



# **Metrology Interoperability Project Team (MIPT)**

Team Status  
March 2006



The project team consists of a broad base of global corporations and universities.

### Vision:

- Define requirements for plug and play metrology systems supported by a standards infrastructure to resolve interoperability issues.



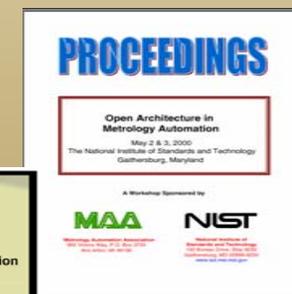
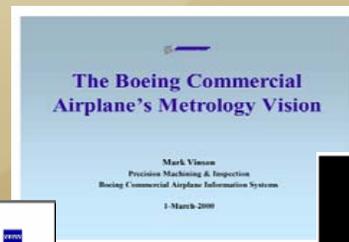
## Goals & Objectives:

- Determine a Standards Infrastructure
  - Identify Gaps / Overlaps
  - Create new specifications filling the gaps
  - Harmonize new or existing standards
- Develop a National Metrology Test Bed



# What started this effort?

- May 2000 “A National Workshop on Open Architecture in Metrology Automation”
  - Major corporations met at NIST to identify problems connecting metrology equipment within their extended enterprise.



## Double Tree Hotel May 2001

- Attended by a broad cross section of US industry
- “Analysis of Standards Needs for Automated Metrology”  
Tom Kramer NIST 2001
- The attendees identified 6 potential projects that were considered the best for the technical committee of the consortium to undertake.
- Each attendee voted on the importance of the 6 projects

# Double Tree Hotel Detroit

## May 22, 2001

Each attendee voted on the importance of the 6 projects

Rank	Project	Vote %
1	Design Data	50
2	Measurement Data (Results)	25
3	International Coordination	17
4	Inspection Programs	15
5	Low Level Inspection API	10
6	Inspection Data Planning Requirements	8



## Workshop group joins AIAG (2001) and forms the Metrology Interoperability Project Team

Collaborative Engineering and Product Development Steering Committee

Metrology Interoperability Project Team

Cad Data Interfaces  
Work Group

Inspection Programming  
Work Group

Common Report Format  
Work group

SPC data format  
Work group

Optical Data Format  
Work group

## Work Teams

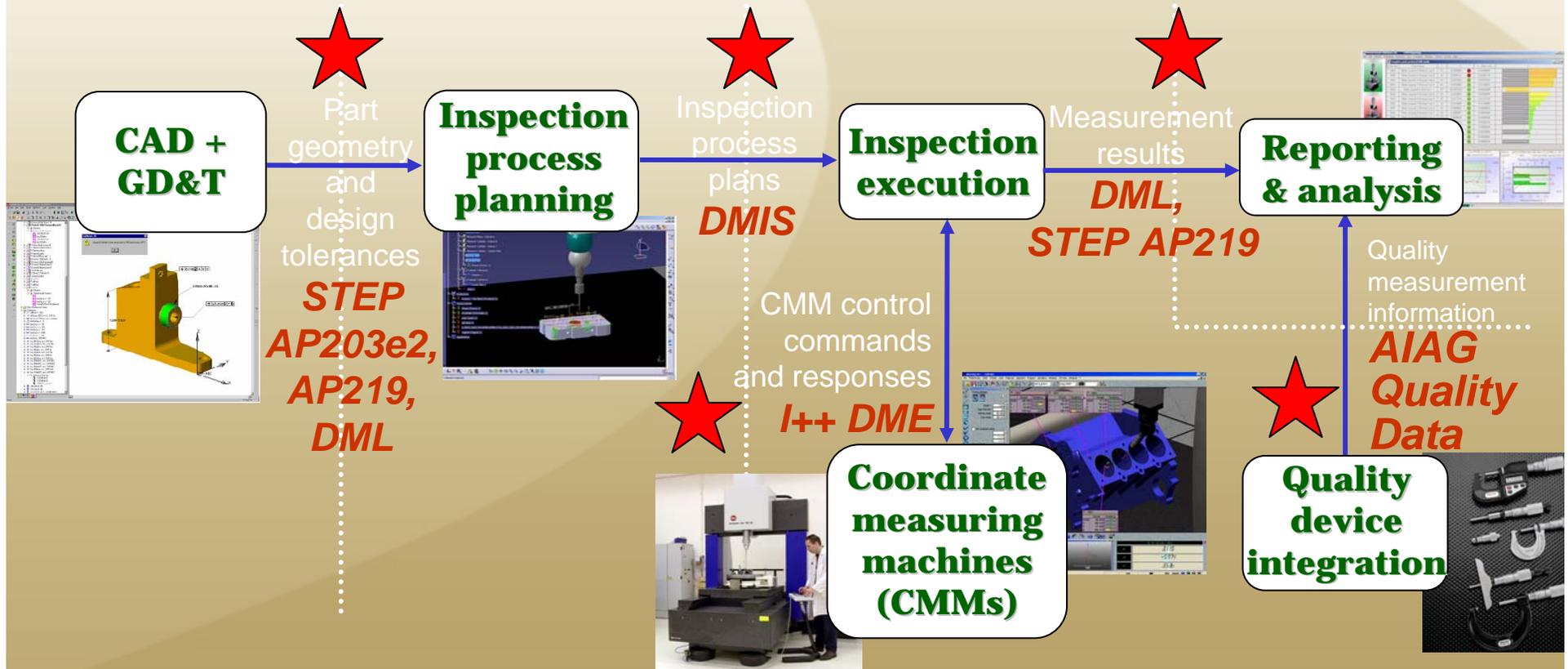
The project team organized work groups to resolve the high priority interface issues.

