

Performance Modeling

Presented By:

The David Consulting Group, Inc.
Achieving Software Excellence
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Presentation Highlights

- ❑ Understand the concept of performance modeling
- ❑ Consider the value of performance modeling and how it can be applied
- ❑ Learn about the basic components of performance modeling
- ❑ Learn about the techniques and tools required to develop your own performance models

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Why Measure Performance

- ❑ Support ROI projections
- ❑ Identify opportunities for improvement
- ❑ Identify areas of high impact (e.g., productivity and quality)
- ❑ Create an atmosphere of measuring performance
- ❑ Opportunity for comparison to industry best practices

About Performance Modeling

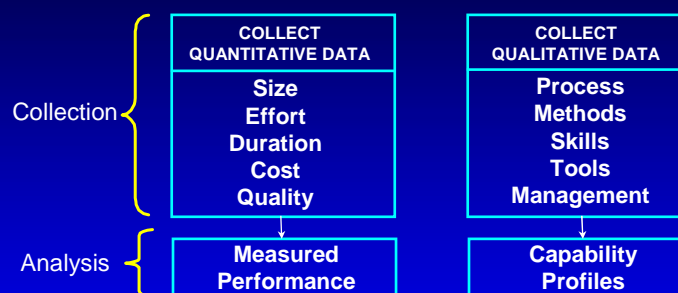
- ❑ Parametric models that utilize historical data points for purposes of analyzing the impact of selected process improvements
- ❑ Models can be created from an organization's database of measurement data or from industry data
- ❑ Models provide a knowledge base for improved decision making

Collecting the Data



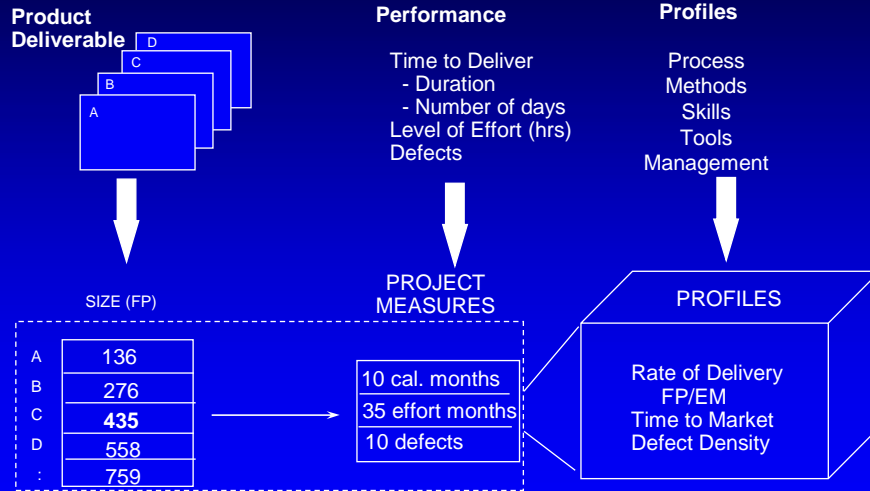
- Using a selection of recently completed projects, collect several basic measures
- For those same projects, collect a series of project attributes - process models can be used

Analyzing the Data



- Measured performance is derived; e.g., productivity, time to market, cost per unit of work, defect density
- Profiles are created, which are an evaluation of the collected attributes

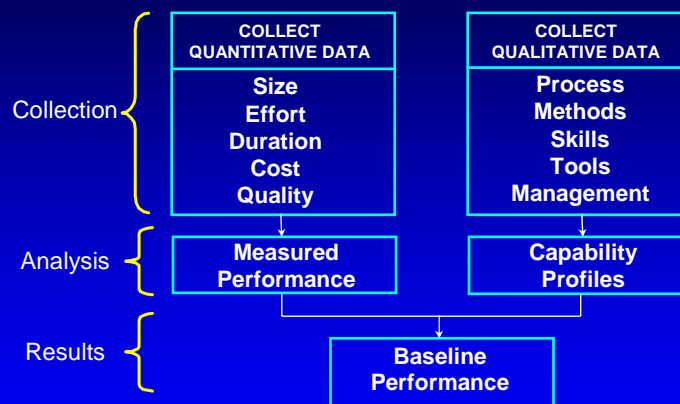
Resulting Baseline Data



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Quantitative & Qualitative Performance Evaluation

