

The Next Step in Process Evolution: CMMI and TSP/PSP

Case Study of a CMMI Level 5 Organization

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Topics

- Transforming the world of software
 - CMMI, TSP, PSP
- CMMI implementation issues
- TSP/PSP practices
- CMM, TSP, PSP – AIS results

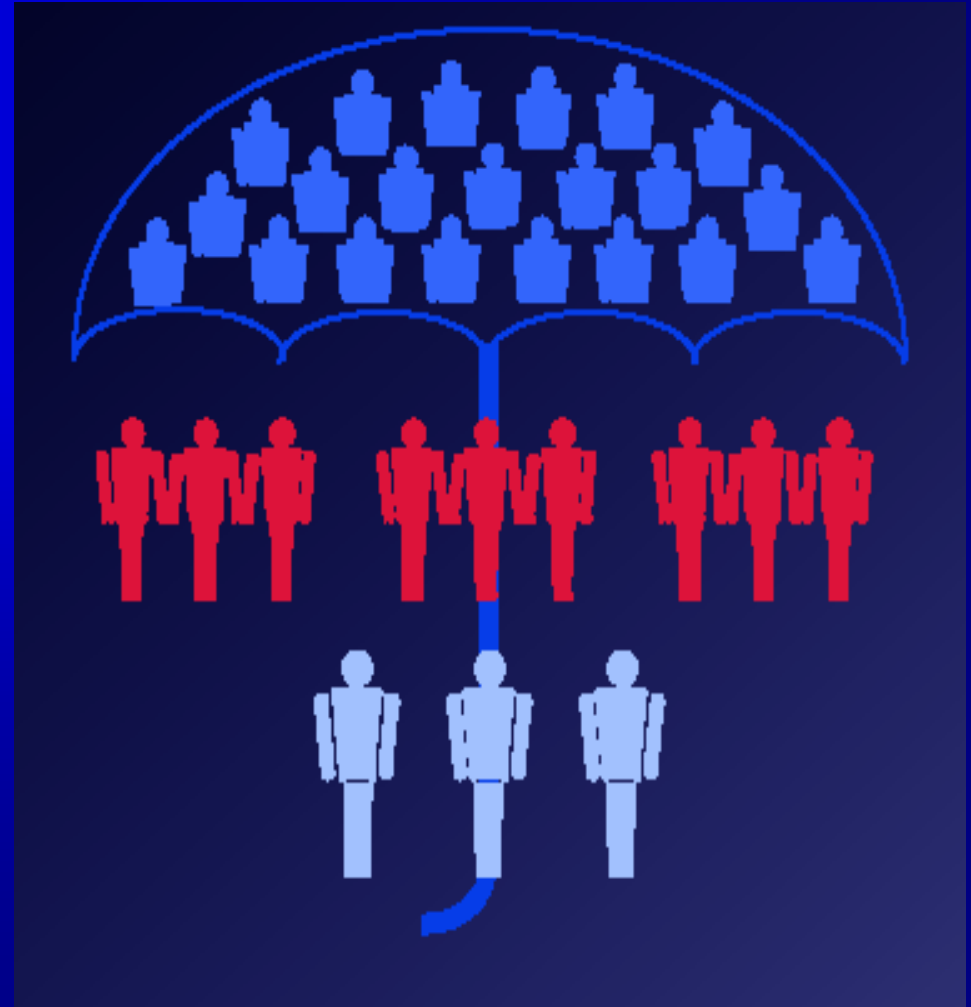
Transforming The World Of Software

Models Of Excellence

**CMMI – Builds
organizational capability**

**TSP – Builds
quality products
on cost and schedule**

**PSP – Builds
individual skill
and discipline**



Source: Software Engineering Institute

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CMMI Implementation Issues

Developers execute at lower maturity levels than their organizations have achieved and advertised

Assurance that new projects will incorporate CMMI processes

High capability and maturity level ratings do not of themselves guarantee program success

- Baldwin, Kristen. "CMMI—Update and Next Steps" Systems Engineering Conference, San Diego, October 2007

Failure to change root cause behavior that leads to programs that do not meet cost, schedule and performance expectations

Adequate maturity at program initiation

- Schaeffer, Mark. "CMMI: Fitting a Vision to Program Execution Needs". 7th Annual CMMI Technology Conference & User Group, Denver, November 2007

CMMI - Necessary, Not Sufficient

- No simple model could precisely measure process maturity and complex models are not useful in guiding improvement
- CMMI consciously focused on *what* organization should do, not on *how* they should do it
- The teamwork practices and personal disciplines required for quality software work are almost entirely issues of *how*, and not just *what*
- Because engineers will not change the way they work without very specific guidance, the CMMI does not change engineering behavior

