



Using PSP/TSP in a Performance Review

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Who We Are

Beckman Coulter: *Advancing Healthcare for Every Person*

Global development,
manufacturing and
marketing of hospital
and critical care
diagnostic systems.



Used to diagnose
disease, make
treatment decisions
and monitor patients.

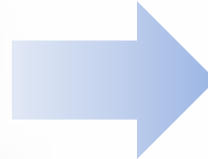


Beckman Coulter: *Advancing Healthcare for Every Person*

Chemistry &
Immunoassay



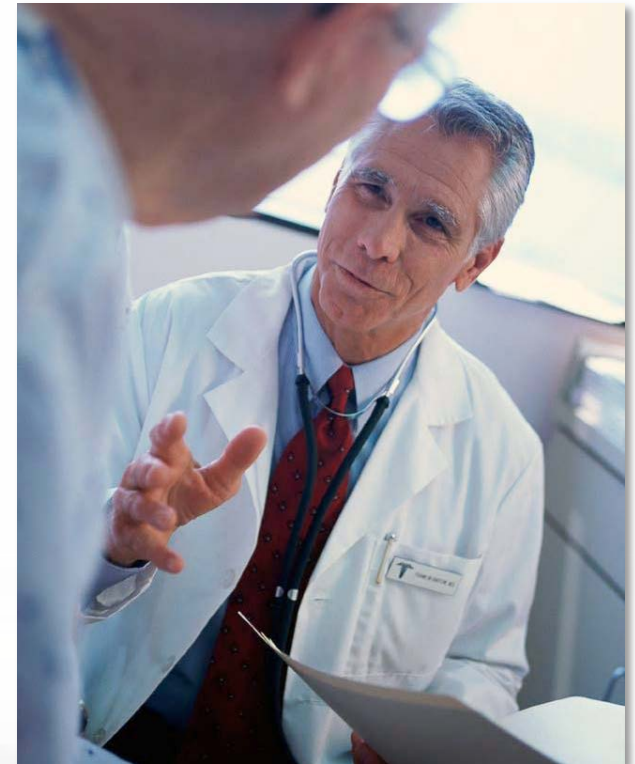
Hematology
& Urinalysis



Molecular
Diagnostics



Workflow & IT Solutions
Automation / IT Informatics



We produce reliable test results
For over 75 years, our products
have supplied critical information
to improve patient health.

TSP at Beckman Coulter

- » 2008: Selected TSP after an exhaustive search for a way to improve software development and quality
 - Planning for two pilot TSP projects
 - Training for initial teams, PSP Instructors and TSP coaches
- » 2009: TSP pilot projects launched
 - Considered a success a year later using our “criteria for success” guidelines
 - TSP pilot projects remain ongoing
- » 2010 – Present: Multiple TSP projects launched with new instructors and coaches on-boarded across all sites
 - Nearly all projects now using TSP with two exceptions
 - All active TSP projects considered a success, but.....



The Situation

TSP Not Embraced by Everyone

- » The remainder of this presentation talks to activities at our Chaska, MN site only
- » Coach perspective: While the majority of staff expressed support and embraced TSP; certain actions spoke louder
 - Processes not fully followed at times
 - Data logging not consistent or even non-existent
 - Team actions not consistent with PM and Checkpoint data recommendations
 - Some vocally challenged TSP despite the success of on-time deliveries with overall higher quality than before TSP
 - > The data was not accepted by these individuals
 - A significant defect escaped to our customers late 2013
- » This despite requiring the use of TSP data to make improvements in performance reviews in 2013

The Environment

- » Team of three supervisors with about 20 team members
 - 2 of which made supervisors in early 2014
- » Medical device software development team
 - 3 different projects
 - > 2 released 'legacy' systems
 - > 1 in early development stages
 - Regulated by FDA and other regulatory agencies = Rigorous process is *not optional*
- » In order to be successful the team needs to :
 - Meet the extremely high standards for quality and compliance for our industry
 - Make and keep reliable schedules to release product
 - Have a productive and supportive team environment where
 - > Gaps are recognized and remediated
 - > Accomplishments are rewarded

