**25th Annual Systems and Mission Engineering Conference**
**1-3 Nov 2022**

# A Rocket Scientist's Approach to Continuous Innovation and Improvement (CI2)

Continuous Innovation and Improvement
**CI2**
*How We Launch Innovative Ideas*

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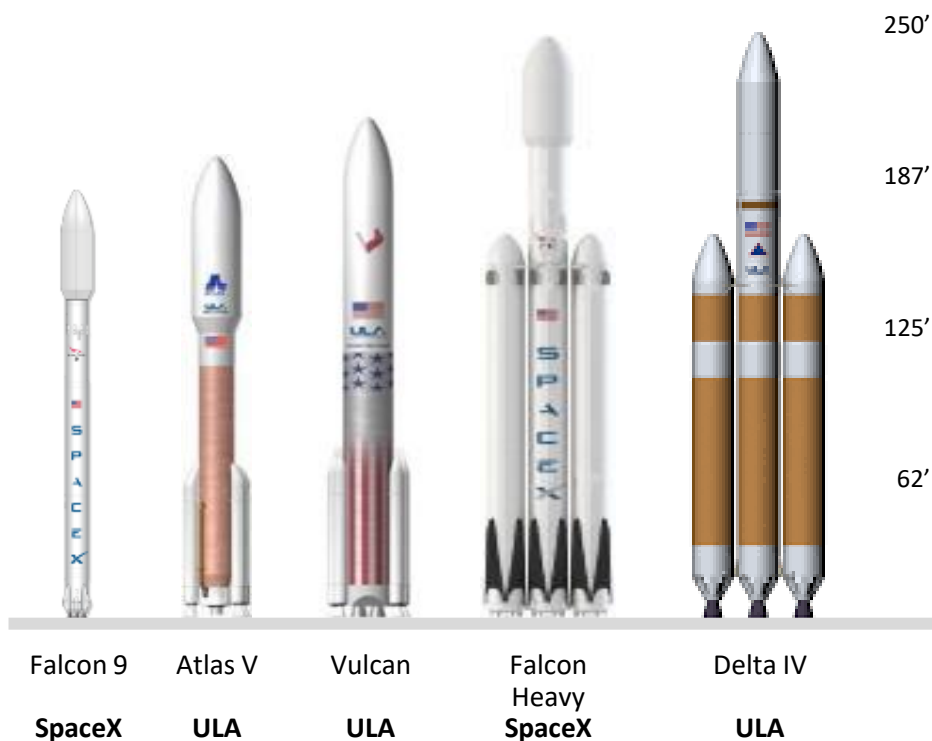El Segundo, CA
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# National Security Space Launch (NSSL)

**NSSL,** formerly Evolved Expendable Launch Vehicle (1994 to 2019), is a program of the USSF intended to assure access to space for the nation's most valuable DoD and other U.S. Government agencies' military satellites



| | |
|---|---|
| Falcon 9 | Atlas V | Vulcan | Falcon Heavy | Delta IV |
| **SpaceX** | **ULA** | **ULA** | **SpaceX** | **ULA** |

250'
187'
125'
62'

## NSSL

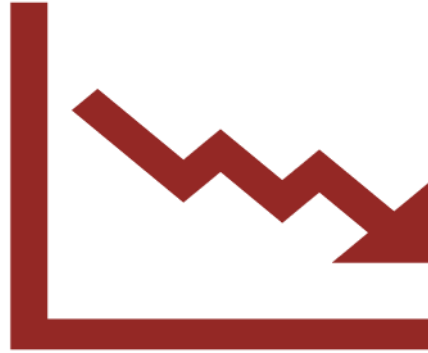*Highly reliable medium to heavy spacelift*

