

Development & Analytics Focus Group

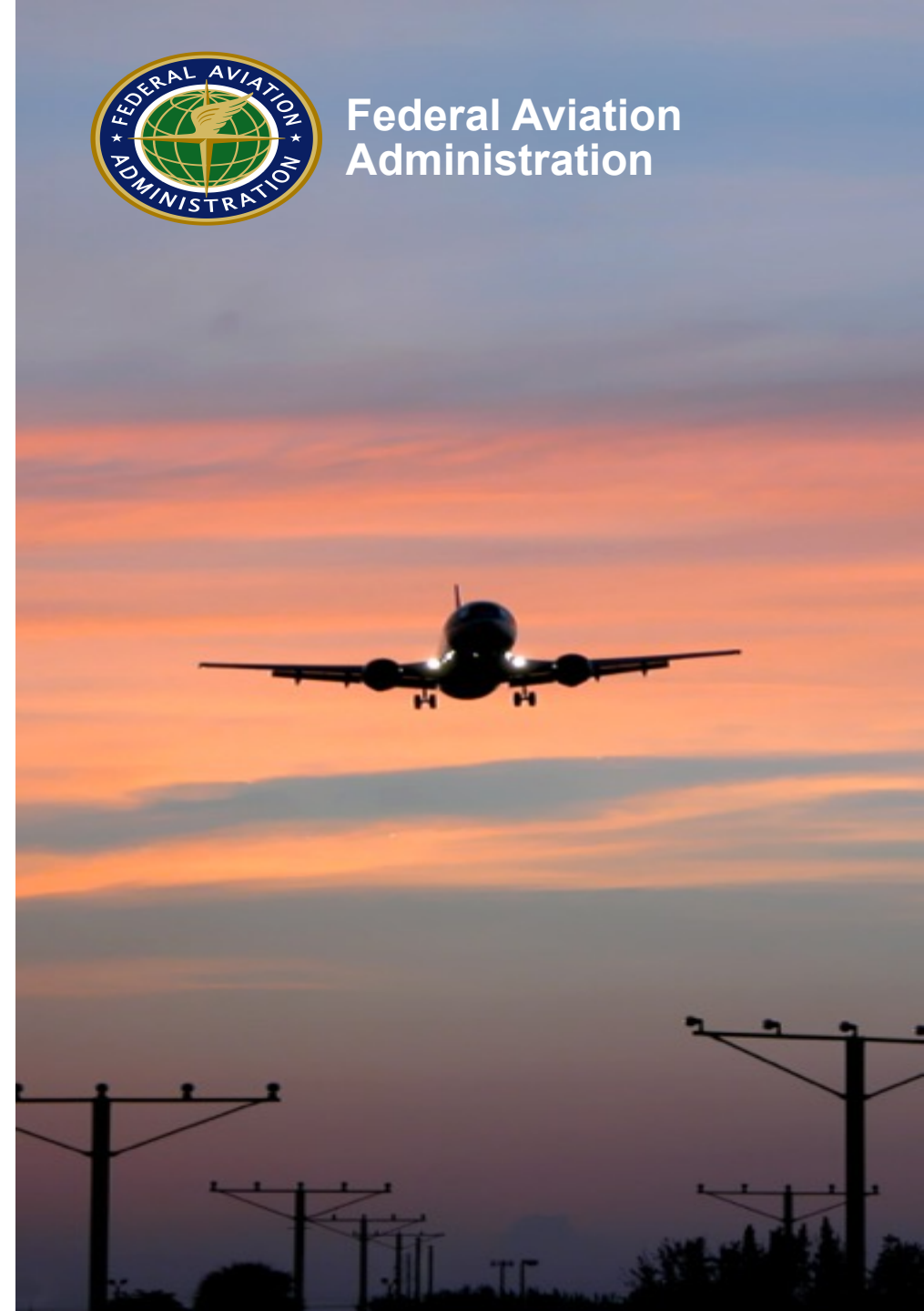
SWIFT 10 Update

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May 20, 2020



Federal Aviation
Administration



Development & Analytics Focus Group Introduction

- **Overview**

- As Industry and Flight Operators have begun to ingest, store, and utilize SWIM data, many common challenges have arisen
- This Focus Group works collaboratively to advance the functionality and value of SWIM for the community
- Starting with Operational issues the team leverages the expertise of participants to present solutions using SWIM data