2013 Performance Review – Management Perspective

- » Frustrated with the 2013 performance review results
 - Those not fully following TSP and those not really committed to TSP could not be given honest ratings due to the subjective TSP goal of “using TSP data for improvement”
 - > Individual improvements could be documented without specifics and were left to interpretation
 - Actual data did not have to be offered or described
 - > Resulted in ratings that were subjectively applied
 - Those not fully supportive or against TSP continued as before with no real consequences
- » People do what you measure, and we’re mostly rewarding productivity

2013 Performance Review – Team Perspective

- » Too many ratings came as a surprise at the end of the year
 - Rewards (or lack thereof) did not match team members expectations
 - > Those who were productive but had poor process were surprised by lower scores
 - > TSP/PSP stars and role managers didn't feel like their efforts were paying off
- » Not clear how to get a better score
 - Nobody knows what a '5-Rated' software engineer looks like.
- » Supervisors weren't acting like team members
 - Did not show the same level of commitment to TSP that they were asking from the team members
 - Did not make an effort to lead by example and apply TSP concepts of continuous improvement

Supervisor Team's Options for 2014

	S pecific M easurable A ttainable R ealistic T ime-Bound	Robust against changing corporate priorities/ Individual has control	Incentivizes Productivity –Gets stuff done	Incentivizes good process & planning -Compliance, Quality, & Teamwork
Option 1: Do nothing- Keep objectives based on major team milestones	Yes	No	Yes	No
Option 2: Subjectively Rate based on observed TSP performance	No	Yes	Yes	Yes
Option 3: Data-driven ratings	Yes	Yes	Yes	Yes



2014 Performance Review

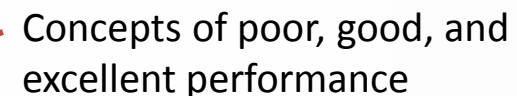
The Performance Review – Background

- » Beckman Coulter uses a typical performance review system
 - Annual goals are jointly developed and agreed to by both the individual associate and their manager
 - Goals are weighted by importance and tracked to completion at both mid-year and final year reviews
 - A five scale rating system is applied based on the overall results for the year's review
 - > Rating is used to determine promotion and/or pay increases
- | | |
|-----|--------------------|
| • 1 | Unacceptable |
| • 2 | Below Expectations |
| • 3 | Meets Expectations |
| • 4 | Above Expectations |
| • 5 | Outstanding |

The Performance Review – Background (cont.)

- » Management wants for the 2014 performance review
 - A set of goals that the engineers have more direct control over and are accountable to
 - Focus on quality and schedule
 - > Ensure process is being followed
 - Clarity on what a rating of 1-5 really means
 - > Emphasis on helping the team to get a rating above 3
 - Struggled with the process discipline objective and how it could lead to negative behavior
 - > How do we not say you need to write a lot of defects
 - > How do we not say you need to be accurate on your time
 - Recognized that this was a start and subject to change during implementation

Backside: Specific examples of what 'good' looks like in each area, with metrics when possible



2014 Performance Reviews

- » Supervisor Team worked with the TSP coach **and team members** to jointly develop a set of objectives for the 2014 performance review year that was data driven and clearly defined using the principles of PSP/TSP
- » Started with a Vision

The Vision

A detailed process for accurately rewarding success in contributing to team goals.

Engineer

- How you perform as a team member
- How you contribute to team success
- Plan your work, use your plan, track your data accurately, track your data timely
- Make commitments you can keep

