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Individuals **outside your company**, including the companies listed above and other third parties, potentially including your competitors and others in your industry, may receive and/or review award submissions. All information submitted should address the program's management, leadership, and processes in a manner that you are comfortable sharing with third parties freely and without restriction, and may not include any classified or proprietary information or materials. Do not include any materials marked Confidential or Proprietary or bearing any similar legend. All responses and other submissions, whether in whole or in part ("Submissions"), shall be deemed not to be confidential, proprietary, and/or nonpublic information of any sort for any purpose.

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Thank you for participating,

Gregory Hamilton
President
Aviation Week Network

Acknowledged, agreed, and submitted by

Andrew Gandia

_____ 9 May 2022

Nominee's Signature Date

Nominee's Name (please print): Andrew Gandia

Title (please print): H-53E Performance Based Logistics Program Manager

Company (please print): Lockheed Martin Corporation

NOMINATION FORM

Name of Program: H-53E Performance Based Logistics (PBL)

Name of Program Leader: Andrew Gandia

Phone Number: 203 383 8058

Email: andrew.j.gandia@lmco.com

Postal Address: 6900 Main Street Stratford, CT 06614

☒ Customer Approved

- Date: 23 May 2022
- Customer Contact (name/title/organization/phone): Major Emilie Monaghan / H-53 Integrated Weapons Support Team (IWST) Director / NAVSUP Weapon System Support / 215-697-5430

☐ Supplier Approved (if named in this nomination form)

- Date: _____
- Supplier Contact (name/title/organization/phone): _____

PLEASE REFER TO PROGRAM EXCELLENCE DIRECTIONS
AS YOU COMPLETE THIS FORM.

CATEGORY ENTERED

Based on your initial nomination for this program, your program has been determined to fit within the category identified below. Please double check this against the directions provided with this form. If you wish to change categories, please contact Carole.Hedden@aviation week.com

- ☐ Special Projects
- ☐ OEM/Prime Contractor Systems Design and Development
- ☐ OEM/Prime Contractor Production
- ☒ OEM/Prime Contractor Sustainment
- ☐ Supplier System Design and Development
- ☐ Supplier System Production
- ☐ Supplier System Sustainment

POINT DISTRIBUTION

Executive Summary: Make the Case for Excellence (10 pts) As you executed this program over the past three years, what made it stand out - beyond Technology - in how it performed? Also, what category did you select for this entry and why?		
Metrics **15 Points** Describe use of predictive metrics (10 pts) Provide metric performance/scale (5 pts)	**Program Volatility / Uncertainty / Complexity / Ambiguity** **25 Points** Describe the areas of VUCA faced by your program and why (schedule, market dynamics, engineering) such as schedule, changes in engineering processes, supply chain dynamics, geopolitical pressures, cost/affordability, other) (10 pts) Provide narrative explaining how your team responded (15 pts)	**Organizational Best Practices & Team Leadership** **35 Points** Innovative Tools & Systems (what is it, how is it used, what resulted) (15 pts) People (achieving equity in hybrid work situation, transferring knowledge, identifying and developing key talent) (10 pts) Leveraging unique skills/technologies of suppliers - how did you do it and why? (10 pts)
Value Creation 15 Points		

Scoring within each section

- Did not respond to prompt in the scoring section = 0
- Responded to prompt = 20% of total points available
- Responded to prompt with examples = 20% of total points
- Responded to prompt with unique/innovative examples = 40% of total points
- Demonstrated growth/improvement = 20%

EXECUTIVE SUMMARY: Make the Case for Excellence *(Value: 10 pts)*
What is the vision for this program/project? What unique characteristics and properties qualify this program for consideration?
(12 pt. Times New Roman) LIMIT YOUR NARRATIVE TO THIS PAGE.

The H-53E Performance Based Logistics (PBL) program's vision is to provide the war fighter with critical components to perform missions in global fleet operations. The unique characteristics and properties qualifying this program for the OEM/Prime Contractor System Sustainment category consideration are the program's ability to exceed key metrics of material availability while eliminating chronic fleet degraders and improving aircraft availability at reduced cost. The PBL employs critical and unique enablers to success such as:

- **A long-standing partnership with the government**
- **Application of a commercial aircraft fleet data analytics capability**
- **Uniquely experienced cross-functional team approach with customers and suppliers**
- **Program data center empowering growing digital transformation opportunities.**

The H-53E PBL is a 50-month Firm-Fixed Price (FFP) effort (2018 – 2022) that provides wholesale support for 64 H-53E critical aircraft components. These components support 174 USN and USMC H-53E aircraft and include rotors, transmissions, hydraulics, rotor blades and accessories.

