Q/P MANAGEMENT
GROUP, INC.

The Productivity Pitfalls of Process Improvement

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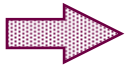
Agenda



- Background
- Diagnosing Process Productivity Problems
- Avoiding Pitfalls and Finding Solutions

The Process Productivity Problem

The quest for achieving higher levels of process maturity can result in lower levels of productivity

- Lack of a good productivity baseline disguises the symptoms
- Process improvement overhead can be high
- Newly implemented processes are not always effective
- Equilibrium between process and productivity is difficult to find
- The tradeoffs between quality and productivity are not always well understood

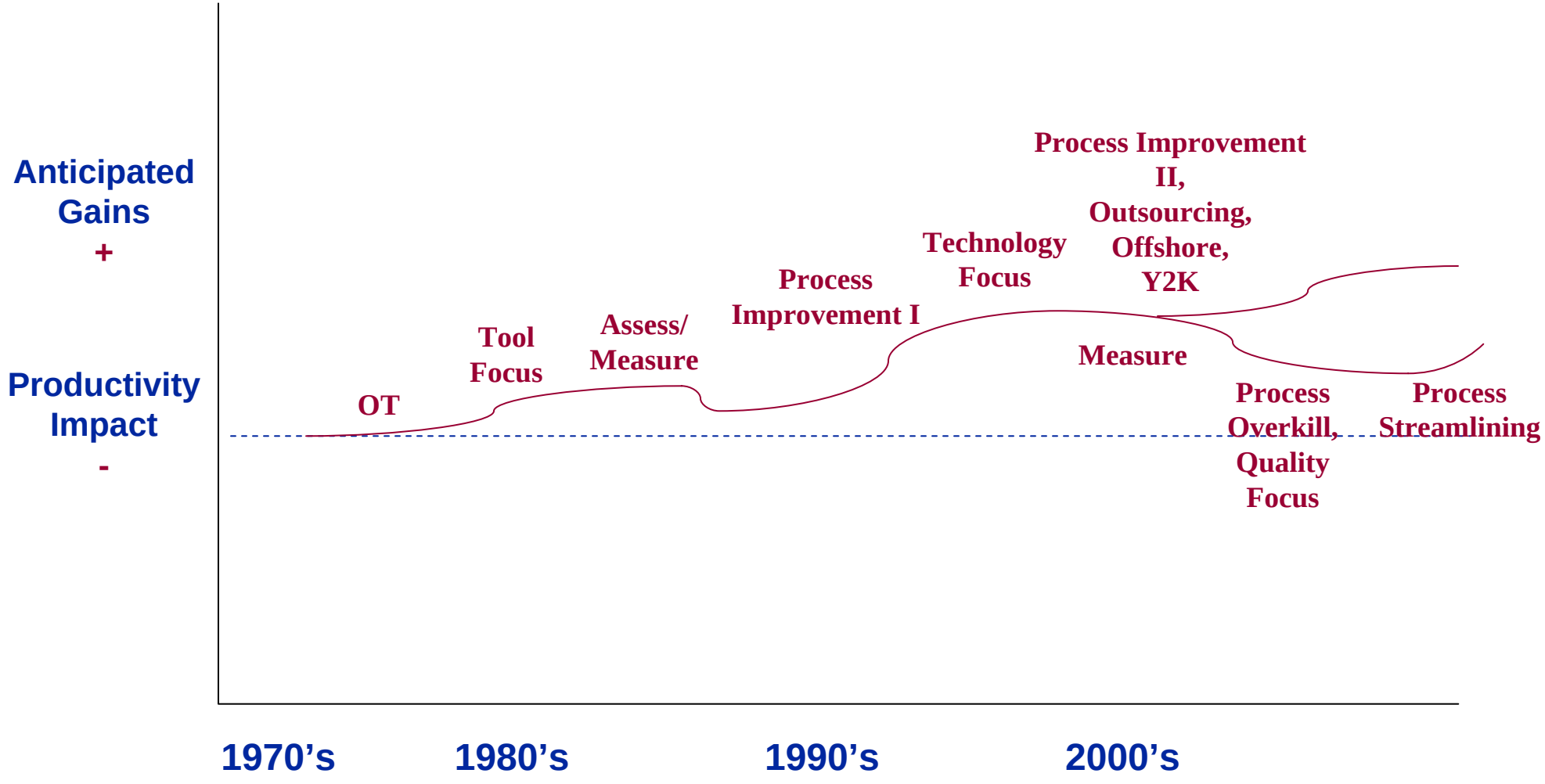
Three Misconceptions

- “Quality is Free”
- Process Improvement Leads to Productivity Improvement.
- If you can measure it, you can manage it!

