Ground System Test Standard:
Replacing cancelled Mil-Std-1833

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GROUND ARCHITECTURE WORKSHOP (GSAW) 2011
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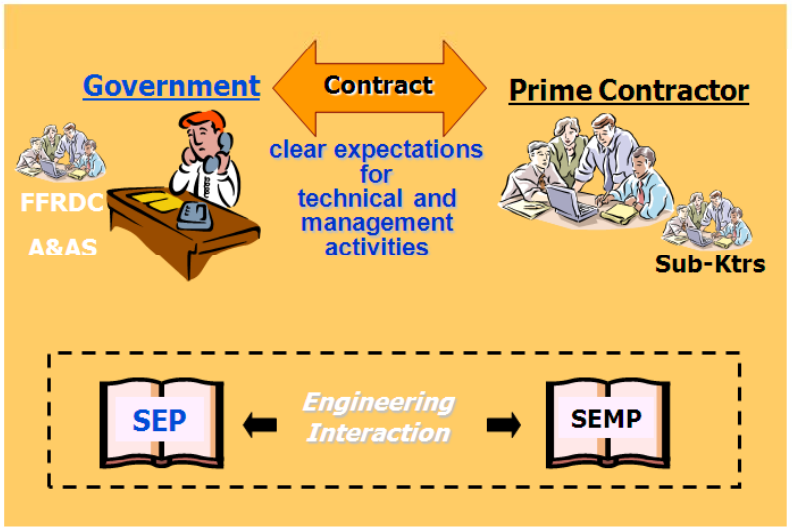
Outline

- Standards
  - *Characteristics of a Standard*
  - *Overview of SMC Standards Process*
- MIL-STD-1833
  - *Background and history*
  - *Overview of content*
- New Ground System Test Standard
  - *Overview*
  - *Status*

Specifications and Standards = Technical Practices

Source: SMC/EN briefings (various)

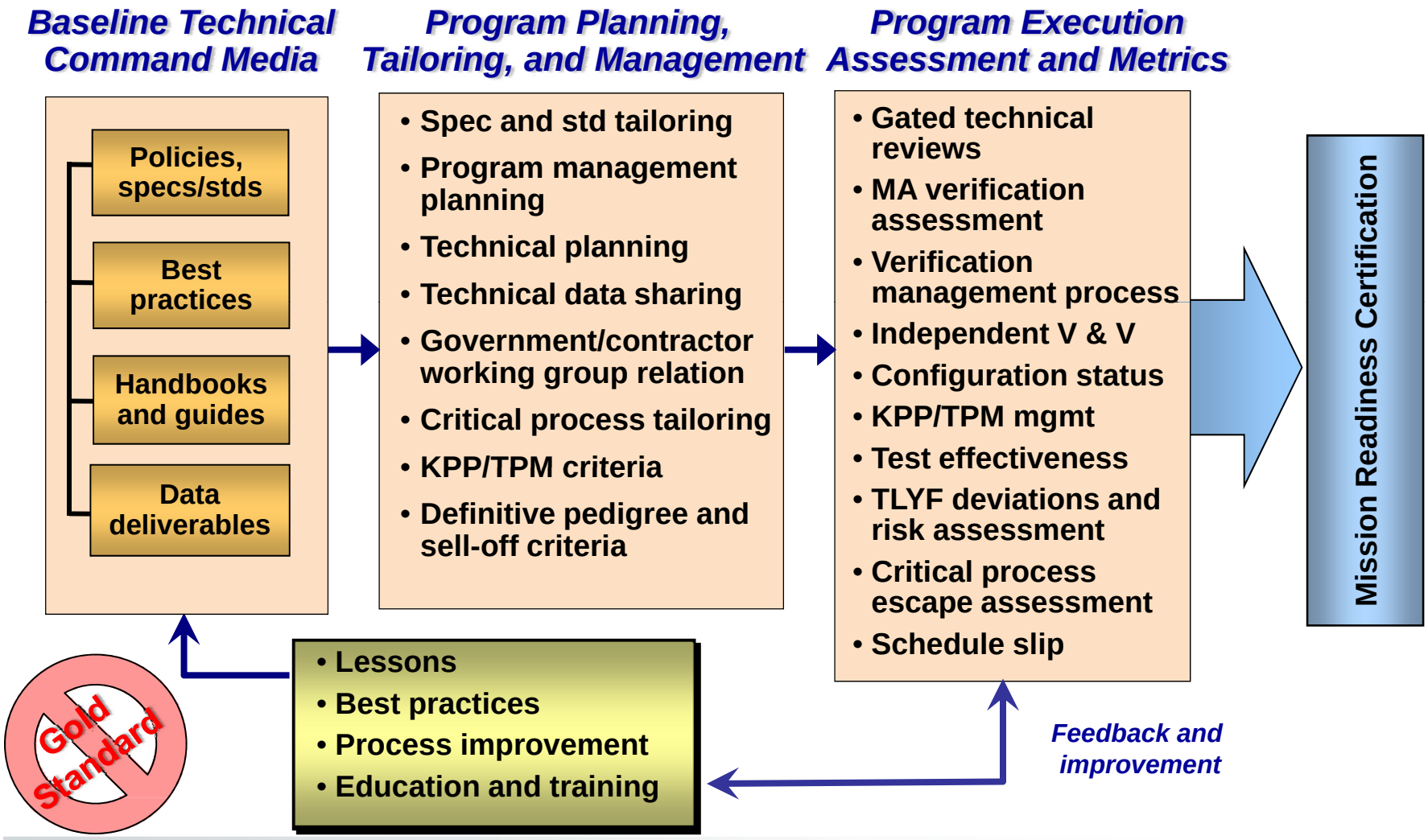
- Application of sound technical processes are at the heart of achieving successful space systems development and acquisition
  - *Systems; Subsystems; Components; Assemblies; Parts & Materials*
  - *Primes; Subcontractors; Major Vendors; Suppliers*
- Military, International and Industry standards document and capture the basis/principles of sound and effective technical practices
  - *Documents proven and accepted technical parameters and/or provides roadmap of critical technical elements of a process/Lessons Learned*
- What, not how; Products and their attributes; Design/Test criteria