The program is operated in the following locations:
- New Bern, NC – wholesale warehouse supporting global operations, centralized hub
- Stratford, CT – program operations head office, commodity managers
- Shelton, CT – overhaul and repair, industry's core component overhaul site
- Cherry Point, NC – Fleet Readiness Center - East (FRC-E), USG depot partner

The success of the PBL is driven by the strong partnership and collaboration with government organizations supporting PBL. Lockheed Martin is partnered with FRC-E to repair and overhaul end items under a Commercial Services Agreement (CSA). The PBL team collaborates with NAVSUP (primary customer) on requisitions, shipping, and any challenges that may arise. In addition, the PBL team leverages experience from team members that supported the award winning predecessor H-53E PBL effort (2006) and incorporates a streamlined roles framework to ensure each component category is supported at the two depots for both detail parts and output. Technical collaboration is achieved through a mature Product & Process Improvements (PPI) process with the NAVAIR team.

The two critical metrics for PBL are Supply Response Time (SRT) and Delivery Metrics in each Period of Performance (PoP) measured during the contract (see *Metrics* Section for metric definitions and results). Prior to the PBL, the H-53E Fleet had chronic fleet degraders such as Main Rotor Blades, Main Rotorhead, and Primary Servos. These components now have shelf stock with no open orders, largely enabled by supplier collaboration and the FRC-E Partnership. Further, high priority fleet requisitions were reduced by 96% and low priority fleet requisitions reduced by 57%.

Foundational to this PBL is a digital transformation approach. Leveraging best practices imported from Sikorsky's commercial fleet, the core program data center (Fleet Common Operating Environment [FCOE]) was established in Patuxent River, MD. The FCOE provides real time data analytics capability with Tableau facilitating collaboration across locations. The FCOE uniquely enables OEM and USG to gain detailed insights into shifting fleet demand; this empowers proactive decision-making to drive superior PBL performance.

Do not exceed 10 pages in responding to the following four descriptions; allocate these 10 pages as you deem appropriate, but it is important that you respond to all four sections. DO NOT REMOVE THE GUIDANCE PROVIDED FOR EACH SECTION.

VALUE CREATION *(*Value: 15 pts*)*
Please respond to the following prompt:

- **Clearly define the value of this program/project for the corporation**
- **Clearly define the value of this program/project to your customer**
- **Clearly define the value of this program/project to members of your team**
- **Clearly define the contribution of this program/project to the greater good (society, security, etc.)**

(12 pt. Times Roman)

Value to the corporation:

- **Steady and Predictable Business Stream:** Unlike transactional orders for depot repairs, which are case by case and have varying quantities, planned demands and period of performance support are clearly defined with PBL. The PBL therefore solidifies employment security for individuals supporting the program with a steady funding stream to support PBL operations.
- **Long-term Perspective:** The Corporation and supply base are able to plan a head of contract in reference to purchasing piece parts and performing part forecasting. Long-term agreements (LTAs) are established with the supply base with consistent funding over a long period of time.
- **Operational Efficiencies to Drive Down Cost**: Digital transformation tools, including big-data analytics with Tableau dashboards, allow for the Corporation to leverage data to plan appropriately for build plans during the contract. These build plans are the depot output schedule for components on the PBL. An example of this is looking at component Average Quarterly Demands (AQD) through the dashboards and then right sizing build plan quantities and supplier components. This ability to forecast allows the PBL team to properly plan, reducing costs.
- **Market Growth over Long Term:** As was shown going into the current PBL contract after the initial PBL, successful execution of the PBL becomes a framework model for forecasting, execution, and logistical support that can be utilized for future pursuits and other customers. An example, the future planned PBL efforts for the CH-53K were pivotal to the selection of the CH-53K for the Israeli Air Force.
- **Shared Best Practice:** H-53 PBL is a model of success for other platforms to follow throughout the Corporation. The PBL team supports other platforms at Lockheed Martin with the experience developed under the H-53E PBL.

