

Investor Pitch Deck

2/15/2023

***Accurate, Reliable Positioning,
Navigation, Timing (PNT)
Without GPS***



NOTE REGARDING FORWARD LOOKING STATEMENTS



- **THE INFORMATION SET FORTH HEREIN CONTAINS “FORWARD-LOOKING INFORMATION”, INCLUDING “FUTURE-ORIENTED FINANCIAL INFORMATION” AND “FINANCIAL OUTLOOK”, UNDER APPLICABLE SECURITIES LAWS (COLLECTIVELY REFERRED TO HEREIN AS FORWARD-LOOKING STATEMENTS). EXCEPT FOR STATEMENTS OF HISTORICAL FACT, THE INFORMATION CONTAINED HEREIN CONSTITUTES FORWARD-LOOKING STATEMENTS AND INCLUDES, BUT IS NOT LIMITED TO, THE (I) PROJECTED FINANCIAL PERFORMANCE OF THE COMPANY; (II) COMPLETION OF, AND THE USE OF PROCEEDS FROM, THE SALE OF THE SHARES BEING OFFERED HEREUNDER; (III) THE EXPECTED DEVELOPMENT OF THE COMPANY’S BUSINESS, PROJECTS, AND JOINT VENTURES; (IV) EXECUTION OF THE COMPANY’S VISION AND GROWTH STRATEGY, INCLUDING WITH RESPECT TO FUTURE M&A ACTIVITY AND GLOBAL GROWTH; (V) SOURCES AND AVAILABILITY OF THIRD-PARTY FINANCING FOR THE COMPANY’S PROJECTS; (VI) COMPLETION OF THE COMPANY’S PROJECTS THAT ARE CURRENTLY UNDERWAY, IN DEVELOPMENT OR OTHERWISE UNDER CONSIDERATION; (VII) RENEWAL OF THE COMPANY’S CURRENT CUSTOMER, SUPPLIER AND OTHER MATERIAL AGREEMENTS; AND (VIII) FUTURE LIQUIDITY, WORKING CAPITAL, AND CAPITAL REQUIREMENTS. FORWARD-LOOKING STATEMENTS ARE PROVIDED TO ALLOW POTENTIAL INVESTORS THE OPPORTUNITY TO UNDERSTAND MANAGEMENT’S BELIEFS AND OPINIONS IN RESPECT OF THE FUTURE SO THAT THEY MAY USE SUCH BELIEFS AND OPINIONS AS ONE FACTOR IN EVALUATING AN INVESTMENT.**
- **THESE STATEMENTS ARE NOT GUARANTEES OF FUTURE PERFORMANCE AND UNDUE RELIANCE SHOULD NOT BE PLACED ON THEM. SUCH FORWARD-LOOKING STATEMENTS NECESSARILY INVOLVE KNOWN AND UNKNOWN RISKS AND UNCERTAINTIES, WHICH MAY CAUSE ACTUAL PERFORMANCE AND FINANCIAL RESULTS IN FUTURE PERIODS TO DIFFER MATERIALLY FROM ANY PROJECTIONS OF FUTURE PERFORMANCE OR RESULT EXPRESSED OR IMPLIED BY SUCH FORWARD-LOOKING STATEMENTS.**
- **ALTHOUGH FORWARD-LOOKING STATEMENTS CONTAINED IN THIS PRESENTATION ARE BASED UPON WHAT MANAGEMENT OF THE COMPANY BELIEVES ARE REASONABLE ASSUMPTIONS, THERE CAN BE NO ASSURANCE THAT FORWARD-LOOKING STATEMENTS WILL PROVE TO BE ACCURATE, AS ACTUAL RESULTS AND FUTURE EVENTS COULD DIFFER MATERIALLY FROM THOSE ANTICIPATED IN SUCH STATEMENTS. THE COMPANY UNDERTAKES NO OBLIGATION TO UPDATE FORWARD-LOOKING STATEMENTS IF CIRCUMSTANCES OR MANAGEMENT’S ESTIMATES OR OPINIONS SHOULD CHANGE EXCEPT AS REQUIRED BY APPLICABLE SECURITIES LAWS. THE READER IS CAUTIONED NOT TO PLACE UNDUE RELIANCE ON FORWARD-LOOKING STATEMENTS.**



Meeting the challenges of tomorrow, today!

