AVIATION WEEK

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 06/27/25

Nominee's Name (please print): Peter Sommerkorn

Title (please print): Executive Director, 6th Gen Programs, Pratt & Whitney

Company (please print): Pratt & Whitney

NOMINATION FORM

Name of Program: Pratt & Whitney XA103

Name of Program Leader: Peter Sommerkorn, executive director, Sixth-Gen Programs, Pratt & Whitney

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☒ Customer Approved

- Date: June 27, 2025
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☐ Supplier Approved (if named in this nomination form) – Not Applicable

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

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

SECTION 1: EXECUTIVE SUMMARY

Make the Case for Excellence

Value: 10 points

Use 12 pt. Times Roman typeface.

What is the vision for this program/project? What unique characteristics and properties qualify this program for consideration?

The Next Generation Adaptive Propulsion (NGAP) program will deliver the foundation for the next 40+ years of United States tactical fighter propulsion. Adaptive engines enable the thrust, power, thermal management, and survivability required of future tactical platforms. Of equal importance, NGAP is the vanguard program to prepare the next generation of aerospace professionals and will digitally transform all aspects of the industry from engineering, industrial, production, supply chain, and program management. Pratt & Whitney's NGAP offering is called the XA103 engine.

Over the last three years, both customer expectations and the driving force of competition have pushed Pratt & Whitney to transform internal program management, engineering, and industrial processes throughout a full development program to improve communication, implement agile execution, reduce manual handoffs, and increase customer collaboration. Spurred by the tangible improvements in execution performance and quality, Pratt & Whitney is expanding the practices to all future efforts. The digital tools and processes that the XA103 team has demonstrated, and will continue to advance, will be at the foundation of P&W's technology maturation for future next-gen solutions.

DIRECTIONS

- **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.

- Use 12 pt. Times Roman typeface throughout.

- Include graphics and photos if appropriate; do not change margins.

SECTION 2: VALUE CREATION

Value: 15 points

Please respond to the following prompt:

- **Clearly define the value of this program/project for the corporation; quantify appropriately**
  The monetary value over Pratt & Whitney XA103's lifetime is tens of billions of dollars. At a high-level, the value of the program is threefold. It is helping to establish the technological foundation for future products while training the next generation of propulsion professionals and underscoring the value of digital tools, agile methods, team and customer communication. The power of agile execution combined with the implementation of digital enables Pratt & Whitney to focus more effectively on the highest value to the user and customer. The model-based design and digital twin foundation enables rapid design iteration, improved resource forecasting and systems integration handoff accuracy. To add, there is a feedback loop among Pratt & Whitney's engine programs. As XA103 matures, learnings can be fed into other development or production programs similar to how fifth-gen technologies were retroactively added to the Pratt & Whitney fourth-gen F100 engine.

- **Clearly define the value of this program/project to your customer**
  From a propulsion capability perspective, Pratt & Whitney's XA103 engine has an adaptive architecture, enabling its components to actively adjust for optimized fuel efficiency, survivability, and power and thermal management, which are necessary to enable the required range, weapon and sensor capability, and the persistence that future air dominance platforms will require to meet challenging operational needs. This step change in engine capability – surpassing that of fourth- and fifth-generation engines – will help to ensure that the U.S. Air Force maintains air superiority and deters pacing challenges.

  From a collaboration perspective, Pratt & Whitney has had transparent communication with the customer since the start of XA103, allowing for requirement and priority clarity, which is crucial when working to the "speed of relevance". This has enabled alignment across progress, planning and potential risks. Thanks to a collaborative digital environment, Pratt & Whitney and the customer can:
  - Track current status against requirements in near real-time
  - Conduct asynchronous review of progress artifacts
  - Frequently assess priorities and decisions and clarify requirements, needs, and intentions
  - Engage in higher quality interactions with focus on priority tasks, ultimately reducing review action items and associated re-work
  - Have higher confidence in work completion timelines and spend forecasts

Here are a few quotes from team members:

- "It's a very fulfilling experience to work with the customer directly. After all, we're making this product for them, so being able to have those face-to-face discussions, know what they're thinking and where we're at, we can more easily bridge that gap and come to make the best product for them. And, embracing the agile framework and mindset, you have a constant reorientation towards success aligned to the mission." – Executive Director and Chief Engineer for Military Development
- "It's part of how we collaborate. It's how we interact with the customer, hearing the voice of the customer infused into what we do every day, every week, every year throughout this program. It's how we're choosing to run the program and deliver that different customer experience and really build on that next generation." – Director, Military Engineering
- "There's the speed of relevancy, which is how fast we can get things done to be relevant to our customer, relevant to the warfighter, relevant to the world around us, but the agile mindset really helps us create the right framework around what we need to do to." – Model Manager

- **Clearly define the value of this program/project to members of your team; quantify if possible**

From a process standpoint, collaborative digital environments have enabled improved communication among XA103 employees, resulting in faster identification of resource needs, broader collaboration and involvement of subject matter experts, and a clear focus on solving challenges versus executing processes.

There are hundreds of employees supporting Pratt & Whitney's XA103 program across several sites. The years of experience supporting the program span from one year to more than 40 years at the company, allowing for knowledge transfer and the introduction of improved ways of working. From a career development standpoint, the frequent touchpoints with the customer and Pratt & Whitney leadership allows team members to report out on their respective portion of the program, no matter their level, ensuring value alignment vertically and horizontally across the team.

Here are a couple quotes from team members:

- "Yes, it's the sixth generation of military propulsion from a product perspective, but we are developing the next generation of engineers. And so really working together, setting that standard, working towards the next generation, infusing how we deliver that different customer experience, we're getting an opportunity to train the next generation. And so really it's an incredible opportunity not only from a product standpoint, but building what Pratt & Whitney is in a really transformational way." – Program Chief Engineer
- "And at the end of the day, one of the things that we're doing besides developing a really awesome engine is developing the tool sets that excite people to come into work and really push the boundary on what they want to go do and we think we can do." – Executive Director and Chief Engineer for Military Development

- **Clearly define the contribution of this program/project to the greater good (society, security, etc.)**

The Untied States has enjoyed air superiority as a competitive advantage for decades. The U.S. Air Force's NGAP program is helping to spur the development and maturation of adaptive cycle engine designs and manufacturing processes that will deliver revolutionary propulsion system performance vital to enabling future aircraft persistence, lethality and survivability. Air superiority is a cornerstone of U.S. military strategy. By controlling the skies, the U.S. military is able to help protect ground

forces, complete a variety of kinetic and non-kinetic missions, defend international commerce, among a number of other strategic initiatives. Pratt & Whitney is committed to powering freedom.

Pratt & Whitney is one of the two engine OEMs to have been awarded a contract for NGAP. Now, as the OEMs compete to mature their offerings, the competition will help to spur innovation and ensure the best propulsion solution is put forward for the warfighter.

Here is a quote from a team member:

- "Pratt's centennial is a huge motivator for me because my first job ever was restoring a WWII biplane with a Pratt Wasp engine, our first product ever. Then getting hired right out of college after that to work on cutting-edge tech at Pratt was a dream come true. Seeing where we started and then working on where we're going is a truly rewarding challenge that's motivating me to push the boundaries of what's possible as much as I can on this program." – Integrated Product Team Lead

SECTION 3: ORGANIZATIONAL BEST PRACTICES AND TEAM LEADERSHIP

Value: 35 points
Use 12 pt. Times Roman typeface

Please respond to the following prompts:

- ***15 points:*** **Describe the innovative tools and systems used by your team, how they contributed to performance and why**

  While Pratt & Whitney is limited on how much can be said from a competitive standpoint, its proprietary collaborative digital environment and model-based design provides employees and reviewers with immediate access to all the XA103 data and material to satisfy stringent criteria. The digital tools and processes that the NGAP team has demonstrated, and will continue to advance, will be at the foundation of the company's technology maturation for future next-gen solutions.

