INTELLECTUAL PROPERTY

(This section must be signed)

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

Kim Trost _____ 5/25/2022_____
Nominee's Signature Date

Nominee's Name (please print): Kim Trost _____

Title (please print): Sr. Director, Program Management Office _____

Company (please print): Elbit Systems of America _____

NOMINATION FORM

Name of Program: Sparton Sonobuoy Production Through COVID-19

Name of Program Leader: Randall Redondo

Phone Number: (386) 740-5428

Email: Randall.Redondo@sparton.com

Postal Address: 5612 Johnson Lake Road, DeLeon Springs, FL 32130

☒ Customer Approved

- Date: 5/24/2022
- Customer Contact (name/title/organization/phone): PAO: Wasel, Megan

The request for the public release, Sparton Aviation Week Program Excellence Nomination submittal (SPR Number: 2022-330), has been approved by the following:
PAO: Wasel, Megan on 5/24/2022 12:42 PM and Security on 5/24/2022 11:57 AM

NAVAIR Public Release 2022-330 Distribution Statement A - "Approved for public release; distribution is unlimited"

☐ Supplier Approved (if named in this nomination form)

- Date: Not Applicable
- Supplier Contact (name/title/organization/phone): Not Applicable

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

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.

With an adaptive organizational approach tuned to market dynamics, Sparton increased Navy production by 13% and has delivered over 387,000 sonobuoys to our customers since the start of the COVID-19 pandemic.

Figure 1: Sonobuoy deployment from P-8A Poseidon (P-8A), U.S. Navy's multi-mission maritime patrol and reconnaissance aircraft.

Sparton, an Elbit Systems of America company, is a world leader in the design, development, testing, and production of complex maritime electronic mechanical systems, including sonobuoys in support of Anti-Submarine Warfare (Figure 1).

Sonobuoys are part of the critical defense infrastructure. Our vision is to maintain our position as the global leader in sonobuoy design, development, and manufacturing. Each day Sparton seeks to bring to life its motto: ***"The Fleet: Number One in our Hearts and Thoughts."*** Every Sparton employee shares this commitment and demonstrates it every day. This allowed us to lean forward to increase production capacity and commit to meeting U.S. Navy demand for delivery volumes that, due to Fleet operational exigencies, exceed the current contract's maximum. As COVID-19 became a pandemic with broad global economic impacts, the Sparton Team deployed an adaptive organizational approach that addressed evolving challenges to ensure an uninterrupted supply of sonobuoys. The Sparton Team efforts resulted in a 13% production increase of sonobuoys for the Navy during the height of the pandemic.

Figure 2: Sparton had the honor of hosting SECNAV Kenneth Braithwaite and Representative Mike Waltz (FL-6th District) for a facility tour. They thanked Sparton employees for their contribution to critical defense infrastructure.

We selected the Sparton Sonobuoy Production program for the OEM/Prime Contractor System Production category because it exceeded contractual requirements during the COVID-19 pandemic. Sparton efforts focused on keeping our production lines open and operating at maximum daily run rates, breaking our sonobuoy production record despite the crisis. Sparton leadership established two key principles: (1) leading from the front line by ensuring key leadership staff was onsite with our workforce throughout the pandemic and (2) ensuring a safe workplace enabling our employees to stay focused on our mission. We formed process action teams to address evolving Federal and State guidelines, procure personal protective equipment and facility supplies, work with our suppliers to identify key challenges and constraints, engage with our customers on issues impacting deliverables, and communicate updates to our employees.

As shown in Figure 2, multiple senior Navy and U.S. Representatives have traveled to Sparton to see our production capabilities and recognize our teams for their dedication and outstanding results during the pandemic, including the 77th Secretary of the Navy.

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 for the corporation:

The Sparton Sonobuoy Production program supports critical defense infrastructure that is part of the U.S. Navy's Anti-Submarine Warfare (ASW) mission. The program aligns with our company mission to do the right thing by keeping our warfighters safe, and to make a difference by leaning forward to meet increased Navy Fleet sonobuoy demand during challenging times. Sparton produces passive directional sonobuoys, active monostatic range and bearing sonobuoys, multi-static active sonobuoys with increased range and bearing detections, and bathythermal sonobuoys for awareness of environmental conditions and the resulting sound propagation paths underwater.
All sonobuoys are manufactured under subcontract to ERAPSCO, a joint venture that provides all U.S. Navy-qualified sonobuoy variants.

