

Proactive and Automated Control: Kickoff Meeting

Date: 7/20/21

Time: 10:00 AM – 2:30 PM

Location: McNair Center

Attendees

BMW: Joshua Abel, Ken Kennedy

Fraunhofer USA: Jeno Szep, Adam Porter (online), Prahlad Menon (online), Michael Miller, Brook Stacy

University of South Carolina: Abdel Bayoumi, Evan Barnett, Amit Sheth, RJ Gleaton, Forest Agostinelli, Pankesh Patel, Burton Rhodes, Andre Calderon, Rhiannon Bullard, Clint Saidy, Rhea Matthews

Meeting Minutes

1. Welcome and Introductions

Abdel Bayoumi welcomed the participants to the McNair Aerospace Center. Everyone gave a quick introduction of their name and affiliation.

2. Remarks from BMW

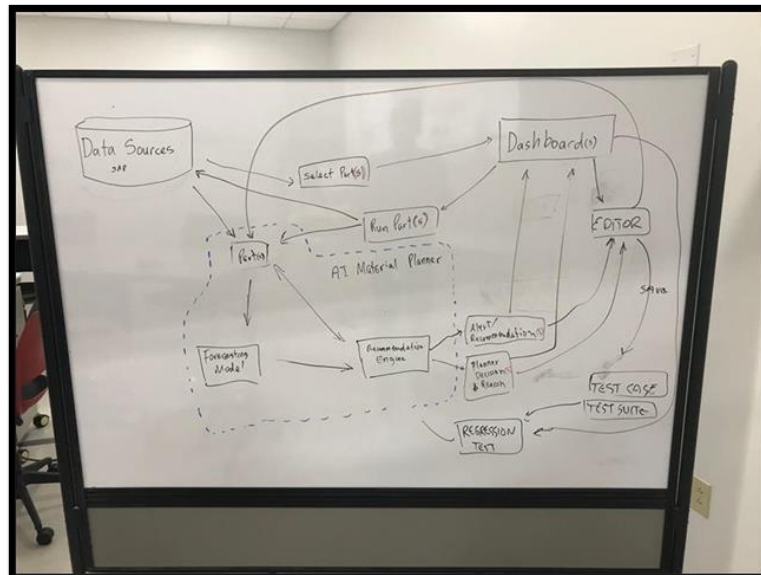
- Joshua Abel briefly talked about his experience at BMW and understanding of the problem
- Things to keep in mind include:
 - Develop a tool that gives recommendation, but human can override
 - \$5,000 per min is lost when the line is not running
 - How do we predict demand?
 - How many days of stock do we have on a part – these values are set on distance.
 - Can pay to have parts expedited if needed sooner
 - Safety stock costs (space taken up), Transportation related costs, Effects of weather and supplier's financial situations

3. Project Introduction

- Abdel Bayoumi presented slides on a general overview of the project, team members, and McNair Aerospace Center
- Rhea Matthews presented on the lessons learned from a previous project (supply chain for Boeing), initial roadmap and McNair Center tasks, and summary of literature review completed in preparation for the project
 - **ACTION (Clint)** – send information related to the Boeing Project (Markov Chain)
- Amit Sheth presented slides introducing the AI Institute and capabilities along with a general approach for the project
- Jeno Szep presented an introduction to Fraunhofer and points to discuss (Data, Interviews, AI-based Material Planner Assistant (MPA))

4. Data Presentation and Discussion

- Joshua Abel gave an overview of the process for parts forecasting, inventory, and planning.
 - SAP reports are used that give a red, yellow, or green value but these do not have the same criteria across the board
- Joshua also presented on the existing data sheets and explained the columns and how reports are generated
 - **ACTION (Joshua)** – Send Rhea the data sheets
 - **ACTION (Rhea)** – Distribute data to team point of contacts
- This project will focus on a sample of part numbers
- The team brainstormed how the models/planner will be validated
 - Build models on subset of data and test on another subset
 - Build models on historical data and validate/refine based on new data
 - Validation/Regression testing
- Along with Markov Chains, Michael Miller mentioned we could also look at Monte Carlo models
 - **ACTION (Michael)** – Send out information related to Monte Carlo Models
- The topic and need for interviews were discussed, this would help the team to understand the thought process on why and how decisions are made
 - **ACTION (All)** – If you are interested in participating in the interviews and shadowing, please let Rhea know and she will pass that information to Joshua
 - **ACTION (Joshua)** – Identify potential people to be interviewed / shadowed and identify times and how these will take place (in person or screen share)
- Michael Miller took the ideas and goals that had been discussed and started a diagram for brainstorming. This diagram included the functionality of the planner and dashboards
 - **ACTION (Michael)** – Create the diagram that was sketched during the meeting and send out to team for feedback and refinement



5. Project Discussion and Way Ahead

- **Timeline:**

- Phase 1 will end no later than December 17th and there will be a Midpoint Review
- Phase 2 will June 22nd

- **Group Meetings:**

- Weekly: Team will meet weekly; each team will present status of their tasks and any questions that they have. Meeting will be virtual and have been scheduled for Mondays from 9:30 – 10:00
- Monthly: Team will meet monthly with larger group and a more formal presentation will be given on project progress
- **ACTION (Rhea)** – Send out meeting invite for weekly meeting

- **Reporting:**

- Quad Chart from Weekly Meeting
- Executive Summary every 3 Months or as requested

- **Team Leads / Points of Contact:**

- UofSC: Rhea Matthews
- AI Institute: Pankesh Patel
- Fraunhofer: Jeno Szep
- BMW: Joshua Abel

- **Objectives**

- Team will at minimum complete what was proposed in the original SOW and will have a tool that is used at the plant with proof of value added
- On top of this, the max expectation would be to have an interactive tool and visualizations that can be used at multiple sites

- **Tasks**

- No changes to UofSC tasks
- No changes to Fraunhofer tasks
- Modifications to BMW Task 6 – Visualization, dashboard, and reporting. Suggested to split the task into two parts. The first part will be done in Phase 1 to validate wireframe and identify capabilities, the second part is in Phase 2 to validate the final product. The team will also investigate the use of inhouse developed visualizations and those developed with external software
- **ACTION (Rhea)** – Map tasks to timeline

- **Other Items**

- Laptops are not necessary for accessing data at the moment, but will make things easier when data can be accessed through the cloud. This will be addressed in the future
- **ACTION (Rhea)** – Send Ken the list of users who will need Laptops from UofSC

Team Contact Information

BMW

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