

# The What, When, Why and How for CMMI Training

## AVISTA

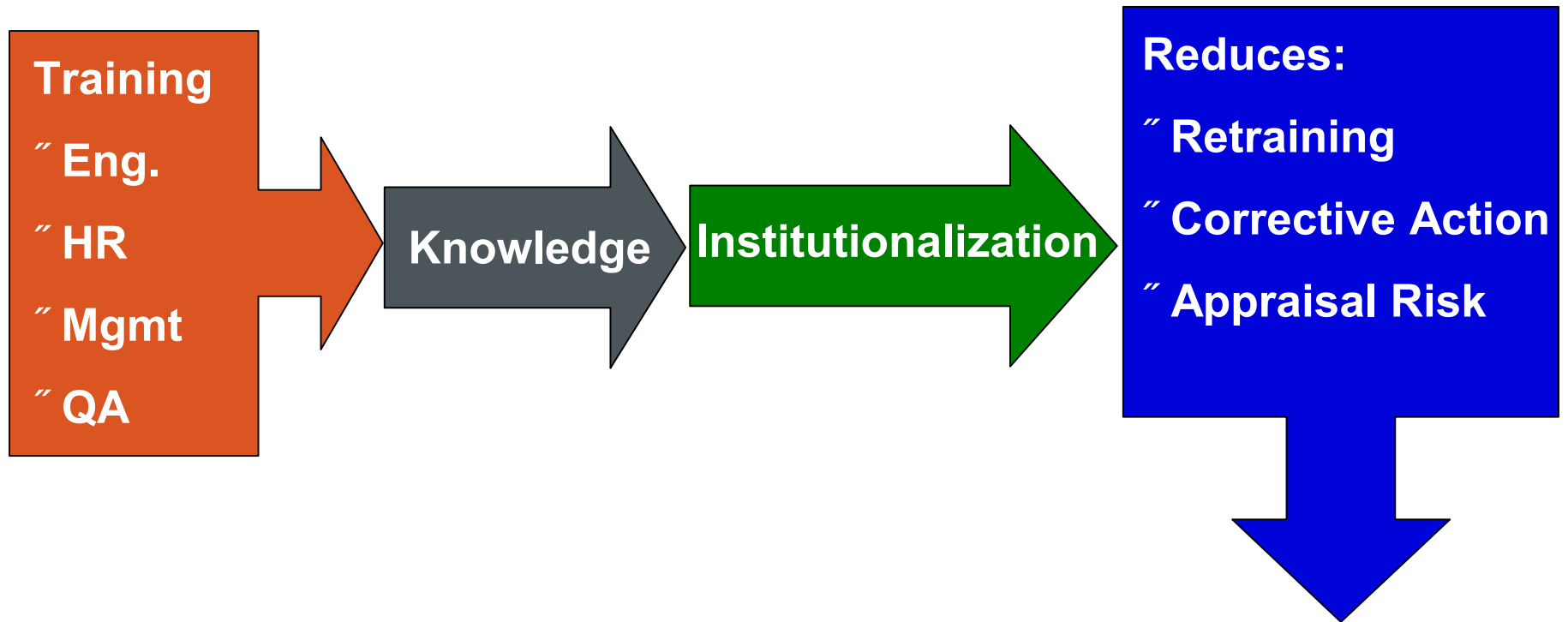
**People. Process. Promise.**

CMMI® Technology Conference  
November 12-15, 2007

