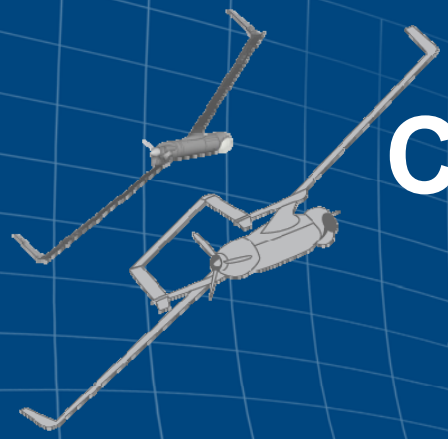
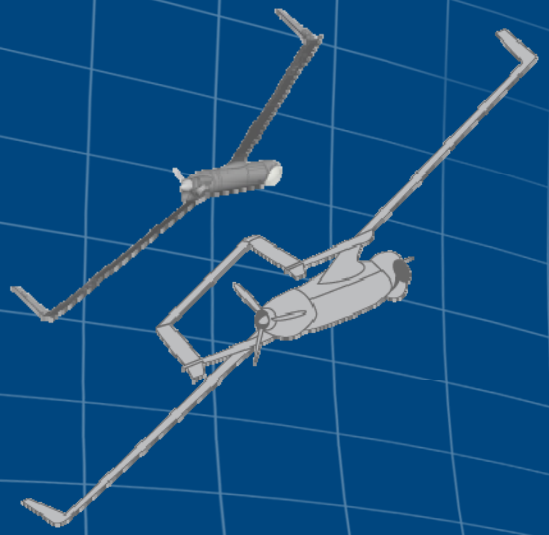


CMII Change Process and Aras Innovator in 60 Days

Insitu, Inc. (a Boeing Company)

24th Annual CMII Conference



Introduction

Boeing Insitu Snapshot

- **Leading provider of Small Long-Endurance Unmanned Aircraft Systems (UAS) and Services**
  - **Developer of ScanEagle System**
  - **Over 500,000 Flight Hours (4th Most in US Fleet)**
- **Major Customers:**
  - **U.S. Marine Corps**
  - **U.S. Navy**
  - **Australian Defense Force**
  - **Canadian Defense Forces**
  - **USAF, DoD Customers, etc.**
- **Strong Track Record of Historical Growth**
- **800+ Highly Qualified Employees**
- **Proprietary IP and technology partnerships**
- **Location: Columbia Gorge (near Portland, OR)**

INSITU

Boeing Insitu Products & Services

Product Lines

Unmanned Aircraft

Launchers

Retrievers

Ground Control Station

Services

- Demos & Site Surveys
- Training
- Installations & Set-Up
- Deployment Operations
- Custom Engineering
- Specialized Payloads

Tested and Proven

Captain Richard Phillips alongside ScanEagle crew aboard USS Bainbridge

Where We Were

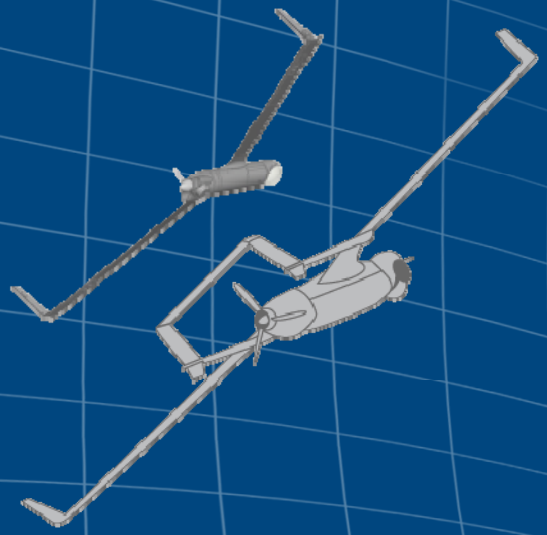
- Change in Design (CID) process issues
  - Paper form – very manual, disconnected data
  - Slow and cumbersome
  - Large design change packages = bottlenecks
  - Difficult to perform impact analysis
  - Manual checks
  - Lack of visibility of change status

Yuck!