## Priorities

- 100% Mission success

- Assure access for current and future space architectures

- Transition National Security Space payloads to new launch vehicles

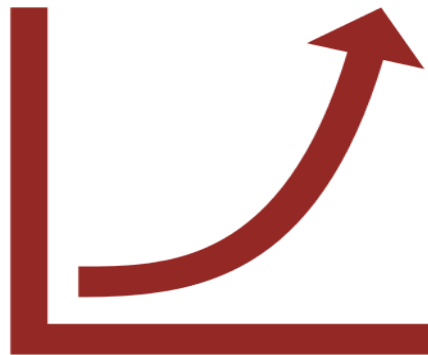- Robust Domestic Industry

- Affordability

- Operational Flexibility

# Define the Need for Change


Adversarial Threat

**Technical Staff Reduction**



**Increasing Launch Tempo**



- We need to cultivate innovative mission assurance, and accelerate the rate and magnitude of change

- We need to drive culture change

- The USSF incentivized our SE&I contractor (ManTech) to develop and operationalize a structured framework for continual innovation and improvement (CI2)

- Year one CI2 Priorities

  – Designing and standing up a robust framework to identify and manage innovations and improvements

  – Capture of existing innovation and improvement activity

  – Identification and initiation of near-term and longer-term innovations and improvements
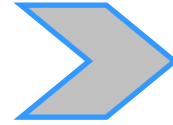
# YEAR ONE — Innovative "Change Management 101"

**Why?**

Define the Need for Change
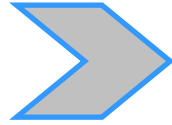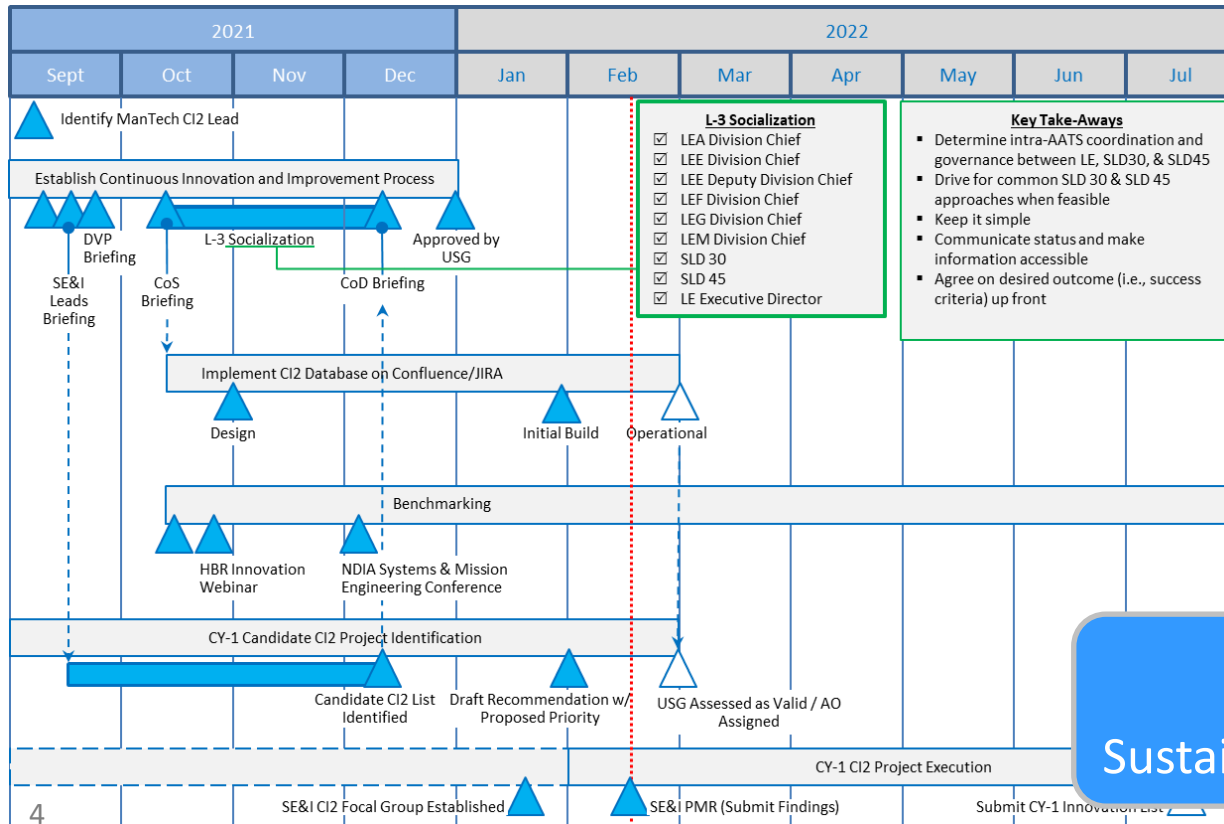
**What?**

