



Q/P MANAGEMENT
GROUP, INC.

Example

Benchmarking Software Development and Maintenance

(Example Report)

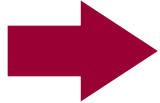
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Benchmarking Software Development and Maintenance

(Example Report)

The methodologies reflected in the enclosed material, including the benchmark comparisons, are confidential and proprietary information of Q/P Management Group, Inc. and are for the internal use of addressee only.

Agenda



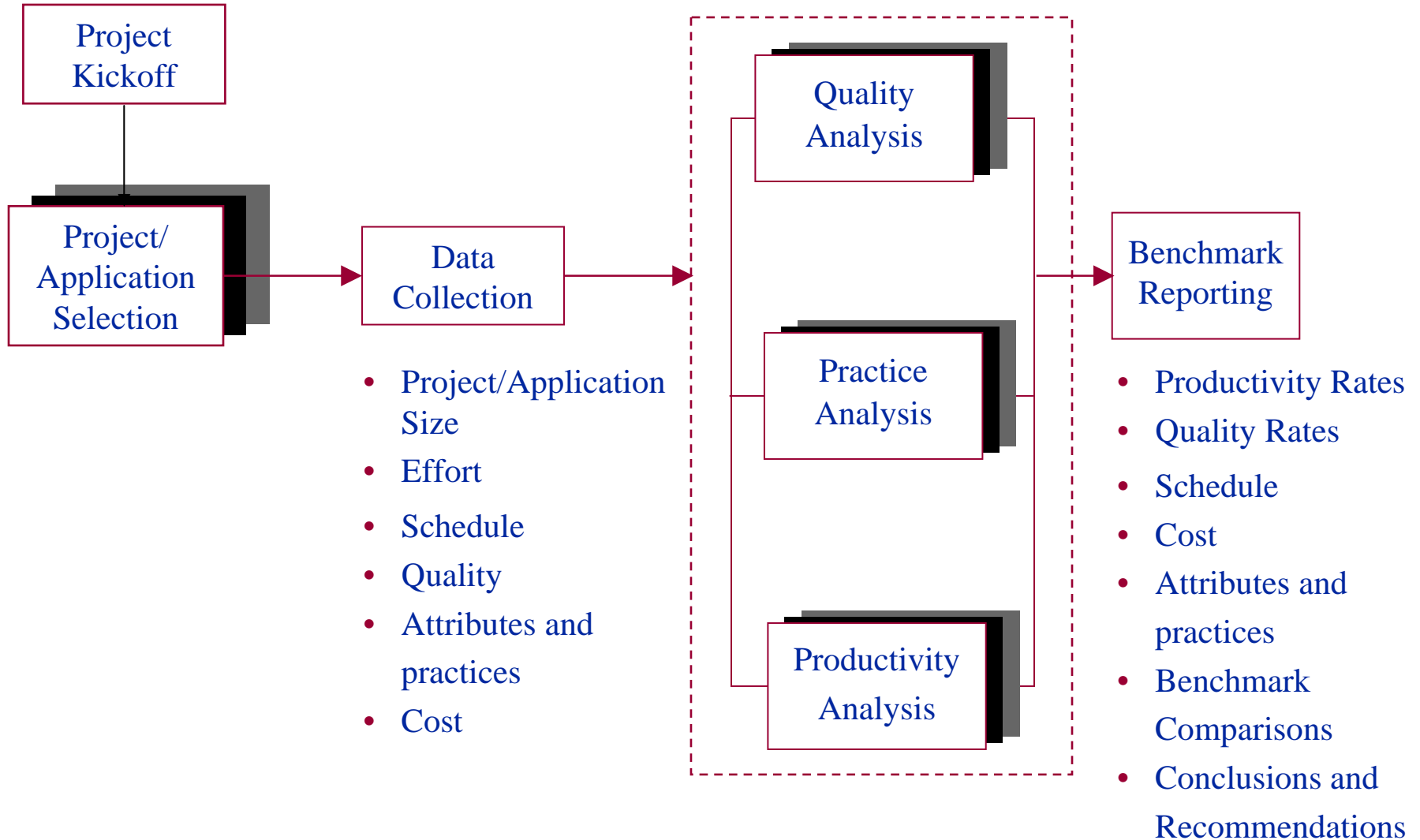
- Project Background and Concepts
- Findings
 - Development and Enhancement Projects
 - Application Maintenance Assignment Scope (MAS)
 - Software Quality
- Project Attributes and Practices
- Conclusions
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Project Objectives

The purpose of the benchmark study is to:

- Determine the current levels of quality and productivity within the ABC Company utilizing an industry accepted method of measurement
- Benchmark the quality and productivity levels of ABC Company against industry standards
- Develop recommendations and suggested activities for implementing an ongoing measurement process
- Assess practices and identify areas of focus for process improvement within the development life cycle and organization
- Recommend productivity and quality improvement initiatives

The Benchmarking Process



Data Collection

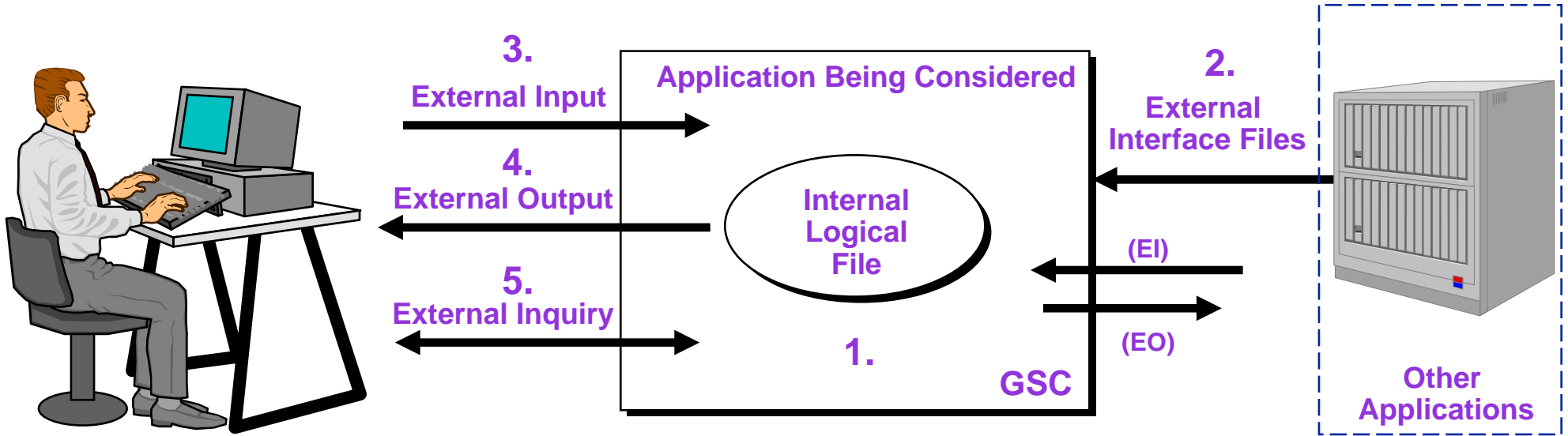
Data Required	Data Definition
Project Size	Function Points
Effort	Hours recorded against the project from start of requirements through first implementation
Costs	Salary and benefit rates for resources who recorded time on the project
Quality	Defects reported within the first xx days of production
Schedule	Start date of the project through date of first implementation

Productivity Measures are Based on Function Point Analysis

Objectives of Function Point Analysis

- Measures functionality that the user requests and receives
- Measures software development, enhancement and maintenance productivity
- Provides a sizing metric for estimating
- Normalizes quality and productivity measures
- Measures the impact of technologies, techniques, and environments

