AVIATION WEEK NETWORK

2020 Program Excellence Awards

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Thank you for participating,

Gregory Hamilton
President
Aviation Week Network

Acknowledged, agreed, and submitted by

Nominee's Signature _____ Date 6/26/2020

Nominee's Name (please print): RASA FULLER

Title (please print): Director of Development Program Management

Company (please print): Honeywell

NOMINATION FORM

Name of Program: 131-9 Block II Enhancements

Name of Program Leader: Rasa Fuller, Director of Development Programs; Laurel Huffman, Sr Development Program Manager

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☐ Customer Approved

- Date: N/A
- Contact (name/title/organization/phone): N/A

☐ Supplier Approved (if named in this nomination form)

- Date: N/A
- Contact (name/title/organization/phone): N/A

CATEGORY ENTERED

Refer to definitions in the document "2020 Program Excellence Directons." You must choose one category that most accurately reflects the work described in this application**. The Evaluation Team reserves the right to move this program to a different category if your program better fits a different category.**

Check one

☐ 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 (15 pts)		
Metrics **10 pts** Predictive Metrics (10)	**Program Volatility/ Uncertainty/Complexity/ Ambiguity** **25 pts** Describe overall VUCA (10) Cite examples of team response (15)	**Organizational Best Practices & Team Leadership** **40 pts** Innovative Tools and Systems (15) Unique Innovative Processes for People Development/Knowledge Transfer (15) Unique Practice es for Customer Engagement (10)
Value Creation (10 pts)		

Abstract

In 150 words or less, why is this program excellent in terms of execution?

The 131-9 Block II Enhancements program developed a set of innovative new features for Honeywell's 131-9 Auxiliary Power Unit (APU). These features improve field reliability of Honeywell's most successful APU and provide an option for Honeywell and other customers to increase time on wing and reduce fuel burn. The team utilized highly effective program management processes and tools and infused new ways of executing their scope of work that resulted in a mid-program reduction of their original approved budget by 20%, allowing the business to re-deploy those funds to other strategic programs. The team managed threats and implemented opportunities, executed a series of tests in a highly efficient manner, and established that an entire series of costly back-to-back tests could be eliminated by using analysis. They were also able to accelerate their work when the launch customer requested an earlier implementation date.

Purpose

Provide a 150-word description of the purpose of this program, spelling out all acronyms

This program was chartered and funded by Honeywell's Engines and Power Systems business leadership to develop and introduce a set of enhancements on Honeywell's 131-9 family of Auxiliary Power Unit (APU) engines. These enhancements are targeted to improve reliability, increase time-on-wing, reduce fabrication costs, and reduce fuel burn. The program also incorporates new technology to ensure connectivity and APU data availability. The scope focused on maintaining commonality between engine models within the 131-9 family, maintaining weight, and maintaining current certification and qualification levels. The program addressed producibility concerns through Honeywell's manufacturing launch process, to ensure that all newly developed parts manufactured by Honeywell are being produced at 96% Rolled Throughput Yield or higher, and that procured parts meet quality and delivery metrics.

Executive Summary: Make the Case for Excellence *(Value: 15 pts)*
What is the vision for this program/project? What unique chracteristics and properties qualify this program for consideration?

This program was a stand-out success within Honeywell's Aerospace division due to the team's effectiveness in reducing the overall cost to execute this program. The team recognized and returned 20% of their approved baseline budget, without reducing the scope of the program. The return of funds signaled a commitment that the team could execute the program successfully for 20% less than originally planned. This type of early recognition and reduction on internally funded programs is important to the business team, because it frees up budget to work on additional portfolio-building products as early as possible.

There were four key areas that drove this reduction: retiring risks, realizing opportunities, test efficiencies, and utilizing analysis of back-to-back testing on one model to eliminate the need for back-to-back testing on a second model.

The program also started with a zero-slack schedule and the team was able to not only find opportunities to build in slack, but also was able to respond positively to the launch customer's request to pull in the schedule to align with earlier flight test dates.

This program's scope focused on improving customer satisfaction, reduced field reliability issues, and enabled the implementation of a software key that can be utilized by customers to activate an improved (reduced) fuel burn, which increases the allowable time on wing between required service. These enhancements bring value to the end customer who manages his own maintenance with a new longer interval between major service events, and value to Honeywell's Maintenance Service Plan (MSP) customers who pay Honeywell for engine maintenance at a rate tied to flight hours. These customers retain their engines on wing longer between service intervals, while also experiencing reduced field issues.

VALUE CREATION *(Value: 10 pts)*

Please respond to the following prompt:

- **Clearly define the value of this program/project for the corporation beyond profit and revenue**
- **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.)**

The enhancements developed by this program create value for the customer by increasing their satisfaction with the 131-9 APU at the aircraft manufacturer level and at the operator level. Increased time-on-wing is valuable for customers who manage their maintenance themselves and for those who pay Honeywell to manage their maintenance. All benefit from longer intervals between services and more aircraft deployment time. The customers also gain from having an improved data memory module, which allows faster and more accurate fault isolation and therefore resolution.

