



INTM

INNOVATION
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Freedom

GENERAL DYNAMICS
Mission Systems



Scotty Miller II

VP, Supply Chain Management

Apollo 11 was the spaceflight that first landed humans on the moon. Commander Neil Armstrong and lunar module pilot Buzz Aldrin, both American, landed the Apollo Lunar Module Eagle on July 20, 1969, at 20:17 UTC. It seems appropriate to look back on this and realize what a great accomplishment this was. I still to this day remember sitting in front of our TV at home (very small TV) and watching

Neil Armstrong step onto the moon's surface. All of the communications between the Lunar Module, Command Module and Earth were handled by equipment provided by Motorola (now General Dynamics Mission Systems). I will always be proud of what our company and people were able to accomplish, even though I was just a kid at the time. Today, I still see the same level of commitment and cause in our team, and while we may not have a moon mission to motivate us, we know how important our job is to the men and women who serve our country. Our suppliers and partners are no less committed to the mission. Without your dedication and steadfast focus on the mission, we could not realize the tremendous success we have demonstrated. I thank you for your work and for your dedication to the mission.

A handwritten signature in black ink, appearing to read "Scotty", with a long, sweeping horizontal line extending to the right.



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About this publication: This is General Dynamics Mission Systems' Innovation Sourcing Network, open supplier innovation ecosystem monthly newsletter.

Suppliers may submit articles to be considered for publication to: isn@gd-ms.com

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Space and Intelligence Systems Overview

Every advancement we make starts with a question: What if? What if we could fly above our atmosphere? Done. What if we could land on the moon? Done. But we aren't done. Four hundred space missions later, side-by-side with NASA and the U.S. military, our telecommunications technology is circling multiple planets. And it's showing us sights no human has ever seen.

WHAT IF? It is a powerful question. And it is always guiding what we do next.

Our Space & Intelligence Systems line of business works tirelessly to develop high-value solutions to collect, transport and exploit high value information supporting intelligence, defense, civil and international missions. Every day, our team pushes the extreme edges of engineering and science to design the next generation of spaceborne technology, to advance Earth-to-Spacecraft communications for future missions to Mars and to improve the ground systems responsible for spacecraft and satellite network operations. We are also bringing new satellites and systems to the launch pad, like the James Webb Space Telescope, Landsat 9 and Lucy, the first space mission to study Jupiter's Trojan asteroids.

Key groups in our Space and Intelligence Systems Line of Business include:



[Our Intelligence, Threat and Analytic Solutions \(ITAS\)](#) group, which is a trusted partner enabling intelligence, defense and law enforcement customers to rapidly and accurately collect, detect and analyze information while deterring threats. ITAS draws on a dedicated team of engineers, subject matter experts and data scientists to offer four Centers of Excellence: High Performance Computing, Mission Management, Multi-INT and Threat Management. Each center focuses on understanding our customer's unique mission needs and developing innovative and tailored solutions to meet their ever-

changing needs. We do this by creating a collaborative, trusted environment that grows stronger as they address and take on the ever-changing landscape of tomorrow's challenges.

[Our Satellite Ground Systems and Operations](#) group, which focuses on connecting satellites, manned and unmanned spacecraft to Earth, relaying data from millions of miles into the universe back to scientists and mission controllers on the ground. Our customers depend on us to keep information flowing and the nation's satellites and spacecraft on track, from design, engineering and testing before launch, to on-orbit testing and long-term mission operations and management.

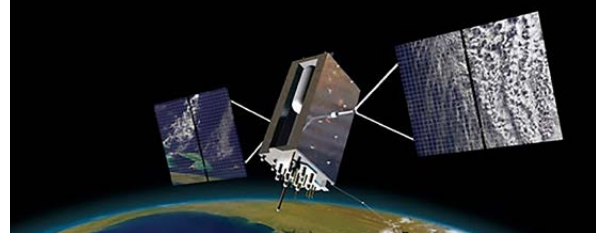


[Our Space Electronics & Communications](#) group, which has had space radios and electronics aboard the earliest U.S. space missions before NASA was even formed. Neil Armstrong's message from the moon, images from the Mars Rovers and signals from the Voyager spacecraft, that has crossed into interstellar space were designed, built and delivered by our space electronics and communications team.

