

Presentation to

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**13<sup>th</sup> annual**  
**International Conference of**  
**Software Quality**

2004

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# Extracting Real Value From Process Improvement

# DEFINITIONS

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- **Baseline:** A Point-In-Time Inventory of an Organization Which Includes One or a Combination of:
  - Software Size
  - Processes
  - Capabilities
  - Hardware
- **Benchmark:** A Comparison of Performance against Standard. Typical Standards Include:
  - Industry Averages
  - Baselines

**The Baseline Is The Line In The Sand;  
A Benchmark Determines Whether it Has Been Crossed!**

# WHY BENEFITS ARE SO HARD TO FIND

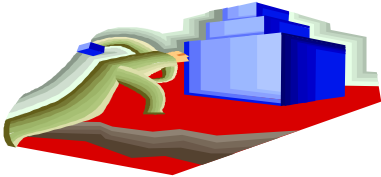
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- No Standard For Accounting For Benefits
- Inconsistency In Applying Cost Accounting Standards
- Failure To Recognize Natural Evolution Or Improvement
- Lack Of Formal Quantification Of Productivity Or Efficiency Improvements

# WHERE ARE WE TODAY?

## PROCESS AND PRODUCTIVITY MODELS

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Software Capability Maturity Model®

Software Productivity Model

Others



CMM Based Appraisals (CBA):

CBA IPI (CBA for Internal Process Improvement)

SCE V3.0 (Software Capability Evaluation)

Software Productivity Assessment

Others

# WHY ASSESS MORE THAN CMM®?

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## Information About The CMM® To Date -

- Benefits Have Been Largely Theoretical
- Published Benefits Data Is Anecdotal
- Process Improvement Funds Are Scarce
- Advancement On The CMM Scale Does Not Necessarily Result In Reduced Software Delivery Costs
- However Fuzzy The Benefits, The Model Seems To Work!

## To Sell The Model In Your Organization You Need To Know:

- What Is The Impact Of Changing CMM® Levels?
- Do My Improvement Process Dollars Yield Value?
- Which Tasks Give Me The Biggest Bang For The Buck?

# SO WHAT'S THE PROBLEM?

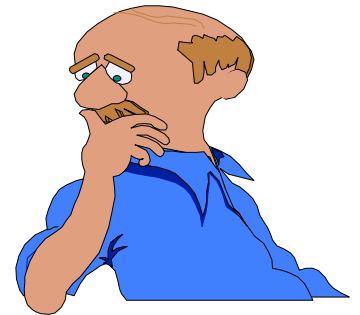
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## Separate Assessments Can Mean:

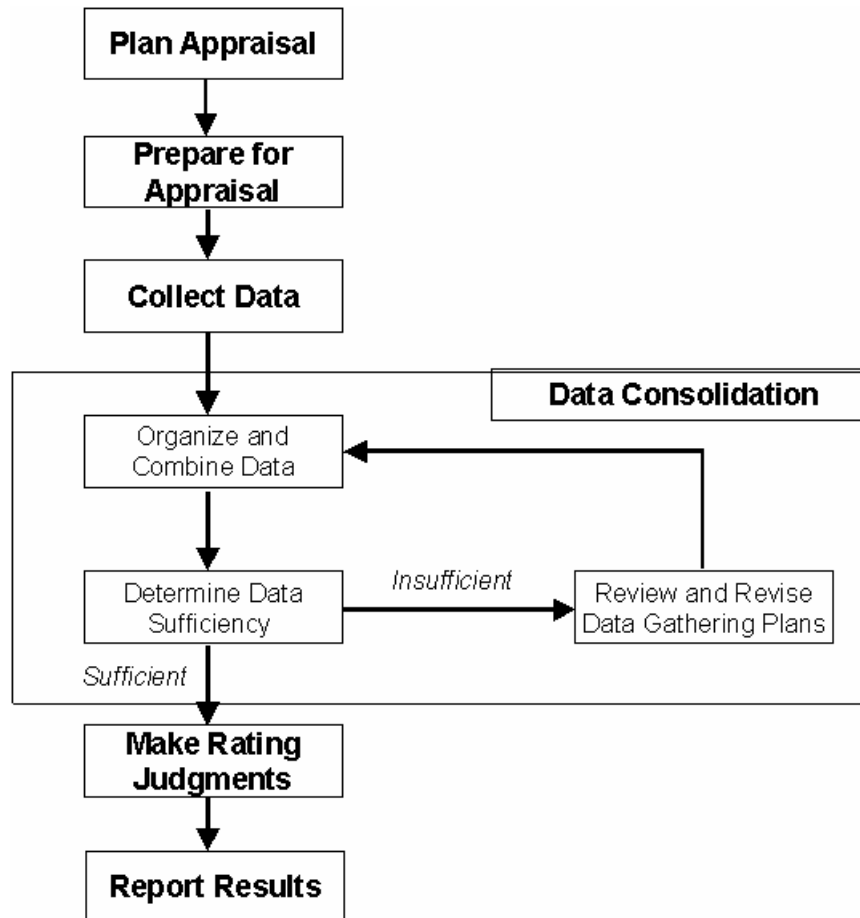
- Duplication Of Preparation Effort;
- Separate Organizational Coverage;
- Uncorrelated Results And Recommendations.