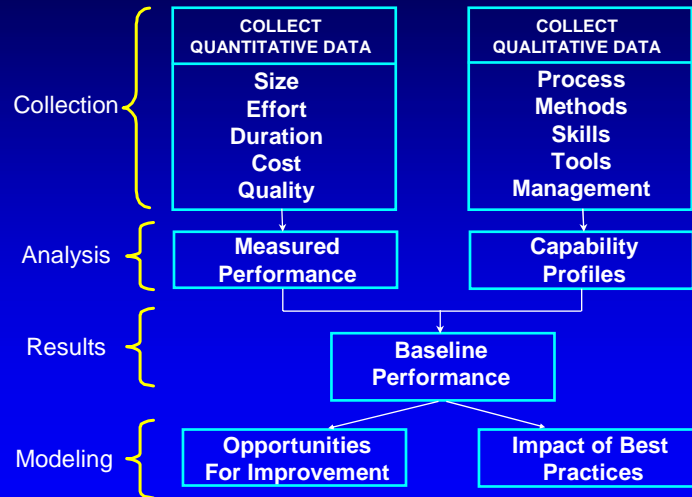


- The resulting organizational baseline can form the basis for performance modeling

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Performance Modeling



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DCG Data Base

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

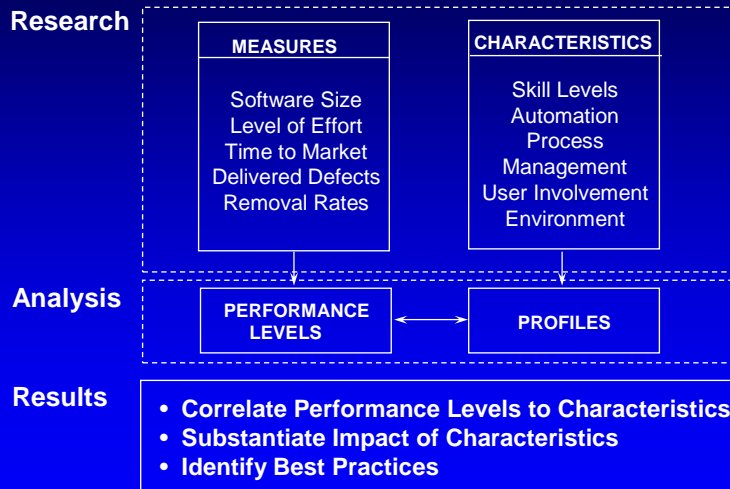
Management
Definition
Design
Build
Test
Environment

Process
Skill Levels
Quality Practices
Measures

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Industry Data Reveals Best Practices



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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

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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	29.85	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	23.88	38.64	53.85	60.00	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	3.38	30.77
Regional - West	17.6	43.18	29.85	0.00	26.92	3.38	26.92
Cashflow	40.6	56.82	71.79	0.00	38.46	43.75	38.46
Credit Automation	23.5	28.52	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	25.00	50.00	38.46
Formula One Upgrade	22.8	31.82	38.46	0.00	11.54	25.00	46.15

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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	29.85	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	23.88	38.64	53.85	60.00	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	3.38	30.77
Regional - West	17.6	43.18	29.85	0.00	26.92	3.38	26.92
Cashflow	40.6	56.82	71.79	0.00	38.46	43.75	38.46
Credit Automation	23.5	28.52	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	25.00	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

Performance Improvements:

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

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	16.36	45.46	22.00	49.31
HR Enhancements	52.3	32.55	51.72	23.00	42.31	57.50	49.31
Client Accounts	69.5	53.82	65.59	12.00	59.77	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	59.2	49.45	27.09	38.64	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	50.77
Regional - West	52.6	55.18	30.69	0.00	33.92	19.38	26.92
Cashflow	67.6	66.82	71.79	0.00	49.46	53.75	49.46
Credit Automation	60.5	41.55	78.72	0.00	50.46	26.25	48.92
NISE	79.3	68.64	78.41	62.27	65.77	53.13	53.85
Help Desk Automation	79.3	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

	Baseline
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

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Contact Information

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