The Goal & The Challenge

- **The Goal**
  - Speed up the release process, and
  - Provide for formal change control earlier in the design process

- **The Challenge**
  - Implement the following in Aras Innovator in 60 days:
    - Part Master
    - Engineering Bill of Materials (EBOM)
    - Problem Reporting (PR)
    - Engineering Change Request (ECR)
    - Engineering Change Notice (ECN)

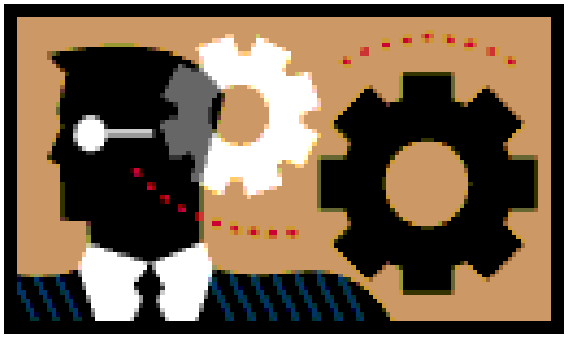


The Journey

(more like The Sprint)

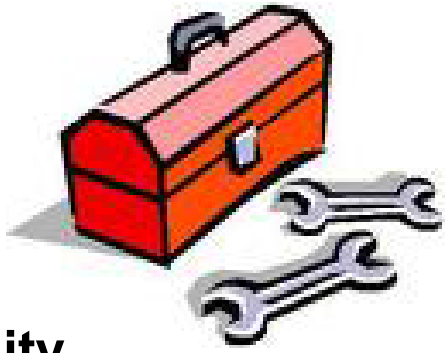
Develop the Process

- **Develop the Process:**
  - **Process development led by CMII-trained personnel**
  - **Assembled a multi-disciplined team, with representatives from each affected department**
  - **Used CMII as the process model and made tweaks from there**
    - **Identified the deltas:**
      - **CID Process vs. CMII Process**
      - **CID Form vs. PR/ECR/ECN Forms**
  - **Defined requirements**
  - **Got buy-in!**



Implement the Tool

- Tool team comprised of Aras Innovator-trained personnel and an Aras consultant
- Learned the OOTB functionality of the Product Engineering solution, which implements the CMII change process

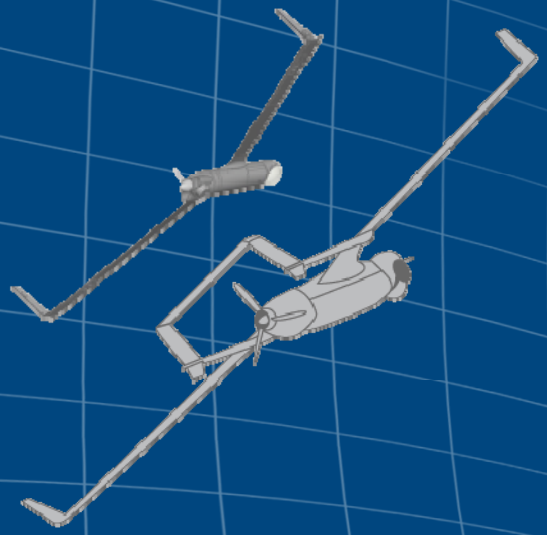


- Trained the primary users (CM) on OOTB functionality
- Worked in parallel with process development – required tight collaboration with the process team
- Configured/customized as necessary – 140 item changes
- Migrated the data – 13,000 parts cleansed, formatted, migrated and validated
- UAT, UAT and more UAT

Train and Roll Out

- Developed training materials
  - Part I – General tool usage
    - Logging on, general navigation, searching, features, logging off
  - Part II – Process
    - Parts, EBOMs, PR, ECR and ECN
- Hands-on training with user exercises
- 160 users trained

