

A Practical Application of the Non-Advocate Review

Bruce Nishime

C-17: A High Performance Program

MEETING OUR COMMITMENTS

- **Excellent Quality**
- **Ahead of Schedule**
- **On Price**
- **180 Aircraft Program**

MEETING OUR COMMITMENTS

- **138 USAF Aircraft - 6 Bases**
- **Worldwide Operations**
- **Best Fleet Reliability**
- **4 UK C-17s Delivered**



Over 898,750 Flight Hours!
USAF Fleet – 872,885 UK Fleet – 23,085

C-17 Awards



1994
Collier Award



1996 California
Quality Award



1998 Malcolm
Baldrige National
Quality Award



2001 UK MOD Smart
Acquisition Award



2003 Missouri State
Quality Award



2001 ISO9001-2000 /
AS9100A Certification



2002 IW Winner:
Top 10 Best Plants



2003 Georgia
Oglethorpe
Award



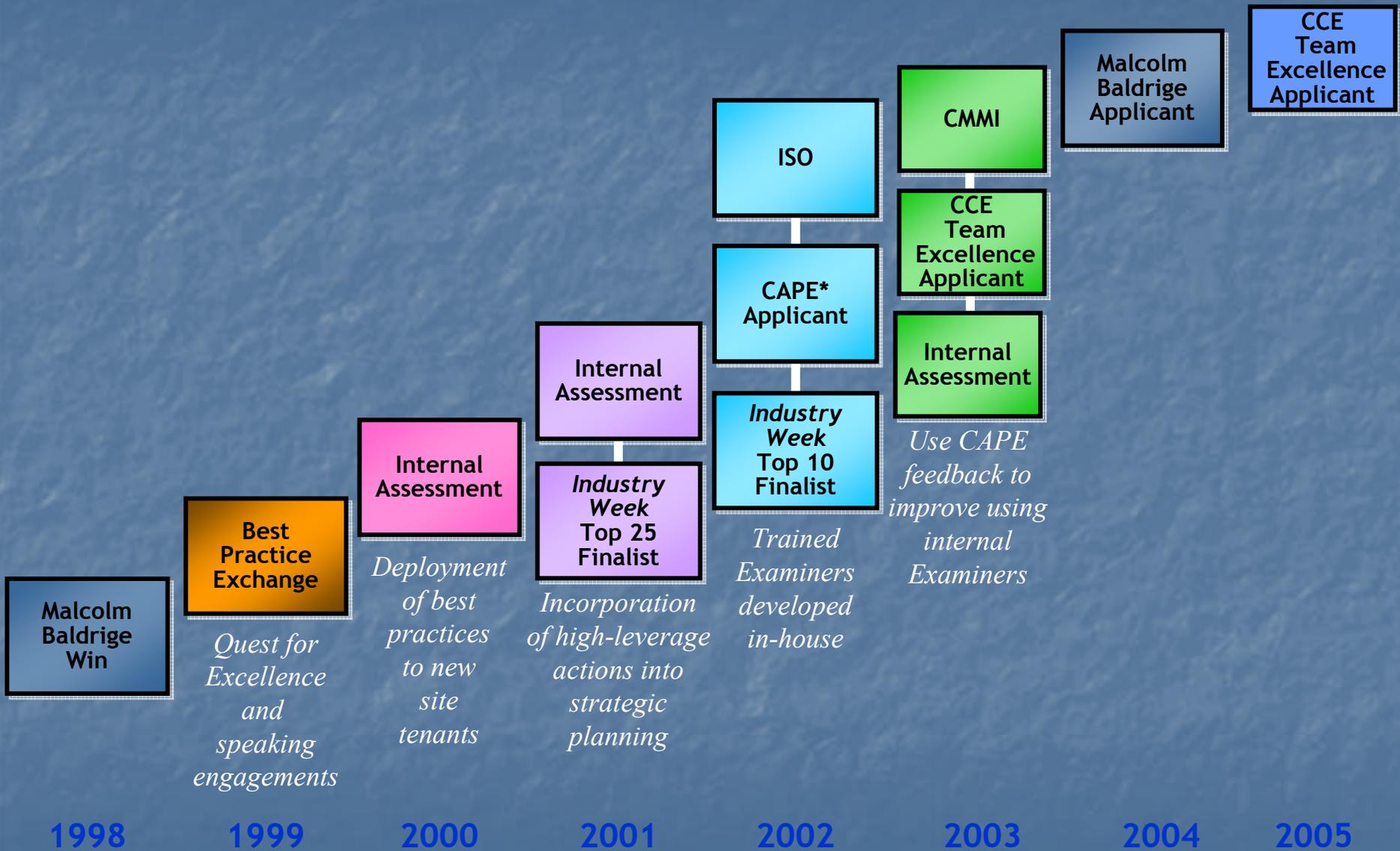
2002 California Awards
for Performance Excellence
(Gold & Silver)



