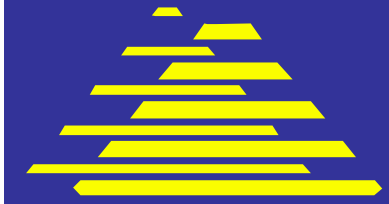


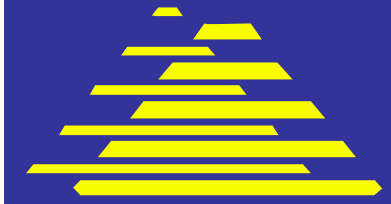
Agile, TSP[SM], CMMI®
pick one, pick two, pick all three!

Daniel M. Roy

Cape Town SPIN

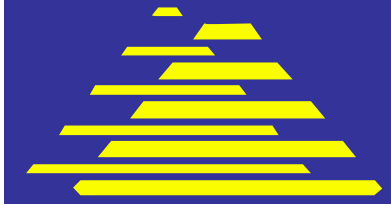
20 February, 2008

PSP, TSP, Personal Software Process and Team Software Process are service marks of CMU
CMM is and Capability Maturity Model are registered in the U.S. patent and trademark office



Agenda

- When I was doing real work
- What's an agile "method"
- Agile and CMMI®
- PSP/TSP[SM] : the agile CMMI®
- The experience factory
- PSP/TSP[SM] results in practice
- Synergy PSP/TSP[SM]/CMMI®



What's agile?

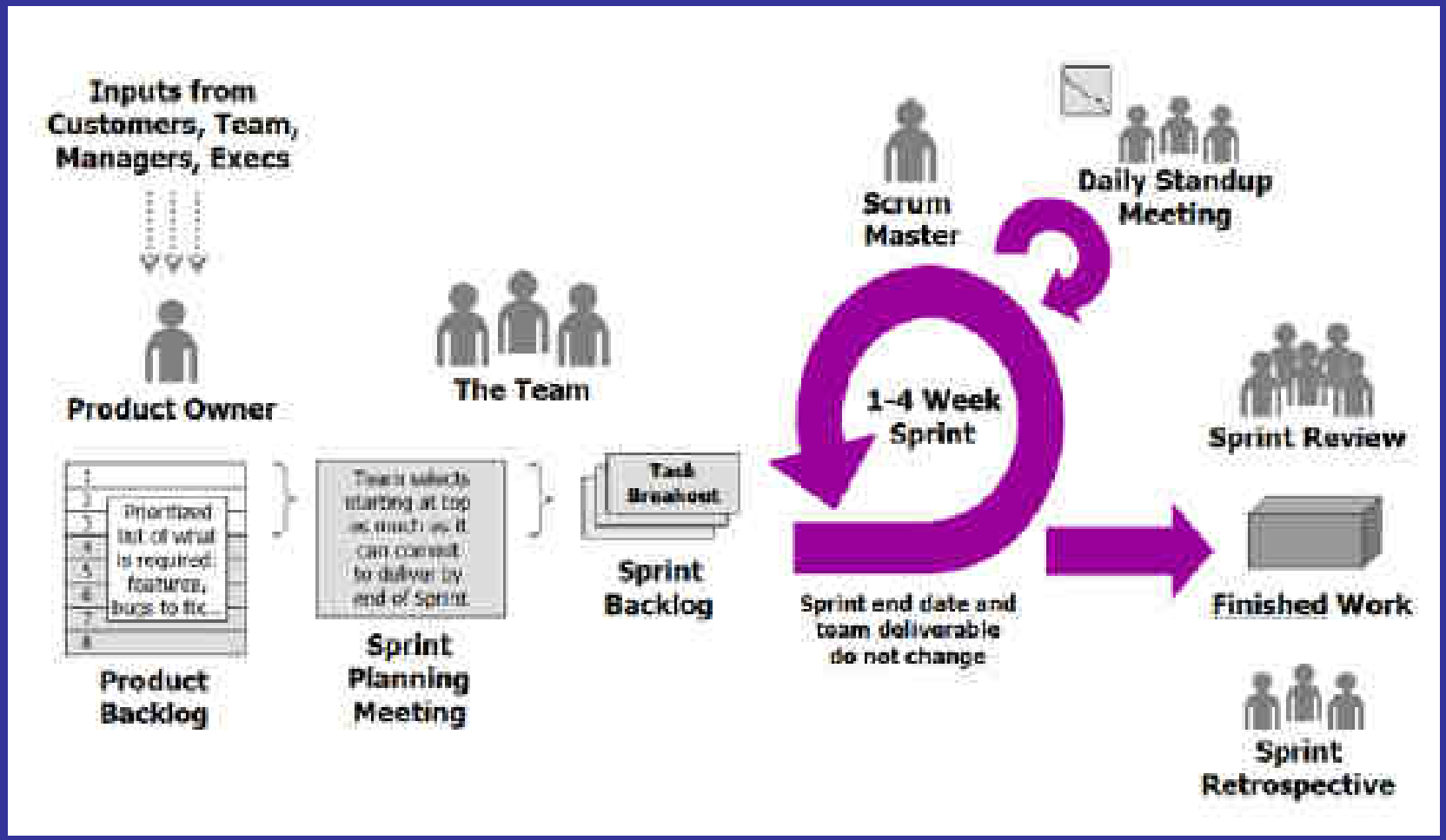
A super-class, featuring sets of:

- Methods and "methodologies"
- Iterative life cycle models
- Programming practices
- Software development philosophies

This super-class is called "Agile software development"

The underlying principles behind agile developement are listed in "The manifesto"