Value to your customer:

- **Valued Partnership:** The H-53E PBL program is an avenue for long term partnership and opportunity with key government partners and customers including NAVSUP, NAVAIR, and FRC-E. These relationships provide confidence in follow-on efforts as well as non-PBL opportunities. The importance of the FRC-E partnership was noted in a NAVAIR news article (Nov 4, 2021) by the FRC-E director of Maintenance, Repair, and Overhaul:

  " At the end of the day, it's all about meeting the commitment we made to get the warfighter what he or she needs, and our performance in this program allows us to do that through the partnership with Sikorsky."

- **Enhanced Fleet Readiness:** The H-53E PBL ensures that the War fighter is able to execute their mission and works to prevent Aircraft on Ground (AOG) scenarios for the fleet. A major enabler for

this is reducing and eliminating chronic fleet degraders. Under the H-53E PBL, these degraders have gone from high amounts of unfilled requisitions to current healthy status with shelf stock. This ability to obtain and maintain healthy stock is driven by the PBL team's effort to prioritize and push output at both depots. In 2019, 43 of the 64 components (67%) had no unfilled fleet requisitions. By the end of CY 2021, this was dramatically improved where 54 of the 64 components had no unfilled requisitions (84%). Three high visibility components brought to health between 2019 and 2021 were the following:

End Item	2019	2021
Main Rotor Blade	67 unfilled requisitions	84 on shelf, 0 unfilled
Primary Servo	64 unfilled requisitions (28 high priority)	4 on shelf, 0 unfilled
Main Rotorhead	9 unfilled requisitions	6 0n shelf, 0 unfilled

- **Supply Chain Velocity:** Repair Turnaround Time (RTAT) is also improved for end items by leveraging a partnership with a government depot to achieve output. For example, on June 9, 2020, the FRC-E Commanding Officer (CO) communicated to PBL leadership the following:

  "For the seven Main Rotorheads completed so far this year under the PBL, the Maintenance, Repair & Overhaul team has been averaging ~270 days turn-around time. This is a substantial improvement on the previous TAT where in the non-PBL years 2014 to 2019 we were averaging ~1,180 days. We are going to keep pressing to improve our performance even more. This has been a team effort. The combined support from both Sikorsky and NAVSUP has been a key factor in our success."

  Key to this success is the ability to collaborate with the depot and provide piece parts to support output. This reduction in turnaround time enables end items to output faster to support the fleet.
- **Reduced Maintenance Burden:** Supplying adequate stock levels to the fleet reduces the need to implement other courses of action to keep aircraft flying. This includes avoiding the need to cannibalize from other aircraft in squadrons as well as mitigating the need to grant Time Before Overhaul (TBO) extensions for major components such as the Main Rotorhead.
- **Continuous Improvement:** Product & Process Improvements assist the customer in improving components to ensure safer, more reliable aircraft. PPIs developed under the H-53E PBL program have focused on the areas of Non Mission Capable (NMC) improvement, RTAT reduction, and demand reduction across multiple end items.
- **Direct Fleet Interaction:** Coordinating with Field Service Representatives (FSRs) and Logistics Service Representatives (LSRs) to provide piece parts to global fleet locations to avoid an end item from being turned in to the depot and keeping product on wing.
- **Surge Capacity Enhanced:** Providing the ability to fill additional allowance requisitions to increase stock levels at global fleet sites in addition to meeting current fleet demands.
- **Planned Cost:** The PBL contract is a firm-fixed price effort which is a value negotiated and agreed upon by the government and the Corporation prior to the execution effort.

Value to the members of your team

- **Cross-functional Interaction:** Product familiarity is a primary benefit to the members of the PBL team. Whether it be the Programs or Engineering team, each member has immense exposure to complex end items, the components that comprise the end items, and the processes of building and supporting these end items. Team members are also able to visit the depot sites where these components are built as well as communicate with depot personnel on repair status and procedures.
- **Professional Development:** The elements of a PBL contract include a myriad of complex provisions and nuances. The ability to work on a PBL provides experience to team members to understand the

intricacies of the contract and the performance metrics measured. There is also a lot of positive exposure and opportunities to learn about key concepts including program management fundamentals as well as being able to present program and component status to key members of NAVSUP PBL and Lockheed Martin/Sikorsky leadership. This growth and opportunity is a foundation for the PBL and allows skillset knowledge base expansion.

