NOMINATION FORM

Name of Program: Northrop Grumman Integrated Digital Enterprise (NGIDE) Model Based Engineering (MBE)

Name of Program Leader: Jeff Reed

Phone Number: 321-951-6203

Email: jeffrey.reed@ngc.com

Postal Address: 1830 Penn Street, Melbourne, FL 32904-2322

☒ Customer Approved

- Date: Customer Approval Not Required
- Contact (name/title/organization/phone): N/A

☒ Supplier Approved (if named in this nomination form)

- Date: Supplier Approval Not Required _____
- 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.**

☒ 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

Abstract

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

Driving a quality culture and simultaneously demonstrating compliance to DoD Digital Engineering Strategy (Published 6/18), this Northrop Grumman Corporation team engaged in implementing a transformation known as Northrop Grumman Integrated Digital Enterprise (NGIDE). Under NGIDE, the Model Based Engineering team has implemented numerous automation utilities, tool usability initiatives and process improvements that demonstrate quantifiable quality and operation efficiency opportunities recognized on programs across the company. These enhancements contributed to a reduction in engineering design package rejections and labor efficiencies for specific engineering workflows resulting in a significant labor reduction that ties to classified program schedule adherence and cost targets as well as a drastic decrease in training required as Northrop Grumman implores a digital transformation. Northrop Grumman has tools that execute and demonstrate "First Time Quality" in an operationally efficient fashion and demonstrate the current and future benefits of an end-to-end connected digital thread.

Purpose

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

Our Digital Engineering (DE) approach enables the understanding and management of the program technical data and requirements enhancing our ability to rapidly adapt designs to changing requirements and to accelerate the development of future weapon systems. The primary focus of our activities was to demonstrate aspects of the digital thread capability and the resulting cost and schedule savings. This approach has extended the digital thread across the lifecycle from concept exploration to deployment and sustainment.

Through virtually validating that designs meet mission objectives through usage of the digital thread, we have reduced uncertainties inherent in the conventional process. Our DE approach has achieved a dramatic reduction in schedule while optimizing cost and performance through simulation of the system and uncovering problems before building. We have demonstrated cost and schedule reductions while meeting performance requirements as the system proceeds through the product lifecycle.

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?

Driving a quality culture and simultaneously demonstrating compliance to Department of Defense (DoD) Digital Engineering Strategy (Published 6/18), this Northrop Grumman Corporation (NGC) team engaged in implementing a transformation known as Northrop Grumman Integrated Digital Enterprise (NGIDE). Under NGIDE, the Model Based Engineering (MBE) team has implemented numerous automation utilities, tool usability initiatives and process improvements that demonstrate quantifiable quality and operation efficiency opportunities recognized on programs across the company. These enhancements contributed to reductions in engineering design package rejections and labor efficiencies for specific engineering workflows resulting in labor reductions that tie to classified program schedule adherence and cost targets as well as a drastic decrease in training required as Northrop Grumman implores a digital transformation. Northrop Grumman has tools that execute and demonstrate "First Time Quality" in an operationally efficient fashion.

This implementation is in direct response to challenges experienced across the industry due to the limitations of current digital models and the lack of digital connectivity. It is also evident that to support the strategic change in the DoD approach to total lifecycle acquisition, the acquisition process must be accelerated and streamlined, replacing historical paper based designs, processes and digitally disconnected systems with digitally connected models where strong connectivity enables the user to explore all phases concurrently.

NGIDE is a set of initiatives assembled to create a digital, model-based environment with the ultimate goal of developing two innovative products: the Digital Thread and the Digital Twin. NGC has been actively engaged in developing a digital thread and has deployed significant capabilities through NGIDE on several production programs. Current capabilities have enabled programs to establish many aspects of the digital thread and are producing invaluable data that can be utilized for improving design, manufacturing and sustainment. Establishing an effective digital thread re-engineers the Aerospace culture by removing barriers between major functions (design, manufacturing and sustainment), enabling model reuse and revolutionizing life-cycle management.

