Advanced Forecasting Stakeholder Update

29 Jul 2025

Agenda

- Project Focus/Strategy
- Date Sources (Examples)
  - 339s
  - 202s
  - 107s
  - Robs/Cans
  - Air Aborts
- Test Cases
- Test Case Details
- Schedule
- Next Steps

Project Focus/Strategy

Our strategic focus for this project is to redefine advanced forecasting capabilities by integrating Artificial Intelligence (AI), Machine Learning (ML), and Large Language Models (LLMs) with modern DataOps pipelines. Our goal is to deliver accurate, actionable supply chain insights through predictive and prescriptive analytics that leverage historical and real-time data streams.

The project emphasizes data integrity, pipeline automation, and model accuracy as foundational pillars. By employing DataOps practices, we ensure that data ingestion, transformation, and enrichment processes are scalable, secure, and compliant with DoD standards. Our architecture prioritizes modular microservices and cloud-native components to provide a highly resilient and IL5-compliant environment, supporting continuous integration and delivery of forecasting models.

Data Sources

- ETAR Data (AutoTAR, FSID)
  - 339s
  - 202s
  - 107s
- Supply Chain Data (BLADE)
  - EXPRESS
  - IPIDs
  - SOS Daily
  - MICAPs
- Maintenance Data (BLADE)
  - Robs/Cans
- Operational Data (?)
  - Air Aborts
- BOM Data Products (BDP) (BOM360)

Test Cases

- ASD Dashboard Predictive Problem Part(s) (B-52/AI Generator Model)
- 448 SCMW Technical Data Package Gap Resolution (Workflow)
- BOM360 DataOps Pipeline Refactor
- B-52 MECSIP
- iPID/SOS Daily LLM
- EXPRESS DB LLM
- Bespoke 202 LLM

ASD Dashboard Predictive Problem Part(s)

448 SCMW Technical Data Package Gap Resolution

BOM360 DataOps Pipeline refactor

B-52 MECSIP

iPID/SOS Daily LLM

DSAF Use Case

Organization / People

Use Case Name:	iPID/SOS Daily LLM
Primary User:	448th SCMW & DSAF
Pain Points:	• Buried insights in free text • Missed opportunities for early intervention • No association between text and trends
Needs:	• Agg. of qualitative and quantitative data • Support for prioritization • Recommendations for coming problems

Data Flow & AI Fit

Inputs :	BLADE iPID Data Inputs -> SOS Daily
Outputs :	Summarized responses from prompts
Data Sources:	BLADE
Consumed:	GUI
AI Fit:	AI evaluates prompt to extract trends and correlate with iPID comments

Process Workflow

Trigger :	Analyst provides a prompt
Preconditions :	iPID Comments, SOS Daily Data ingested
Step-By-Step Events:	1. Prompt is submitted through GUI 2. LLM performs search and retrieval 3. Response is structured to meet the request of the prompt 4. Technicians chats with LLM on decision
Alternate Flows:	Manual Intervention, Step 2 – 3 edits SQL

Definition of Done

Done Criteria :	Accurately trends supply chain metrics and explains how trends align with comments, enabling prioritization on emerging issues
Acceptance Criteria:	The system generates valid responses without failure, 99% rate.
Given-When-Then Tests::	*Given iPID and SOS Daily data, when prompt is issues, then return analysis of trend data paired with relevant comments.*

EXPRESS DB LLM

DSAF Use Case

Organization / People

Use Case Name:	EXPRESS Database LLM
Primary User:	448th SCMW & 76th MXW
Pain Points:	• Dependency on tech staff for pulls • Lack of SQL literacy and data schema familiarity
Needs:	• Analyst to be able to submit natural language to LLM and receive data pulled from EXPRESS database

Data Flow & AI Fit

Inputs :	EXPRESS Data tables
Outputs :	AI generated query and downloadable data pull
Data Sources:	EXPRESS/BLADE
Consumed:	TITAN/Material Insights, GUI
AI Fit:	AI evaluates prompt to determine best query to develop to pull data for analyst

Process Workflow

Trigger :	Analyst provides a prompt for data pull
Preconditions :	Latest EXPRESS data ingested
Step-By-Step Events:	1. Prompt is submitted through GUI 2. LLM structures suggested SQL 3. Data is pulled from EXPRESS Database 4. Data and resulting query are presented in GUI.
Alternate Flows:	Manual Intervention, Step 2 – 3 edits SQL

