



NASA Office of Safety and Mission Assurance (OSMA)

OSMA Supply Chain Risk Management (SCRM) Program

Advancing NASA Supply Chain Resiliency

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March 13, 2024

Collaboration on Quality in the Space and Defense Industries Forum



About the OSMA SCRM Program

Launched October 2019

- Program Mission:
 - Advance strategy, policy, processes and capabilities to assure resilient supply chains for NASA mission performance
 - Holistic, multidisciplinary approach to implementing integrated, collaborative and sustainable solutions
- Program Goals:
 - ➡ – Build Supply Chain Visibility and Insight
 - Optimize Government Contractor Quality Assurance
 - Use Established Risk Management Processes
 - Establish SCRM Mindset and State-of-the-Market Capabilities
- Key Initiatives:
 - SCRM Policy, Processes and Partnerships
 - **Agency-level Supply Chain Resiliency Board**
 - **Supply Chain Visibility Reporting** by prime contractors (Data Requirements Description)
 - **Industrial Base and Supply Chain Risk Management (SCRM) Strategy and Status** requirement (NPR 7120.5F / NASA Space Flight Program & Project Management Requirements)
 - Supply Chain Insight Central (SCIC) information and analysis services platform
 - Supply Chain Research & Analysis



Strategic Situation

- NASA missions rely upon transnational supply chains of commercial, non-profit and government organizations and the U.S. industrial base to develop and operate complex, high-value and innovative systems for the nation
 - Dynamic array of **technical, business, economic, security, and climate risks** threaten to disrupt or deny the timely, affordable provisioning of **products and services** as required for mission success
- Administration policy
 - Executive Order 14005, Ensuring the Future is Made in All of America by All of America's Workers (1/25/2021)
 - *... the United States Government should maximize the use of goods, products and materials produced in, and services offered in, the United States.*
 - Executive Order 14017, America's Supply Chains (2/24/2021)
 - *The United States needs resilient, diverse and secure supply chains to ensure our economic prosperity and national security.*
 - United States Space Priorities Framework (12/2021)
 - *.... the United States will ... strengthen the resilience of supply chains across the nation's space industrial base.*



National Defense Industrial Strategy

Released January 11, 2024; <https://www.businessdefense.gov/NDIS.html>



INDUSTRIAL BASE POLICY
ASSISTANT SECRETARY OF DEFENSE

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E.O. 14017

COVID-19 Response

NDIS Strategic Priorities

- Resilient supply chains that can securely produce the products, services, and technologies needed now and in the future at speed, scale, and cost.
- Workforce readiness will provide for a sufficiently skilled, and staffed workforce that is diverse and representative of America.
- Flexible acquisition will lead to the development of strategies that strive for dynamic capabilities while balancing efficiency, maintainability, customization and standardization in defense platforms and support systems. Flexible acquisition strategies would result in reduced development times, reduced costs, and increased scalability.
- Economic deterrence will promote fair and effective market mechanisms that support a resilient defense industrial ecosystem among the U.S. and close international allies and partners and economic security and integrated deterrence. As a result of effective economic deterrence, fear of materially reduced access to U.S. markets, technologies, and innovations will sow doubt in the mind of potential aggressors.



National Defense Industrial Strategy

Released January 11, 2024; <https://www.businessdefense.gov/NDIS.html>

Section 21.2.5 Leverage Data Analytics to Improve Sub-Tier Visibility to Identify and Minimize Strategic Supply Chain Risk and to Manage Disruptions Proactively

In a 2022 report, the DoD acknowledged that as its supply chain became more global, prime contractors lost sight of their own sub-tier supply chains and faced the risk of sourcing resources from potential adversaries. Furthermore, the pandemic demonstrated that seemingly minor disruptions in the DoD's supply chain can cause massive ripple-effect bottlenecks owing to limited supply sources. In recognition of this limited visibility into its sub-tier supply chains, the DoD initiated efforts to ensure supply chain visibility, particularly in sub-tiers, and intends to further this capability throughout all tiers of the supply chain. DoD will leverage this greatly expanded supply chain visibility to mitigate risks and to manage disruptions proactively, aggressively, and systematically.



