



---

# GSFC Supplier Assessments

Supply Chain 2011

October 18, 2011

Jonathan Root

Supply Chain Management Team





# For Want of a Nail A 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.





# What We Do

- Conduct independent assessments of suppliers for mission programs/projects and operations to promote and assure the provision of **quality products and services** for NASA mission projects
  - Assess conformance with contractual requirements and quality management standards (i.e., ISO 9001, AS9100) and the effectiveness of supporting processes
  - Report and share assessment findings with GSFC mission projects, across NASA and other agencies
  - Monitor / verify supplier corrective actions and improvements
- Perform ~50 assessments per year throughout the supplier base for GSFC mission projects
  - Primes and lower tiers: systems integrators/developers, and suppliers of subsystems, components and parts
- Completed assessments of 115 unique suppliers since 2007





# What We Do

continued

- Maintain information resource / database of supplier assessment results
- Engage the Supplier / GSFC / NASA communities via the annual Supply Chain conference, NAMT / JAPC, education series and training
  - Share best practices and knowledge; address challenges and opportunities
- Build teamwork and collaboration to foster value-added results

Assuring Mission Success is  
Our Driving Focus!



# We Support GSFC's Diverse Mission Portfolio



Aqua

ICESat

Aura

LADEE



# Assessments / GSFC Mission Portfolio

Assessments in FY 2011 supported GSFC's portfolio of mission programs / projects, including:

- James Webb Space Telescope (JWST)
- Mars Atmosphere and Volatile Evolution (MAVEN) Mission
- Geostationary Operational Environment Satellite-R series (GOES-R) -- Flight and Ground projects
- Global Precipitation Measurement (GPM) Mission
- NPOESS Preparatory Project (NPP)
- Landsat Data Continuity Mission (LDCM)
- Magnetospheric MultiScale (MMS) Mission
- Radiation Belt Storm Probes (RBSP) Mission
- Tracking and Data Relay Satellites (TDRS) K/L
- Space Network Ground Segment Sustainment (SGSS)