  Here are a few quotes from team members:

  - "Our transition towards working with the digital thread or model-based design encourages integration between all the disciplines. More live, real-time updates. More small incremental updates as we all work together towards what this final product is going to be. Model-based design and digital thread ties everything together much tighter and requires us to be in more constant communication." – Aerothermal Systems Engineer
  - "We do some of the most complicated analysis in the world on these engines … Tools aren't ready off the shelf or out of the box to do that kind of work. So, we've had to do a lot of learning, a lot of working with the tools to bring them up to the capability that we need to solve our problems. And the way for that process has been paved with the NGAP program. It's allowing our other development programs to start using these tools as well." – Aerothermal Systems Engineer
  - I think one of the coolest things about this program is that we are not only designing an engine, we are fundamentally retooling the entire process that produces an engine design, and that means that going forward, we're laying a foundation that's going to enable us to build the next one faster, to get that feedback in quicker, and outpace the threat." – Design Engineer
  - "If you take a step back and you think about the past four or five years, there are hundreds of innovations infused into the product to really enable that next generation of military

propulsion. And so the really great capabilities and collaboration and excellence that the team has brought to bear is infused into our product every day." – Program Chief Engineer

- ***10 points:*** **Define the unique practices and process you used to develop, lead and manage people?**

One of the success factors that has helped propel the XA103 team is how alignment and buy-in is encouraged both horizontally across the team and vertically with leadership. During presentations, subject matter experts present on progress, giving customers and leaders transparent access to the program, and vice versa, team members direct access to feedback. This, in turn, fosters trust and respect across the team, and ultimately, a sense of pride.

Being a program with many classified elements, our NGAP team must be in the office every day to deliver for our customer, the warfighter. Classified environments mean no windows, no cell phones, no laptops. This develops a certain commaraderie and focus, and also highlights differences with an increasingly connected world and the recent expansion of work from home and flexible schedules. Our team leaned into our unique situation and formed "fun teams" that arranged company-provided lunches, snacks, group events, and themed days. Our mission of powering freedom is inspiring, and competition is intense. This frequently has us pushing ourselves toward aggressive goals, so we also implemented flexible work schedules like 9/80 and encouraged teammates to look out for each other's mental health. Our team now has a strong sense of belonging, purpose, and pride. It's well-exemplified by the sighting of the shirts we provide team members at major reviews. For years afterwards, even after leaving the team for other projects, team members wear their shirts with pride and a symbol of the excellence they created.

Here is a quote from a team members

- "I'm incredibly proud to be a part of this program because of the team's willingness to do things differently, to try, fail, succeed, adjust, learn, and continually be different when staying the course would be the easier thing to do. All the people around us, around me, are bought into that idea, top to bottom, and are willing to get it done." – Model Manager

- ***10 points:*** **How did you leverage skills and technologies of your suppliers?**

The digital transformation is not just across Pratt & Whitney, but its supply base too. Pratt & Whitney is progressing digital tool development, involving systems engineering and model-based industrial execution. Modernization is front and center. Supplier and producer guidance is integrated early in the design process to improve manufacturing schedules and cost and improve the digital models that will replace two-dimensional prints.

SECTION 4: DEALING WITH PROGRAM COMPLEXITY

(VOLATILITY, UNCERTAINTY, COMPLEXITY, AMBIGUITY, or VUCA)

Value: 25 points

Use 12 pt. Times Roman typeface

Please respond to the following prompts:

- ***10 points:*** **Describe UNIQUE areas of VUCA faced by your program and why. (Please avoid the issues surrounding Covid-19 pandemic, which was faced by all programs.)**

Military development programs face a number of challenges, including:

- **Managing program security aspects:** A unique area of complexity arose from balancing an agile, digitally enabled program with security restrictions. Getting the highest performance requires timely flow of information amongst the team, however, protecting the nation's critical capability requires appropriately restricting information flow to entities that are not part of the process. Across the team, knowledge levels vary based on security clearance. Team members have to work with sometimes limited information and navigate information barriers to land at the desired outcome and at the same time protect critical information.
- **Federal funding variability:** Aside from company investment, NGAP operates under a government-funded Indefinite Delivery, Indefinite Quantity contract, meaning that while a ceiling of funds is available, those funds are contingent on the annual president's budget and the completion of certain program milestones. There are several competing priorities that the government has to fund. One ongoing task has been messaging that the industry will continue to look to decision makers to prioritize additional adequate funding for sixth-generation propulsion development to support critical platform milestones and warfighter readiness in a timely manner.
- **Multiple applications and installations to satisfy:** NGAP's engine architecture is platform agnostic. Engine designs are tailorable providing sustainable, state-of-the-art propulsion options with versatility for future fighter and other aircraft operating across various mission threads.
- **Extremely challenging requirements pushing beyond prior generations in multiple dimensions:** XA103 is a brand new engine that surpasses the capabilities of fourth- and fifth-generation engines. It draws from advanced engine technologies and capabilities that were demonstrated during the hundreds of hours of XA101 engine testing, which increased our understanding of sixth-generation adaptive fans, heat exchangers, sealing technology and materials. It also benefits from insights from Pratt & Whitney's access to volumes of combat-proven fifth-generation propulsion data gathered over nearly two million F119 and F135 engine flight hours.