Space & Intelligence Systems Overview

continued

[Our Mission Payloads](#) group, which develops the mission payloads that provide the sensitive information our warfighters simply cannot get from any other source. Customers come to General Dynamics for mission payloads because we actively innovate new digital solutions and technologies focused on our customers' mission.



[Our Tactical ISR and RF Intelligence Systems](#) group, which leverages the most advanced technologies and systems to gather, identify and disrupt electronic warfare and signals-based threats to U.S. military personnel, the nation's citizens and our allies around the world.

Sourcing in Space and Intelligence Systems

Now that you have gotten an inside look at how our Space and Intelligence Systems line of business operates today you can find insight into where we are heading in the future by [watching this video on the future of General Dynamics in the space domain](#). As we've talked about before quantum technologies is a key part of our technology roadmap and this is especially evident in Space and Intelligence Systems.

If you notice opportunity for overlap with your company please reach out and discuss with our supply chain team by sending an email to techscout@gd-ms.com.

Meet our Space and Intelligence Systems Leadership:



[Manny Mora](#) is vice president and general manager of Space and Intelligence Systems for General Dynamics Mission Systems. He is responsible for the delivery of strategic programs that include systems for space-based operations, satellite payloads, intelligence systems, surveillance and reconnaissance (ISR) for the U.S. Department of Defense, U.S. Intelligence community and military and government organizations worldwide.



Xiomi Baleno

Supply Chain Specialist, Small Business Program

Procurement Technical Assistance Centers (PTACs)

This month, we close our small business series by providing some information about PTACs and the resources they can provide.

Procurement Technical Assistance Centers, better known by the abbreviation PTACs, are part of the Procurement Technical Assistance Program, administered by the [Defense Logistics Agency \(DLA\)](#). PTACs offer a variety of free or nominal-cost services

that aim to provide local online and in-person counseling and training for small business owners. More specifically, PTACs focus on providing technical assistance to businesses wanting to sell products or services to federal, state, and/or local governments ([SBA](#)).

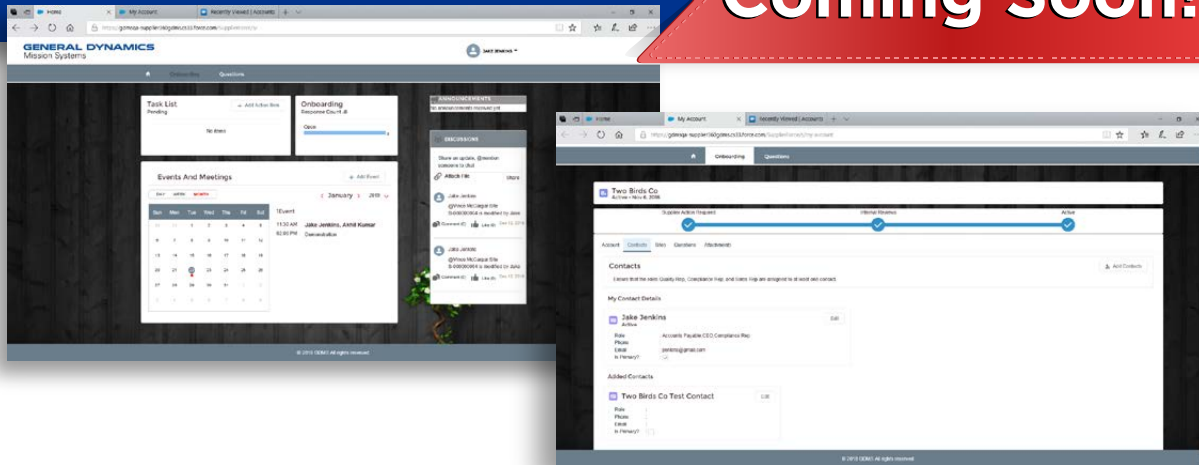
Small businesses can contact their local PTAC for assistance with the following ([APTAC](#)):