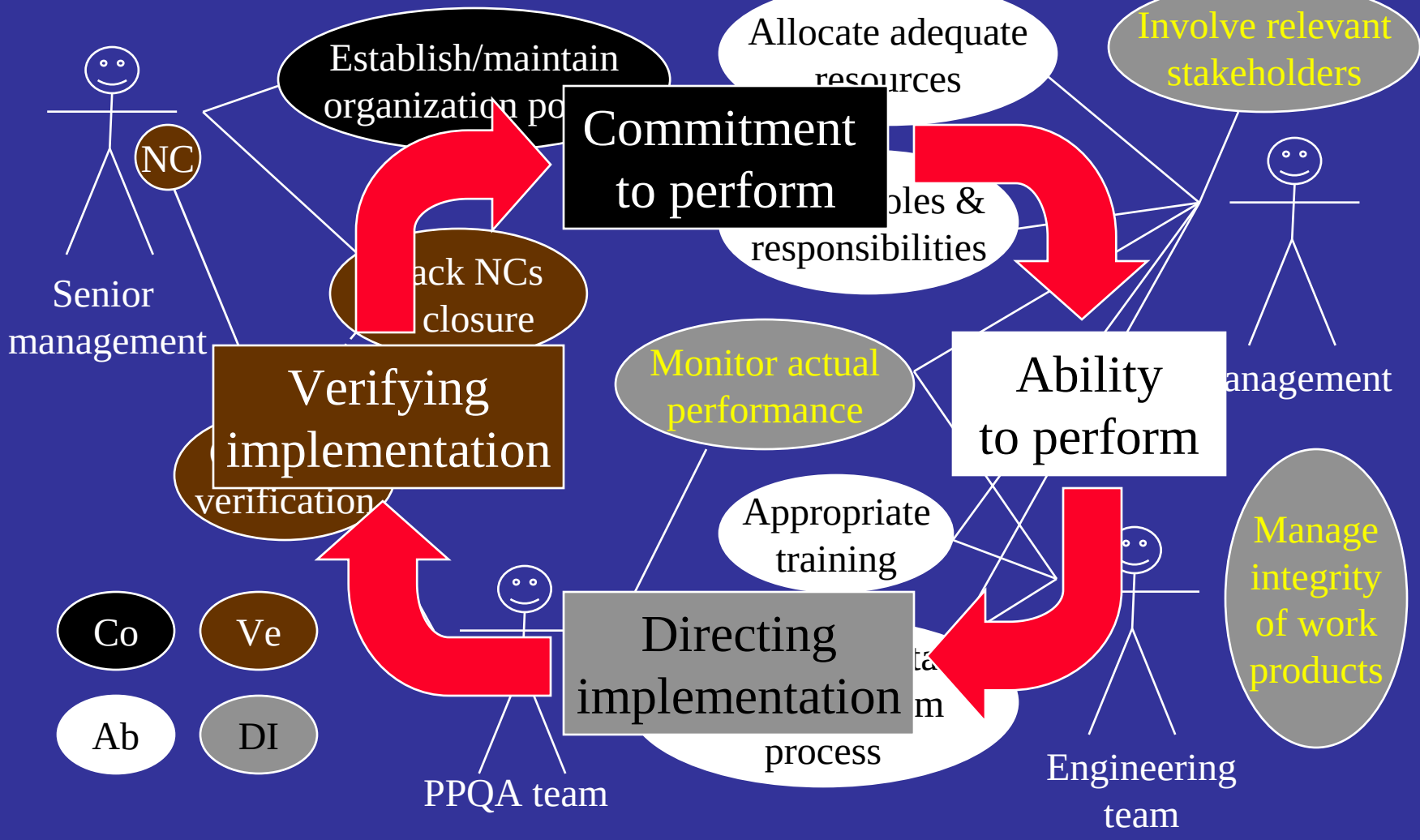
Scrum

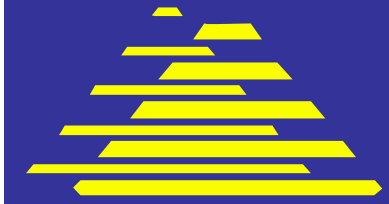


Scrum and CMMI-Dev

Level	Focus	Process Areas
5 Optimizing	Continuous process improvement	Organizational Innovation and Deployment Causal Analysis and Resolution
4 Quantitat. Managed	Quantitative management	Organizational Process Performance Quantitative Project Management
3 Defined	Organization engineering process standardization	Requirements Development Technical Solution Verification Validation Organization Process Focus Organization Process Definition Organizational Training Integrated Project Management Risk management Decision Analysis and Resolution Product Integration
2 Managed	Basic Project management	Requirements management Project Planning Project Monitoring and Control Supplier Agreement Management Measurement and Analysis Process and Product Quality Assurance Configuration Management

Scrum and I18N





Is CMMI the agile nemesis?

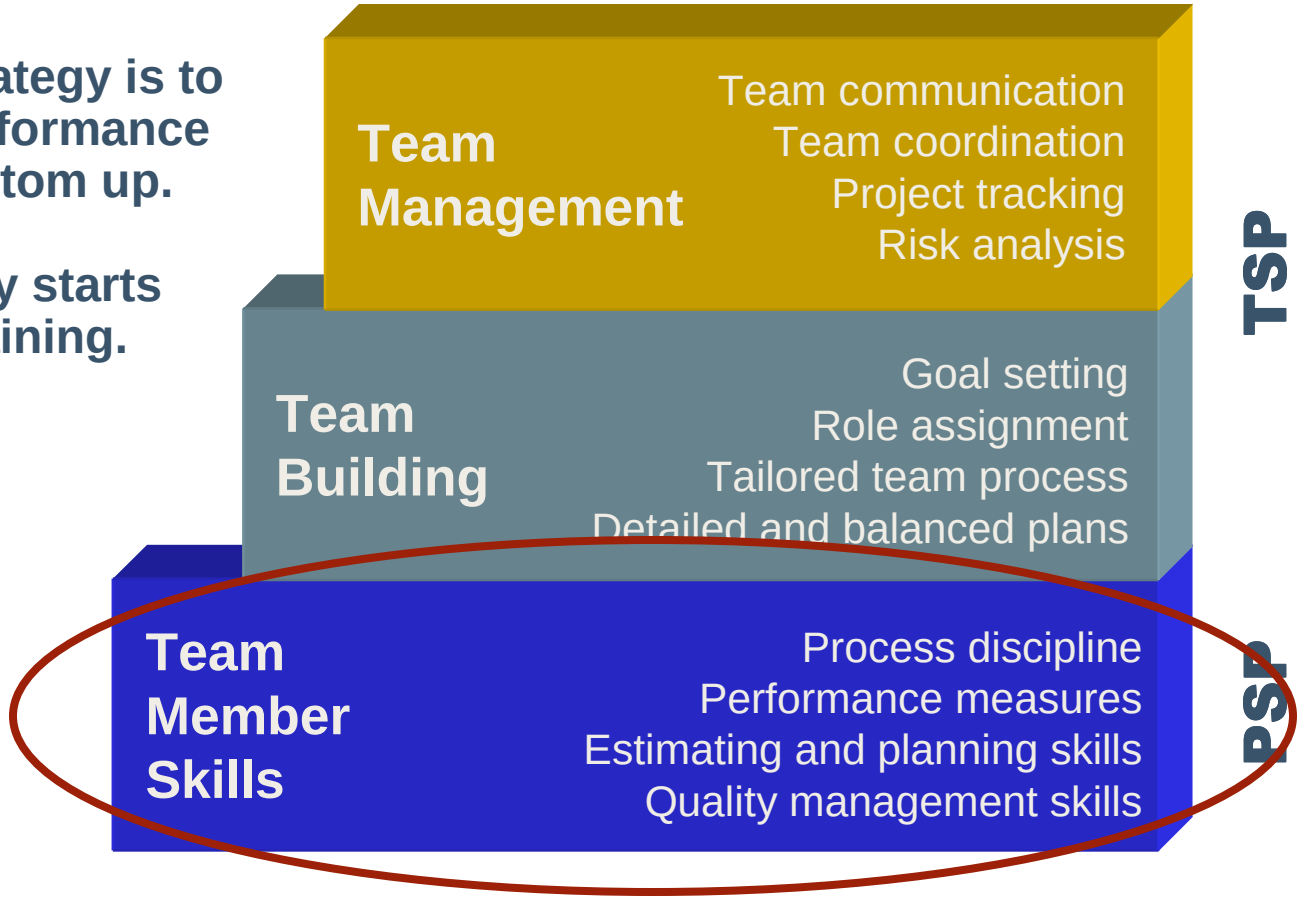
"Optimizing processes that are agile and innovative depends on the participation of an empowered workforce aligned with the business values and objectives of the organization."

CMMI Dev. V1.2 August 2006
GG5 in Generic goals and practices

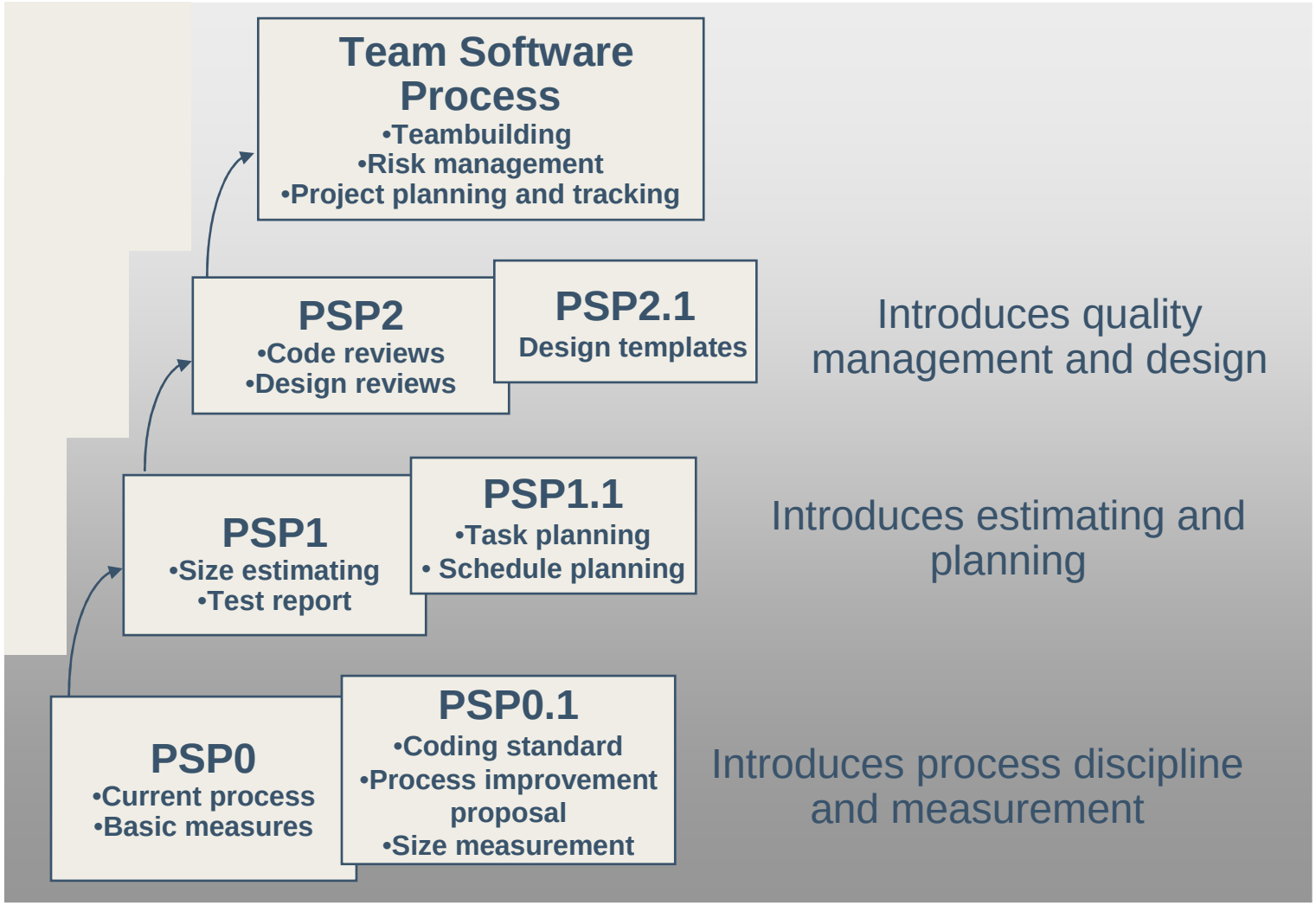
Building High-Performance Teams

The TSP strategy is to improve performance from the bottom up.