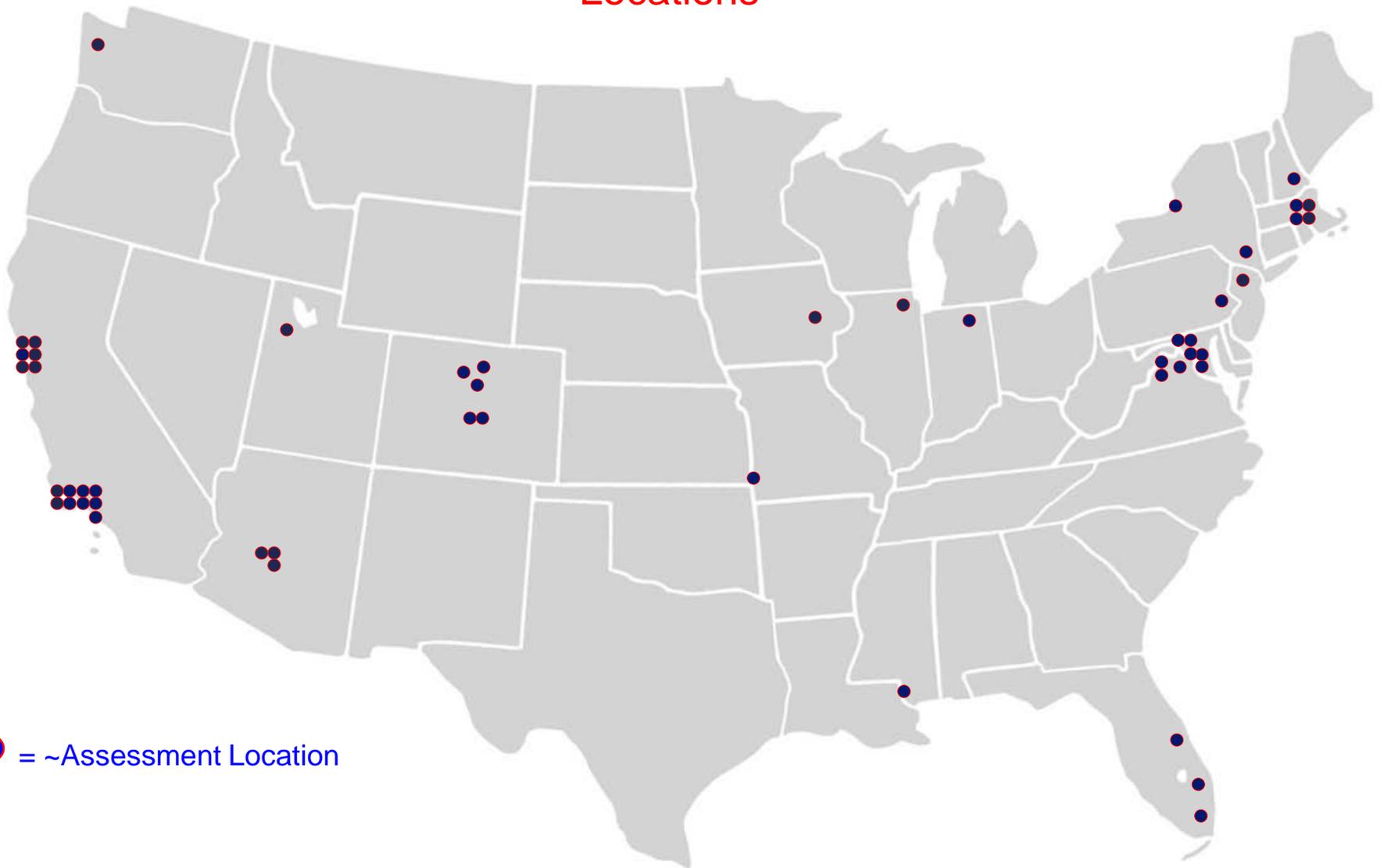




# Supplier Assessments

FY 2011

~ Locations

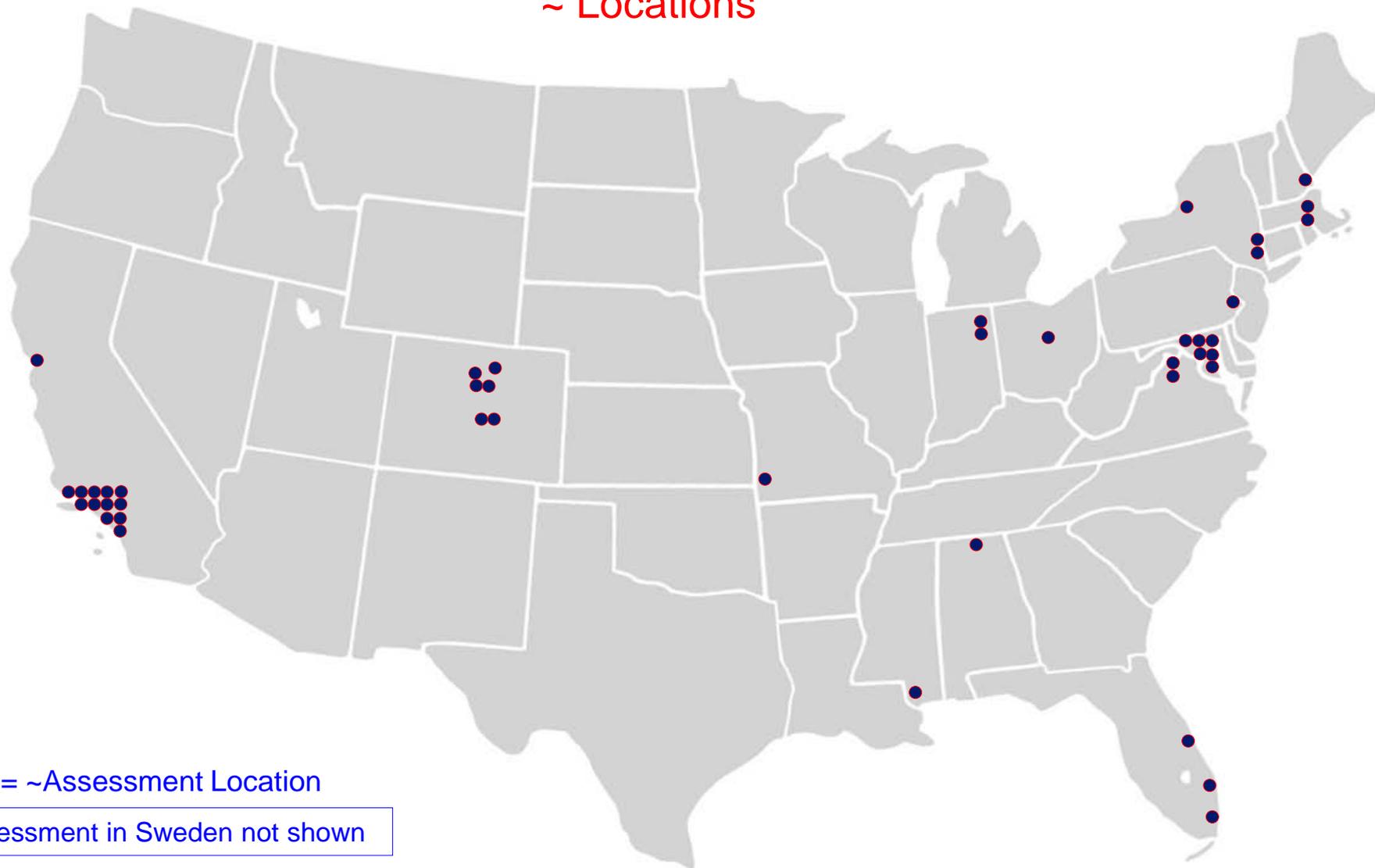


● = ~Assessment Location



# Supplier Assessments

FY 2010  
~ Locations