- Determining if their business is suitable to begin pursuing government contracts
- Securing relevant small business certifications, thus opening the door for new government contracting opportunities
- Registering in numerous databases used in the government marketplace, including the Department of Defense's SAM.gov and GSA Schedules
- Identifying and connecting with offices and individuals that are more likely to need the small business's product or service in order to guide their marketing strategy
- Researching companies' procurement histories to get an idea for which agencies have previously purchased products or services similar to those offered by the small business, as well as how much companies paid for those products or services
- Networking with potential buying officers, prime contractors, or other businesses who may offer teaming or subcontracting opportunities, via regular PTAC "matchmaking" events
- Identifying bidding opportunities for which the small business is eligible
- Preparing proposals, including complex solicitations that require specifications and drawings along with pricing considerations
- Addressing contract performance issues after a contract is awarded, including those relating to: production and quality systems; accounting system requirements, payments and payment systems; packaging and transportation; subcontracting; and property
- Preparing for contract audits including managing expectations and ensuring all documentation is in order

There are more than 300 PTAC offices located throughout the United States. Click [here](#) or [here](#) to find your local PTAC.

NEW General Dynamics Mission Systems Supplier Management Portal

Coming Soon!



General Dynamics Mission Systems is excited to announce a **NEW** supplier management and onboarding tool called **Supplier 360**. This online tool will provide an interface that makes doing business with General Dynamics Mission Systems simple and convenient. The system features will include:

- Electronic communication with suppliers
- An automated and streamlined supplier onboarding process
- Supplier self-service administration of information including representations and certifications
- Supplier capabilities identification and tracking
- Auto certification tracking
- Secure upload and download file capabilities

Stay tuned for upcoming information regarding the rollout of this new supplier portal, including training and access information.



Matthew DeVito

Hardware

A Conversation with Our Buyers

Matthew has been with the company in Taunton, Massachusetts, for 3 years.

What technologies or capabilities are you seeing most often in your commodity?

Cloud storage and B2B punch out catalogs

What line of business do you support most often?

I do mainly indirect procurement of hardware and hardware services. Therefore, I support all of them in a way.

What separates a good supplier from a great supplier?

Communication is key. The best suppliers ensure that GDMS is informed with any discounts, rebates, end of life items, delivery date changes, new technologies, and more.

Contact Matthew at:

matthew.devito@gd-ms.com

BUYER

Industry Events Supply Chain Management Attends

Here's a look at the events coming up in 2019

DATE	EVENT	LOCATION	SCM ATTENDEES
September 16-18	AFA Air, Space & Cyber Conference	National Harbor, MD	Katie Ducharme Nora Miller Mark Raczynski
September 17-19	Modern Day Marine	Quantico, VA	Nicole Hutchinson Alexis Petro Mark Raczynski
October 14-16	AUSA	Washington, DC	Paula Shwab Nicole Hutchinson Alexis Petro Mark Raczynski

SCM EVENTS



Rose Hochgraef

Sr. Supply Chain Program Manager

Rose works in Scottsdale, Arizona. She has been with the company 15 years.

What led you to a career in Supply Chain Management (SCM)?

I transitioned into SCM initially as to assist with the RiskTools and was excited, as this position was the perfect opportunity to utilize my finance expertise coupled with my commodity management experience. I am thankful to have joined SCM and am

enjoying my current role as a line of business (LOB) Lead.

What has been your most rewarding experience at General Dynamics Mission Systems?

Truly supporting the Rescue 21 program was the most rewarding experience, as the system General Dynamics Mission Systems deployed was to provide critical communication system that would allow distressed boaters to be saved by the United States Coast Guard. I enjoyed listening to the examples of the lives saved in the program reviews and watching the tears swell in the eyes of those in attendance showing how proud and important this mission is.

In your opinion, why are relationships with suppliers so important to the SCM mission?

Being able to support our customer's mission successfully is largely based on SCM's ability to identify qualified sources and receive quality products on time. Establishing a favorable relationship with our critical suppliers is paramount in being able to support our ever changing business needs.

What would people never guess that you do in your role?

As a LOB lead, I get to wear lots of different hats in trying to be the liaison between our business areas and SCM. I can think of lots of little things I get involved in that people might not guess, but an important area of responsibility is my involvement with our Bid Pursuit reviews within SIS. Manny Mora takes our business pursuits very serious and he is earnest in making sure that SCM is positioned to support our business. I appreciate being a part of the decision making team and having the opportunity to raise concerns surrounding component obsolescence or long lead times that may be posing risk to program execution.