- **Participants**

- Team is all volunteer with a mix of technical skills: Data Scientists, Business Analysts, Data Engineers, Software / App Developers, Operations personnel, and SMEs
- Includes Academia, Industry, FAA, and Flight Operators

Mission: Let's collaboratively create a *speedy* transition from Information to Insights using SWIM

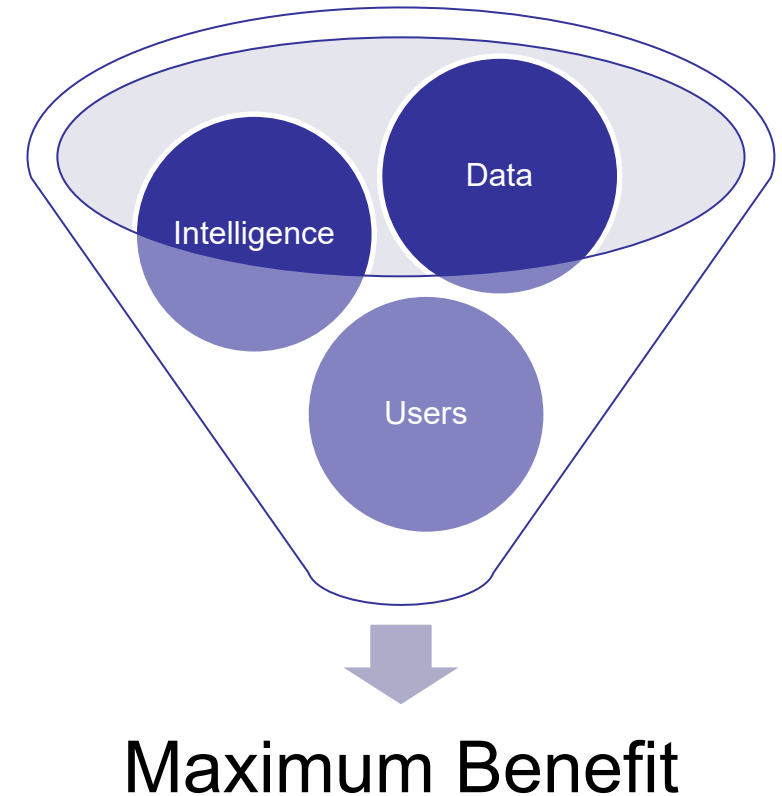
Why It Matters

- **FAA and Industry collaboration is not new to aviation**
 - CDM, customer forums, industry work groups, etc.
 - But we rarely see this in the *Data / Technology* space
- **Risk of not working together**
 - SWIMplexity – Creation of products that introduce different solutions
 - Slower paced development
 - Should leverage community of users to introduce needed changes
- **Collaboration in the time of COVID**
 - Cost control is Top of Mind for Industry
 - Precisely the time to leverage everyone's **BEST** to create the most efficient NAS possible

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Why it Matters – Removing Silos, Gaining Value

- All organizations that use SWIM have unique experiences, perspectives, and contributions
 - Data
 - Intelligence
 - End Users
- Working as a team:
 - Maximizes benefit and investment for all parties
 - Makes the data more valuable and intelligence more reliable
 - Allows for efficiencies to be gained
- Value is not in the data itself, but what we make of it



D&A Focus Group Progress

Focus Group “Mothership”

- TBFM was identified as a top community priority at SWIFT meetings and by the Operational Focus Group
- Monthly meetings drew on prior SWIFT presentations and group expertise to further refine TBFM use case
- MS Teams was selected as collaborative platform

