



# Digital Data and NOTAM Concept

21 June 2023

## States Responsibility

“Ensure that aeronautical data and aeronautical information necessary for the safety, regularity and efficiency of air navigation are made available in a form suitable for the operational requirements of the air traffic management (ATM) community”

# Aeronautical Digital Data Sets



AIP (ref PANS-AIM 5.2.1.1.3 -- e.g., NAVAIDs, FIR, ATS Routes, etc.)



Terrain



Obstacles



Aerodrome Mapping



Instrument Flight Procedures

## Interoperability

Interoperability in AIM refers to the ability of different systems, applications, and organizations involved in the aviation industry to **seamlessly exchange** and **use** aeronautical information



## Interoperability

- Standards and Regulations
- Data Exchange Format/Model (citing AIXM)
- Communication protocols
- Systems Integration (FIXM, WIIXM...)
- Metadata management (provide a common vocabulary)
- Data Quality Validation
- Collaboration and Cooperation



# How to validate?

<https://faiva.aero>

## Before validation:

1. Create a free user account
2. Verify your email address
3. Login
4. Maximum file size 1 GB

## Why the need to login?

- Keep history of previous validations
- System security

# Enabling AIXM interoperability

## What can be validated?

- AIXM 5.1+ datasets
- ICAO PANS AIM/EASA datasets
  - AIP
  - Obstacles
  - Aerodrome Mapping incl. ASRN extension
  - Instrument Flight Procedures
- aixm.aero coding guidelines
- AIXM business rules

# Project Outcome

AIXM SBVR rules not immediately applicable

- ▶ FAIVA uses Schematron rules only
- Small issues found in AIXM coding guidelines
  - ▶ Reported in AIXM Confluence
- Seeking users' feedback on business rules
  - Are the existing rules adequate?
  - Are more interoperability rules needed?
  - How can we reduce the misinterpretation of data?



# High-Level Concept NOTAM Replacement

*caveat*



## Why Change?

- The NOTAM product is old, confined to AFTN/AFS; limited filtering/sorting, cryptic, uses upper case letters, there are many quality issues worldwide.
- The NOTAM product as we know it today doesn't lend itself to data manipulation to enable solutions such as "graphical NOTAM"
- The NOTAM product as we know it today cannot update the DDS directly. It only amends published information through a manual process.

# Objectives of new concept

- Introducing a more efficient mechanism to exchange aeronautical information;
- Providing new capabilities to airspace users to tailor the aeronautical data/information changes to their operational needs as well as subscribe to airspace constraints alerts so that this information is immediately available;
- Increasing safety and improving situational awareness;
- Finding/receiving information *when* it is needed (efficiency) potentially during various phases of the flight;
- Increasing usability of the information, both from a system and human point of view;
- Associate the “find” parameters to aircraft performance or type of operations or flight plan or trajectory;
- Graphical representation of information where possible. (e.g. instead of list of coordinates, show a “volume of airspace” on a display).
- Support collaborative decision making.



# Foundational Principles of New Concept



## Digital Data Coding

Data Model  
Data Coding  
Specs  
Digital data  
Service Specs



## Appropriate Level of Digitization

Not all scenarios promulgated with a legacy NOTAM are worth coding. E.g., COVID. Text possible



## Modifies/ Complements AIS Digital Data Sets

1 digital NOTAM  
per 1 DDS  
element



## Structuring & Filtering Capabilities

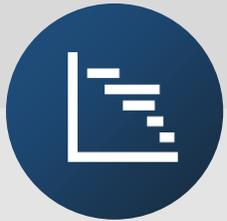
Based on pre-defined scenarios - more granularity possible  
What is relevant is known by the user, not the provider



## Backwards compatibility

Digital NOTAM is a small DDS conforming to predefined scenario that can convert back to NOTAM - NOTAM simplified, autogenerated

# Foundational Principles of New Concept



## Transition in Phases

No need to go all digital on day one. Concept allows for iterative approach to adopting Digital NOTAM



## AIRAC Compatible

AIRAC procedures followed for permanent changes to digital baseline; Digital NOTAM complements these updates



## Encompasses all temporary information

Regardless of duration. Simplify and improve user experience.