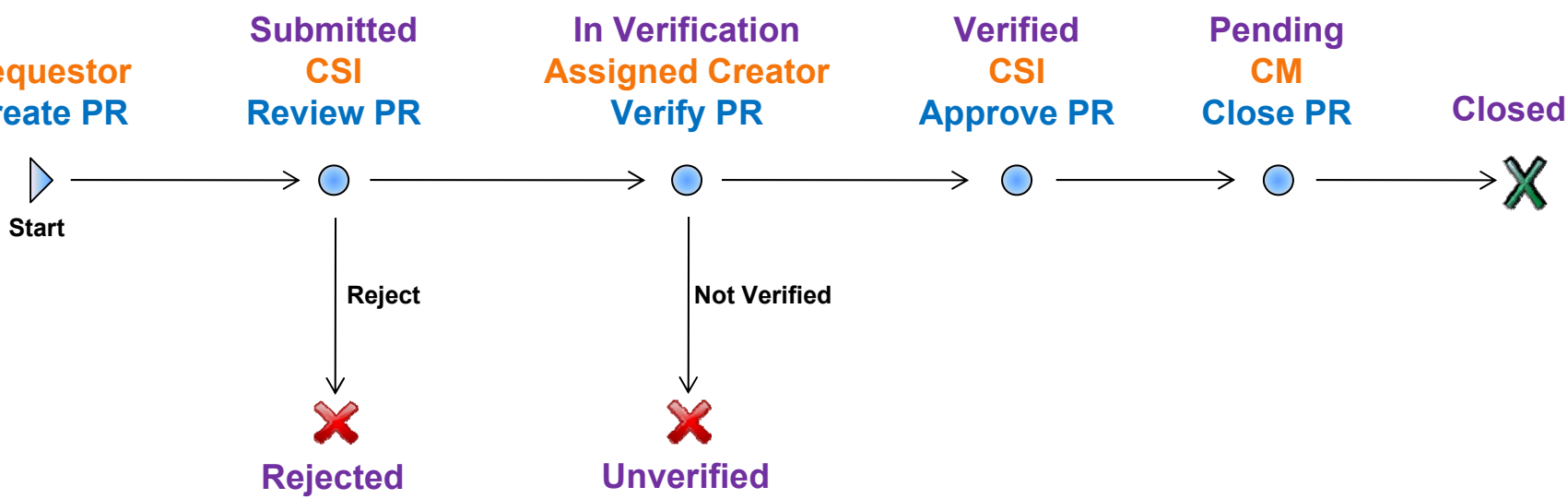
- Rollout was a success and scarily quiet!
- Continue to release updates as necessary
  - First update occurred two weeks after rollout
  - Second update was four weeks after that