[<<\(Click to watch 60 sec video\)>>](#)

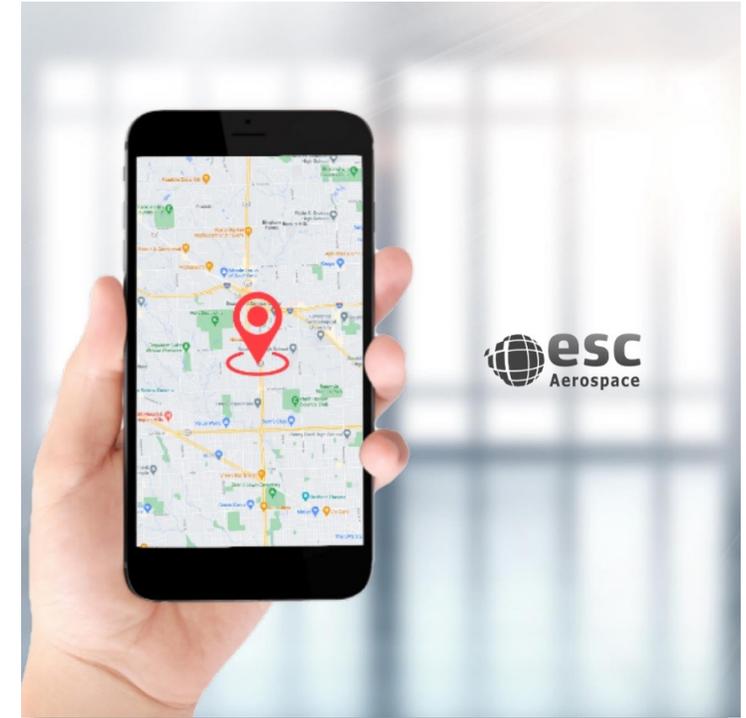
Meeting the challenges of tomorrow, today!

- Self-driving cars
- Urban Air Mobility
- Autonomous deliver
- Robotic surgical equipment
- Robotic vacuums, lawn-mowers, wait-staff, etc.
- Autonomous military systems
- Biometric identification
- Voice controlled smart devices
- Etc.



The problem we solve:

- **GPS inherently unreliable**
 - Trees, buildings, weather cause interferences
 - **Easily jammed or worse ... “spoofed” (false GPS signals)**
- **Without reliable and accurate PNT:**
 - Financial systems may fail
 - Autonomous vehicles could crash
 - Military missions may fail
 - ***Lives may be lost***



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Why now?



Military Demand (TODAY)

- GPS easily jammed/spoofed
- Almost every military system dependent on PNT
- Alternative PNT recognized as National Defense priority

See Government Demand Chart (requirement for alternate to GPS)

- National Defense Authorization Act (NDAA)
- Executive Order 13905
- Presidential Policy Directive 21 (PPD-21),

Commercial Demand (Emerging)

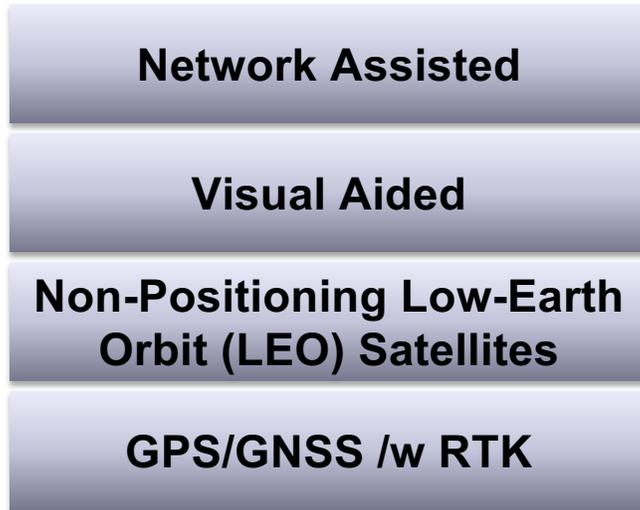
- Devices that require accurate PNT getting smaller and smaller
- Capabilities and autonomies are increasing exponentially

Our solution

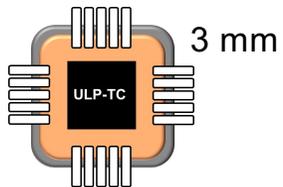
- *Meets military needs for TODAY*
- *Positioned for commercial growth as demand increases*

Our Solution

NavX™



escULP-TC™



- Enables >24hr PNT “holdover”
- Critical to other markets (i.e. IoT, communications, etc.)

- Leverage multiple layers of sensors for resiliency and accuracy
- Base product currently being sold commercially
- Technology layers sold as prototypes to multiple DOD services (Air Force, Army, Navy, etc.)
- Focus on low Size Weight, Power and Cost (SWaP-C)
- Timing Circuit provides significant opportunity as its own product and PNT enhancement
- Application of Artificial Intelligence (AI) and Machine Learning (ML) for increased accuracy and expanded capability

Market Size

Total Market

- Location Based Services: \$133B
- Timing IC: \$11B

> \$144B

Total Addressable
\$80B

Target Market

>\$30B

- DOD Radios
- Other DOD
- Commercial

Target Markets

- **Location-Based Services and Timing IC in Military and commercial markets**
- **Military**
 - Dismounted, precision weapons, sUAS, ISR, autonomous ground vehicles
- **Commercial**
 - Autonomous supply/logistics, precision agriculture, Urban Air Mobility, sUAS