- **Job Satisfaction with Tangible Results:** Team members are also able to immediately see the direct impact of how what they do on a daily basis can influence the fleet. An example of this is a team member who helps to provide a piece part to a depot that enables an end item to output and directly support a shipment mitigating an Aircraft on Ground (AOG).

Value to the greater good

- **DOD Affordability:** The structure of the PBL contract provides a benefit to the U.S. taxpayer. By having a contract that is firm fixed price, it provides a cost effective solution to addressing fleet demands in a manner that is fair to both industry and government, while also pushing for both to collaborate to ensure total fleet support. Having this fairness, partnership, and contract structure allows for risks to cost growth to be on Lockheed Martin, not the taxpayer.
- **Reliable Industry Partnership:** PBL is a direct enabler of keeping the U.S. safe. By being able to provide these components to the fleet and working to reduce demands, the U.S. Navy and Marine Corps can utilize their H-53E assets to perform the mission and defend our nation.

METRICS (Value: 15 pts)
Please respond to the following prompt:

- **What are your predictive metrics?**
- **How did you perform against these metrics?**
- **How do your predictive metrics drive action toward program excellence? Please provide examples.**

(12 pt. Times Roman)

To meet the needs of the warfighter, the H-53E PBL program leverages an integrated metric measurement monitoring and predictive philosophy to ensure fleet needs for parts are understood, end items are supplied on time, build and induction plans align to the needs of the fleet's changing environment, and component improvements are made to reduce demand. The metrics that drive action toward program excellence are the following:

Average Quarterly Demand (AQD): The nucleus and focus of the successful H-53E PBL centers around measuring the fleet demands for the specific end items supported. The process of establishing demands began at the PBL proposal phase, where both Lockheed Martin and the government worked hand in hand to develop projected demands for each fiscal year of the PoP utilizing historical demand data for each end item. For each of these end items, demand bands were applied to projected demand, and this serves as the baseline during contract execution. As execution began and continued through the periods of performance, an eight-quarter running average [also known as the Average Quarterly Demand (AQD)] was established and this parameter is constantly adjusted based on fleet utilization, stock levels, and fleet need for that component across the different global sites. The management team has utilized this metric to make critical decisions, including predicting and adjusting build plan quantities, driving a balance of controlling costs while giving key visibility and focus on end items critical to the fleet. This approach has worked extremely well and the AQD with associated build plans are presented to the government monthly.

Supply Response Time (SRT): The key contractual requirement that the PBL is measured to is the Supply Response Time (SRT). Per the H-53E PBL contract, this metric "is defined as the period of time from the receipt of a requisition by the Contractor until the time of input of the shipment transaction." The metric is categorized into the following categories:

- High priority Requisitions: Working days to fill requirement of three days
- Low priority Requisitions: Working days to fill requirement of 10 days

Similar to demands, the metric is agreed upon by Lockheed Martin and the government utilizing a predictive SRT model to develop the contract requirement percentages. Once established, these contract values serve as the required fill percentage to achieve success. It also drives key decisions for the PBL team. By knowing the contract values and leveraging a Tableau dashboard to daily assess the current daily status of the percentages, the team can:

- Make predictive determinations of what the SRT will be by the end of the fiscal year by leveraging past performance in that period based on requisitions filled
- Identify focus areas and drivers of SRT degradation to drive output for those particular components
- Make critical decisions on determining component stock levels to keep on the shelf for high priority requisitions, depending on their health level

This methodology and proactive approach has driven strong metric performance as outlined in the below table:

	FY 20		FY 21	
Priority Level	Reqt	Actual	Reqt	Actual
High Priority Requisition	46%	76%	49%	79%
Low Priority Requisition	57%	83%	65%	84%

Delivery Metric: Four components on the PBL program had very few Ready For Issue (RFI) assets and a high number of open backorders prior to the PBL contract. For these items, Lockheed Martin and the government developed delivery metrics instead of including these end items in the SRT measurement. The delivery metrics require the PBL program to output a specific quantity of each of the four components per fiscal year. This structure incentivizes Lockheed Martin to get these parts healthy. The PBL team utilizes this contractual bench mark to drive and prioritize quantities to output from both depots. This predictive projection planning approach of looking at planned output and collaborating with both depots to reach the required quantities has driven success on the delivery metrics outlined in the below table:

