Making Process and Product Quality Assurance (PPQA) Work on Small Projects

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Who is GTRI?

- Unit of the Georgia Institute of Technology
- 1200+ employees
- Wide variety of products
- Customers include federal, state, and industry
- Projects range greatly in size and duration
Current Status

- Assessed CMM level 3
- Performed gap analysis between CMM and CMMI
- Updating processes
- Implementing the new processes
- Not assessed under CMMI
What is PPQA?

- Objectively evaluate performed processes, work products, and services against the applicable process descriptions, standards, and procedures
- Identify and document noncompliance issues
- Provide feedback to project staff and managers on the results of quality assurance (QA) activities
- Ensure that noncompliance issues are addressed
Small Project Assumptions

- A small project has 25 people or less
- Project team generally works together on all phases of product development
- Must trade-off limited resources
- Testers are often the developers
- Need independent inspection at critical phases
- Quality engineers must have technical expertise to add value on a small project
Very Small Projects (5 or less)

- May not have adequate funding to support even minimal QA activities
- Probably need more outside guidance and independent reviews (QA)
Outline

• Develop a generic PPQA plan
• Hire and/or recruit Quality Engineers highly qualified in the product development field
• Mentor project team
• Analyze project and product risks
• Build a strong base for quality
• Add value by reducing risk
Develop a Generic QA Plan

- Developing a QA plan from scratch for each project is too expensive
- Many QA activities are similar between projects
- Tailoring a generic QA plan and schedule is cost-effective, and is based on:
  - Risk
  - Project team experience
  - Customer requirements
  - Project schedule
  - Project deliverables/milestones
QA Plan Guideline

- **Tasks**
  - Start-Up Tasks
  - Periodic Reviews of QA Activities with all levels of organization
  - Mentor Project Team
  - Support Customer QA
  - Resolve Disputes

- **Standards, Practices, and Conventions**
- **Reviews and Audits**
  - List of required reviews (each phase)
  - List of required audits (each phase, deliverables)
  - Peer review guidelines

- **QA Schedule Template**
Hire/Recruit Qualified – Quality Engineers

• Technical and managerial experience
• Knowledgeable in appropriate technical areas
• Should be capable of doing “real work”
• Recognized by project team for their experience and competency
• Able to abstract and share information across projects
Mentor Project Team

• Technical areas
• Management areas
• New processes
• Existing tools and processes
• Attitude
Analyze Project and Product Risks

- Specific team members
  - Compliant vs. noncompliant
  - Experienced vs. inexperienced
- Phases of development
- Cost of re-work or failure
- Familiarity with the subject area
Build a Strong Base for Quality

- Leverage “star players”
  - spread across project teams
  - use to develop processes
- Praise “star players” and reward them to the extent that you are capable
- Modify processes to the organization's best-in-class
- Create an environment where process compliance is institutionalized
Add Value by Reducing Risk

- Prioritize organizational QA activities based on project/product risk
- Communicate status to all levels of the organization, as appropriate
- Share lessons learned for all projects
- Assist the project team in developing and implementing risk mitigation strategies
- Act as “the conscience” of the project team
Questions?