Specs & Stds only enforceable if clearly specified on SMC contracts

SMC Systems Engineering Process Overview

Source: SMC/EN briefing (Col. David Swanson) presented to SMC Seniors at 2010 Off-Site meeting



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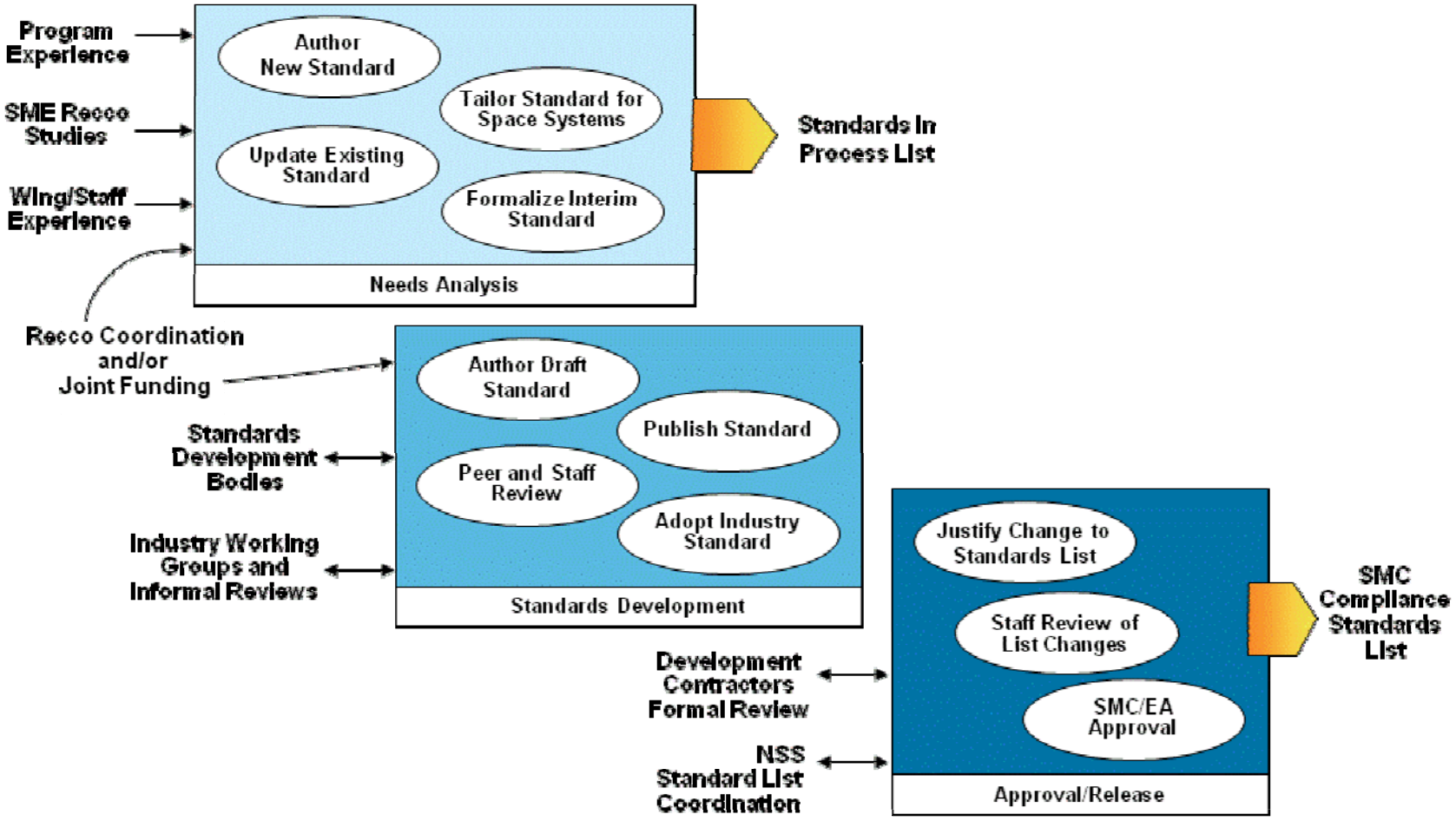
SMC Compliance Standards Development Process