TBFM Sub Team – led by Al Capps, NASA

- A trial 4-week sprint with weekly update meetings was selected as a starting point for the team
- Work was subdivided into logical tasks
- Leads were identified and work began

Focus Group Timeline	
11/7	New Focus Groups Introduced
1/14	Kickoff Meeting
2/25	Developer Session at SWIFT 9
4/23 – 5/14	TBFM Sub Team Sprint 1 Session
5/26	Sprint 1 Outbrief Completed
5/27	Sprint 1 Outbrief available (MS Teams)
6/1	Sprint 1 Retrospective
6/4	Next D&A Meeting

If the question is...

**How much delay will my flight incur
because of TBFM?**

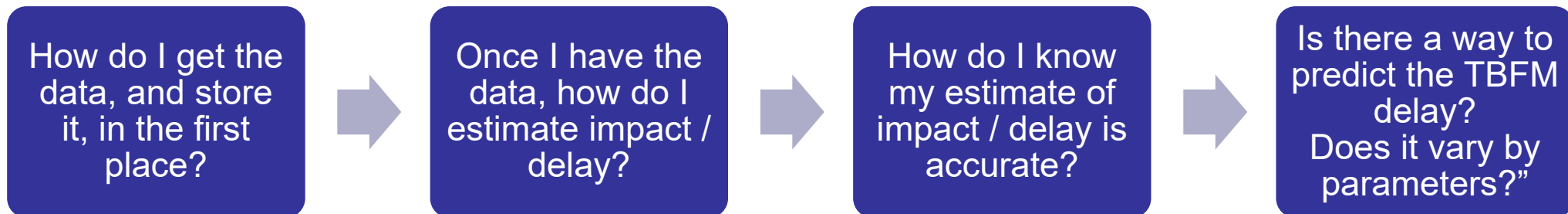
And we have a TBFM feed,

And many savvy industry professionals,

Why do we need D&A to work this?

