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

Tom Bragg, Esterline AVISTA
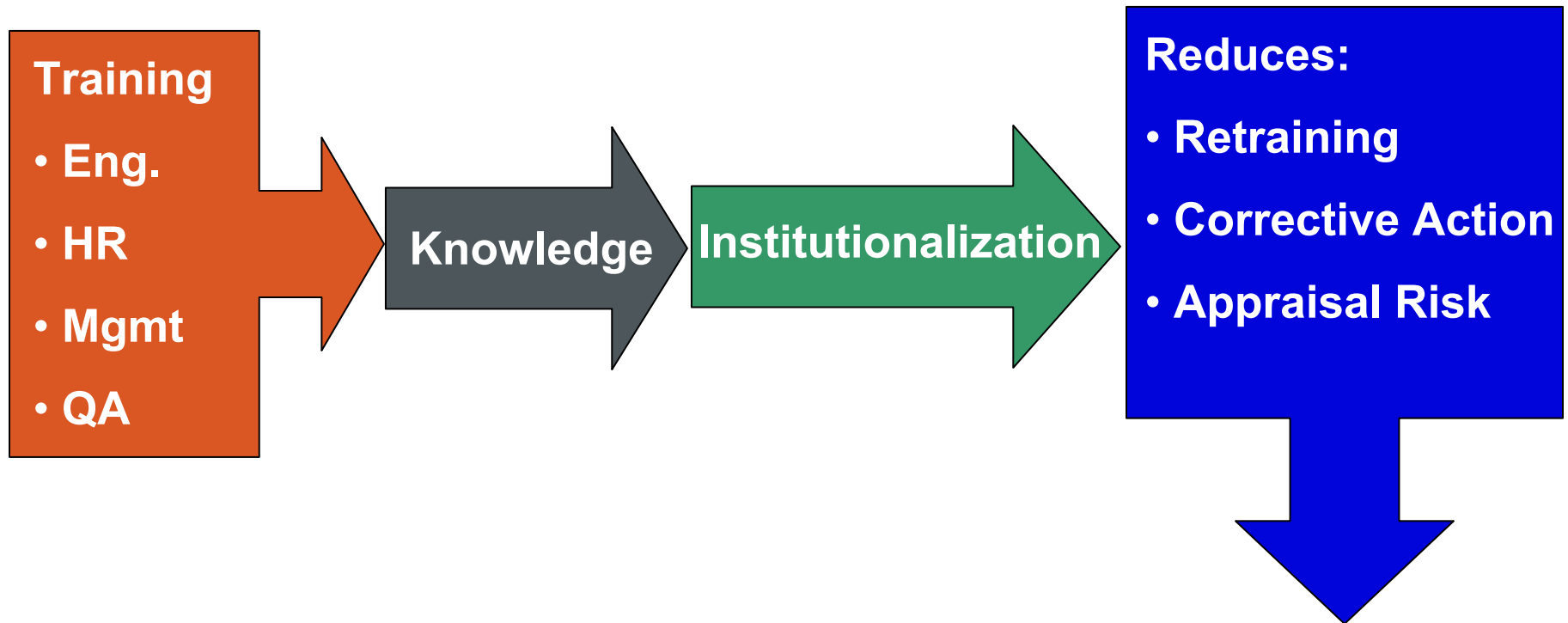
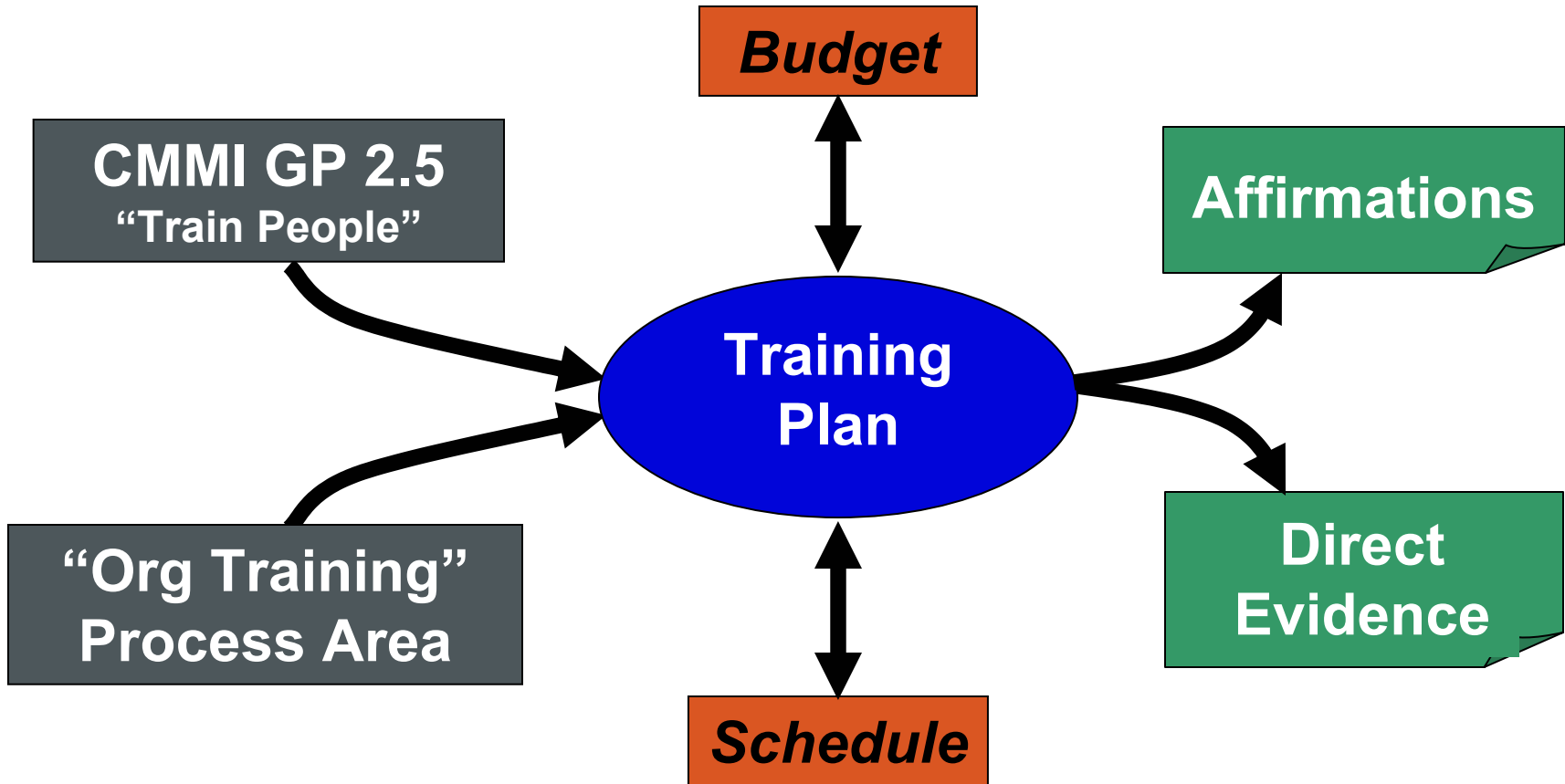# Agenda

