

Performance Modeling

Presented By:

The David Consulting Group, Inc.

Achieving Software Excellence

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About Performance Modeling

- ❑ Develop parametric models that utilize historical data points for purposes of analyzing the impact of selected process improvements
- ❑ Provide a knowledge base for improved decision making
- ❑ Identify areas of high impact (e.g., productivity and quality)
- ❑ Create an atmosphere of measuring performance
- ❑ Opportunity for comparison to industry best practices

Industry Data Reveals Best Practices

Research

MEASURES

Software Size
Level of Effort
Time to Market
Delivered Defects
Removal Rates

CHARACTERISTICS

Skill Levels
Automation
Process
Management
User Involvement
Environment

Analysis

PERFORMANCE LEVELS

PROFILES

Results

- Correlate Performance Levels to Characteristics
- Substantiate Impact of Characteristics
- Identify Best Practices

DCG Data Base

Characteristics

Project Type
Platform
Data Base
Method
Language

Complexity Variables

Logical Algorithms	Code Structure
Mathematical Algorithms	Performance
Data Relationships	Memory
Functional Size	Security
Reuse	Warranty

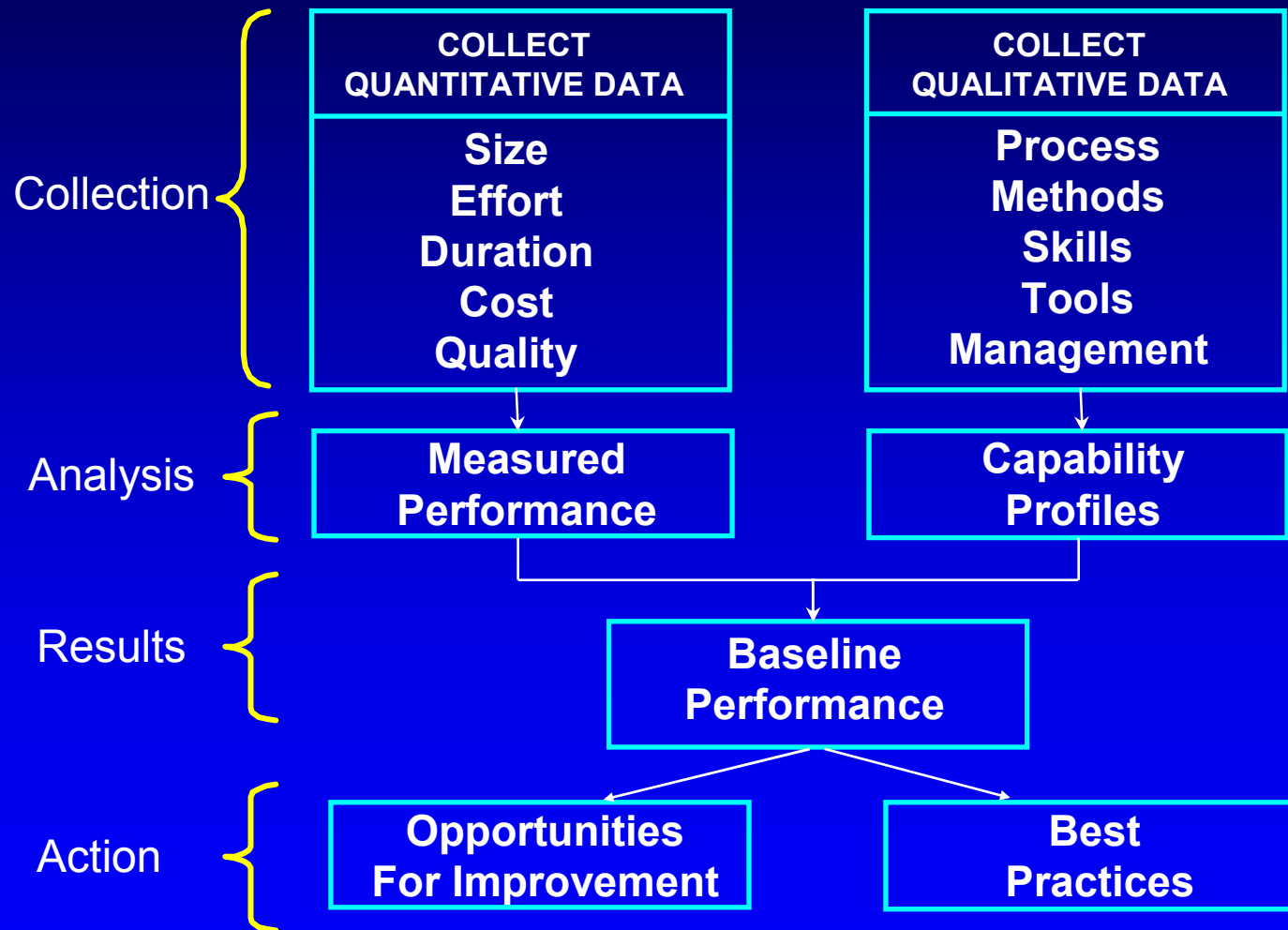
Metrics

Size
Cost
Effort
Duration
Defects

Attributes

Management	}	Process
Definition		Skill Levels
Design		Quality Practices
Build		Measures
Test		
Environment		

Quantitative & Qualitative Performance Evaluation



Quantitative Performance Evaluation



Quantitative Assessment

- ❑ Perform functional sizing on all selected projects.
- ❑ Collect data on project level of effort, cost, duration and quality.
- ❑ Calculate productivity rates for each project, including functional size delivered per staff month, cost per functional size, time to market, and defects delivered.

Results

	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

Qualitative Performance Evaluation



Qualitative Assessment

- ❑ Conduct Interviews with members of each project team.
- ❑ Collect Project Profile information.