Define the Change

**Who?**

Understand Stakeholders

**When?**



**How?**

Champion the Change

Socialize the Change

Facilitate & Automate the Change

Train About & Support the Change

Sustain the Change
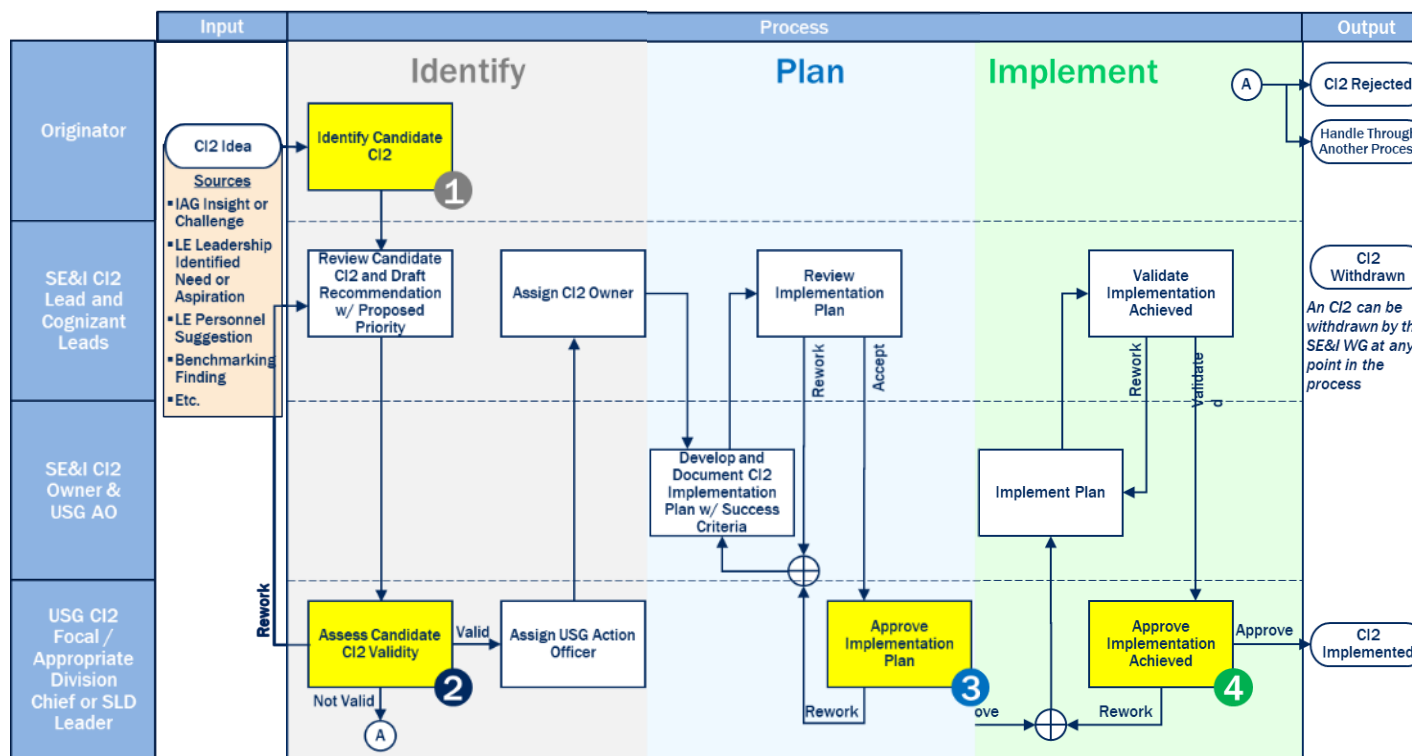
# Define the Change

**Simple**   **Transparent**   **"Appropriate" formality**   **A robust foundation for transformative change**

## APPROACH

1) Proactively Identify CI2 Ideas

2) Assess Candidate CI2 Validity

3) Approve CI2 Implementation Plans

4) Validate Implementation Achieved



## INNOVATION "TARGETS"

- On-orbit assets meet 2026 warfighter needs

- Improved enterprise process methodology that supports effective utilization of resources