Supervisor

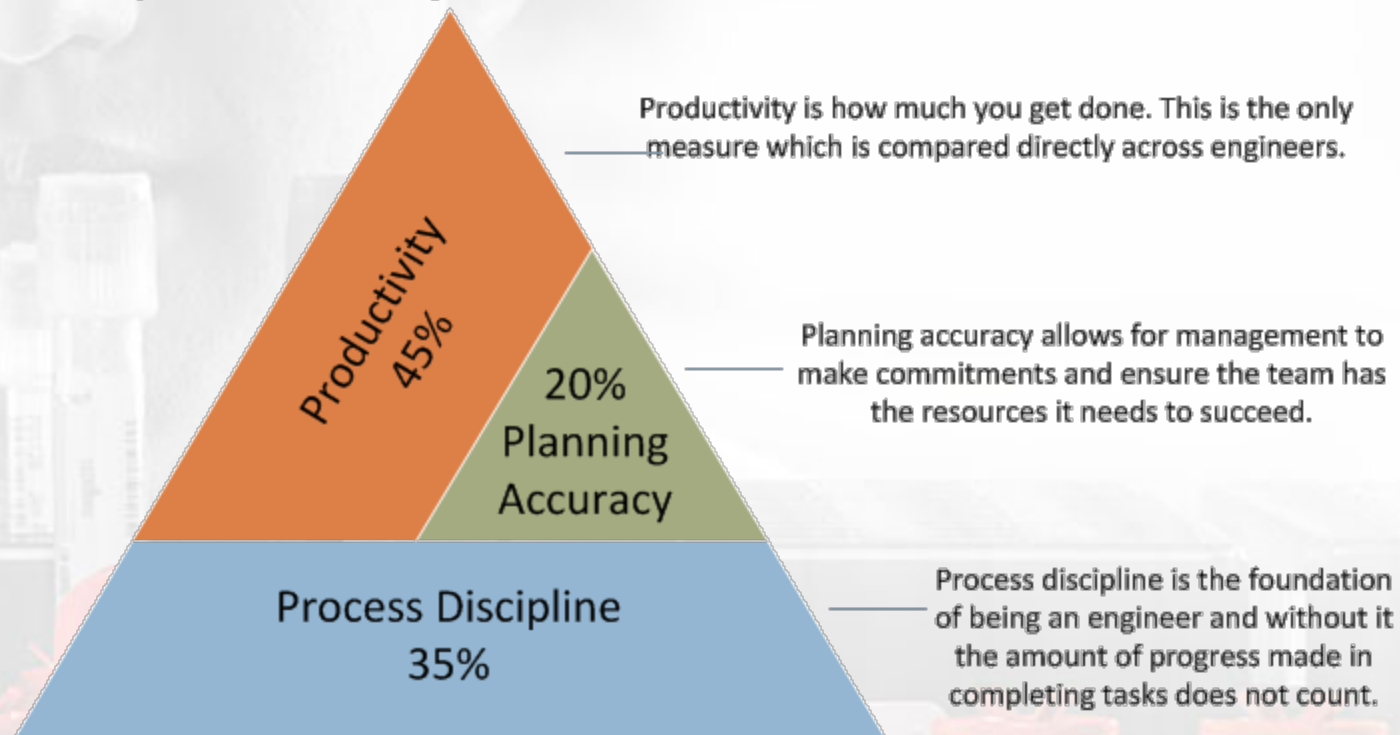
- Reward performance of team members
- Review engineer data to identify performance gaps
- Request commitments that can be achieved
- Define what good looks like

2014 Performance Reviews (cont.)

- » Objectives were defined and proportionally weighted

The Objectives

Three objectives which are designed to ensure as a team we are able to deliver the correct work and on-time.



We will discuss each piece in more detail...

2014 Performance Reviews (cont.)

- » Ratings were defined clearly delineating the individual versus team contributions, performance and improvements

Provide clear guidance on what the standard is and how you can achieve above the standard.

Caveat to ratings and objective measurements: If the engineer's performance as measured with the defined criteria does align with the stated vision and goal of the objective the manager has the option to adjust the rating as appropriate. This shall be the exception.

Unacceptable

1

Below

2

Meets

3

Above

4

Outstanding

5

Individual Contributions / Performance / Improvements

Contributions to the Team's Performance / Improvement

Identified gaps are unsustainable. Focused short term action is required to close gaps ASAP.

Identified gaps need to be closed. Execute on plan to address root cause in a timely fashion.