How do you contribute to achieving an integrated supply chain?

A part of my job that I enjoy is bringing together to the key players from the business side and SCM side to ensure that we can work together. It is very rewarding to be able to help a new group of engineers understand the procurement process and how SCM can assist them.

What motivates you?

I am mostly motivated through General Dynamics Mission Systems' continued innovative product development and our ability to engineer creative solutions to solve our customer's needs. In addition, I am motivated to make our company successful and attractive to employees for long term employment.

How do you balance your career and personal life?

Creating a balance with my career and personal life is an area that I am trying to improve. I find that I am most successful when I set a schedule that includes time to unwind and relax with my family and friends. This may sound so simple but putting time on the calendar helps me maintain balance.

Perfect day would be?

It would start with a simple cup of coffee coupled with breakfast, followed with a long hike and end with a sunset dinner.

Commodities

OPERATIONAL



Commodity Manager

Matt Robertson

Products

Active Attenuators	Manufacturing & Machine Tools	RF Assemblies
Adhesives	Manufacturing Equip. & Mach.	RF Circulators
Air Circulators	Material Handling Equipment	RF Filters
& Blower Eq.	Motors	RF Mixers
Asset Tools	MRO	RF Switches
Bandpass filters	Optical Instr.	Sensors
Chemicals, Lubricants & Grease	Oscillators (Crystal)	Shelters
Chillers	Packaging & Packaging Supplies	Shop Floor Supls. & Cons.
Compressors & Vacuum Pumps	Paint	Sonars
Controls	Pallets, Crates & Lumber	Standard Pkg. Supplies
Converters (RF) - Up and Down	Power Amplifiers	Tape
Electron Tubes	RF (Not Component Level)	TCXO
Explosive Devices	Radar Eq.	Tents
Fan & Fan Assemblies	Radio & Comms Eq.	Test Equipment & Calibration
Furniture - Lab	Refrigeration - Cooling & Heating	TLNB
Generating Parts		Trailers
Generators		TWTA
Inspection Gages		VCOs
Inverters		Vehicles
Isolators - RF		Waveguide
Jacks		
Limiter - RF		

MECHANICAL



Commodity Manager

Susan Carpenter

Products

Actuating Levers	Firing Pins	Ornamental Parts
Antenna Masts	Flat Mechanical Part	Pistons
Arms	Gaskets	Plastic-Fabricated Items
Bearings	Gears	Plastics
Bellows	Glass parts	Pulleys
Bolts	Grommets	Quick Release Plungers & Slides
Brackets	Heat Sinks	Raw Material Retaining parts
Calibrated parts	Holding/Positioning Parts	Rivets
Cams	Insulating parts	Screens/Ventilating Parts
Cases	Joy Sticks (Custom)	Screws
Casters	Keypad	Sealing Parts
Castings	Membrane	Sectors and Spools
Chassis and Bases	Labels	Shafts
Container Hardware	Lanyards	Sheet Metal
Custom Fabric Parts	Lenses	Shielding parts
Custom Packaging	Links	Springs
Decals	Machining	Tags and Instruction Cards
Disks	Mechanical Clutches	Washers
Drive Belts	Mechanical Hardware	Wheels
Drums	Metals	
Enclosure parts	Nameplates	
Eyelets	Nuts	
Fan Blades and Rollers	Operating Control Parts	
Fasteners		
Fastening Parts		

SERVICES



Commodity Manager

Tracy Loper

Products

Commercial Services (Non-Product)	HR
Contract Labor	Job Advertising
Environmental Health and Safety	Marketing
Environmental Testing Facilities	Prof Consulting
	Agreements
	Quality
	Recruitment
	Telecom

IT HW AND SW



Commodity Manager

Paula Shwab

Products

Cameras	Optical Transceiver
Computer Hardware	Routers
Hardware Services	Servers
Keypad Assembly (Standard Offering)	Software
Networking	Commodities
Networking Switches	Storage
	Video

ELECTRO MECHANICAL



Commodity Manager

Matt Robertson

Products

Antennas
Audio Equipment
Batteries & chargers
Bells and Buzzers
Circuit Breakers
Display Optics
Earphones
Handsets
Headsets
Indicating Parts
Microphones
Populated Racks
(Enclosures)
Power Dist.
Relays
Speakers
Surge
Suppressors
Switches
Transformers
UPS