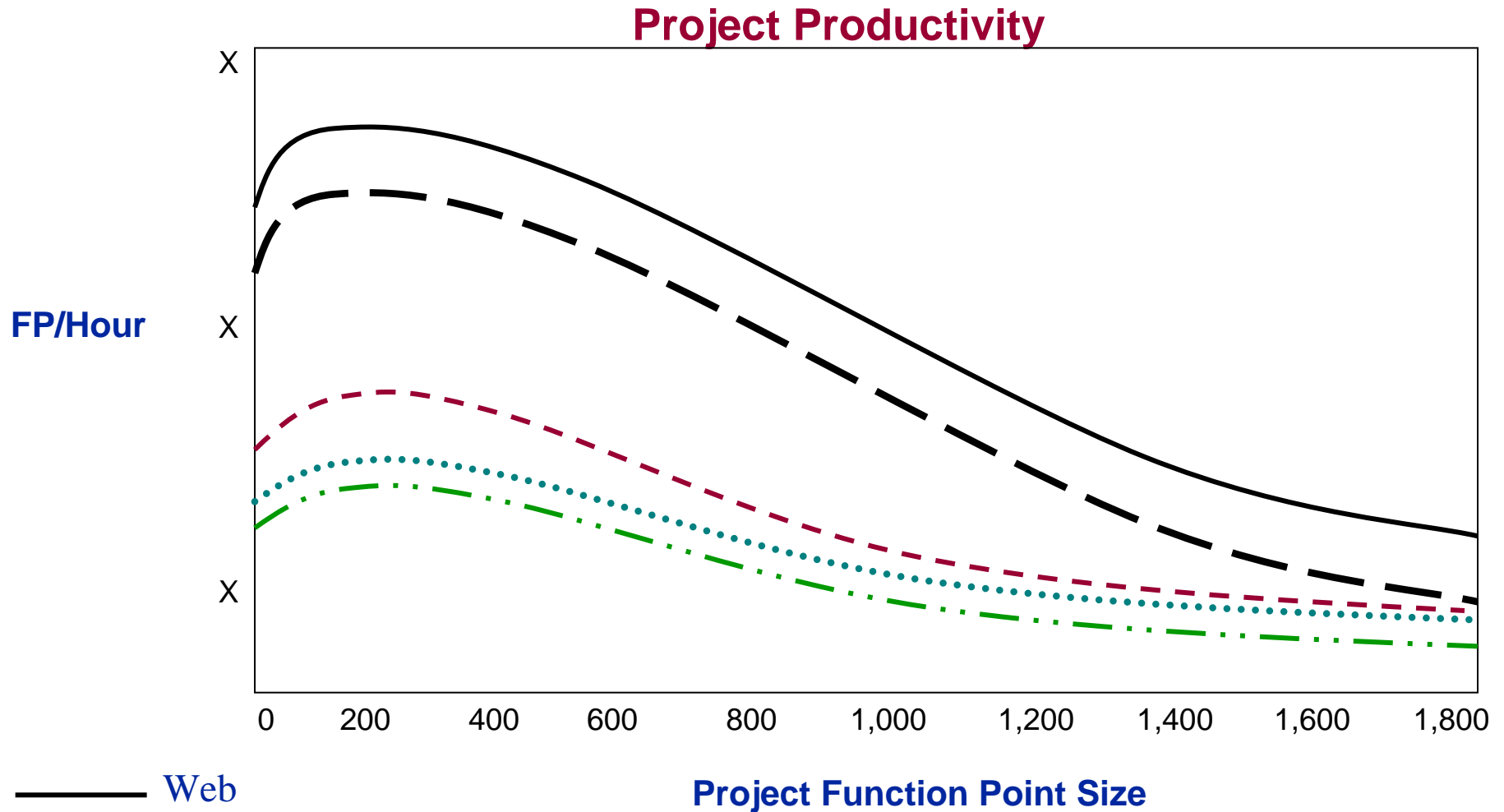
Definition of Function Points



- Function Point Analysis (FPA) is comprised of 5 functional components and 2 adjustment factors for data complexity and operational complexity
- FPA considers the functionality of the application and its interaction with other applications

Example

Productivity Varies by Size and Platform



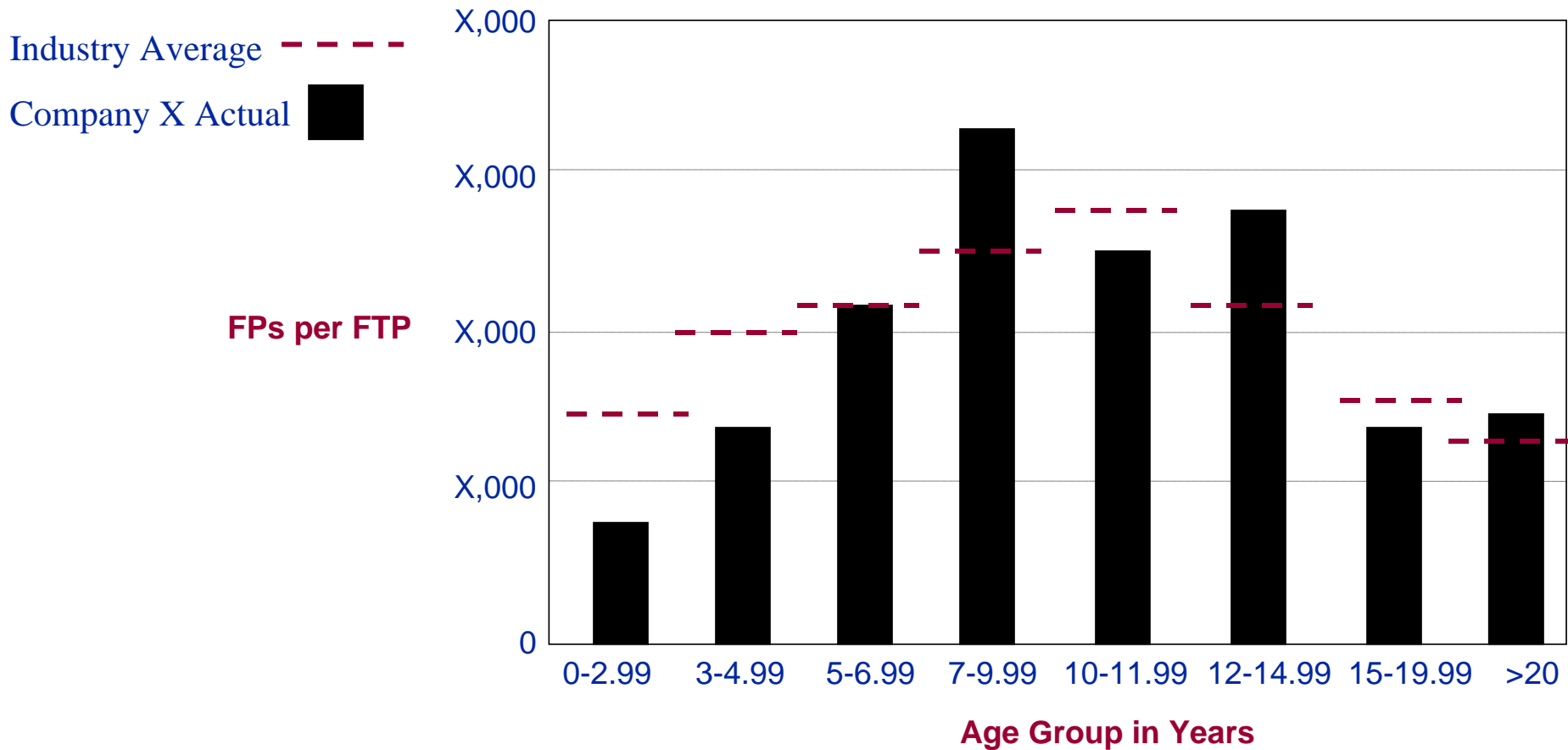
Key:

- Web
- - - PC
- - - Mainframe
- Mixed
- . - Client Server

Platform can account for a significant productivity variation

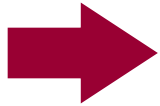
Example

Maintenance Assignment Scope (MAS) Measures Maintenance Productivity



MAS is the number of Function Points that a Full Time Person can maintain per year. MAS varies by application age.