Three Corrected Misconceptions

- “Quality is Free” … until you hit the point of diminishing returns.
- Process Improvement leads to Productivity Improvement with the proper processes and focus.
- If you can measure, analyze and conclude the right things, you can manage it!

Industry Trends Impacting Productivity, Quality and Cost Were Considered



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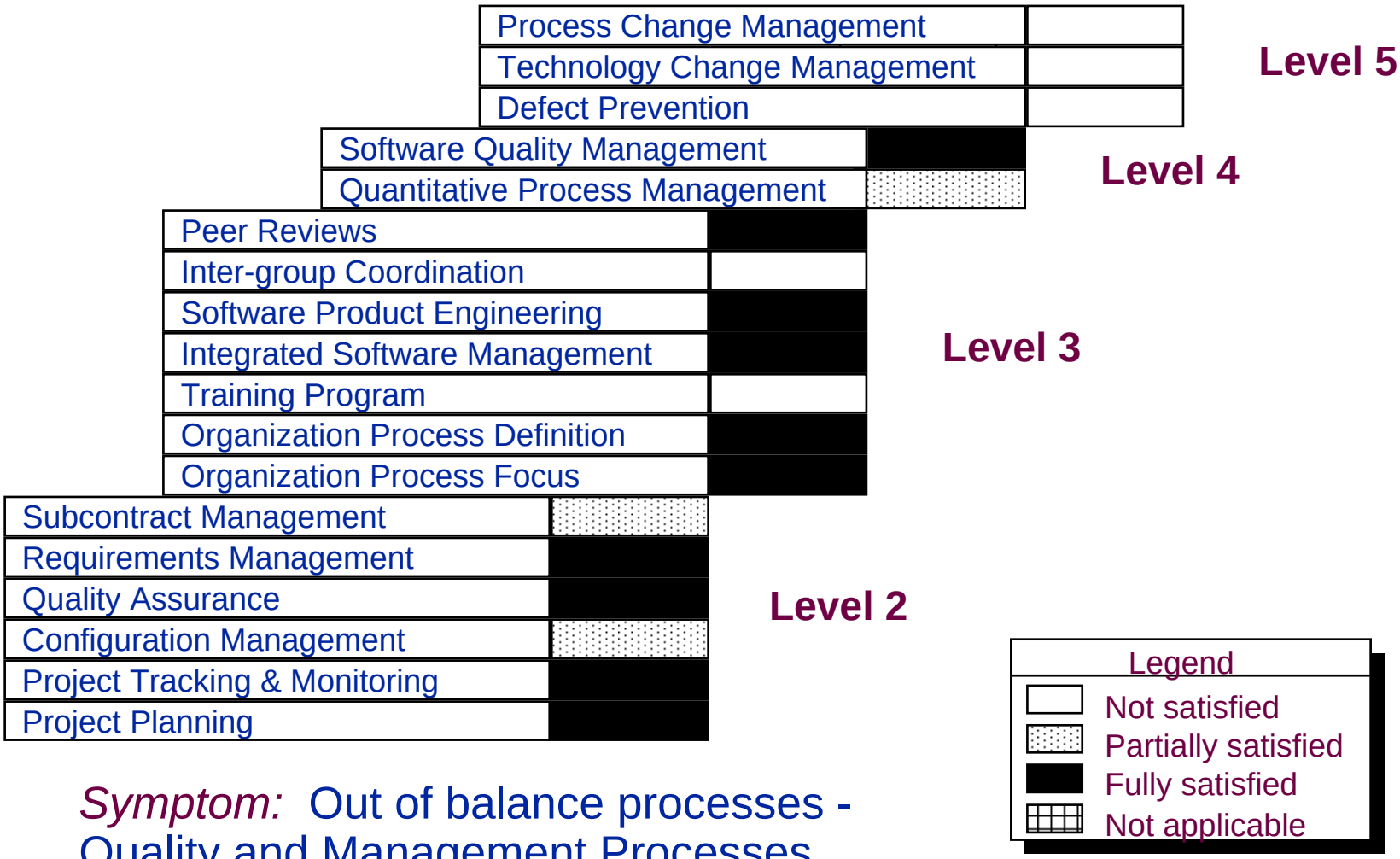
Diagnosing the Process Productivity Problem

