



CAD/PAD Service Life Extension Process Enhancement

Technical Exchange Workshop
July 2022

CAD/PAD SLE Process Enhancement

This program encompasses an effort to enhance the CAD/PAD Service Life Extension evaluation process through decision and data-analytic tools, enhanced data architecture, automation, and streamlining.

- Multi-step phased approach delivers ever increasing capability
- The primary goal is to enhance the effectiveness of the engineer by providing tools that provide rapid insight into data used in the evaluation process.
- Automation, data analytic and predictive technologies, and integration of new, authoritative data sources allows for enhanced insight into all aspects of the evaluation decision.
- Enhancing the engineer's experience allowing for more rapid and accurate Service Life Extension determinations is key to enabling safety and force readiness.



Photo Credit NSWC IHD Dept. E2

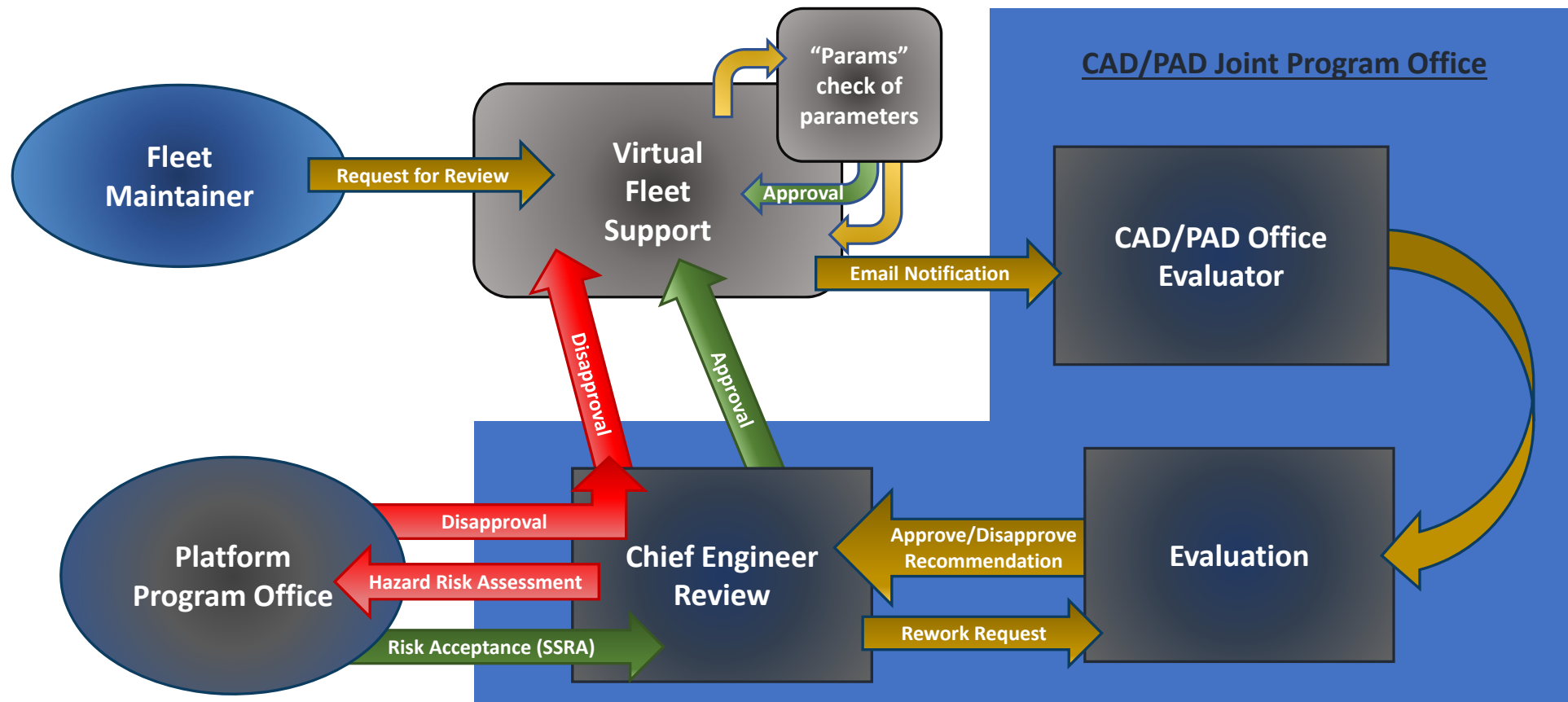
Phased Approach

- Initial efforts defined existing SLE process through eliciting SME experiences using six sigma methodology.
- Existing process was then evaluated to identify key areas where tool implementation can ease the burden on the evaluating engineering and statistician staff.