The program team created value for the launch customer by agreeing to accelerate the program and introduction timeline, to enable that customer to combine flight tests with another aircraft change and reduce their test cost by almost half.

The company benefits from the longer intervals between services by freeing up maintenance resources to manage other challenges, and from the goodwill generated by providing a stellar product. The 131-9 APU already compares favorably to its competitor in the market. These improvements allow Honeywell's APU to compete even more strongly for new customers.

The company also benefitted for this program team's execution excellence by the ability to re-deploy 20% of the investment funds allocated to this program into other strategic initiatives, allowing Honeywell to grow its portfolio further.

The project created value for team members in several ways. The Honeywell Aerospace Program Management Office (PMO) awarded this team their prestigious Wright Flyer Award, granted to two teams each year who reduce their approved budget at completion (BAC) significantly as a result of program efficiencies and execution excellence. The team received a trophy and a monetary award. The team also was recognized during performance evaluations as having exceeded their goals. A team member who has this award on their internal resume will be afforded career growth opportunities because they are recognized to have strong execution skills, are considered team-players, and are focused on supporting business growth.

This project's contribution to the greater good is clearly demonstrated by the improved fuel efficiency that will be implemented across the fleet. This is good for the environment and for reduced burden on our planet's limited supply of fossil fuels.

METRICS *(Value: 10 pts)*

Please respond to the following prompt:

- **How do your predictive metrics drive action toward program excellence?**

During the initiation phase, the team established a program baseline. This included a statement of work (SOW), a high-level schedule, and a detailed program estimate that includes identification of key program risks and opportunities. The estimate is structured by work package into a deliverables-based Work Breakdown Structure (WBS). The program was launched with this baseline in place, and this is the point at which Honeywell's PMO documented the approved budget of record for the program.

During the detailed planning phase, the team developed an Integrated Master Schedule (IMS) with tasks aligned to the WBS. The team tracked completion of tasks in the IMS and the spend against the work package to measure earned value (EV). The team measured EV and tracked Cost Performance and Schedule Performance Indices (CPI and SPI) on a monthly basis, with a forward-looking projection for current month based on data-to-date.

This program did an excellent job of managing risks. Threats were mitigated and retired, and opportunities were realized. The team's operating system provided a venue for reviewing and discussing risks on a monthly basis, and their monthly scorecard tracked a Risk Health metric, comparing Management Reserve funds against the total factored risk value.

Monthly scorecards also included forward-looking Independent Estimate at Complete (iEAC) and To Complete Performance Index (TCPI) metrics. iEAC shows how the program will perform on Budget at Complete (BAC) if they stay on the current track. TCPI shows what CPI the program will need to maintain to complete the program on budget. As the iEAC fell below the BAC, the Risk Health metric grew above 1.0, indicating more reserves than factored risk cost expected, and as TCPI showed values below 1.0, the team was able to have confidence in their decision to return funds to the business.

The IMS also includes key program milestones categorized as 1/2/3, with relational linkages. Category 3 milestones support Category 2 milestones, and Category 2 supports Category 1. Category 1 milestones are generally business-critical or customer deliverables, but can also be major checkpoints within a program, such as Preliminary Design Reviews and Critical Design Reviews.

The team used the IMS to identify forecasted misses of milestones as an indicator of where to assign recovery actions. If Category 3 or 2 milestones were projecting to be late, then the team determined what actions were needed to ensure that the critical Category 1 milestone would not be missed. Monthly program reviews with functional leaders provided the venue for escalating help needed to drive actions. By having established goals across the organization for greater than 96% Category 1 milestone fidelity, the extended team of functional and business leaders were always ready to ensure the program had what it needed to stay on track. This program has had a 100% Category 1 milestone fidelity since inception.

The program also tracked Producibility Leading Indicators (PLI metrics) during the course of the program. These included whether design requirements were frozen during the appropriate program phase, whether early supplier engagement and advanced product quality planning (APQP) requirements were being met at each phase, whether quality escapes for similar-to parts are being investigated, and whether the projected Rolled Throughput Yield (RTY) is on track to achieve greater than 96%.

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

- *10 pts:* **Describe overall VUCA faced by your project/program.**
- *15 pts:* **Cite specific example(s) and how your team responded.**

This program was defined and managed as a Core Program. At Honeywell Aerospace, Core Programs are products or systems that are developed for multiple customers and multiple aircraft and vehicle platforms, and often also include internal requirements that support future applications. These are complex programs that fundamentally experience volatility, uncertainty, and ambiguity along the way, and especially during the early phases of the program. The 131-9 program also required the team to develop a software key feature that was a new and novel concept for APU systems.

Different requirements had to be accommodated from two primary customers, and from two regulatory authorities. However, the timeline for each customer to provide their requirements and to negotiate terms with Honeywell did not converge, leading to ambiguity at a time when the team needed to move forward. The team made a decision to baseline the program scope, schedule, and budget based on firmed requirements and timeline from the first customer and an assumption of requirements and timeline from the second. In order to move forward, the team and business leadership agreed to use Baseline Change Management methods to incorporate any differences between the second customer's final agreements and the program's assumptions.