➢ *15 points:* **Explain how your team responded to these challenges. What changes did you make, what were the results?**

The XA103 team adjusts to challenges in real-time. The beauty of the agile mindset is that it constantly reorients the team toward success. With digital processes, repetitive tasks are automated, freeing up the minds of employees to solve challenges.

Working within security restrictions, the team was able to introduce communication and collaboration tools to highlight priorities across the team and enable the identification of challenges early on. This increased collaboration also helped to pinpoint interdependencies and sequencing that deliver improved systems solutions. On fast moving programs, it is vital to have optimal connections among team members, support organizations, and customer counterparts.

Co-located teams and the collaborative digital environment enabled frequent after-action assessments, reinforcing a continuous improvement commitment from leadership to practitioner. In addition to after-action assessments, short sprints allowed leadership to have a constant pulse on the program's status, which helped not only to remove potential obstacles, but also provided them a deeper understanding of the team's needs spanning computing, communication, security, and other resources.

Addressing funding variability and reducing its impact on the team and program is a collaborative effort among many parties. We inform the Government of funding needs for a viable, cohesive team, work with our company to perform work at risk to enable smooth transitions, and communicate

frequently with internal resource owners to ensure we have the right number of people with the appropriate skill mix. It also comes back to the agile mindset and innovation to focus the funds we do have on accomplishing the most impactful work and preventing future re-work.

SECTION 5: METRICS

Value: 15 points
Use 12 pt. Times Roman typeface

Please respond to the following prompts, where predictive metrics indicate items that provide a view of how yesterday's actions and today's actions will affect the future timeline, cost or other requirement.

Provide charts/graphs that illustrate performance to these metrics:

- **What are your predictive metrics?**
  Due to the classified nature of the program, we cannot share the detailed values of our metrics and how we performed. We can share the key elements and processes. The program had three predictive metrics that together indicated whether the team was on track to a successful outcome: top technical metrics status, management reserve plan vs. identified risks, and demonstrated rate of accomplishment vs. work remaining. These metrics were chosen to prioritize trade-offs within a framework of finite resources and schedule constraints.
  1. Top technical metrics started with the customer mining their history of requirements and specifications. They determined a top set of technical metrics that drive architecture, trade-offs, and substantial analysis. While other metrics and requirements remain important constraints, they tend to have sufficient design space to be achievable through standard methods. These top technical metrics thus become the indicator of program priority.
  2. Management reserve (MR) is the initial reserving or withholding of resources to address learning experienced during execution. Program leadership created a MR distribution plan because having an MR balance at program end is lost opportunity for work accomplishment. Similarly, disbursing MR early on lower priority risks reduces the ability to react to future learnings. Thus, the program also spent up-front effort identifying risks and established a risk review process that assessed the trade-off between technical outcomes and resource flexibility.
  3. Demonstrated accomplishment vs. work remaining simply highlights whether a given team is likely to complete its work within the time allotted. The metric is most useful if the team's forecast is accurate and the broader organization can shift resources rapidly.

- **How did you perform against these metrics?**
  The program achieved Detail Design Review on its projected date and used all available funding with favorable cost management. The status of technical metrics across the program were more favorable than had been experienced on programs of similar size and complexity, and the program did not defer significant risks to future program phases.

- **How do your predictive metrics drive action toward program excellence? Please provide examples.**
  The predictive metrics drove program excellence by aiding leadership decision making and highlighting the highest priority activities to the whole team. The program operated in an agile manner, so the predictive metric status was touched frequently and shared with leadership and the customer regularly. This exposed any negative trends and areas of concern, identified risks that could be addressed locally or system-wide, and avoided surprising constituents when additional or out-of-

plan work was needed. Risks and mitigations were assessed for both technical and programmatic impact such that the program would use limited resources to do the most impactful work with the resources and time available.