

Reducing Gaps In Software Process Performance Through Identification And Implementation Of Best Software Practices

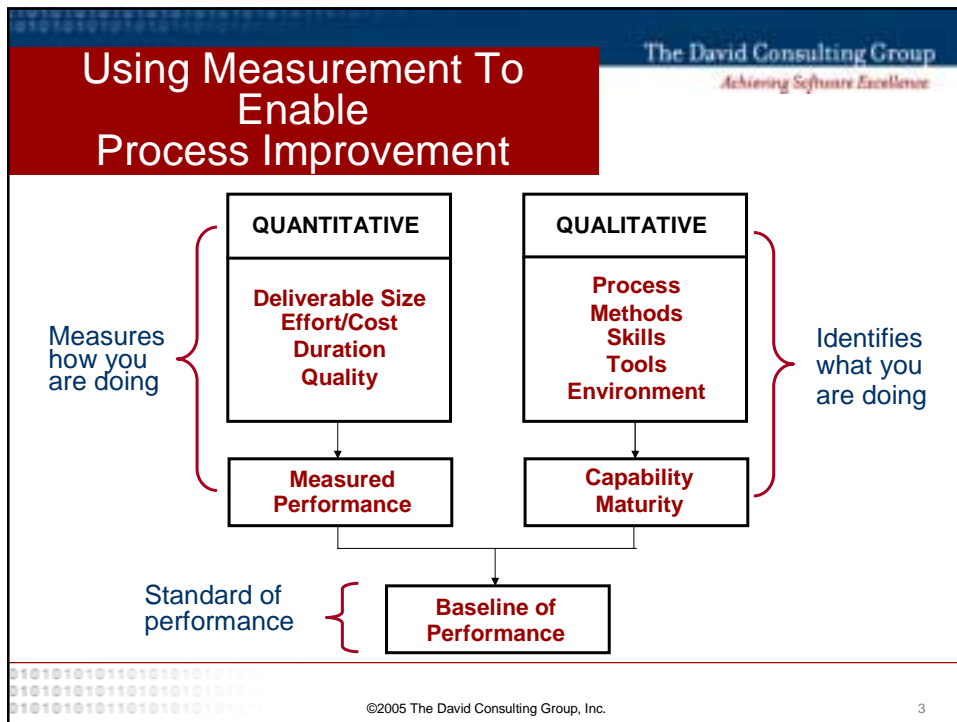
2005 PSM Conference

The David Consulting Group
Achieving Software Excellence

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Presentation Topics

- Measurement For Process Improvement
- Baseline Your Organization's Performance
- Implementation Of Best Software Practices



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Utilizing Measurement Results In Decision Making

- Improvements resulting from current and future initiatives must be measured
- The basis for measuring improvements may include:
 - Industry data
 - Organizational baseline data
- It is necessary for the organization to put a “**stake in the ground**” relative to current performance level in order to improve development practices

