Software Quality Assurance (SQA)
A Real Challenge in Level 2 Journey !!!

Mark Wintle
Rajendra Prasad
Dr. Gargi Keeni
Session Outline

1. Introduction to Software Quality Assurance (SQA)
2. SQA Challenges
3. Software Process Improvement (SPI) Cycle: SEPG and SQA
4. SEPG and SQA Hand in Hand
5. Key SQA Activities
6. What is Software Process Audit?
7. Management of Auditing
8. Steps in Typical Audit Cycle
9. Performing Audit
10. Auditing Skills
11. SQA on SQA Group
12. Sample SQA Metrics
Software Quality

Software Quality Assurance involves reviewing and auditing the software products and activities to verify that they comply with the applicable procedures and standards and providing the software project and other appropriate managers with the results of these reviews and audits. (SW-CMM ®)
Quality Control
Quality control is an activity which verifies whether or not the product produced meets standards.

Quality Assurance
Quality assurance is an activity which establishes and evaluates the processes which produce the products.
SQA Challenges

SQA Manager is Process Police

Need to deliver product – No time for SQA

“I Talked to my manager … no SQA review for my project”

Resource crunch – Stop SQA and Just do Development!
SPI Cycle - SEPG and SQA

SEPG

Definition

Continuous Process Improvement

Deployment

Feedback

Verification

SQA

SQA / SEPG

SEPG / SQA
SEPG and SQA Hand-in-Hand

- Process Definition
- Governance
- Process Deployment
- SEPG
- Process Assessment
- Process Improvement
- Charter SPI
- Process Assets Maintenance
- Process Mentoring
- Training
- SQA
- Audit
- Reviews
- Facilitation

SEPG and SQA Hand-in-Hand
Key SQA Activities

SQA Group

- Reviews
- Coordinating with SEPG
- Process Mentoring
- Facilitation
- Audit
- Communications
- Process Deployment
- Training

Coordinating with SEPG

Training

Communications

Process Deployment

Audit

SQA Group

Key SQA Activities
What is Software Process Audit?

A systematic and independent examination to determine:
• Whether quality activities and related results comply with defined processes
• Processes are implemented effectively
• Processes are suitable to achieve desired objectives.
Management of Auditing

Estimate Audit Cost

Prepare Audit Plan

Prepare Audit Schedule
Steps in typical Audit Cycle

1. Audit cycle opening meeting
2. Preparation for the audit
3. Conducting the audit
4. Reporting the findings
5. Tracking of non-compliances
6. Audit cycle closing meeting
The SQA Auditor while conducting audit should ensure that

- The entire scope of the audit is covered
- All discrepancies are based on sound, objective evidence
- Audit is conducted within given time
- Clear and precise Non-compliances are recorded

Recommended Audit trails

- Project Plan
- Previous audit reports, if applicable
- Project Management Review reports
- Project Status reports
While recording process Non-Compliance (NC) follow rule of three

- The Non-compliance exists
- Non-compliance adds value to the project
- The Non-compliance can be tracked to closure

Qualifies for Non-compliance
Don’t rely only on paper based evidence
Do not use an audit checklist alone to collect information
Conduct the audit in a collaborative manner
Interview the team members and project leaders separately with open ended questions
Check for understanding of the process
Increase buy-in toward standard process from the auditees
Rules of Communication

- Seek to clear your ideas before communicating them
- Examine the true purpose of your communication
- Consult with others, where appropriate, before communicating
- Be aware of your actions or expression, and any overtones, in addition to your basic message
- Convey something of merit to the receiver
- Check that your communication has been understood
- Remember the long term effects of your communication, as well as the immediate requirement
- Be a good listener
SQA on SQA

Verification 3 of SQA Key Process Area in SW-CMM®

Experts independent of the SQA group periodically review the activities and software work products of the projects SQA group.
Is there an SQA and Audit Plan?

Are non-compliances recorded and tracked to closure as defined in process?

Was there timely corrective action taken on non-compliances and were they effective?

Are the latest Audit checklists provided to Auditors?

Is an up-to-date list of members of part time audit pool maintained and used for assigning audits?

Are the audit checklists maintained? How often these are updated?

Is there a database maintained for tracking non-compliances?

Is periodic SQA status report sent to management?
Metrics

Trend Analysis on Non-compliance (NC)/KPA

No of NCs - Nov 2002
No of NCs - Oct 2002
No of NCs - Till Sept 2002

No of Projects / Sept = 16
No of Projects / Oct = 7
No of Projects / Nov = 13
Contact Information:
Mark Wintle, e-mail: mark_wintle@hotmail.com
Rajendra Prasad, e-mail: r.prasad@usa-tcs.com
Dr. Gargi Keeni, e-mail: gkeeni@mumbai.tcs.co.in

Address:
Tata Consultancy Services
111 Wood avenue south, 2\textsuperscript{nd} floor
Iselin, NJ  08830
Ph:732-491-0138