## Separate Assessments Will Mean:

- Less Value At Higher Cost;
- Inability To Correlate Improvement ROI.



# BASIC CMM ASSESSMENT PROCESS





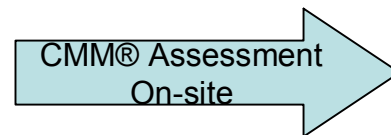
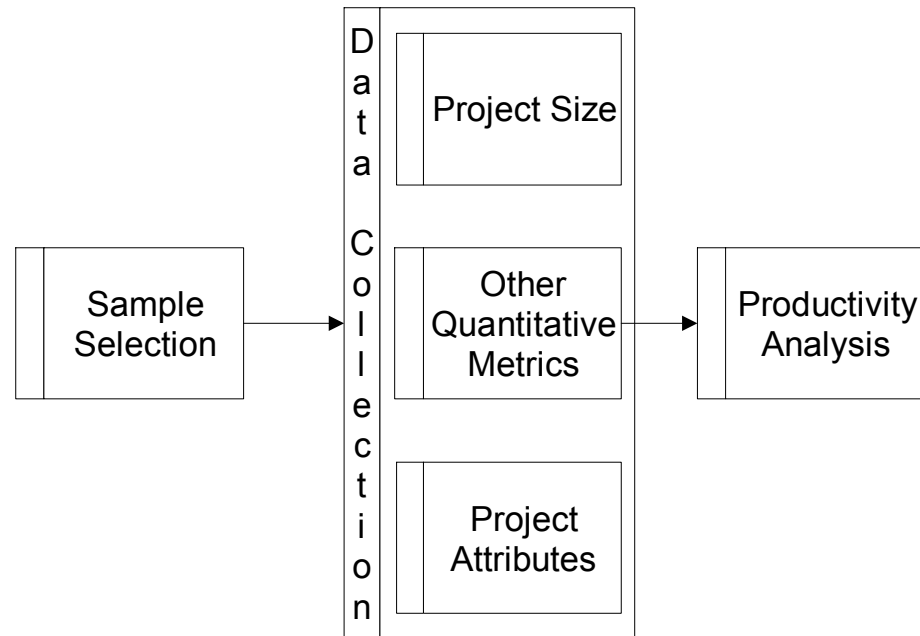
# PRODUCTIVITY ASSESSMENT MESSAGES

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Productivity Assessments Are Built From Qualitative And Quantitative Project Data That Delivers The Following Organizational Messages:

- Big Picture Focus (Not About One Number)
- Metrics Are Interrelated
- *Movement* In Any One Metric Can Cause *Movement* In Others
- Improvement Comes At A Cost
- Function Points Are Used To Normalize For Software Size BUT *It Isn't About The Function Points!*
- Initial Assessments Create A Baseline

# PRODUCTIVITY ASSESSMENT FLOW

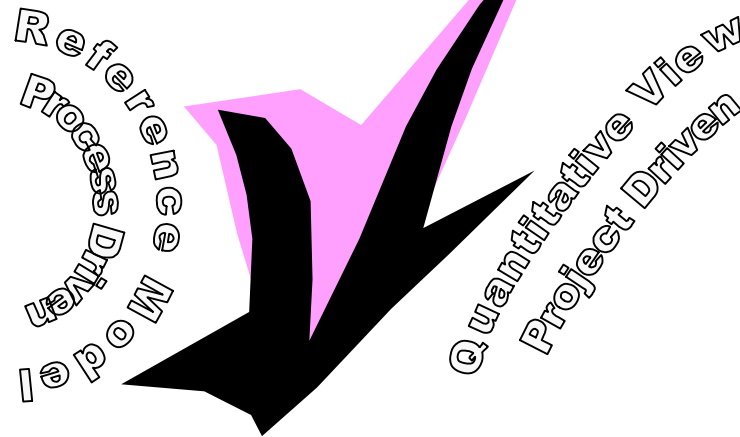


# A PROPOSED SOLUTION

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CMM<sup>®</sup> ASSESSMENT  
Methodologies  
(SCE, IPI, SPA & SCAMPI)