Source: SMC Instruction 63-106, www.e-publishing.usaf.mil



SMC Specs and Standards Functional Areas

MANAGEMENT

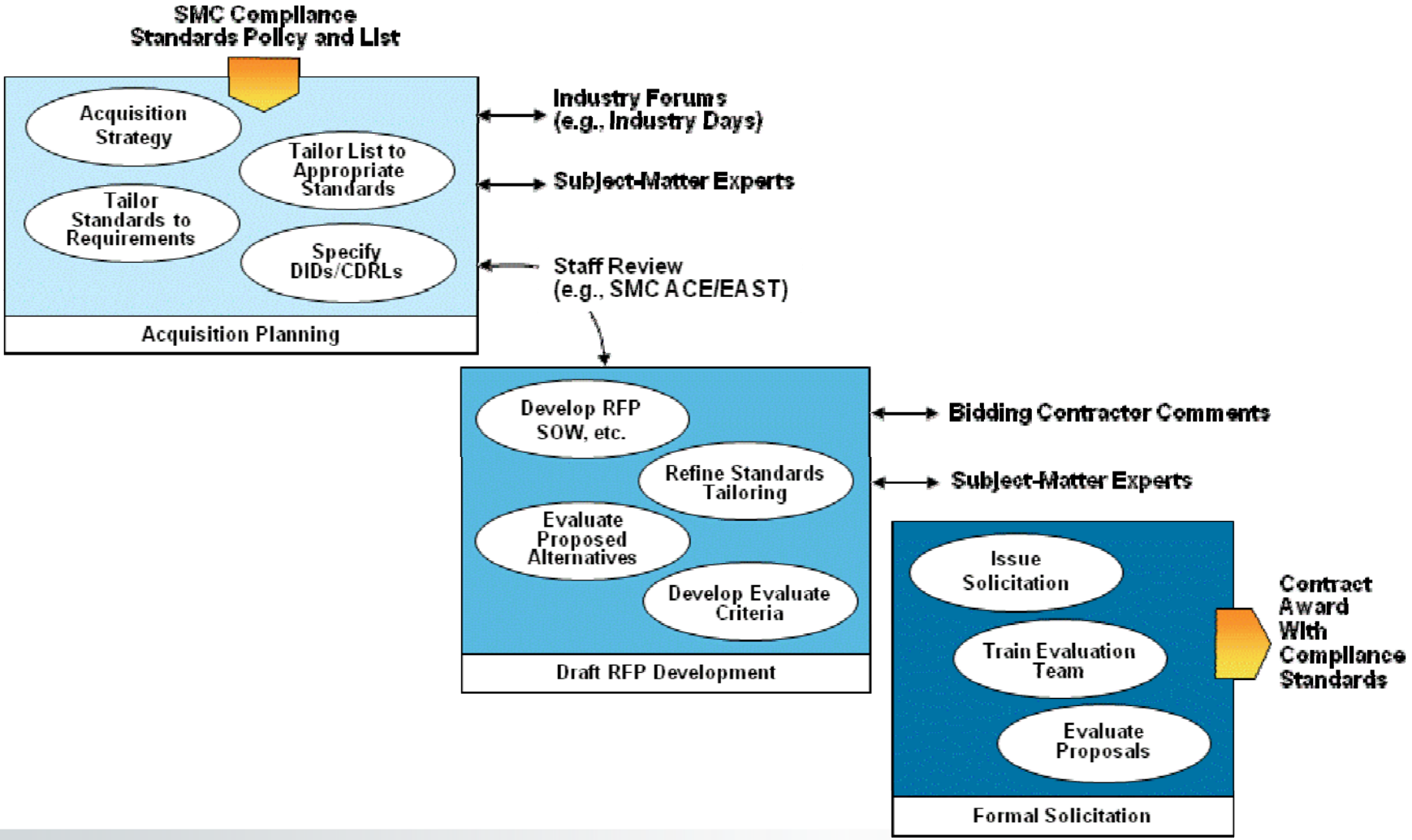
- *Program Management*
- *Systems Engineering*
- *Product Assurance*
- *Subcontract Management*
- *Design Reviews*
- *Configuration Management*
- *Manufacturing and Production Management*
- *Parts Management*
- *Risk Management*
- *System Safety*
- *Occupational Safety and Health*