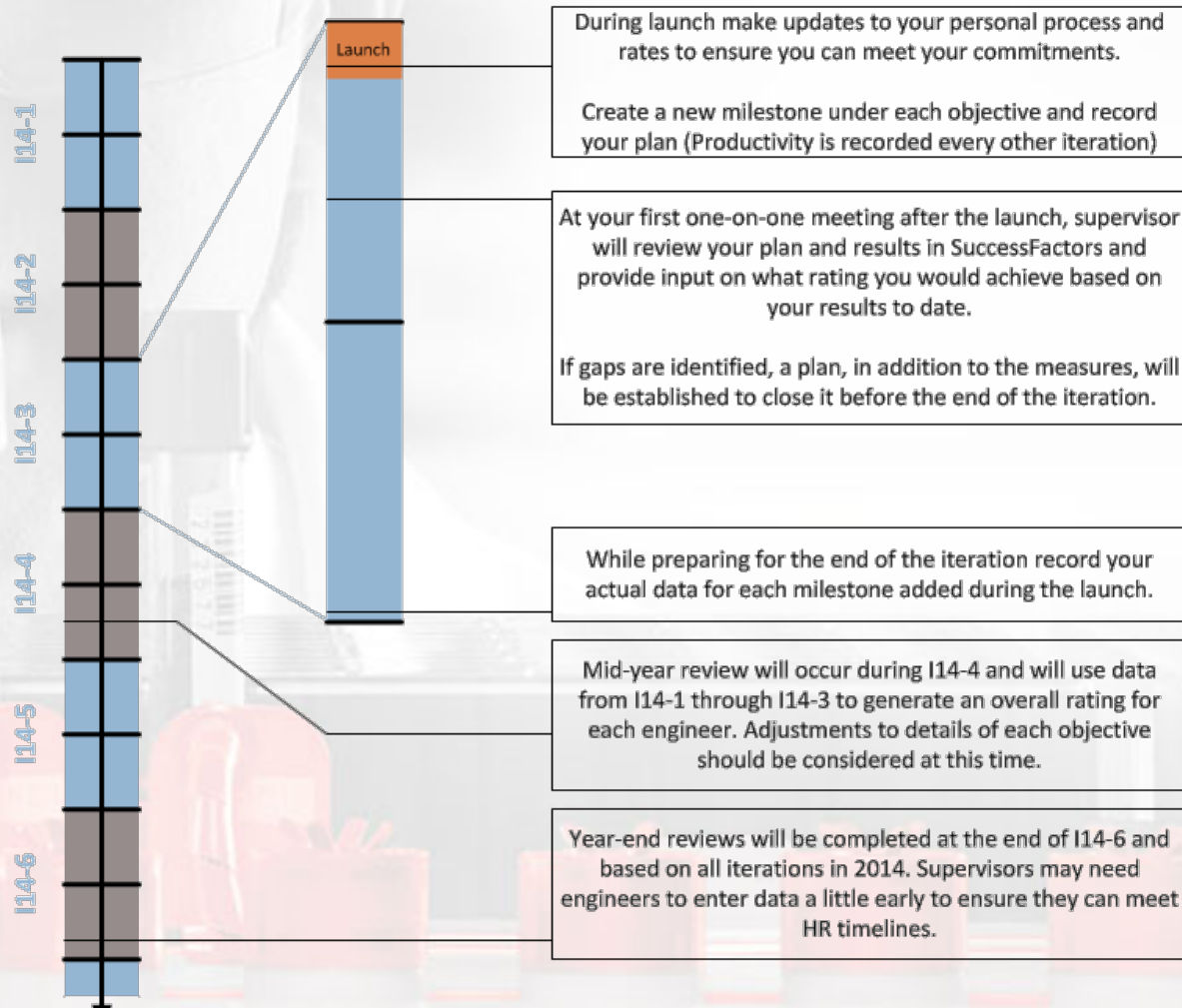
Performance is good and engineer is a valued team member. Keep it up!

Actions are influencing the performance of the entire team. Excellent personal performance is sustained.

Actions raised the bar for the entire team and lead others to achieve excellent personal performance.

2014 Performance Reviews (cont.)

- » Finally a process for TSP team members to manage their performance reviews as part of their cycle planning



2014 Performance Reviews (cont.)

Objective #1: Process Discipline

Category: Quality -- Objective Name: Process Discipline -- Weight: 35%

Measurement Description: All engineering activities are performed as per the correct documented processes.

1) The correct process is selected for each task

Unacceptable	Engineering work is consistently completed without using any process (within Mirage) and little or no data is collected.
Below	The incorrect process is used to complete engineering work as defined by team norms. The process is altered so extensively that it does not meet the intent of the process. Individual tasks sizes frequently exceed one week of task hours.
Meets	The correct process is consistently selected for all engineering work. Individual task sizes are almost universally less than one week of task hours.

Note: Commitment to other compliance items such as training record accuracy will impact this overall objective.