Supply Chain Resiliency Board (SCRB)

Charter Highlights¹

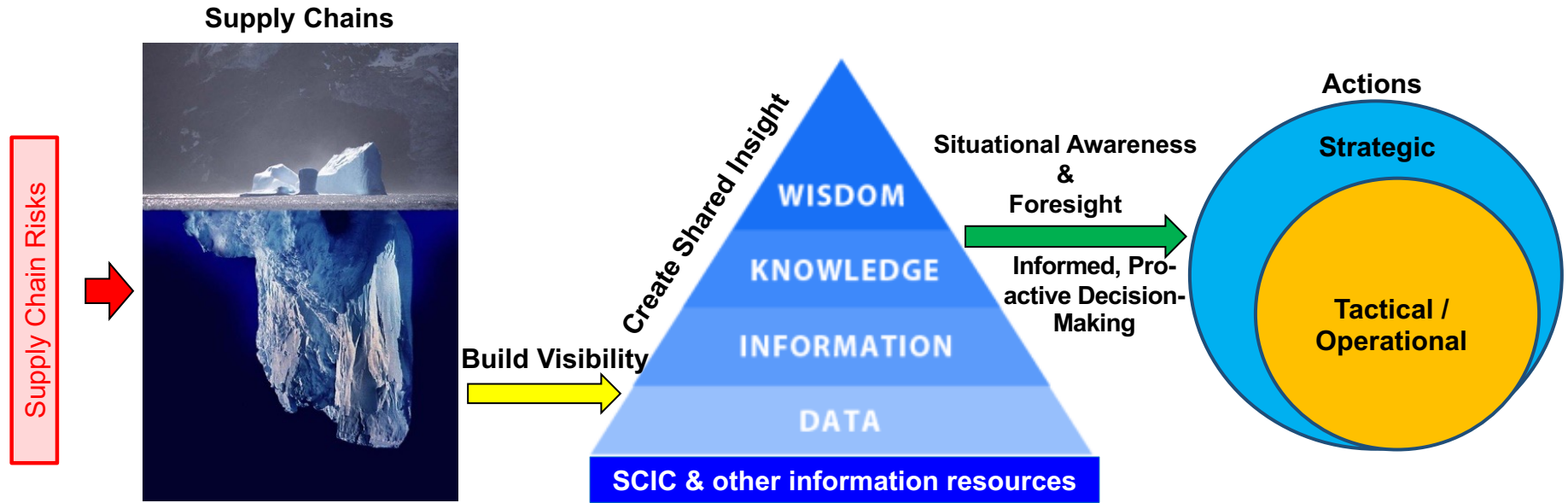
- Support the Acquisition Strategy Council (ASC) and the Chief Acquisition Officer (CAO) in advancing Agency strategy, policy, processes, capabilities, and organizational culture for (1) the pro-active assessment and management of supply chain and industrial base risks and opportunities to assure resilient NASA mission performance, and (2) the fulfillment of applicable U.S. Government policy and statutory requirements.
- Assess, formulate, and recommend courses of action and solutions for review and decision-making by member organizations, the ASC, the ASC Chair and/or the CAO.
- Assess, submit, and report on risks and associated recommendations and mitigations as part of the NASA Enterprise Risk Management process.
- Support NASA-level coordination, review and decision-making pertaining to NASA strategy, policy, initiatives, and actions, including matters involving legislation, public laws, executive orders, and strategic stakeholders.
- Make decisions on board recommendations, actions, and activities.

Note: (1) Go to https://nodis3.gsfc.nasa.gov/OPD_Docs/NC_1000_56_.pdf for the charter released via NODIS on 11/02/2023



Supply Chain Insight Central Information & Analysis Services

Strategy - Operational Since March 2021



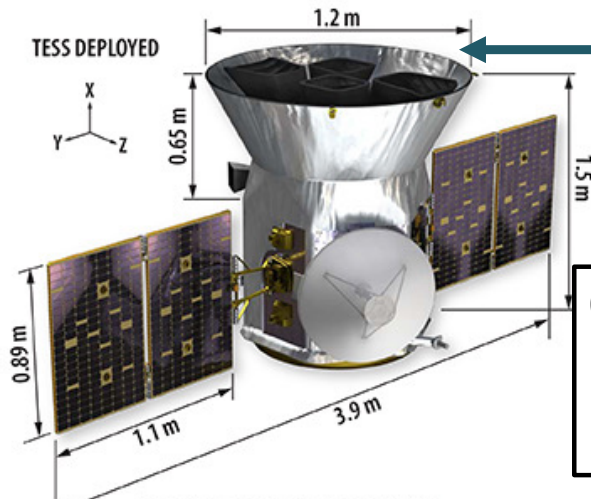
Enterprise SCRM Risk: limited visibility and insight into supply chains = unknown risk exposure, and insufficient information for analysis, planning and performance management