● = ~Assessment Location

Assessment in Sweden not shown



# Supply Chain Management Team

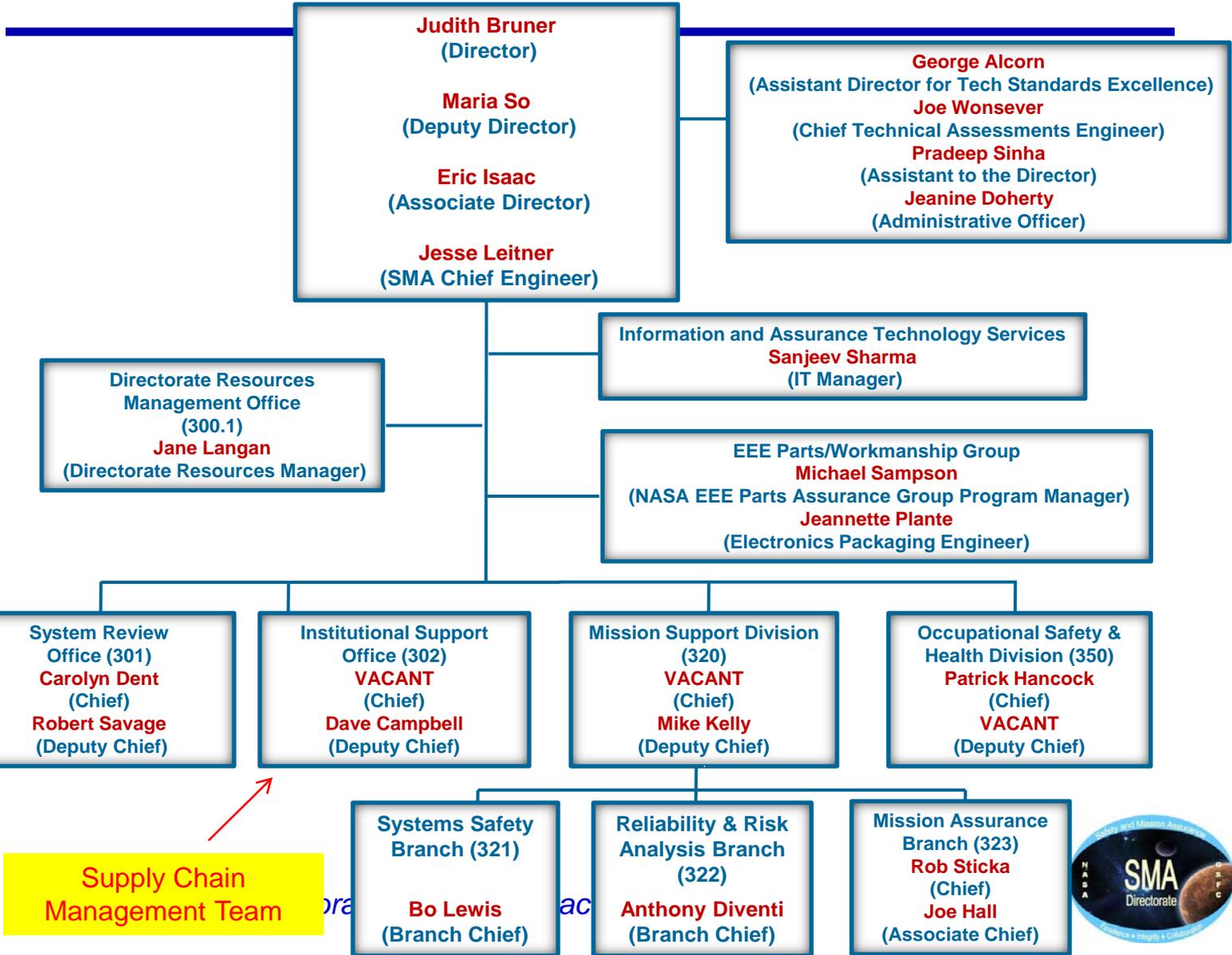
---

## GSFC/Code 302

- Dave Campbell
- Tom Clifford
- Matt Fox
- Vic DiMarco
- Charles Kim
- Jonathan Root
- Louis Thomas
- Assessors from the NASA Audits, Assessments and Assurance (A3) Services contract
- Assessors / observers from GSFC, other centers / agencies and prime contractors