This strategy starts with PSP training.



The PSP Course

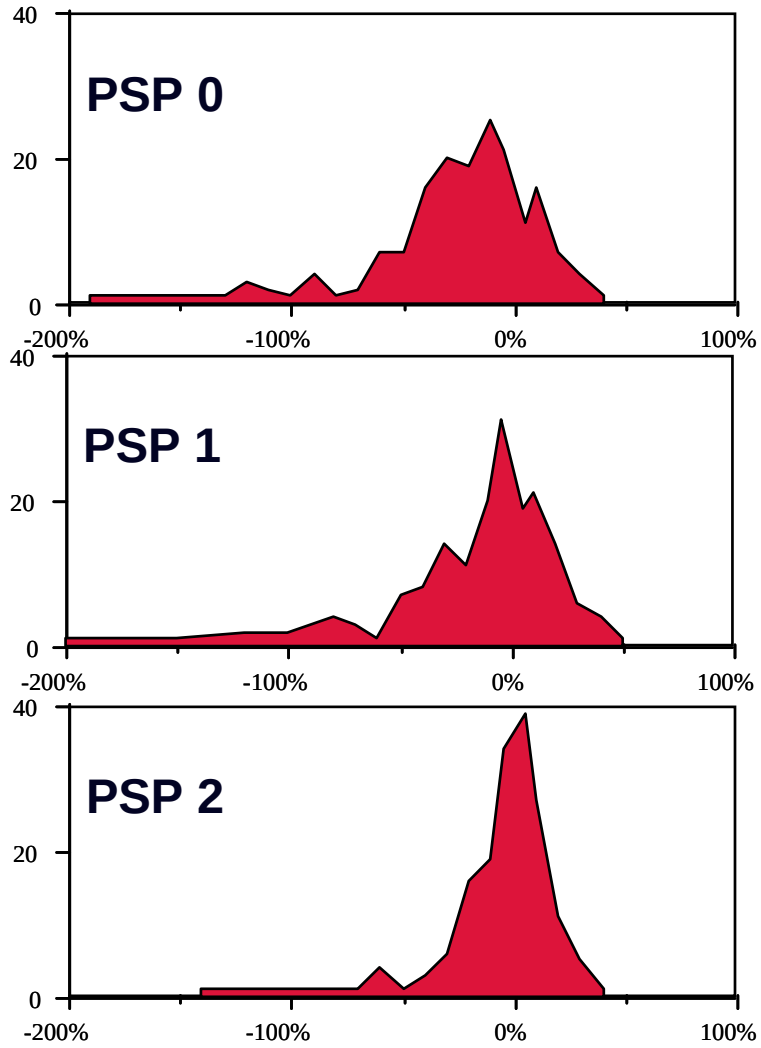


PSP Estimating Accuracy

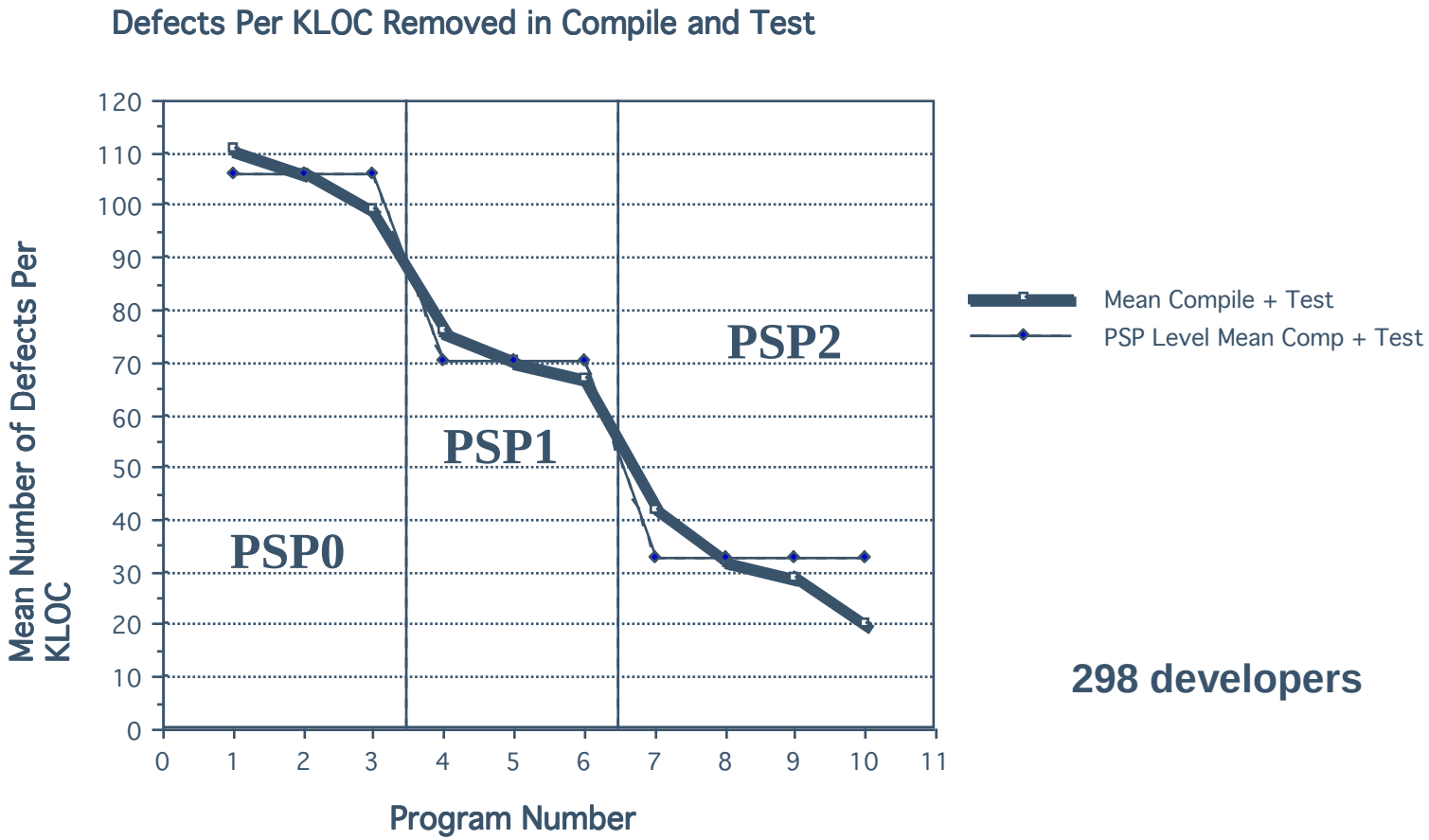
Majority are under-estimating

Balance of over- and underestimates