- Inspection Program Portability
  - Common Inspection Results Format
  - CAD Data Transfer
  - “SPC Data Format”      new 2006
  - “Optical Data Format”      new 2006
- 
- Project Team coordination
    - I++/DME Plug and Play interface coordination (project team)

## Dimensional Metrology System:

Component diagram with candidate open & non-proprietary interface standards

### Design Planning Execution Analysis



## Work Group Status

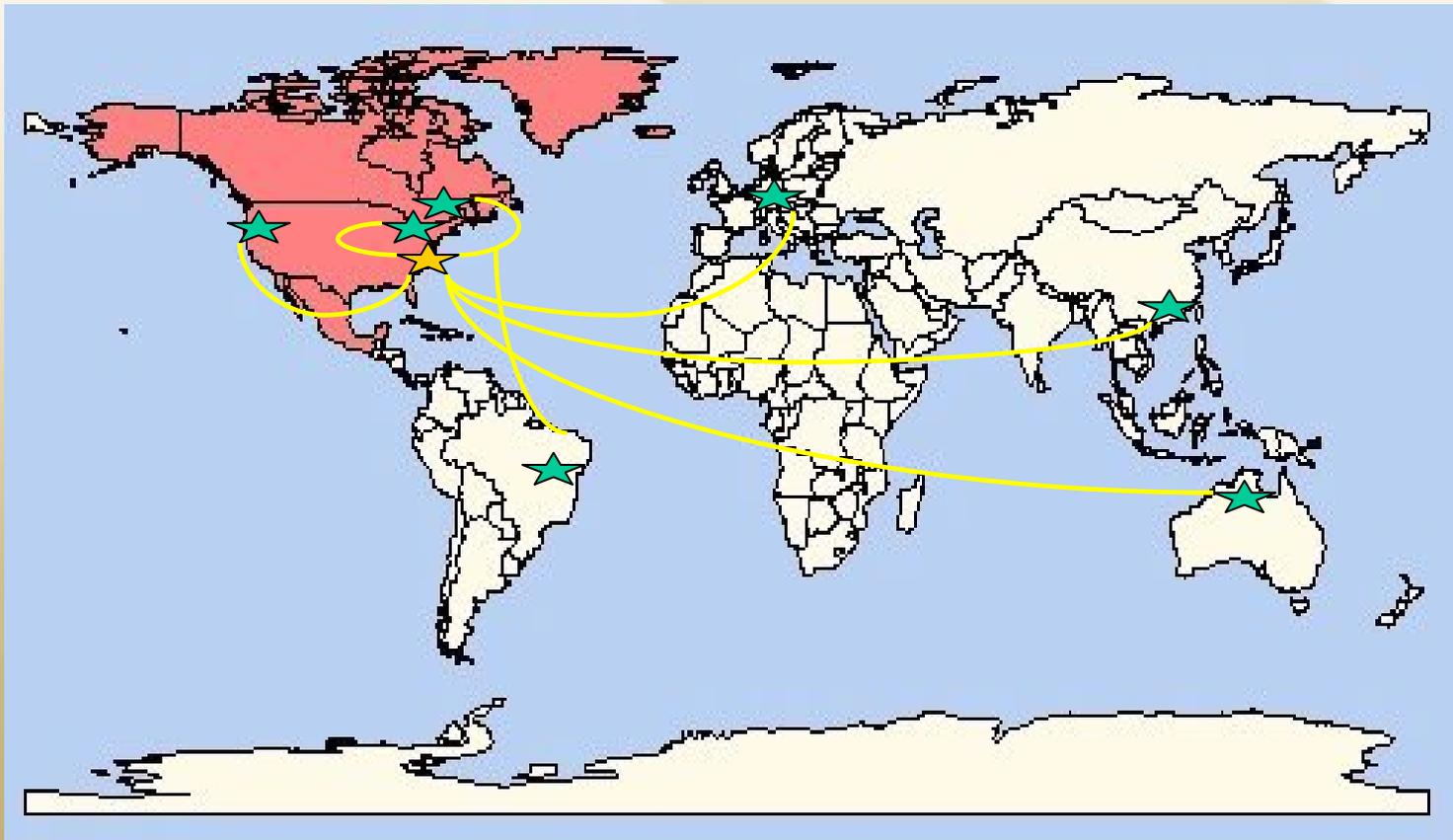
- CAD Data Team: Issues white paper recommending STEP CAD data transfer as the preferred method to obtain interoperability. Additional work is necessary to develop a proof-of-concept test validating STEP.
- Common Data Format Work Group: Published the Dimensional Markup Language (DML) December 2005 at revision 2.1
  - Harmonized with DMIS and STEP AP219.
- Program Portability Work Group: Developed DMIS conformance classes and application profiles. AIAG publication is in process. DMIS conformance classes will be included into the ISO DMIS 5.0 standard.