- Implemented initial tool rollout through an Agile development process providing early capability with ongoing updates.
- Later phases integrate additional authoritative data sources, data-analytic tools, and technologies including geospatial information, Digital Twin Data, Machine Learning and Algorithms, and Culmen's Centrifuge Platform.



Photo Credit U.S. Navy photo by MC3 Johnson, Public Release

High Level CAD/PAD SLE Process



SLE Evaluation Tool



Resources

[VFS Search](#)

[JHTB](#)

[Ordinance Report](#)

DODIC Specific Notes

The parachute deployment rocket motor (PDRM) is mounted on the LH main beam of the seat. It extracts the personnel parachute from the parachute container and enables the parachute to deploy and develop rapidly without becoming entangled in the seat.

Activity Log

Determination Finalized

by chief on 6/22/2022

Recommend Approval

by user on 6/22/2022

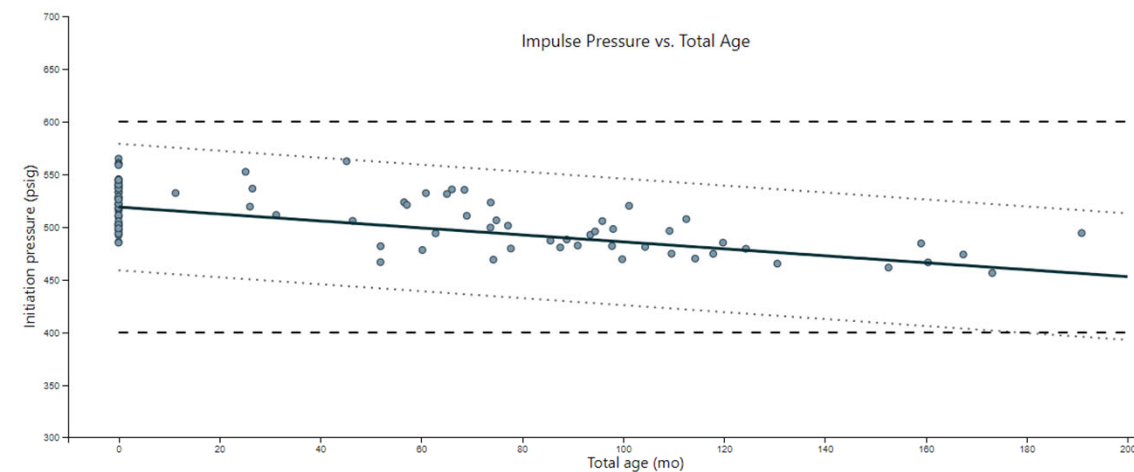
Note Edited

by user on 6/22/2022

SLE Request Details

SLE #	S2022082705	Serial #	6087	BUNO	133650	Total Age	54	Part Name	MT29	Respond By	6/07/2022
Reason	LOCAL SHORTAGE	Lot #	AAA17K001-001	T/M/S	FA-75A	Requested Total Age	55	Location Code	C07	Manufacture	10/31/2017
Priority	ROUTINE									Install	4/17/2020