Much tighter balance around zero



PSP Quality Results

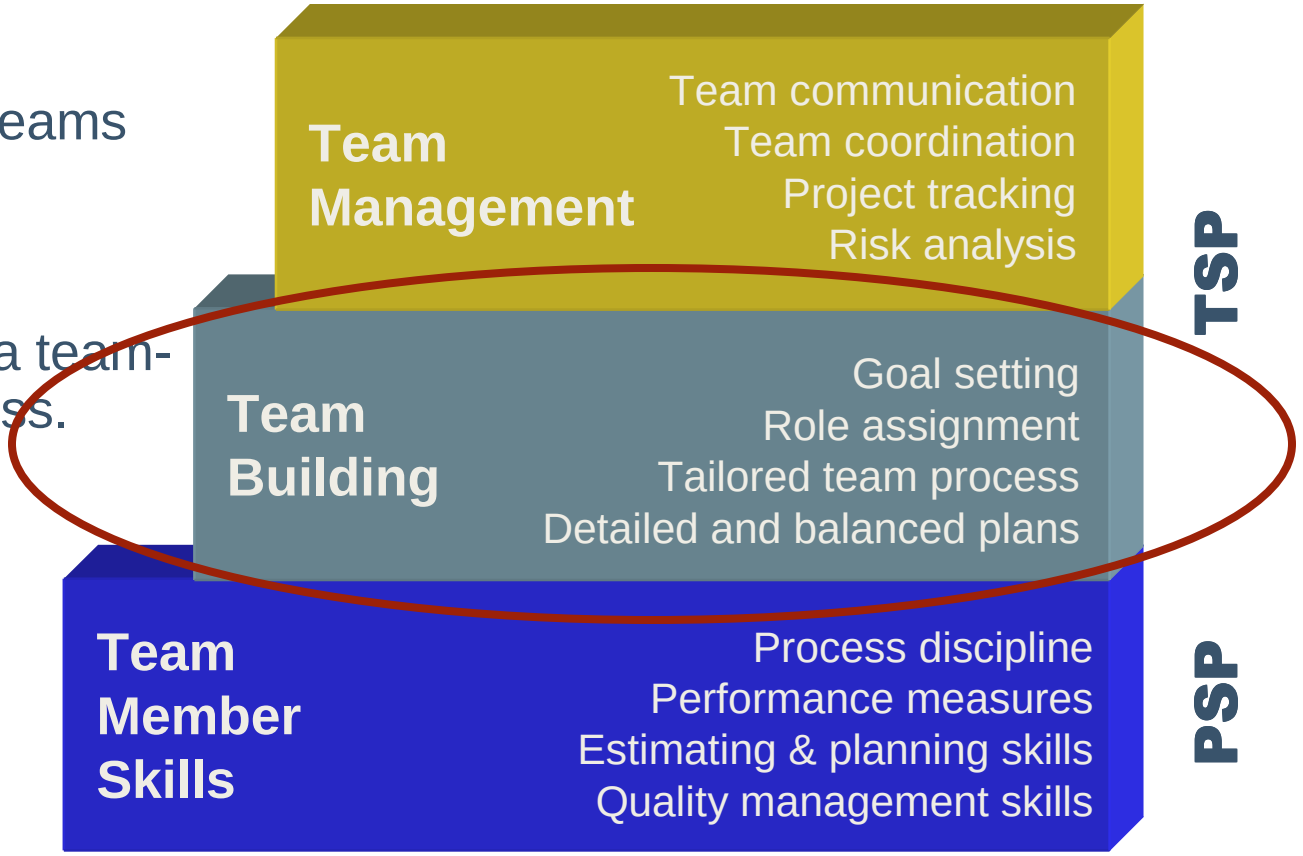


298 developers

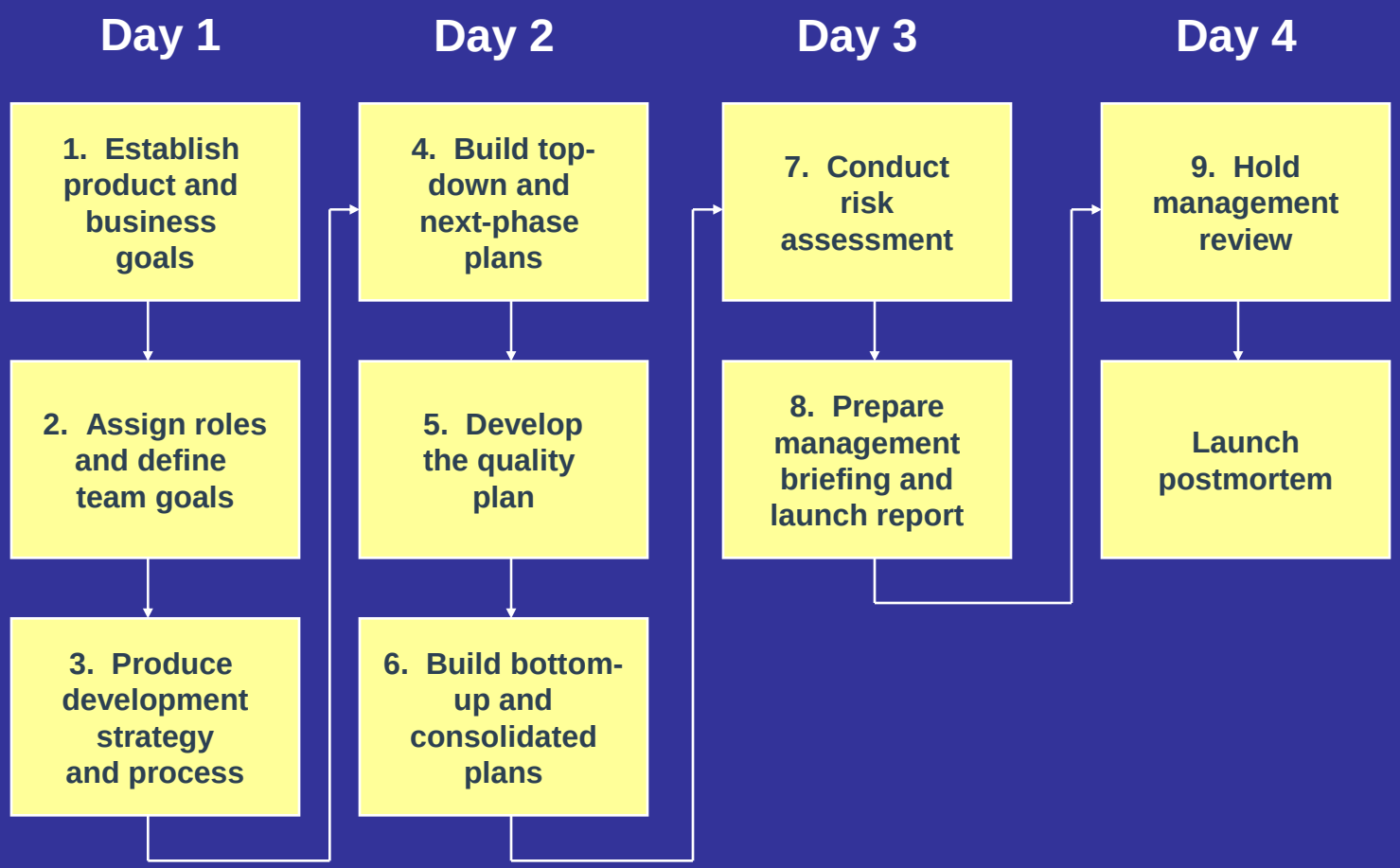
Building Self-directed Teams

Self-directed teams must be built.

This requires a team-building process.