2) The process is followed

Unacceptable	Tasks are not completed in the proper order consistently. The intent and team norms of the process are not being met consistently.
Below	Rework is frequently required because the process was accelerated Process steps before code/TC writing are too short, causing later parts to take longer Coach indicates that consistency with the process is requiring repeated intervention
Meets	Process is consistently followed and exceptions are justifiable.

3) Your data is complete and accurate in a timely fashion

Below	Data misses require quality manager to frequently follow up. Data misses are not resolved in a timely manner.
Meets	Data is captured throughout the process. Infrequent quality manager follow-up is required. Data misses are resolved quickly.
Above	Rare need for quality manager to follow-up on data misses Planning and post mortem phases are used correctly to ensure data is accurate.

If data is being fabricated by checking off tasks or logging items without actually doing the work will result in an 'Unacceptable' rating.

4) Each iteration a healthy mix of defects is recorded and removed in each process phase

Below	Some phases have zero defects recorded in them consistently
Meets	All phases have recorded defects and removed defects at reasonable levels

5) Use of personal defect data to update personal checklists

Below	Personal checklist is not used (blank, not updated, defects listed on it continue past personal review)
Meets	Personal checklist is updated based on personal defect data at least twice a year.
Above	Personal checklist is updated regularly and is used to create team PIPs

Overall Targets

Unacceptable	Data indicate (or no data is available to review) that you are not consistently following the documented processes (defects are not properly recorded, steps are not completed in proper order, numerous quality issues due to process discipline)
Below	Coach, process manager or quality manager frequently requires follow-up to bring to your attention process or data misses
Meets	Coach, process manager or quality manager infrequent require follow-up You are using PIPs to improve your personal process increasing your efficiency and quality
Above	Rare need for follow-up on process or data misses You are submitting and implementing team PIPs to improve team process Rare need for follow-up on process or data misses
Outstanding	You are an active team quality manager which improves the team quality You own the team QDIP process and submit PIPs based on the cause results.

2014 Performance Reviews (cont.)

- » Specific guidelines and targets were developed for each objective

Objective #2: Planning Accuracy

Category: Growth -- Objective Name: Planning Accuracy -- Weight: 20%

Measurement Description:

- Using accurate data to improve your personal predictability each iteration to the commitments you have made.
- Predictability as measured by part time-to-complete and weekly task hour accuracy.
- You track and use your data to set commitments and review that data to improve your accuracy.

Overall Targets	
Unacceptable	Not using data to improve your accuracy
Below	Your planning accuracy is $> \pm 20\%$ on both measures
	You are using your data to improve, but the outcomes are inconsistent.
Meets	Your planning accuracy is $\leq \pm 20\%$ on both measures or $\leq \pm 10\%$ on one measure
	You are using your data to improve.
Above	Your planning accuracy is $\leq \pm 10\%$ on both measures
	You are using your data to improve.
	You actively engage in daily management team problem solving as part of your standard work.
	Your planning accuracy is $\leq \pm 10\%$ on both measures
Outstanding	You are using your data to improve.
	You actively engage in daily management team problem solving as part of your standard work.
	You are submitting and implementing team PIPs to improve team accuracy
	You are an active team planning manager which improves the team accuracy
	You are leading daily management for a sub-team which includes ensuring problem solving is occurring at daily management.

Note: Targets include planning for some level of unexpected task changes and support requests or hardware failures. If there is a major task reassignment by management, data should be recorded and a new plan established.