The Sparton program leverages many U.S. companies to support the Navy ASW mission. With over 600 U.S.-based Sparton employees and 125 U.S.-based suppliers with over 2,000 employees, this program benefits our country economically. The Sparton suppliers understand the goods and services they provide help support critical defense infrastructure. The companies supporting this production program are located across the United States (Figure 3).

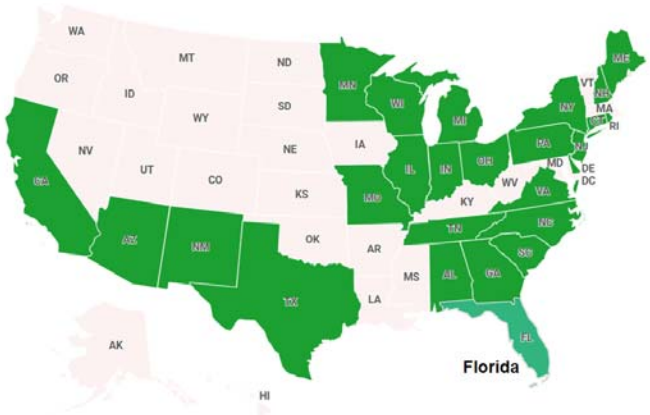


Figure 3: Sparton sonobuoy production program support U.S. critical defense infrastructure and supports a U.S.-based workforce across country.

Value to the customer:

Enemy submarines are lurking threats that can stealthily travel long distances and carry both conventional and non-conventional missiles capable of hitting targets hundreds of miles away. Adversaries have ramped up investment as well as research and development in their submarine-based capabilities. The U.S. ASW mission counters these threats by leveraging several sonobuoy variants.

Sonobuoys are the most capable, affordable, expendable sensors for ASW. They are the most effective system for locating, tracking, and classifying submarine targets. They enable U.S. Navy ASW forces to detect, monitor and, if necessary, target hostile submarines representing undersea threats to U.S. Navy maritime forces. Information from these systems can help enable precision attacks with air-launched torpedoes. Increased sonobuoy production has been crucial to Fleet operational readiness and prosecution of real-world, competitor submarine targets. To meet this increased demand, the Navy has awarded Sparton production sonobuoys orders at or above contract maximum quantities (under subcontract to ERAPSCO). Figure 4 shows how Sparton sonobuoys support the critical ASW mission.

The U.S. Navy and allies have deployed the P-8A Poseidon maritime patrol aircraft for long-range maritime patrol and ASW capability. The P-8A provides more combat capability over other ASW assets with its extended global reach, payload capacity, operating altitude and open systems architecture. Enhancing its combat capability and lethality, P-8As can carry 53% more sonobuoys than the P-3C Orion. Sonobuoys are the most critical technology supporting this aircraft's ASW capabilities.

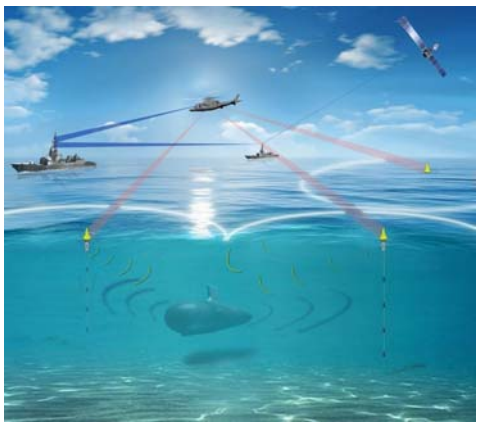


Figure 4: Navy fixed-wing aircraft and helicopters can drop a pattern of sonobuoys, which relay information back to the aircraft by radio link to determine the exact locations of enemy submarines.

Value to the team:

Our employees—many of whom are Navy veterans utilized or interfaced with sonobuoys in active duty—are proud to support production of multiple sonobuoy variants, a key technology used in ASW missions. Figure 5 shows our team proudly wearing the shirt with our motto ***"The Fleet: Number One in our Hearts and Thoughts."***

Navy visitors share information and experiences on how sonobuoys help them perform critical enemy submarine search, identification, and tracking missions. This fosters a deep sense of pride and commitment to the production of sonobuoys to meet increased Fleet demand.