Agenda



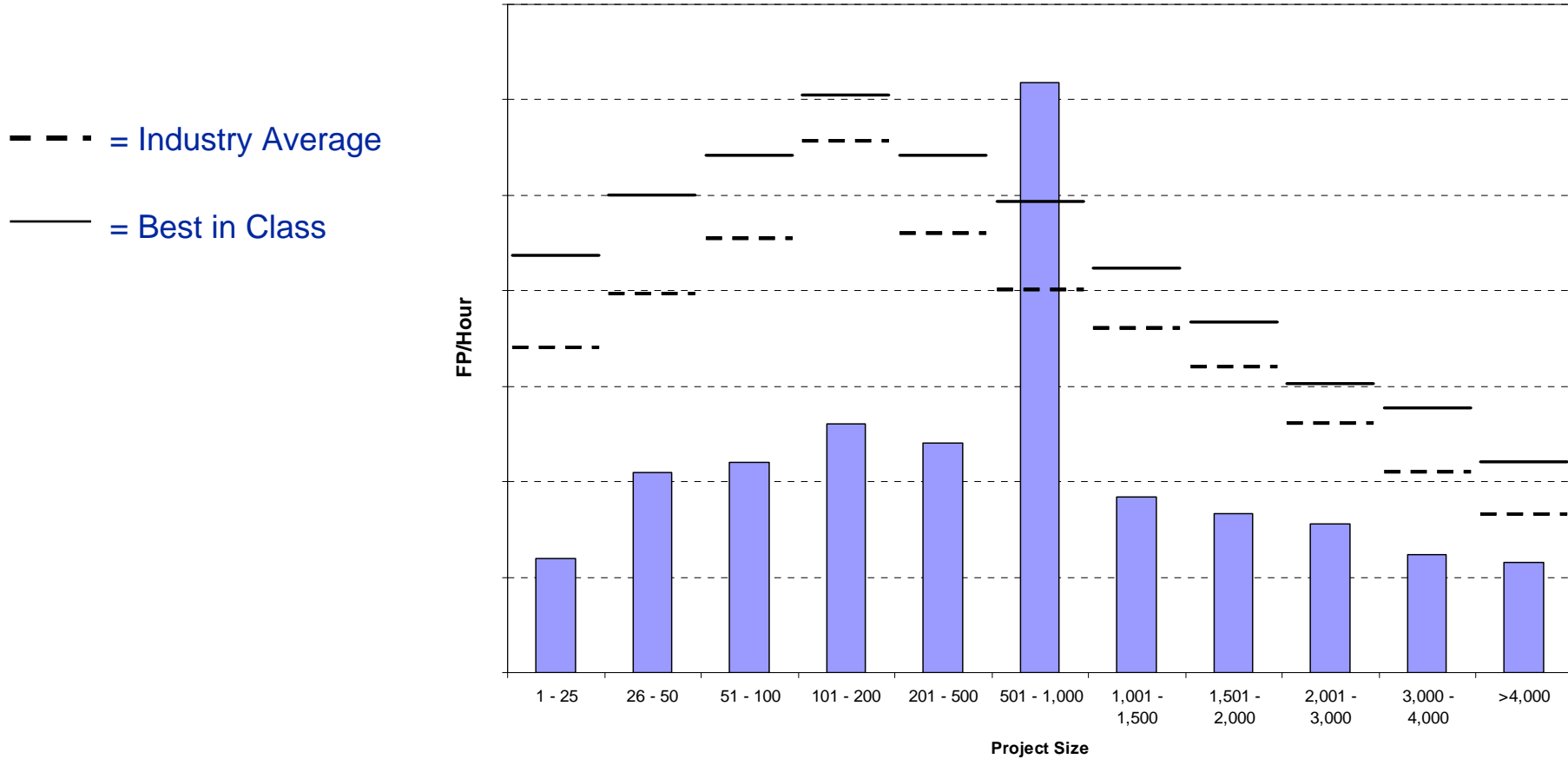
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Executive Summary - Industry Average Benchmark Comparison

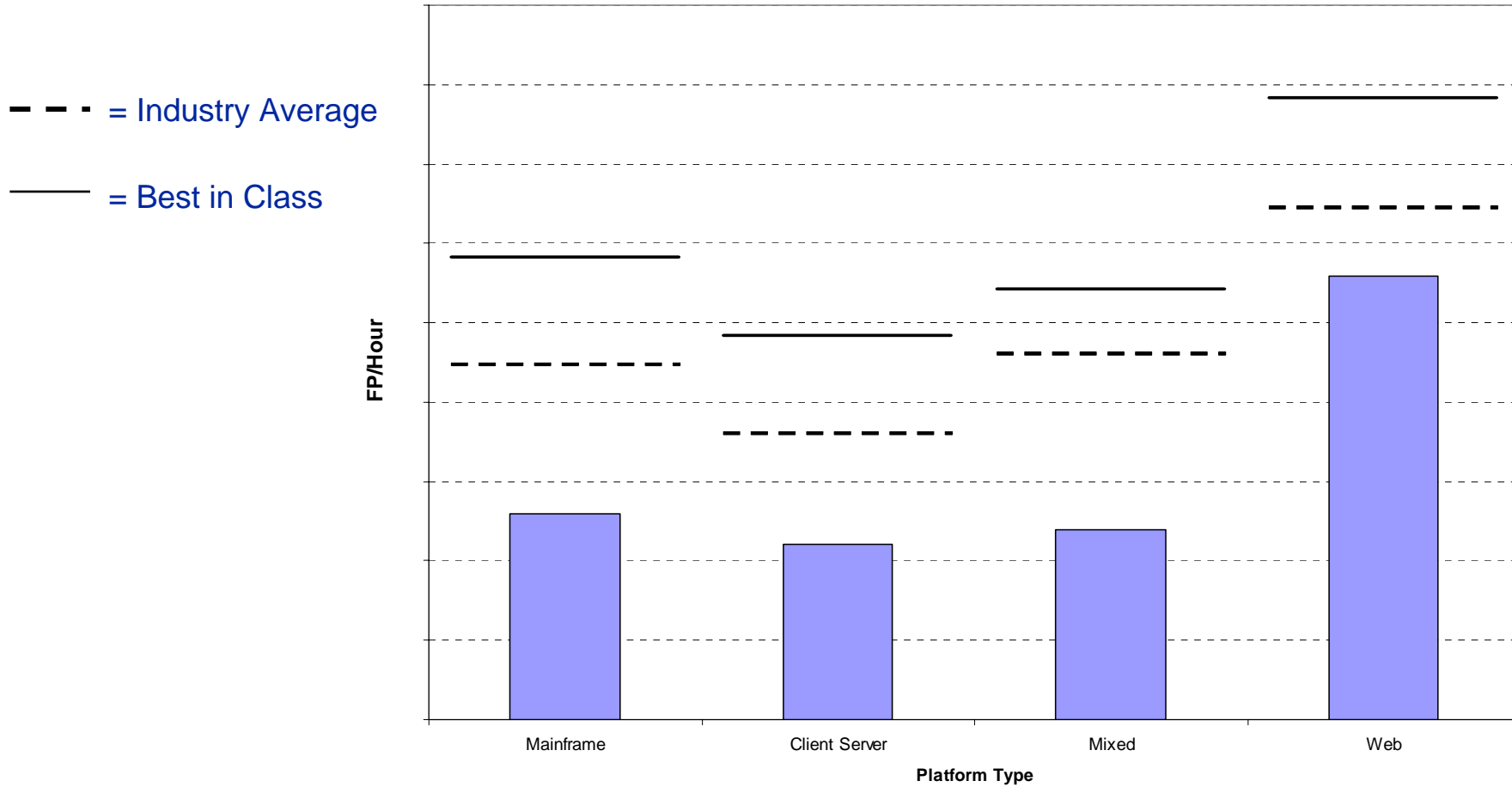
	New Dev. Productivity	Enhance Productivity	Maintenance Productivity (MAS)	Project/ Application Quality	Project Duration	Project Schedule Estimate to Actual Variance	Project Staffing Estimate to Actual Variance
Aggregate	—	↓	↓	↑	—	↑	↑
A	—		↓	↑	Key: <ul style="list-style-type: none"> • Industry Average Benchmark — • Better than Benchmark ↑ • Not as good as Benchmark ↓ 	— ↑ ↓	
B	—		↓	↑			
C	↓		↓	↑			