Leveraging past programs such as the *Digital Thread for Material Review Board* and the *Digital Twin/Digital Thread Benefits Assessment and Airframe Digital Twin* by replicating engineering models and data within NGIDE, highlighting existing capabilities and identifying key areas for further development. The intent was to demonstrate aspects of the digital thread capability highlighting potential cost and schedule savings.

By using our digital, model-based methodology, we have quantified the benefits of using the digital thread in exploring and understanding the impact of product variations. The creation of a traceable design that preserves information as the system adapts to changing threat environments will allow response to rapid platform variations throughout the life of the weapon system.

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.)**

Above all the benefits of the NGIDE initiatives have empowered engineers and design checkers the ability to identify and detect defects very early in the product lifecycle. These utilities and processes have allowed engineering teams to better understand design change impacts. The standard engineering process involves defining the requirements, designing and building the product to those requirements, and then testing and evaluating the product. The team has enabled the possibility to evaluate the digital model for design defects before the product is built, helping to avoid expensive rework.

The benefits implemented to date have enabled an increased productivity and level of quality. The implementation described increased productivity by minimizing unnecessary manual transcription of concepts when coordinating the work of large teams. Data-centric specifications enabled automation and optimization, which allowed engineers to focus on value added tasks and improve overall quality. There was an increased ability to manage system complexity since changes are traceable and models can be viewed from multiple perspectives. Data captured has provided the dynamic objective feedback needed to drive continuous process and product improvements, by correlating escapes to actionable tasks.

By implementing the NGIDE vision the team also enabled better communication methods to downstream consumers of data. Complexity is often the root cause of engineering challenges. Digital models enhanced by the initiatives addressed complexity issues by making it easier to see and manage relationships between the different parts of a system. These models are being used throughout the entire product lifecycle, from design to production, providing a reference point across all engineering disciplines and allowing teams to collaborate more easily. These technologies implemented ensure manufacturability and sustainability of engineering designs prior to initial release.

The expected cost savings of implementing these digitally connected process and tools on a major aircraft program is estimated in the millions of dollars per year based on the typical number of design packages being released. These savings are passed on directly to out customers. However, some of the most substantial benefits will be realized by cost avoidance from addressing the long-standing usability issues that have plagued the a digitally disconnected solutions for years. Based on time-motion studies that were created comparing legacy techniques, typical tasks that took 10's of minutes were easily completed in a fraction of the time. Users are now experiencing a substantial decrease in the number of "picks and clicks" and an additional decrease of the number of screens to traverse. Additionally, training of users is now significantly reduced using this new paradigm due to intuitiveness of the tools. The tool has also improved overall first time quality based on the integration of "real-time" data validation without sacrificing system responsiveness and performance. In essence, this paradigm simplifies the engineering tasks associated with the development of product designs as evidenced by feedback such as "This tool is the real deal, giving engineers the usability they have expected all along, but never had."

By driving a change in engineering culture this team has begun to solve the issues of connecting traditional siloes of activity and bridge gaps between disciplines that will ultimately lead to an environment of collective thought and action, driving schedule reduction which significantly reduces time to market for products, as well as being agile in adapting to customer requests for change.

METRICS *(Value: 10 pts)*

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

Quantifying the cost savings of having a digitally connected environment is paramount to driving a culture of change. From executive leadership seeing savings to the bottom line, to end users seeing a reduction in manual and monotonous tasks, metrics have been developed to demonstrate the necessity for transforming the cultural mindset to one of a digital environment. Several process improvement tasks are presented herein with the resulting metrics. More detail is given to the technical challenges these utilities are solving in later sections.

Automated Model Validation and Checking

Metrics collected from various legacy programs demonstrated a clear and consistent trend. There were a high rate of rejections for model related errors. Specifically, Computer Aided Design (CAD) User Related Errors and Solid Modeling Issues. These error codes were the top two causes for rejections accounting for a substabtial portion of the total number of rejections. Decreasing the number of these rejections was a major focus for the program and IPT leads. Since enforcing our automated model checking tool, Check-Mate, metrics have been collected and show the average rate of rejections made by Quality Engineers has decreased substantially. Considering the typical number of Change Notices (CNs) released and average hours spent on rework (based on legacy metrics), Check-Mate saves the programs cost and schedule never before achieved.