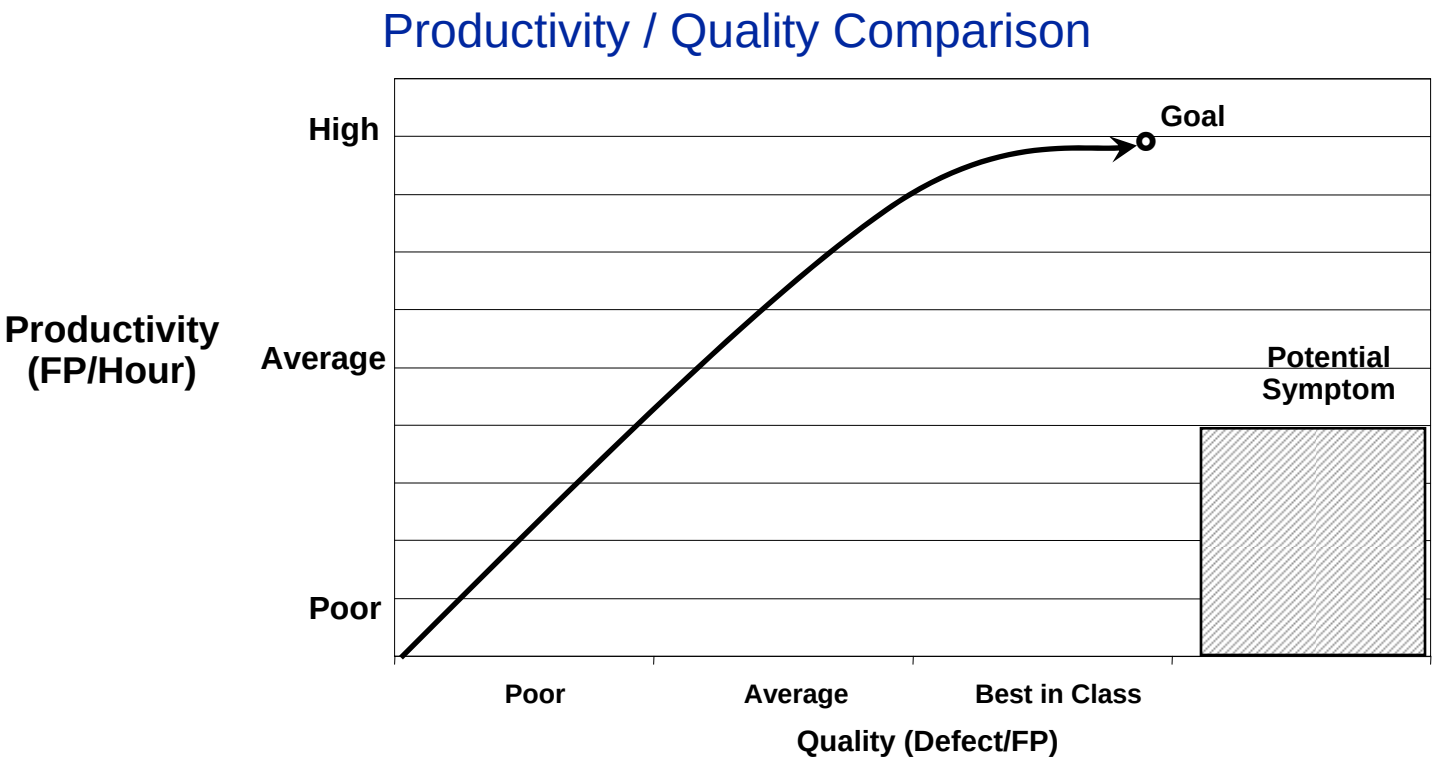
- Compare to industry benchmarks
- Compare internal productivity and quality trends and needs
- Diagnosing “Surface Metrics” can help identify the symptoms
  - Quality – Defects/Function Point
  - Productivity – Function Points/Hour
  - Schedule – Duration versus standard or trend
  - Cost – Cost/Function Point
  - Process – CMM(I) Assessment
- Tradeoffs between “Surface Metrics” maybe the cause of low productivity
- A “Deep Dive Diagnosis” is often required to uncover specific process productivity problems

