

“Making Qualitative Judgments of the Process” – Establishing its Importance with Appraisal Case Studies

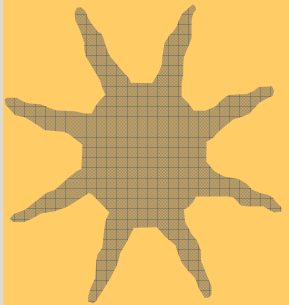
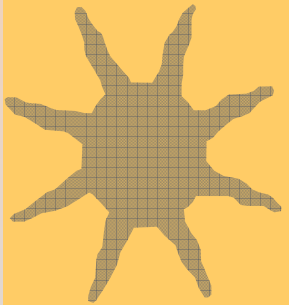
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AGENDA

- Establish the Context
- Case Studies
- Recommendations
- An Indian Fable: Blind Men and the Elephant
- Conclusion



Establish the Context

Even after applying the documented appraisal method, such as the SCAMPI, fully and consistently, **considerable dependence on professional judgment is still necessary**

- It is not possible to document in an appraisal method, the many different appraisal complexities real-life development scenarios offer

Where a proactive engagement by sponsors toward process improvement is visible, such organizations **care to learn from qualitative judgments made of the process** with a strong sense for—**‘how-good-is-our-process?’**, instead of mere compliance

Establish the Context

Sponsors of process improvement activities in such organizations **care more about the effectiveness and efficiency of the system of practices** in vogue and expect appraisals to judge the goodness criteria as well—

- “Tell us how good is our execution based on methods employed?”
- “How do we compare against the rest of the industry?”

With case studies, we will establish the fact that a **value added, or a high potential appraisal** is one which **cares to know** the details, by getting into **the merits of the process**

Establish the Context

DEFINITION: Value Added or Qualitative Appraisal

- Evaluates not just the process capability (*impacting organizational maturity*), but also workforce capability (*impacting organizational competencies*)
- Establishes the *intelligence* behind the system of practices or the process in vogue

We will conclude that: only a value added or qualitative appraisal of the process in use has the capability to ensure **transfer of ownership to appraisal results back into the organization with value addition**



Case Studies:

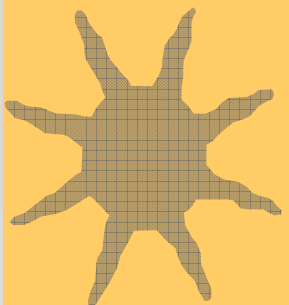
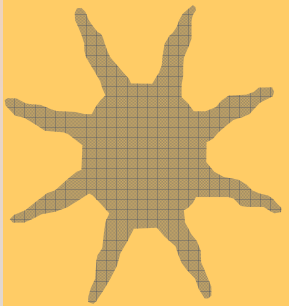
Explore how process discontinuities exist even when process is institutionalized –

- Process may be ‘ineffective’ or ‘insufficient’, but still, might satisfy the model
- Appraisals should serve as a catalyst to further the process improvement mindset
- In high maturity work cultures, practitioners care less about ‘compliance’; they would like to know in clear terms –
 - ▶ “What needs to be done, so we can improve the state of the practice”

Case Studies

1. High level design looks almost like code

- ▶ *Does the high level design document pass its intended purpose?*
- ▶ *What is the purpose of a low level design specification, if one exists?*
- ▶ *Is there a risk of mismatch in the subsequent low-level design and code?*
- ▶ *Is there a risk of getting to too much detail in high-level design, which is a redundant activity that can be addressed in the low level design and coding phases?*



Case Studies

2. Comprehensive testing practice without quantitative characterization

- Three rounds of unit test cases were identified to exercise the code, three rounds of integration test cases to exercise the modules and finally three rounds of system test cases to conduct a functional test in a true black-box sense
- Passed the process requirements of the test procedure – ‘no more than 3 iterations of testing’
 - ▶ *Did the practitioners know their testing effectiveness in each round of testing using a measure such as the ‘first-pass-yield’?*