Product Lifecycle Management (PLM) Usability

Based on time-motion studies that were created comparing similar tasks between legacy tasks and native PLM, typical tasks in Teamcenter were easily done through deploying the new methodologies in a fraction of the time. On average, users are now experiencing an inordinate decrease in the number of "picks and clicks" and an additional decrease of the number of screens to navigate, which eliminates time wasted traversing from "window to window". This paradigm provides a common application and interface that can be implemented across all Northrop Grumman programs. Users now see a common interface regardless of the underlying version of PLM, which further reduces the training needs.

Automated Fastener Instantiation Program (AFIP)

Since its deployment in October of 2018, AFIP has saved the a Northrop Grumman program a magnitude of hours. An analysis was accomplished reflecting the typical time to place fasteners on structural PDPs released over a specific period. With AFIP, the significant percentage of time spent analyzing fastener types, grips and locations was eliminated. AFIP usage rates among designers is continuing to increase on multiple programs exponentially increasing savings.

Assured File Transfer (AFT)

The AFT Utility has shown reductions in time spent declassifying models and has been a very popular addition to the engineering toolbox. Designers have quickly adopted the utility and made it the standard sector tool for declassifying a CAD model. The cost savings that have been realized on Northrop Grumman programs are scalable to all classified programs of any size that utilize NX as their 3D CAD modeling software. The NGC AFT Utility eliminates the laborious, manual process prone to error. The cost savings realized by Northrop Grumman programs is growing daily since the introduction of the AFT Utility in October of 2018.

DEALING WITH PROGRAM CHALLENGES (VOLATILITY, UNCERTAINTY, COMPLEXITY, AMBIGUITY, OR VUCA) *(Value: 25 pts)*

10 pts: Describe overall VUCA faced by your project/program.

Industry wide, a lack of digital connectivity leads to excessive costs, schedule delays and an inability to understand or quantify the full impact of program requirements and subsequent changes. The combination of the variation in digital maturity across the stages of the lifecycle, and the lack of connectivity across disciplines, is exacerbated by the serial nature of the current state. Because we are limited with disconnected models and systems in the physical environment, across the aerospace industry different stages of the lifecycle are trapped in silos due to the time separation of each stage.

An industry maturity level assessment of the Digital Thread was done by NG and corroborated with Aerospace industry peers and suppliers. A lack of connectivity is particularly evident both in early and late stages of the lifecycle.

The maturity level assessment considered high level phases of a program lifecycle from acquisition through sustainment. Traditionally, these phases have been separated by time with limited connectivity. Maturity "health" colors were applied to demonstrate present connectivity maturity; good connectivity (Green), decent connectivity (Yellow) and poor connectivity (Red).

The benefits of the good connectivity identified in the detailed design phase is in many ways eclipsed by the poor connectivity on either end of the acquisition process. The current inability to capture and store metadata and artifacts generated during concept exploration and requirements maturation means the data is not traditionally available for reuse. The impact of functional silos and the corresponding lack of feedback loops during production and sustainment often result in significant and expensive physical rework late in the process.

An end-to-end, fully connected digital thread will result in the creation of a traceable design that will preserve information as the system matures and enable accelerated model iteration in support of configuration convergence and allow rapid response to platform variations throughout the life of the weapon system.

As NGC transforms to a full digital ecosystem, we have had to leave legacy processes and procedures in the past. An environment of evolution has been a necessity to meet customer commitments and ensure schedule compliance and cost targets being met. Throughout the progression toward a 3D model based environment, programs have needed innovative solutions to rapidly address engineering, manufacturing and sustainment issues during consumption of 3D models in lieu of 2D drawings. Additionally, as specific Centers of Excellences became a fusion of designers and builders with a diverse background and company experience with differing process instructions and digital engineering tool usage, an immediate need to establish the preferred NGC methodologies which assimilated the value of this diversity was leveraged to implement the preeminent digital vision. Promoting consistent usage to curtail prevalent performance issues was also compulsory.