Diagnose Surface Metrics – CMMI Process Profile



Symptom: Out of balance processes - Quality and Management Processes satisfied at higher levels

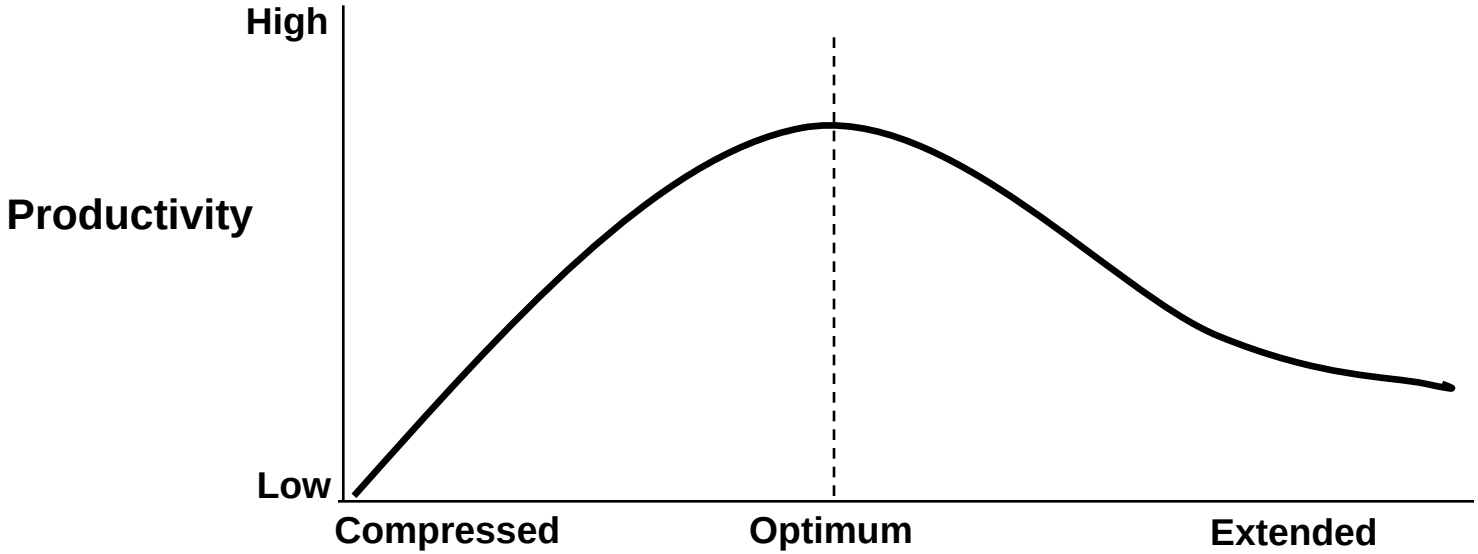
Diagnose Surface Metrics - Productivity versus Quality



Symptom: Better than Best in Class quality and ≥Level 3 quality related processes combined with low productivity