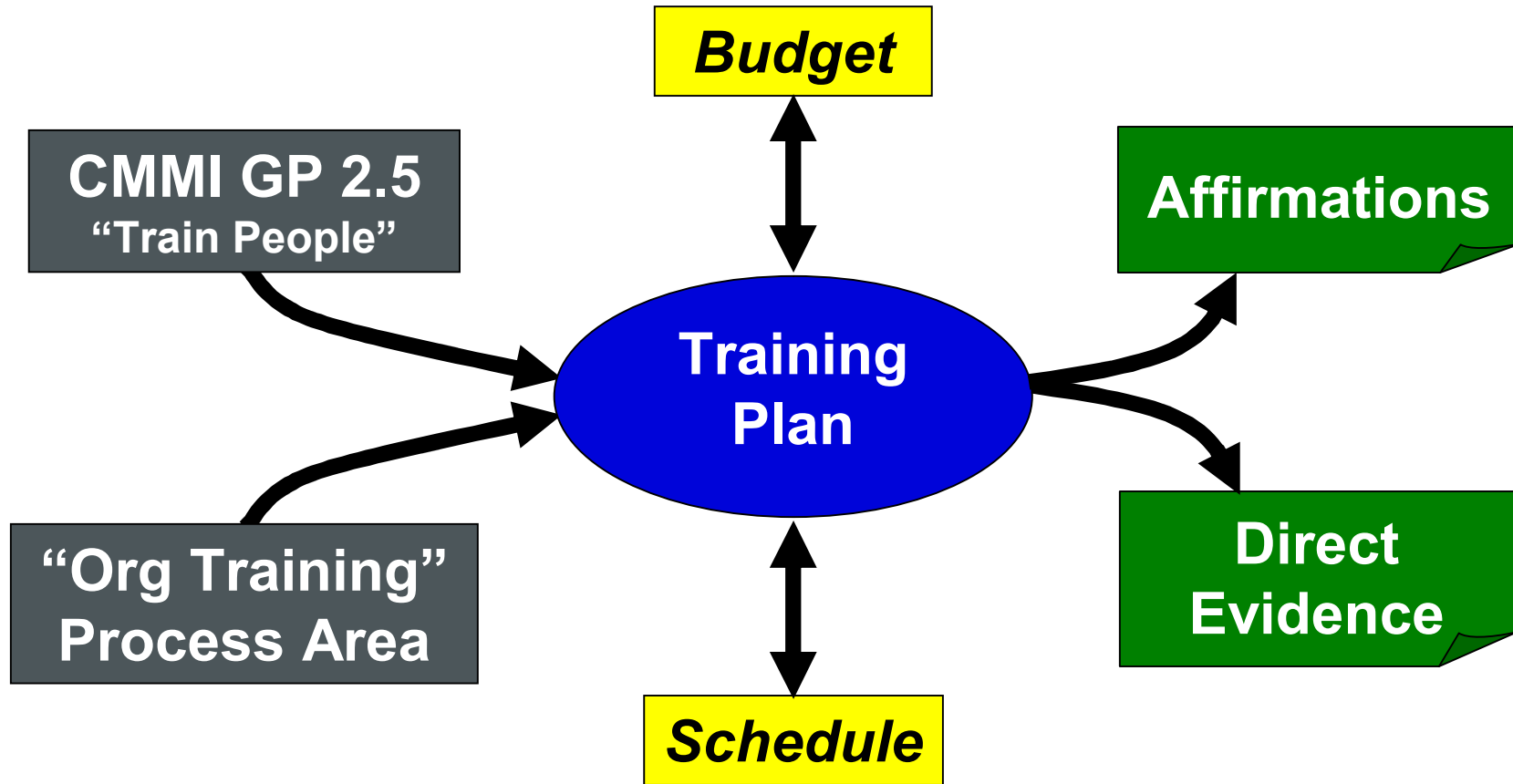


- » Introduction
- » Understand the Requirements
- » Lay the Groundwork
- » Plan the Training
- » Monitor Training Effectiveness
- » Summary
- » Questions & Contact Information