- Maintaining mission success and increasing launch tempo

5

# Understand Stakeholders

**Champions**

**Decision Makers**

**Influencers**

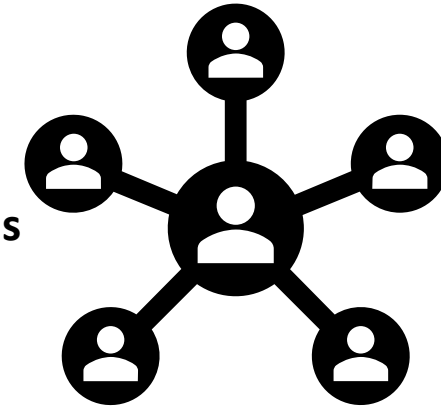**Contributors**

**Competitors/Collaborators**

**NSSL Program**
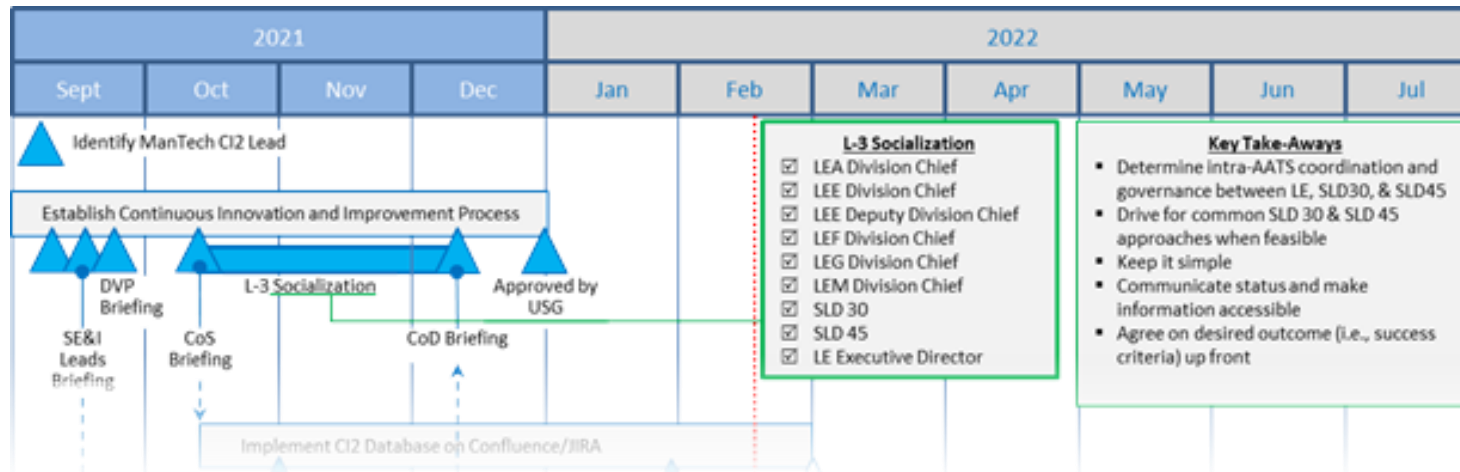USSF, Aerospace, ManTech, etc.

**Other USG Entities**
NRO, SSIO

**Launch Sites**
SLD 30 & SLD 45

**Launch Service Providers**

**ManTech Leadership**

- **Engage early and often**    - **Listen**    - **Incorporate Ideas**

| 2021 | | | | 2022 | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|
| Sept | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul |

Identify ManTech CI2 Lead

Establish Continuous Innovation and Improvement Process

DVP Briefing

L-3 Socialization

Approved by USG

SE&I Leads Briefing

CoS Briefing

CoD Briefing

Implement CI2 Database on Confluence/JIRA

**L-3 Socialization**
- ☑ LEA Division Chief
- ☑ LEE Division Chief
- ☑ LEE Deputy Division Chief
- ☑ LEF Division Chief
- ☑ LEG Division Chief
- ☑ LEM Division Chief
- ☑ SLD 30
- ☑ SLD 45
- ☑ LE Executive Director

**Key Take-Aways**
- Determine intra-AATS coordination and governance between LE, SLD30, & SLD45
- Drive for common SLD 30 & SLD 45 approaches when feasible
- Keep it simple
- Communicate status and make information accessible
- Agree on desired outcome (i.e., success criteria) up front
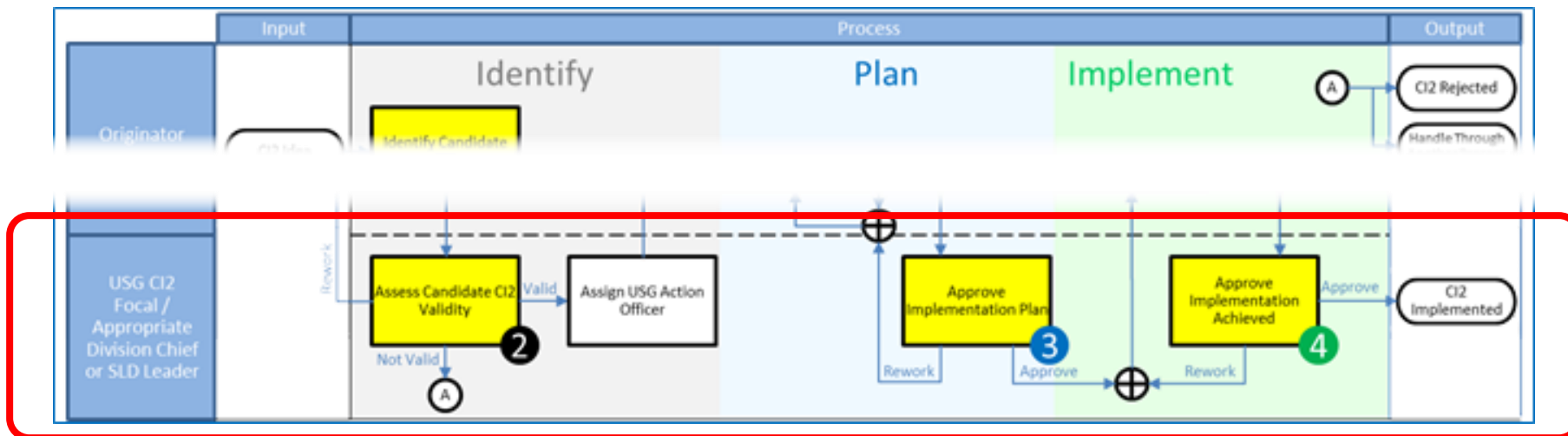
# Champion The Change