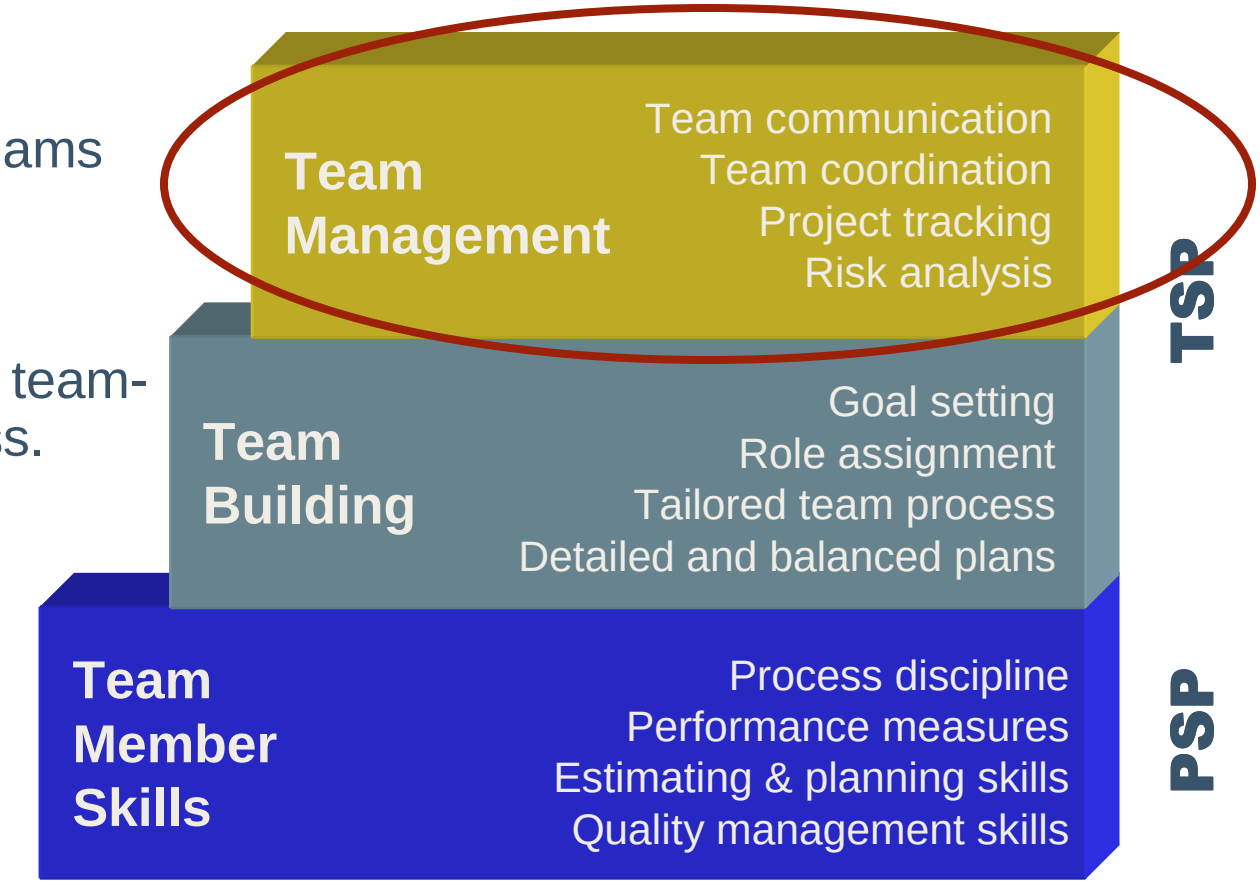
TSP launch process



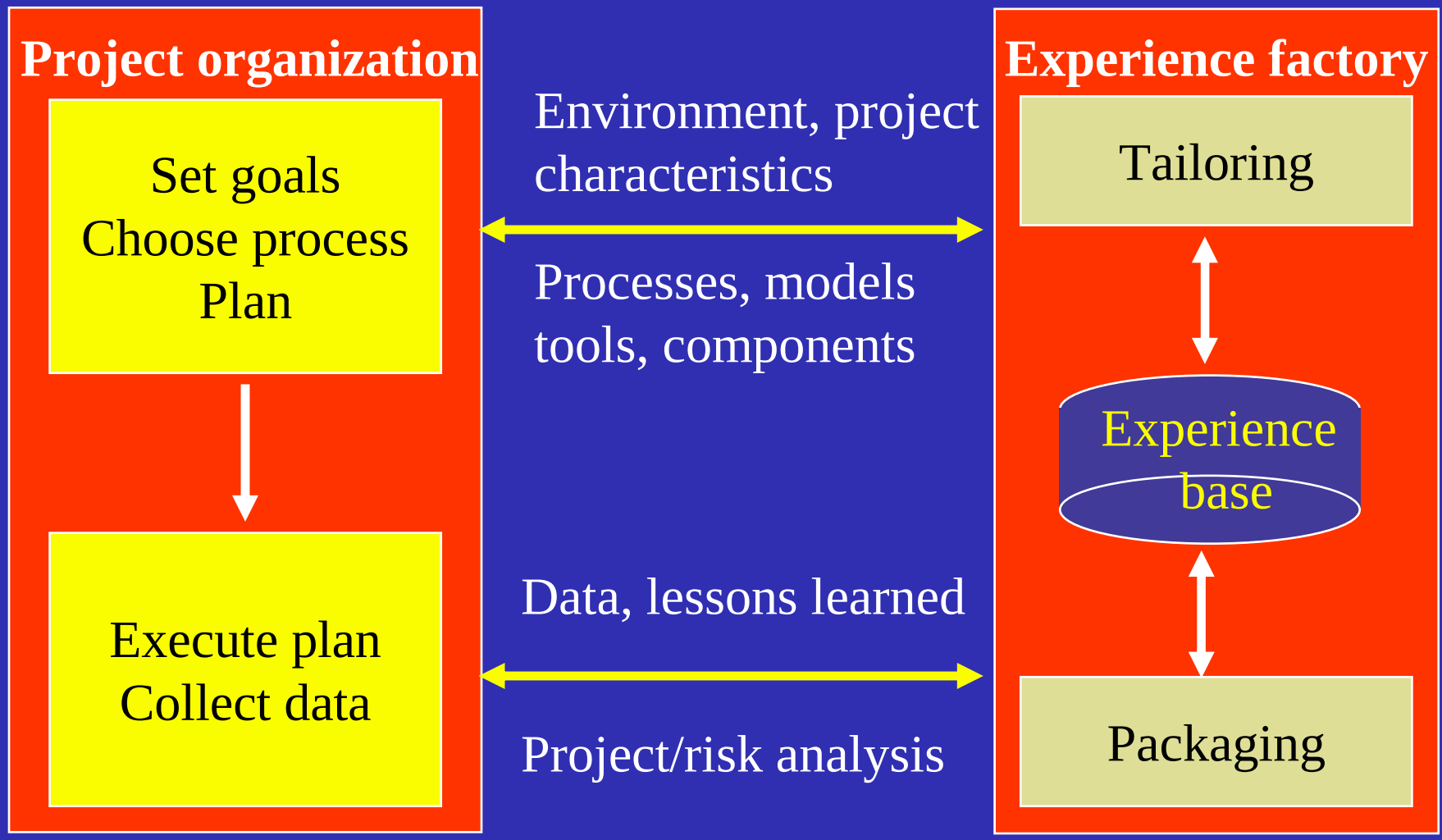
Managing Self-directed Teams

Self-directed teams must be built.

This requires a team-building process.

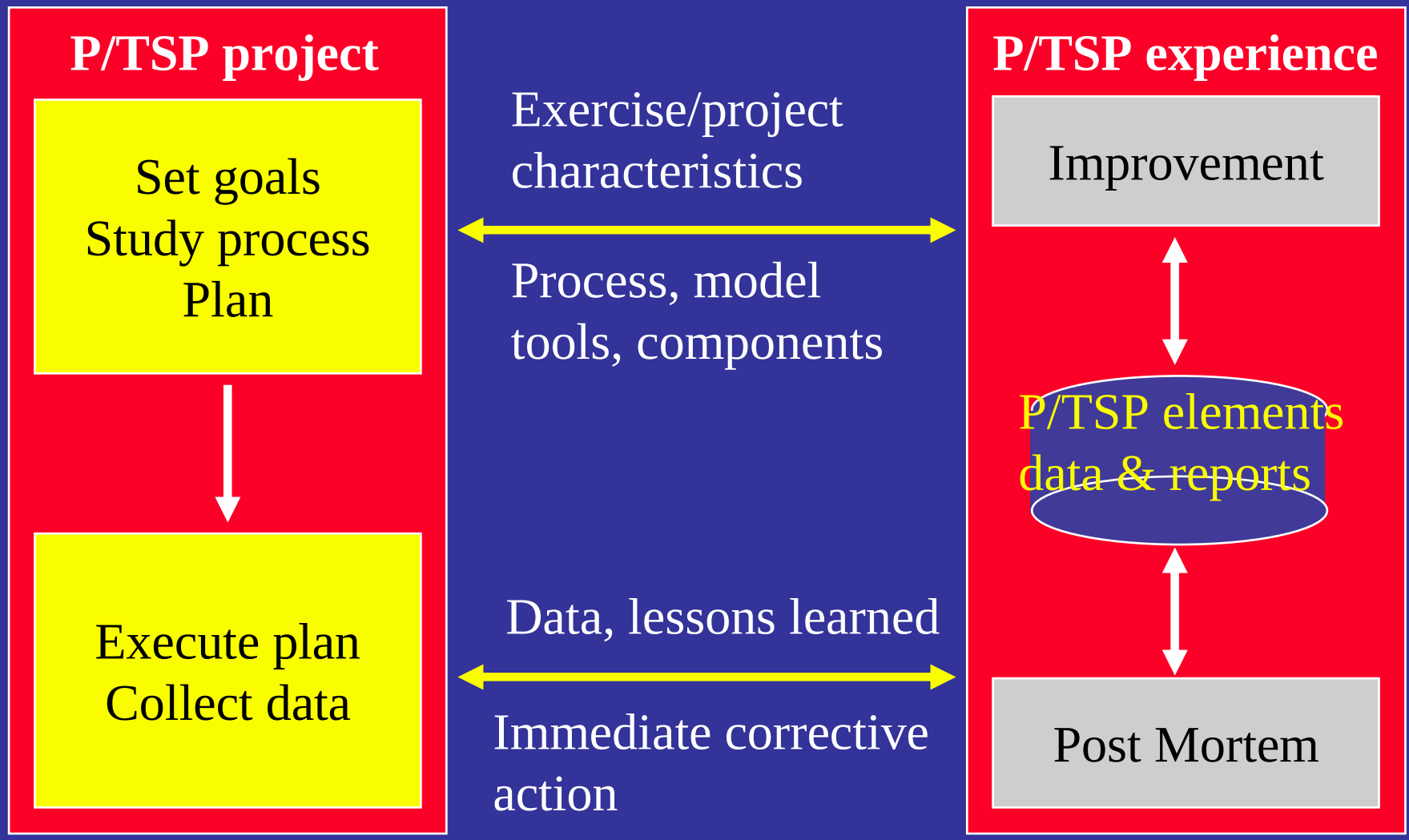


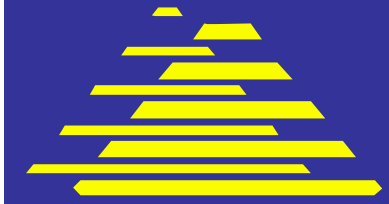
The experience factory



From 'The experimental paradigm in software eng.', Rombach, Basili, Selby, Springer-Verlag, 1994

PSP/TSP: Agile Exp. Fact.