## Project Team Status

- I++/DME interface:
  - The I++ team in Germany released revision 1.5 of the I++/DME specification.
    - The work is essentially complete for scanning and touch probe coordinate measuring machines.
    - AIAG has been authorized to publish, due June 2006



## *National Metrology Test Bed*



Gaithersburg, Maryland

**Web Based Distributed Test Bed**



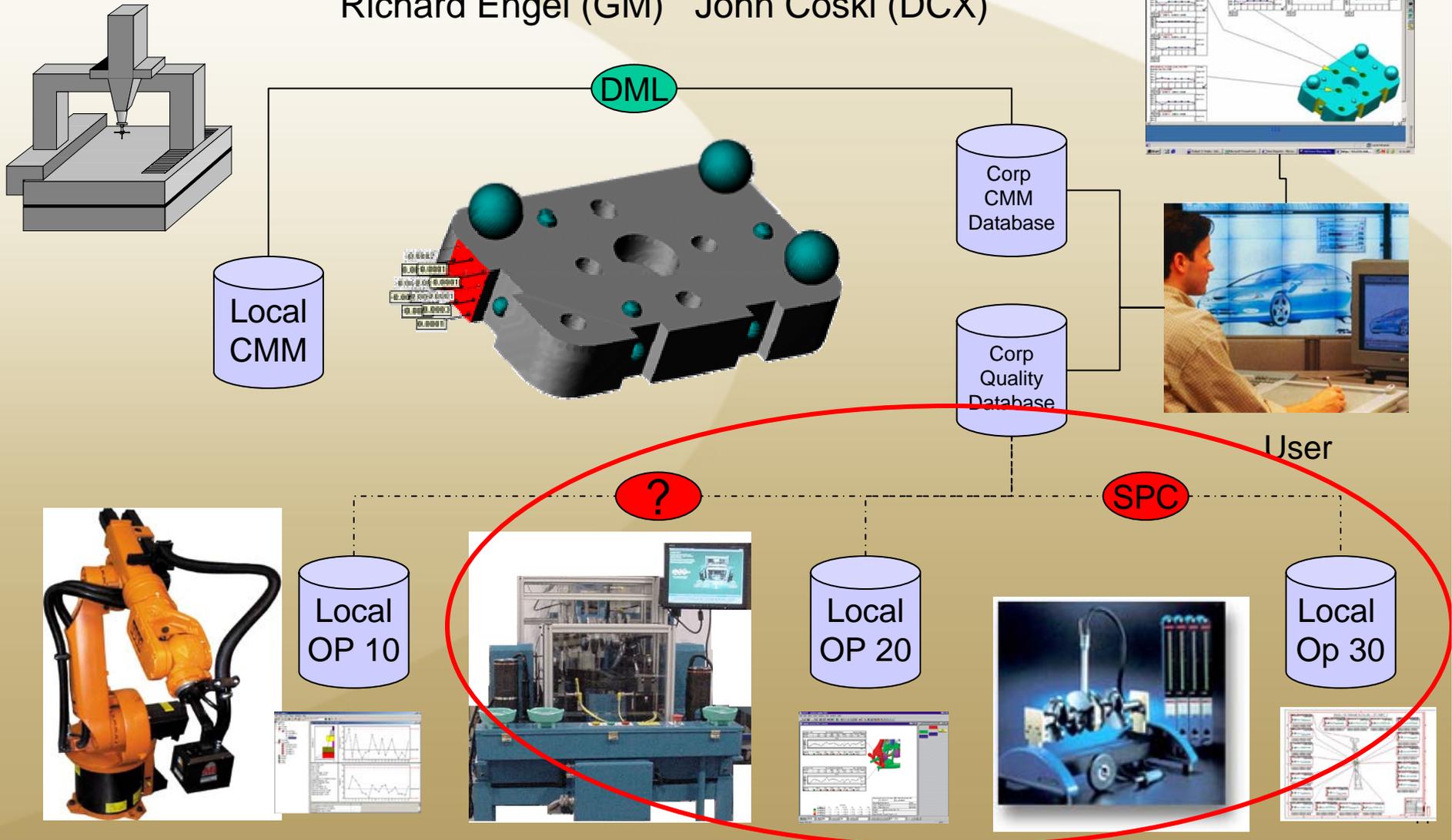
## Project Team Status

- Interoperability Demonstrations:
  - International Manufacturing Show (IMTS) - Chicago
  - Quality Expo, Chicago
  - Control Show, Germany
  
- 2006 Interoperability Demonstrations:
  - Germany May 2006
  - Chicago June 2006



## New Work Group "SPC Data Hauling Requirements"

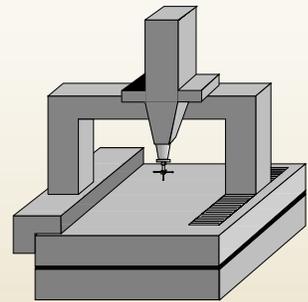
Richard Engel (GM) John Coski (DCX)