Project Productivity Summary by FP Size Category



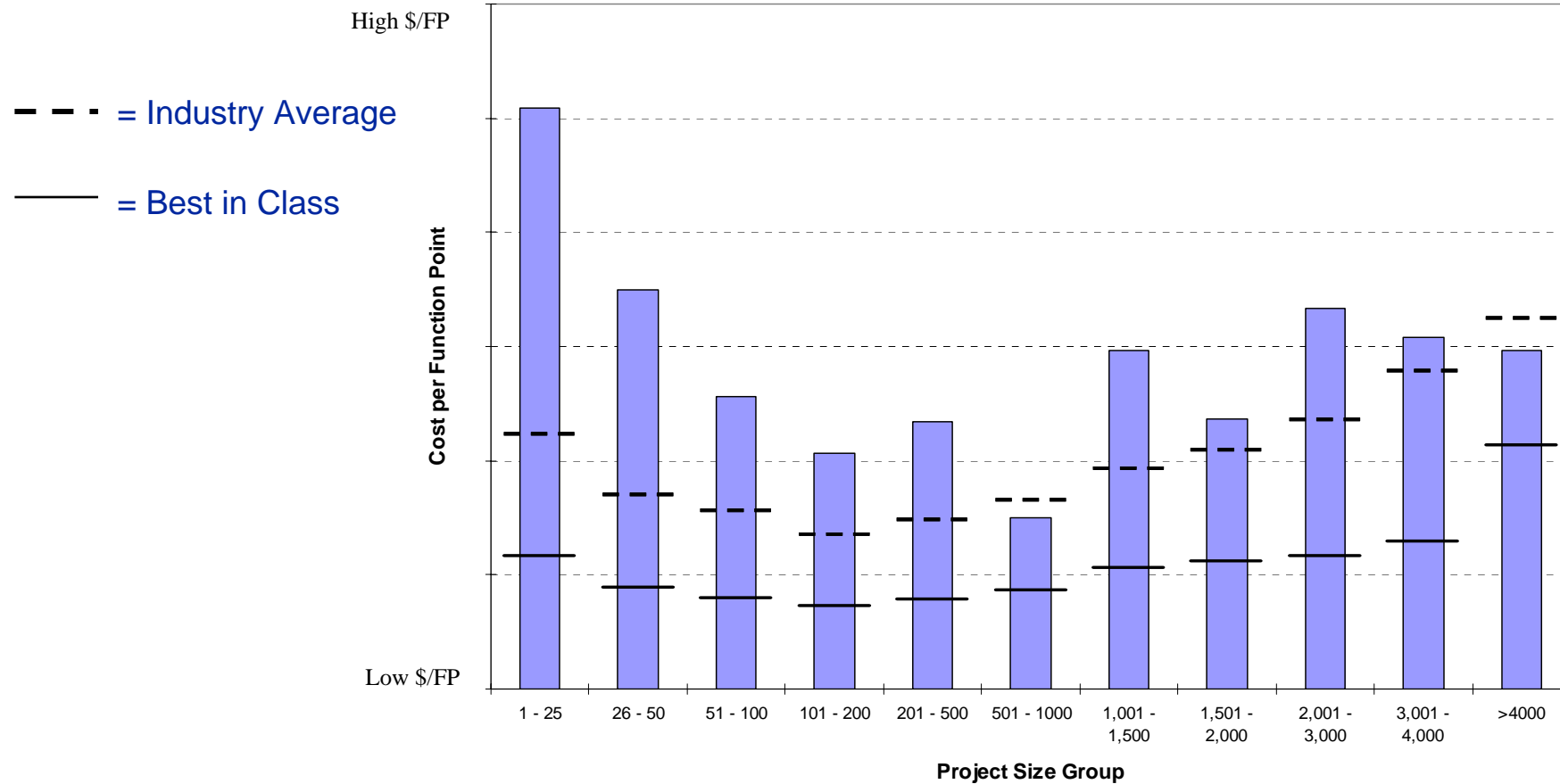
- Overall, ABC project productivity is very low compared to industry benchmarks
- The productivity trend at ABC tends to be consistent with benchmark

Project Productivity by Platform Type



- Project productivity across all platforms is consistently below industry averages

Project Cost per FP Varies by Project Size

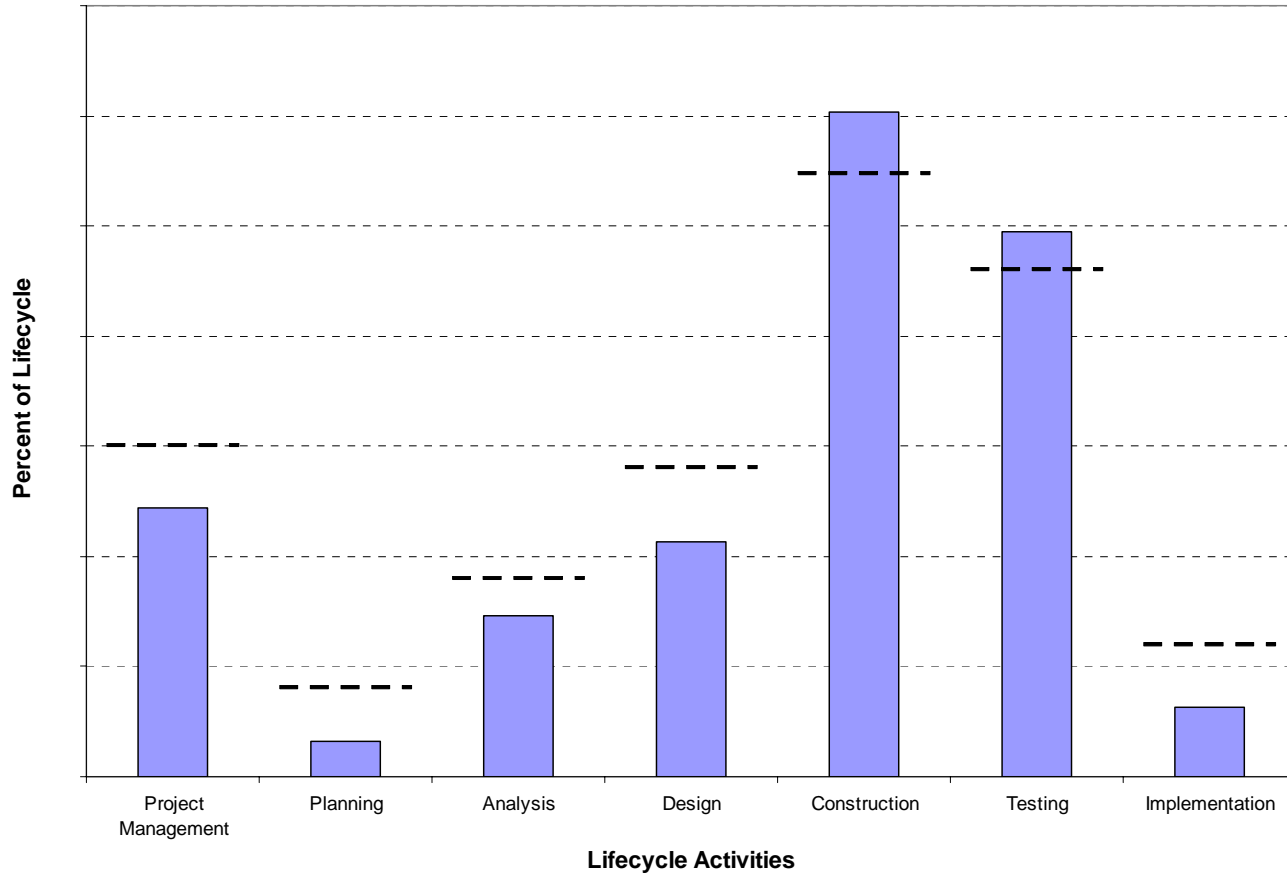


- On average the cost per function point is higher than the industry average benchmark

