl			Interoperabili						olicy (Info	o Exchang	ge and In	fo Servio	ces) (901 ⁻	106)											
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ATM Information Ev																									
Current A		nation (9	01401)				Flight I	Informati		ution (901						<u></u>									
Flight Plar	IS						<u> </u>			01- R1 FIX	V Formatte	d Flight Pla	in			02-	R2 Enhan	ced Flight P	lan		,				
Service Roadmaps																									
Service Roadinaps											e Automo			onstraint	t Evalua	tion									
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	Enhanced SPDPS Enterprise Information Management (EIM) Data Platform	SWIM Segment 3 NAS API Management Enhanced SFDPS Enhanced Registry	SWIM Segment 3 NAS API Management Enhanced SFDPS Enhanced Registry	SWIM Segment 3 NAS API Management Enhanced SFDPS Enhanced Registry

Data & Info Mgmt Integrated View – Flow Information

CY 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 +

ICAO Alignments				
ICAO ASBU RSEQ-B0/3	CICAO ASBU RSEQ-B1/1	ICAO ASBU RSEQ-B2/1	ICAO ASBU RSEQ-B3/3	
Point merge	Extended arrival metering	Integration of arrival and departure ma	anagement Increased utilization of runway capacity by improved real-time runway scheduling	
	ICAO ASBU NOPS-B1/1		ICAO ASBU RSEQ-B3/4	
	Short Term ATFM measures ICAO ASBU NOPS-B1/2		Improved operator fleet management in runway sequencing	
	Enhanced Network Operations Planning			
	Enhanced ATFM slot swapping		ICAO ASBU NOPS-B3/4 Full TBO context	
	ICAO ASBU NOPS-B1/9 Target Times for ATFM purposes			
Support Activities				
			FLXM Futures	
	Flight and Flow Conc	cept Exploration		
B&T Roadmap ATM Enterprise Information Mana	rement (9011)			
	mation Management (901101)			
	d, and Governed Data and Information (901102			
	Architectures Support the Future of the NAS (9	03 – Flow Data/Info Architecture Sup	port for Future NAS	
		·· ·· · · · · · · · · · · · · · · · · ·		
Enhanced Access	and Control to Data/Information through EIM (Capabilities and Services (901104)		
Enhanced Data/In	fo Interoperability through International Coordi	ination and Policy (Info Exchange and Info Service	rs) (901106)	
01 - Me	odular Exchange Standards Adoption Promotes Interoperabili FAA/Globally	ity within the		
ATM Information Evolution (9014)				
Current ATM Information	on (901401)			
	Flow Information Evolution (901405	5)		
		01- ATFM Measures/T	Mis in FLXM format	
Service Roadmap				
P			Enhanced Time Based Metering Ope (104120)	rations in All Weather
			Time-Based Metering in the Terminal Environment (104128)	
			Improved	Arrival/Departure Operations
				rated Data (104130)
			Improved Arrival Metering Operations (104131)	
			Full Surface Traffic Manage	ment with Conformance
	F. M		Monitoring (104206)	
Surface Traff	fic Management (104211)	Improv	ed Traffic Management Initiatives with Integrated Data	
		(105210		
		Automo	ited Analysis of Flow Strategies (105211)	
			Integrated Demand	I Management (105213)
Infractructure Deadmans				
Infrastructure Roadmaps			Refactor select	TBFM Future Common Mission Services
			TBFM capabilities	earchitect TBFM
TBFM Enhancer				
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		TFDM																			Refact	tor select T	FDM capat	oilities		Rearchited	t I
									TFDM -				TF	DM Enha	ncement								TFDM Futu	re Commo	·	TFDM	
Traffic Flow Services	TFMS										Flow	Managem FMDS				mmon N DS Enhar	1ission Ser	vices			FMDS	L Future Co		Services	vices		•
Enterprise Capabilities:	Platform Layer							NSRR]		FID 1218 NAS AP	Enterpris	SWIM	tion Man Segment		(EIM) Dat	a Platform										
	СҮ	2016	5 2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	+

Data & Info Mgmt Integrated View – Weather Information

CY 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 *

	ICAO ASBU AMET-B0/1	ICAO ASBU AMET-B1/1	ICAO ASBU AMET-B2/1	CICAO ASBU AMET-B3/1	CICAO ASBU AMET-B4/1
	leteorological observations roducts	Meteorological observations information expansion	sion Initial Integration of Data-Centric Info	Enhanced Integration of Data-Centric Info	
	ICAO ASBU AMET-B0/2 leteorological forecast and	ICAO ASBU AMET-B1/2 Meteorological forecast and warning informatio	n Enhanced Ensemble prediction, enhanced VA,	ICAO ASBU AMET-B3/2 Integration of Enhanced Probabilities	ICAO ASBU AMET-B4/2
	arning products	for Data Centric and Ensemble-Derived Predictic	ons WAFS, HWIS		
P	ICAO ASBU AMET-B0/3 rovision of Climatological	ICAO ASBU AMET-B1/3 Enhanced climatological data to better support	ICAO ASBU AMET-B2/3 Initial expansion of climatology data and scope to include	LCAO ASBU AMET-B3/3 Enhanced expansion of Climatological data and scope	CICAO ASBU AMET-B4/3
	roducts	ATM infrastructure	satellite and in-situ sources and changes that can affect ATM		
_	ICAO ASBU AMET-B0/4 itial dissemination of Met	ICAO ASBU AMET-B1/4 IWXXM replaces TAC; Intro web services	ICAO ASBU AMET-B2/4	LICAO ASBU AMET-B3/4 Enhanced IWXXM schemas/formats	ICAO ASBU AMET-B4/4
	ifo in IWXXM		Data-Centric dissemination into SWIM with initial B2B services		
Support Activities			IWXMM		
		Hybrid Solution for Visibility Information			
1		Offshore Precipitation Capability			
			FAA Weather Strategy		
			Synthetic PIREP Generation		
			PIREP Smart Solicitation		
			PIREP Interface and Hands-Minimized Follow-On		
B&T Roadmaps ATM Enterprise Info	rmation Management ((9011)			
	nterprise Information Ma				
_					
	rusted, Managed, and Go	overned Data and Information (901102)			
F					
Da	ata/Information Architect	tures Support the Future of the NAS (901103)	_	04 – Weather Data/Info Architecture Support for Future NAS	
				04 – Weather Data/into Architecture support for Future NAS	
En	hanced Data/Info Interop	perability through International Coordination	and Policy (Info Exchange and Info Services) (901106)		
7		ange Standards Adoption Promotes Interoperability within			
		FAA/Globally			
ATM Information Ev	olution (9014)				
Current A	TM Information (901401)	Weather Informa	tion Evolution (901404)		
				bbal Interoperability Standards for Weather Information	
			02 –Establish Common Weather		
			Information/Knowledge Reference		
			03 – Multi-Sensor Data and Fusion Technology Information	y for Derived/Synthetic Weather	
Comitos Dooduuros					
Service Roadmaps	Improved Avia	tion Weather Information (103120)	08- Enhanced Automated Winter	Integration of Weather Information Into NAS Automation and Decision Making (103123)	
			Weather Information		
				03- Enhanced Icing Information	
				04- Expanded Turbulence Information	
				21- Enhanced Convective Weather Using Satellite-Based Observation in	
				Offshore Oceanic Airspace	
				Enhanced Time Based Meterin	g Operations in All Weather (104120)
					21- Sustain Metering in Variable
					Operational Conditions 32- Rerouting During Metering
					Operations
			Qualified Weather Information (103401)		
Infrastructure Road	maps				
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