» Understand the Requirements

» Lay the Groundwork

» Plan the Training

» Monitor Training Effectiveness
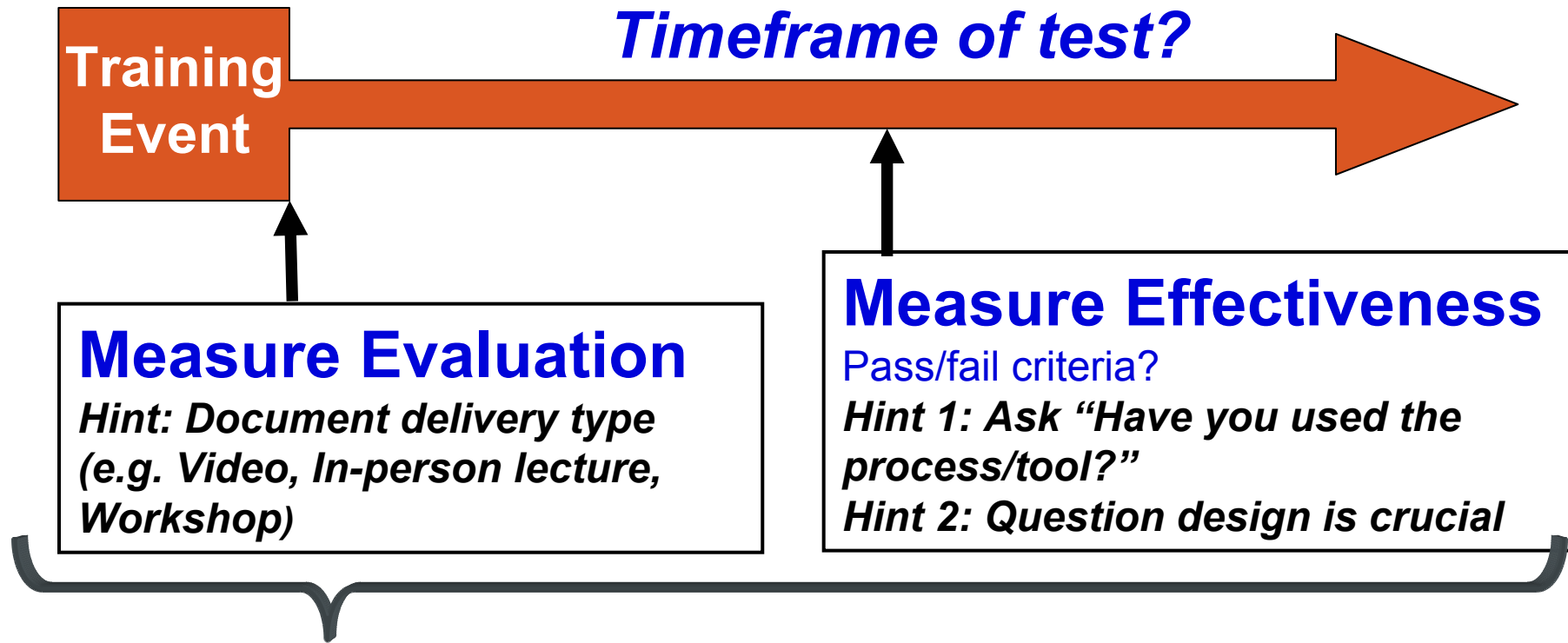
Why is Training So Critical?