Diagnose Surface Metrics - Schedule Tradeoff

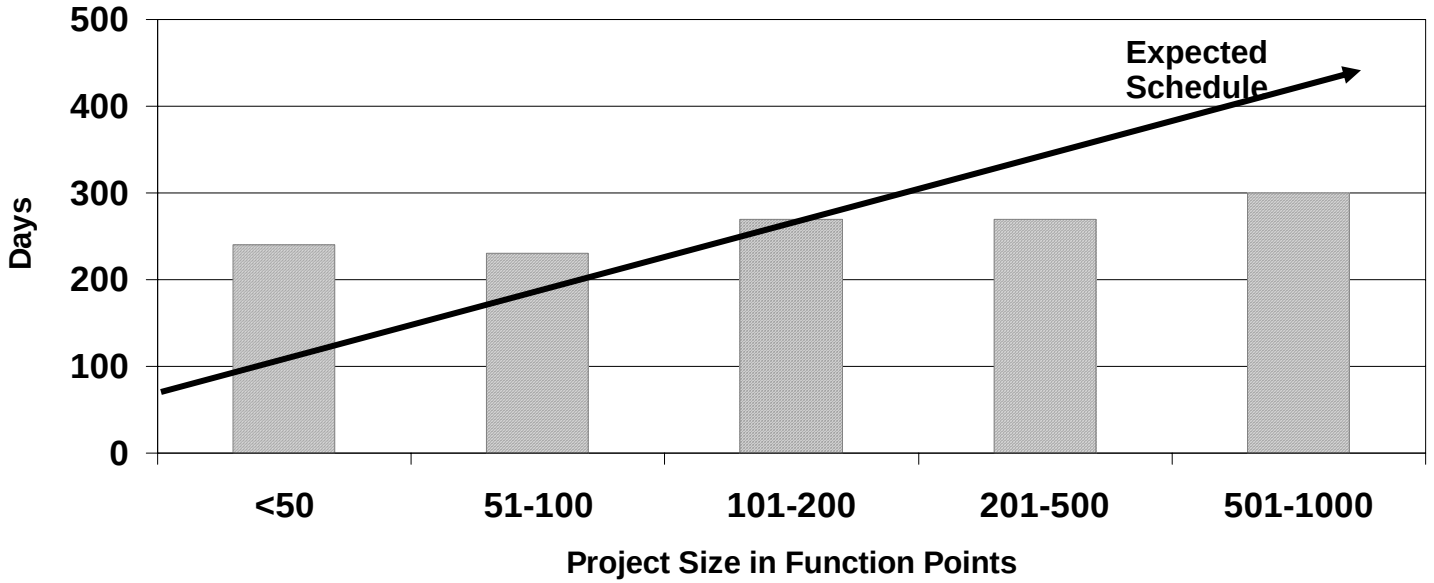
Productivity versus Schedule



Make sure severely compressed or extended schedules are not the real problem

Diagnose Surface Metrics - Schedule Analysis

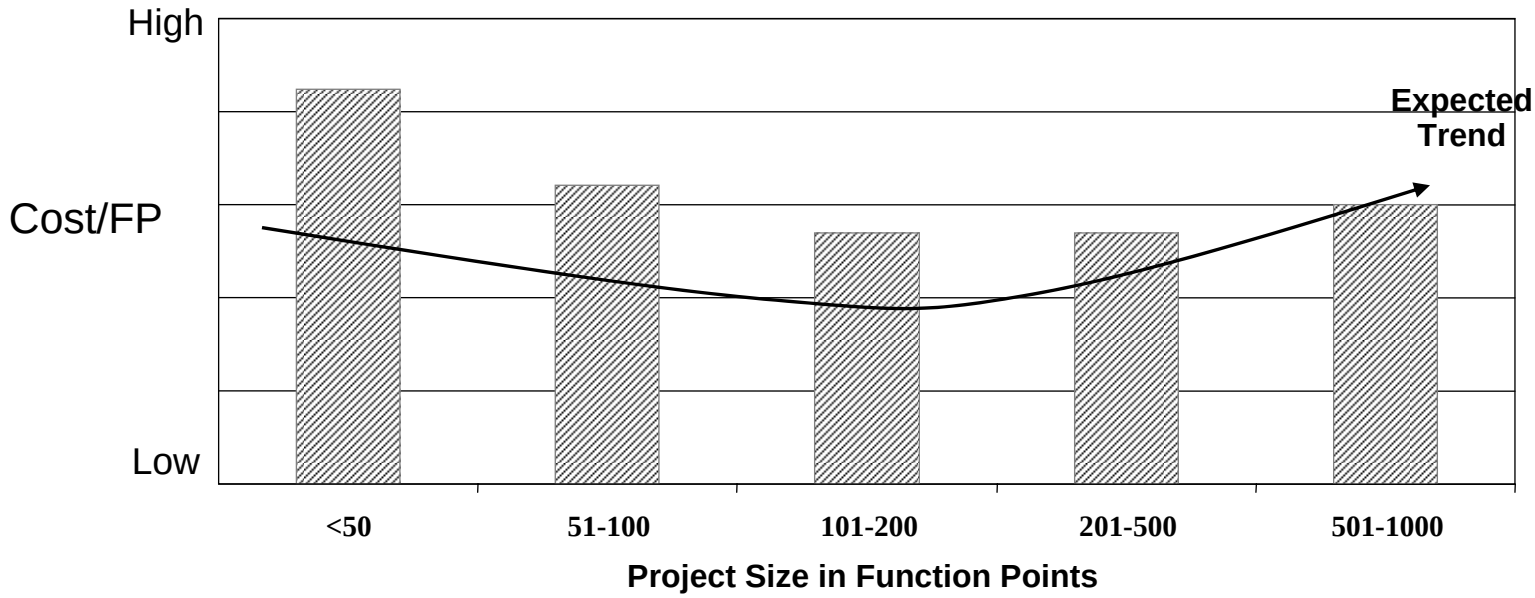
Schedule Duration by Project Size Category