Example

A high percentage of Project Effort is Expended on Coding and Testing Activities

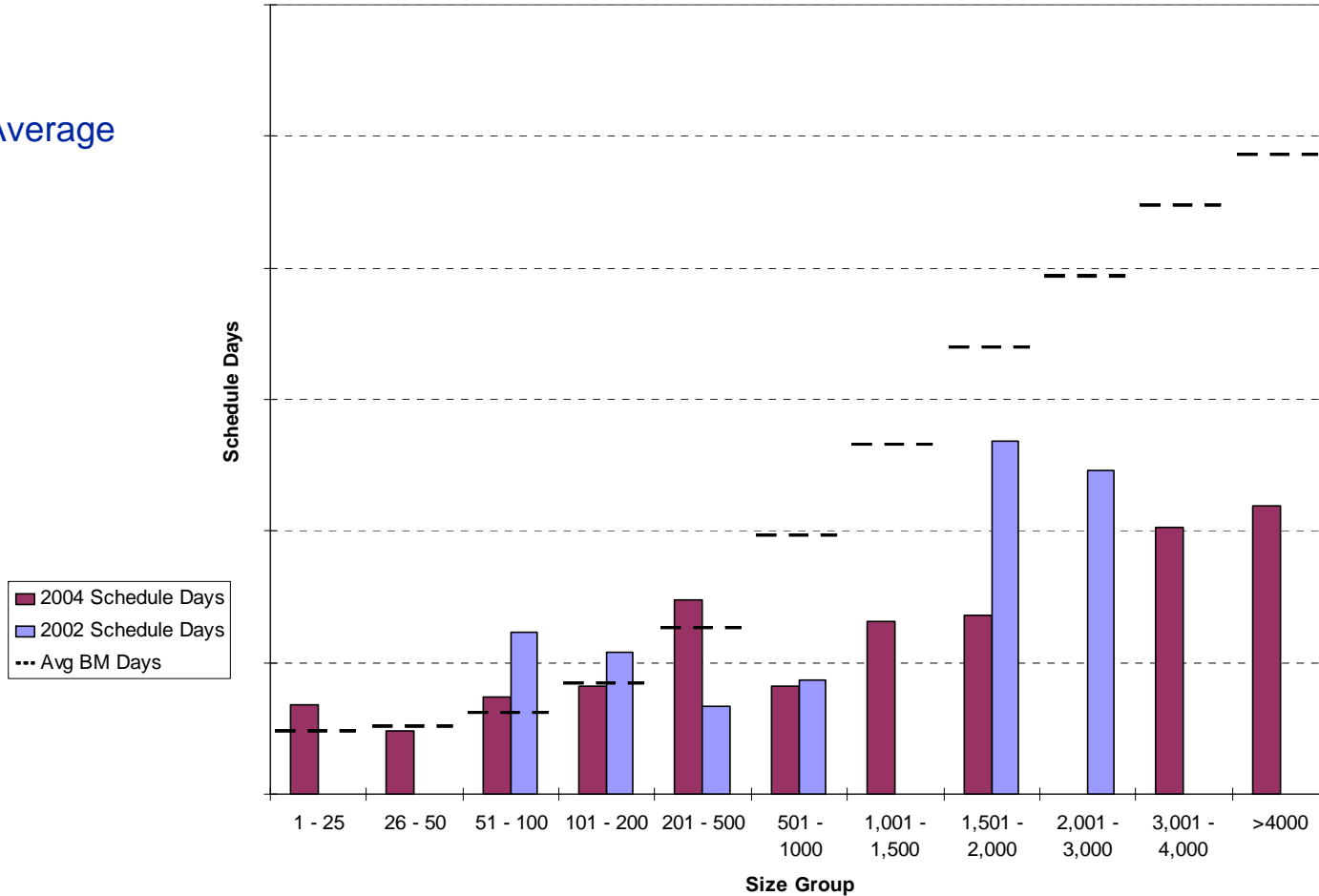
- - - = Industry Average



- The percent of time spent in coding and testing is higher than the industry average benchmark

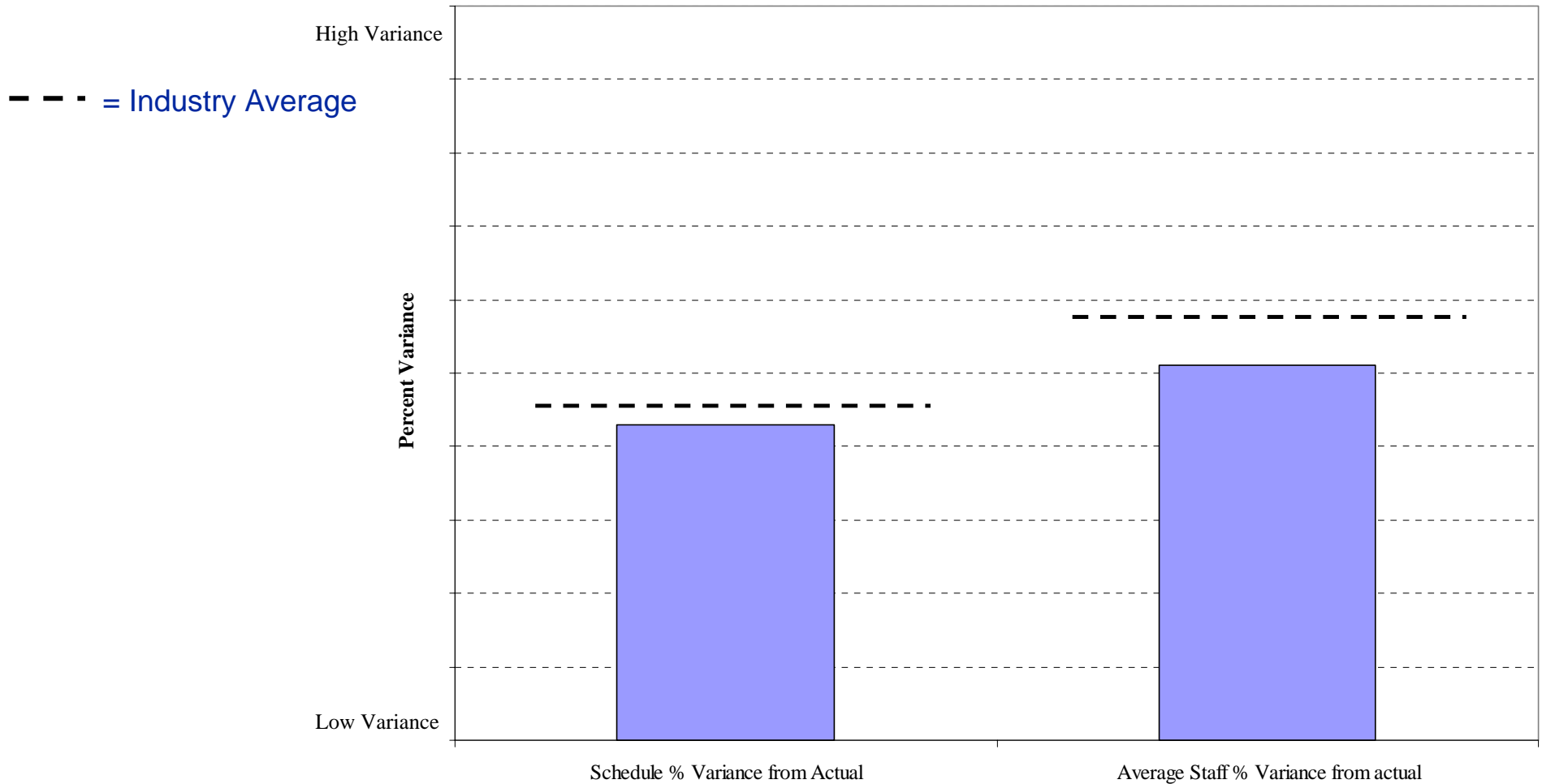
Schedule Duration Summary

----- = Industry Average



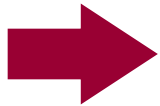
- Projects that are larger than 500 function points generally have schedules with durations significantly shorter than industry benchmarks

Estimating Accuracy Summary



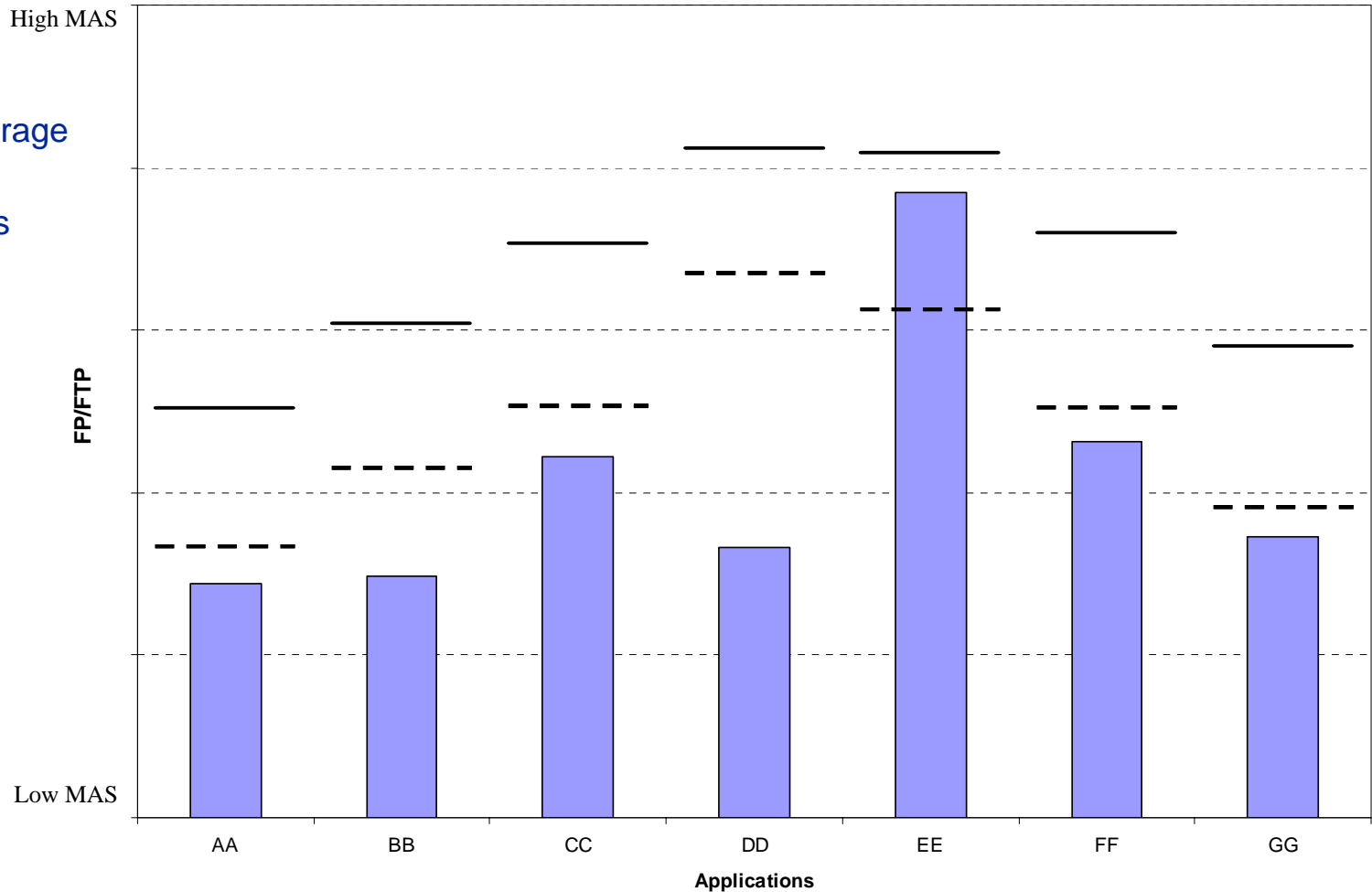
- The accuracy of estimates for both schedule and staffing are better than the industry average