2003 Governor's Award For
Performance Excellence



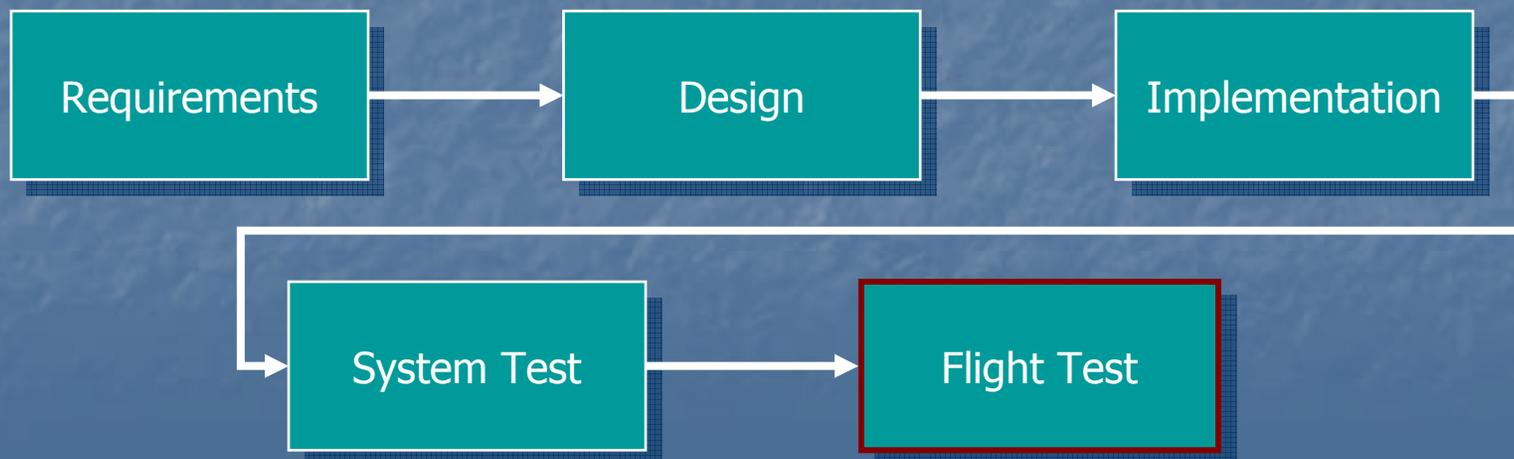
Quality Journey



*CAPE = California Awards for Performance Excellence

Issue

- Requirements verification/validation occurring late in development life cycle
 - Higher costs
 - Schedule delays



Solution

- Utilize Non-advocate Review Team to:
 - Perform root cause
 - Identify areas for improvement
 - Make recommendations based on diverse corporate knowledge from multiple programs

Definitions

- Independent Assessment - An impartial and in-depth analysis of a major issue or key milestone event performed by an Independent Assessment Review Team
- Non-Advocates: Subject Matter Experts (SMEs) from any of the following groups
 - Boeing non-program employees
 - Outside consultants
 - Industry SME
 - Fellows
 - Non-program related customers
 - Third party examiners

NAR Process

- Identify non-advocate team
- Define scope of review
- Data collection
- Analyze data
- Develop final report/outbrief

C-17 Application of NAR Process

Identify Non-advocate Team

- Selected from local site tenants
 - B-1B, C-130 AMP, C-17
- Utilized pool of Technical Fellows
 - Boeing recognized technical experts in various skills (i.e. Systems Engineering, Communications)
- Select chairperson
 - B-1B Chief Engineer

Define Scope of Review

- Software Development process
- Systems Engineering process
- Validation and Verification process
- Project Management

Expectations

- Identified expectations of upper management
 - Process issues
 - Improvement opportunities
 - Lessons learned
 - Recommendations

Resources Required

- Data
- Access to project personnel
- War Room - Facilities
- NAR Team availability and schedule

Data Collection

- Documentation
 - Deliverable
 - Non-deliverable (Engineering Notes)
 - Software Development Folders (SDF)
- Interviews
 - Engineers, Managers, Project managers
 - Customers
 - Suppliers

Analyze Data

- Lack of process compliance
- Lessons learned
- Process improvement
- Lean engineering opportunity

Develop Final Report/Outbrief

- Summarize issues
- Provide recommendations
 - Near-term
 - Long-term