2014 Performance Reviews (cont.)

Objective #3: Productivity

Category: Growth--Objective Name: Productivity--Weight: 45%

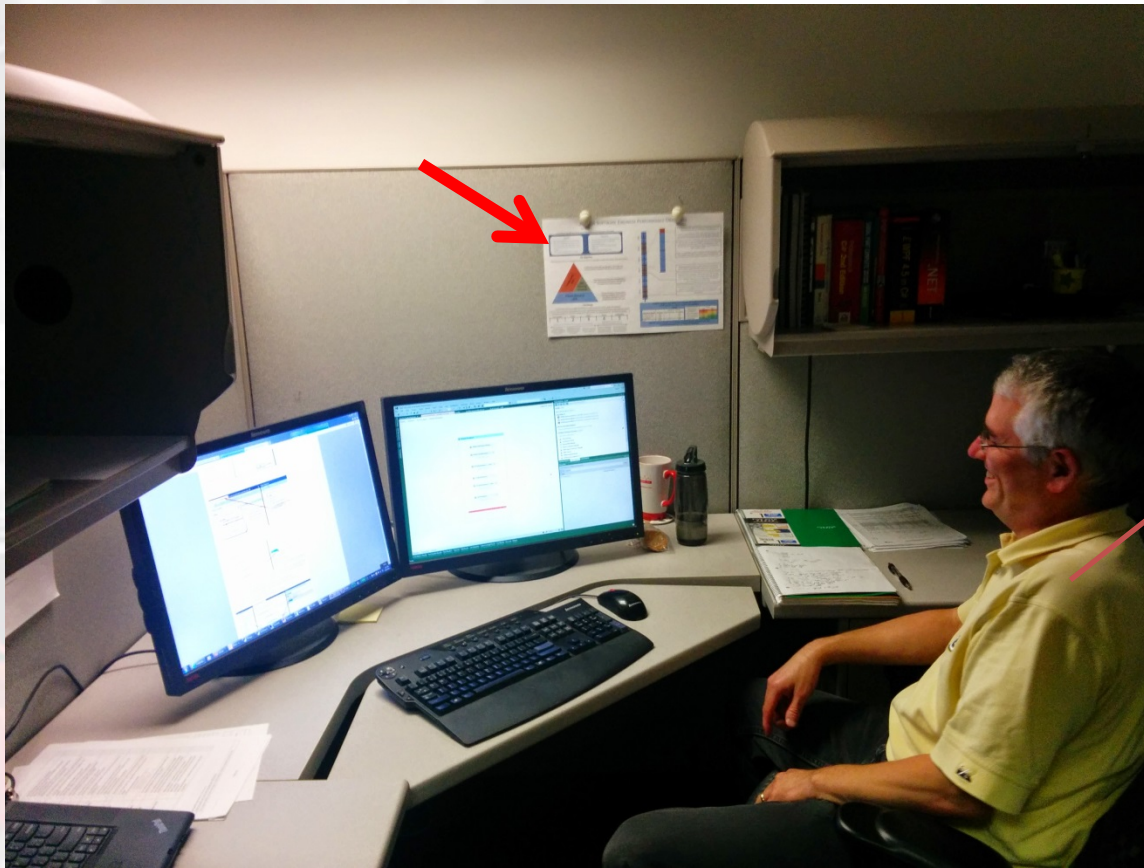
Measurement Description: You help deliver products on-time by delivering the correct work on time.

Overall Targets

Unacceptable	You receive a rating of Unacceptable in Process Discipline
	You achieve less than 30% of your milestones on time
Below	You achieve at least 30% of your milestones on time
Meets	You achieve at least 60% of your milestones on time
	You support activities outside of the product software such as instrument support, lab maintenance or other non-functional initiatives.
Above	You achieve at least 85% of your milestones on time
	You support activities outside of the product software such as instrument support, lab maintenance or other non-functional initiatives.
	You do what it takes to ensure your internal milestones are met in the face of external forces.
	You hold an active role manager position which supports the teams productivity.
	You actively support the organization, planning and running of launches.
Outstanding	You achieve more than 90% of your milestones on time
	You do what it takes to ensure your internal milestones are met in the face of external forces.
	You support activities outside of the product software such as instrument support, lab maintenance or other non-functional initiatives.
	You are recognized as a team member that ensures milestones owned by others are met in the face of external forces.
	You hold an active role manager position which supports the teams productivity.
	You actively support the organization, planning and running of launches.

Make it Visible

- » Printed on a nice 2-sided 11x17 page with lots of graphics
- » Most have decided to post it in their cube for easy reference
- » Managers use the form and concepts during periodic 1:1 meetings to discuss performance and career development.



Thanks, team member with cleanest desk! 😊

The initial anxiety...

- » What if my numbers aren't very good because I'm inexperienced?
 - Reassure team members that effort, improvement, and process are the key.
- » I thought PSP data were supposed to be private?
 - We are careful to look at how faithfully people are using PSP/TSP, not at how good they are at making perfect plans or removing defects.
- » What if I fall behind on EV? Will I get a bad score?
 - Remind team that it's all about using data to improve.
 - It's not about never falling behind, it's about knowing where you are and doing something about it.
- » What about the little things I do that aren't about development?
 - Acknowledge that there are some times that managers will include other factors in their rating decisions.
- » I have no idea where I stand right now.
 - Baseline with everyone. Do this first and discuss with team member before final rating time.