Key SCIC strategy: systematically bring data and information together to enable collaborative, pro-active SCRM across the agency



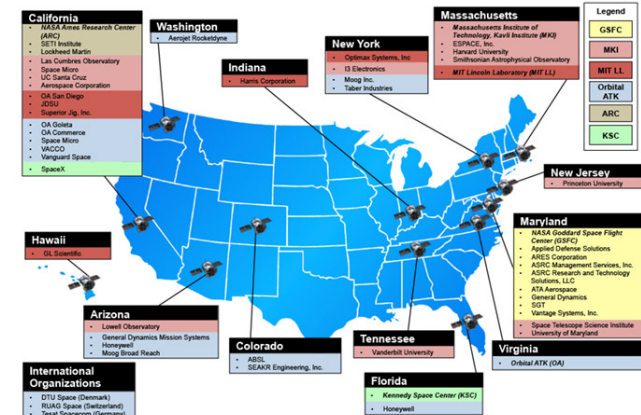
Supply Chain Example

Transiting Exoplanet Survey Satellite (TESS)



Observatory (system) = spacecraft + instrument

- Subsystems, assemblies, components, parts, materials
- 329 products tracked (not comprehensive)
- 67 suppliers, located in U.S and five other countries





Supply Chain Visibility (SCV) Reporting

Supply Chain Resiliency Board (SCRB) Decision

Why

- Enable collaborative, pro-active SCRM to strengthen resiliency of supply chains for mission programs / projects

What

- Baseline Data Requirements Description (DRD) for SCV Reporting by prime contractors to NASA

How

When

- Incorporate the baseline DRD through procurement processes into solicitations and awards for new NASA procurements of products and services for programs/projects on the approved Agency Mission Program and Project List (AMPL) with estimated contract values of \$20m+
 - Option for Mission Directorates to apply the DRD to current contracts
- Operational deployment of secure SCIC application for Supply Chain Visibility Reporting
- Incremental implementation to start in Spring 2024