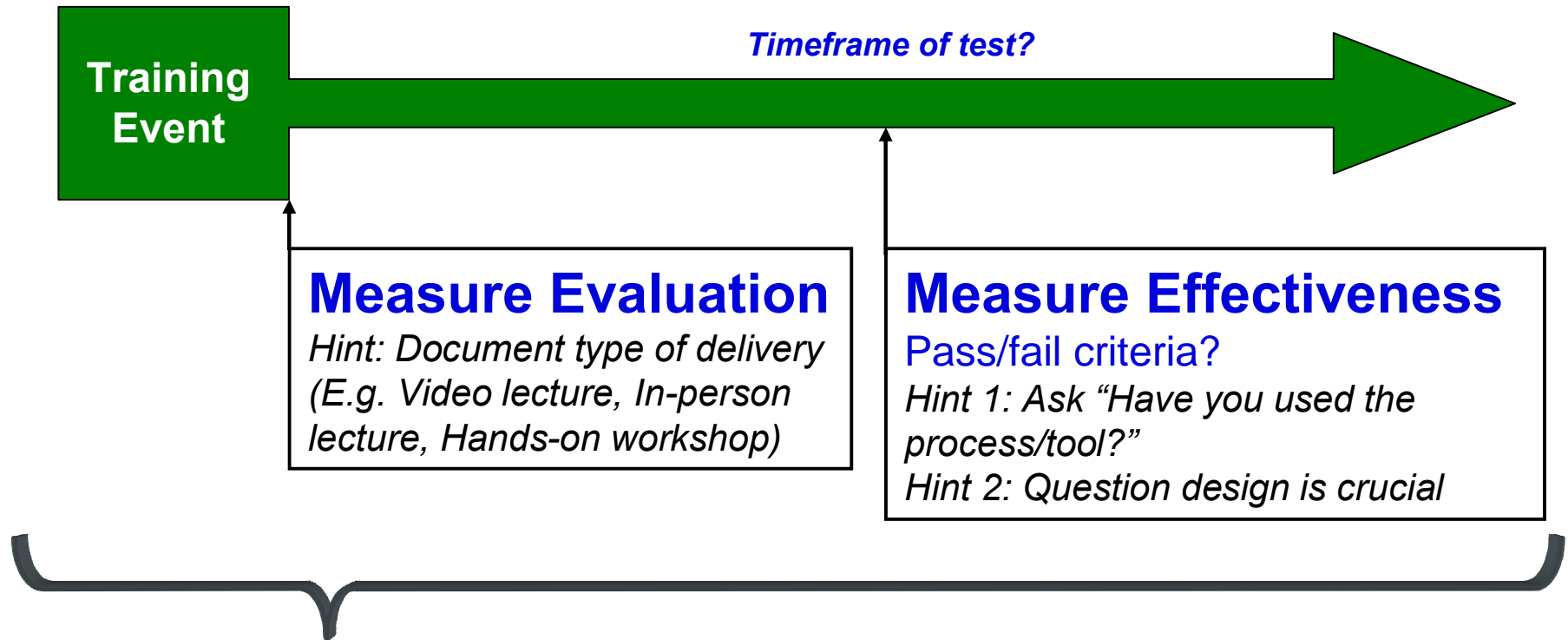
## Why is Training Critical?



# of the Requirements



# Foundwork



**Tracking system:** Who had what training? When was the training? What training method? What version of training? Effectiveness & evaluation data

# Evaluation Form

**Course:**

**Name (Optional):**

**Instructors:**

**Date:**

**Instructions:** Circle the number that approximates the value you assign to each statement. **Poor equals 1 and Excellent equals 5.**

Effectiveness of method of presentation	1	2	3	4	5
Instructor's command of the subject	1	2	3	4	5
The course material was clear and concise	1	2	3	4	5
Length of course was appropriate	1	2	3	4	5
Ample opportunities for questions and discussions	1	2	3	4	5
Course was relevant to my job	1	2	3	4	5
Course gave some good takeaways.	1	2	3	4	5
Course improved my knowledge	1	2	3	4	5
Course will help me improve my performance	1	2	3	4	5
Course met my expectations	1	2	3	4	5
Overall rating of the course	1	2	3	4	5
Overall usefulness of the subject matter covered	1	2	3	4	5

The strong points of this course:

The areas in which the course could be improved:

Other comments you may have that will be useful in evaluating the course and/or instructor:



# Effectiveness Form

## DO-178B Structural Coverage Training Effectiveness Questionnaire

Complete the multiple choice and True/False questions below and return this form to the Human Resource Coordinator. This questionnaire is primarily used to determine the effectiveness of the Group Leader Process training you had approximately three months ago. Employees are expected to answer at least 3 out of 5 questions correctly. You may use the training material and process documents available on the Intranet to complete the questionnaire if needed.