Bottom-up Analysis

DOD (2021)

- **GPS** - \$1.8B
- **Radios** – 800K radios
- **Radios** - \$30B
- **Autonomy** - \$1.7B

Market Data

Location-Based Services

2023: \$133B

Timing IC

2019: \$7.17B

2027: \$11.21B

UAS

2017: \$18.1B

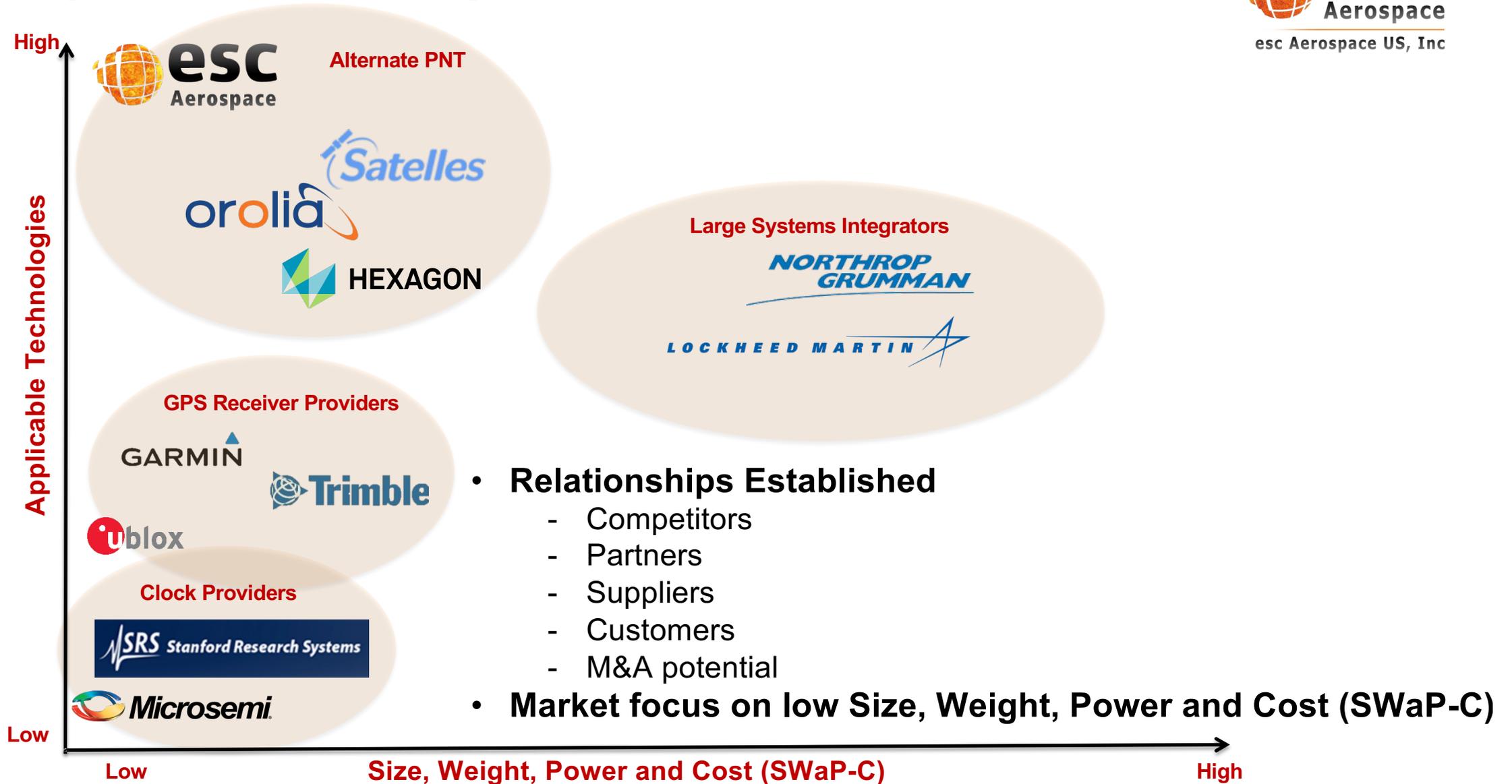
2025: \$52.3B

Autonomous Driving

2019: \$54.2B

2026: \$556.7B

Competitive Landscape



Business Model / Go To Market

1. Leverage Government Small Business Incentives fund

- Early development funding
- Establish customer relationships

2. Leverage founder's relationships

- Decades of experience in military and commercial markets
- Pre-established relationships with potential teaming partnerships, customers, suppliers

3. Leverage investment

- Accelerated development/go to market
- Increased revenue growth

- **Non-Dilutive**
- **Jumpstart startup**

- **Reduces BD effort**
- **Increased sales potential**
- **Positions for exit**
- **Improved probability of success**

- **Accelerates product development, market entry and growth**

Who are our customers/markets?