	FY 20		FY 21	
Component	Reqt	Actual	Reqt	Actual
Main Rotor Blade	300	327	300	322
Main Rotorhead	26	29	29	33
Primary Servo	84	88	88	92
AFCS Roll Servo	40	40	41	42

Build and Induction Plans: Utilizing the previous metrics of average quarterly demand, SRT, and delivery metrics, the PBL team coordinates with both the Shelton Overhaul & Repair facility and Fleet Readiness Center to ensure the induction and build plans established align with contract metric compliance. This involves a significant amount of coordination to ensure that the end item assets are inducted at the depots, required piece part material is on site at the depots, and the Work in Process (WIP) at the depots keeps momentum to support output. The utilization of these build and induction plans, where the PBL team coordinates very closely with key stakeholders at both depots, have proven very successful,. This coordination drives key prediction assessments including quantities to induct in future quarters based on current WIP and projected output timeframes.

End Item Improvements: This comprehensive PBL approach goes beyond providing parts to support the fleet. A Product & Process Improvement (PPI) framework and culture has been established to reduce demands and find improvements for PBL end items. These PPI improvements could result in predictive results including demand or RTAT reduction. With this PPI framework, the PBL team gathers data from numerous sources [FCOE, Fleet Service Representatives (FSR), Navy maintenance data, depot data] to determine challenges on the PBL end items. The team then meets on a bi-weekly cadence (with representation from numerous functions including Programs, Engineering, and Analytics) to discuss these challenges and determine which need to be pursued. The PPI initiatives are tracked in a database and displayed in a Tableau dashboard. The PBL team collaborates with the government on the PPIs to ensure awareness and alignment.

Aircraft Mission Capability: Another key metric on the PBL program is an incentive to reduce the Non Mission Capable (NMC) time associated with the PBL components. The NMC of the H-53E aircraft was reduced by 8% from 2019 to 2021 and this type of a data is used as a predictive metric indicator for future years. This NMC metric utilizes a unique "Maintenance Sequencing Model" developed by the FCOE to determine critical path drivers of NMC aircraft. This data allows the PBL team to focus PPI efforts on reducing NMC time due to PBL components.

DEALING WITH PROGRAM COMPLEXITY (VOLATILITY, UNCERTAINTY, COMPLEXITY, AMBIGUITY, OR VUCA) *(*Value: 25 pts*)*
Please respond to the following prompts:

- *10 pts:* **Describe areas of VUCA faced by your program and why.**
- *15 pts:* **Explain how your team responded to these challenges.**

(12 pt. Times Roman)

The H-53E PBL program faces numerous areas of complexity (described by VUCA) on a daily basis. The strong foundation, customer relationship, and experience that the PBL team brings has prepared them to address these challenges as they arise. Below are the complexity areas and how the team has responded to these challenges:

VOLATILITY (VUCA): The PBL team has had to face volatility in the form of supporting an aging H-53E fleet operating around the globe, with varying customer operational tempo, diminishing supply base resiliency and aging tooling and production capacity.

Challenge: ***Fleet demand variability:*** Requisitions received from the H-53E fleet can vary from originally forecasted estimates. This could be driven by multiple factors including aircraft utilization (changing global operational tempo), current stocking level health at the fleet operating locations, unplanned maintenance, and Time Before Overhaul (TBO) extensions applied to specific end items.

Response: To reduce the effect of volatility on the demands and implementing a "control what you can control" mentality, the team has leveraged the following solutions:

- Coordinating with the government prior to contract award to establish planned demands for each end item using historical data. These demands (planned requisitions received) are used as the baseline for each fiscal year.
- Once demands are baselined for each component, the government and Lockheed Martin develop demand bands [to protect against variability with Upper Control Limit (UCL) and Lower Control Limit (LCL)] around the planned demand, and determine agreed upon price per unit values.
- Extensive use of global fleet analytics as a Sikorsky best-practice (see *Organizational Best Practices and Team Leadership* section on innovative tools). During execution of the contract, the PBL team closely monitors the number of requisitions received in a period. This type of data analysis helps determine demand trends and is utilized in addition to the predictive metric of Average Quarterly Demand.
- The PPI process is also very critical for demands in that the technical team (Engineering and Analytics) can utilize the data inputs to determine recommendations to reduce demands (examples include component redesign, corrosion prevention, inspection added to technical manuals).