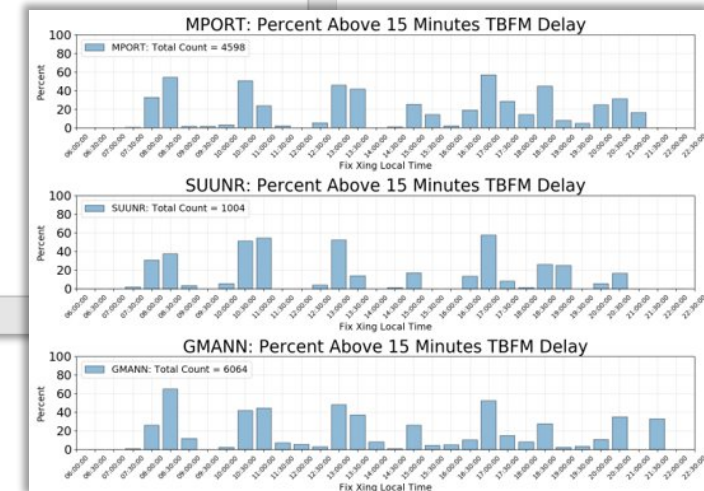
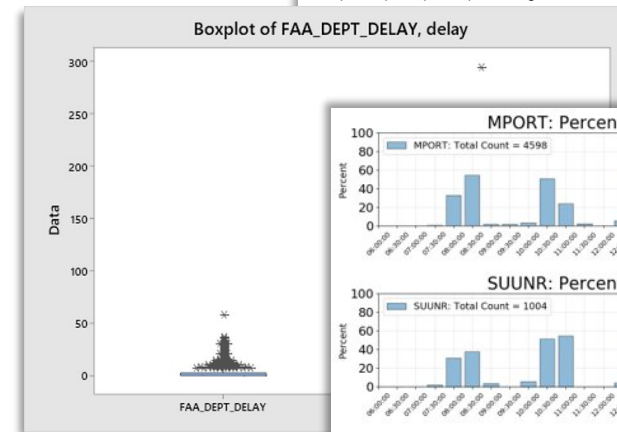
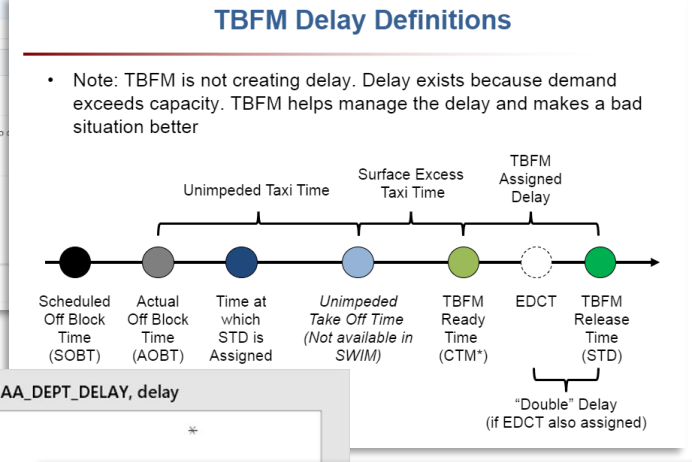
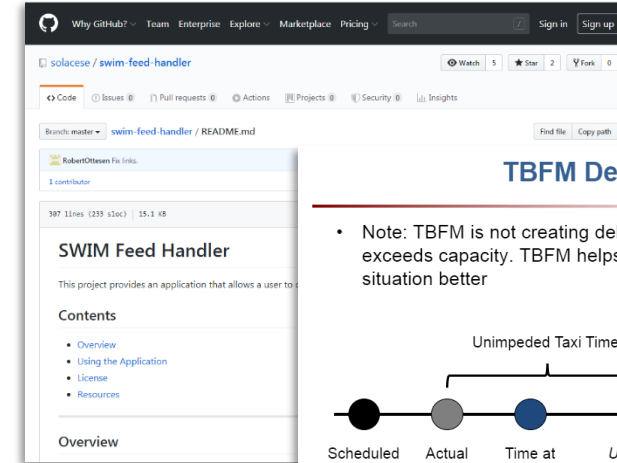
TBFM Delays Sub Team Tasks

- **Consensus, Complexity, and Completion Time**
- TBFM is more of a black box than other systems, and this holds true for the data sent via SWIM
- The SWIM data is not the whole picture, and much of the source data is unavailable publicly
 - When it is available, it requires considerable processing to make it functional for analytical uses
- Analytical problems have layers and dependencies, and need to be worked in a logical order
- Currently, there isn't a field that denotes "TBFM Delay Minutes" in SWIM
 - Need to agree on a field or calculation that makes sense to a consensus of stakeholders
- To accommodate these dependencies, the team identified 7 tasks, and began work on 4:



TBFM Delays Sub Team Progress

- **Several hundred hours of volunteer time have been contributed during Sprint 1**
 - Obtained / stored: Raw SWIM TBFM messages, “Truth Data”, and ATD-2 CLT comparison data
 - Created new / transformed data: Fused TFMS & TBFM data, hourly flat files from SCDS TBFM
 - Published code to consume and handle TBFM data from SCDS (GitHub)
 - Mapped all possible elements for TBFM delay definition
 - Created an initial delay definition and compared with “Truth Data” to understand size of disparities
 - Used initial definition to look for time and fix patterns into IAH



Lots of technical problems to solve, join us!

- **TBFM Sub Team Next Steps**

- So much accomplished, but more to come
- Outbrief will contain findings and work left to be done
- Retrospective on Sprint 1 will give us additional insight in how to better collaborate and improve as a group

- **Focus Group “Mothership” Next Steps**

- Long term, TBFM solutions will be looped back to Operational Focus Group
- List of operational / data issues will be reprioritized based on what is now Top of Mind for Industry
 - What ideas do you have?

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