Military/Defense (all services)

- Ground force (soldier/”dismounted”)
- Search and Rescue
- Reconnaissance
- Precision weapons
- Autonomous ground/air
- Submersible Vessels
- etc.



Commercial Customers/Markets

- Platform manufacturers (small unmanned aircraft, autonomous vehicles, automotive, etc.)
- Service providers (Inspection, insurance, search and rescue, disaster recovery, etc.)
- Product Manufacturers (IoT, radio, guidance/navigation, etc.)



Our Team

Founders/Executive Staff



Lars Weimer

- President & CEO
- 20 years of demonstrated achievements in all aerospace and defense system life cycle phases
- Held senior staff positions at Airbus
- Successfully launched several small businesses



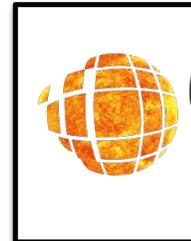
Dr Cantwell Carson

- Senior System Architect
- > 20 yr. experience in academia, national labs, and private sector
- Principal Investigator on numerous government contracts
- Developed a method of determining positions of LEO satellites for PNT



Danny Stirtz

- Executive VP Business Development
- 40 years experience in systems development and commercialization, held senior positions at Northrop Electronics, and Lockheed Martin
- Developed SR71 Astro-Inertial Navigation Systems (ANS), GPS space and ground segments
- Successfully launched several small businesses



Timothy Jones

- Senior Software Engineer and Technical Lead
- Held positions at HP, Raytheon and Thales
- escPNT™ software lead
- Held clearances and contributed to patents



Mathias Krueger

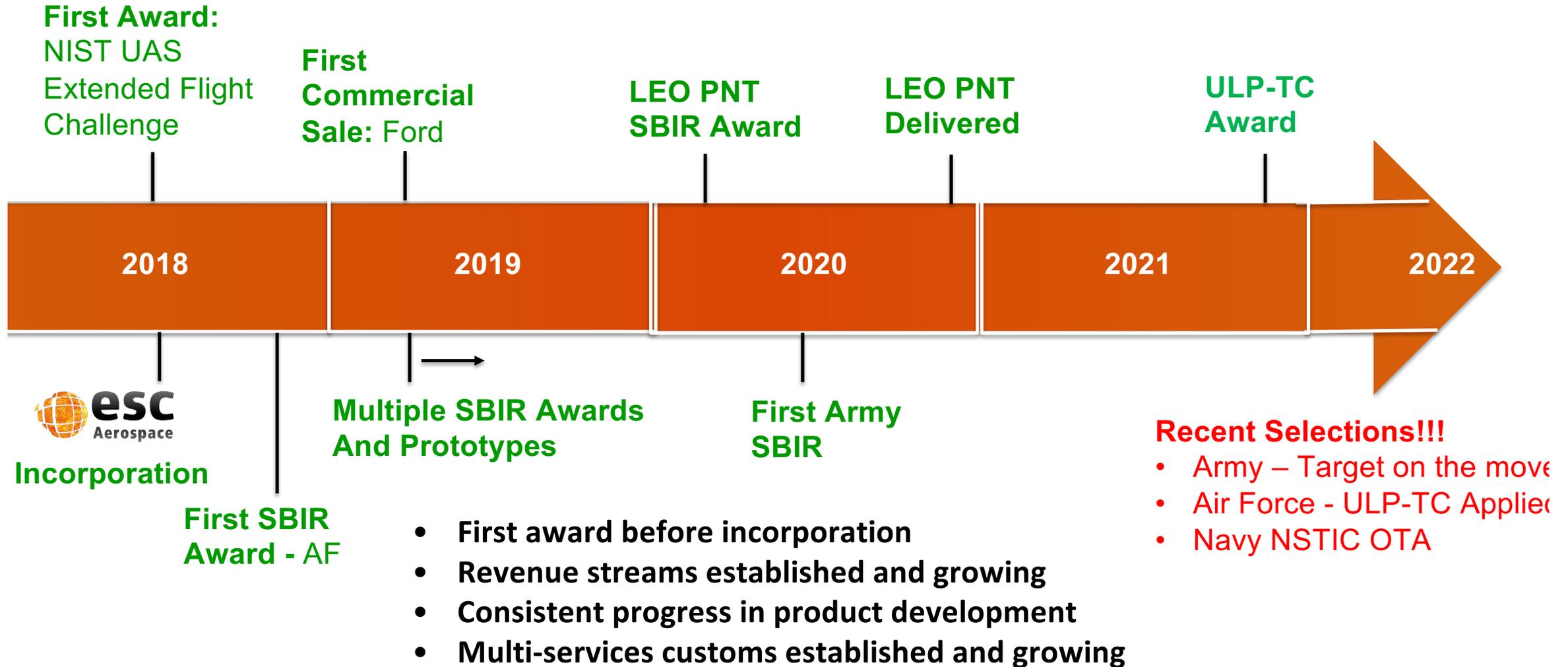
- esc Aerospace Founder, Board Member and Investor
- Serial entrepreneur
- Founded, grew and sold companies in more than five countries