<b>Name:</b>	<b>Position:</b>
<b>Date of Training:</b>	<b>Return Form by:</b>

- Which of the following is a true statement in regards to structural coverage analysis?
  - Structural coverage analysis helps to find areas in the software that has not been exercised by a set of test cases.
  - Structural coverage analysis helps to identify dead code.
  - Structural coverage analysis helps to find unspecified functionality in the software.
  - All of the above
- True or False: The typical minimum number of test cases to achieve MC/DC coverage is  $N+1$ , where  $N$  is the number of conditions.
  - True
  - False
- The following statement is a requirement for which DO-178B Level? Every point of entrance and exit are invoked at least once.
  - DO-178B Level A
  - DO-178B Level B
  - DO-178B Level C
  - Both a. and b.
  - All of the above
- Which of the following is required to ensure MD/DC Structural Coverage
  - Every statement in the program has been invoked at least once
  - Every control statement takes all possible outcomes
  - Every non-constant condition in a Boolean expression is evaluated to both true and false
  - All of the above
- For which DO-178B Level is MC/DC Structural Coverage required?
  - DO-178B Level A
  - DO-178B Level B
  - DO-178B Level C
  - DO-178B Level D



# Foundation (contd)

## **MANAGEMENT SUPPORT!!**

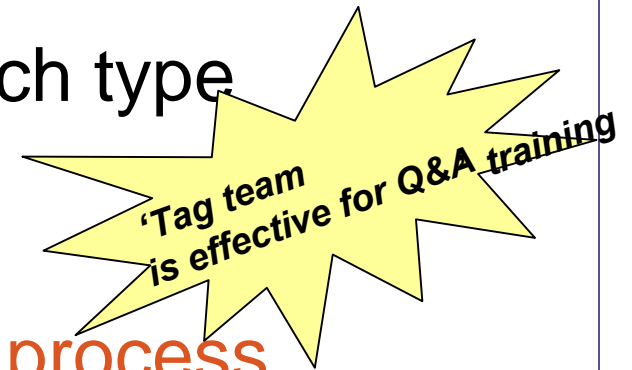
- » Lead by example . have managers take the training
  - » Demonstrates priority of effort within organization
  - » Employees expect managers to understand the concepts and practices





# Training

- » Establish pool of qualified trainers
- » Identify who needs training and when
  - » Pilot projects (e.g. tool roll-out) vs. all staff (e.g. basic statistics)
- » Select best training format for each type
  - » Hands-on training is more effective than lecture for tools/processes
- » Coordinate training with tool and process implementation
  - » Train immediately prior to use