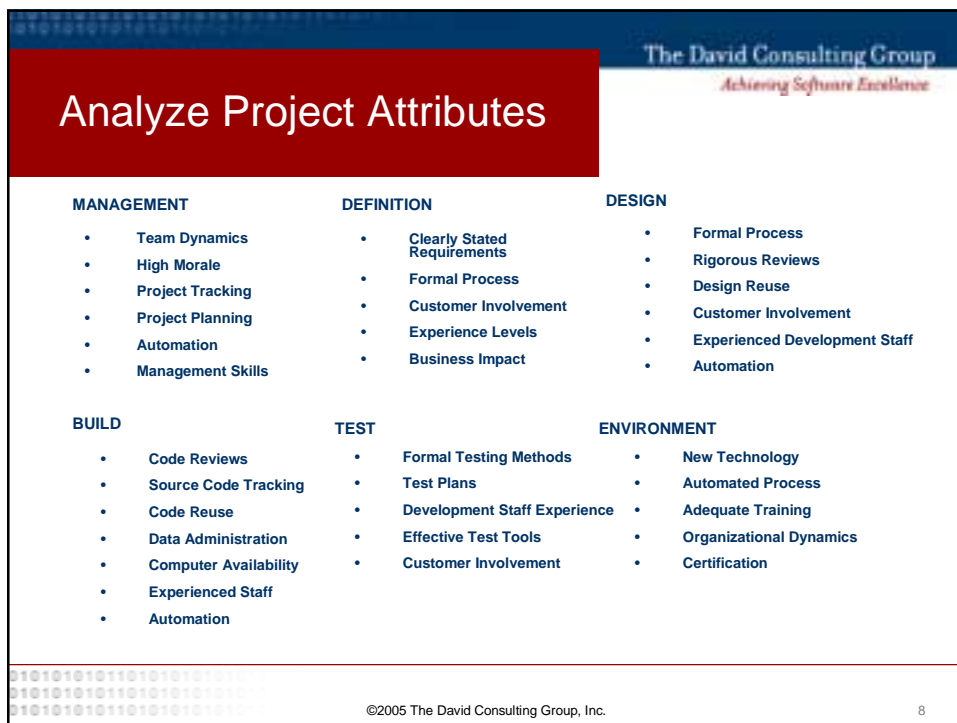
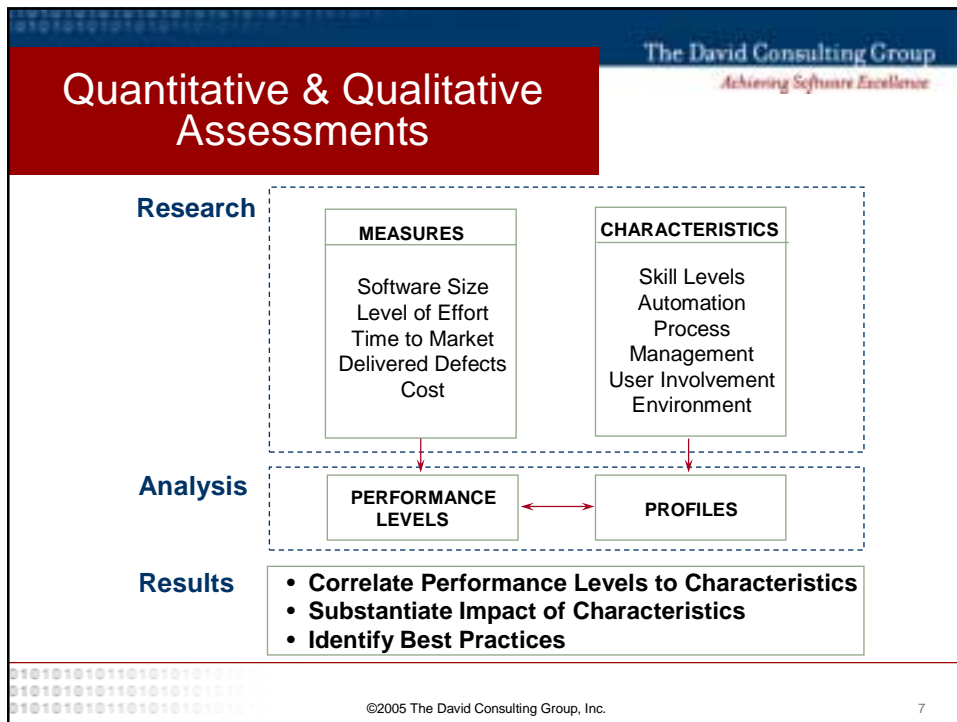
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Presentation Topics

- Measurement For Process Improvement
- **Baseline Your Organization's Performance**
- Implementation Of Best Software Practices

Collecting & Reporting

- Identify data set (typically project oriented)
- Collect baseline data
 - Project measures (e.g., effort, size, cost, duration, defects)
 - Project attributes (e.g., skill levels, tools, process, etc.)
- Analyze data
 - Performance comparisons (identification of process strengths and weaknesses)
 - Industry averages and best practices
 - Performance modeling (identify high impact areas)
- Report results



Strengths & Opportunities (An Example)

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Definition

Strengths

- Requirements are clearly stated and stable
- Development and customers are experienced in applications

Opportunities for Improvement

- More formal requirements gathering process on larger projects
- More consistent use of prototyping on larger projects
- A formal review process

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Establish A Baseline

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Size is expressed in terms of functionality delivered to the user