Ed Seger

- Highly capable and experienced developer with over 20 years of experience in FPGA and hardware development
- Development of radio front-end/FPGA for our LEO PNT contract with the Air Force
- Former positions range across multiple recognized commercial developers as well as the NSA

Status



Products and services (how we earn money)

NavX™



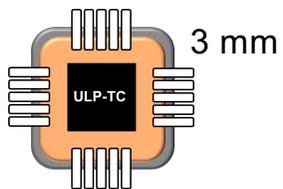
- **Multi-version packaging**
 - Applications/Platform specific
 - Mil-Spec variant
 - Embedded/standalone
 - Licensed S/W
- **Recurring revenue**
 - Product maintenance/service
 - S/W Licensing
 - Embedded component licensing

Multiple revenue streams



- *Product sales*
- *Annual support*
- *Licensing*
- *Integration services*
- *DOD Development/Deployment*

escULP-TC™



- **Multi-version packaging**
 - Embedded Chip
 - Timing device
- **Licensing or technology sale potential**

Financials (Actuals to date and Projections)



esc Aerospace US, Inc

Cash Flow and Profit	2020	2021	2022	2023	2024	2025	2026	2027
Revenue	\$ 767,502	\$ 592,711	\$ 689,590	\$ 3,723,571	\$ 7,131,524	\$ 16,132,800	\$ 62,743,020	\$ 149,329,056
Cost	\$ 703,538	\$ 625,156	\$ 719,928	\$ 5,868,520	\$ 12,013,007	\$ 15,045,000	\$ 27,023,111	\$ 45,286,813
EBIT / "Net Income"	\$ 63,964	\$ (32,445)	\$ (30,338)	\$(2,144,949)	\$ (4,881,483)	\$ 1,087,800	\$ 35,719,909	\$ 104,042,243
Shareholder loans (annual)	\$ 81,927	\$(107,709)	\$ (75,000)	\$ (71,782)				
Investment	\$ -	\$ -		\$ 2,000,000	\$ 5,000,000		Series A	
Total cash	\$ (17,963)	\$ 75,264	\$ 44,662	\$ (73,167)	\$ 118,517	\$ 1,087,800	\$ 35,719,909	\$ 104,042,243
Reserve	\$ 0	\$ 75,264	\$ 119,925	\$ 46,759	\$ 165,276	\$ 1,253,076	\$ 36,972,985	\$ 141,015,228
Liabilities	\$ 63,280	\$ 146,782	\$ 71,782	\$ -	\$ -	\$ -	\$ -	\$ -

SEE NOTE REGARDING FORWARD LOOKING STATEMENTS

- **Securities:** Convertible Promissory Notes
- **Amount:** up to \$7,000,000
- **Purchase Price:** Face Value
- **Interest Rate:** 7%, payable at maturity
- **Minimum Investment:** \$10,000.00
- **Maturity Date:** Four (4) years
- **Discount Rate (Upon Conversion):**
 - Less than \$100,000: 10%
 - \$100,000 up to \$1,000,000: 20%
 - \$1,000,000 or more: 25%

Use of Funds

- Accelerate product development
- Increase business development and marketing efforts

Points of Contacts



Danny Stirtz

Executive Vice President

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Lars Weimer

President/CEO

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Backup



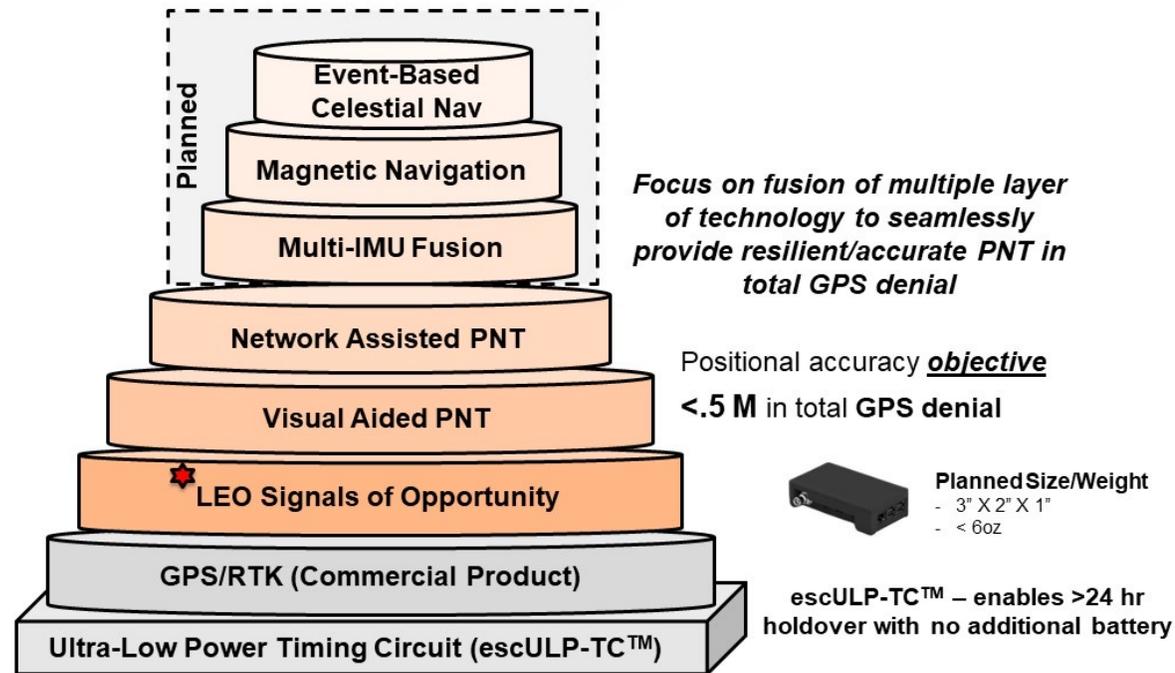
NavX™ Layers of Technology for Accuracy/Reliability/Flexibility