Case Studies

3. Collaborative development initiatives involving an incident management life cycle such as:

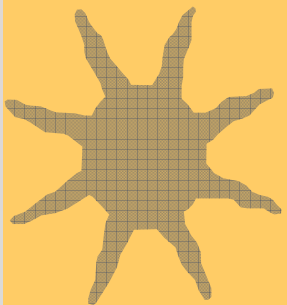
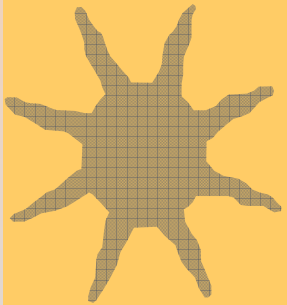
Requirement Gathering -> **Requirements Analysis** -> Req. Approval Meeting -> Requirement Approval -> **Functional Spec.** -> Functional Spec. approval -> Technical Analysis -> **Approval** -> Technical Design -> **Approval** -> Code, Quality Audits and Unit testing -> **Functional Testing** -> **Integration Testing** -> **Approval and authorization** -> Move to production

- If the appraisal notes opportunities for improvement in the bold faced phases which are not under the purview of the appraised entity—
 - ▶ *How does the appraisal report such process discontinuities?*
 - ▶ *Is a view such as: since these phases are out of scope of the appraised entity and therefore suggesting improvements to these phases is not relevant, the correct view or approach?*

Case Studies

4. Inaccurate use of measures such as defect density

- Project after project established and demonstrated the use of defect density measure
- It was known in terms of defects/kLOC
 - ▶ *Is it the absolute kLOC, or delta kLOC? Meaning, number of lines of code added, deleted and modified? Or, is kLOC just that of the new code?*
- Further, when the defect density measure was researched, it ranged from a highly idealistic value of zero, to between 20-40 defects/kLOC
- A very useful piece of process information lies unmasked which can be understood only when the appraisal cares to know the goodness criteria, **by correlating defect density with the delta kLOC**



Case Studies

5. Goal-setting for a metric, such as productivity in terms of delivered kAELOC per day has to take into account the associated and expected 'adverse' or 'negative' impact on other metrics

- ▶ *In what way does this goal for productivity affect the 'cost of quality' resulting from an increased appraisal cost and rework cost?*

Non software example: Typing speed using number of words per minute as a goal

Case Studies

6. Inaccurate definition of derived measure and drawing incorrect conclusions

- ▶ $A = [B+C]/n$
- ▶ $A = [B+C+D+E]/n$
- ▶ $A = [B+C+Z]/n$

Is 'A' defined consistently?

- ▶ Replace A with cost of quality,
- ▶ B with appraisal cost,
- ▶ C with prevention cost,
- ▶ D with training cost,
- ▶ E with rework cost,
- ▶ Z with penalty costs due to service level agreements and
- ▶ n with total cost.

Then what is evident is cost of quality was being calculated inconsistently

Case Studies

7. Deviation = [Actual–Estimated]/ [Estimated]

- Process hand-shake is mostly rough if two collaborating processes differ in process maturity
- It is not unreasonable for a significant turnaround time resulting from a delayed confirmation from a lower process maturity
- Let us suppose that a task which had an estimated effort of 10 man-days for completion, and the relevant stakeholder from the higher process maturity site shot a question to the lower maturity process for clarification with a turn-around time of 10 days
 - ▶ *If the actual completion of the task remains at 10 days post clarification, is the effort deviation: 100%?*

Case Studies

8. Wrong data in timesheets which impacted project planning, even though effort and schedule estimates were based on a defined, documented procedure:

- Projects worked on new dimension technologies with no organizational memory from prior execution; estimates were 'padded' to be safe
- Resources worked on a time-share basis across multiple projects
- Integrity of the metrics for the project effort was obviously difficult to maintain since resources were not dedicated to the project; and
- Therefore the data in the timesheets was incorrect
 - ▶ *How does the appraisal view: up to what extent of padding is reasonable, and what is not?*
 - ▶ *How does the appraisal report process discontinuities without passing qualitative judgments on the timesheet mechanism in place?*

Case Studies

9. Ritualistic PPQA audits which added no value:

- All audit reports had at most one page full of observations—as if only to fulfill the requirement to demonstrate direct evidence of PPQA
- Review of most of the findings in the PPQA report indicated that the observations could be written even without conducting an audit
- Yet another indication of a weak institutionalization of PPQA was that the metric for audit time; it was in the range of 60-90 minutes, irrespective of the size of the work product being audited
- SCAMPI Class C appraisal of projects was far more revealing of the process weaknesses and discontinuities on projects, which the monthly PPQA audit failed to recognize and report
 - ▶ *How does the appraisal recognize such PPQA failures?*
 - ▶ *Is it possible to conclude that PPQA is institutionalized even though a paper-trail of evidence points to every project going through such audits religiously?*

