



Test Management Part 2

Test Process Improvement

Objective

→ faster ✓
→ effectively



Objective

Explore
Strategies for
Improving the
Testing Process

Improving the Testing Process

| Software test teams must constantly look for ways of testing faster and more effectively

"ASU Football"

| Process improvement phases

- Characterize the current process
- Analyze current process
- Characterize target process
- Process redesign
- Implement

Characterizing the Current Process

| It is important to understand the current testing process



| Care must be exercised in distinguishing among:

- ✓ - The Perceived Process: What you think you do.
- ✓ - The Official Process: What you are supposed to do.
- ✓ - The Actual Process: What you do

Quote from Watts Humphrey

SEI "CMM"

“If you don’t know where you are, a map won’t help.”

Analyze Current Process

↑ analytics "

| Identify value-added
and non-value added
activities

| Identify the sources of
variation in the
process



| Software metrics play a
key role in objective
process analysis

| Software test leader
must plan to collect the
appropriate metrics

Testing Metrics

"Test"

//

| You cannot control
what you cannot
measure //

| GQM paradigm (goal-
question-metric)

- ✓ - Define the goals of the measurement process ✓
- ✓ - Derive the questions that must be answered to meet the goals
- Develop metrics to answer the questions

Example Test Goal

//

| Reduce testing time

//

//

| Find more severe defects

//

// Reduce APS utility bill during the summer //

- How much energy?
- When is it used?
- Where?

KWH

Example Testing Questions



| Where do we spend most of our time during testing?

| What types of defects are we missing?

| What is our testing productivity

Possible Testing Measures



| Test productivity

| Test quality

GQM

Characterize Target Process

| Identify the ultimate goal of the process

e.g.,

- Minimize test time
- Find more high severity problems

| Quote from Watts Humphrey

- “If you don’t know where you are going, any road will do.”

GQM

Process Redesign

| Improve the current process in the direction of the target process

| Explore ways for eliminating, simplifying or combining activities

| Explore ways of eliminating rework

| Explore ways of reducing task variance

Unit test



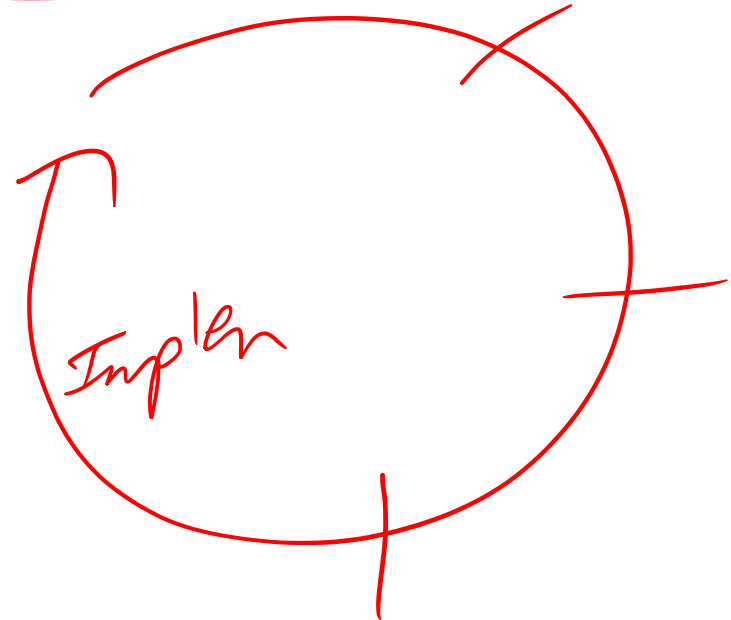
Implement Process Improvements

| Set process improvement goals

| Implement process improvements

- Begin with candidates that are well defined
- Pilot candidates that are not proven

| Measure progress towards goals



Process Improvement Tools - Post Mortem / Lessons Learned / Retrospectives

A set of lessons learned is documented

project
plan, Test

"PM"

Analysis techniques include:

- Interviews with key personnel
- Statistical analysis of data
- Investigations of major problems
- Identification of what went well and what didn't go well

Testing Lessons Learned Addresses



| Overall schedule
analysis

| Adequacy of entrance
criteria

| Adequacy of exit
criteria

| Overall quality

| Team interactions

Example Questions to Address




| How effective was communication and collaboration with development?


| How effective was test estimation?



| Are there any issues with the test environment?



| What types of defects are we missing?



| Where are we wasting time?

|

|

|

Process Improvement Tools - Causal Analysis



| Seeks to identify the root cause of defects as well as approaches to eliminate future occurrences

| Covered in another module



Summary