Challenge: ***Supplier volatility in meeting commitments:*** To support achieving both the Supply Response Time and Delivery Metrics for the PBL program, the team relies heavily on suppliers achieving their commitments to inherently support build plans. There can be multiple reasons for a supplier not reaching their planned commitment dates, including material scrapping due to machining, certain components failing due to other procedures in the manufacturing process for specific piece parts, and delays due to other attributes such as First Article Inspections (FAI).

Response: Knowing these challenges, the team is structurally prepared to address these uncertainties using the following approaches:

- The PBL team utilizes an integrated approach with the Supply Chain team by tracking historical actual commitments and utilizing that data to predict future success of those suppliers. This is important in identifying critical focus areas. This also includes proactively identifying obsolescence challenges and mitigating through life time buys, requalifying suppliers, and alternate sourcing.
- For the critical focus areas, a PBL War Room (see *Organizational Best Practices and Team Leadership* section on Supply Chain Collaboration) has been established by the Supply Chain team to review critical piece-part shortages. Key stakeholders meet, including Programs, Supply Chain, and Engineering, to review the challenges and discuss solutions. Solutions could range from examining technical support requested from a supplier, sending a supply chain or engineering team member to the supplier, or identifying the need to stand up a second supplier either due to supplier performance or obsolescence challenges.
- The PBL team also collaborates to determine salvages for piece parts at the depots while solutions for the supplier commitments are being worked. This is achieved by Engineering assessing the components and working directly with Operations to develop Overhaul Repair Instructions (ORIs).

Challenge: ***Aging tooling / Repair capacity:*** A critical part of producing output to support the fleet is building and testing components at the depots before they are shipped out. Test equipment can go down for various reasons including broken components. These unplanned occurrences can have a major impact to metrics and build plans.

Response: The PBL team utilizes the following approach to minimize the impact:

- Prioritize repairing the test machine quickly as possible. This is a collaborative effort between key stakeholders including Programs, Facilities, Test, and Operations to determine the root cause and determine corrective actions to have the test machine operational as soon as possible.
- In parallel, sharing critical resources across both overhaul sites. The partnership between both depots (see *Organizational Best Practices and Team Leadership* for a full description of the FRC-E public private partnership) encourages opportunities to test units at the other depot if a test stand is down. This approach has been used to maintain output momentum. In this scenario, the depot would perform the repair on the end item, prepare it for test, ship it to the other depot to be tested, and if it passes, the unit would be sent back to the original depot to be prepared for shipment. An example of this type of support has been provided for the Main Gearbox, where all testing for both depots is currently being performed at Lockheed Martin.
- The PBL team coordinates with the Operations and Test teams on any recommended improvements required for the test stands to minimize the probability of failures occurring in the future.

UNCERTAINTY (VUCA): The most dramatic issue the team faced for two years was COVID, creating a profound, unanticipated impact to suppliers and personnel.

Challenge: *COVID-19 Pandemic:* Since March 2020, the COVID-19 pandemic has impacted all aspects of life around the globe. Daily, the H-53E PBL team faces the uncertainty that output for an end item could stop at any moment from absenteeism due to COVID-19 at either the Shelton O&R facility, FRC-E, or at key suppliers. Since the beginning of the pandemic, the H-53E PBL team has experienced this type of impact across the supply chain while also having Hydraulics and Blades output impacted at the depot facilities.

Response: The team responded to this by implementing a few key critical courses of action. These included:
- Communicating and keeping all organizations informed as different issues arise. This was first established by tracking key impacts and communicating those impacts both through Corporate leadership and communication to the customer as well.
- Leveraging a foundational mindset of continual problem solving and coordinating with the depots. In impacted shop areas, the PBL Team met with depot stakeholders to determine how to pull in other staffing support to continue output. This mindset and action allowed the team to develop and execute best-case scenarios even when impacted at the shops.
- In cases where an impact to SRT or delivery metrics was unrecoverable (and all other options exhausted), the PBL team would reconvene to calculate the absenteeism associated with COVID-19 and calculate the impact to the contract metrics. These impacts would be then communicated informally and formally through a contracts letter to the customer. Additional data would also be provided when requested, including "get-well" timeframes for the components impacted.