Definition of Done

Done Criteria :	Non-technical users can ask natural language questions and receive correct, usable results without analyst support
Acceptance Criteria:	The system generates valid, secure, and performant SQL queries that execute without failure, 99% rate.
Given-When-Then Tests::	*Given express data, when prompt is provided, then system returns AI generated query and pulled data. (bonus: with simple EDA of data)*

Bespoke 202 LLM

DSAF Use Case

Organization / People

Use Case Name:	Bespoke 202 LLM
Primary User:	448th Engineers
Pain Points:	• Data is manually entered and variable • Difficult to identify repeatable problems affecting a weapon system
Needs:	• Consolidate and summarize issues across multiple 202's for the same item. • Use data to predict future problems

Data Flow & AI Fit

Inputs :	202 work around data
Outputs :	Builds report in GUI
Data Sources:	ETAR/AUTOTAR
Consumed:	Application with dashboard & LLM
AI Fit:	Bespoke LLM to summarize and consolidate issues, make recommendations

Process Workflow

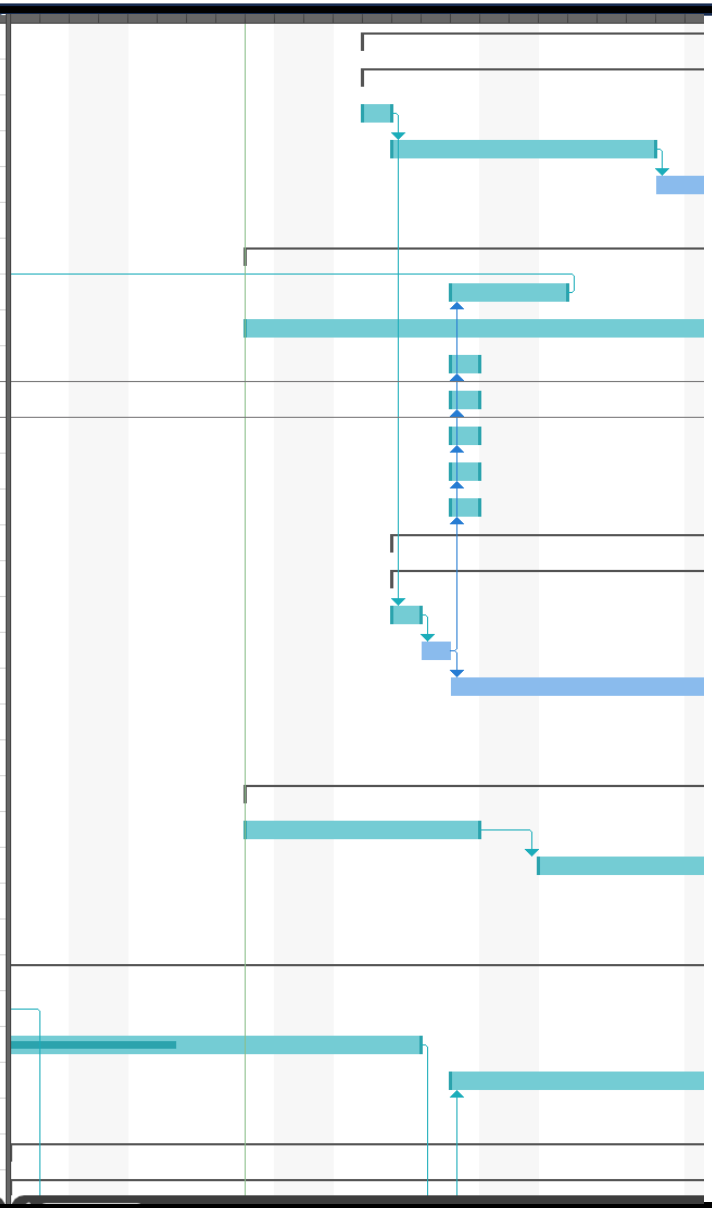
Trigger :	Analyst provides a prompt
Preconditions :	Ingested 202 data
Step-By-Step Events:	1. Prompt is submitted through GUI 2. LLM performs search and retrieval 3. Response is structured to meet the request of the prompt in GUI 4. Technicians chats with LLM on decision
Alternate Flows:	Manual Intervention, Step 2 – 3 edits SQL

Definition of Done

Done Criteria :	Engineer confirms accuracy of summarization and consolidation of 202 data in responses
Acceptance Criteria:	The system generates valid responses without failure, 99% rate.
Given-When-Then Tests::	*Given tuned bespoke 202 LLM, when prompt is provided, summarized issues with recommendations are returned.*