**Mr. John Steinmeyer**
Executive Director
Assured Access to Space
United States Space Force

- Provide Government oversight and authority for action

- Drive transparency and collaboration

- Empower engagement at all levels of the organization

- Establish priorities

- Advocacy for resourcing

- Encourage risk taking and recognize effort

**Mr. John Wong**
Deputy Director of Engineering
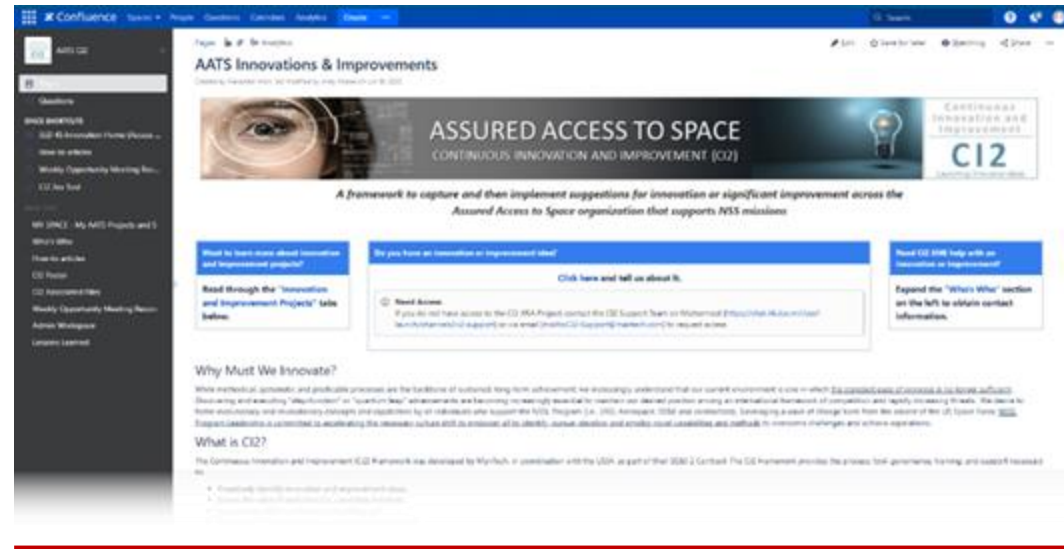Assured Access to Space
United States Space Force