Symptom: Small projects that have large project schedules

Diagnose Surface Metrics - Cost Analysis

Cost per FP by Project Size Category



Symptom: Small project Cost/FP is higher than larger projects (500-1000 FPs)

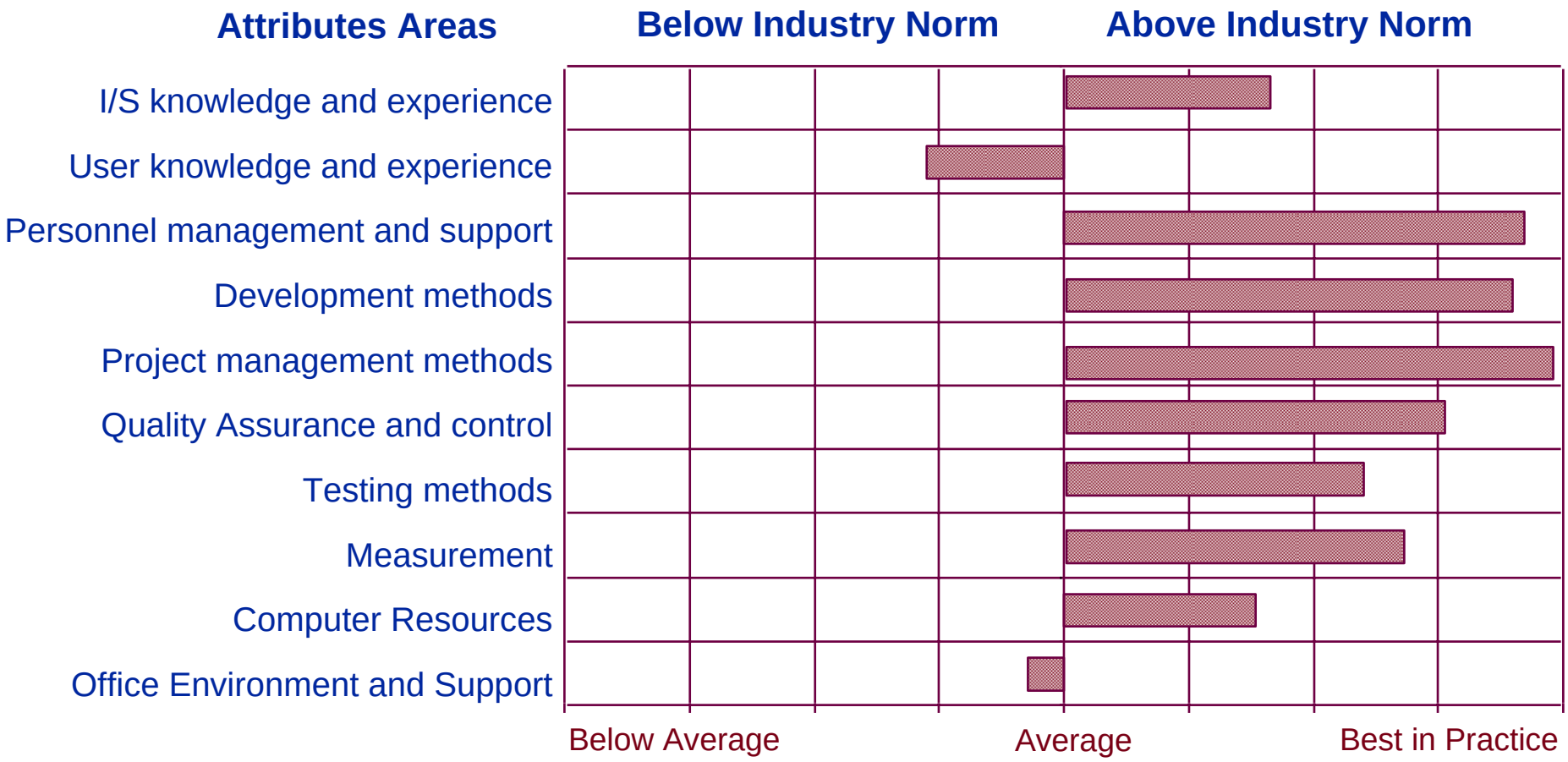
Diagnostic Results - *Example*

- *Symptoms:*
  - *Process* – Processes are very mature with a focus on management and quality processes even at higher levels of maturity
  - *Productivity* – Productivity is low compared to process expectations
  - *Quality* – Better than Best in Class quality may be impacting productivity
  - *Schedule* – Schedules are long for small projects, short for large projects
  - *Cost* – Costs are high, especially for small projects
- *Conclusion:* Current processes are most likely having a positive impact on quality but a negative impact on productivity
