PPQA – Going Beyond "Checking the Box"

SEPG Conference
March, 2012

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Agenda

Introduction

Leveraging PPQA to mentor and train project staff

Leveraging PPQA to conduct analysis such as root cause analysis and trend analysis

Leveraging PPQA to support the organization and projects

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▶ **What We Bring**
Expertise, objectivity, and the capabilities of exceptional people—combined with the institutional experience of helping clients succeed for more than 90 years

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Booz Allen …
    … combines a consultant's unique problem-solving orientation
    … with deep technical knowledge and strong execution
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Introduction

▸ **Do you want to just go through the motions of PPQA or do you truly want to leverage PPQA?**

▸ **Recognize the true value of PPQA**

  – Look beyond the traditional use of PPQA
  – Realize the benefits of PPQA in Value Added QA activities by forging a partnership with the organization and its projects rather than just being the compliance police:

    ▪ *Become a trusted advisor*

    ▪ *Support the opportunity for effective knowledge transfer*

    ▪ *Provide value added analysis*

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So, how do you ensure QA becomes a valued partner within the organization? Here are some suggestions:

▸ **Have your QA Resource provide knowledge transfer by mentoring and training project team members**

▸ **Incorporate QA in review activities such as Milestone Reviews and Peer Reviews**

▸ **Integrate QA in decision boards such as EPGs, ERBs and CCBs**

▸ **Include QA as a valued resource in conducting trend analysis**

▸ **Involve QA in leading or supporting root cause analysis activities**

What is Process and Product Quality Assurance (PPQA)?

▸ **Purpose**

  – The purpose of Process and Product Quality Assurance (PPQA) is to provide staff and management with objective insight into processes and associated work products.

▸ **Specific Goal and Practice Summary**
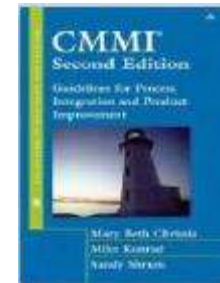
  – SG 1 Objectively Evaluate Processes and Work Products

    SP 1.1   Objectively Evaluate Processes

    SP 1.2   Objectively Evaluate Work Products

  – SG 2 Provide Objective Insight

    SP 1.4   Communicate and Resolve Noncompliance Issues

    SP 1.5   Establish Records

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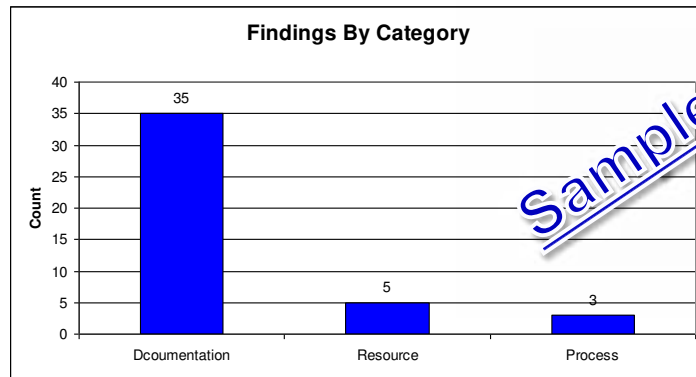# Can PPQA provide insight into your processes and products in ways other than PPQA Audits? Yes they can …

▸ **Our QA Group conducted a Root Cause Analysis of an aggregate of QA findings identified during a two year time frame**

▸ **The findings were analyzed according to nine specific classification areas, e.g., Engineering, Project Planning, Quality Assurance, etc.**

▸ **A total of 610 findings were included in the analysis**

▸ **They made the following assumptions:**

- The organization and projects followed the organization's documented processes
- Conclusions were based on the available data captured in our tracking tool

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Example of the Root Cause Analysis …

