2023 FAA DATA CHALLENGE
FINALIST DELIVERABLES REQUIREMENTS & EVALUATION CRITERIA

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TECHNICAL PAPER

Due by 11:59 PM ET on May 7, 2023

Technical Paper Content Requirements

The Technical Paper should fully describe the team's concept and must include the following sections:

1. **Cover Page***
   - University name
   - Project title
   - Industry partners (if any)
   - Full names of all team members (including faculty and industry advisors)
   - Major course of study for each student
   - Academic level of each student (undergraduate or graduate)
   - Graphic or image of concept, if applicable

2. **Executive Summary***
   - An overall summary of the innovation which includes a title of the project, a one paragraph synopsis of the problem statement, the problem-solving approach, and a statement of the potential innovative impact the research concept will have on the problem.

3. **Table of Contents***

4. **Body of Report (20-page maximum)**

- **Problem Statement and Background**
  - Challenge being addressed and its relationship to Challenge categories

- **Solution Definition**
  - Description of the solution explored. The team should demonstrate a clear understanding of the issues surrounding the challenge as well as the current conditions and state-of-the-art approaches to seeking solutions. Include a description of Artificial Intelligence/Machine Learning (AI/ML) and advanced analytics approaches as appropriate.
    - Solutions should address one of the following categories: Improve Aviation Safety; Improve Operational Efficiency of the NAS; Contribute to the Drive for Sustainable Aviation; or Assist with the Rapidly Evolving New and Novel Uses of the NAS.
    - The team is encouraged to include visuals (i.e., photos/drawings/graphs) as appropriate.

- **Methodology**
  - Describe what type of data you used or collected
  - Describe and/or provide a diagram of the techniques and processes used for the analysis including how you were able to leverage AI/ML
  - Describe your testing process
  - Describe any challenges you faced and how you mitigated them

- **Conclusions/Key Findings**
  - What conclusions are you able to draw about the problem and your analysis?
  - Did you accomplish what you set out to prove? Why or why not?
  - What did you learn throughout the process?
  - What improvements could be made to eliminate or mitigate some of current challenges?

- **Appendices***
  - Appendices should be for references only. It is important to note that the judges are not obligated to consider lengthy appendices in the evaluation process. Teams can include any supplements around how their analysis was conducted and any visualizations from their analysis and results.

These items are not included in the 20-page limit.

Technical Paper Format Specifications
Technical papers should adhere to the following formatting specifications:

- 20-page maximum
  - Judges are not obligated to look at anything beyond the 20-page limit, and submission of a Technical Paper beyond this page limit will be considered non-compliant.
  - Cover Page, Executive Summary, Table of Contents, and Appendices will not count toward the page limit.
  - Appendices are to be used for references and calculations only.
- Submit as a single PDF file
  - File size cannot exceed 100 MB
- Single spaced and single column
- Standard 1" margin on each side
- 11- or 12-point font size
  - Charts, graphs, captions, etc. may use a 10-point minimum font size.
- Use common fonts for text (i.e., Times, Times New Roman, Helvetica, or Arial) and Symbol for mathematical symbols and Greek letters.
- Include page numbers

Technical Paper Evaluation Criteria

Approach = 45%
- Do significant aspects of the proposed concept directly address the theme?
- Has the submission proposed a logical and workable solution and approach to solving the problem(s)?
- Has the team provided details that identify how the improvements, changes, and/or related activities of the proposal can be implemented in a practical manner?
- Has the submission clearly described the depth of integration required to implement the innovation, idea, or proposed concept?
- Is sufficient descriptive information provided that would allow the work to be reproducible and transferrable?
- Has sufficient detail to demonstrate the use of Artificial Intelligence/Machine Learning (AI/ML) and advanced analytics.

Need/Benefit = 45%
- Has the submission presented a clear understanding of the associated problems being addressed?
- Has the submission clearly defined the direct beneficiaries of this concept and the breadth of impact of the various components of the innovation?
- Has the submission provided details identifying how the concept directly provides a benefit?
- To what extent does this project have the potential to make a significant impact and/or contribution?
- Has the submission provided information on how likely the concept will be accepted and easily used?

Originality = 10%
- To what extent is this concept new, or in what way is this an innovation on an existing idea?
- How is this concept unique? Novel? Outside the box thinking?
- Was the problem a challenging data science one?
- How did the team members' experiences inform the proposed concept?

Submitting the Technical Paper

Your team's Technical Paper must be uploaded via the online Technical Paper Submission form (PDF only) located on the Challenge website.

No revisions can be accepted on your Technical Paper, so please proof your file very carefully before submitting it. It is very important that you provide us with up-to-date contact information on the submission form. We will contact you immediately if there are any technical problems with the content of your submission (for example, your file was corrupted).