PRODUCTIVITY  
ASSESSMENT  
Methodology



**Joint Assessment**

Quality  
Productivity  
Process  
Environment

# CREATE A JOINT ASSESSMENT

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- Identify Process And Productivity Models To Assess Against
- Identify Model Drivers (Attributes)
- Identify Overlaps
- Test For Relationships For Predictability
- Pilot

# JOINT ASSESSMENT CRITERIA

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## **Process Criteria:**

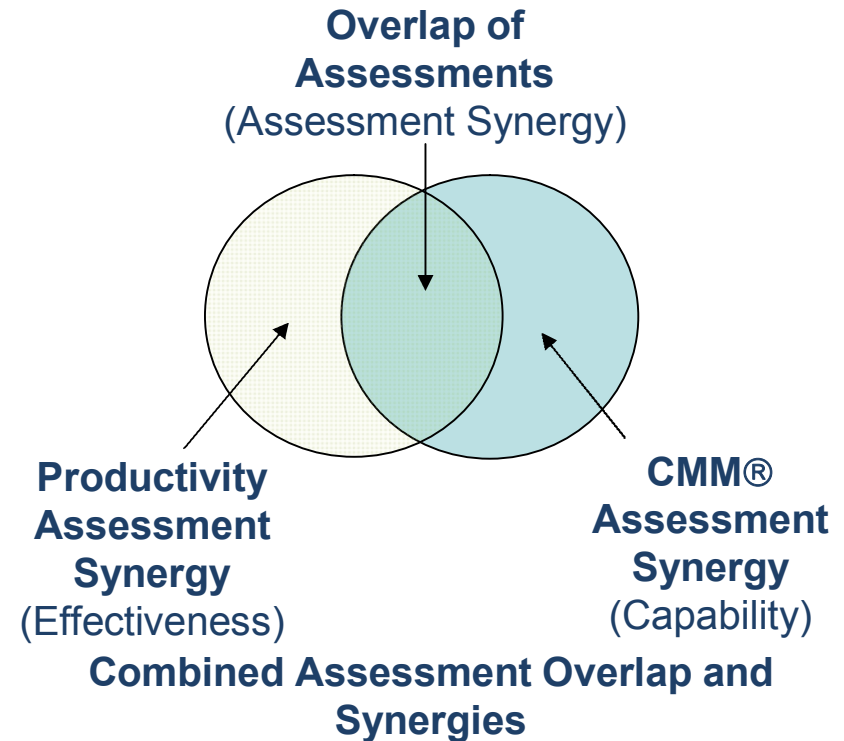
- A Repeatable Process With Predicable Results
- Return The Same Rating Results If Done Separately
- Viewed As Legitimate By Both Communities

## **Business Goals:**

- Identify Sponsor And Business Goals
- Optimize Appraisal Business Value
- Support Sponsor Goals

# CREATING THE ASSESSMENT

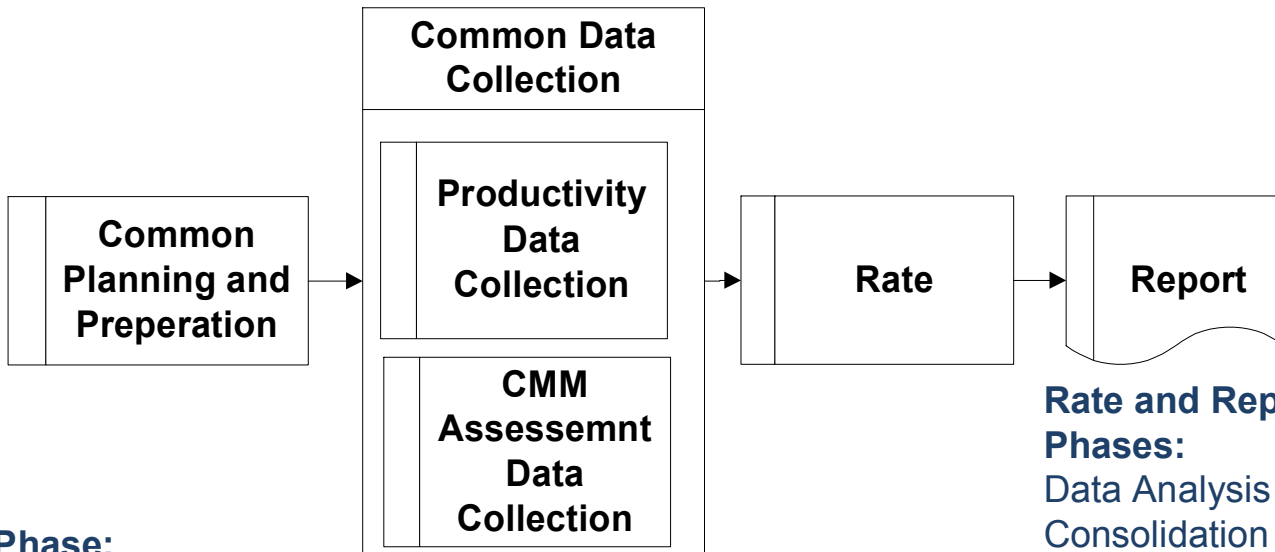
- Identify Model Overlaps
- Integrate Planning, Data Collection and Reporting Processes
- Review and Simulate Process Models
- Pilot The Joint Assessment
- Refine The Process Model