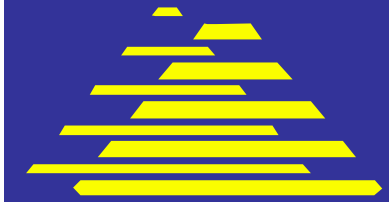




TSP and Scrum Principles

TSP projects are team-directed. Team members

- plan their work
- regularly track and report their performance
- own their own processes
- are all involved in the planning and decision making
- have defined and explicit roles



Tracking the TSP project

TSP Week Summary - Form WEEK

Name	Consolidated Team Plan
Team	Security System Upgrade
Status for Week	5
Week Date	1/31/2000

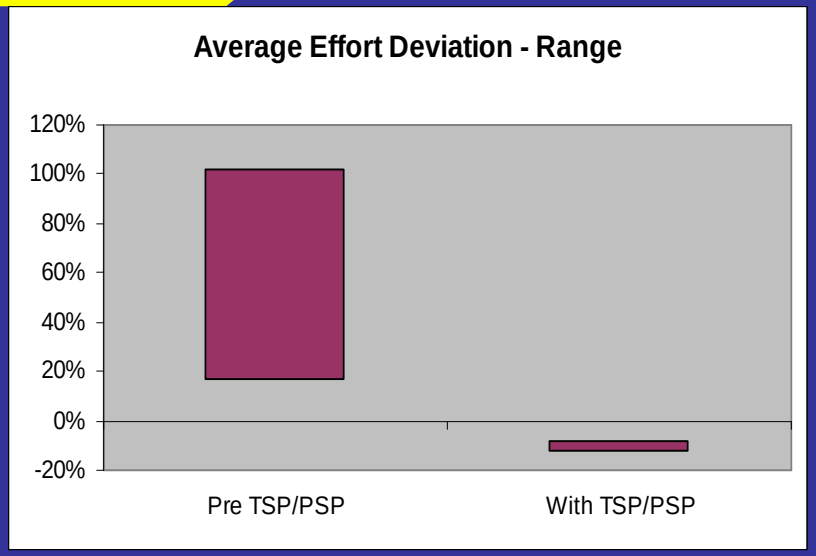
Date	2/7/2000
Cycle	

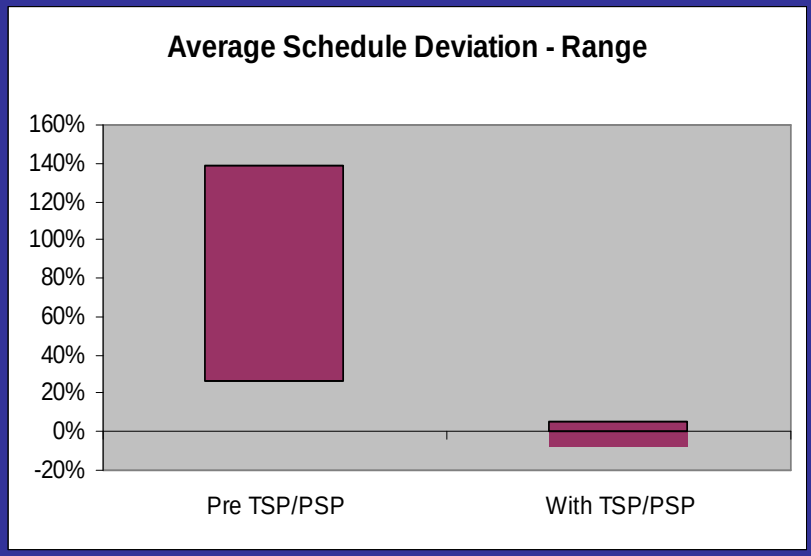
Weekly Data	**Plan**	**Actual**	**Plan/ Actual**
Project hours for this week	80.0	69.0	1.16
Project hours this cycle to date	400.0	344.8	1.16
Earned value for this week	10.3	3.1	3.37
Earned value this cycle to date	40.2	30.0	1.34
To-date hours for tasks completed	293.0	303.8	0.96

Assembly	**Phase**	**Tasks Completed**	**Resource**	**Plan Hours**	**Actual Hours**	**Earned Value**	**Planned Week**	**Plan Hrs./ Actual Hrs.**
SYSTEM	REQ	Write SRS general sections	tmc	14.0	12.0	1.4	4	1.17
SYSTEM	REQ	Weekly requirements analysis meeting 5	tma	4.0	4.0	0.4	5	1.00
SYSTEM	REQ	Weekly requirements analysis meeting 5	tmb	4.0	4.0	0.4	5	1.00
SYSTEM	REQ	Weekly requirements analysis meeting 5	tmc	4.0	4.0	0.4	5	1.00
SYSTEM	REQ	Weekly requirements analysis meeting 5	tmd	4.0	4.0	0.4	5	1.00
		TASKS DUE THROUGH WEEK 7						
SYSTEM	REQ	Review SRS general sections	tmc	5.0		0.0	4	
SYSTEM	STP	Complete Validation Test Plan	tmd	8.0	8.5	0.0	4	0.94

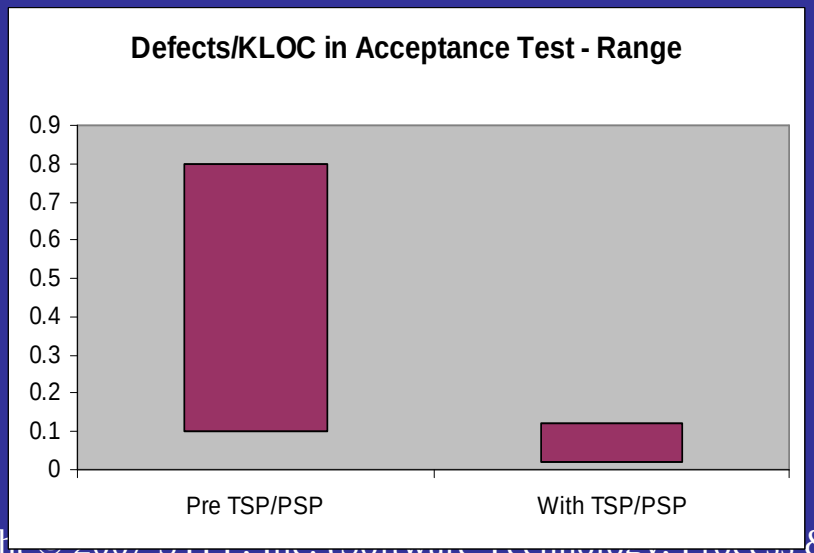
From the SEI class "Managing TSP teams" (Module 15)

