

Measuring Effectiveness of A Review

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Abstract- Delivering on time good quality product / project is the main objective of any organization. The basic quality measure is post release defect in the product / project. In software development organization, defects identified in the product / project can primarily be because of un-clarified requirements, faulty coding, insufficient testing or poor reviewing capability. Different kinds of reviews are done to ensure highest level of quality. Hence, the role of reviewer at any stage is very crucial to avoid any defect in later stage of the SDLC.

Review is an activity to verify the work done but why it is necessary to review someone's work? According to Lean Sigma approach, manual review is considered as waste but still reviews are mandatory. So to minimize efforts invested on this waste, there are many automated reviewing tools available in the market but still there are some artifacts that cannot be reviewed using automated tools and manual review is required. Content review is one of such activity. Content can be found in many forms – technical documents, data sheet, product brochures, press releases, white papers etc. A document whether in electronic or printed form undergoes many reviews before getting finalized. The document is first reviewed by the author (self review), then peer review is done and finally the document is reviewed by the supervisor. After even so many round of reviews, it cannot be 100% guaranteed that no errors exist in the reviewed artifact, because it has human involvement.

For such reviews today, we do not have any mechanism which can indicate the effectiveness of review.

Processes can control whether a review is done or not but there is no modeling around effectiveness of reviews. This White paper aims to present a method to calculate and measure the effectiveness of the review.

Index Terms- Effective Review, KPI, Peer Review Form and Review Effectiveness.

I. INTRODUCTION

There are five phases in a software development process, starting from Requirement Analysis followed by Design, Implementation, Qualification and finally the Customer Acceptance. Each phase has set of inputs and outputs, may be documents, code, configuration settings etc. for the next phase as input. Before the next phase starts, output from the previous phase is reviewed and signed off as ok to be used as input in the next phase.

A review can be effective only if the gap gets identified at the right time. If the gap does not get identified at the right time but is identified later indicates that the review was not effective. So it is important to track and record gaps that do not get identified at the right time.

An effective performance measurement system helps to drive an organization towards the achievement of its strategic goals. To achieve the goal, generally organization defines Key Performance Indicators (KPI) to measure the performance of certain parameters.

The purpose of KPI is not to monitor well – good going parameters but to monitor not so good going parameters. In other words, the objective of KPI is to identify areas where the team is doing not so good and needs an improvement. To monitor this, a benchmark is decided for each parameter in KPI and the performance of that parameter is measured against the benchmark. If the score is below the benchmark, then the involved team need to analyze what went wrong and identify root cause(s) so that same / similar problem does not occur again. So keeping a not so good parameter for measurement in KPI can help the team to improve by progressing from red indicator towards green. This is a non traditional approach of KPI.

There can also be a traditional approach of following KPI. As per this approach, a well – good going parameter is measured after it has achieved the benchmark. Under this approach, objective is to monitor that the parameter should not fall below the benchmark.

To keep review effectiveness as one of the KPI parameter, the first challenge would be quantification of review effectiveness and we will follow non-traditional approach to improve this parameter.

II. CHALLENGES

Many times, we notice that the delivered product / project has a defect even after product / project is released, i.e. during the Acceptance phase because anything reviewed using an automated tool can be relied upon but anything reviewed manually is tough to be relied upon.

When a review is done manually, we are not sure about the quality of review because no such tool or method exists to depict the data to improve reviews done manually. So setting a relationship between delivering a good quality product / project and designing a reliable and capable process is a major challenge in the software development industry.

Another challenge is that people with different experience and skills participate in reviews. So in a group of reviewers some of them are experts while others are relatively greenhorns. The challenging task is to identify experts to make the reviews more effective.

So to overcome both the challenges, there is a need to design a tool that could measure the effectiveness of a review and to include this parameter in KPI for measuring its improvement progress.

III. SOLUTION

To overcome the challenge of measuring the effectiveness of a review and improving reviews which are done manually, we need to record the review comments given in every phase for each artifact which is the output of that phase. It can be easily done using a spreadsheet. This spreadsheet is usually named as “**Peer Review Form**”.

We should keep following information in the Peer Review Form spreadsheet for every review comment, such as:

- Who was artifact creator?
- Who reviewed the artifact?
- Which artifact was reviewed?
- What was missed by the artifact creator?
- What was the reason that caused the issue?
- In which phase the issue is identified?
- In which previous phase, the issue could have been identified?

S.No	Document Name	Author	Ver No	Review Date	Reviewed By	Description of the issue	Root Cause	Status	Resolution Note	Resolution Date	Identified in "Phase"	Leaked from "Phase"	Responsible Team	Approved?
1	Requirement Document	Carlo	V1.0	10-Jan-15	Emily	Incorrect Product name in document	IA	Closed	Product name corrected	11-Jan-15	Implementation		SIEI	
2	Test Report	Mark	V1.0	15-Jun-15	Santa	Performance is not as per the requirement	Lack of knowledge	Closed	Test cases are required	15-Jun-15	Qualification		SIEI	
3	Project Plan	Project Team	Audit	15-Jun-15	Jane	Reference is missing in the document	Lack of Self Review	Closed	Reference corrected in the document	16-Jun-15	Qualification	A	SIEI	

Figure 1: Sample Peer Review Form

Now for every project closure or phase closure the SME analyzes if the issue is identified in the appropriate phase (right time) or should it have been identified earlier. If the issue could have been identified earlier but did not get identified then it is considered as a leaked issue in review and is counted under “Leaked From

Phase”. The phase name in which issue is identified should have been mentioned under this column.

For all leaked issues, the SME adds the phase name under “Leaked From Phase” column while for all issues that are not leaked, the SME adds the phase name under the “Identified In Phase” column. As the phase names are added under “Leaked From Phase” and “Identified In Phase” for identified issues, the count increases and the percentage of Review Effectiveness gets calculated for issues of each respective phases.

Based on the review effectiveness percentage for each phase, the average effectiveness for the respective project gets automatically calculated.

IV. BENEFITS

It is identified that the usage of such “Peer Review Form” during reviews has helped to identify the areas of improvement. Hence keeping “Review Effectiveness” as a part of KPI has proved to be very helpful in mitigating the challenge of measuring the effectiveness of a review and improving quality of reviews done manually.

The white paper is intended only for knowledge purpose. Unless stated to the contrary, any opinions or comments are personal to the writer and do not represent the official view of the company / organization.

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