TECHNICAL

- *Electrical Power, Batteries*
- *Electrical Power, Solar*
- *Electromagnetic Interference & Control*
- *Environmental Engineering; Cleanliness*
- *Human Systems Integration*
- *Interoperability*
- *Logistics*
- *Maintainability*
- *Mass Properties*
- *Moving Mechanical Assemblies*
- *Ordnance*
- *Pressurized Systems & Components*
- *Parts, Materials & Processes*
- *Reliability/Availability*
- *Information Assurance/Program Protection*
- *Software Development*
- *Structures*
- *Survivability*
- ***Test, Space & Ground***

SMC Contract-Specific Implementation Process

Source: SMC Instruction 63-106, www.e-publishing.usaf.mil



Mil-Std-1833: Background and History

Source: ASSIST Basic Profile. https://assist.daps.dla.mil

Overview

Title: TEST REQUIREMENTS FOR GROUND EQUIPMENT AND ASSOCIATED COMPUTER SOFTWARE SUPPORTING VEHICLES (NO S/S DOCUMENT)

Scope: This document establishes the test and evaluation requirements baseline for new or modified ground equipment supporting space vehicles and the associated new or modified computer software.
Status: Canceled
Document Date: 13-NOV-1989; Notice 1 (Cancellation) 04-MAY-1998
FSC/Area: 1810 **Doc Category:** Military Standard

Responsibilities

Lead Standardization Activity: 19 Space and Missile Systems Center
Preparing Activity: 19 Space and Missile Systems Center
Coordination: Limited
Air Force Custodian: 19 Space and Missile Systems Center

Mil-Std-1833: Overview of Content

- Section 4: General Requirements
  - *Test Plans and Procedures*
  - *Retest*
    - Compliance Testing
    - Integrated System Testing
    - Operational Test and Evaluations
  - *Documentation*
  - *Firmware tests*