*No one technology meets demands across markets/use cases
Systems delivered and positioned for large deployments*

Our products:

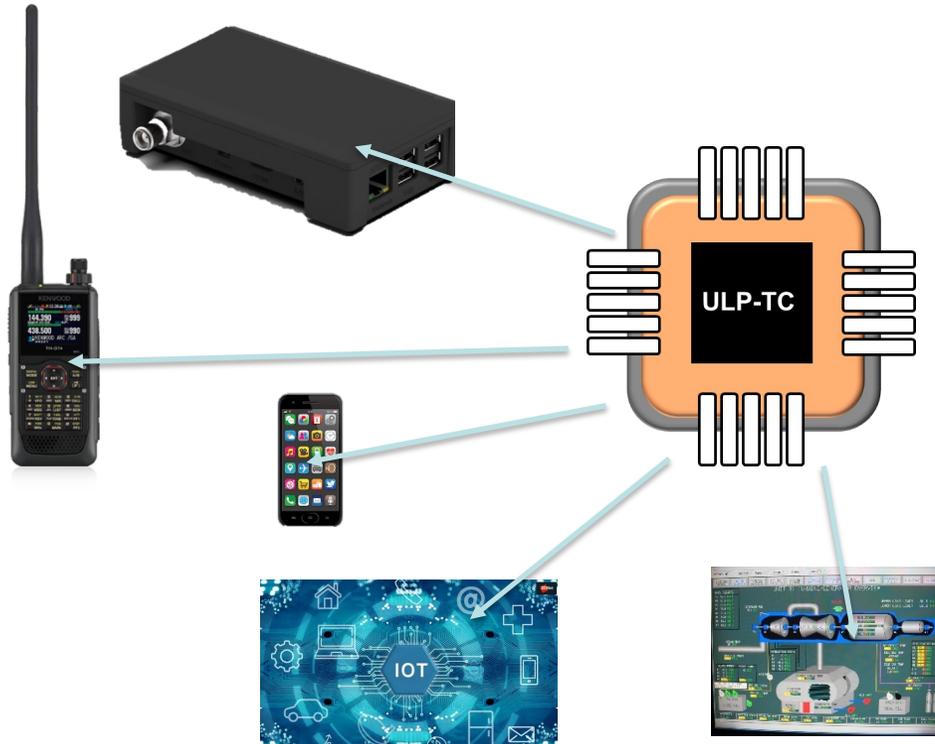
- Leverage multiple layers of sensors for resiliency and accuracy
- Focus on low Size Weight, Power and Cost (SWaP-C)
- Uniquely positions us to address currently very underserved markets
- SoOP independent of proprietary receiver and/or satellite signal content and service
- Timing Circuit provides significant opportunity as its own product and provides meets PNT critical need

NavX™ Multi-Layer Strategy



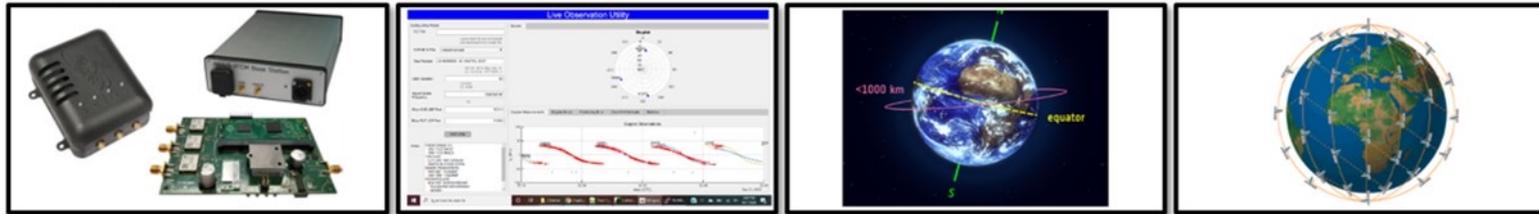
Patent Pending: "A SYSTEM AND METHOD FOR DETERMINING A RECEIVER GROUND POSITION" Reference No.: 47623-4000P