Classification Area: Quality Assurance

Findings By Category

Category	Count
Dcoumentation	35
Resource	5
Process	3

Sample Data

Analysis		
O5P Mapping	**5pecifics**	**Count**
Plan QA Activities	CI/DI list not current Schedule – QA tasks not defined PMP – QA tasks not defined	30
Develop QAP	OMP issue CDD not current Plan approvals missing QAP not current	6
Record and Provide Audit Results	Audit Reports missing information Audit Documentation not posted	3

Category	Count	Possible Causes
Documentation	35	▸ Quality Assurance responsibilities/role not understood ▸ Project Documentation not kept up to date with current processes ▸ Quality Assurance activities not planned/estimated correctly
Process	5	▸ Quality Assurance responsibilities/role not understood ▸ Documented processes not followed
Resource	3	▸ Quality Assurance activities not planned/estimated correctly ▸ Quality Assurance responsibilities/role not understood

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Based on QA's insight from performing the audits and conducting the root cause analysis, they determined the following:

▸ **There was a relaxed approach to adherence to documented processes in some instances**

▸ **Specifically, the list of causes of the deficiencies included:**

- Insufficient training for some projects and/or roles
- Lack of full "ownership" of the Project Defined Processes (PDP) was identified for some projects
- Limited QA and/or process engineering support for process guidance/mentoring for some projects
- Process documentation was not referenced as guidance for process activities for some roles
- Updated Organization processes was not clearly communicated to some projects

▸ **Based on this analysis, QA worked with the Organization project teams to identify specific improvement actions and then implement them:**

- Enhanced the OSP to provide projects with clearer guidance on the approval process for their PDPs and Project Profiles
- Updated the Organization's Project Training Toolkit

Can you Leverage PPQA to become a trusted advisor? Here is one way:

Support the organization and projects as a voting member of decision boards such as the EPG.

- ▸ **As part of the EPG, QA provides insight for Process Improvement**

- ▸ **For example, QA reports trends in areas such as process tailoring and audits:**
  - Identify optional processes are rarely utilized by the projects
  - Identify processes that are frequently tailored by projects
  - Identify processes that have frequent non-compliances or Opportunities for Improvement identified when they are audited

- ▸ **Using this information, the EPG can determine if additional action is required**
  - Addressing issues with processes underutilized or consistently tailored
  - Identify solutions for processes which have frequent findings

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Can PPQA help with training staff? Here's some ideas for supporting formal training:

▸ **Conduct Project Start Up training when the project joins the organization**

▸ **Conduct on-boarding and refresher training as needed for project Staff**

▸ **Support tailoring of processes by the project**
  - Assist projects in determining when to conduct formal vs. informal reviews
  - Assist projects in determining when to use consolidated plans vs. separate plans

▸ **Train Staff in the conduct of formal reviews**

▸ **Train Staff in the conduct of Audit processes**

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Here's an example of formal training …

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How about mentoring, can PPQA help? Sure can:

▸ **Provide hands-on help with completing artifacts**

- – Explaining purpose of sections of artifact templates
- – Providing examples from other projects
- – Provide best practices for the specific functional area (e.g., Requirements)
- – Ensure all appropriate section of a template are included in an artifact, and explain what can be tailored

▸ **Provide coaching with process development**

- – How to create effective SOPs for their specific project

▸ **Point them in the right direction**

- – Methodologies or techniques that may fit the project's needs
  - ▸ Agile versus other development methods
  - ▸ Formal versus informal reviews
- – Where/how to access existing approaches and processes

Should you leverage PPQA for your reviews? Yes, you should…

▸ **Reviews can include Peer Reviews, Functional Reviews or Phase Gate Reviews**

▸ **Milestone or Gate Reviews**

  – Define gate review process (if not defined)

  – Refine gate review checklists

    ▸ Especially valuable if starting with less experienced project teams
    ▸ Over time, can "raise the bar" by adding additional criteria (or making them more specific)

  – Conduct gate reviews – Results in compliance and also identifies areas of improvement