# SAFETY AND MISSION ASSURANCE (SMA) CODE 300



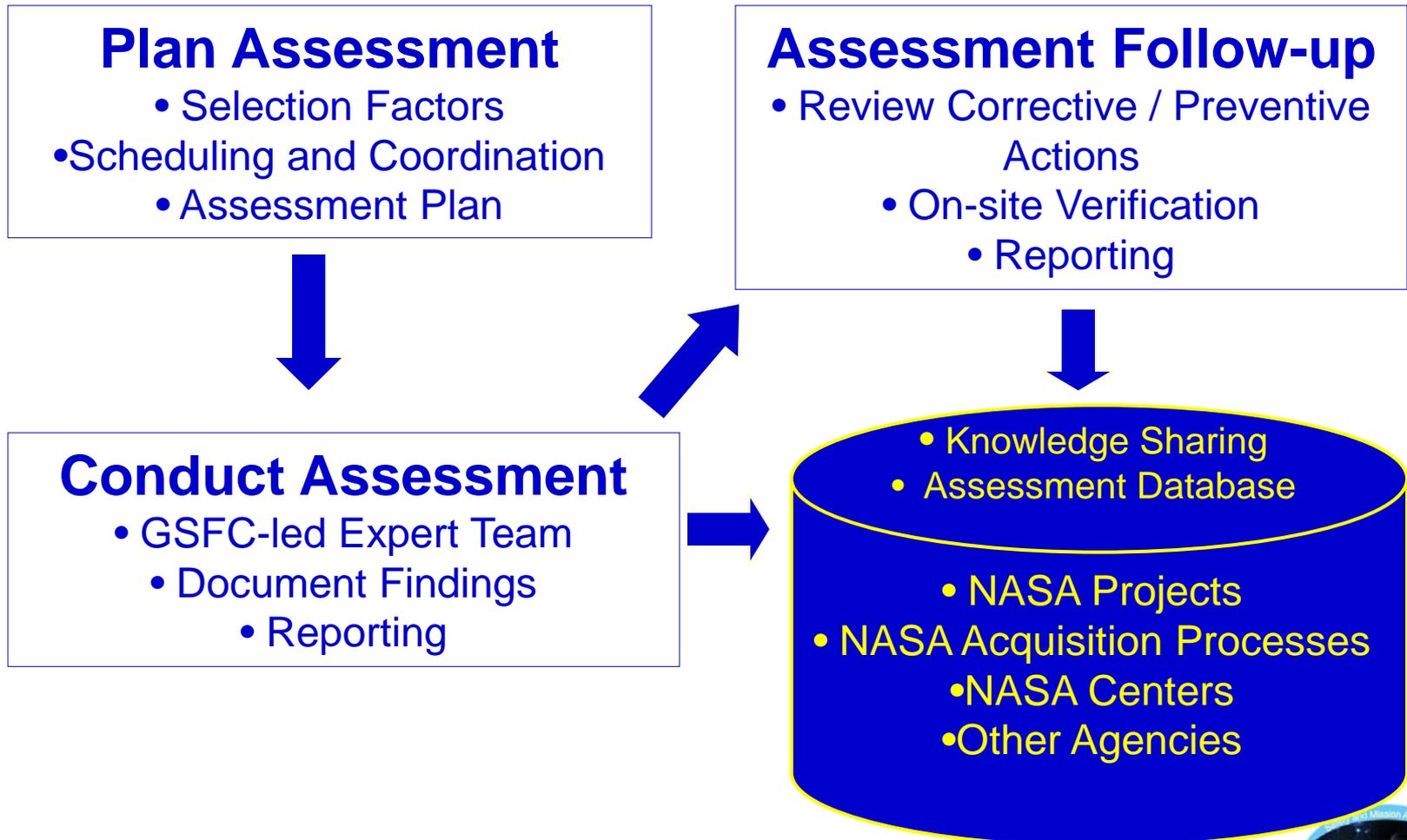
Supply Chain Management Team





# Process Overview

## GSFC Supplier Assessments





# Selection Factors / Planning

---

- Two year assessment cycle for prime / system integration contractors
- Lower-tier suppliers selected for assessment based on various considerations:
  - High-risk or critical supplier
  - Common supplier for multiple mission projects
  - New supplier
  - Supplier issue/concern elevated to senior management level
  - Project office request
- GSFC Supply Chain Management leads work upfront with NASA projects/Chief Safety & Mission Assurance Officers (CSOs), other NASA centers / agencies, suppliers, and prime contractors to plan assessments