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Application Maintenance Summary

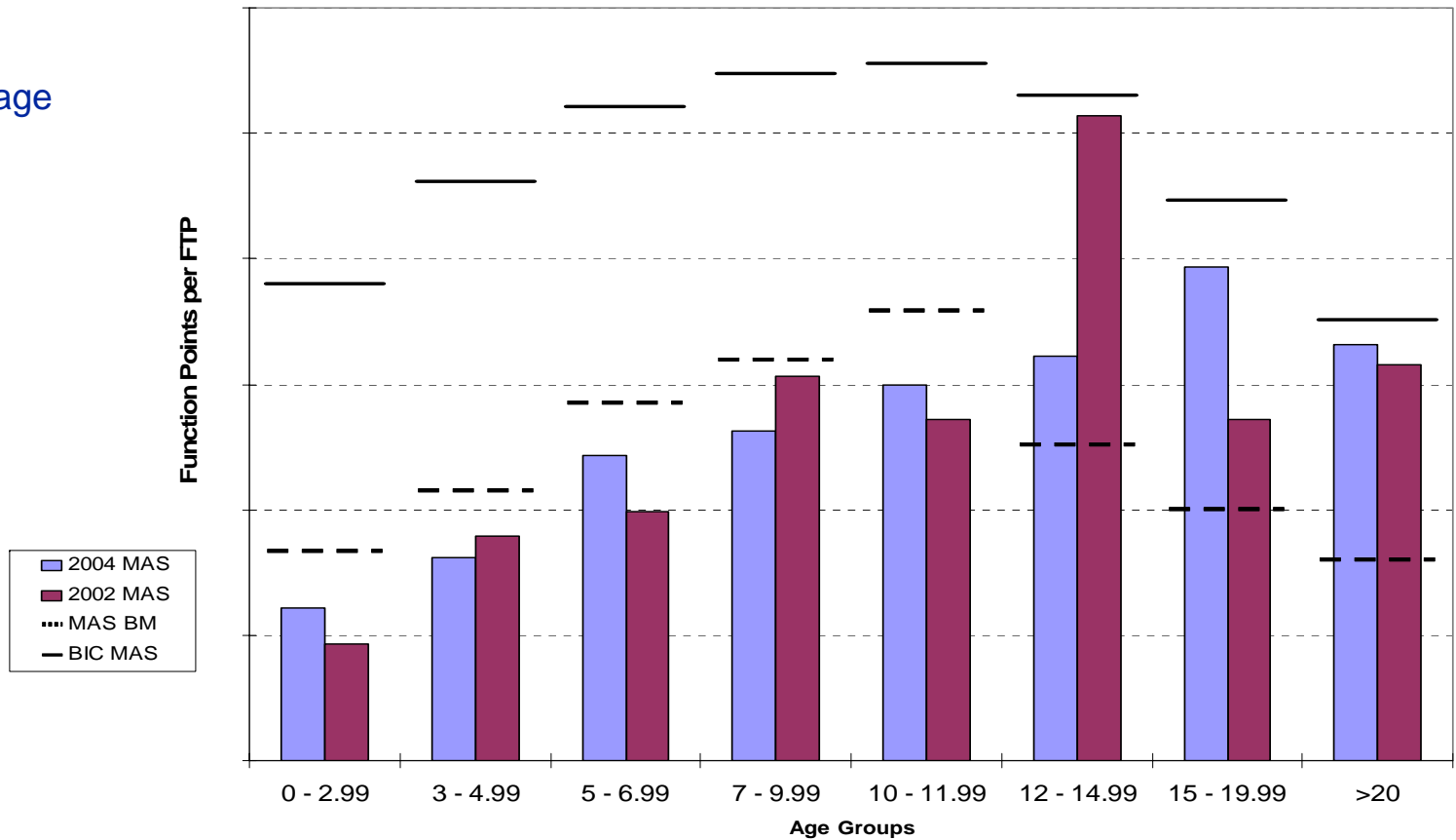


- On average, the Maintenance Assignment Scope (MAS) is xx% below the industry benchmark

For Applications Less Than 12 Years Old the MAS Trend is Consistent With Industry Benchmarks

- - - = Industry Average

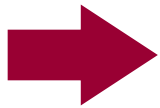
— = Best in Class



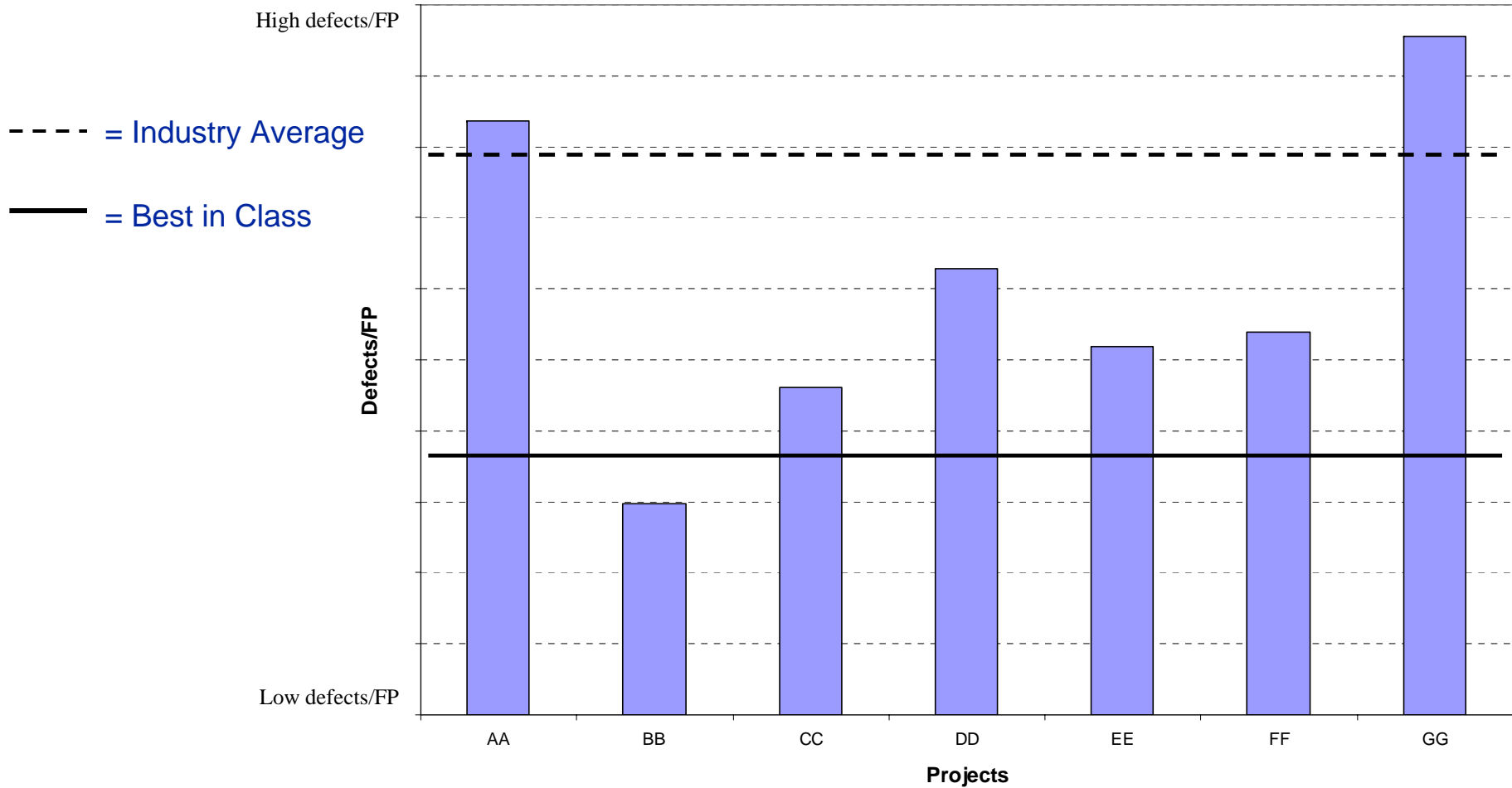
- Maintenance Productivity of applications younger than 12 years old is below the industry average benchmarks
- Maintenance Productivity of applications 12 years old and older is better than industry average benchmarks