- ❑ Develop Performance Profiles to display strengths and weaknesses among the selected projects.

Results

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	11.36	38.46	0.00	42.31
HR Enhancements	32.3	29.55	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	22.73	43.59	0.00	15.38	0.00	30.77
Customer Web	40.2	45.45	23.08	38.64	53.85	50.00	34.62
Whole Life	29.2	56.82	28.21	22.73	26.92	18.75	53.85
Regional - East	22.7	36.36	43.59	0.00	30.77	9.38	30.77
Regional - West	17.6	43.18	23.08	0.00	26.92	9.38	26.92
Cashflow	40.6	56.82	71.79	0.00	38.46	43.75	38.46
Credit Automation	23.5	29.55	48.72	0.00	38.46	6.25	26.92
NISE	49.0	38.64	56.41	52.27	30.77	53.13	53.85
Help Desk Automation	49.3	54.55	74.36	20.45	53.85	50.00	38.46
Formula One Upgrade	22.8	31.82	38.46	0.00	11.54	25.00	46.15

Modeled Improvements

SAMPLE
DATA

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	11.36	38.46	0.00	42.31
HR Enhancements	32.3	29.55	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	22.73	43.59	0.00	15.38	0.00	30.77
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Help Desk Automation	49.3	54.55	74.36	20.45	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	47.73	82.05	50.00	46.15	43.75	50.00
Priority One	57.6	50.00	48.72	11.36	38.46	0.00	42.31
HR Enhancements	52.3	29.55	48.72	0.00	42.31	37.50	42.31
Client Accounts	69.5	31.82	43.59	0.00	30.77	37.50	42.31
ABC Release	74.1	31.82	53.85	34.09	38.46	53.13	42.31
Screen Redesign	67.0	22.73	43.59	0.00	15.38	0.00	30.77
Customer Web	50.2	45.45	23.08	38.64	53.85	50.00	34.62
Whole Life	59.2	56.82	28.21	22.73	26.92	18.75	53.85
Regional - East	52.7	36.36	43.59	0.00	30.77	9.38	30.77
Regional - West	57.6	43.18	23.08	0.00	26.92	9.38	26.92
Cashflow	60.6	56.82	71.79	0.00	38.46	43.75	38.46
Credit Automation	63.5	29.55	48.72	0.00	38.46	6.25	26.92
NISE	79.0	38.64	56.41	52.27	30.77	53.13	53.85
Help Desk Automation	79.3	54.55	74.36	20.45	53.85	50.00	38.46
Formula One Upgrade	52.8	31.82	38.46	0.00	11.54	25.00	46.15

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

➤ David Consulting Group web site:
www.davidconsultinggroup.com