# Socialize the Change



One-on-one CI2
Introductory Meetings



Internal Organizational
Marketing



CI2 Icon & Catch Phrase



CI2 Confluence Space



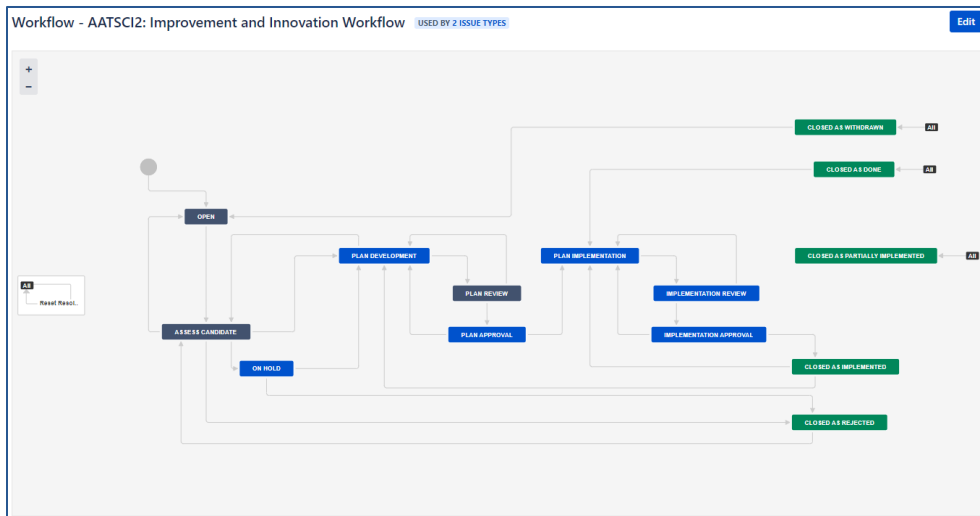Champion CI2 Email
Communications
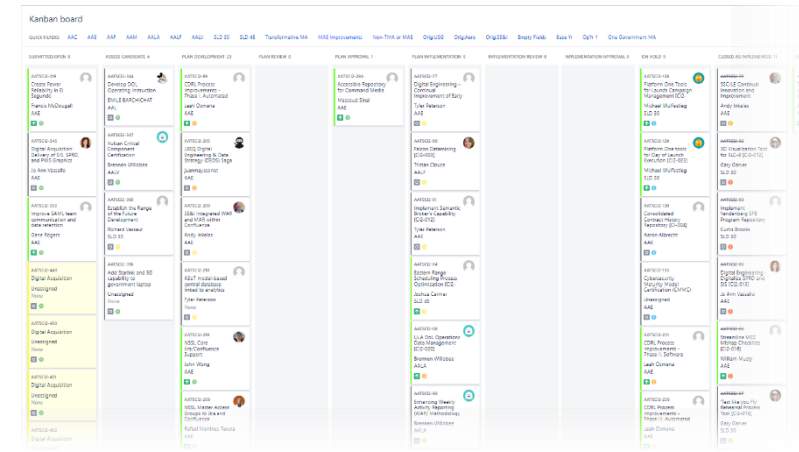


Up Front Spotlight at Weekly Program
Management "Crosstalk" Review

# Facilitate & Automate the Change



- Developed a tailored CI2 Jira Project and CI2 Confluence Space in the Program's Platform One Environment