Figure 5: Each Monday the production team wears the blue motto shirts to remind us of our purpose as an organization, to supply the Navy with reliable products to support their mission of maintaining our national security.

Increased demand for all sonobuoy variants and continuous production provides peace of mind to Sparton employees during challenging and uncertain times. While Florida workers in many manufacturing, service, and entertainment industries experienced work restrictions and unemployment due to lockdowns and diminishing demand for goods and services, Sparton employees were designated essential workers. This enabled them to travel to the facility and safely work during statewide pandemic restrictions.

Value to the greater good:

Increased demand for Sparton production sonobuoys resulted in expansion of our workforce and support and contributions to our community. In addition to protecting our nation and its warfighters, the sonobuoy production program enables Sparton to benefit the community. We work with local charities such as The Salvation Army and their annual Angel Tree program. In 2021, Sparton was the top adopter of angels in West Volusia County.

We sponsor local high school STEM activities to foster interest in manufacturing and engineering careers. Sparton recently sponsored a Volusia Manufacturer's Association (VMA) Robotics Brawl Deland High School team competing in multiple robot weight categories. We also adopted a local rural elementary school in De Leon Springs, FL, and conducted a drive to collect supplies for the 2021-2022 school year.

In recognition of our participation in our community, we received the Volusia Manufacturer's Association (VMA) 2021Social Responsibility Award shown in Figure 6. This award is to the VMA company engaged in balancing profit-making activities with activities that benefit the society in which they operate. The criteria are based on the company demonstrating effectiveness in impacting their communities, involvement of their employees, sustainability, and long-term impact. Sparton was also recognized by the Halifax Area Chapter Military Officers Association of America (MOAA) as the recipient of the "Outstanding Support for Veterans Award" for 2021 due to the company's superb employee veteran programs and exceptional support to the local area veteran community.

Figure 6: The VMA 2021 Social Responsibility Award recognizes Sparton's involvement in our community.

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

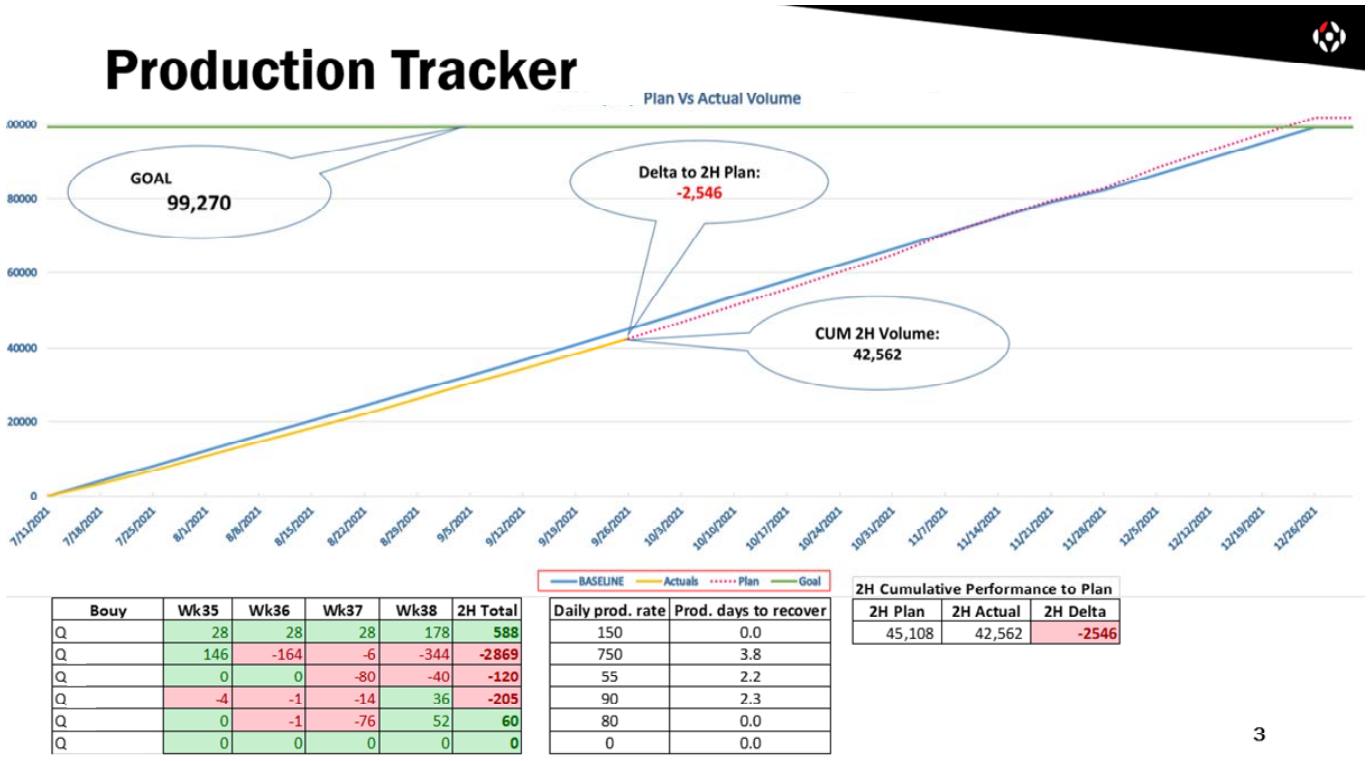
- **What are your predictive metrics?**
- **How did you perform against these metrics?**
- **How do your predictive metrics drive action toward program excellence? Please provide examples.**