COMPLEXITY (VUCA): The PBL faced complexity in taking operational ownership of a vast, intricate U.S. Navy Logistics chain with many moving parts and operational/interdependent nodes – from point of use to global replenishments, and global visibility

The H-53E fleet operates around the globe and support value streams cover multiple nodes. The PBL team seeks to understand the performance of this entire enterprise with visibility and collaboration at every layer (three-tiered maintenance and supply system) with field teams and interdictions.

Response:

- Employment of a leadership team that has decades of experience in USN global logistics and H-53E fleet operations (see *Organizational Best Practices and Team Leadership* section on developing, leading, and managing people).
- Collaborative global fleet analytics, jointly manned, provides visibility and tools (see *Organizational Best Practices and Team Leadership* section on innovative tools).
- Eyes and ears across the value stream: Field Service Representatives (FSRs) embedded at all major sites.

AMBIGUITY (VUCA):

The team had to address ambiguity at the program start, when in 2018 the USN global inventory for 54 of the 64 components was transitioned as GFE to Sikorsky custody. The inventory included all conditions of material in varying quantities. Sikorsky inherited a starting material position which was significantly different than anticipated.

Response: To address this, the team worked with the government to create a mitigation strategy that included a transition period and a reconciliation process resulting in a re-negotiated performance ramp-up period. This process is what Sikorsky/Lockheed Martin had applied in previous PBLs, however in this case, the magnitude of this effort was larger than previous due to the number of components.

ORGANIZATIONAL BEST PRACTICES AND TEAM LEADERSHIP *(*Value: 35 pts*)*
Please respond to the following prompts

- *15 pts:* **Describe the innovative tools and systems used by your team**
- *10 pts:* **Define how you developed, led and managed people**
- *10 pts:* **How did you leverage skills and technologies of your suppliers?**

(12 pt. Times Roman)

Innovative Tools and Systems: Lockheed Martin leverages its industry-leading fleet "big-data" analytics from its commercial aircraft fleet tool-set to develop a similar group of capable and innovative instruments to support the H-53E.

Fleet Common Operating Environment (FCOE): The H-53E PBL program interfaces with the Fleet Common Operating Environment at Patuxent River. This data center was derived from tools developed under the Commercial Sikorsky Aircraft Customer Care Center and is jointly managed by the government and Lockheed Martin. It is a key enabler for the PBL, allowing access to key data sets, including Naval Maintenance Data, Aircraft Utilization, Non-Mission Capability Results, and stock levels at different fleet global locations. This data directly ties into the Tableau dashboard and is the connection point for a vast amount of fleet information utilized for trend analysis and Product & Process Improvements (PPIs)

Tableau Analytics Dashboard: The central hub for all data items on the program is the H-53E PBL Analytics Tableau dashboards. This set of dashboards was developed to establish access to live data of critical program parameters. The dashboards' data ranges from metric management to PPI status management. This type of data for the PBL team enables the following:

- All team members (regardless of function) can access the same data set across the program
- Eliminates the need to search for these data sets in other systems
- Dashboards enable a culture of creativity and efficiency. Team members can make recommendations for the dashboard as well as requests for data sets they would like to see. An example of this was the

implementation of an "On the Clock Requisitions" dashboard which was an idea based upon wanting to see remaining time before a metric was impacted.
- Determine focus areas based upon the data showing drivers for either SRT or NMC.
- Real-time decision making. For example, if a low priority requisition is received, the team can see when the requisition was received, determine the stock levels, and decide on when to fill that requisition.
- Visualize and display data from other sources such as the Fleet Common Operating Environment (FCOE), NMC data and Naval Maintenance Data.

Maintenance Sequencer Model (MSM): Core to the calculations for NMC is the utilization of the MSM on the PBL. This tool is managed through FCOE and establishes the amount of up time and down time due to PBL components from both a supply and maintenance perspective. This tool and the data it outputs are key enablers for understanding top drivers due to NMC and allow for deeper analysis of which specific aircraft are driving the down time.

Developing, Leading, and Managing People: Leadership team focuses on the areas of knowledge transfer, achieving equity in a hybrid work situation, and identifying developing, and retaining talent.