  - Incorporates an automated workflow, which is aligned with the CI2 identify, assess, approve, and validate process

    - Supports simple initial idea capture with minimal data entry

      - Displays and reports tailored to an individual's CI2 role or area of focus (e.g., digital engineering)

        - Drives transparency of information, accountability, collaboration, and engagement
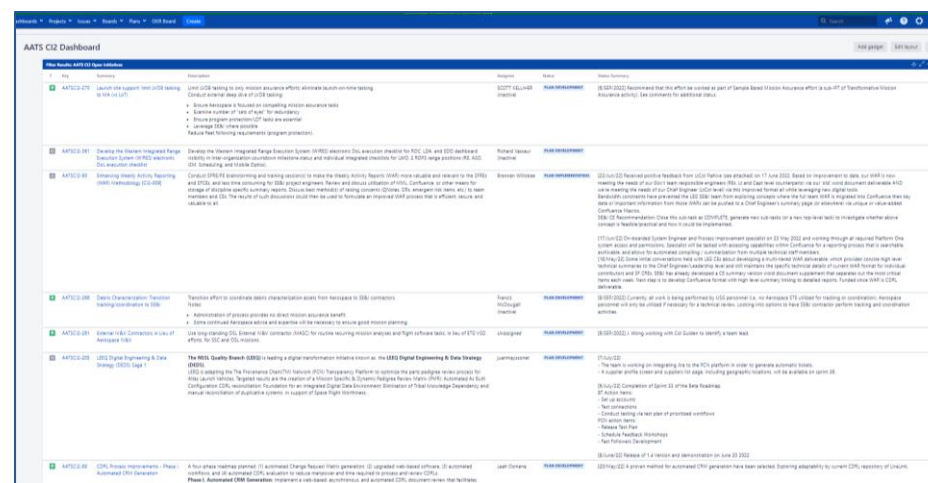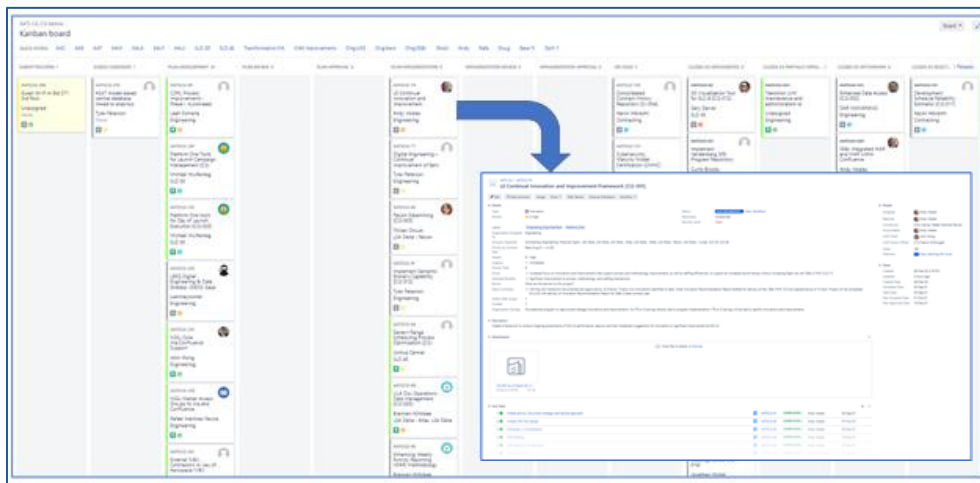
# Train About & Support the Change