# Training (contd)

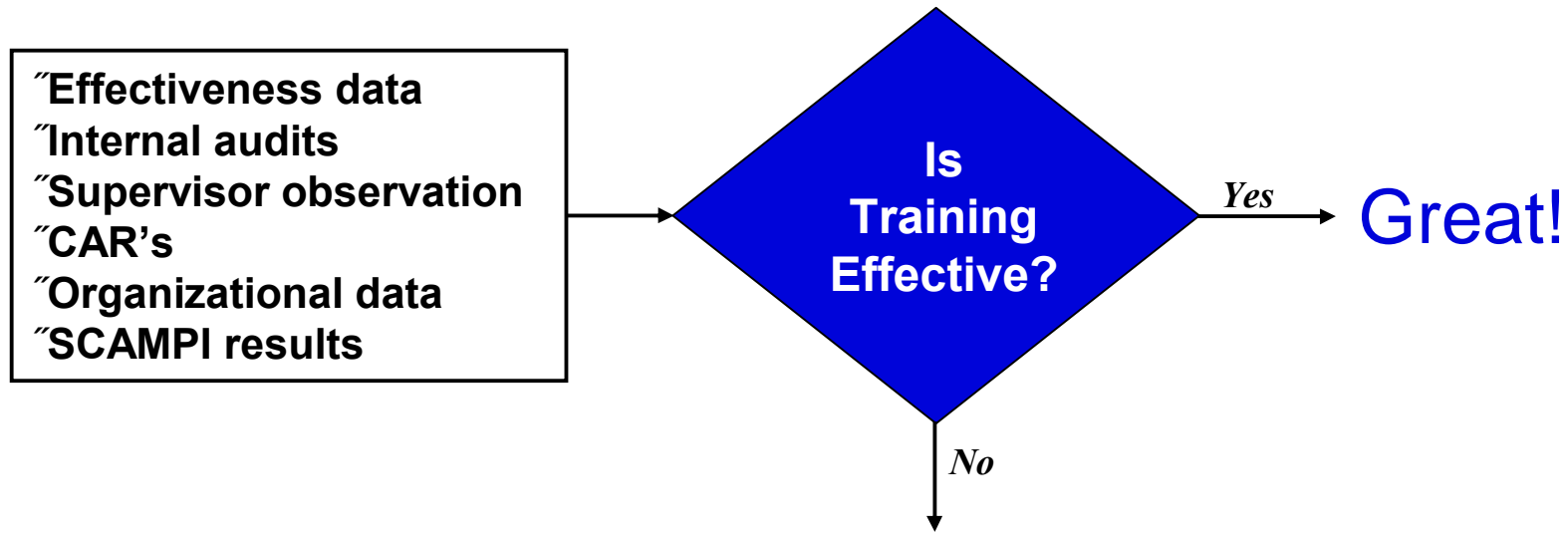
- » Capture for later use
  - » Video, screen capture, podcast, etc.
  - » CAUTION: Don't go too far
- » Plan for revisions and updates
  - » Tools/processes will change -training will need to be updated
  - » Refresh employees who have been already trained
  - » Update recorded training for new training
- » Review material and effectiveness forms prior to training
  - » Independent set(s) of eyes
- » Update/create QA audit checklists in parallel
  - » Audit against new processes immediately to reinforce training

# Annual Training Request Form

Requestor:	Request Date:
Training Course Name:	Projected Training Date:
Method of Training:	Location:
Instructor:	List of Trainees:
Number of sessions:	Number of hours needed per session:
Description of Training:	
Training Specifics: List any equipment, tools, paperwork, etc that needs to be provided prior to training.	
<input type="checkbox"/> Required Training <input type="checkbox"/> Computers If checked, how many? <input type="checkbox"/> Projector <input type="checkbox"/> Net meeting? <input type="checkbox"/> Copies of handouts <input type="checkbox"/> Snag It? <input type="checkbox"/> Training Material Reviewed by: _____ Detail any other additional needs: _____	
<input type="checkbox"/> Professional Video required? List software needed on computer: _____ <input type="checkbox"/> Add to Job function? <input type="checkbox"/> Questionnaire Completed and Reviewed by: _____	
VP-Operations Signature: _____ Date _____ VP-Engineering Signature _____ Date _____	
<b>Human Resources Training List</b>	
<input type="checkbox"/> Reserve conference rooms <input type="checkbox"/> Invite Trainees (include the description of the training in the invite) <input type="checkbox"/> Invite Instructor and requestor <input type="checkbox"/> Prepare sign in sheet and evaluation forms <input type="checkbox"/> Notify IT if computers are needed (noted above) <input type="checkbox"/> Notify videographer if professional video is needed <input type="checkbox"/> Notify supervisors of training and who will be attending <input type="checkbox"/> Check to ensure the effectiveness questionnaire is prepared and checked in; if not, notify Instructor and/or requestor that it needs to be written <input type="checkbox"/> Set up training tasks for timekeeping <input type="checkbox"/> Post training material (PowerPoint, visual aids, etc) on Intranet after the training <input type="checkbox"/> Enter Evaluation Form data into spreadsheet <input type="checkbox"/> Send Evaluation data to the instructor <input type="checkbox"/> Send out Effectiveness Forms/Questionnaires (three months after training)	
Additional comments:	



# Training Effectiveness



**Act on it!**

Retraining is cheaper than failing SCAMPI A



- » Effective training system is critical to successful CMMI implementation
- » Training system should be one of the first systems implemented
- » Coordination of training timing with new tool/process roll-out is very important





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