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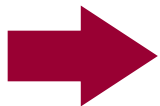
Project Quality Summary



- Overall, the quality of support being delivered is xx% better than industry average benchmarks
- The quality of the BB application is better than the best in class benchmark

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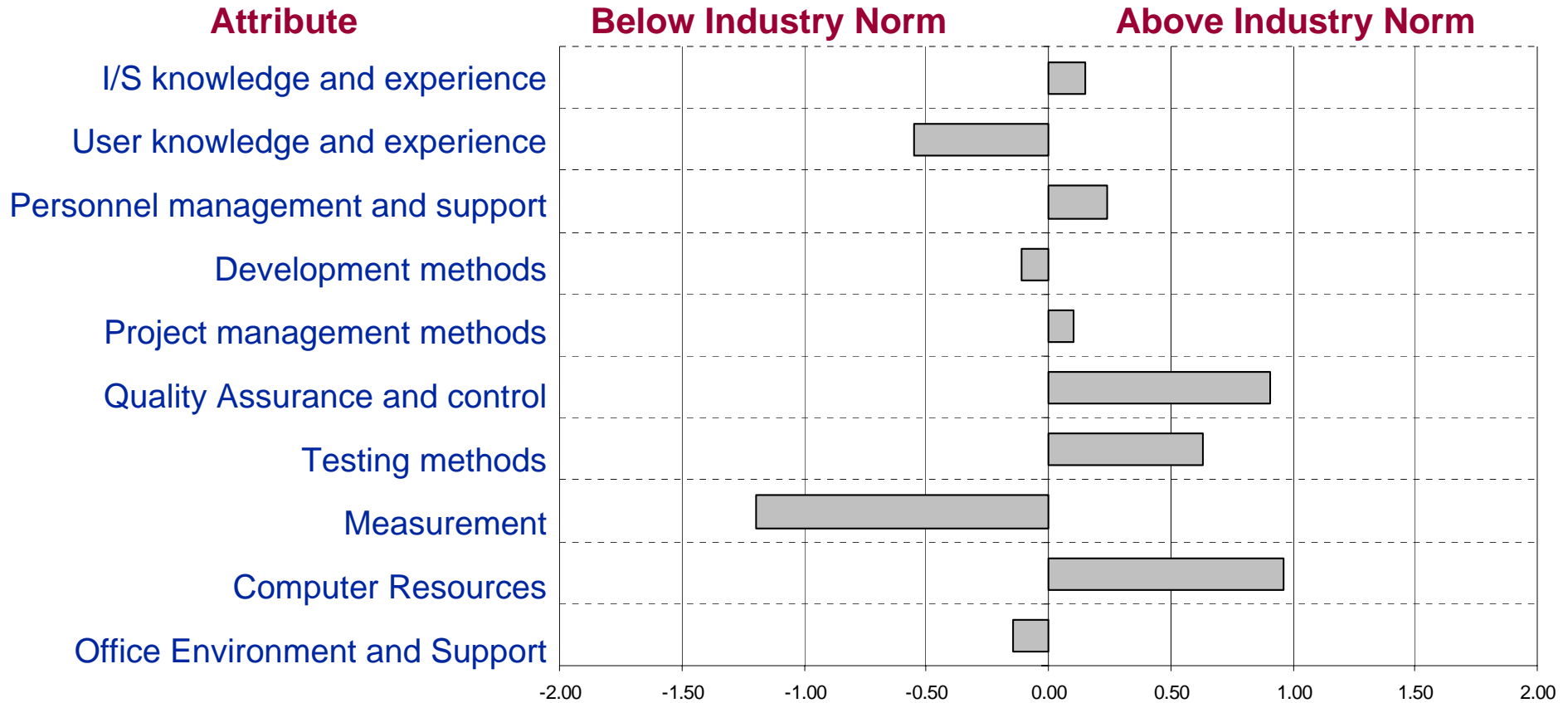
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Why Evaluate Project Attributes and Practices?

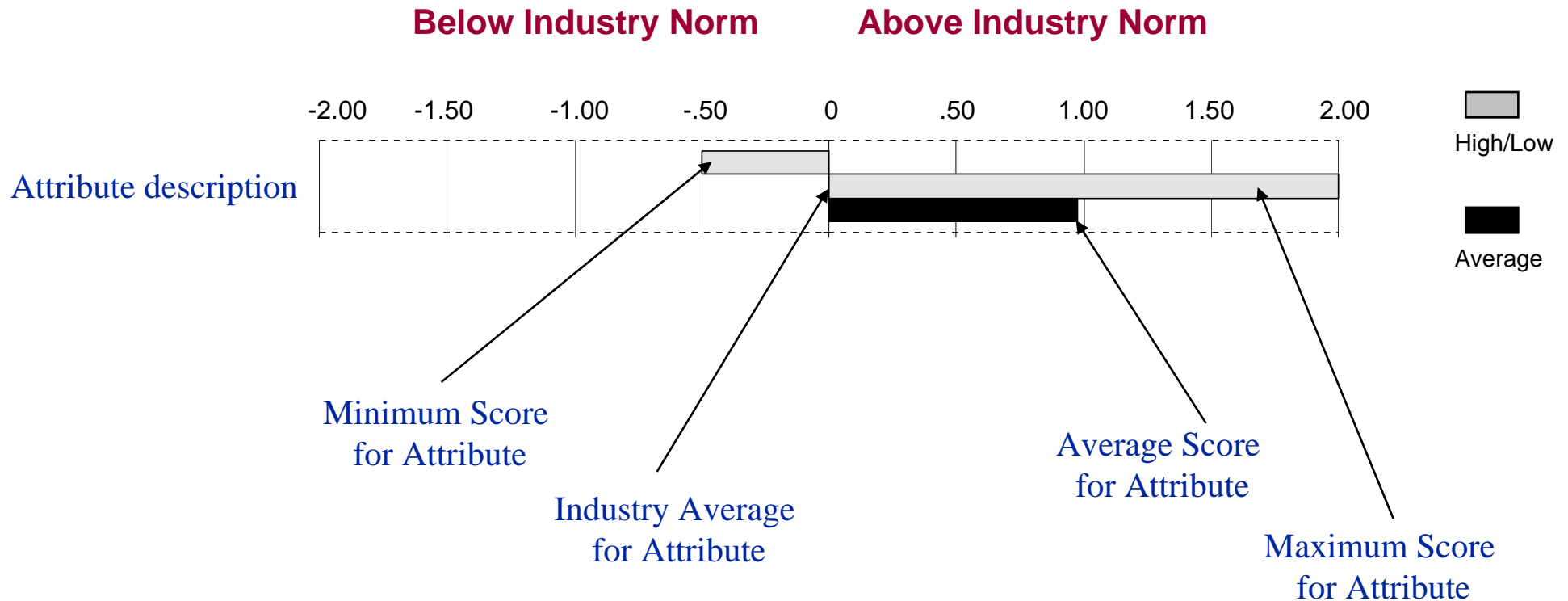
- Estimate project resources and schedule
- Manage project quality and productivity
- Assess project risk
- Identify Continuous Process Improvements
- Measure impact of improvements

Project Attribute Summary



- Several strengths exist throughout the organization
- Improvement opportunities exist in:
 - User knowledge and experience
 - Measurement
 - Development methods
 - Office Environment