Schedule

	0%	**Demostration, Progess Reviews**	**14 days**	**Tue 7/29/25**	**Fri 8/15/25**	
	0%	**Advanced Forecasting Summit (A001)**	**14 days**	**Tue 7/29/25**	**Fri 8/15/25**	
	0%	Stakeholder meeting	1 day	Tue 7/29/25	Tue 7/29/25	
	0%	Work w/SMEs for Data/Process	7 days	Wed 7/30/25	Thu 8/7/25	30
	0%	Dry Run	3 days	Fri 8/8/25	Tue 8/12/25	31
	0%	ALC Summit	3 days	Wed 8/13/25	Fri 8/15/25	32
	0%	**Use Case Management (Document the Use Case)**	**15 days**	**Fri 7/25/25**	**Thu 8/14/25**	
	0%	ASD Dashboard Predicitive Problem Part(s)	2 days	Fri 8/1/25	Mon 8/4/25	45
	0%	448 SCMW Technical Data Package Gap Resolution	15 days	Fri 7/25/25	Thu 8/14/25	
	0%	B-52 MECSIP	1 day	Fri 8/1/25	Fri 8/1/25	45
	0%	IPID/SOS Daily LLM	1 day	Fri 8/1/25	Fri 8/1/25	45
	0%	EXPRESS DB LLM	1 day	Fri 8/1/25	Fri 8/1/25	45
	0%	Bespoke 202 LLM	1 day	Fri 8/1/25	Fri 8/1/25	45
	0%	BOM360 refactor	1 day	Fri 8/1/25	Fri 8/1/25	45
	0%	**Sprint Management**	**10 days**	**Wed 7/30/25**	**Tue 8/12/25**	
	0%	**Sprint 1 (Execute Use Cases)**	**10 days**	**Wed 7/30/25**	**Tue 8/12/25**	
	0%	Plan Sprint	1 day	Wed 7/30/25	Wed 7/30/25	30
	0%	KO Sprint	1 day	Thu 7/31/25	Thu 7/31/25	44
	0%	Execution	7 days	Fri 8/1/25	Mon 8/11/25	45
	0%	Sprint Review	1 day	Tue 8/12/25	Tue 8/12/25	46
	0%	User Management (Training and Support)				
	0%	**Change Management**	**32 days**	**Fri 7/25/25**	**Mon 9/8/25**	
	0%	Complete Change Request (CR) 013 CCB Presentation	6 days	Fri 7/25/25	Fri 8/1/25	
	0%	Review Change Request (CR) 013 CCB Presentation	20 days	Mon 8/4/25	Fri 8/29/25	50
	0%	Submit Change Request (CR) 013 CCB Presentation	1 day	Mon 9/1/25	Mon 9/1/25	51
	0%	Approve Change Request (CR) 013 CCB Presentation	5 days	Tue 9/2/25	Mon 9/8/25	52
	50%	**TITAN Infrastructure Milestones**	**70 days**	**Tue 6/17/25**	**Mon 9/22/25**	
✓	100%	Renewed full A&A ATO	1 day	Tue 6/17/25	Tue 6/17/25	
	80%	Prototype New Architecture for Rev 5	31 days	Wed 6/18/25	Wed 7/30/25	55
	0%	Deploy New Architectire to Dev for Test	10 days	Fri 8/1/25	Thu 8/14/25	63
	0%	Deploy New Architectire to Dev for Prod	10 days	Tue 9/9/25	Mon 9/22/25	53
	8%	**TITAN RMF**	**49 days**	**Thu 7/17/25**	**Tue 9/23/25**	
	8%	**Rev 4 to Rev 5**	**49 days**	**Thu 7/17/25**	**Tue 9/23/25**	



Next Steps

- Stakeholder Update 29 Jul 25
- SME Workshop #1 30 Jul 25
- Rev 5 Architecture Due 31 Jul 25
- Kick-Off Advanced Forecasting Sprint 1 01Aug 25
- Complete Discovery of Test Use Cases (using quad template) 07 Aug 25
- Sprint 1 Review 12 Aug 25
- Advanced Forecasting Demo (ALC Summit) 14 Aug 25
- DataOps Proof of Concept in Rev 5/AWS Native environment 28 Aug 25
- CR013 Captify CCB Approval 08 Sep 25
- Deploy TITAN Captify to Prod 22 Sep 25
- Go-Live TITAN Captify 01 Oct 25