

# V&V Challenges, Successes, and Ideas for Improvement an In-Service Management View



Federal Aviation  
Administration

**Presented to:** Verification & Validation Summit #5

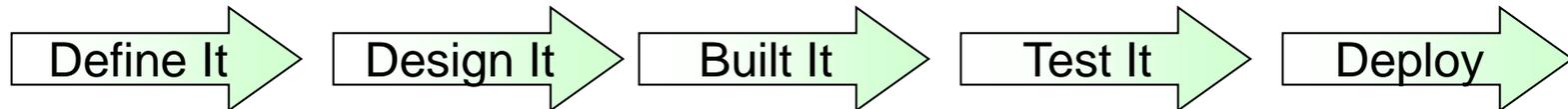
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# ISM Verification Processes

ISM Approach:



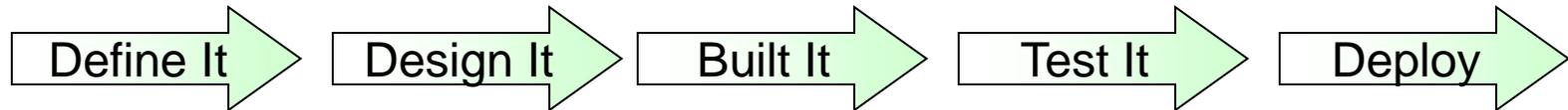
## Good verification processes

- T&E Gold Standard is a good verification process
- Each phase has its own verification effort
- Test results are a vital component of the Decision to Deploy
- Peer Reviews of work products for technical accuracy



# ISM Validation Processes

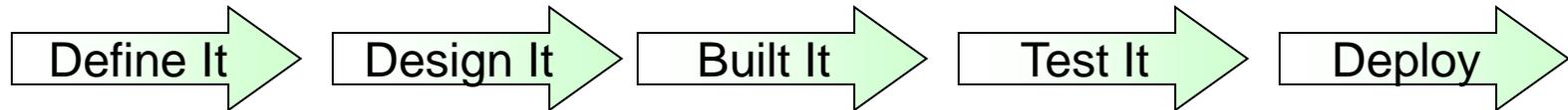
ISM Approach:



- **Validation is part of the process**
  - NAS Change Proposal (NCPs) are typically validated
  - Operational assessments/evaluations conducted for changes
- **Validation processes are less solid**
  - Operational requests for changes are often assumed to be valid
  - Changes are not always re-validated through each phase
  - T&E Gold Standard and AMS are vague on validation efforts
  - Original validation history is often lost over time

# Example Validation Issue

ISM Approach:

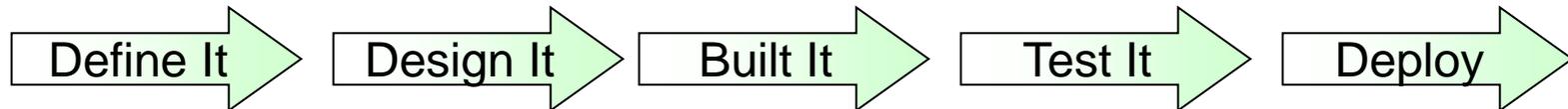


- **System X had a Problem Trouble Report (PTR)...**
  - The problem was not directly linked to any requirement
  - The PTR seemed reasonable
    - taking numerous hours to change, verify, and deploy
  - In the end, the request was not valid
    - taking more hours to remove, re-verify, and re-deploy
- **The lessons learned**
  - Do not assume all user requests/problems are valid
  - Ensure changes are validated against the original need
  - Carry forward information to ISM



# Why is V&V important during ISM

ISM Approach:

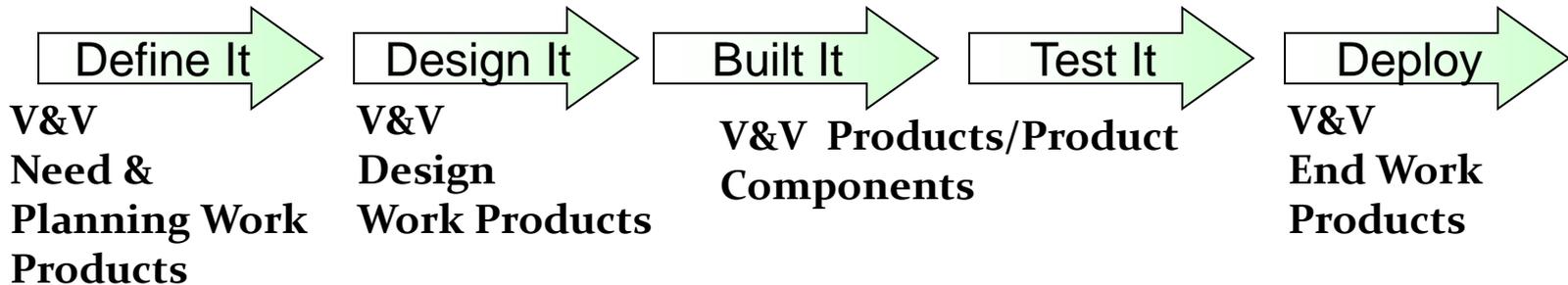


- **Avoiding unnecessary operational impacts**
  - V&V helps ensure operational needs are met
- **Systems are part of an integrated service**
  - More and more systems are not stand alone in providing a service
  - V&V is also needed for the service
- **New capabilities are planned using existing systems**
  - Need to validate system changes against the future needs/requirements



# Moving forward...

ISM Approach:



- **Clearly define Verification and Validation activities**
  - Clearly identify and perform V&V during each phase
  - Ensure the activity is about having the “right” system/service
  - Factor in future needs as part of the V&V activity
- **Create a seamless approach**
  - Carry forward V&V information from each AMS phase
  - Carry forward V&V information from each ISM phase