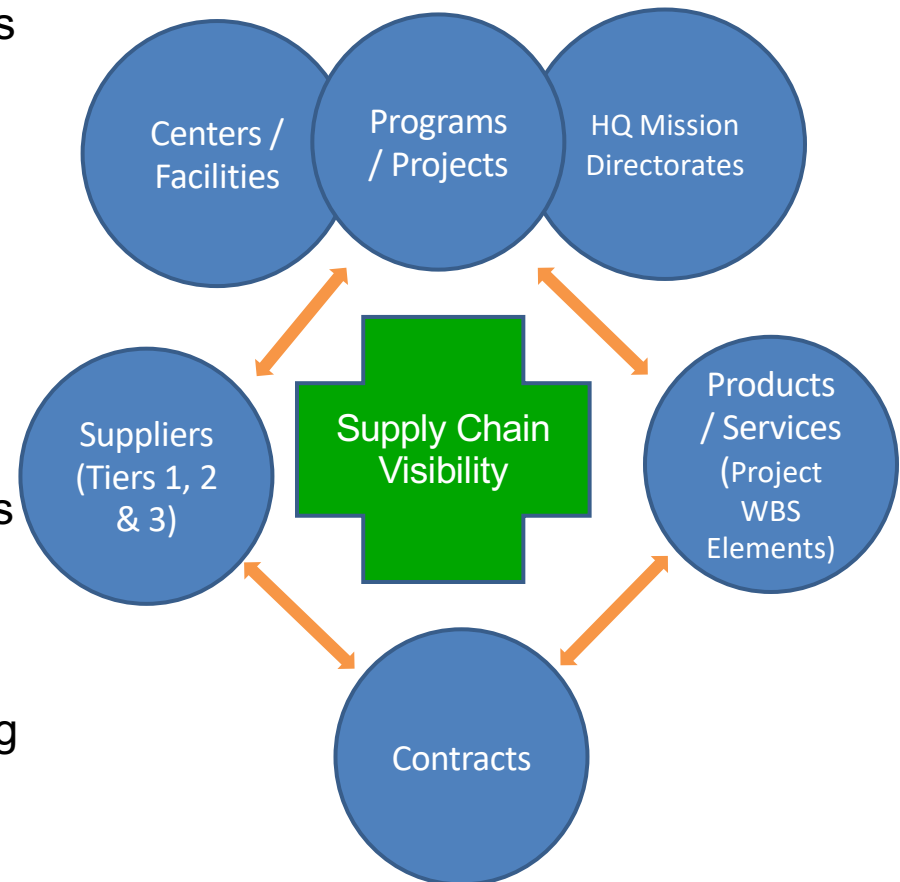
Who

- OSMA SCRM program in collaboration with the Office of Procurement, Mission Directorates and other SCRB member organizations



Supply Chain Visibility (SCV) Reporting

- Applicable to NASA procurements of products and services for programs / projects on the approved Agency Mission Program and Project List (AMPL)
- Limited to specific information on supplier entities within the top three contractual tiers (Tier 3: direct suppliers → Tier 2: direct sub-contractors → Tier 1: prime contractors to NASA) with tailoring for deeper or more frequent reporting than baseline requirements
- Online reporting via a secure SCIC application to enable integrated data/information management for internal NASA analysis, planning and decision-making





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Integration of Data/Information to Enable Pro-Active Awareness, Assessment and Management of Industrial Base and Supply Chain Risks



SCV Reporting: Baseline Data Requirements Description (DRD) Highlights

- Description/Use: *SCV Reporting by prime contractors to NASA is required to systematically build and maintain visibility into the supply chains for NASA mission programs/projects to enable proactive Supply Chain Risk Management (SCRM) that supports situational awareness, planning, risk analysis and informed decision-making at NASA project, program, center and agency levels.*
- Initial Report: *within ninety (90) days after contract award or amendment incorporating this DRD.*
- Frequency of Reporting: *every six months (6) months after the due date of the initial report for the duration of the contract*
 - *May be tailored to provide more frequent reporting*
- *The SCV Reporting application of the NASA Supply Chain Insight Central (SCIC) information and analysis services platform shall be used by the prime contractor to securely fulfill SCV reporting requirements in accordance with instructions provided in this DRD and the SCV Reporting application. The reporting will be maintained within SCIC which is a secure NASA / U.S. Government information system with access restricted to authorized users. SCIC is operated in accordance with NASA / U.S. Government requirements for the management of Controlled Unclassified Information (CUI).*
- *The prime contractor shall incorporate requirements into their subcontracts to support the prime contractor's fulfillment of the SCV Reporting DRD.*



SCV Reporting: Baseline Data Requirements Description (DRD) Highlights -- Continued

SCV Reporting by the prime contractor shall contain information pertaining to the prime contractor (Tier One (1) by contractual supply chain level) and the product and/or service deliverables required by the NASA contract, and on the prime contractor's sub-tier suppliers issued contracts to provide products and/or services in fulfillment of the NASA contract, which, at a minimum, shall encompass all of the prime contractor's direct sub-contractors (Tier Two (2) by contractual supply chain level) and all of the direct suppliers to the sub-contractors (Tier Three (3) by contractual supply chain level).

- May be tailored to provide deeper reporting on suppliers at Tier 4 and lower tiers as warranted by risk assessment



SCV Reporting: Baseline Data Requirements Description (DRD) Highlights -- Continued

The SCV Reporting by the prime contractor shall provide specific information on the Tier One (1), Tier Two (2), and Tier Three (3) entities under contract as follows:

- i) Entity name and complete address (street number, city, state, country and zip code or equivalent for non-U.S. locations) as recorded on the issued contract(s);*
- ii) Operating (doing business as) name of the entity;*
- iii) Direct contractual customer for the issued contract(s);*
- iv) Location(s) of contractual performance with complete addresses (street number, city, state, country and zip code or equivalent for non-U.S. locations);*
- v) Unique identification codes or contract numbers for the contract(s) as issued by NASA, the prime contractor, and the sub-contractor(s)*
- vi) Commercial and Government Entity (CAGE) code, Unique Entity Identification code or North Atlantic Treaty Organization Commercial and Government Entity (NCAGE) code, as applicable;*
- vii) Summary description of the contractually required product and/or service deliverables, including product/service name, product part or model number or other identifying information as applicable*
- viii) Identification or description of the Work Breakdown Structure (WBS) or configuration element(s) corresponding to the utilization, application or integration of the contractually required products and/or services;*
- ix) Contract start and end dates as awarded and amended; and,*
- x) Identification of new, completed or terminated contracts with supplier entities since the prior reporting and if a new contract with an entity is for the same or similar product(s) or service(s) awarded to another supplier entity.*



Industrial Base / SCRM Strategy Project Life-Cycle

NPR 7120.5F (NASA Space Flight Program & Project Management Requirements, effective 8/3/2021) in combination with NPR 8735.2C (Hardware Quality Assurance Program Requirements for Programs & Projects) requires **Industrial Base (IB) and Supply Chain Risk Management (SCRM) Strategy and Status** for Mission Programs and Project

Acquisition Strategy Meeting

Assess key Industrial Base / SCRM factors

System Requirements & Definition Reviews

Preliminary Project Plan

- Industrial Base / SCRM Strategy

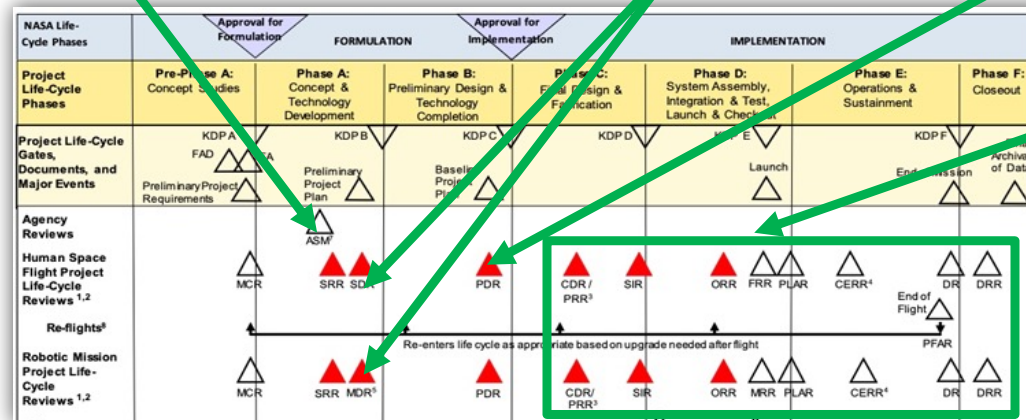
Supply Chain Visibility Reporting by Prime Contractors

Preliminary Design Review

Baseline Project Plan

- Industrial Base / SCRM Strategy

Supply Chain Visibility Reporting by Prime Contractors



Ongoing
Industrial Base / SCRM
Strategy Implementation &
Supply Chain Visibility
Reporting



SCIC Information & Analysis Services

Operational Since March 2021

Supply Chain Insight Central (SCIC)

Hot Topics

Orientation

Reference Material

Ab

Dashboards & Resources

Dashboards

NDC Account Required

Assessments Calendar

CAGE Lookup

NASA Advisories/GIDEP

Notices

Launchpad Account Required

CAAS Quality Assurance

Resource Planning

PRI eAuditNet

User Account Required

SAM GOV

User Account Required

OASIS

User Account Required

Critical At-Risk Industrial Technology List (CARITL)

Consolidated Screening List (CSL)

Suppliers

New Supplier

View All

Supplier

Supplier Address

CAGE

UEID

Projects

CARITL Items

Contracts

Search...

Search...

Search...

Search...

Search...

Search...

Search...

