

Light QA - Targeting Quality Assurance to Light Development Models

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Introduction

**Formal process models (ISO-9000, CMMI, etc.)
are considered too complex**

**Various “light” development models (eXtreme,
SCRUM, etc.) have arisen in reaction to formal
process models**

**Problem: managers often have limited formal
insight into software development process**

Proposed Minimum Processes

Minimum process makes sense when:

- A small software development team (≤ 30)
- Uncertain or volatile requirements, or
- Responsible and motivated software developers

Light QA processes help:

- Minimal set of development processes to support quality product development
- Management oversight focus on compliance with minimum set of QA processes

Recommended Minimum Set of Development Processes

- ▼ **Requirements Management**
 - New or modified requirements are documented
- ▼ **Configuration Management**
 - All code and documentation files are managed and controlled.
- ▼ **Internal Reviews (Also known as peer reviews, inspections or code walk throughs)**
- ▼ **Planned Testing**
- ▼ **Management Oversight**

Light QA Processes

- ▼ **Define a set of objective criteria**
- ▼ **Perform the QA audit or review**
- ▼ **Report the results**
- ▼ **React to the findings**

QA Audits or Reviews

- ▼ **Audit or review defined by set of objective criteria covering target processes.**
- ▼ **Criteria structured so that each can be defined as**
 - **Met**
 - **Not Met**
 - **Not Applicable**
- ▼ **Criteria severity also rated as**
 - **Critical (Severity level 3)**
 - **Moderate (Severity level 2)**
 - **Minor (Severity level 1)**

Defining Severity Levels

- ▼ **Severity Level 3 (Critical)** If not met, require that the faulty process be suspended until resolution of the problem.
- ▼ **Severity Level 2 (Moderate)** If not met, allow the process to continue, but require immediate corrective action(s) through rework of the problem.
- ▼ **Severity Level 1 (Minor)** If not met, continue using the process, but require constant review of the process in question to determine any trends.

Examples of Criteria

▼ Critical Criterion Example

“Concurrent write-access to source code files is prevented.”

▼ Moderate Criterion Example

“The collection of source code files representing any prior version of the software can be obtained by a simple request to the CM system or CM manager.”

Minor Criterion Example

“It is possible to obtain read-only access to a source code file currently checked out to another developer.”

Effects of Criteria Severity on Audit/Review Outcome

- ▼ If at least one Critical criterion is assessed as Not Met, then the entire audit or review outcome is **Non-compliant**;
- ▼ If all Critical criteria are met or not applicable, and at least one Moderate criterion is assessed as Not Met, then the entire audit or review assessment is **Compliant with Moderate Findings**;
- ▼ If all Critical and Moderate criteria are met or not applicable, and at least one Minor criterion is assessed as Not Met, then the entire audit or review assessment is **Compliant with Minor Findings**; and
- ▼ If all criteria are met or not applicable, then the entire audit or review assessment is **Conforming**.

QA Process Generated Metrics

- ▼ **Outcome (categorical) - per audit or review**
- ▼ **Number of criteria not met, by severity level - per audit or review**
- ▼ **Number of action items remaining open - per month**
- ▼ **Number of action items escalated - per month**

Outcome Example: Non-Conforming

		<u>Severity</u>	
	Critical	Moderate	Minor
# Criteria Met	6	14	22
# Criteria Not Met	<u>1</u>	4	6
# Criteria Not App	1	2	2

Outcome Example: Compliant With Moderate Findings

		<u>Severity</u>	
	Critical	Moderate	Minor
# Criteria Met	6	14	22
# Criteria Not Met	0	<u>2</u>	6
# Criteria Not App	1	2	2

Outcome Example: Compliant With Minor Findings

		<u>Severity</u>		
	Critical	Moderate	Minor	
# Criteria Met	6	14	22	
# Criteria Not Met	0	0	<u>1</u>	
# Criteria Not App	1	2	2	

Outcome Example: Conforming

		<u>Severity</u>		
	Critical	Moderate	Minor	
# Criteria Met	6	14	22	
# Criteria Not Met	<u>0</u>	<u>0</u>	<u>0</u>	
# Criteria Not App	1	2	2	

Summary

- ▼ A standardized (even if undocumented) set of development processes is a necessity for any software development effort whose goal is to produce a product with more than immediate applicability;

Summary (Con't.)

- ▼ Software Quality Assurance (QA) is a necessary activity to ensure adherence to these processes;

Summary (Con't.)

- ▼ For limited-scope projects, significant contributions to quality can be made by a light-weight set of development processes and a light-weight QA activity.

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