- *15 pts:* **Cite specific example(s) and how your team responded.**

A Model Based Enterprise requires collaboration across all Northrop Grumman sectors and functions. We have developed and deployed an integrated set of digital solutions to satisfy DoD digital engineering requirements for model based engineering/manufacturing/sustainment, digital thread/digital twin, and owning the technical baseline (OTTB). To develop these capabilities affordably, we have developed Northrop Grumman Integrated Digital Enterprise capabilities to be applied across multiple programs with full sector capability.

These digital capabilities allow us to derive requirements, leverage reuse, optimize resources, reduce rework, maximize production flow, and enhance post-production support. Additionally, the NGIDE program provides solutions to customer requirements in RFPs.

This new approach led to numerous project improvement processes by every member of the team. These automated process utilities, best practices, lessons learned, scripts, and training content led to NGC becoming the model based subject matter experts who's opinion are sought out by our customers. The NGIDE Team's assistance in addressing needs has led to numerous realized opportunities in decreasing learning curves while using these new engineering tools and dramatically improving cost and schedule. Additionally, certain tasks that lend themselves to automation were widespread and predisposed to process improvement opportunities.

The ultimate outcome of this ecosystem enables usage of digital computing and enhanced data analytics capabilities that allows our programs the ability to respond with more agility to customer threat responses, exploiting emergent technology, impact affordability of design, build and sustainment by driving consistency and quality in multiple phases of a weapon system lifecycle.

This initiative was comprised of multiple tasks with an overall focus to increase design efficiency and quality and is also being expanded to concept exploration activities. Focus areas also keep their eye to emergent technologies to ensure that tactical actions today are scalable for future design methodologies and processes. The team focuses on the downstream consumer as the data that is authored is used extensively during manufacturing and sustainment activities. In addition to these key tasks, the team provides validation testing support for new design software, as well as identify, develop, test, and deploy new design utilities. A focus is also placed on program support for technology maturation and refining Concepts of Operations (CONOPS) related to design tools, configuration and deployment support for ancillary design products, and the use of metrics to identify and create content for training needs.

In order to demonstrate applicable criteria the team was focused on program execution with an emphasis on improved efficiency and higher quality as an outcome. They sought to leverage and prioritize multiple inputs from diverse groups of engineers from an array of aerospace companies and other industries, and leveraged proven methods and best practices with a vigilant eye on maintaining the highest quality results. The team exercised constant communication and transparency during development with leadership and program customer during development and roll out. In addition they, coordinated with suppliers on program needs to leverage industry experience and expertise in deploying industry leading solutions.

The team sought inputs from a diverse group that included Engineering, Manufacturing, and other functional roles. In order to achieve a desirable outcome, the team established a process by which we could mentor and guide users to meet the Northrop Grumman quality ideal in a new model based environment via best practices, tailored training and over the shoulder subject matter expert support. The team always acted with a culture of trust that empowered team members to not feel any pressure with identifying and bringing forward issues with developed or validated code. In addition, we instilled process rigor that promoted values of ethics and integrity.

Finally, the ultimate goal of the team was to develop a process by which the end product met a distilled listing of requirements. In order to maximize the efficiency of the design community, we leveraged automation and new technologies to aide designers in releasing high quality engineering data packages, which are accurate first time. This enables our design community to differentiate itself from our competitors, driving strategic growth. Ultimately we developed and deployed quality processes that demonstrated reduced defects and improved throughput while exceeding previous quality results.

ORGANIZATIONAL BEST PRACTICES AND TEAM LEADERSHIP *(Value: 40 pts)*

- *15 pts:* **In executing the program, what unique and innovative practices, tools and systems frame your program and help you achieve program excellence**?

Taking advantage of a virtual, highly connected world allows the emulation of key vehicle attributes at all stages in the lifecycle. The better the connectivity, the better the analysis can encompass discrete activities,

from exploration of conceptual and operational needs/design tradeoffs through deployment and sustainment. The vision is that all these activities will eventually be explored concurrently before the physical vehicle/component is built, thereby both reducing and quantifying the uncertainties associated with each step in the life cycle.