Ultra-Low Power Timing Circuit (escULP-TC™)

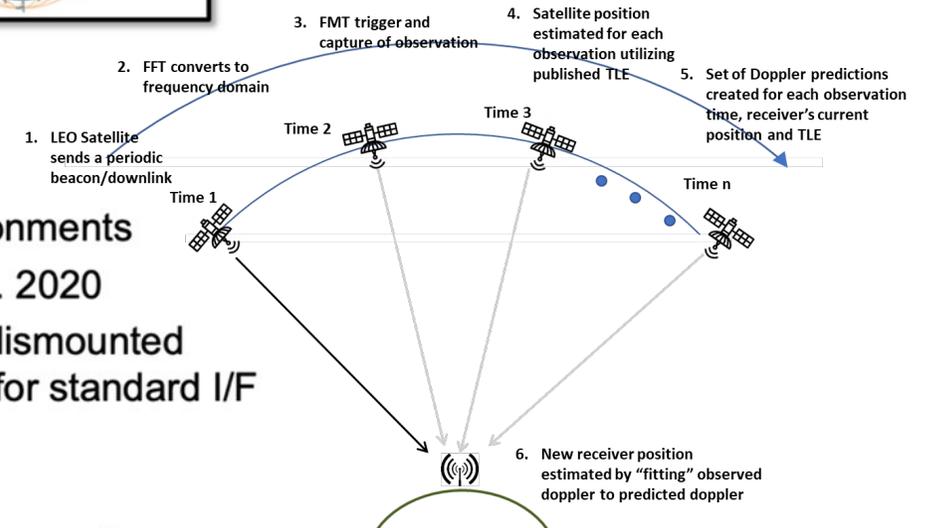


- **Timing circuits ubiquitous**
 - maintain time “in-between” GPS signals (a few sec.)
- **Many systems will fail when GPS absent for > a few seconds/minutes**
- **Current higher performance timing devices**
 - very expensive
 - consume large amounts of power
- **escULP-TC™ bridges the gap between low cost/power timing circuits (crystal oscillators - XO) and high-end timing circuits (i.e. Chip Scale Atomic Clocks - CSAC)**
- **Used in escPNT™ and sold as separate product**
 - Large market potential (PNT, Communications, IoT, etc.)

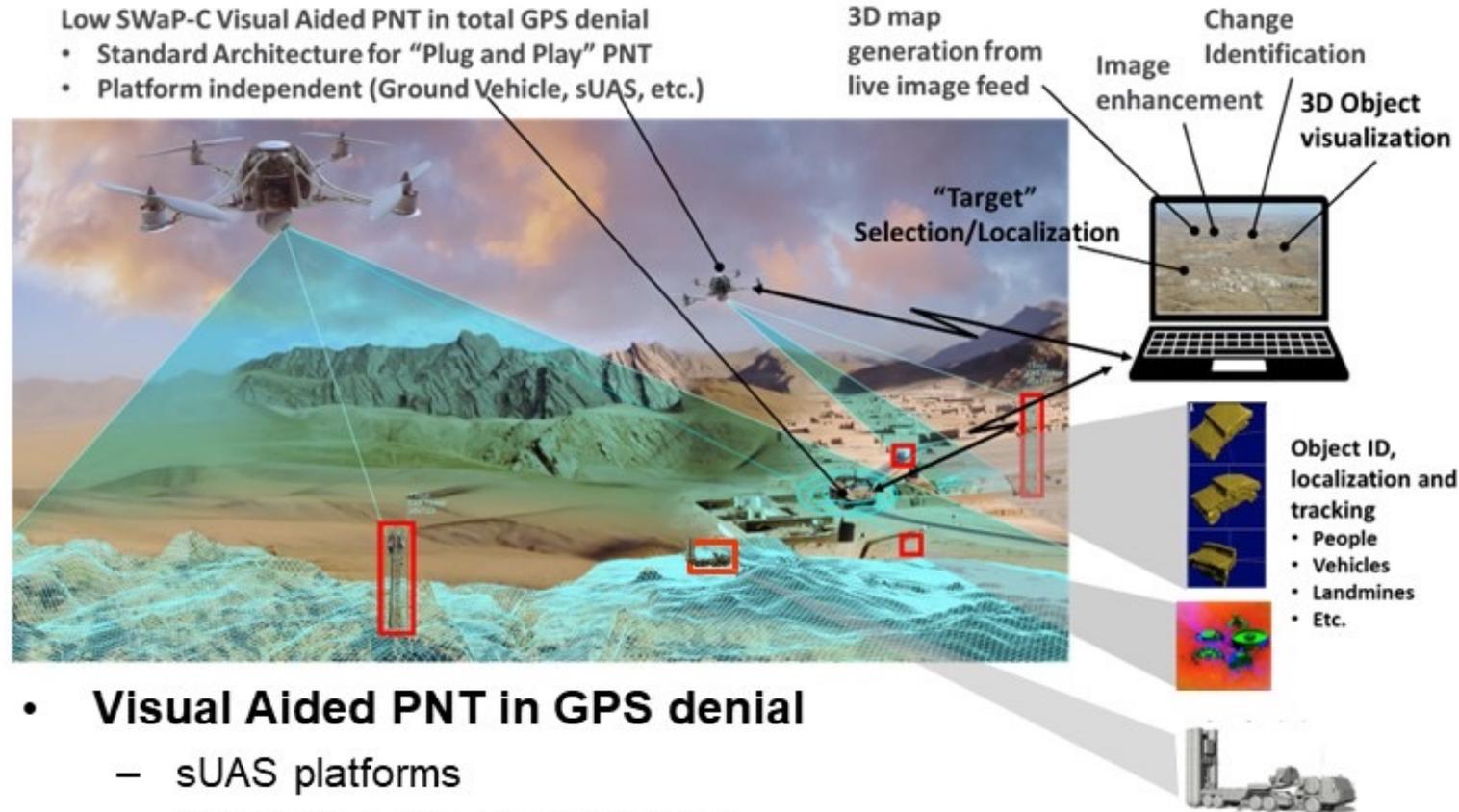
LEO Signals of Opportunity (SoOP)