(12 pt. Times Roman)

The Navy has recognized Sparton's efforts to meet continuous deliveries of sonobuoys. Several Navy and Congressional Representatives have visited Sparton to communicate with the workforce their appreciation of our efforts. While supply chain constraints were our biggest challenge and had the most significant impacts to sonobuoy production, Sparton has delivered over 387,000 sonobuoys during the COVID-19 pandemic.

Sparton deploys metrics focused on safety, quality, delivery, and cost. We review these metrics daily with support teams, weekly with management during the Gemba walk, and monthly and quarterly with the senior leadership team. (Gemba is a lean principle where management sees actual value creation process, understands the work, ask questions, and learns from those who do the production work.) Production challenges during the COVID-19 pandemic required continuous assessment of production line performance to drive projections and ensure we meet delivery requirements on all sonobuoy production lines. We use the Sparton production tracker (Figure7) to review weekly with our senior leadership team and production teams to maintain alignment and recognize performance.

The production tracker helped us identify trends in resources to address shortages, target production overtime where needed, communicate with management and production teams, and maintain alignment between all the cross-functional teams working to meet the increased demand for all sonobuoy variants.



Bouy	Wk35	Wk36	Wk37	Wk38	2H Total
Q	28	28	28	178	588
Q	146	-164	-6	-344	-2869
Q	0	0	-80	-40	-120
Q	-4	-1	-14	36	-205
Q	0	-1	-76	52	60
Q	0	0	0	0	0

Daily prod. rate	Prod. days to recover
150	0.0
750	3.8
55	2.2
90	2.3
80	0.0
0	0.0

2H Cumulative Performance to Plan

2H Plan	2H Actual	2H Delta
45,108	42,562	-2546

Figure 7: The Sparton Production Tracker assesses performance and effectiveness of planning.

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)

Over 600 employees support operations at our DeLeon Springs facility. Each day our production team completes over 1,000 sonobuoys. From the onset, the COVID-19 pandemic created an evolving set of challenges that impacted every aspect of our business. Any of the COVID-19 related resource, material, or transportation challenges could have caused an extended shutdown of one or more of the sonobuoy production lines. A dedicated workforce, committed to supporting U.S. Navy's ASW mission, and effective management of program VUCA enabled us to meet Navy delivery requirements.

Volatility: We established a COVID-19 task force to monitor federal and state guidelines and implement facility-wide policies and procedures for workforce safety while supporting continuous supply of sonobuoys. The task force leveraged situation awareness and frequent communications to ensure all employees were informed of evolving guidelines and Sparton's efforts to maintain a safe workplace environment.