The Mid-Year Review Results

Gathering Data

- » Coach reviewed each team member's data and gave managers a report on who was following process and who was not
 - Looked at whether team member was:
 - > Following the process (doing the correct steps in order)
 - > Was making an effort to track defects and use their defect data
 - > Was tracking their time correctly
 - 3 status reports before mid-year reviews over 2014
 - > Team members given an opportunity to fix process issues early in 2014 (not all took advantage)
 - Team members with issues were also contacted by the coach with his observations
- » EV– good metric, but not so easy to use as a performance metric
 - Ended up using schedule accuracy and to-date hours for completed tasks to approximate this

Mid Year-Review Discussions

- » Performance reviews were structured around Performance Objectives form
 - Stress consistency and sustainment based on patterns of behavior
- » Give people clear feedback on gaps in time to improve before the end of the year
 - Focus on how to close gaps and define what satisfactory improvement looks like
 - Managers practiced having the hard discussions before mid-year reviews

Using tools/forms for mid year reviews

Employee: A. Guy Career Band: Associate

Planning

	Plan	Actual	Value	Score
To-date hours for completed tasks*	34	32.6	1.04	5
Schedule Hours*	41	41.7	0.98	5
Leverage Daily Management	Participates efficiently in DM			3
Team Planning Contribution	Reliable personal plans, assists other team members regularly.			4
Planning Improvement	Dramatic improvement (e.g. >10%) due to persal PIPs			4
			Score	4.0
			Weight	20%

*Since last baseline

Process Discipline

		Score
Correct processes are used	Correct processes, task sizes are appropriate	3
Process are followed	Processes are consistently followed	3
Data are complete and accurate	Data captured consistently, misses and errors are quickly resolved.	3
Defects recorded and analyzed	All phases have reasonable defect injection/removal rates	3
Use of defect data	Personal checklist updated at least twice a year	3
Score		3.0
Weight		35%

Productivity

		Score
Milestones	Milestones mostly on time. Actions taken before due date to remediate slips.	3
Support Activities	Successfully accomplishes support roles beyond current band	5
Drives Results	Recognizes and appropriately escalates dependancy issues or roadblocks	3
Leadership	Lead the team's in an area such as quality/process/planning as a Role Manager	5
Process Discipline Minimum Threshold Met?		Yes
Score		4
Weight		45%

Overall Rating 3.5

Comments:

Excellent personal planning data, keep up the good work! I appreciate all your work as planning manager. You've done a wonderful job at tracking the team's progress and supporting the launches.

» Managers developed their own forms to help them organize their rationale for their ratings.

» Can't boil down performance ratings to a perfect formula, but a form is a helpful starting point to make sure you work through all the considerations fairly.

- Still subjective, but consistent.

» Prepares you to answer questions specifically, like why something is rated a 4 instead of 5.

Example Review: Good PSP habits

Employee: A. Guy

Career Band: Associate



Expectations scaled based on career band.

Planning

	Plan	Actual	Value	Score
To-date hours for completed tasks*	34	32.6	1.04	5
Schedule Hours*	41	41.7	0.98	5
Leverage Daily Management	Participates efficiently in DM			3
Team Planning Contribution	Reliable personal plans, assists other team members regularly.			4
Planning Improvement	Dramatic improvement (e.g. >10%) due to persal PIPs			4
			Score	4.0
*Since last baseline			Weight	20%

Easy metrics to approximate planning accuracy.

Not a perfect planner yet? Make up for it by showing improvement!

Process Discipline

		Score
Correct processes are used	Correct processes, task sizes are appropriate	3
Process are followed	Processes are consistently followed	3
Data are complete and accurate	Data captured consistently, misses and errors are quickly resolved.	3
Defects recorded and analyzed	All phases have reasonable defect injection/removal rates	3
Use of defect data	Personal checklist updated at least twice a year	3
	Score	3.0
	Weight	35%

Use feedback from Coach's process check to evaluate whether team member is making an effort.