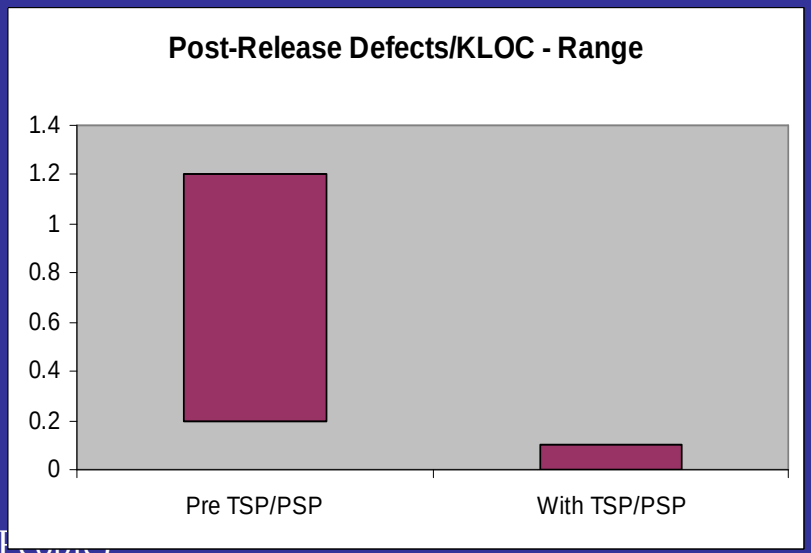
PSP/TSP Results





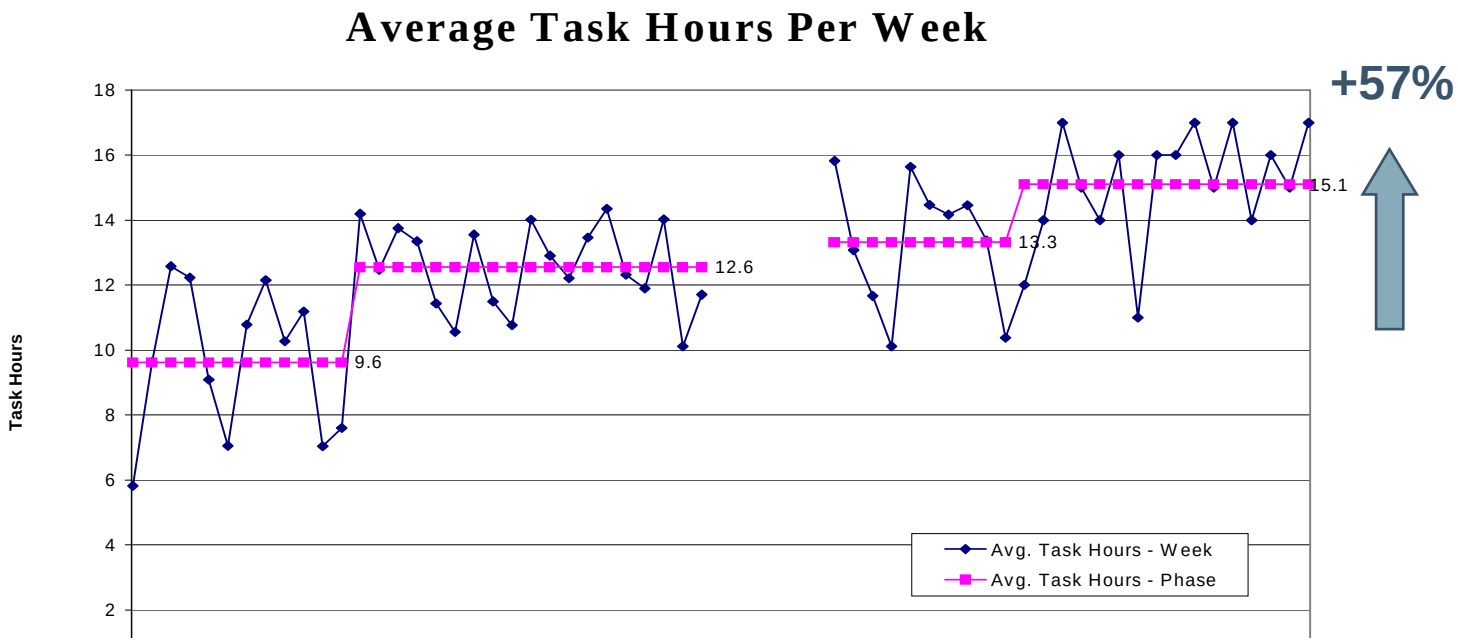
N. Davis, J. Mullaney *The Team Software Process in Practice: A Summary of Recent Results* Sept. 2003.





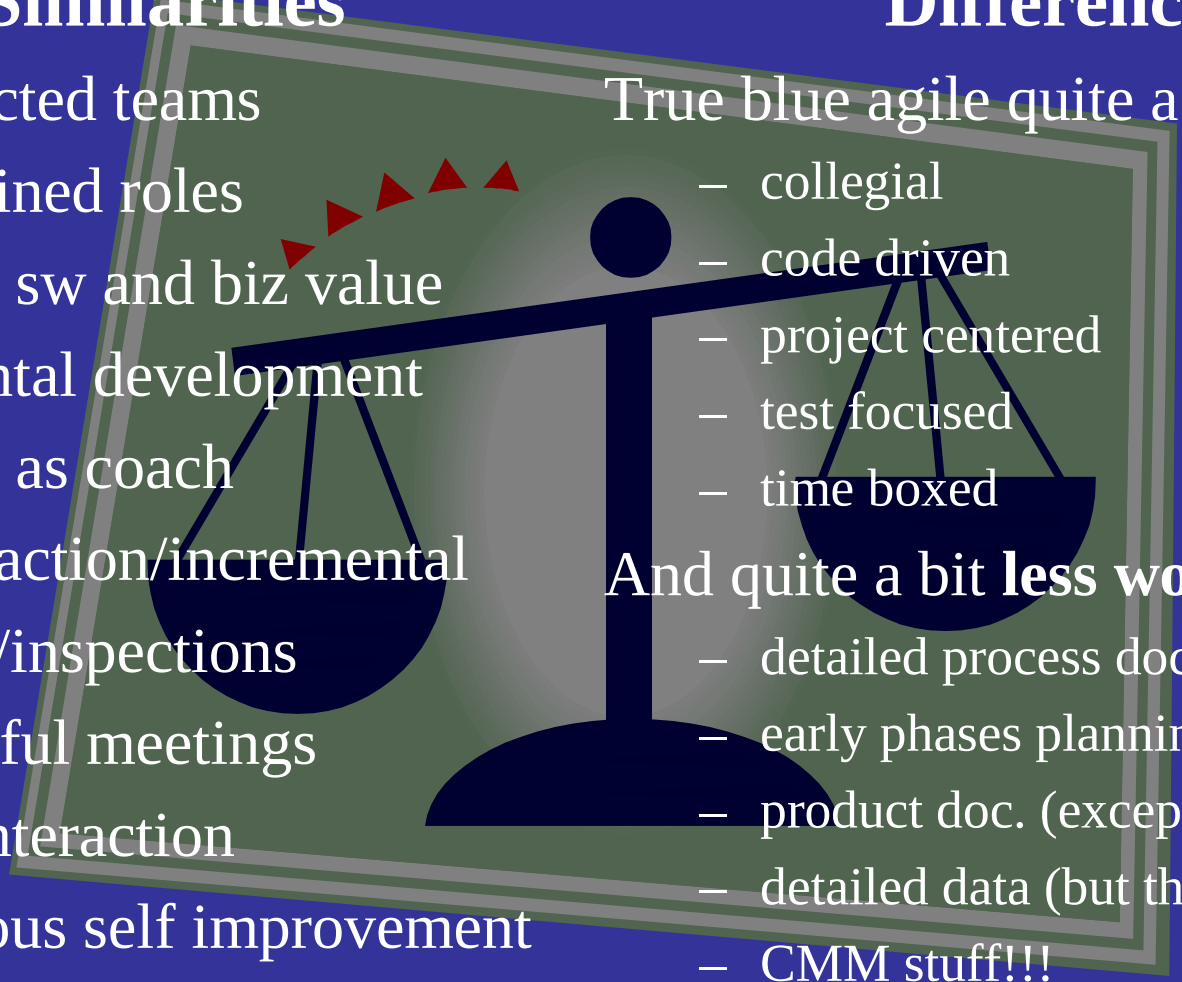
Improving Task Hours

Average task hours per developer per week were improved from 9.6 hours to 15.1 hours through quiet time, process documentation, more efficient meetings, etc.



Source: Allied Signal

Agile CMM vs. Agile



Similarities

Self directed teams
Well defined roles
Working sw and biz value
Incremental development
Manager as coach
Quick reaction/incremental
Reviews/inspections
Meaningful meetings
People interaction
Continuous self improvement

Differences

True blue agile quite a bit **more**:

- collegial
- code driven
- project centered
- test focused
- time boxed

And quite a bit **less worried** about

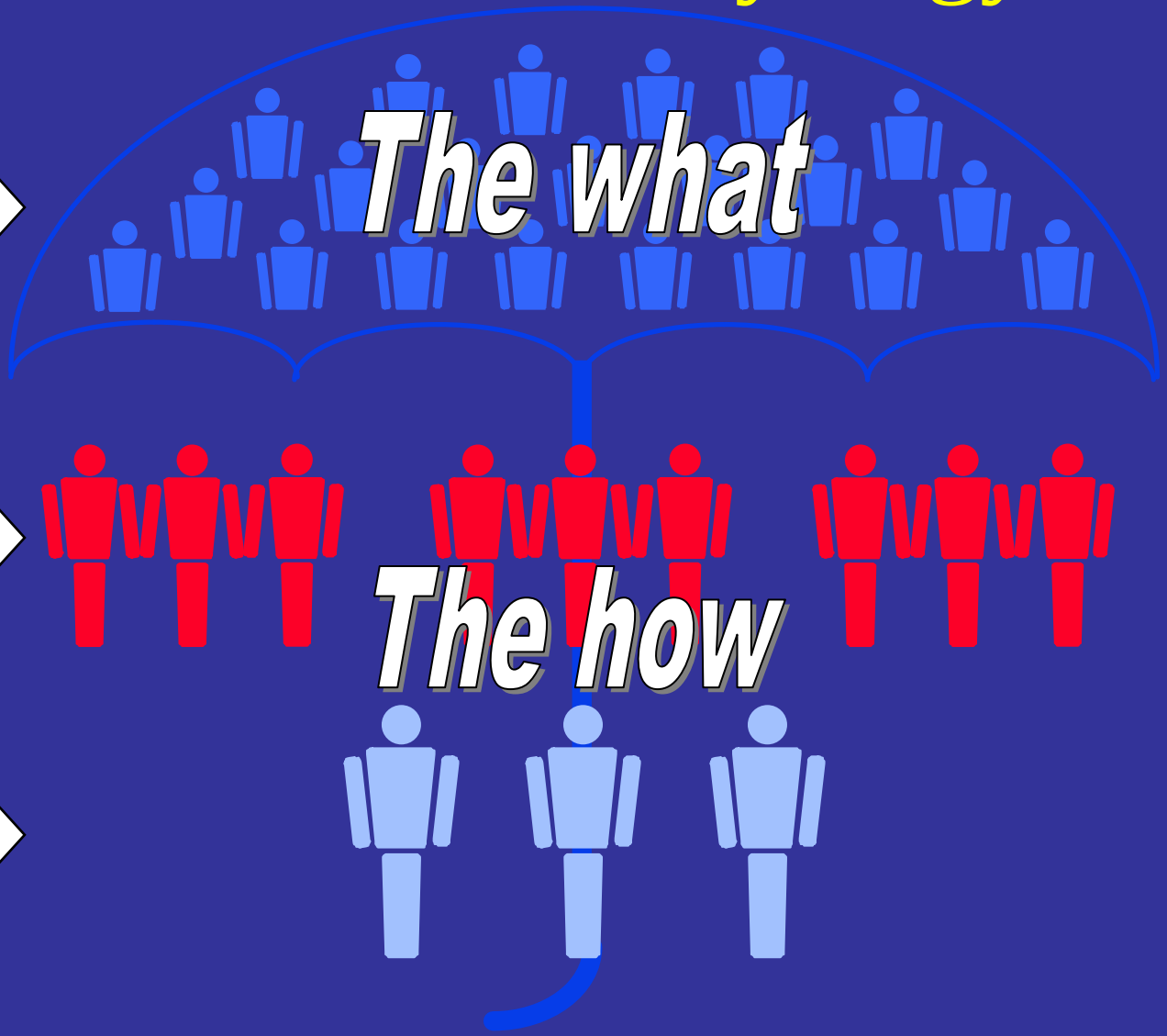
- detailed process documentation
- early phases planning/tracking
- product doc. (except code)
- detailed data (but there is some)
- CMM stuff!!!

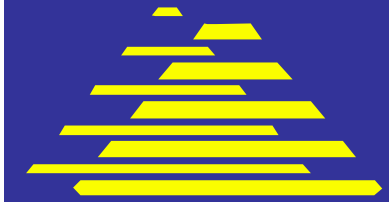
PSP/TSP-CMM synergy

CMM - *Builds organizational capability*

TSP - *Builds quality products on cost and schedule*

PSP - *Builds individual skill and discipline*





To probe further-1

http://www.agilemanifesto.org

http://www.agilealliance.org

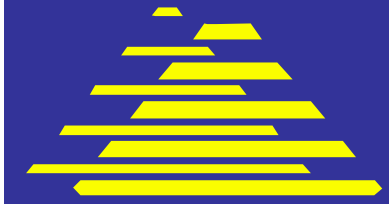
http://www.xprogramming.com/

http://groups.yahoo.com/group/extremeprogramming

Cockburn, Alistair *Agile Software Development* Boston, MA:Addison-Wesley, 2002.

Highsmith, Jim *Adaptive Software Development: A Collaborative Approach to Managing Complex Systems*, Dorset House, 2000.

Beck, K. *Extreme Programming Explained: Embrace Change*. Boston: Addison-Wesley, 2000.

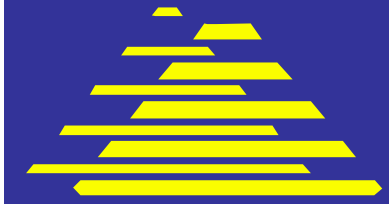


To probe further-2

David Kane, Steve Ornburn *Agile Development: Weed or Wildflower?* Crosstalk October 2002.

Barry Boehm, Richard Turner *PSP/TSP vs. XP*. Oct. 24, 2003. Great on-line paper. Read it at:

http://www.informit.com/isapi/product_id~%7B156D4D3C-6DA4-4E46-9591-34A341EB7DB2%7D/content/index.asp



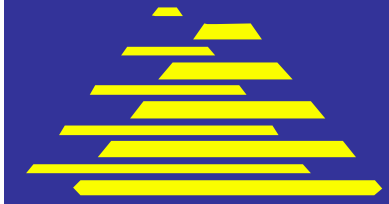
To probe further-3

http://www.stsc.crosstalk.org

Mark C. Paulk *Extreme Programming from a CMM Perspective*. IEEE Software Nov/Dec. 2001.

Mark C. Paulk *Agile Methodologies and Process Discipline* Crosstalk October 2002.

Donald J. Reifer *XP and the CMM*. IEEE software May/June 2003.

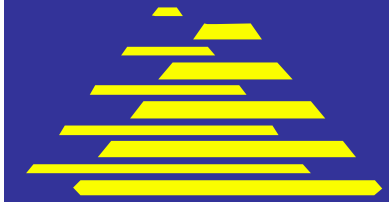


To probe further-4

http://www.sei.cmu.edu/tsp/

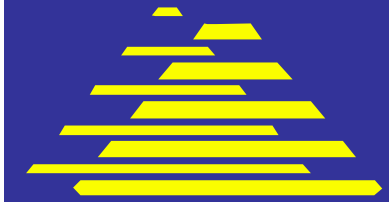
Noopur Davis, Jim McHale *Relating the Team Software ProcessSM (TSPSM) to the Capability Maturity Model for Software (SW-CMM)* CMU/SEI-2002-TR-008, June 2002.

Noopur Davis, Julia Mullaney *The Team Software ProcessSM (TSPSM) in Practice: A Summary of Recent Results* Sept. 2003.



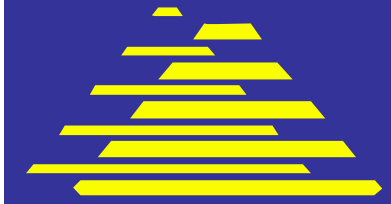
To probe further-5

- "Stretching Agile to fit CMMI Level 3," David J. Anderson, http://www.agilemanagement.net/Articles/Papers/Agile_2005_Paper_DJA_v1_5.pdf
- "Extreme Programming Explained: Embrace Change" (2nd Edition), Ken Beck, ISBN 0-321-27865-8 • Balancing Agility and Discipline – A Guide for the Perplexed, Barry Boehm and Richard Turner, Addison Wesley
- "CMMI –Guidelines for Process Integration and Product Improvement", Mary Beth Chrissis, et al, Addison Wesley • Crystal Clear: A Human-Powered Methodology for Small Teams, Alistair Cockburn, ISBN 0- 201-69947-8
- "An Agile Approach to Achieving CMMI" Christine Davis, et al www.agiletek.com/thoughtleadership/whitepapers



To probe further-6

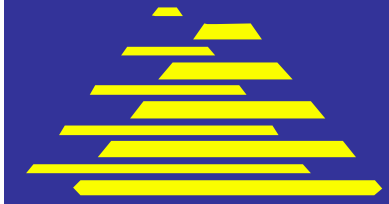
- "Real Time Embedded Software Development Using Agile Technology," Vincent Rivas and Joseph N Frisina, http://www.omg.org/news/meetings/workshops/RT_2005/01-4_Rivas-Frisina.pdf
- "A Practical Guide to Feature-Driven Development", Stephen Palmer and John Felsing, ISBN 0-130-67615-2
- "Lean Software Development" –An Agile Toolkit, Mary and Tom Poppendieck, Addison Wesley
- "Agile Project Management with Scrum", Ken Schwaber, ISBN 0-130-67634-9
- "Lean Thinking –Banish Waste and Create Wealth in Your Corporation", James P. Womack and Daniel T. Jones, Free Press



To probe further-7

Clement, Paul et al. *Documenting Software Architectures in an Agile World*, CMU/SEI-2003-TN-023.

Smiley, Karen *Comparing Agile and TSP*, First TSP Users Group Conference, Pittsburgh PA, September 29-30, 2003.



To discuss some more…

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