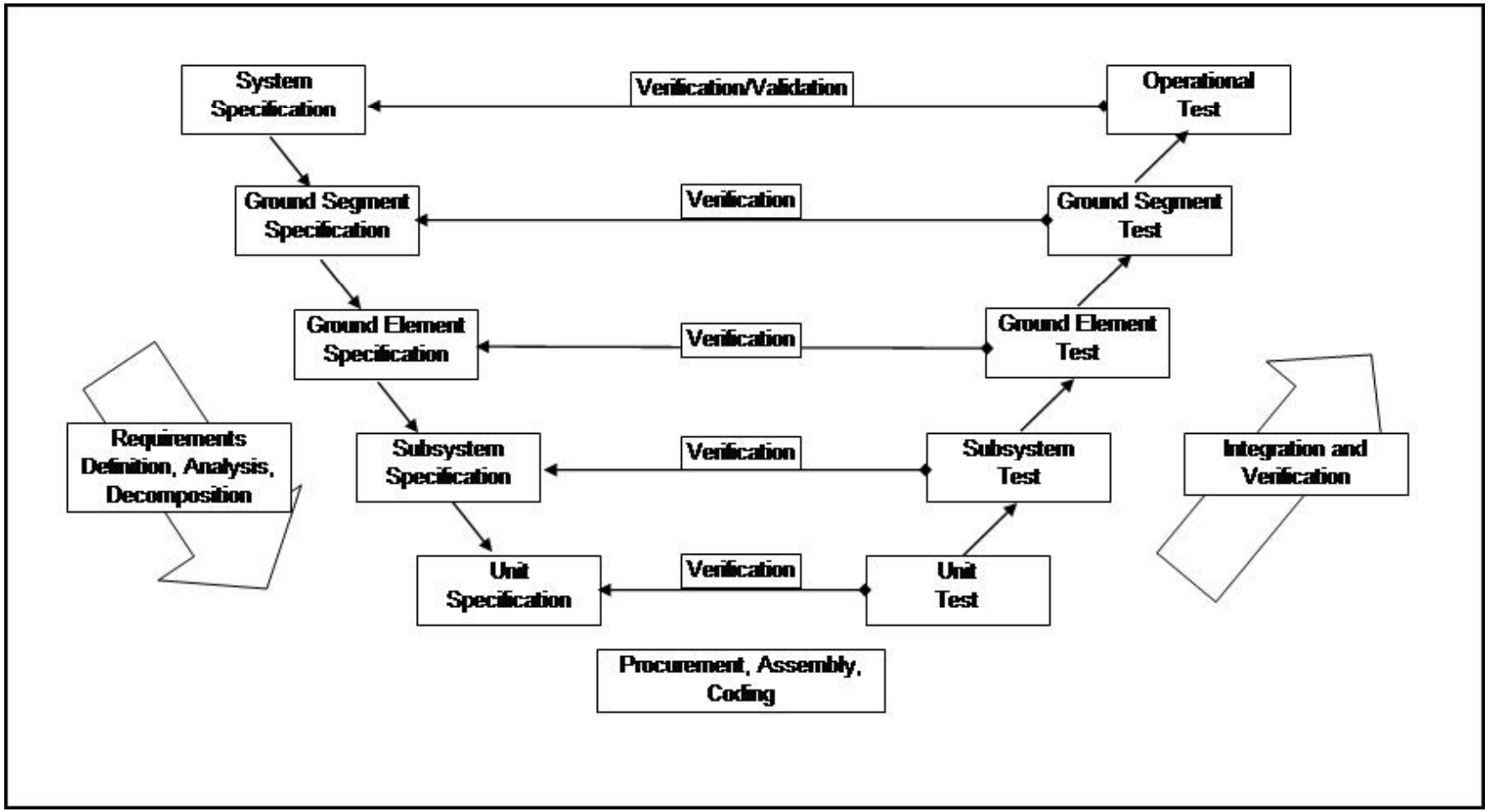
Mil-Std-1833: Overview of Content (cont.)

- Section 5: Detailed Requirements
  - *Categories of Inspections and Tests*
    - Part, Material, and Software Unit Development Tests and Evaluation
    - Component Tests and Evaluation
    - Configuration Item Compliance Tests (qualification and acceptance) including COTS and GFE
    - Integrated System Testing
    - Initial Operational Tests and Evaluations
    - Follow-on Operational Tests and Evaluations