Software Size

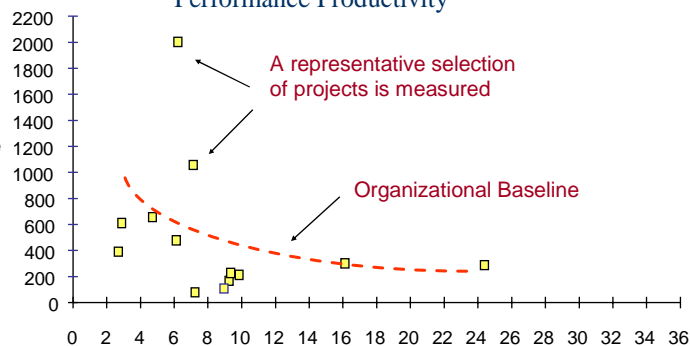
Rate of delivery is a measure of productivity

Performance Productivity

Rate of Delivery
Function Points per Person Month

A representative selection of projects is measured

Organizational Baseline

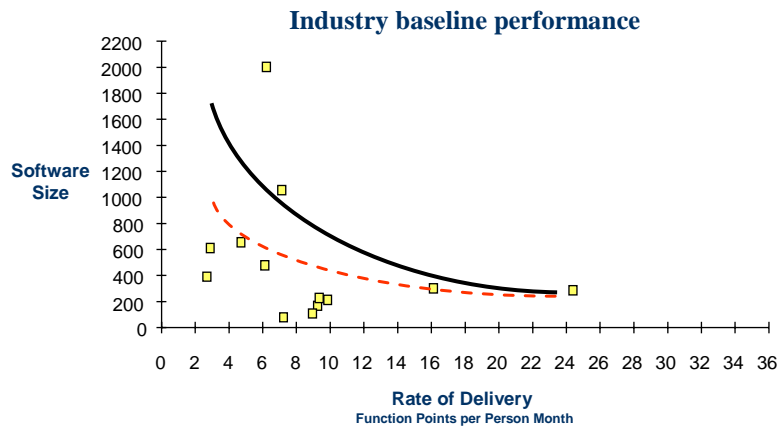


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Compare To Industry Benchmarks

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Function Points Per Person Month

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Average of Recent Projects Across
Different Platforms

Client Server	15
Main Frame	13
Web	22
e-business Web	12
Vendor Packages	19
Data Warehouse	11

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Function Points Supported By One FTE

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Average of Support Provided for
Corrective Maintenance by One FTE

Client Server	642
Main Frame	943
AS 400	597
Web	748
e-business Web	464
Vendor Packages	760
Data Warehouse	546

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Presentation Topics

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- Measurement for Process Improvement
- Baseline Your Organization's Performance
- **Implementation of Best Software Practices**

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DCG Data Base Reveals Best Practices

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Characteristics

Project Type
Platform
Data Base
Method
Language

Complexity Variables

Logical Algorithms
Mathematical Algorithms
Data Relationships
Functional Size
Reuse

Code Structure
Performance
Memory
Security
Warranty

Metrics

Size
Cost
Effort
Duration
Defects

Attributes

Management
Definition
Design
Build
Test
Environment

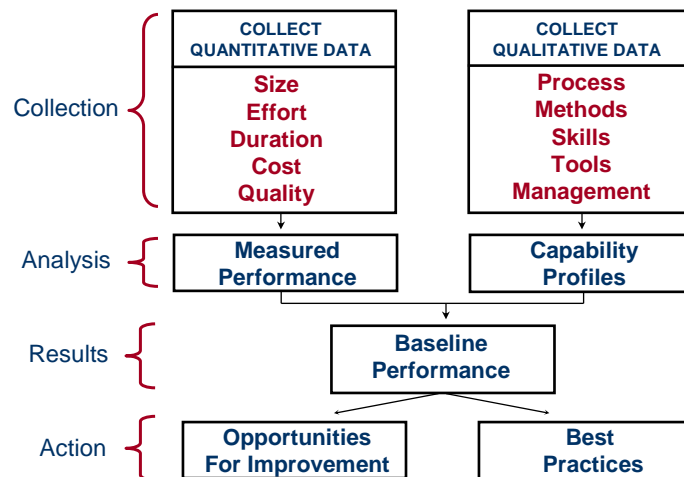
Process
Skill Levels
Quality Practices
Measures