- *Next Steps:* Conduct a "Deep Dive Diagnosis" to uncover specific process productivity problems

Deep Dive Diagnosis Can Uncover Root Causes

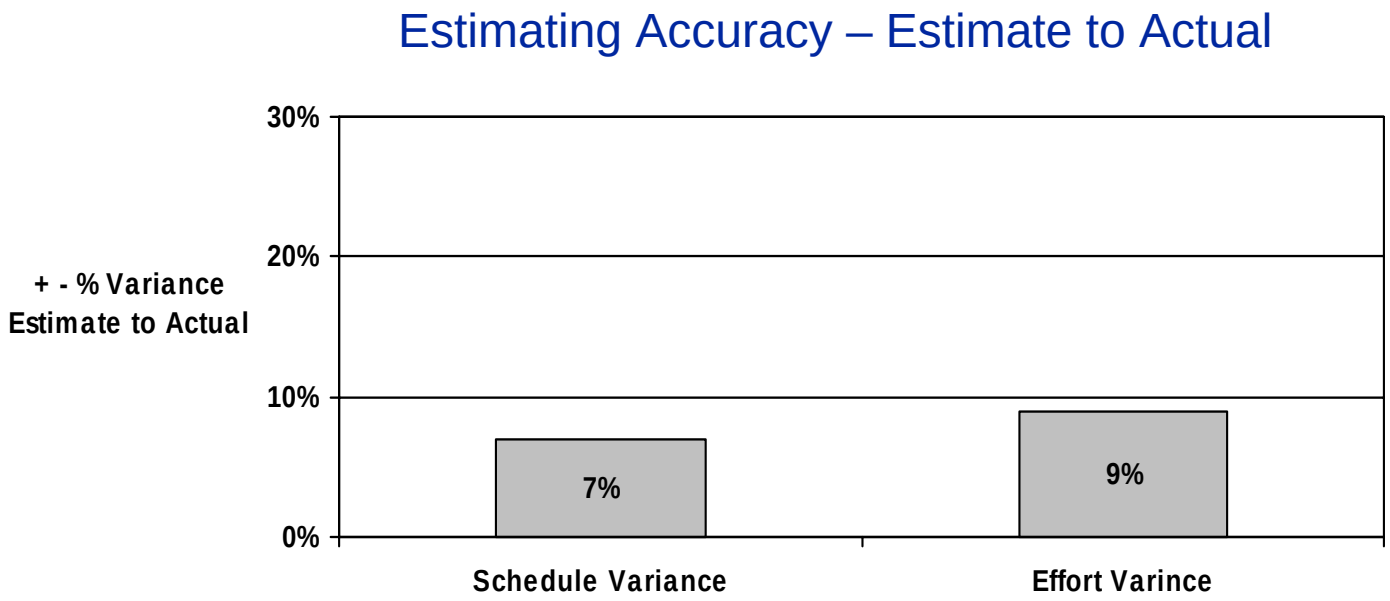
- Project Attributes beyond the CMM(I) need to evaluated
- Methods and techniques need to be analyzed in terms of flexibility and efficiency
  - Project Management
  - Systems Development Methodologies
  - Quality Reviews, inspections and testing
  - Documentation
- Project effort should be analyzed in detail
- Project schedules by size category should be compared
- Estimating accuracy should be calculated
- Service level and performance goals should be evaluated
- Measurement and governance activities should be reviewed

Deep Dive Diagnosis - Project Attributes



Symptom: Management and development disciplines look too good to be true… look deeper!