## Data completeness / Self-contained

Digital NOTAM consumer doesn't need to consume both Legacy and Digital NOTAM. No need to cross-check for same data set

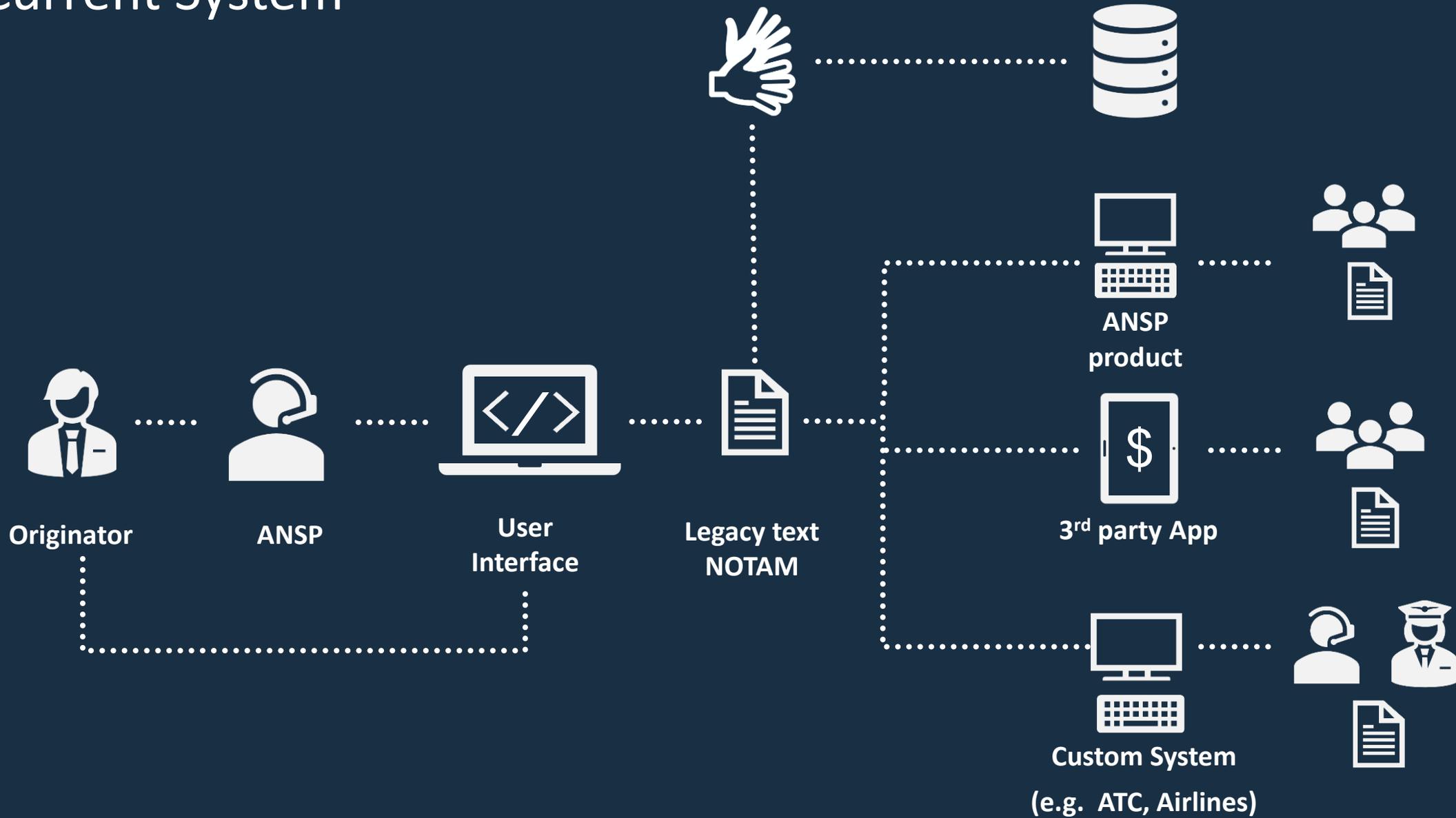


## Enabler

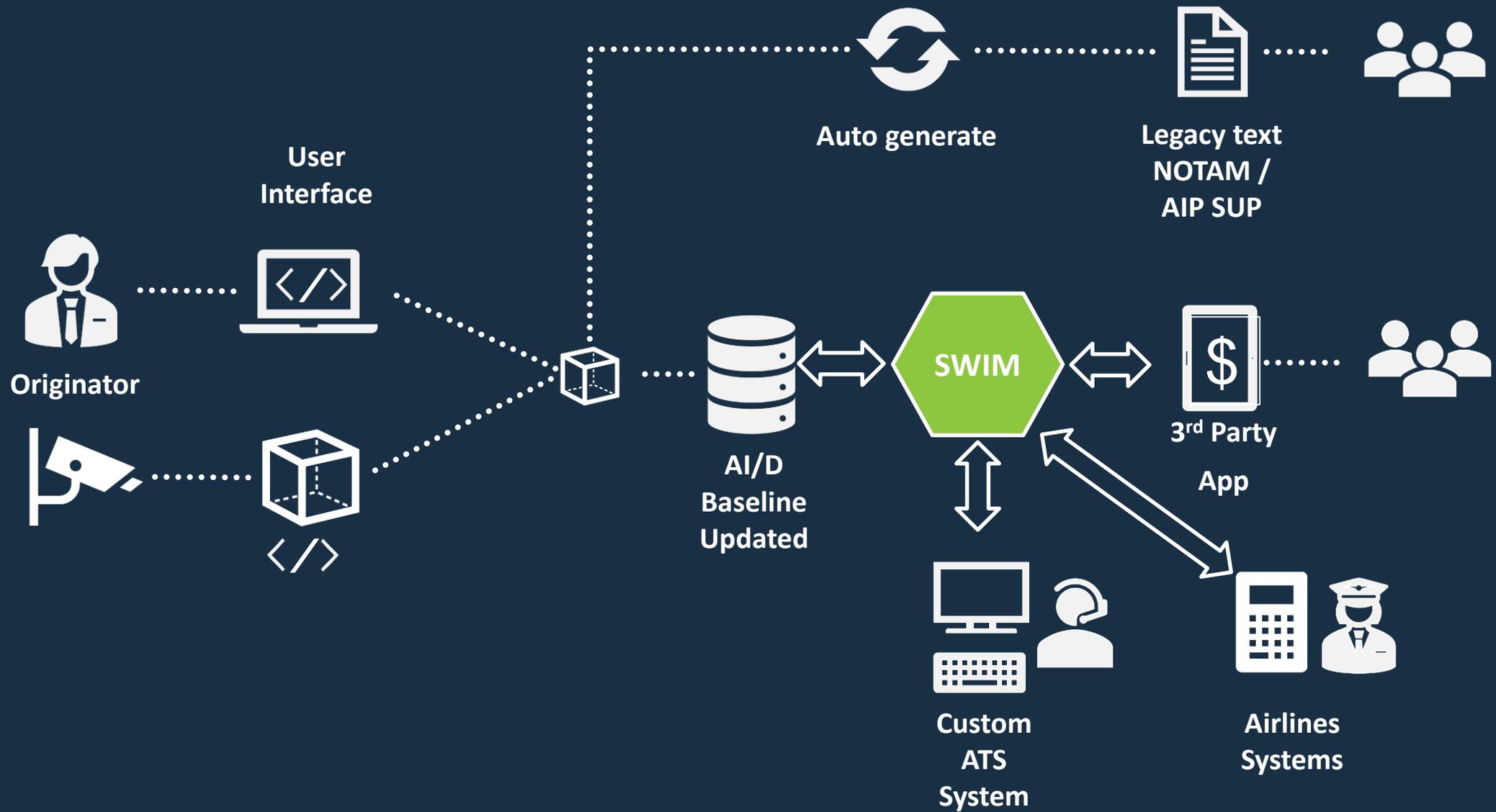
Its next intended user is a machine. Developers can use the data to create solutions. (app, displays, briefing packages)



# Current System



# Future Concept





## Conclusions

- This change will occur – we should be ready!
- Not only a Technology change: Paradigm shift, affects all of Ops & systems, how we do business, roles & skill sets needed
- It's no small project; it requires thorough planning and close collaboration, alignment, a big picture strategy, etc.