It is NGC's position that the development and extension of the digital thread directly supports this vision through real time simulations and cross discipline information sharing.

Our Digital Engineering approach provides a means to create the digital thread to evaluate, explore, and verify concepts before transitioning into physical system development. We have built upon existing capabilities to streamline the design of complex systems from concept through delivery substantially faster than with a conventional design/build/test approach. By implementing this digital thread we have enabled decision-making based upon early design trades, substantially improving the producibility and maintainability of complex systems and positively affecting overall cost, schedule and performance. By integrating Design-To-Cost (DTC) techniques, designers have access to business systems to assess cost and schedule impacts within a specific trade space.

Through digitally validating that designs we have met mission objectives and by shifting the engineering paradigm to performance based design through usage of the digital thread, we have to reduced or eliminated the uncertainties inherent in the conventional process that are due to incomplete knowledge or lack of clarity/coherence in requirements, operational needs, maintainability, and manufacturing methods. Our DE approach has achieved a dramatic reduction in schedule while optimizing cost and performance through simulation of the system and uncovering problems before building. The ultimate goal was to demonstrate cost and schedule reductions as the system proceeds through the product lifecycle.

Our approach has followed the various acquisition lifecycle phases from statement of objectives, requirements definition, preliminary design, design, manufacturing and sustainment. At every phase throughout product maturation, our approach supports decision making by the balancing of technical objectives against cost and schedule challenges

The team has successfully deployed utilities, training material and delivery, process changes, best practice documents that have shown immediate correlation to improving First Time Quality. A few examples of the utilities and process changes are identified below:

As programs make the move to 3D model based design, a necessity to re-create existing legacy checking and validation programs can now be automated. One example of this as implemented by the team was deployment of Check-Mate, an automated validation routine with the NX CAD Software. The routine has shown a reduction in engineering rework and also an increase in model re-use. It ensures that sector defined best practices are followed and that models are consistent. The resulting metrics and cost savings are discussed in Paragraph 2.1.

The team also deployed a utility that supports Assured File Transfer (AFT) of 3D models from a classified environment to an unclassified environment. As engineering designs are created in the classified environment, they are not necessarily procured by suppliers with classified facilities. By removing intelligence of the model and stripping out the non-required information the potential supply chain community expands. This utility performed numerous functions that replicated multiple manual steps to declassify the models. The team worked directly with the program to understand the process and identify the opportunity for automation. The automation utility also embedded multiple quality checks to ensure that the geometry was not corrupted or changed from the engineering source of truth. Specifically, the utility translated solid geometry and Product Manufacturing Information from a rigged aircraft location to an absolute coordinate location at 0, 0, 0. This removes the ability of suppliers to re-assemble detail files to derive classified information. Program users have attested that this utility essentially eliminates the laborious process times of the manual AFT method. The quality of these translations, due to automated

routines, removes the potential for human error in the process. Results of human error in the workflow could lead to the release of incorrect data, or even classified data escapes. Coupled with the automated checks, the AFT Utility ensures that the AFT process is now completed in less time with a higher quality rate. The resulting metrics and cost savings are discussed further in the metics paragraph above.

- *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?**

With the enhancements and improved methodologies, the team also engaged in communicating these new quality focused initiatives to the engineering community. The team coordinated and collaborated with functions and Communities of Practice (COPs) across the company to implement a go-to location that houses best practices, training material and frequently asked questions with the stated purpose of increasing First Time Quality in design and minimization of engineering rework. Our Model Based Engineering website branded as Engineering Digital Modeling and Collaboration (eDMC) website has been deployed across the sector. The site can also be accessed from the company intranet. To date we have seen this site visited and referred to by thousands of engineers across the company.

The team generated a series of best practices and self help videos that were modified and adopted for use by NGC and incorporated into the Engineering Design and Modeling Manual (EDMM) template. The NGIDE MBE team participate in collaboration meetings across the industry and multiple OEMs to share these practices. The team is providing content and refining processes that are assisting programs as they work through design iterations with the tool suite. Members of the team are the recognized and sought after subject matter experts and are providing immense value that results in significant benefit for the company.