Uncertainty: We planned for consistent production outputs around varying attendance and changing county and state lockdown requirements. To mitigate production line impacts from increased unplanned employee absences, we enhanced our cross-training program across all sonobuoy production lines. A key change was to train operators across sonobuoy production lines. We increased operator sonobuoy production cross-training density improved response to attendance uncertainty by allowing placement of operators where needed to meet sonobuoy production line output requirements. We increased supplier engagement and communications to proactively identify and address emerging challenges as early as

possible. To sustain continuous production, we leveraged supplier capacity to augment inventory of key long lead materials to sustain continuous production.

Complexity: We incorporated social distancing requirements into our high-density production environment without impacting throughput. We rolled out flex shifts to reduce operator density at entry and exit points, timeclocks, parking lot, and cafeteria during shift changes and employee breaks. The flex shifts also helped to coordinate frequent cleaning at breaks, lunch, and ends of shift. The flex shifts have become well established and popular with our workforce and have become a standard approach in the sonobuoy production schedule. As part of our continuous improvement program, we leverage Kaizen events that bring together cross-functional teams to perform detailed analysis and improvements. We augmented Kaizen events to focus on improving flow across production lines with increased separation. These measures led to increased capacity without increased headcount to support production rate increases.

Ambiguity: The COVID-19 pandemic brought frequent changes in guidelines and requirements and inconsistent messaging from local, state, and federal agencies. This created multiple opportunities for individuals to speculate, guess, or assume how to deal with the pandemic. To prevent this, Sparton frequently communicated all pandemic process and policy updates. We procured and distributed PPE for employees and suppliers that experienced sourcing challenges.

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

1. *15 pts:* **Describe the innovative tools and systems used by your team**
2. *10 pts:* **Define how you developed, led and managed people**
3. *10 pts:* **How did you leverage skills and technologies of your suppliers?**

(12 pt. Times Roman)

Innovative tools and systems:

Sparton leveraged industry insights, engineering team expertise, and processes to mitigate COVID-19 disruptions and consistently deliver sonobuoy variants to meet increased Fleet demand. Three key innovations and tools deployed were fidelity assessments, engineering tiger teams, and a Rapid PCB (Printed Circuit Board) Assemblies process.

Fidelity Assessments

Workforce dynamics required frequent adjustments to production operator assignments. Enhancements in the production operator cross-training program help to prepare our operators for these changes. However, we needed a process to ensure safety, quality, delivery, and costs were not negatively impacted. We achieved this goal by leveraging the *Visual, Identification, and Spatial* cues found in Fidelity Assessment requirements for Level-D, Full Flight Aviation Simulators.

To address sonobuoy manufacturing, we borrowed requirements for Aviation Simulation Fidelity from 14-CFR-60 (2016), Table-A1A. We tailored this Federal Aviation Regulation and strongly improved the level of correspondence between the official work instructions, workstation layout, and operator's ability to replicate the work instructions.

In aviation simulators, *Fidelity* is "the degree to which a device accurately reproduces a specific effect." At Sparton, we define *Fidelity* as the degree to which our work instructions are reciprocally and accurately reproduced at the workstation in terms of:

- Compliance or ability to replicate the work instruction, verbatim
- Verification of the specified tooling, including tooling identification

- Verification of the specified parts and their container or piece-part marking
- Verification of the specified materials, including proper container or bin identification
- Work station housekeeping (FOD, ESD, 6S, and Shelf Life compliance)
- Work station safety and operator training

Fidelity assessments, shown in Figure 8, have driven performance improvement from 94% to 99+%, based on assessments performed during 2021.