    ▸ May result in enhancement of organization and/or project processes
    ▸ May improve the delivery/execution by the team members
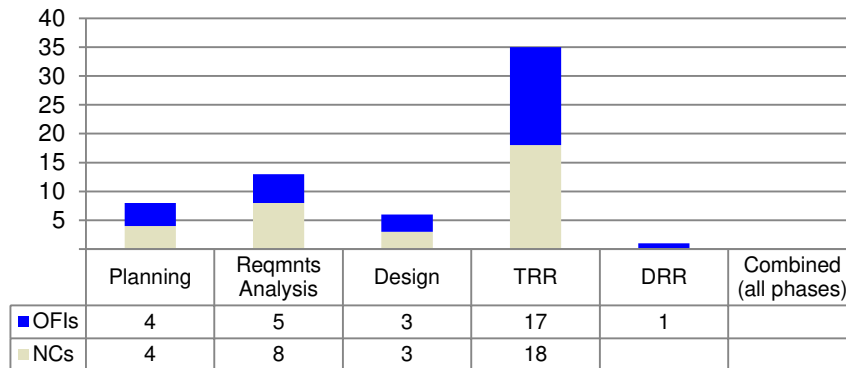
Benefits from the Gate Reviews include:

▸ **Project teams have an increased awareness of the project deliverables and deadlines**

– Resulting in tasks being completed on time

▸ **Reviews have identified any missing activities, which has improved the quality of deliverables and project execution**

▸ **Emphasis from the gate review criteria such as risk management and resource allocation has resulted in:**

– Improved risk management (e.g., less risks are realized as issues)
– Improved resource management (e.g., right resources are available at the right time)

▸ **Real-time improvements have been identified and implemented to increase the efficiency and effectiveness of the development process, including improvements in all project phases. In addition, the gate review process itself was enhanced.**

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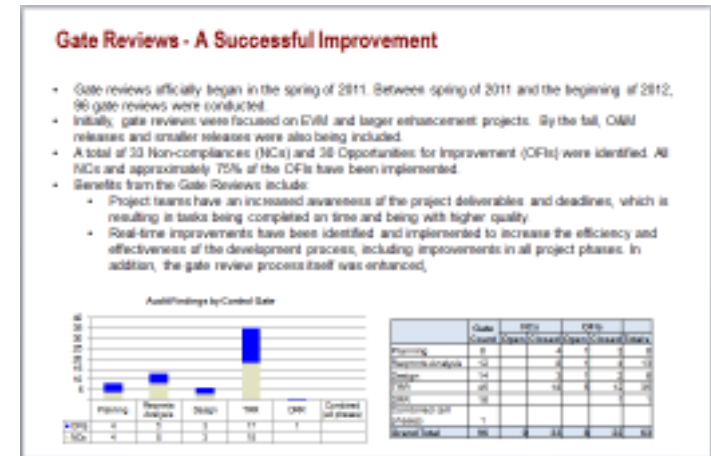
Gate Reviews - A Successful Improvement

- Gate reviews officially began in the spring of 2011. Between spring of 2011 and the beginning of 2012, 96 gate reviews were conducted.
- Initially, gate reviews were focused on EVM and larger enhancement projects. By the fall, O&M releases and smaller releases were also being included.
- A total of 33 Non-compliances (NCs) and 30 Opportunities for Improvement (OFIs) were identified. All NCs and approximately 75% of the OFIs have been implemented.
- Benefits from the Gate Reviews include:
    - Project teams have an increased awareness of the project deliverables and deadlines, which is resulting in tasks being completed on time and being with higher quality.
    - Real-time improvements have been identified and implemented to increase the efficiency and effectiveness of the development process, including improvements in all project phases. In addition, the gate review process itself was enhanced.