# JOINT ASSESSMENT PROCESS

## Data Collection Phase:

- Metrics Data Collection
- CMM / Attribute Interviews



## Prepare Phase:

- Develop Appraisal Plan
- Select and Prepare Participants
- Collect Hard and Organizational Data
- Prepare for On-Site Data Collection

## Rate and Report Phases:

- Data Analysis and Consolidation
- Draft Findings
- Review
- Final Report
- Final Briefing
- Follow-on Support

# WHAT DO YOU GET?

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A Joint Assessment Delivers Significantly More Than A CMM Assessment Or Productivity Assessment Alone!

- Direct Linkage Between Process Improvement And Quantifiable Results
- Add Depth To The Binary CMM® View
- Provide Roadmap To The CMM®
  - **Prioritizes Improvement Opportunities**
  - **Compares To Industry Or Best In Class**
  - **Quantifies Benefits For Cost / Benefit Analysis**



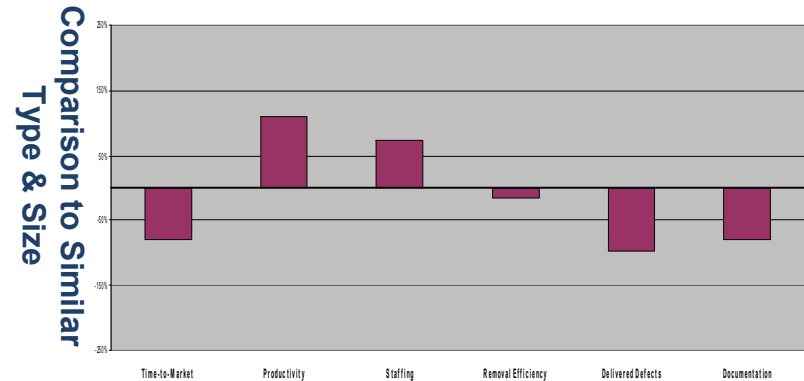
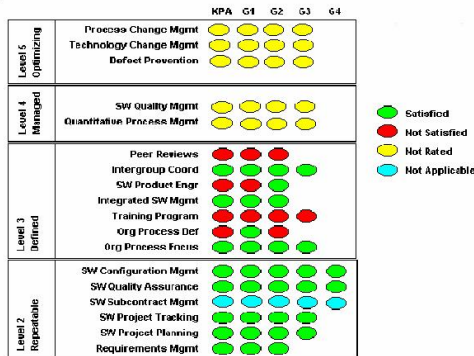
# ASSESSMENT PLANNING NOTES

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- Plan Joint, On-site Team Activities Early
- Consolidate Data Collection Techniques Where Applicable
- Cross-training For Teams
- Sample Is Critical
- Participants Must Be Available For Data Collection Success

# HIGH LEVEL RESULTS EXAMPLE

## Portfolio Results



## How Do Organizational Level Results Drive Change?

### Productivity Metrics Summary (Organization)

CMM<sup>®</sup> Rating

Level 1

Time-to-Market

Slower Than Average

Productivity

More Productive Than Average

Project Staffing

More Staff Than Average

Defect Removal Efficiency

Below the Norm

Delivered Defects

More Defects Delivered

Project Documentation

Less Documentation Than Average

# FOCUS ON IMPROVEMENTS!

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## Methodical Review Of Deliverables By Author And Peers

- Define Peer Review Process
- Identify Deliverables To Be Reviewed
- Collect And Use Defect Data
- Review And Audit Process

Focus Is Defect Removal

KPA(s) Impacted: Peer Review

Software Project Engineering  
Organization Process Design



# PUTTING IT ALL TOGETHER

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- CMM<sup>®</sup> Model Provides a Roadmap
- Assessments Provide Feedback
- Linking Metrics Turns Theory into Reality

# Contact Information

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For questions on this presentation or topic, contact:

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