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# Why Improve Your Process?

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# Top Reasons to Not Improve

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1. We're always on time and within budget
2. We don't have software quality problems.
3. We're too busy right now.
4. We can't afford it.
5. The initial investment is too high.
6. We hire the best people.
7. Using a process will stifle developer creativity.
8. We're already SEI level 2 (or 3) and don't need to improve.
9. Who else in the industry is doing this?
10. I've been developing software for 20 years, and no one is going to tell me anything I don't already know.



# Key Reasons To Improve

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To gain competitive advantage



To improve performance and business value

To increase software development capability



# Competitive Advantage

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Process maturity is one measure of an organization's capability.



CMM and CMMI measure an organization's capability and provide a roadmap to higher levels of maturity.

Higher levels of maturity have been shown to improve cycle time, productivity, product quality, and customer satisfaction.



The competitive advantage of higher maturity has led many organizations to start down the process improvement path.

Consequence – the percentage of organizations at Maturity Level 5 has grown from 0.3% to 6.6% over the past decade.

# Performance and Business Value

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Hiring the best people is good advice, and who doesn't try to follow it.

How do you get the most out of the people you have...improve the processes they use.



The “right process” will measurably improve performance and help you achieve key business objectives.

- reduced and predictable cost and schedule
- higher productivity and shorter cycle time
- less rework and fewer field defects
- increased customer satisfaction

# The Right Process

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A process is not a panacea; the wrong process can make things worse.

Some key attributes.

- process is defined, measured, and fits the work
- work is planned by those that do the work, and tracked by them and their managers
- plans and estimates are based on historical data
- quality is measured and managed
- defects are removed early
- roles are clearly defined
- participants are properly trained

Measurement is critical; don't rely on intuition alone.



# Team Software Process

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The Team Software Process (TSP) is a process for two to twenty engineers, developed by the SEI.\*

TSP is an instantiation of a CMMI/CMM high-maturity software process for projects or teams.



It has the key attributes described earlier.

TSP demonstrates the performance enhancement potential of a mature and capable process.

It provides quantitative evidence of the value to the business.

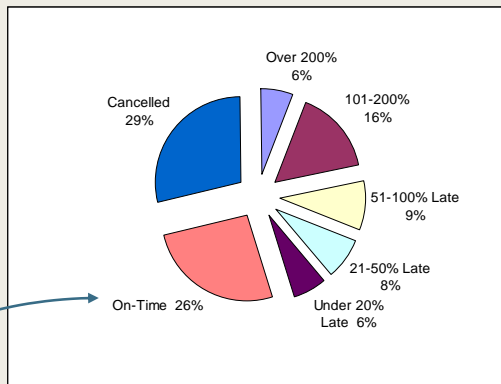
\*TSP multi-team supports larger, geographically distributed projects



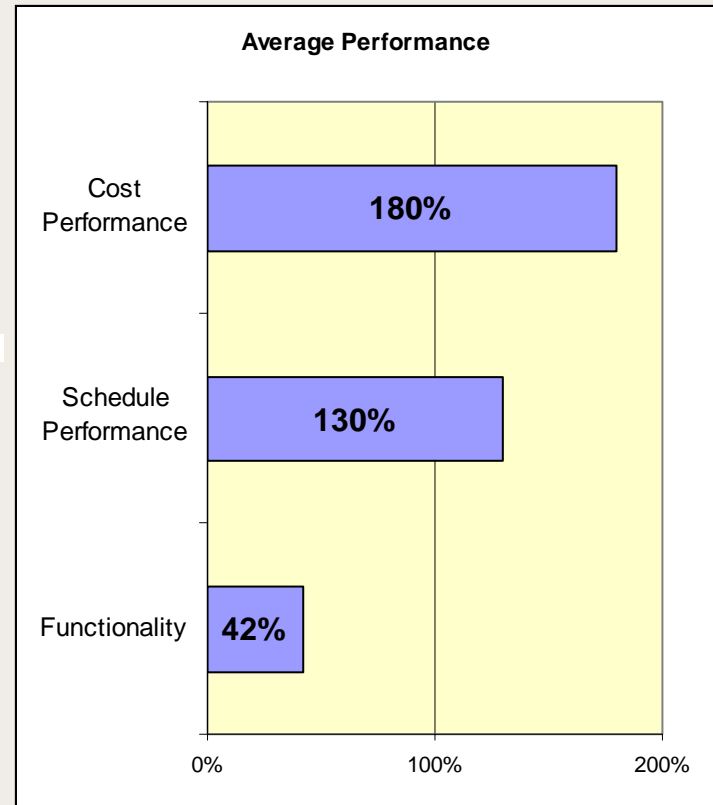
# Cost and Schedule Performance

Cost and schedule problems are common in the software industry.