One specific example occurred as the team was filtering requirements early on in the development of the concept of operations. The team had to manage multiple sources of requirements. In this sense the team took and distilled the requirements from program customers and software vendors. These requirements were then vetted and interwoven against internal NGC requirements dictated by site/sector/corporate standards as well as Enterprise Services requirements. As the team distilled the disparate sources of information, we gathered input from other disciplines that would ultimately use the product being developed. This included multiple functional representation, multiple levels of engineering analysis, manufacturing, production floor operations, technical publications, and leadership.

The team also acted with an end goal of having a scalable process that would work beyond a single program. Evidence of the robustness of this process has been validated by incorporating the requirements dictated during original aircraft design, to current state execution activities, as well as implementing processes and best practices on new development.

The team refined the value stream down to a systematic process that was easily followed and understood by various organizational divides. This ultimately led to a system that enabled an abundance of information that was timely and responsive to new information demands and other customer requests that was identified and highlighted from end users and program and functional leadership. A specific example that demonstrates the systems thinking process was to extract information from status reporting and validation steps in the process that enabled the design checking organization a method to evaluate product quality and rework. Extracted information was also leveraged during multiple data calls and information that was gathered and can be used to determine cost drivers. The information also enabled numerous process improvement projects in which the elicited issues were tracked for potential resolution and/or cost reduction. The foresight of the process provided seamless methods for product improvement and refined process insertion to react and be proactive to other potential value streams that the system enabled (i.e. reusing developed best practices and process improvements that were synergistic with other cross sector opportunities).

➢ *10 pts:* **What unique practices are you using to engage customers and how do you know?**

Over the past few years, engineers across the company have become increasingly vocal about efficiency challenges on Northrop Grumman programs related to Engineering Tools. In particular, intuitiveness and performance issues associated with Product Lifecycle Management (PLM) tools have led to longstanding frustrations. A common theme has been the request for a more purpose-built graphical user interface (GUI) that eliminates complexity and increases system performance. In order to meet that need and improve program operational efficiency, a new tool "by engineers, for engineers" has been developed and deployed to programs across the company. Developed using an Agile philosophy, it is delivered what was promised and remains scalable to meet the needs of our Enterprise and the ongoing digital transformation.

Commercially available Engineering Product Development Tools have long been plagued by inefficiencies, contributing to overall user dissatisfaction with the systems nearly every design engineer uses daily. Product Data Management (PDM) and PLM solutions have been developed to support multi-industry customers. The out-of-the-box (OOTB) capabilities are inefficient to complete typical tasks of Aerospace & Defense engineers. Numerous configurations have been implemented to support NGC program requirements, leading to complexities and further eroding end user productivity. These issues combined with programmatic challenges and inherent schedule pressure requires design tools to better align with internal product development processes, while also providing an intuitive end-user interface. Starting with legacy PDM tools and continuing with the latest version PLM tool adoption, usability, and performance issues have led to frustrations and inefficiencies in the user community. Our PLM tool was aggressively developed to support new programs in the certain business areas. Unfortunately, our PLM tools struggled to meet the expectations of a growing engineering community and quickly became plagued by many of the same criticisms from the past. These critiques led to the same frustrations from the voice of the customer (end users) through direct feedback on company surveys, resulting in a Functional Homeroom (FHR) Internal Review Team (IRT) on programs, which generated actions specifically targeted at PLM efficiency.

Vehicle Engineering FHR in connection with the NGC Engineering Tools team began exploring opportunities to bring about permanent resolution. The teams evaluated multiple options, and after a significant trade study, selected a "fit for purpose" utility for further development. The subsequent pilot surpassed all expectations and users unanimously requested more capability. In keeping with a commitment to change the engineering design tool paradigm, the team proceed to further develop the capability. In order to accomplish the objective of specifically addressing actions from internal review teams, a project plan was created and implemented in the following phases for programs to ensure a production solution could eventually be deployed to new environments.

The unique practices embraced by this team has been recognized throughout the Northrop Grumman. The team was nominated for and won the 2019 Presidents Award for Quality and has been nominated for the 2020 Presidents Award for innovation.