CMMI Implementation Issues

TSP/PSP Practices - 1

- TSP teams require that individual team members must have successfully completed the advanced and official SEI PSP for Engineers course.
- PSP trained engineers
 - ◆ make and follow detailed plans,
 - ◆ gather and use historical data,
 - ◆ measure and manage quality,
 - ◆ analyze and improve their processes.
- With the support of a SEI-authorized TSP coach, the TSP framework enables PSP trained developers to consistently follow these practices at the personal level, and ensure that the developers execute at the maturity level of the organization.

CMMI Implementation Issues

TSP/PSP Practices - 2

- TSP framework recognizes that only top management can motivate development teams to follow disciplined practices of the organization defined CMMI processes.
- In TSP, projects are initiated with the TSP launch process consisting of 9 scripted meetings led by an SEI-authorized coach.
- The coach and the team lead ensure that the team understands not only “what” management wants to accomplish in the project as well as the “how”, including the use of organization’s CMMI process.

CMMI Implementation Issues

TSP/PSP Practices - 3

- High capability and maturity level ratings do not of themselves guarantee program success
- Team members make detailed plans utilizing historical data
 - Follow documented estimating procedure
 - Teams negotiate schedule and cost commitment based on the plan
 - In weekly status meeting, teams track schedule progress using earned value management
 - Team members measure and manage the quality of their work products
 - ◆ Early defect removal
 - ◆ Personal review yields
 - ◆ Highest quality product into test

CMMI Implementation Issues

TSP/PSP Practices - 4

- Failure to change root cause behavior that leads to programs that do not meet cost, schedule and performance expectations

When pressed for early deliveries, the responsible team members say
“I understand your requirements, I will do my utmost to meet it, but until I make a plan, I can not responsibly commit to a date”

- When pressed for early deliveries, the responsible managers say
“I trust you to create an aggressive and realistic plan, I will review the plan, but I will not commit you to a date that you can not meet”