Initiation Pressure Maximum Thrust Action Time Impulse Velocity Shear Pressure



Notes

Performance within specification

Edit

Requests For Same Serial

S2021104422 ●

01/02/21

Requests For Same BUNO

S2021104422 ●

06/1/22

S2021102433 ●

05/15/22

Requests with same SLE#

S2022082705 ●

06/5/22

S2022082705 ●

06/5/22

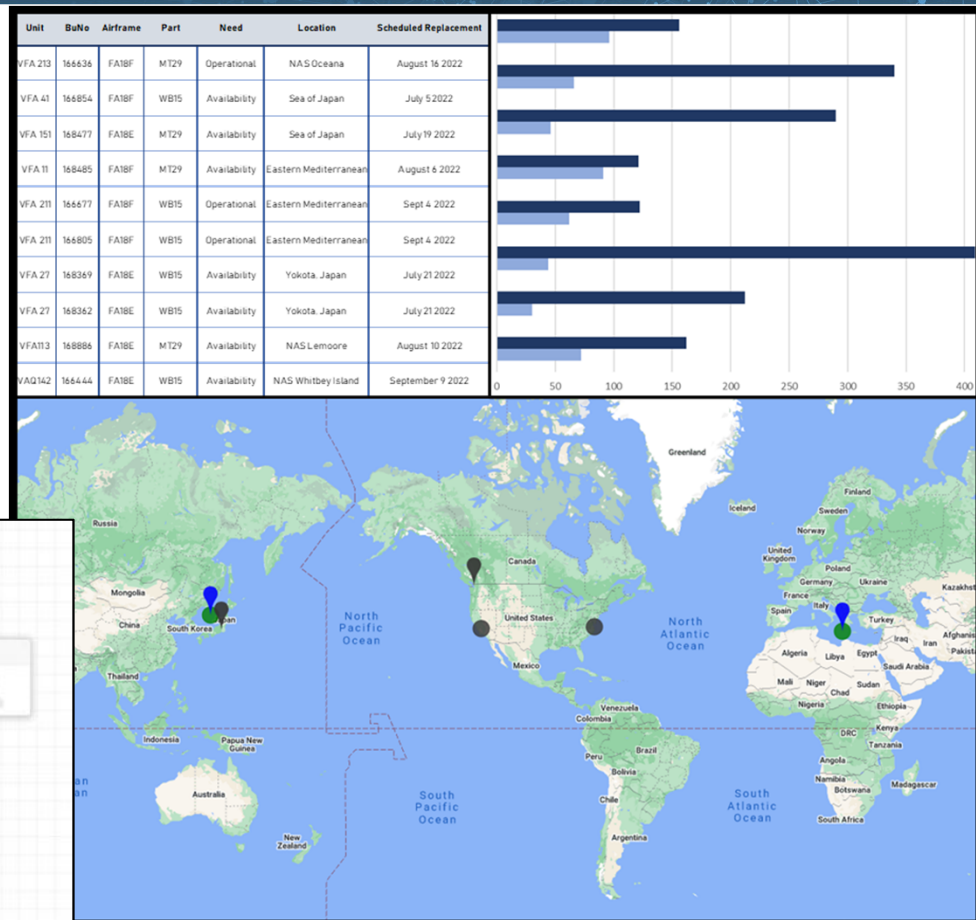
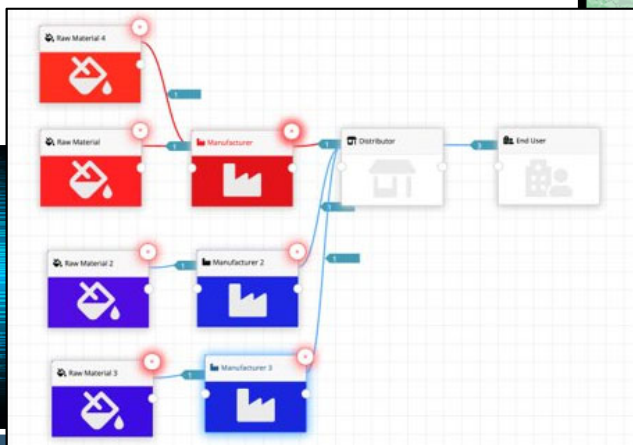
Bringing a “paper process” to an integrated online tool allows for rapid evaluation by presenting all relevant information in one easy to use location with live connection to multiple data sources and appropriate access controls

Future Phases

DIGITAL TWIN, AI/ML, INVENTORY & SUPPLY CHAIN

Incorporating Culmen's Centrifuge technology, future tool expansion will integrate multiple data sources, technologies, and systems including:

- Digital twin data
- Machine Learning and Algorithm enhancements to better model the device lifecycle and provide predictive and decision support capabilities.
- Real time inventory & availability information
- Geospatial information
- VFS Integration



Demo & Questions

Photo Credit U.S. Navy photo by MC3 Branch, Public Release