Suppliers

Contracts

Supplier Assessments

Products & Services

Supplier Research & Analysis (SRA) Reports

Projects

Other Supplier Reports

Dashboards & Resources

Supplier Overview

Supplier Count

3830

Supplier Name

Supplier Names

Project

GOES-9 (I)

GOES-T

GOES-U

GOLD

GPM

GTOSET

GUSTO

GXRE (for SAC-B)

HALO

HALSET

HERA

Not Associated

Not Associated

HEOMD

SMD

State

Not Associated

Alabama

Alaska

Arizona

Arkansas

California

Country

Argentina

Australia

Austria

Belgium

Bermuda

Brazil

Record Link

Supplier

Project

Center/Facility

Mission Directorate

of Assessments

of Analyses

of Other Reports

Supplier Names

ICESat-2, Roman, SWFO-L1

GSFC

SMD

0

0

0

Total

3570

190

16

AS9100 Certification / Suppliers

Cert Standard

All

Certified

Expired

Not Certified

Search

Keyword Filter (Supplier Name, City, State/Province, Country, Project Name/Acronym)

Suppliers with AS9100 Certification Updates

Accurate Machine & Tool Corporation || MADISON, AL || CAGE: n/a

Acquisition Integration LLC || HUNTSVILLE, AL || CAGE: n/a

Aerotech Fasteners Inc || Putnam, CT || CAGE: 0TD46

Aerovironment Inc || SIMI VALLEY, CA || CAGE: 35059

Air Electro Inc || CHATSWORTH, CA || CAGE: 1E559

Almabai Holdings Corporation || Milford, CT || CAGE: 31633

Alloy Metals Company LLC || Long Beach, CA || CAGE: K2244

Amro Fabricating Corp || SOUTH EL MONTE, CA || CAGE: 8V199

Astro Machine Co Inc || Hawthorne, CA || CAGE: 64248

Suppliers Monitored

784

Suppliers with Updates

84

Certified

677

Not Certified

151

Record Link

Supplier Header

Certificate Status

Standard

Certificate Expiration

Certificate Scope

Certification Body

Supplier Gave Access to Details in OASIS

Organization POC Email

Project

Supplier Names

Not Certified

AS9100D

03/24/24

Aerospace components machining

International Standards Authority

No

michelle@frh-axis.com

Certified

AS9100D

01/10/26

Manufacturer of machined aircraft parts, laser components and defense parts.

International Standards Authority

No

vic@sandveng.com

JPSS

Certified

AS9120B

07/19/24

Distribution of high performance interconnect products. Products include wire, custom cables, connectors, heat shrink tubing, expandable sleeving, and lacing cord to aerospace industry customers. The value added service of kitting.

SGS Knowledge Solutions, A Division of SGS North America Inc.

No

laura.harley@seep-etsche.com

Certified

AS9100D

02/04/24

Manufacture of precision machine parts, tooling, fixtures, sheet metal and complete assemblies for the aerospace, defense and commercial industries

Management Certification of North America

No

JPSS



SCIC Application: Critical At-Risk Industrial Technology List

CARITL Items

NASA Critical At-Risk Industrial Technology List (CARITL)

Critical At-Risk Industrial Technology List (CARITL)

Whole-App Search...

[SCIC Home](#) [About CARITL](#) [Orientation](#)

[+ New Item](#) [Hard-Delete Item](#) [View All](#) [Advanced Search](#) [Generate Risk 5x5 Report](#) [Export to Excel](#)

	Item	Imp x Inst	NASA POC(s)	SME(s)	Center(s)	Comments	Industrial Base Prime Issue(s)	Affiliated Suppliers	Projects
☐	Search...	Search...	Search...	Search...	Search...	Search...	Search...	Search...	Search...

☐ Fuel Valves

About CARITL

The purpose of the **Critical At-Risk Industrial Technology List (CARITL) application** is to support the agency process conducted the NASA Office of the Chief Engineer to assess and maintain CARITL items relative to industrial base and supply chain risks. This application is an integrated part of the NASA Supply Chain Insight Central (SCIC) information and analysis services platform developed and operated by the NASA Office of Safety and Mission Assurance (OSMA) and its Supply Chain Risk Management (SCRM) program.