- \$59 billion was spent on overruns
- \$81 billion was spent on canceled projects

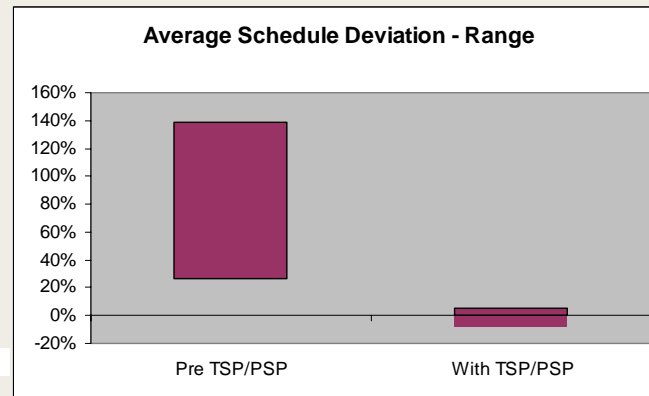
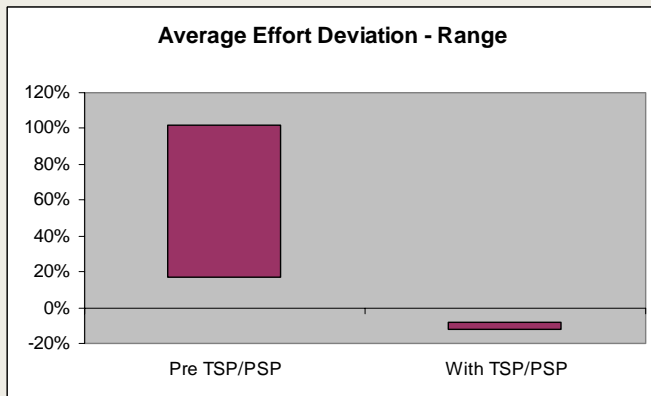


Only 26% of software work is on-time.



Source: Standish group report on information technology projects

# A Mature Process is Predictable



Performance Category	Typical Industry Performance <sup>1</sup>	Study Baseline (2000) <sup>2</sup>	TSP Impact study (2000) <sup>3</sup>	TSP Impact study (2003) <sup>4</sup>
Schedule Error	180% avg.	27% to 112%	5% avg.	6% avg.
Effort Error	130% avg.	17% to 85%	-4% avg.	26% avg.

1. Gartner Group

2. Control projects from the CMU/SEI-2000-TR-015 report, a study of 18 TSP projects in four organizations conducted in 2000

3. TSP projects from the CMU/SEI-2000-TR-015 report, a study of 18 TSP projects in four organizations conducted in 2000

4. CMU/SEI-2003-TR-014, a study of 20 projects in 13 organizations conducted in 2003

# Productivity and Cycle Time

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Improving the planning process accelerates the work, increasing both productivity and reducing cycle time.

Plans in a mature process are

- precise, detailed, and comprehensive
- based on history and data
- developed by those that will do the work

The goal is not shorter schedules, but faster deliveries.

The average productivity gains are worth the investment.

- productivity improvements of 9% to 67% are typical
- TSP average productivity improvement is 78%



# The Cost of Poor Quality

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Software is the only modern technology that ignores quality until test.

The typical “code and fix” process is expensive and leads to defective products that are neither secure or safe.

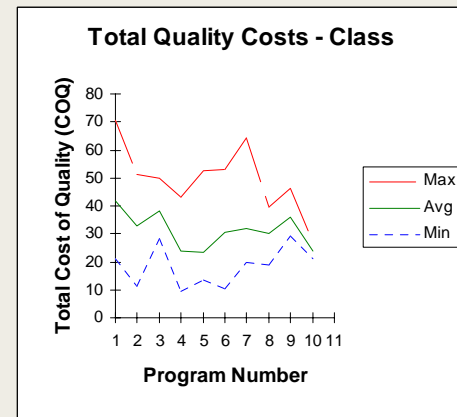
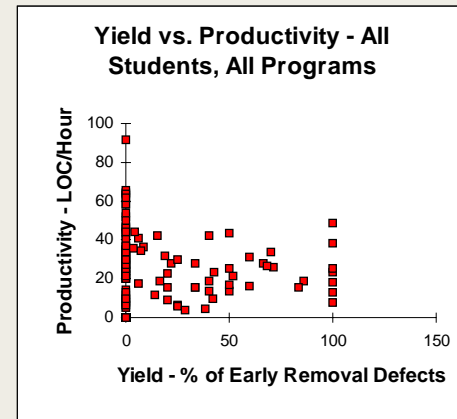
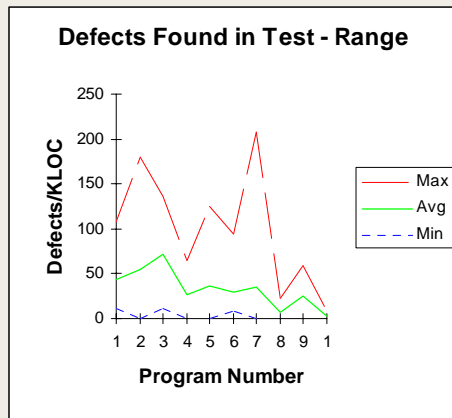
- From 40% to 60% of software development costs and schedules are consumed by fixing and testing.
- Many widely-used commercial software programs have more than two defects per KSLOC.
- More than 70% of security vulnerabilities are caused by common software design and implementation errors.