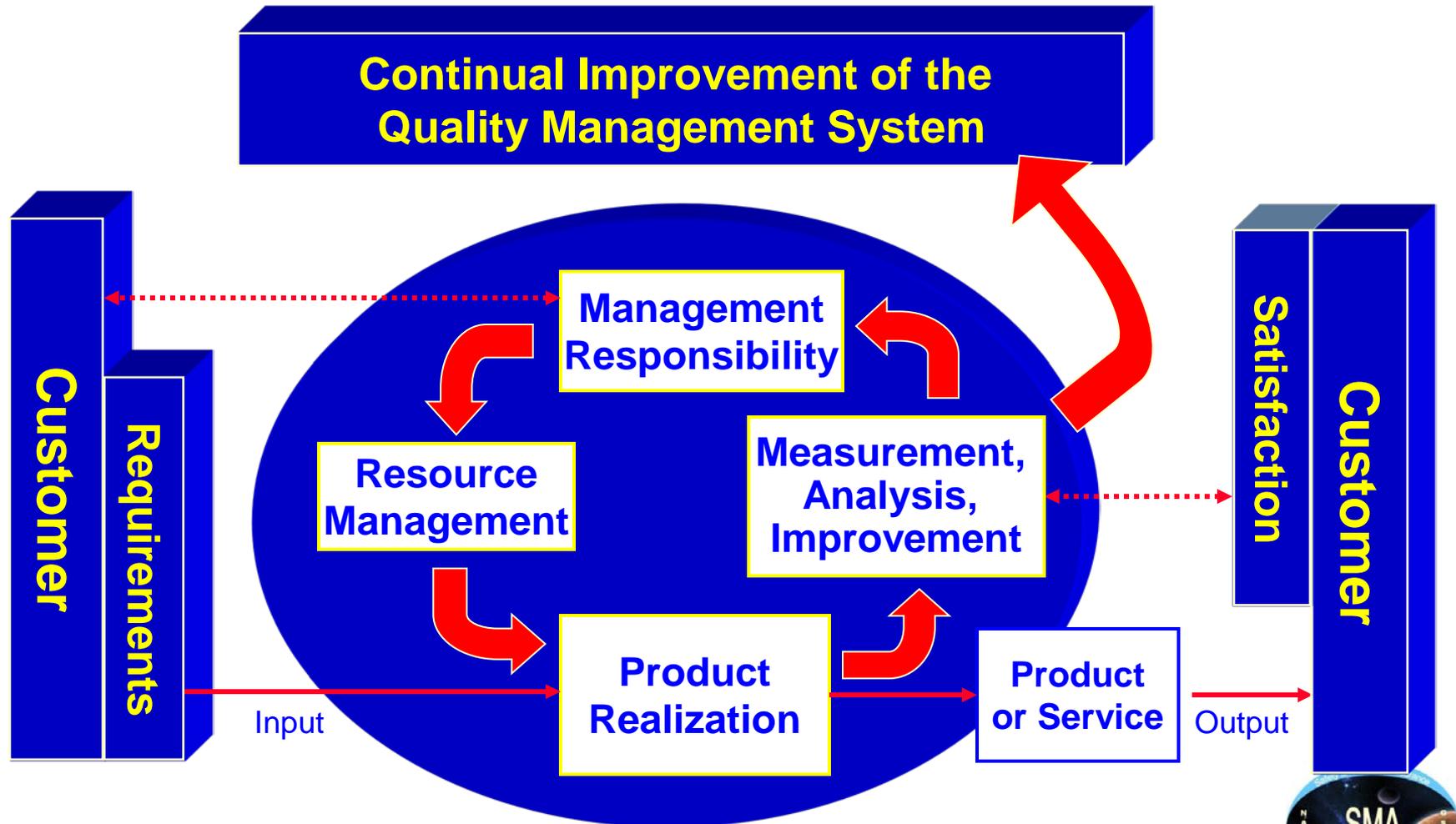
# Purpose and Scope

- Our purpose is to:
  - Assess conformance with requirements and the effectiveness of supporting processes
  - Monitor / verify corrective and preventive actions
  - Promote and assure the provision of quality products and services for NASA mission projects
- Basic scope includes the Supplier's implementation of:
  - Contractual requirements for NASA projects
  - Requirements of Quality Management Standards (i.e., ISO 9001, AS9100), as applicable
  - Supplier's Quality Management System and processes supporting the fulfillment of requirements
- Nonconformance findings based on requirements; AS9100C used as the overall analytical framework for the assessment, and as a basis for observations, positive comments and commendations.





# Quality Management Process Model





# Assessment Approach

## Highlights

---

- Assessments conducted by an expert team under GSFC Supply Chain Management leadership
- Assessment method involves review of procedures / processes, sampling of documents / records, interviews of management and personnel, and direct observation
- Findings based on requirements, sound industry practice, objective evidence, and professional judgment
- Open communication with the Supplier before, during and after the assessment
  - Assessment Plan provided in advance for feedback / revision
  - Daily debriefs and Assessment Out-Brief
  - *Open door* to address concerns throughout the assessment process; feedback on assessment team collected
  - Assessment Report provided for Supplier comment/response prior to distribution
- Supplier's corrective / preventive actions reviewed; onsite ("eyes-on") verification usually conducted





# Corrective / Preventive Action

Response to Finding (Nonconformance or Observation)

---

- **Containment Actions** taken by the Supplier, including direct or probable effect upon product / deliverable if applicable
- **Root Cause Determination** (one sentence summary)
- **Cause Analysis**, including method of analysis performed and description of cause(s) that, if eliminated, would prevent the recurrence of the nonconformity throughout the organization
- **Corrective / Preventive Action** taken / planned by the Supplier, including steps / changes to address the root cause and the full scope of the finding





# Root Cause Definition & Analysis

---

## Root Cause Definition

Root causes are events, factors or conditions that if eliminated or sufficiently mitigated through appropriate action(s) would prevent the recurrence or potential occurrence of an undesired outcome or nonconformance **throughout** the organization.

## Root Cause Analysis

- Defined analytical method(s) employed to understand the cause(s) of an undesired outcome or nonconformance in order to formulate appropriate **corrective action(s)** that will prevent the recurrence of the undesired outcome or nonconformance throughout the organization.
- Root cause analysis is used also to identify and understand the cause(s) of a potential undesired outcome or nonconformance in order to formulate appropriate **preventive action(s)** that will prevent the occurrence of the undesired outcome or nonconformance throughout the organization.
- In addition, root cause analysis is used to determine if the cause(s) and the associated real or potential undesired outcome or nonconformance are isolated or systemic.





# Assessment Report Distribution

---

- Assessment Report finalized after consideration of any supplier comments or suggested corrections
  - Identify strengths (positive comments, commendations)
  - Summarize / integrate findings, highlighting key areas for corrective action / improvement
- Distributed to the Supplier, NASA GSFC program / project offices and other NASA centers / U.S. government agencies upon request ; available for use in NASA procurement processes
- Supplier encouraged to share the report and corrective / preventive actions with its direct customers for NASA programs / projects
  - Reinforce supplier / customer communications
- Assessment report includes attached outbriefing, findings and attendance list





# Value-Added Results / Continual Improvement

---

NASA + Supplier Teamwork = Mission Success!

*Don't bother just to be better than your contemporaries or predecessors. Try to be better than yourself.*

William Faulkner

Source: Collins and Porras, *Built to Last: Successful Habits of Visionary Companies*





... or More Simply Put!

---





# Questions or Comments?

---