PRESENTATION

Presentation files are due June 14, 2023

Teams will present to the Challenge Steering Committee, Program Staff, and other competing teams at the Forum. Presentations are limited to 25 minutes per team, followed by a 15-minute Q&A session; however, teams do not need to use the full 40 minutes if they are not needed. While not everyone is required to speak during the presentation, we encourage all team members to present together in front of the auditorium and be available to answer questions during the Q&A session.

Teams can showcase their solutions through a variety of visual and physical modalities, including but not limited to a modeling and simulation experience (including Virtual Reality), application software demonstration, supported by slides, charts, graphic representations, video, animations, data visualizations, etc.

Presentations should reflect the technical papers. If errors were discovered after the technical paper was submitted, teams should take this time to address them. Significant information discussed during the presentation that was not included in the technical paper will be penalized during scoring.

The accompanying chart deck must:
- Include a Cover page which includes project title, university name, faculty advisor's name(s), team names, and category.

- Use fonts large enough for those to see in the back of the room. Take advantage of high-contrast options and avoid black screen backgrounds and dark videos/animations as they may not present well in the presentation room.

Each team must submit the presentation files as PDF and PPT via the submission form, which will be available on the Challenge website. **Presentation files are due June 14, 2023.** Files will be pre-loaded on a dedicated laptop, though a team member may control the slides.
- Presentations will also be available on the Challenge website and livestreamed to the public. Therefore, please be especially careful not to include any sensitive or proprietary information in this file (such information can be included in the technical paper as long as it is clearly identified in the footer of the applicable pages).

TECHNICAL POSTER

Technical Poster files are due June 14, 2023

During a Poster Session, finalist teams will be required to present paper posters describing their project. The Poster Session provides teams with an opportunity to expound upon important concepts in their presentations. It also allows the judges to follow up on presentations by asking additional questions for further clarification. The digital files of the posters will also be made available on the Challenge website for others to learn about the projects.

Technical Poster Formatting Requirements
- Each team should bring a full-size printed poster to display during the Poster Session.
  - One foam/cardboard poster board will be made available for each team to use at no charge. Thumbtacks will also be available to secure posters to the foam/cardboard boards. Printed Posters should be 48" x 36."

- Each team is also required to submit the digital file of their poster via the submission form, which will be available on the Challenge website. **Digital files are due June 14, 2023.**

- Digital posters will be displayed on the FAA Challenge website and must follow standard guidelines:
  - Posters must be formatted horizontally (landscape) -16:9 ratio (48" x 36" or 9600 pixels x 7200 pixels).
  - Poster file size limit is 100MB.
  - Poster file must be submitted as a PDF file.
  - Images and graphs should be clear, legible, and appropriately sized for the poster. Images and graphs should be "print-ready," with a minimum DPI of 150 whenever possible.
  - Links or redirects in the body of the poster are not permitted (includes redirecting to a webpage, video, or any other content).

- All content should be included in the text or directly embedded within the PDF file.
- All content must be static (i.e., embedded videos are not permitted).
- If the poster has a References section, links may be included in that section only. Links should be typed out, not hyperlinked.

FINAL DELIVERABLES SCORING MATRIX

2023 FAA Data Challenge
Final Scoring Matrix

TECHNICAL PAPER (Max 60 Points)	Point Scale
Approach: • Do significant aspects of the proposed concept directly address the theme? • Has the submission proposed a logical and workable solution and approach to solving the problem(s)? • Has the team provided details that identify how the improvements, changes, and/or related activities of the proposal can be implemented in a practical manner? • Has the submission clearly described the depth of integration required to implement the innovation, idea, or proposed concept? • Is sufficient descriptive information provided that would allow the work to be reproducible and transferrable? • Has sufficient detail to demonstrate the use of Artificial Intelligence/Machine Learning (AI/ML) and advanced analytics.	_____ Out of 27
Need/Benefit: • Has the submission presented a clear understanding of the associated problems being addressed? • Has the submission clearly defined the direct beneficiaries of this concept and the breadth of impact of the various components of the innovation? • Has the submission provided details identifying how the concept directly provides a benefit? • To what extent does this project have the potential to make a significant impact and/or contribution? • Has the submission provided information on how likely the concept will be accepted and easily used?	_____ Out of 27
Originality: • To what extent is this concept new, or in what way is this an innovation on an existing idea? • How is this concept unique? Novel? Outside the box thinking? • Was the problem a challenging data science one? • How did the team members' experiences inform the proposed concept?	_____ Out of 6
Total Points – Technical Paper Criteria	

PRESENTATION (Max 35 Points)	Point Scale
Quality of Presentation • Clear presentation of information provided in technical paper • Quality of response to questions • Presence of teamwork and integration	_____ Out of 35

TECHNICAL POSTER (Max 5 Points)	Point Scale
Ability to provide key details about the project	_____ Out of 5

Total Score_____