- Use of **non-positioning LEO** satellites for PNT resiliency
- Solution **NOT dependent on signal content!**
- Multi-satellite, Multi-constellation, Multi-frequencies
- **escPNT™** base product **commercially available** for GPS challenged environments
- **Successful AF SBIR Phase II LEO PNT** – delivered Proof of Concept Sept. 2020
- Enhancements include: **addition of LEO** sources, **low SWaP-C** design for dismounted application, identify more LEO SOOPs available **per antenna I/F**, designed for standard I/F and **“plug-and-play”** with other fusion engines
- Existing cross-services support (**Air Force/Army/Navy**)
- **Cross platform application** (dismount, sUAS, ground vehicles, precision weapon)
- Position solution displayed on **ATAK EUD**



Visual Aided PNT with Enhanced Situational Awareness



- **Visual Aided PNT in GPS denial**
 - sUAS platforms
 - Positioning error without GPS:
- **Enhanced Situational Awareness**
 - Real-Time 3D terrain map (sUAS)
 - Object identification/ranging/tracking

Government Demand

- Executive Order 13905, Strengthening National Resilience through Responsible Use of Position, Navigation, and Timing Services, 12 February 2020.
- Presidential Policy Directive 21 (PPD-21), titled Critical Infrastructure Security and Resilience, identifies 16 critical infrastructure sectors that are so vital to the United States that their incapacity or destruction would have a debilitating effect on national security, the economy, public health or safety, or any combination thereof.
- [Memorandum Space Policy Directive 7](#)
- <https://www.congress.gov/bill/115th-congress/house-bill/2810>
- Included in the Frank LoBiondo Coast Guard Authorization Act of 2018, <https://www.congress.gov/bill/115th-congress/senate-bill/140>
- <https://www.federalregister.gov/documents/2020/02/18/2020-03337/strengthening-national-resiliencethrough-responsible-use-of-positioning-navigation-and-timing>
- 2017 National Defense Authorization Act (NDAA), Section 1618: requires “Backup and Complementary Positioning, Navigation and Timing Capabilities of the Global Positioning System (GPS).
- 2018 National Timing Resilience and Security Act: requires DOT to establish a terrestrial timing system to backup GPS
- 2019, Congress appropriated money for a GPS Backup Technology Demonstration
- 2020 NDAA Requires Air Force to develop a prototype multi-GNSS receiver as part of its resiliency efforts
- 2021 NDAA, Section 1601: SASC has ordered the Pentagon to provide Combatant Commander’s alternate PNT within 2 yr

From today’s consumer perspective, unreliable GPS is an inconvenience.

From a critical infrastructure, military application, and evolving autonomous systems, an alternative to GPS is CRITICAL

In the news

- **Truck driver has GPS jammer, accidentally jams Newark airport**
 - <https://www.cnet.com/culture/truck-driver-has-gps-jammer-accidentally-jams-newark-airport/>
- **GPS interference caused the FAA to reroute Texas air traffic. Experts stumped**
 - <https://arstechnica.com/information-technology/2022/10/cause-is-unknown-for-mysterious-gps-outage-that-rerouted-texas-air-traffic/>