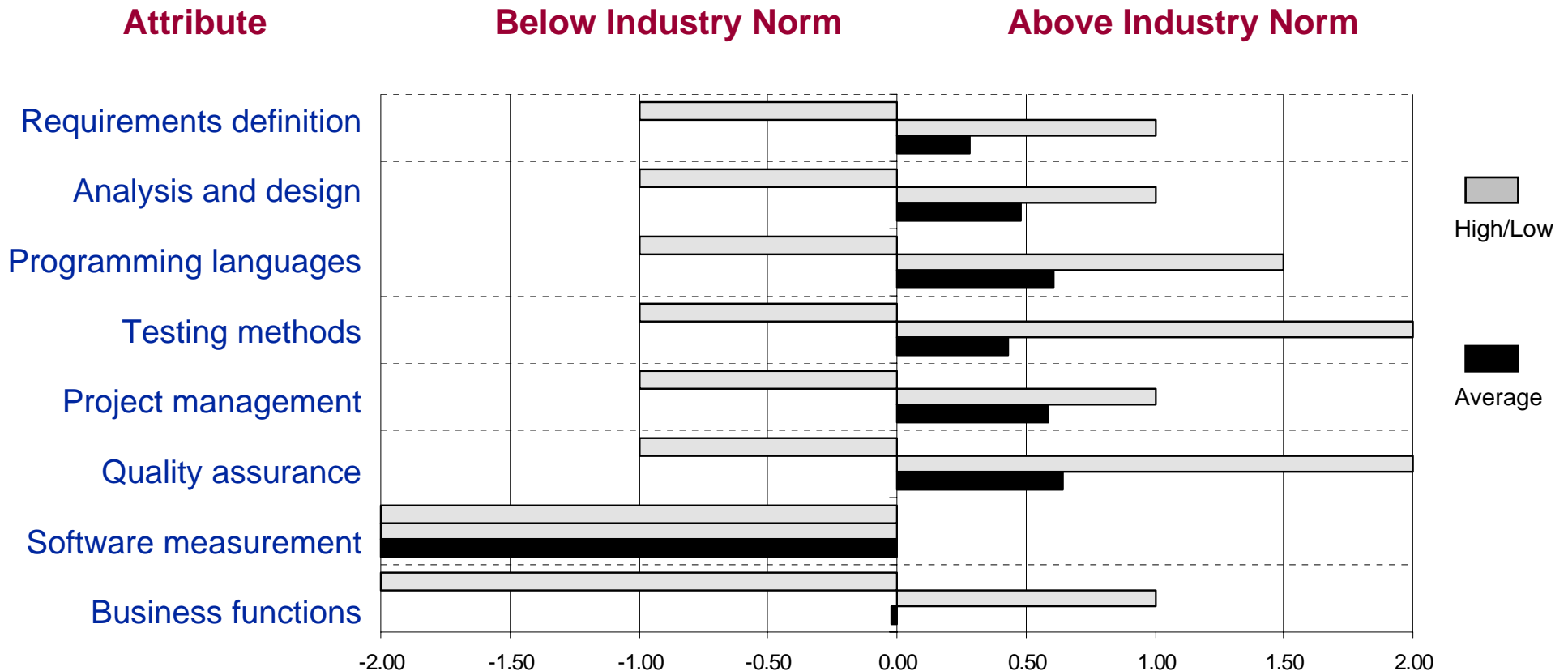
Interpreting Project Attribute Analysis



- Each attribute receives a score in 3 categories, (minimum, maximum and average)
- Results are based on Project Attribute questionnaires
- The category score is represented by the end point of the bar
- “-2” – “+2” rating is against an industry norm of “0”

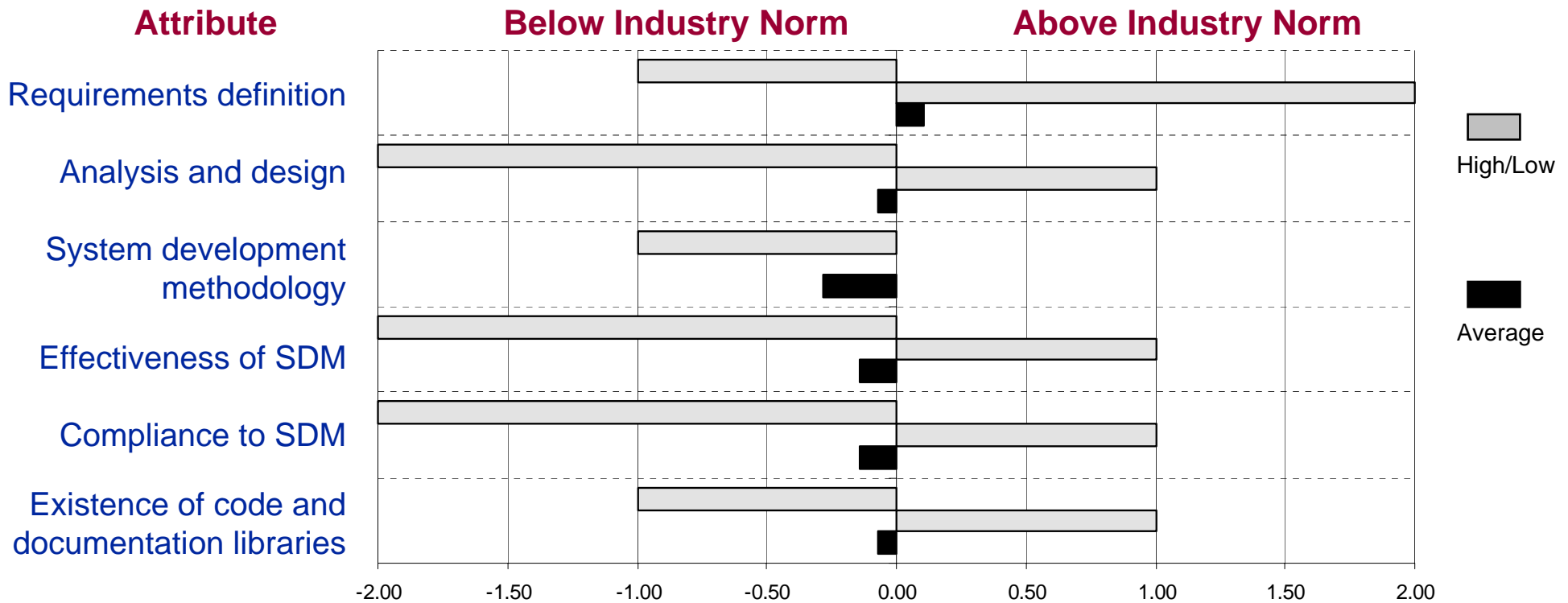
Example

I/S Personnel Knowledge and Experience has a Wide Variation on Several Key Attributes



- Overall I/S knowledge and experience is above average
- Staff have no prior experience in software measurement
- Knowledge of the business functions being supported varies greatly and is below industry norm

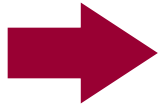
Development Methods and Techniques are Below Expectations



- There is a lack of consistency in the techniques used to gather requirements
- Improvements can be made in the techniques used to conduct analysis and design
- The use of the SDM in use at xxx is below industry norms
- A partially automated code library is available but it does not include documentation support

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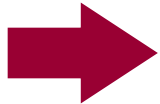


Conclusions

- Overall project productivity is low compared to industry benchmarks
- Productivity follows industry trends, but peaks with smaller size projects
- Maintenance assignment scope is below industry norms
- The current functional/fix release process has dramatically reduced project productivity and maintenance assignment scope
 - Point releases have helped minimize the negative impact of software updates but they are still be too frequent
 - The software update process is driven by un-checked customer request
 - Technical limitations of the network imposes an artificial barrier to distributing software to the stores on a timely basis

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Provide Automated Tools to Support the Management of Projects and Deliverables

Problem Statement

- Automated project management tools are available but not consistently utilized
- Tools to manage code and documentation libraries for technologies in use at xxx are not complete

Ideal State

- A common set of tools are used by project teams to manage project staff, schedules and deliverables

Recommended Solution

- Consistently utilize automated project management tools
- Improve library management automation for xxx projects

Use Data Collected from Quality Inspections to Improve the Development Process

Problem Statement

- Data is utilized for defect resolution only
- Results from inspections are not fully documented
- Lack of fully documented defect data hinders the organizations ability to identify weaknesses in the development process

Ideal State

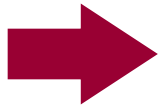
- All inspections are fully documented
- Inspection data is analyzed on a regular basis to identify improvement programs and monitor their impact

Recommended Solution

- Review inspection process and update it to include data that will allow detailed analysis (origin, type and category)
- Utilize checklists specific to project deliverables

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Next Steps

- Leverage the results of the baseline study to implement an ongoing measurement program focusing on process improvement
- Begin using function points to size and estimate the costs of customer requests
- Review current software distribution process to determine how it can be streamlined and improved
- Establish a taskforce to identify weaknesses in the testing process and develop recommendations on how to improve the process

Recommendations (Continued)

- Establish an Ongoing Measurement Program
 - Facilitate sessions with multiple audiences to define organization, department, and project goals and initiatives
 - Develop Measures to support goals and initiatives
 - Determine Data requirements necessary for the measures (sources, format, and responsibilities)
 - Define/improve data collection processes
 - Develop data repository
 - Define reporting format, frequency, and distribution
 - Determine implementation plan
 - Train appropriate staff on data collection requirements
 - Define process for reporting and analysis to all levels of the organization
 - Educate report recipients on usage of the data