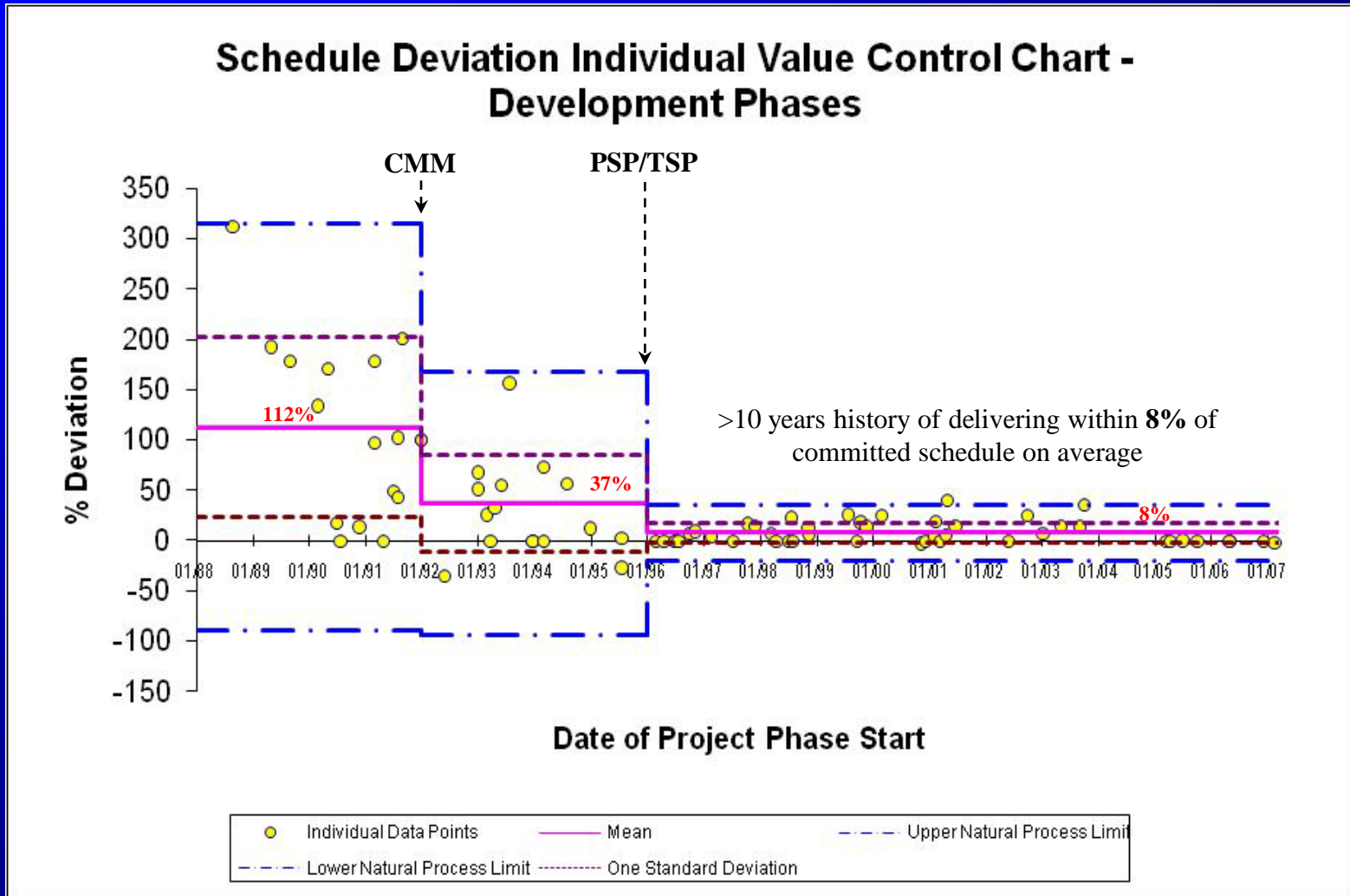
CMMI Implementation Issues

TSP/PSP Practices - 5

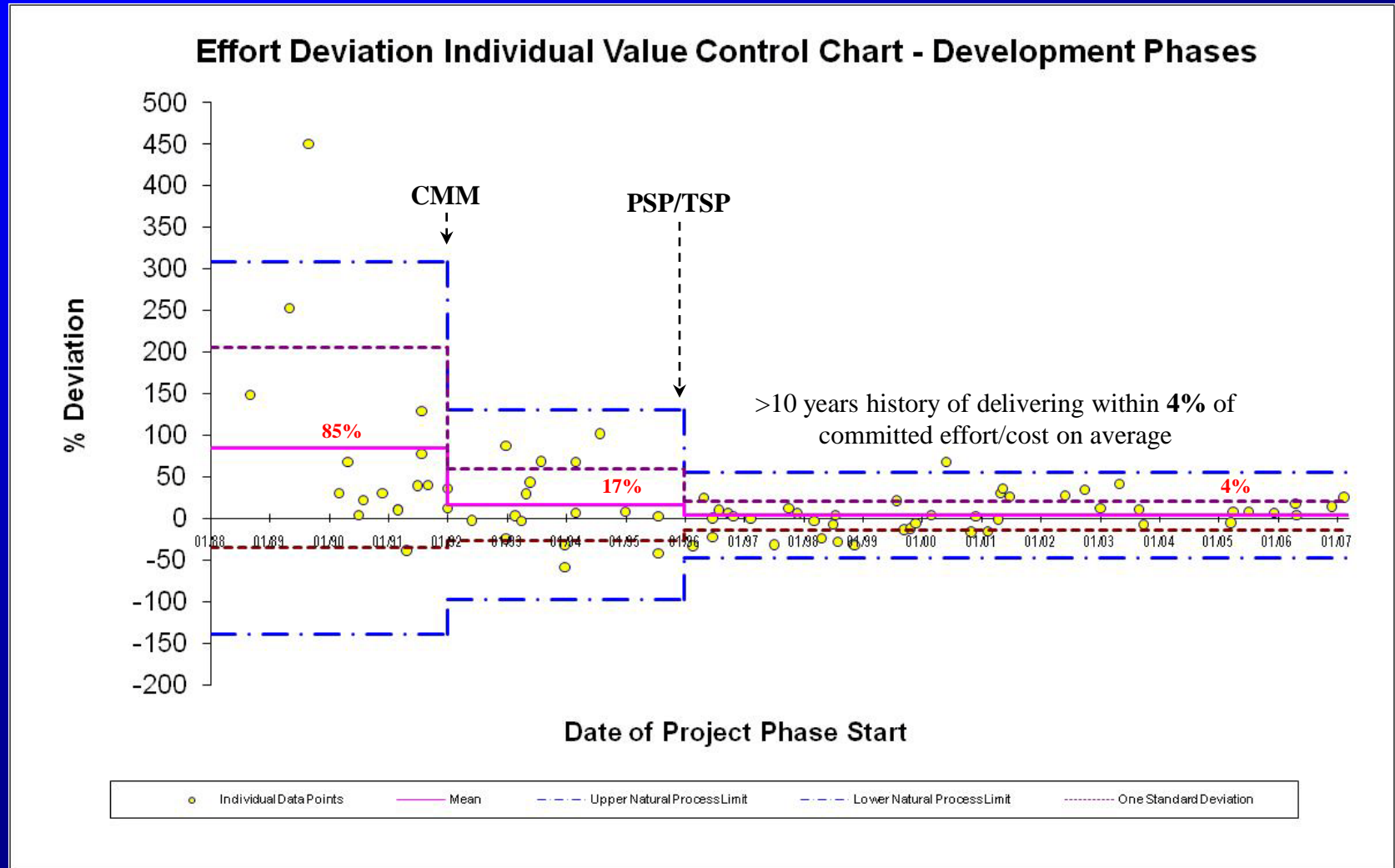
- TSP teams ensure that at program initiation, **Adequate maturity at program initiation** sufficient time is devoted to getting consensus on development strategy and process.
- TSP teams make a detailed plan that is granular and facilitates tracking to detect one day schedule slip.
- The TSP launch process ensures a jelled team that takes ownership of the plan and the process.