Productivity

Milestones	Milestones mostly on time. Actions taken before due date to remediate slips.	▼	Score	3
Support Activities	Successfully accomplishes support roles beyond current band	▼		5
Drives Results	Recognizes and appropriately escalates dependency issues or roadblocks	▼		3
Leadership	Lead the team's in an area such as quality/process/planning as a Role Manager	▼		5
Process Discipline Minimum Threshold Met?				Yes
Score				4
Weight				45%

Bonus for being excellent in a primary TSP Role!

Productivity: Important, but producing a lot of software without following the process will result in a poor score.

Overall Rating

3.5

Comments:

Excellent personal planning data, keep up the good work! I appreciate all your work as planning manager. You've done a wonderful job at tracking the team's progress and supporting the launches.

Example: Productive, but poor process

Planning				
	Plan	Actual	Value	Score
To-date hours for completed tasks*	83	111	0.75	2
Schedule Hours*	50	115	0.43	1
Leverage Daily Management	Supports team's daily management		▼	4
Team Planning Contribution	Produces reliable personal plans		▼	3
Planning Improvement	Evidence of using data to improve planning (or no data yet)		▼	3
			Score	2.6
*Since last baseline			Weight	20%
Process Discipline				
Correct processes are used	Incorrect processes, deleting/altering phases inappropriately		▼	2
Process are followed	Tasks completed in wrong order, disregards scripts and norms		▼	1
Data are complete and accurate	Data captured consistently, misses and errors are quickly resolved.		▼	3
Defects recorded and analyzed	No or very few defects recorded		▼	1
Use of defect data	No personal checklist, or not used		▼	1
			Score	1.6
			Weight	35%
Productivity				
Milestones	Milestones usually on time. Adapts well plan changes and prioritizes effectively.		▼	4
Support Activities	Leads band-appropriate support roles (e.g. lab maintenance)		▼	4
Drives Results	Do what it takes to assist others with meeting their milestones		▼	4
Leadership	Little to no leadership roles		▼	3
Process Discipline Minimum Threshold Met?			No	
			Score	1
			Weight	45%
Overall Rating				1.5
Comments:				
Planning: Your planning efforts meet expectations for someone with 6-12 months experience with TSP. You are fairly consistent, and tend to finish on time. You overestimate both your effort and schedule hours, which means you meet your deadlines but vary from your plan. Practice using your data to improve your accuracy.				
Process Discipline: You are doing well with tracking your time, but need to work on using your checklists and personal reviews to improve quality.				

← Not making an effort to keep their schedule plan up to date.

For the first time, some experienced employees are getting below expectations ratings. In the past, productivity was rewarded— even if the code produced was low quality and would require major upkeep and rework.

This was a major change in how we evaluate and reward.

← Relatively good Productivity score is hurt by poor process.

NOTE: Our coach does not actually know the individual ratings.



Conclusions

Management Perspective

- » Defining what 'good' looks like was vital to bringing attention to gaps
- » Fairer evaluation
 - Fast & Sloppy doesn't get more recognition than Steady & Reliable
- » Reference to facilitate discussion helpful for both parties
 - Data-driven review ensures fairer evaluation, more control for individual
- » No more goals about meeting project delivery date goals (that always change anyway)
 - People have control over their own plan, and therefore their own rating
 - A system that works in spite of shifting goals
- » Stand by your stated values (that planning and process are important) all the time, not just at review time
- » Keep updating the tool as you learn
 - Remove parts that don't work, adjust numeric targets
 - Clarify confusing points

Team Comments

- » *“I think it’s a good approach. I’m reserving final judgment on it until we’ve used it for a while.”*
- » *“I think it’s good to have a quantitative way to do the measuring (which this is). Seems a lot better than having product release dates (given to us at the beginning of the year), and then missing dates because of things totally beyond our control (added projects, people reassigned, etc.)”*
- » *“I guess overall I really like the idea behind the 3 areas, but I don’t necessarily like the way we measure/don’t measure them. I don’t think we should reduce an area down to a single metric and should instead look at many different metrics.”*
- » Consensus: An improvement over the old strategy, but needs some fine-tuning. Winning over a skeptical team takes persistence and commitment to continuous improvement!

Conclusions

» From the coach perspective

- Cycle PMs became more focused and team members really did start looking at and using their data
- Role management work became more desirable and focused
- Those that were TSP stars before were becoming superstars and all others were now looking to be better
- We got their attention!



Questions?



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