Audit Findings by Control Gate

	Planning	Reqmnts Analysis	Design	TRR	DRR	Combined (all phases)
OFIs	4	5	3	17	1	
NCs	4	8	3	18		

	Gate Count	NCs Open	NCs Closed	OFIs Open	OFIs Closed	Totals
Planning	8		4	1	3	8
Reqmnts Analysis	12		8	1	4	13
Design	14		3	1	2	6
TRR	45		18	5	12	35
DRR	16				1	1
Combined (all phases)	1					
Grand Total	**96**	**0**	**33**	**8**	**22**	**63**

Here's an example of an Analysis of Gate Reviews

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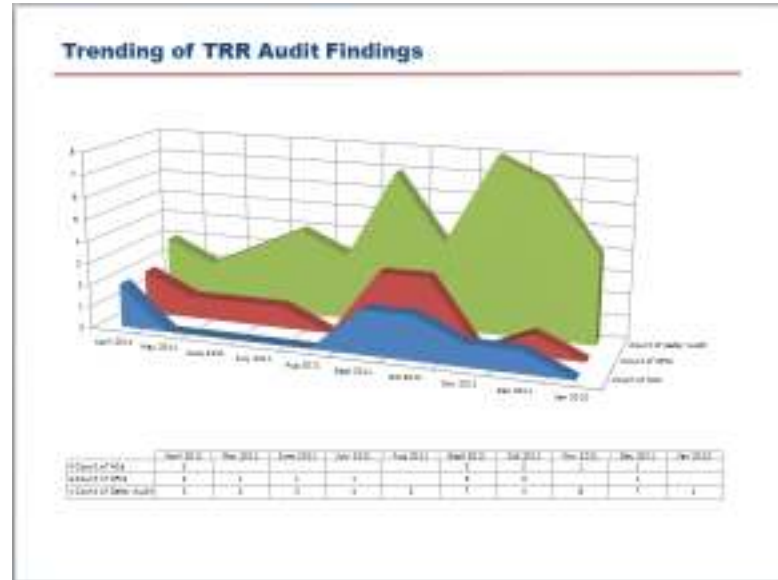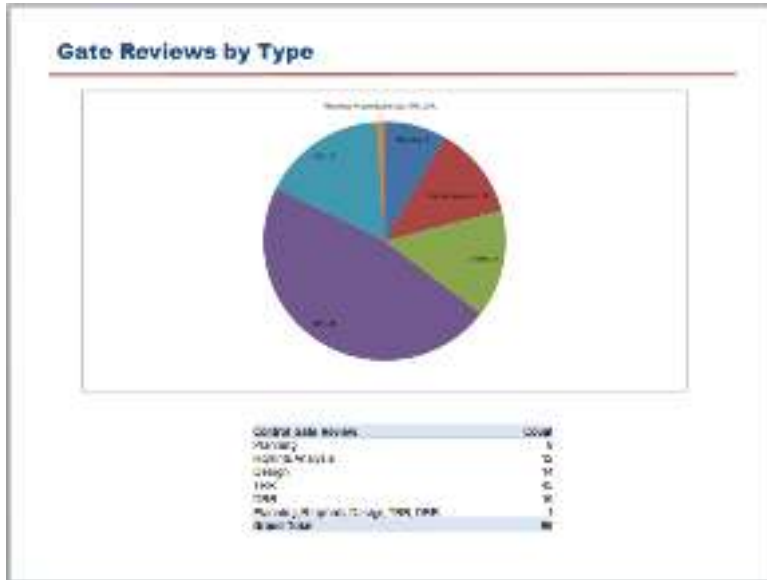
Here other ways QA can help with analysis:

Conduct Trend analysis

▸ **Work cooperatively with the measures group and monitor the measures repository**