Demo

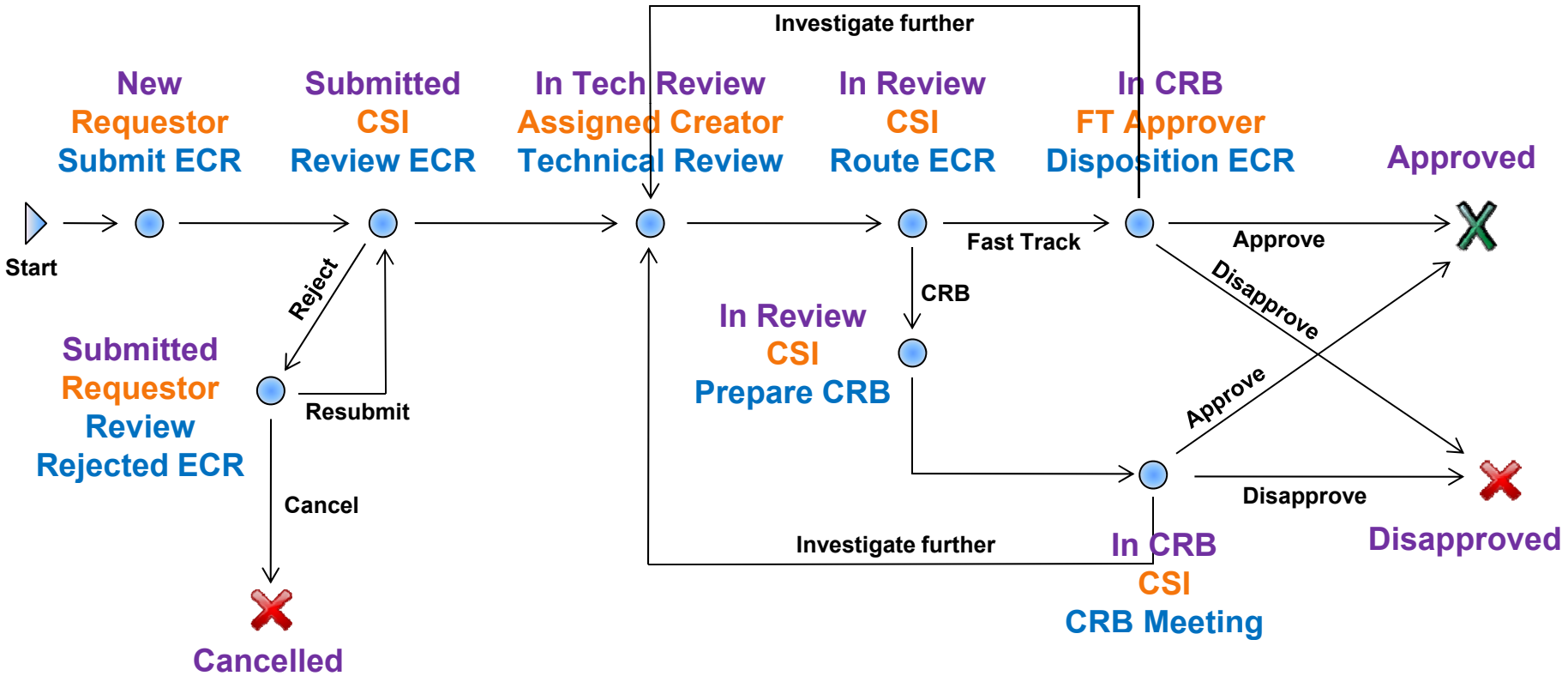
Problem Report (PR) Workflow

Legend:
- PR state
- Responsible Party
- Activity



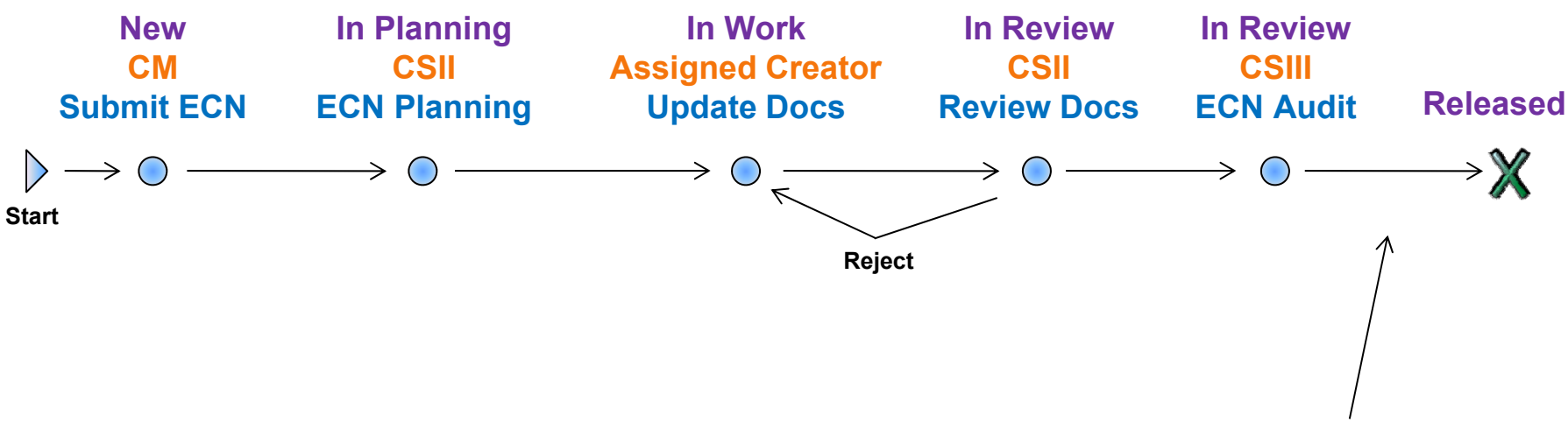
Engineering Change Request (ECR) Workflow

Legend: ECR state
Responsible Party
Activity



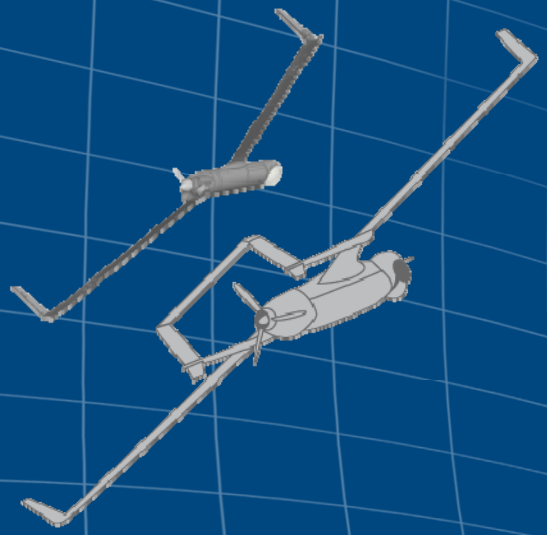
Engineering Change Notice (ECN) Workflow