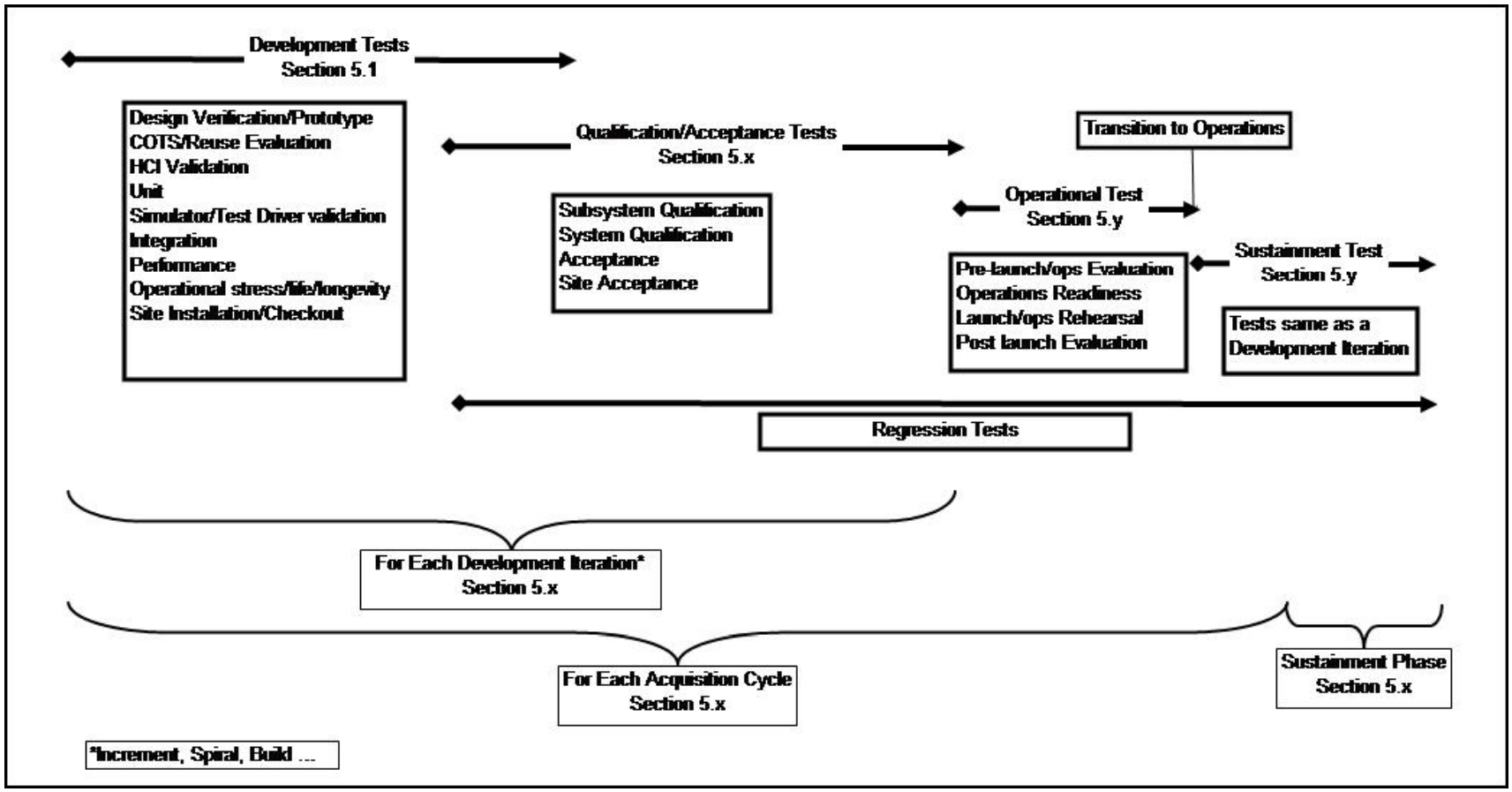
New Ground System Test Standard: Overview

- Goal: Establish a current standard for testing ground systems
  - *Update for current acquisition practices*
  - *Balance breadth and depth of requirements*
  - *Optimize requirements between associated standards*
    - Minimize redundancy
    - Eliminate differences
  - *Ensure actionable and measurable requirements*
  - *Implement "lessons learned" from years of ground system experience*
  - *And, ultimately, improve system suitability and effectiveness*

New Ground System Test Standard: Test Philosophy



New Ground System Test Standard: Test Strategy



New Ground System Test Standard: Status

- The Aerospace Corporation Internal Working Group
  - *First draft: 2010*
- The Aerospace Corporation Subject-Matter Expert review
  - *2011*
- Initial publication anticipated FY 2011
- Industry review and comment resolution
- Implement as SMC Standard
- Promulgation to higher-level standard TBD