▸ **Verify measures are collected accurately, e.g., actuals vs. estimates**

▸ **Look for trends, e.g., Conduct analysis of Organization's process asset improvements for the EPG**
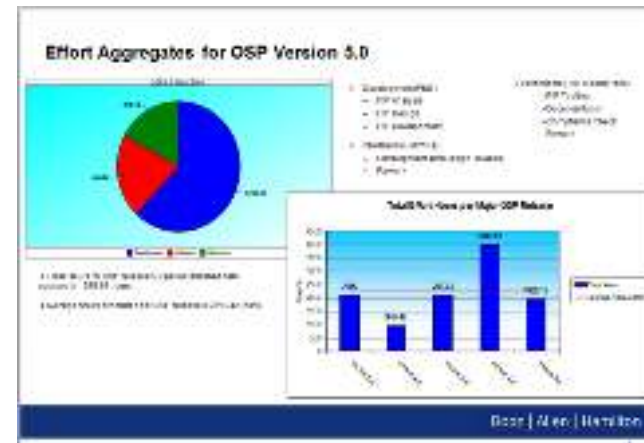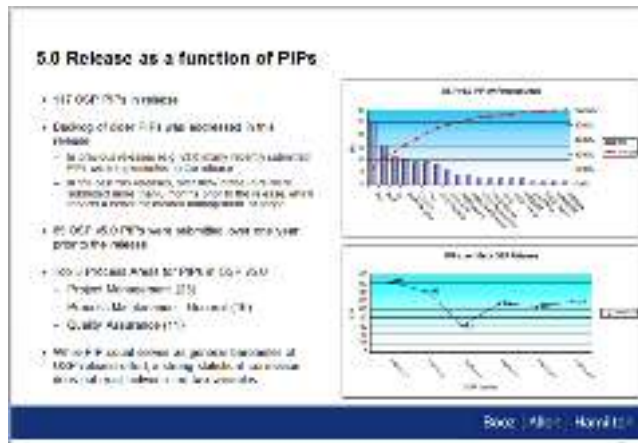
Here's an example of an analysis of the Organization's process asset improvements

Summary

- Level of effort ratios between Development, Validation, and Verification activities continue to remain stable, as does ratio between sub-activities (e.g. Analysis, Design, PIP Development)
  - A solid basis for estimation exists for OSP release activities

- Data integrity for Design activities is sub-standard. TWGs leads, and team members express confusion on where data should be stored for Design activities.
  - Similar issues exist, to a lesser extent, for TeamTrack, PME, and OMP data entry
  - Suggest tip cards or more effective training of process for those participating in OSP release activities

- Increasing trend of defect leakage from Validation to Verification should be assessed by the EPG
  - We don't know what types of defects are most prevalent. Suggest analysis of failure causes. If failure causes are not currently normalized, suggest the addition of a defect cause field to the TeamTrack database. This will facilitate Pareto analysis in future releases

- While defect leakage is increasing, the defects escaping to Verification seem to be have relatively low impact
  - Over six releases, we have conducted 55 Validation reviews, which have removed 1064 defects. The average fix time per **Validation** defect is approximately 45 minutes per defect.
  - The fix time for **Verification** defects in release 5.0 was only about 7 minutes per defect

- Overall, the quality processes are working, as the release was deployed on time, with no major slips in schedule, and no need for extended overtime or "heroics". To date, no major user issues have been reported in the deployment of OSP v5.0

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Should PPQA be involved in Lessons Learned activities? Yes, here are some suggestions:

▸ **Given their objectivity and experience, QA can be effective facilitators**

▸ **They can advocate addressing lessons learned:**
  – Help determine the correct course of action in response to each lesson learned
  – Assist with the creation of Action Plans
  – Monitor the progress of Action Plans

▸ **QA has the opportunity to look for trends across the program or multiple projects within an organization - to make improvements across the organization**

Summary

▸ **Organizations tend to focus on conducting PPQA to identify and address non-compliance issues.**

▸ **The opportunity to leverage PPQA and realize its benefits goes beyond just looking for non-compliances.**

▸ **Examples of these opportunities for leveraging PPQA might include, but are not limited to, mentoring/training, conducting trend analysis, performing root cause analysis and being a trusted advisor to the organization and its projects.**

▸ **By leveraging PPQA, you can improve the quality of your processes and head off non-compliances before they can occur.**

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