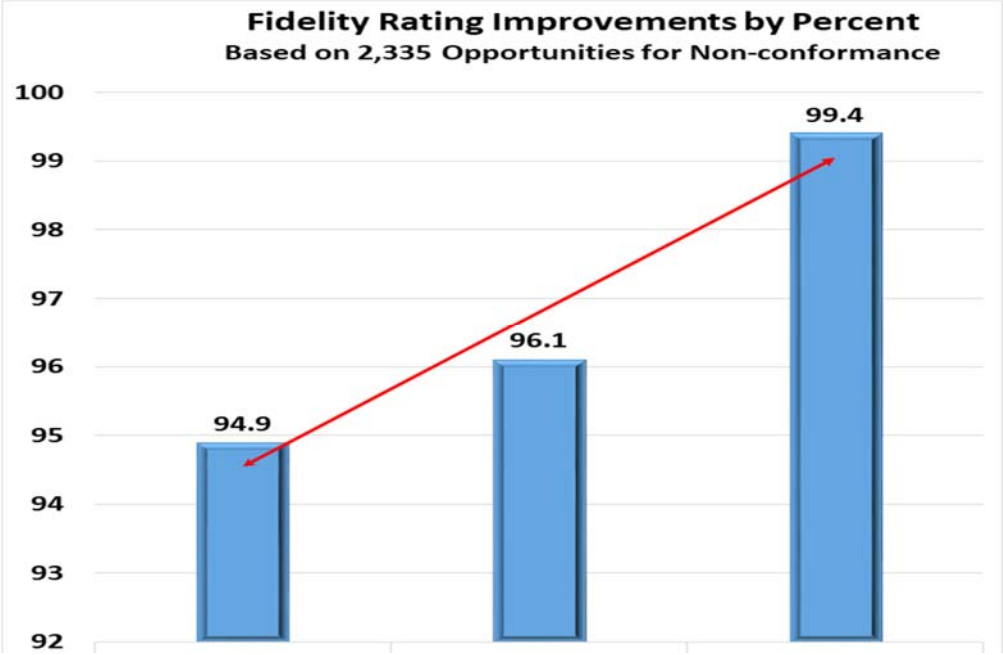


Figure 8: Fidelity Assessments enabled us to increase our performance by 4.5% during the COVID-19 pandemic.

Engineering Tiger Teams:

The Sparton Engineering Team stepped up to help mitigate short notice of component obsolescence and industry-wide supply chain shortages during the COVID-19 pandemic. The pandemic brought multifaceted supply uncertainties and parts volatility. For example, many of the manufacturers' decommitment of planned deliveries were due to raw material shortages. Other industries (auto, healthcare, consumer electronics) were competing for common parts, making global shortages more complex, with the additional challenge of uncertainty of the market. We experienced multiple components no longer available and lead time having increased by the time we selected, tested, and approved them.

Sparton created engineering tiger teams by leveraging sonobuoy Subject Matter Experts (SMEs) and Sparton Matrix Organization outside the Production Support Team (PST). Extensive electrical, software, and mechanical engineering experience were crucial in making timely design decisions on supply chain challenges to the sonobuoy production programs. The Sparton engineering tiger team responded to global challenges by:

- Leveraging legacy knowledge on sonobuoy expertise to focus on identification, review, and implementation of design changes
- Working with suppliers and internal supply chain team to expedite component or material sampling, delivery, and testing

- Releasing advanced sonobuoy bill of materials to enable suppliers to secure long lead components and materials
- Leveraging an established network of small businesses to perform vital tasks with rapid execution
- Excelling in communicating with customers by keeping essential personnel abreast of vital information to expedite required approvals

Normal processes for identifying, sourcing, testing, and gaining approval for an obsolescence/shortage typically can take about 6 months. The Sparton engineering tiger team was able to accomplish these tasks within about 3 months. This approach helped resolve discrete components, oscillator crystals, Complex Programmable Logic Device (CPLD), and microprocessor shortages. We identified, designed into the sonobuoy, verification tested, customer validated, and approved alternate solutions.

Rapid PCB Assemblies:

The COVID-19 pandemic disrupted the supply and demand for components used in circuit board assemblies, leading to increasing or unpredictable delivery lead times. This dynamic environment made it difficult to implement and deploy changes to mitigate component shortages or obsolescence. The Sparton supply chain team introduced a streamlined process to leverage supplier procurement tools and inventory capacities. The "Rapid PCB Assemblies" process authorized program managers to issue risk authorization orders. The risk authorization orders release advanced sonobuoy bills of materials and related documentation. The advance bills of material allow the supplier to purchase components prior to productionizing designs. Benefits allowed for long lead time items to be procured and stocked weeks to months prior to formal release of the sonobuoy design package(s). Early supplier engagement also helped to identify new component supply constraints prior to finalizing the build package(s). This approach helped us quickly implement design changes that addressed supply chain component or material shortages to prevent sonobuoy production program disruptions.