The program scope included having a supplier develop and deliver a new Data Memory Module (DMM). During the early supplier engagement activities, it became clear that the targeted design and manufacture suppliers could not meet the program's schedule needs. The team was able to pivot away from this supply chain volatility by assessing that the DMM could be in-sourced for the design work. A larger pool of manufacture-only suppliers could be leveraged to achieve the target product cost, and the internal team committed to achieve the target schedule and development budget.

The APU system is complex, and during the DMM development, the team discovered that the new DMM's communication signals were receiving interference from the system's wiring harness. The team was able to quickly incorporate a design change of the wiring harness insulation to resolve this issue, without impacting the total program budget or the product cost.

No one on the program team had ever been involved in designing a software key or the required infrastructure to establish and allow purchase of the key. The team took on that uncertainty by drawing on resources from across Honeywell, specifically from the Honeywell Connected Enterprise, to help them define the plan and assign resources that had the necessary skills. The team also reached out to customers to get feedback.

ORGANIZATIONAL BEST PRACTICES AND TEAM LEADERSHIP *(Value: 40 pts)*
Please respond to the following prompts:

- *15 pts:* **In executing the program, what unique and innovative practices, tools and systems frame your program and help you achieve program excellence**?
- *15 pts:* **What unique and innovative processes and practices are you using to develop people and transfer knowledge and how do you know they are working?**
- *10 pts:* **What unique practices are you using to engage customers and how do you know?**

The team's primary strength was in its use of program management tools to reduce cost and schedule while managing the complexity of the program. They created a statement of work (SOW) which defined the scope of the program. They established the budget using a detailed program estimate and structured it by work package into a deliverables-based Work Breakdown Structure (WBS) and entered the baseline budget in SAP, Honeywell's enterprise resource planning software system used for program cost management. The third leg was the development of an integrated master schedule (IMS) which was established in Microsoft Project software. The team identified key program risks (both threats and opportunities) early during the planning phase and logged these into a database that tracks the probabilities, financial and schedule impacts, and mitigation plans.

A management operating system (MOS) for the team was established prior to program launch. The MOS created weekly and monthly venues (both meetings and shared folder spaces) to review metrics, update program systems and tools, discuss challenges, roadblocks, and assign actions as needed. The MOS included tactical discussions around mitigating threats and exploiting opportunities, which were key to this program's ability to return funds to the business. The operating system ensured that the team had a path to quickly escalate requests for help from leadership, when the team could not resolve the challenge or roadblock at their level. Monthly scorecards included all program metrics and identified actions, owners, and timing to "go-green" on any red or yellow metrics, driving team accountability to continuous improvement.

During meetings and team lunches, the team opened themselves up to thinking about new ways of accomplishing objectives. The asked each other to think 'outside the box' and brainstormed ideas for how to improve the program. This resulted in finding a major opportunity. A team member happened to be in discussions with the customer on another project and saw synergies between the two programs. This led him to suggest combining both programs. After a series of negotiations with the customer, the team was able to shorten the schedule and reduce overall cost to both companies. The team culture that encouraged idea sharing helped drive creativity into resolving issues and identifying opportunities.

When new members joined the program team, they were mentored by the other team members to maintain the innovative and collaborative culture. Functional leaders have also supported this environment by assigning strong transition periods, and in the case of a known likely retirement of the project engineering lead, a deputy technical lead was assigned several months in advance. When the retirement came to pass, the deputy was in an excellent position to take over leading the technical aspects of the program within the same program culture that had already been established and successful.

The program's culture that encouraged new ideas and new approaches also led to a series of test efficiencies that reduced program costs. Well-planned altitude test execution eliminated scheduling conflicts that often drive schedule and cost, and ensured that the series of tests experienced no costly down-time once installed in the altitude lab. The joint program and lab team worked together to resolve lab system issues by quickly renting necessary equipment and by working directly with air and fuel suppliers to ensure smooth operation. The first set of tests completed with no issues. The technical team then was able to identify new analyses that could be conducted instead of a second series of altitude tank tests on a second model of the 131-9 engine. This analysis cost the program a fraction of what the test would cost. The team obtained the appropriate agreements and made this program change. The team culture that was focused on rigorous program management and free and open sharing of new ideas was the primary reason the team was able to return 20% of their budget during the first half of the program.

The team has been engaged with the launch customer throughout the program. When the customer shared that their focus was on a different and higher-priority project, the team became concerned that the Block II Enhancements program would lose momentum, as both programs required the launch customer to execute an aircraft-level flight test. After several discussions with the customer to identify potential ways to satisfy both programs, the team negotiated a resolution that combined both programs. This resulted in establishing a combined aircraft test plan, reducing the overall schedule for this program by six months, and generating cost savings for both the customer and Honeywell.