COMPONENT ASSEMBLY



Commodity Manager

Matt Maisano

Products

Capacitors
Circuit board
Assemblies
Circuit boards
Coil Forms
Contract
Manufacturing
(Keypad
Assemblies, Box
Build, CCA)
Delay Lines
Flex circuits &
Flex Assemblies
FPGA Boards
Fuses
Inductive Devices

Inductors
LED
Microcircuits
PCB-Mounted:
Amplifiers,
Passive
Attenuators,
Passive filters,
Transformers
Populated
Boards
Resistors
Semiconductors
Substrate
Tuners
Tuning Cores

BUSINESS PROCESS MGMT



Commodity Manager

Stephanie Baker

Products

Business Cards
Mobile Devices
Office Supplies
P-Card Program

INTERCONNECT



Commodity Manager

Rob Knight

Products

Back Shells
Cable Assemblies
Cables
Computer Cables
Connectors
Cords

Headers
Holders
Sleeving
Sockets
Terminals
Wire

TRAVEL



Commodity Manager

Tracy Loper

Products

Airlines	Hotels
Car Rental	Travel Agency
Hotel Event/	Services
Trade Show	Travel booking
Support	Tech
Ground Services	(Concur)
(Airport	Other
Parking,	Travel-Related
Car Services)	Service



TECH SCOUTS

Co-creating the art of the possible

Our process to communicate our needs and technical opportunities with your organization. TechScout is critical to our supply chain process to source potential outside solutions. We need your innovative approaches to build partnerships to solve our customers' greatest challenges.

Sign up to receive our alerts so that you can respond and share your innovative solutions with us.

Open Supplier Innovation
Ecosystem

<https://gdmissionsystems.com/techscouts>

GENERAL DYNAMICS
Mission Systems



Flashback to Apollo

FLASHBACK TO APOLLO

Flashback to Apollo – Transmitting Man's First Steps on the Moon to the World

When Neil Armstrong and Buzz Aldrin stepped onto the moon in 1969, an S-Band Transponder designed and built by General Dynamics was the only communications link the Apollo 11 astronauts had to NASA's mission control and millions of people watching on Earth. Fifty years later, we are celebrating the historic engineering achievements of the Apollo missions as we develop new technology for man's next giant leap from moon to Mars and further into deep space.

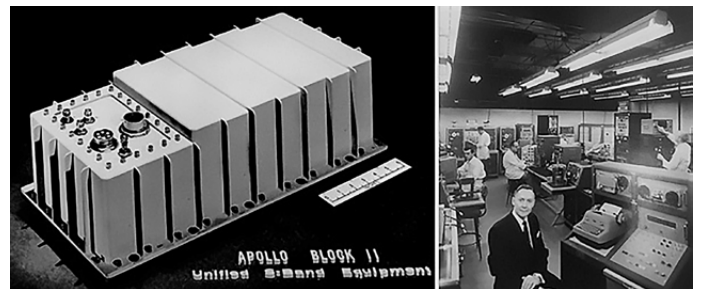
"One Small Step for Man. One Giant Leap for Mankind."

These iconic words from Neil Armstrong during his moon landing were heard by more than 600 million people thanks in part to the engineering accomplishments of General Dynamics' employees in Scottsdale, Arizona. They built the communications transponder on board Apollo 11, which transmitted Armstrong's voice and video to Earth.

Today, our engineers are working to make history again. [Watch General Dynamics Mission Systems President Chris Brady share how we're developing new technology for the space missions of tomorrow.](#)

Developing the S-Band Transponder for Apollo

The Apollo missions were incredibly complex with multiple space vehicles performing intricate maneuvers in deep space, which required accurate tracking at extreme distances. The equipment had to be designed to withstand the extreme cold, heat and radiation they would experience and for Apollo 11, they also needed to transmit more data than previous NASA missions, including television and video.