# Quality is Free

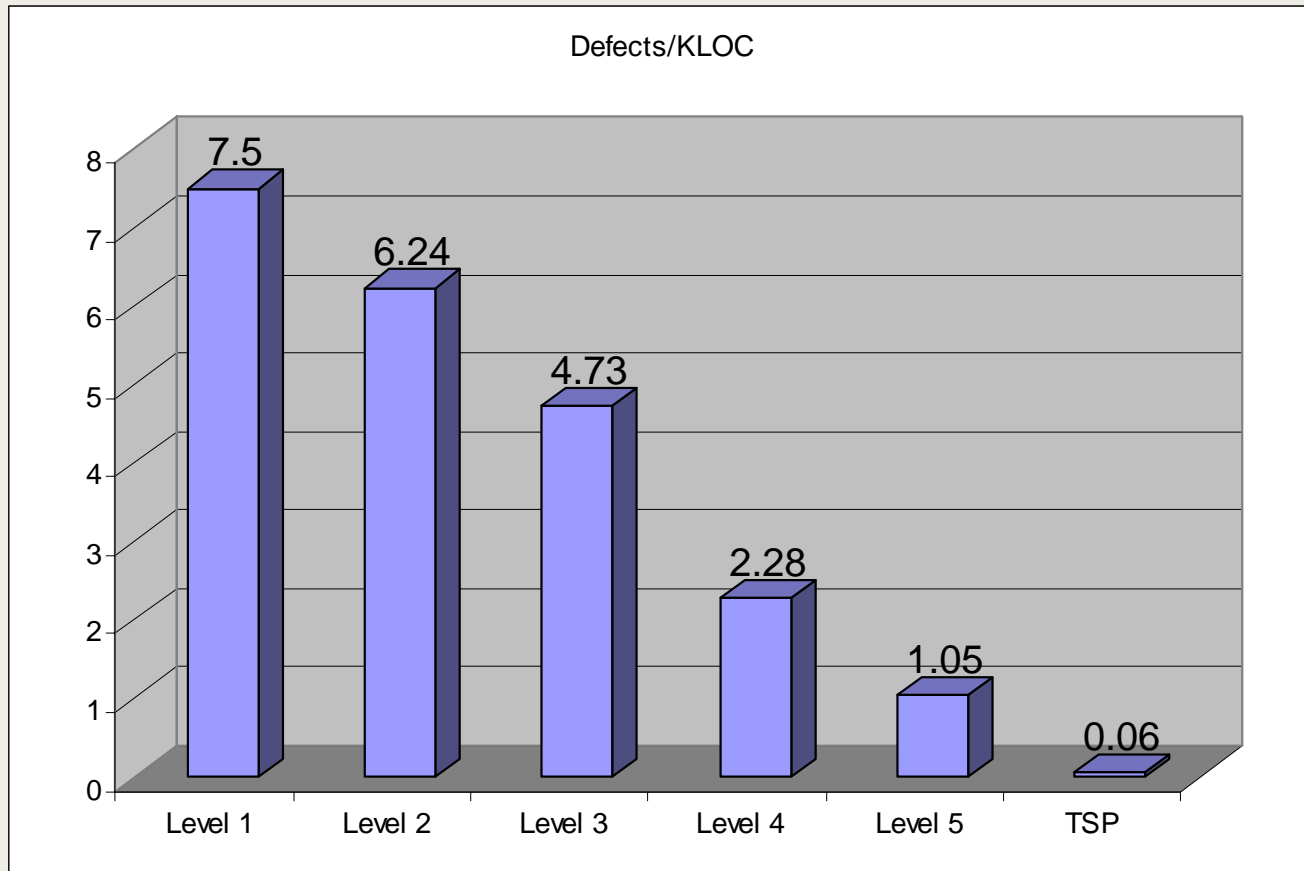
Reducing rework and improving product quality are fundamental process improvement goals.

Measured, managed, early defect removal improves quality for free.





# Dramatic Improvements are Possible



# Summary

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Improving your process improves your organization's software capability.

You are faster, better, cheaper, and smarter.

Your products are reliable and timely.

Your commitments are sound and predictable.

Your software development group is transformed from business cost to competitive asset.

Why improve your process?

Why not!



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- TSP<sup>SM</sup>
- Personal Software Process<sup>SM</sup>
- PSP<sup>SM</sup>

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- CMMI®