***Developed, led, and managed people**:*

The COVID-19 pandemic along with increased demand from the Navy created a challenging situation for our team. The Sparton leadership leveraged the philosophy of managing from the front lines and always being on site with our production workforce. The A and B leadership teams alternated working from home or on site. The CEO led daily tag-up calls to review activities and maintain situational awareness on developing issues. This approach helped the senior leadership team maintain firsthand situational awareness and to proactively work to address emerging issues. The production workforce was encouraged to see the management team on site, working together through the pandemic.

The direct engagement of the leadership team helped to ensure that we maintained clear and consistent communications with every employee. Every level of the organization was tasked with supporting timely bidirectional communications. All-hands employee meetings ensured each employee could interact directly with the leadership team, hear the latest information, and ask questions. On the all-hands meeting day, the sessions were repeated multiple times and used video conferencing to support social distancing requirements. This focused effort on communications has help every level of our management to improve team communications and empower all employees to discuss and ask questions about issues of interest and benefit to their workplace.

Detailed and frequent communications to every employee from the Sparton leadership team and our Navy customer helped motivate, reassure, and drive our team to meet the Navy need for additional sonobuoy production.

To accommodate production workforce schedule flexibility needed to deal with individual or family quarantine requirements, educational institutions remote learning requirements, and local and regional

restrictions, Sparton implemented enhanced operator cross-training that spanned multiple sonobuoy production lines. The initial approach identified similar work across the sonobuoy production lines, critical operations that required extended training, and polled operators on work assignment interests. The operators cross-trained were able to support the attendance fluctuations and benefit from expanded visibility across multiple production lines. Some operators assigned to support other sonobuoy production lines enjoyed the change and requested changes to their primary assignments. This approach helped us increase production, maintain continuous supply of sonobuoys, and empower cross-trained operators in the selection of their primary assignments.

Supplier skills and technologies:

The pandemic created many ripple effects on the worldwide supply chain. Due to significant changes in demand due to large manufacturing plant closures, many semiconductor and related component manufacturers scaled back their production. The long term uncertainty of the pandemic drove many to artificially increase their demand of key semiconductors and related components. This resulted in a highly volatile supply chain. To help meet increased Navy demand, Sparton leveraged direct communications with key component manufacturers, maximized leverage of Defense Priorities & Allocations System (DPAS)-rated orders, and worked to help our suppliers solve their own challenges to support our sonobuoy production program.

We developed manufacturer-direct relationships for semiconductors and other electronic components including microprocessor and other integrated circuits, transistors, capacitors, and resistors with unique properties or high rates of demand. Direct communications helped the manufacturers understand our application and the role the sonobuoy products support in the critical ASW defense infrastructure. This helped to prioritize Sparton's allocations and expedite deliveries.

Where applicable by law, these engagements ensured Sparton orders were processed in accordance with DPAS, ensuring product output was directed to Sparton before commercial customers' orders.

We established a purchasing/sourcing team to help suppliers identify raw material shortages and alternate sources for impacted items. When our suppliers were unable to secure raw materials, Sparton procured them directly and stored them for our suppliers. This helped suppliers meet our increased demand and recognize that Sparton was not only a customer but a partner helping to mitigate supply chain restrictions.

Frequent communications with suppliers impacted by COVID-19 helped them identify solutions to address their challenges. This included coordination and funding of facility disinfection services for their production facilities, and procurement and distribution of hard-to-find personal protective equipment. The Sparton team developed relationships with local and regional suppliers to help procure hard-to-find products like disinfectants, cleaning, PPE, and sanitation products. This approach was so effective, it enabled the Sparton Team to support our suppliers when they could not obtain hard-to-source items.

While working closely with suppliers Sparton identified several supplier-based tools and skills that were leveraged to help meet the increased production requirements during the challenging pandemic. A key transportation partner had several idle cargo trailers due to decreased shipping requirements. Sparton was able to leverage these cargo trailers to store raw materials, supplies, and inventory to help address fluctuations in the supply chain marketplace. We worked with circuit board assembly suppliers to leverage their supply chain and warehousing to procure pre-released assembly components. This helped expedite design changes to mitigate component and material obsolescence and supply constraints. As a result of working closely with our suppliers and leveraging their tools and skills, Sparton has significantly reduced supply chain disruptions and increased production to meet Navy demand for all sonobuoy variants.