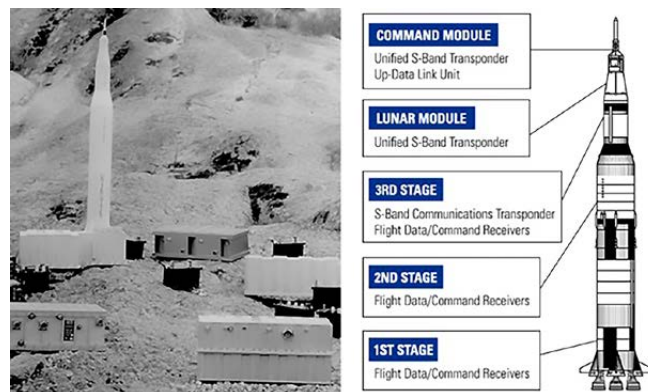


Hundreds of employees in Scottsdale, began developing the Unified S-Band Transponder in 1962, a new system that would accurately track the Apollo spacecraft, transmit and receive telemetry signals, communicate between ground stations and the spacecraft, and provide the link for the historic broadcast from the surface of the moon. The formal contract was awarded in 1963 to Motorola's Government Electronics Division, a legacy company of General Dynamics.

The Journey to the Moon

The components produced by our Scottsdale employees, pictured right, equipped the Apollo spacecraft with the fundamental communications capabilities to remain in contact with mission control throughout the journey.

Once the spacecraft reached a distance 30,000 miles from Earth, the astronauts completely relied on the Unified S-Band Transponder to stay connected. The Transponder was their only link to mission control and transmitted all voice and video communications, spacecraft status, mission data, distance, the astronauts' biomedical data and emergency communications.



Transmitting Neil Armstrong's Iconic Words from the Moon



As Neil Armstrong stepped onto the surface of the moon, our S-Band Transponder successfully transmitted his voice and video over 200,000 miles to Earth as millions of people watched him take “one giant leap for mankind.” In that moment, an engineering triumph years in the making was witnessed by the entire world. The transponder worked in the harsh conditions of space and General Dynamics has been trusted to build communications equipment that astronauts and NASA have depended on ever since.

How We Support Space Missions Today

[Satellite Ground Systems](#), where we are modernizing NASA's Space Network ground segment, which is responsible for communications, command, control and navigation of the satellites that support NASA and commercial space missions.

[Space Communications and Electronics](#), where modern versions of our transponders are in service on current NASA missions including the Juno Mission to Jupiter, the Curiosity Mars Rover, the Insight Mars Lander, and more.

[Satellite Mission Payloads](#), where our satellite mission payloads provide weather information to meteorologists, send new data about our solar system to scientists, and enable actionable intelligence for warfighters.