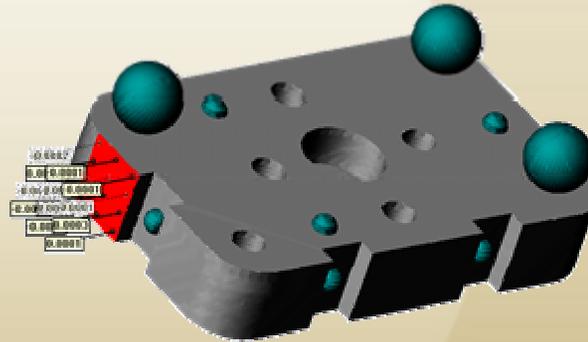


## New Work Group "Optical Data Format"

Steve Peca Ogihara Glen Allan Ford



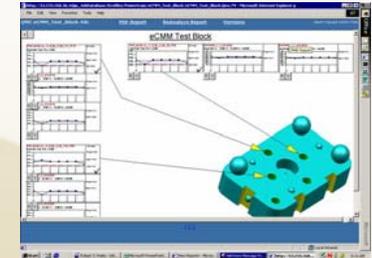
Local CMM



DML

Corp CMM Database

Corp Quality Database



User

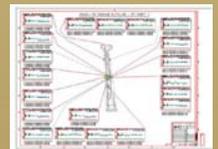
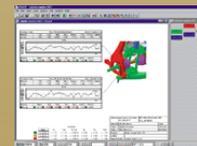
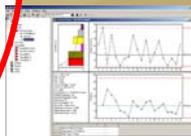
?

SPC

Local OP 10

Local OP 20

Local Op 30





## What we do well.

- Able to quickly fill gaps in standards infrastructure compared to formal standards organizations
- Cognizant of leading edge technology
- User and supplier consensus



## What we do not do well

- Formal standardization
- Lack of US consensus
- Auto focus, lack broader base of US industry



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