Legend: ECN state
Responsible Party
Activity



Aras Innovator promotes New items to Released state

Aras Innovator promotes Old items to Superseded state



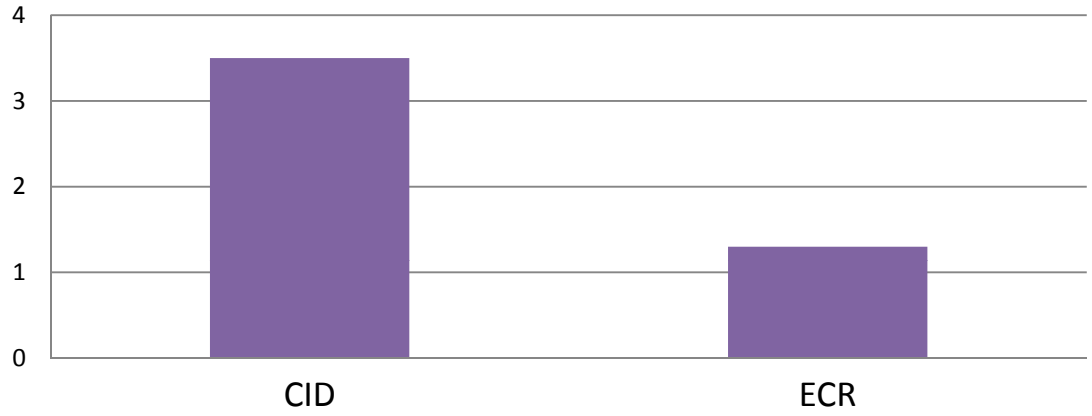
Results

Achievements

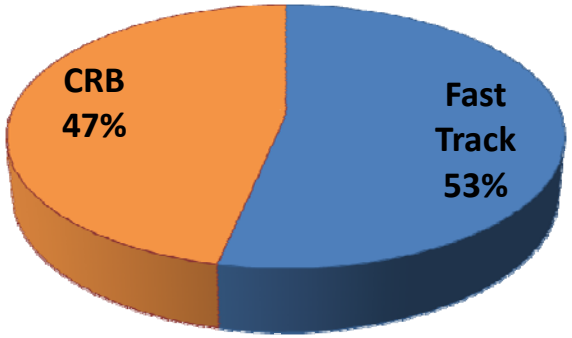
- Early release of long-lead items
- Release from the bottom up vs. all at once
- Where-used visibility and ability to perform impact analysis
- Fast-track release vs. a required meeting
- Formal release and control of the design at point of purchase vs. at release for production
- Searchable and linked information
- Ability to easily build upon the base system put in place

Metrics – The Proof!

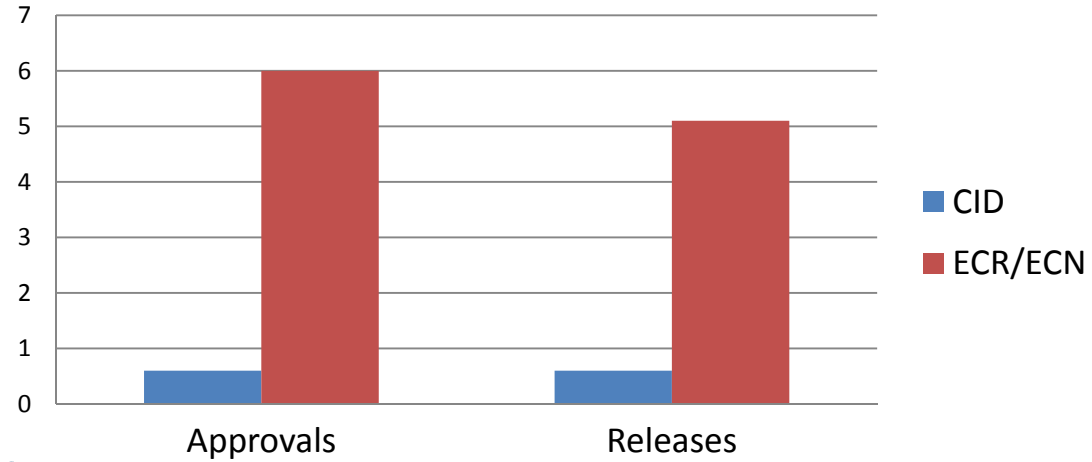
Avg # Days/Part from Submittal to Approval



Fast Track vs. CRB



Avg # Approvals & Releases per Week



Key Elements of Success

- Executive support from the top
- Project sponsor
  - Set schedule and committed to it
  - Provided business resources
- Project team
  - Business reps: CMII certified, committed to the project, willing to adopt the tool mainly out-of-the-box
  - Tool reps: Trained in Aras Innovator, knowledgeable on Engineering and CM processes (some CMII certified), Aras developer
  - Daily morning meetings
- Formal training provided to the user base, both on the new process and the new tool
- Tool is easily configurable, easily customizable, and very intuitive

The Goal & The Challenge

- **Did we reach The Goal?**
  - **Speed up the release process**
    - ☑ **Yes! Less time in corrective action = faster release**
  - **Provide for formal change control earlier in the design process**
    - ☑ **Yes! Release at point of purchase, not production introduction**

- **Did we meet The Challenge?**
  - **Implement in 60 days**
    - ☑ **Yes! 4/11/11 - 6/6/11 = 56 days**

      (including data cleansing, formatting, migration and validation)