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Quantitative & Qualitative Performance Measurement

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Reducing The Gaps

- Model the impact of implementing selected process improvements
- Evaluate the impact on productivity
- Modeling is performed from several perspectives: Management Improvements, Design Improvements, Definition Improvements, Build Improvements, Test Improvements, Environment Improvements and CMM®/CMMI® Specific Improvements

EXAMPLE: Improvements as measured from the following baseline --

Average Project Size:	133 Function Points (FPs)
Average Productivity:	10.7 FP/Effort Month (EM)
Average Time-to-Market:	6.9 Months
Average Cost/FP:	\$939
Projected Delivered Defects/FP:	.0301

Modeled Improvements

Project Name	Profile Score	Management	Definition	Design	Build	Test	Environment
Accounts Payable	55.3	47.73	82.05	50.00	46.15	43.75	50.00
Priority One	27.6	50.00	48.72	11.31	38.46	0.00	42.31
HR Enhancements	32.3	29.58	48.72	0.00	42.31	37.50	42.31
Client Accounts	29.5	31.82	43.59	0.00	30.77	37.50	42.31
ABC Release	44.1	31.82	53.85	34.09	38.46	53.13	42.31
Screen Redesign	17.0	22.92	43.59	0.00	15.38	0.00	36.77
Customer Web	40.2	45.45	23.08	36.84	53.85	50.00	34.62
Whole Life	29.2	56.82	28.21	22.73	26.92	19.75	53.85
Regional - East	22.7	36.36	43.59	0.00	30.77	9.38	36.77
Regional - West	17.6	43.19	21.08	0.00	26.92	9.38	27.50
Cashflow	40.6	56.82	71.79	0.00	38.46	43.75	38.46
Credit Automation	23.5	29.58	48.72	0.00	38.46	16.25	26.92
NISE	48.0	38.64	56.41	32.77	30.77	53.13	53.85
Help Desk Automation	48.3	54.55	74.36	25.45	53.85	50.00	38.46
Formula One Upgrade	22.8	31.82	38.46	0.00	11.54	25.00	46.15

Process Improvements:

- Code Reviews and Inspections
- Requirements Management
- Defect Tracking Configuration Management

Project Name	Profile Score	Management	Definition	Design	Build	Test	Environment
Accounts Payable	75.3	61.73	82.05	60.00	60.15	53.75	50.00
Priority One	57.6	57.00	55.72	18.36	45.46	22.00	49.31
HR Enhancements	52.3	32.55	51.72	21.00	42.31	57.50	49.31
Client Accounts	69.5	53.82	53.59	12.00	50.77	67.50	49.31
ABC Release	74.1	55.82	69.85	49.09	52.46	63.13	49.31
Screen Redesign	67.0	43.73	63.59	21.00	36.38	20.00	51.77
Customer Web	69.2	49.45	27.08	58.64	53.85	54.00	49.62
Whole Life	50.2	49.82	32.21	27.73	31.92	24.75	53.85
Regional - East	57.7	59.36	49.59	0.00	30.77	9.38	56.77
Regional - West	52.6	55.18	30.09	0.00	33.92	19.38	28.92
Cashflow	67.6	66.82	71.79	0.00	48.46	53.75	49.46
Credit Automation	60.5	41.55	78.72	0.00	50.46	26.25	46.92
NISE	73.0	68.64	76.41	62.27	65.77	53.13	53.85
Help Desk Automation	75.3	64.55	74.36	47.45	63.85	54.00	58.46
Formula One Upgrade	52.8	49.82	52.46	0.00	31.54	25.00	56.15

Performance Improvements:
Productivity ~ +131%
Time to Market ~ -49%
Defect Ratio ~ -75%

	Baseline Productivity
Average Project Size	133
Average FP/SM	10.7
Average Time-To-Market (Months)	6.9
Average Cost/FP	\$939
Delivered Defects/FP	0.0301

	Productivity Improvement
Average Project Size	133
Average FP/SM	24.8
Average Time-To-Market (Months)	3.5
Average Cost/FP	\$467
Delivered Defects/FP	0.0075

Contact Information

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