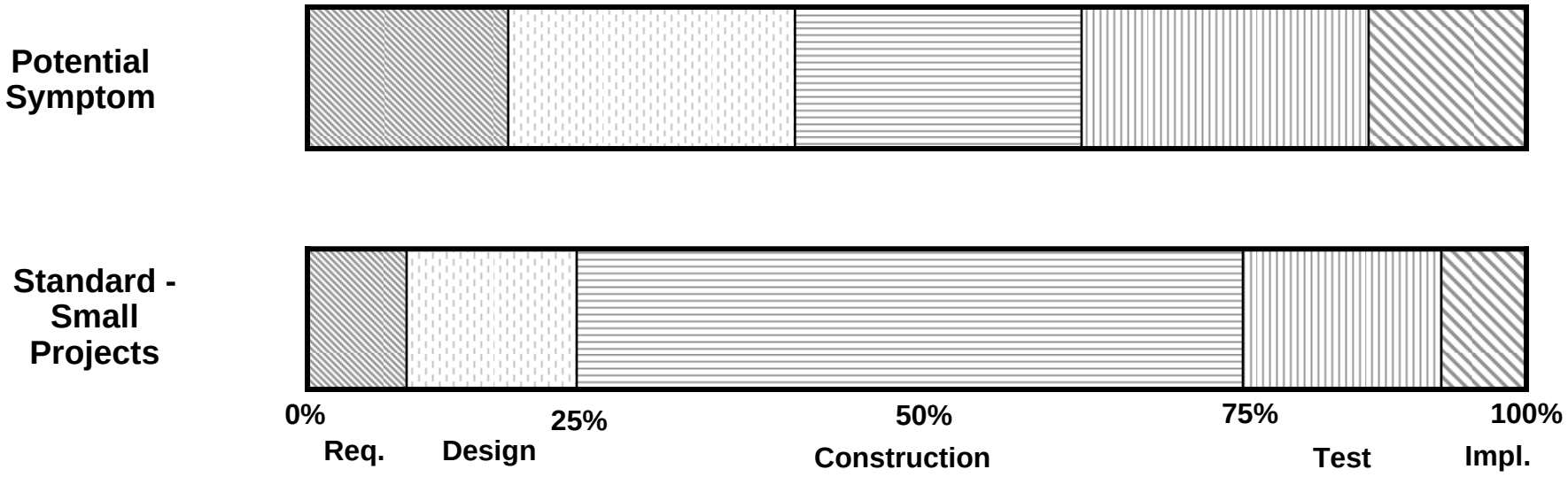
Deep Dive Diagnosis - Estimating Accuracy



Symptom: Estimate to Actual Variances of < 10% maybe based on self-fulfilling prophecy and “padding syndrome”

Deep Dive Diagnosis - Percent Effort by Phase

Percent Effort by Life Cycle Phase



Symptom: Effort by phase is consistent regardless of project size, construction is a small percent of all projects

Deep Dive Diagnosis - Effort Analysis

Symptoms:

- Project Management time is > 15% of the total project effort
- QA time (Inspections and reviews) are > 10% of total project effort
- Number of individual staff members per inspection is greater than 10
- Staff are reporting < 70% or >90% of their available time as productive
- The number of individual names charging time to projects are >15 per 100 Function Points
- Even the smallest projects are consistently charging 500-1500 hours
- Unusually time accounting records (everything ends in zeros)

Deep Dive Diagnosis - Misc.

Symptoms:

- Low levels of user involvement resulting in requirements churn
- Significant pages of documentation and numerous updates
- Service levels that continuously improve without regard for cost considerations
- High levels of measurement and/or governance overhead without the benefit

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Avoiding Pitfalls and Finding Solutions

- Streamline project management and systems development methodologies
  - Reduce “required” tasks, deliverables and management checkpoints
  - Establish different paths for different project sizes and types
  - Reduce the guidelines and criteria for selecting quick path approaches
  - Make it easy to waive unneeded activities and deliverables
- Reduce the time associated with quality assurance activities
  - Establish inspection guidelines to eliminate unproductive staff and activities
  - Reduce/eliminate Quality Standards Reviews based on project type and size
- Group small unproductive projects into optimum size productive projects

Avoiding Pitfalls and Finding Solutions

- Relax service level agreements where appropriate in order to better balance service performance with cost considerations
- Revisit measurement and governance activities and eliminate those without meaning or benefit
- Reduce test cycles where possible by analyzing defect removal statistics versus the cost of quality
- Get back to basics with user involvement in requirements definition
- Use measurement to estimate based on good productivity
- Do not promote process improvement solely for the sake of achieving Level X
- Create an organizational awareness that *PRODUCTIVITY* is also very important!