## Training

- A simple and intuitive process, managed in an existing program IT platform (i.e., Platform One) resulted in minimal training or support during initial operationalization

  *Exception: Establishing PlatformOne accounts*

- Job Aids developed to assist new users with identification of a new idea within CI2 Jira

## Support

- Two equivalent persons provide proactive support

- Support team also provides the CI2 Champions with CI2 Project Management support

# Sustain the Change



**Mr. John Steinmeyer**
Executive Director
Assured Access to Space
United States Space Force

**Mr. John Wong**
Deputy Director of Engineering
Assured Access to Space
United States Space Force

*Active Champion engagement for the long run*



*Continual threat awareness (i.e., the need for change sustainment)*



*Visibility at program reviews and within leadership communications*



*Maintain process discipline and support*



*Remain engaged with the stakeholders; adjust as needed*



*Challenge the paradigm, re-assess, & evolve*



*Evolve the tool*

# Results

- Ten initiatives successfully completed in the first year
  - AATSCI2-79 – SSC/LE Continual Innovation and Improvement Framework
  - AATSCI2-82 – 3D Visualization Tool for SLC-8
  - AATSCI2-83 – Implement Vandenberg SFB Program Repository (VXPR) on Platform One Jira / Confluence
  - AATSCI2-85 – Digital Engineering - Digitalize System Performance Requirements Document and Standard Interface Specification
  - AATSCI2-86 – Streamline Mission Control Center Mishap Checklists
  - AATSCI2-87 – 'Test like you Fly' Rehearsal Process Tool
  - AATSCI2-123 – Develop New SLD 30 Training Database (Guardian Readiness Education Management & Learning Network [GREMLN])
  - AATSCI2-127 – Falcon Integrated Mission Script Standardization
  - AATSCI2-132 – SSC/LE tailored CUI Markings Guide
  - AATSCI2-181 – Electronic Consolidation of Launch Safety Information

- Most initiatives required no additional funding

- CI2 Framework briefed to and actively supported by Major General (select) Steven Purdy, USSF Assured Access to Space Program Executive Officer

## CI2 Confluence Space



**Current Status** (as of 20 Sept.)

Ideas being generated (3)
Ideas being evaluated (4)
In plan development (23)
In plan implementation (9)
On hold (9)
Closed as implemented (11)
Closed as partially implemented (1)
Closed as withdrawn (6)

12

# In Summary

☑ **Require Transparency**

☑ **Enable the Workforce**

☑ **Manage Change**

☑ **Champion the Change**

☑ **Continue to evolve**

# Questions?