

## DO-178B Assessments

Thank you to the group!!

Special thanks to:  
Tammy J and Dave O

# DO-178B Assessment

- Purpose
- Objectives
- Potential Strategies
- Potential Benefits (industry and FAA)
- Potential Methods
- Criteria

# Purpose

## **Address the recommendation that:**

“The FAA should require companies providing software for airborne or ground-based systems to demonstrate acceptable competence in DO-178B. The FAA should use DO-178B competence as a factor in establishing level of involvement in software assessment activities.”

## **Develop an approach to:**

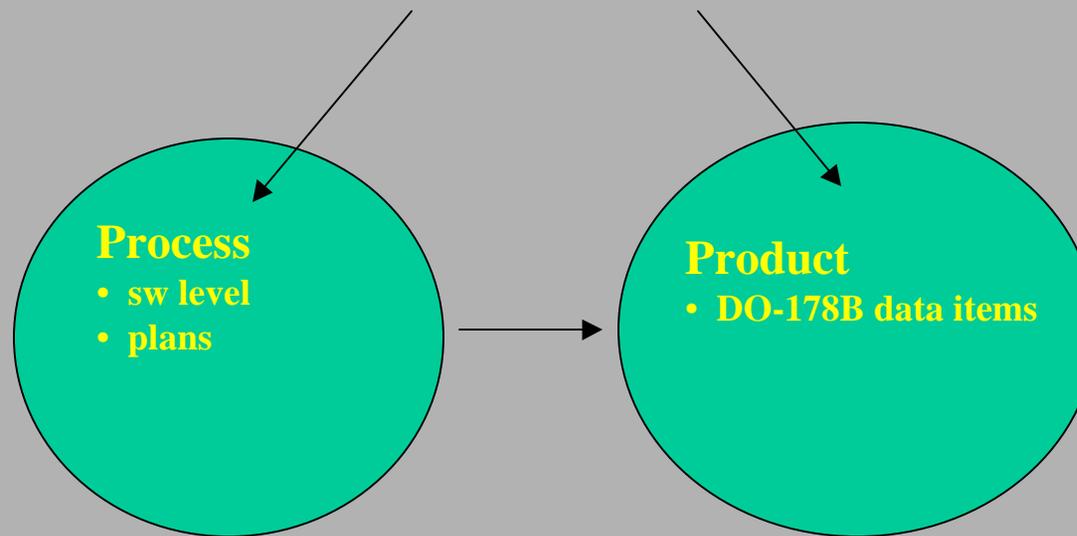
assess capability and still streamline the software aspects of certification, by maximizing the effectiveness and benefit of a given assessment across multiple certification projects.

# Objectives

- Determine Software Development and DO-178B knowledge base (airborne and ground developers, and designees.)
- Determine effectiveness in applying that knowledge.
- Assure that an assessment is valid for each project that takes advantage of that assessment.
- Develop unified policy and guidance for assessing DO-178B capability of airborne and ground-based systems developers.

## Current Certification

( Process + Product )



**Question:** If you use the same Process box for development A, can you reduce certification oversight, or make inferences regarding development B?

# Strategies

## Initial Assessment

- Set of criteria to determine DO-178B knowledge

## Historical Perspective

- Analysis of past performance as an indicator of future performance

# Initial Assessment Process

- Criteria needs to be established to determine what DO-178B knowledge is required by job function (SQA, CM, etc.) For example a software engineer may also need some Cm capability, but not necessarily all).
- The team will need to be composed of people that combined have knowledge of all applicable DO-178B objectives.
- Can be demonstrated through training records, or administered in person.

## How do you show DO-178B Competency?

- For a select set (chosen at random) of DO 178B's objectives:
  - State what are acceptable methods to accomplish the objective
  - Ask whether certain methods are acceptable for the objective
  - Give specimen artifacts and ask to demonstrate objective using in-house/planned tools and techniques
- Might be part of a local training program, not necessarily administered by the FAA.

# Results of Training or Personally Administered Assessment

- Results contribute to the determination of the number or type of audits
- Need to quantifiably define the impact of results on the level of FAA involvement.

# Assessment Data

- Technical assessment by training records or examination
- Management capability assessment by CMM like approach
- Maintenance of capabilities monitored during development by DER

## How do you show DO-178B Competency?

- Premise - Past performance can be an indicator of future performance

# Historical Assessment Process

- Develop a historical record of program performance at program audit points and system and software application attributes. This may be achieved through on-going and/or periodic evaluations.
- Define attributes of new system and software application.
- Analyze historical record to determine presence of applicable trends.

# Results of Historical Assessment

- Results contributes to the determination of the number or type of audits
- Need to quantifiably define the impact of results on the level of FAA involvement.
- Need to quantify define what constitutes a trend

# Assessment Data

- Technical assessment by objective evidence collected over several certification projects.
- Formal capture and agreement of audits results.
- Manage data by company or FAA.

## Benefits of Either Assessments

- Potential reduced FAA involvement -- less industry preparation time required for FAA reviews
- Apply FAA resources where they are most needed
- Faster certification due to reduced FAA workload
- Faster cert since developer starts and stays on track

# Assessment Criteria

- Planning
- Development
- Verification
- QA/CM

# Assessment Methodology

- Structure - General to specific
- Technique - Open ended to direct
- Content - combination of iCMM and Job Aid with the elimination of subjective terminology