Team Framework: To support all end items on the program, specific component areas were established to optimize communication internally amongst the depot stakeholders as well as having customer points of contact for the different component categories. For these areas, specific sub teams were established. Having these subgroups reduced the need for large program meetings covering all piece parts on the program and clearly delineated roles and responsibilities amongst the different team members.

Approachable Leaders: The leadership on the program holds team members accountable for their scope of work, but also is very collaborative in determining solutions. The leadership team truly views their team as key contributors and provides mentorship and guidance to team members beyond the program and workplace. This ability to be approachable has been very critical in a COVID-19 work-from-home environment, where leaders check-in on all employees virtually to check on wellbeing.

Diversity in Team Experience: To develop team members, a conscious decision was made to establish an integrated team unit that had members from the original PBL predecessor program as well as new additions to the team that had not previously worked PBL. This team dynamic coupled with the team framework contributed to learning and collaboration amongst the different team members. Newer team members were able to learn faster from experienced team members, and ideas from new team members were welcomed and encouraged.

Empowering Team Members: Numerous program decisions need to be made on a daily basis. Rather than flow every decision through leadership, team members are empowered to make decisions on their end items, communicate, and collaborate directly with the customer. This approach enables individuals to grow, be accountable, and provides leadership more time to work other program issues or strategies.

Identifying Emerging Leaders: The leadership team continually works to reward performance and identify advancement opportunities for key contributors. Several individuals have been elevated into program leadership roles based on their results and abilities. The type of leadership mentored on the team does not focus on titles or positions, but rather how can you grow your "toolbox" of skillsets.

Skills and Technologies of Suppliers: The following outlines the key supply chain focus areas for H-53E PBL:

Supply Chain Collaboration: The H-53E PBL currently comprises over 150 suppliers in 45 states and one international country. The specialized skillsets these suppliers have is critical in generating the piece parts to enable output at both depots. The H-53E PBL team has a dedicated Supply Chain team and has implemented a Supplier War Room. This War Room was generated for continual supplier focus on key piece parts as well as a location for key program stakeholders to collaborate to resolve challenges.

The selection process begins with the supply base's skillsets and capabilities being closely examined by the PBL team. The team also assesses their core business and past performance. Since the PBL covers multiple critical end items, there is large variability on the type of piece parts and complexities associated with supplier technologies. Parts can range from a bearing to a complex housing requiring a casting.

During contract execution, a key success driver is the relationship established between the Lockheed Martin Supply Chain team and the individual suppliers. This relationship drives collaboration including the sharing of data and process reviews at a supplier's location when supply chain challenges arise.

FRC-E Partnership: The FRC-E government depot is a critical supplier for repairs and overhauls. Under the PBL contract, Lockheed Martin has a work split of outputting end items at both Shelton Overhaul & Repair and Fleet Readiness Center East. The importance of support from two depots was noted in a March 12, 2020 Helis.com article by the FRC-E CO in which he stated:

"Having our depot serve as a second production facility will help prevent future work stoppages on aircraft needing these components. Aircraft maintainers here at FRCE and across the fleet will be able to complete maintenance on these aircraft and get them back to the warfighter without delays."

Under the contract and a Commercial Service Agreement, the PBL Team can collaborate directly with FRC-E. Noted below are a few key areas of the mutual benefit obtained through this partnership:

- The PBL team leverages artisan skillsets at the depots who support the output requirements and contribute to PBL metric success.
- Having two depots outputting simultaneously provides test site redundancy in the event one of the test stands is down for maintenance.
- The current PBL construct requires Lockheed Martin to provide all the piece part material to support build at the depots. In the event that there is a critical shortage, FRC-E can coordinate the purchase of material through Defense Logistics Aviation (DLA) for Lockheed Martin to purchase. This is in critical in keeping momentum through the depot rather than facing work stoppages.
- Products & Process Improvements and repair efficiencies identified by the FRC-E can be leveraged by Shelton O&R and vice versa.
- Data sharing allows further collaboration amongst the technical teams to ensure both locations have the right documentation and support for output.
- Provides a cultural shift and mindset embraced by the government and industry to approach output as one team and work together toward the common goal of supporting the fleet.

Third Party Logistics Provider: 3PL is also an enabler with the highest quality of managing logistics and warehousing. It applies Lean Six Sigma and metric-based management and has passed every government audit in reviewing the inventory and handling of all GFE material in a central global warehouse.