Returning To the Moon & The Mission To Mars

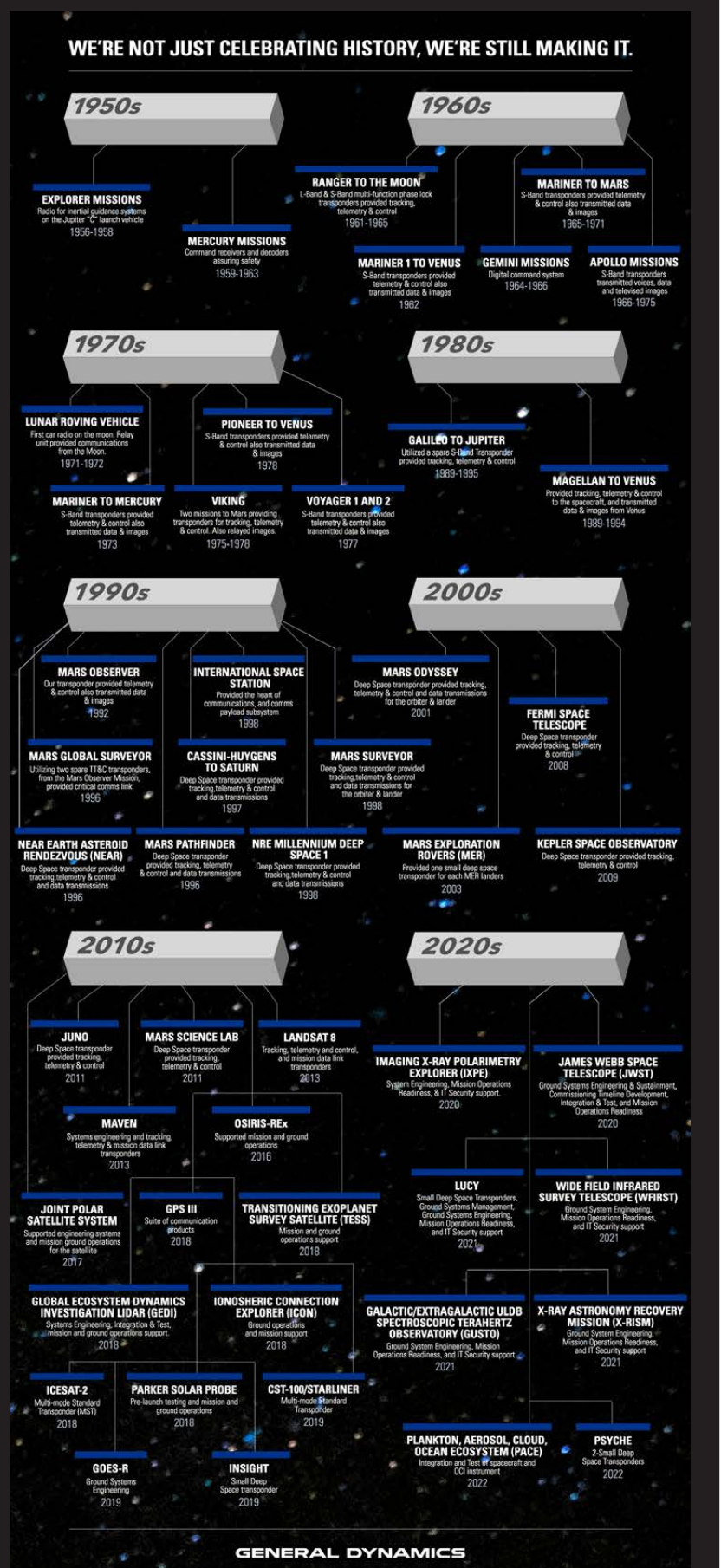
Mars is the next step in human space exploration. While today it takes about 14 minutes to send data transmissions between Mars and Earth, our engineers are developing new ways of getting more information to and from deep space with greater clarity. Advancements in artificial intelligence, machine learning and quantum communications will forever change how we stay in touch with future communities on Mars.

General Dynamics is also building the transponder and emergency radios for Orion, the first human spacecraft built for deep-space missions. When Orion's crew makes its first trip to space, General Dynamics transponders will keep the astronauts connected to mission command centers on Earth.

[Learn more about Quantum Communications.](#)

General Dynamics communication links have been on every deep space probe and aboard every Mars rover and lander. We are proud to be a life-long partner to NASA, starting with the Explorer and Apollo missions, and will continue working closely with them, along with the Department of Defense, to shape the next 50 years of space exploration and national security.” - Manny Mora, Vice President, Space & Intelligence System

Zoom in on the image to see how we have an continue to make history in space!



Help Give Wounded Veterans A Fresh Start



MAKE A DONATION TO THE SENTINELS OF FREEDOM FOUNDATION AND WE'LL MATCH \$50,000

Sentinels of Freedom (SOF) is a national nonprofit organization that helps wounded post-9/11 veterans like Cpl Kyler Carpenter, SFC John Wayne Walding, and Sgt Lucas Oppelt successfully transition to civilian life by providing financial assistance and comprehensive personal support, including but not limited to, housing subsidies, financial coaching, mentoring and career transition assistance.

General Dynamics Mission Systems has committed to match all donations made to the Sentinels from our industry partners up to \$50,000.

To support the Sentinels of Freedom foundation, visit their donation page and type "GDMS" under "How Did You Hear About Us?" and we'll match your donation.

DONATE TO SENTINELS OF FREEDOM

MICROSOFT HOLOLENS COMMERCIAL SUITE

1ST GENERATION MIXED REALITY HEADSET

Build With A New Vision



APPLICATIONS & FEATURES

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- Visual Design Improvements
- 4D Digital Construction
- Enhanced Surgical Capabilities
- On-Site Studios for Increased Productivity/Safety
- Dynamic Guides/Learning Tools
- Customizable Solutions

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