Supplier Names

- DSCOVR
- EC-Prop
- GOES-16 (R)
- GOES-17 (S)
- GOES-T
- GOES-U
- GPM
- ICESat-2
- ISS
- JPSS-1
- JPSS-2
- JPSS-3
- JPSS-4
- JWST
- LANDSAT-8 (LDCM)

Viewing 1 - 74 of 74 Records

Items Displayed 100



Supply Chain Research & Analysis

Purpose:

- Build visibility and insight into supply chains to enable pro-active SCRM

Approach:

- Holistic analytical framework, business intelligence techniques, robust information sources,
- Non-intrusive to suppliers
- Internal NASA/USG use only

Analytics / Dashboards:

- Interactive visual displays with integrated data

Financial Capability Assessments:

- Produce assessments with OCFO for \$500m+ procurements per NASA FAR 1809.105-1 ... and for other procurements as requested

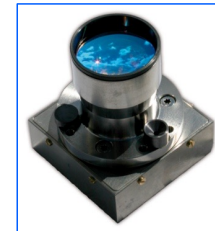
U.S. Civil Space Industrial Base Survey:

- Teamed with NASA Office of Technology, Policy and Strategy and DOC's Bureau of Industry & Security to manage and analyze resulting data to boost supply chain visibility and insight

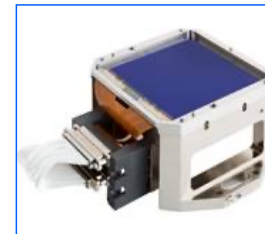
Some Products of interest:



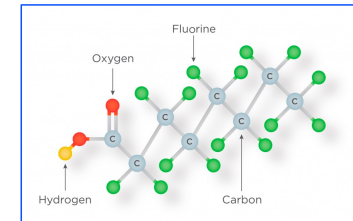
Solar Array



Star Tracker



Charge-coupled device



PFAS Chemicals



Lithium-Ion Battery

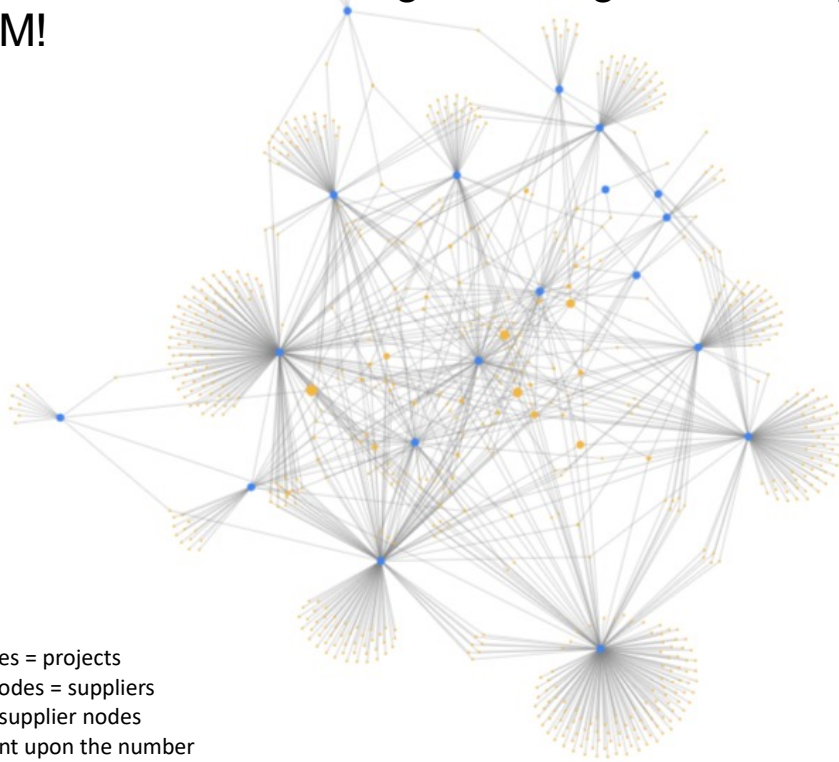


Bipropellant Thruster Valve



Wrap-up & Discussion

- Data / Information Sharing and Integration is Key to Pro-active, Collaborative SCRM!



Note:

- blue nodes = projects
- orange nodes = suppliers
- Sizing of supplier nodes dependent upon the number of project relationships



An Old Proverb

*For want of a nail the shoe was lost;
For want of a shoe the horse was lost;
For want of a horse the rider was lost;
For want of a rider the battle was lost;
For want of a battle the kingdom was
lost;
And all for the want of a horseshoe nail.*