Training
- **Eng.**
- **HR**
- **Mgmt**
- **QA**

→ **Knowledge** → **Institutionalization** →

Reduces:
- **Retraining**
- **Corrective Action**
- **Appraisal Risk**

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Understand the Requirements

Budget

CMMI GP 2.5 "Train People"

Affirmations

Training Plan

"Org Training" Process Area

Direct Evidence

Schedule

Lay the Groundwork

Training Event

Timeframe of test?

Measure Evaluation

Hint: Document delivery type (e.g. Video, In-person lecture, Workshop)

Measure Effectiveness

Pass/fail criteria?

Hint 1: Ask "Have you used the process/tool?"
Hint 2: Question design is crucial

Tracking system: Who, what, when, how & what version. Also, effectiveness & evaluation data

Sample 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:

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Sample 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.

Name:	Position:
Date of Training:	Return Form by:

1. Which of the following is a true statement in regards to structural coverage analysis?
   a. Structural coverage analysis helps to find areas in the software that has not been exercised by a set of test cases.
   b. Structural coverage analysis helps to identify dead code.
   c. Structural coverage analysis helps to find unspecified functionality in the software.
   d. All of the above

2. 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.
   a. True
   b. False

3. The following statement is a requirement for which DO-178B Level? "Every point of entrance and exit are invoked at least once."
   a. DO-178B Level A
   b. DO-178B Level B
   c. DO-178B Level C
   d. Both a. and b.
   e. All of the above

4. Which of the following is required to ensure MD/DC Structural Coverage
   a. Every statement in the program has been invoked at least once
   b. Every control statement takes all possible outcomes
   c. Every non-constant condition in a Boolean expression is evaluated to both true and false
   d. All of the above

5. For which DO-178B Level is MC/DC Structural Coverage required?
   a. DO-178B Level A
   b. DO-178B Level B
   c. DO-178B Level C
   d. DO-178B Level D

Lay the Groundwork (cont'd)

MANAGEMENT SUPPORT!!

» Lead by example – have managers take the training

  » Demonstrates priority

  » Managers need to understand the concepts and practices

Plan the Training

» Establish pool of qualified trainers

» Identify who needs training and when

» Select best format for each type
  » Note: Hands-on training is more effective
  than lecture for tools/processes

» Coordinate training with implementation
  » Train just before roll-out

Tag team training is effective for Q&A

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Plan the Training (cont'd)

» Capture for later use ⚠️

» Plan for revisions and updates

» Review material and effectiveness forms prior to training with independent reviewer

» Update/create QA audit checklists in parallel

Sample Internal 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.

☐ Required Training   ☐ Professional Video required?
☐ Computers   If checked, how many?   List software needed on computer:
☐ Projector
☐ Net meeting?
☐ Copies of handouts   ☐ Add to Job function?
☐ Snag It?

☐ Training Material Reviewed by: ☐ Questionnaire Completed and Reviewed by:

Detail any other additional needs:

VP-Operations Signature: _____Date_____

VP-Engineering Signature_____ Date_____

Human Resources Training List

☐ Reserve conference rooms
☐ Invite Trainees (include the description of the training in the invite)
☐ Invite Instructor and requestor
☐ Prepare sign in sheet and evaluation forms
☐ Notify IT if computers are needed (noted above)
☐ Notify videographer if professional video is needed
☐ Notify supervisors of training and who will be attending
☐ Check to ensure the effectiveness questionnaire is prepared and checked in; if not, notify Instructor and/or requestor that it needs to be written
☐ Set up training tasks for timekeeping
☐ Post training material (PowerPoint, visual aids, etc) on Intranet after the training
☐ Enter Evaluation Form data into spreadsheet
☐ Send Evaluation data to the instructor
☐ Send out Effectiveness Forms/Questionnaires (three months after training)

Additional comments:

Monitor Effectiveness

- **Effectiveness data**
- **Internal audits**
- **Supervisor observation**
- **CAR's**
- **Organizational data**
- **SCAMPI results**

Is Training Effective?

Yes → **Great!**

No

Act on it!
Retraining is cheaper than failing SCAMPI A

Summary

» Effective training system is critical

» Training system should be one of the first systems implemented

» Time with new tool and process roll-out

Thank you.

Tom Bragg, VP Operations
Esterline AVISTA
Phone (608)348-8815
Email Tom.Bragg@avistainc.com
www.avistainc.com

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