CMM/TSP/PSP Results – Schedule

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CMM/TSP/PSP Results – Effort/Cost AIS



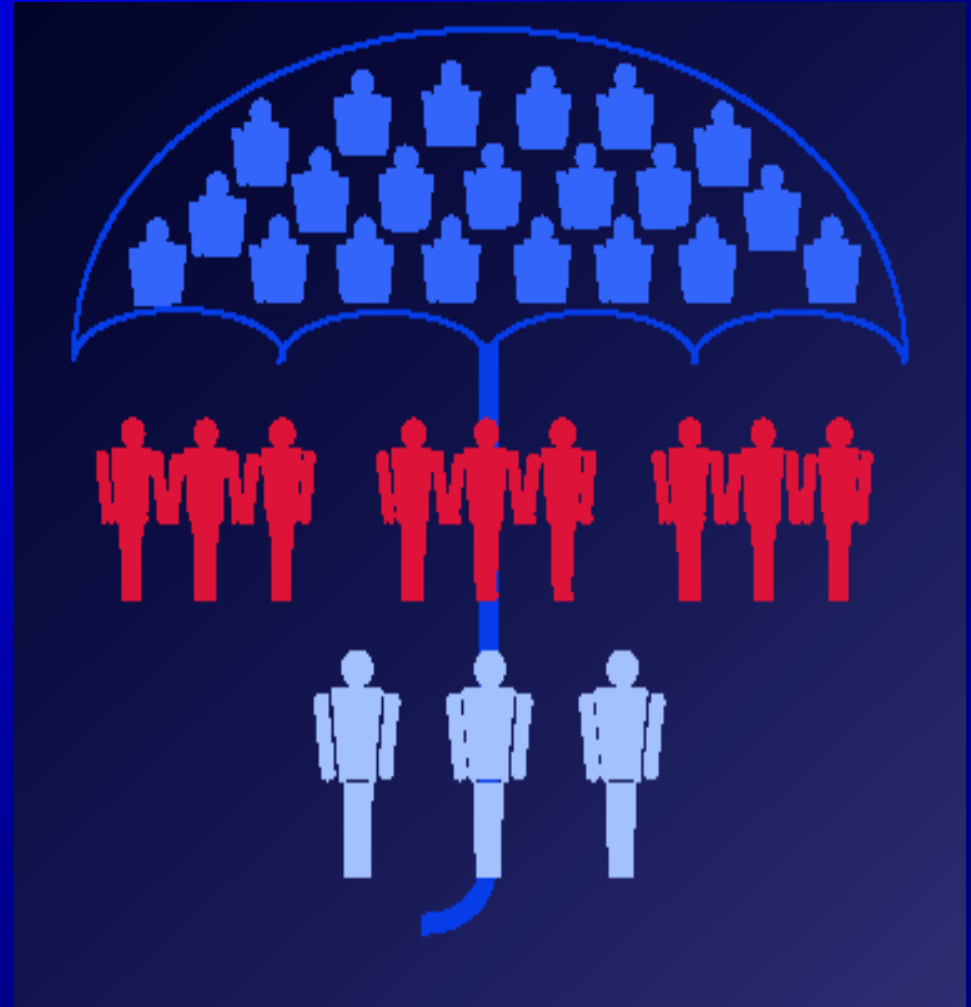
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