Case Studies

10. Example and reaction from a low-maturity work culture to the following appraisal findings:

- While establishing effort on projects, an added measure for ‘rework effort’ can be collected to improve planning from past data
- Quantify risks using ‘risk priority number’—instead of estimating risk and impact using a qualitative criterion such as Low-Medium-High
- All documents must stand by themselves; ‘Ask Bob for more information!’ is not a good documentation approach!
- Time and effort recorded for estimates and actual on project quality audits need to be tracked accurately
- Consider adding lessons learned in each monthly project review to internalize learning

Sponsor’s reaction:

- Are these findings not a question of—‘*how we do things!*’ ?
- Should a SCAMPI appraisal get into the merits of the process?

Recommendations:

- A value added, or a qualitative appraisal is one which cares to know the details by getting into the merits of the process
- Applying professional judgment using a qualitative appraisal is the only known bullet-proof mechanism that ensures transfer of responsibility back into the organization with value addition
- Anything else makes for a text book style of conducting an appraisal with little or no value addition

Recommendations

Appraisals will be received well, particularly by practitioners if the findings can serve as a catalyst to—

- Facilitate learning more, by knowing more about the circumstances that surround the *current* context of execution
- Facilitate development of structured mechanisms with which to minimize the impact of variation

Organizations will best receive the assessment results if they can clearly relate to the findings and if they can see value in implementing action plans based on the findings

Recommendations

Appraisal team therefore needs to have the knowledge, skills, and experience to make valid judgments

At the heart of execution and effective process institutionalization is a 'human'

- People need to understand the appraisal results, develop the necessary process abilities while applying their knowledge and skills in coordination among other humans

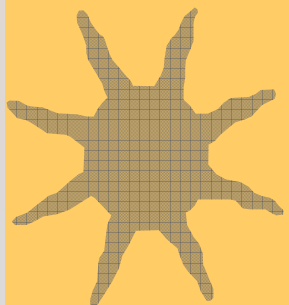
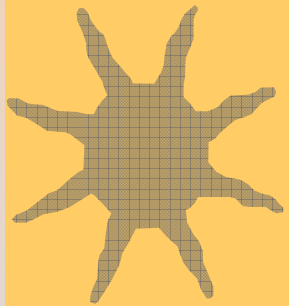
Qualitative appraisals are therefore necessary to enable—**strategic execution**—*excellence in execution, since:*

- *Defining standard work practices must be based on a **strong foundation of evaluation** and process improvement (note the order)*

Recommendations

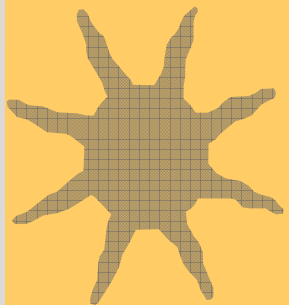
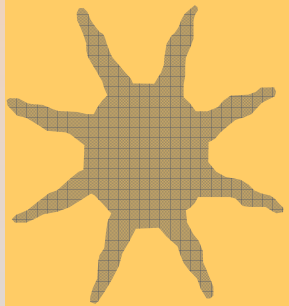
Merely chasing factual evidence is a text-book approach to conducting an appraisal

- Example from a real appraisal:
 - ▶ Effort and schedule variation had about the same percentage of variation at around +/-20%. *How could this ever be possible!*
 - ▶ Increasing actual effort and therefore a positive effort variation should primarily bring schedule variation under control
 - ▶ Otherwise what is the purpose of increasing effort?
 - ▶ Besides, the calculation for effort estimates already factored a 1.20 scaling or buffering factor
 - ▶ And, the control limits for effort variation was set at +/-20%.
 - ▶ But, in reality the site had about +/-40% effort variation unbeknownst!



An Indian Fable: Blind Men and the Elephant

A non-qualitative appraisal which does not get into the merits of the process can at best be described by a popular Indian Fable!



An Indian Fable: Blind Men and the Elephant

Poem by John Godfrey Saxe

**It was six men of
Indostan
To learning much
inclined,**



**Who went to see the
Elephant
(Though all of them
were blind),**

**That each by
observation
Might satisfy his
mind**

An Indian Fable: Blind Men and the Elephant

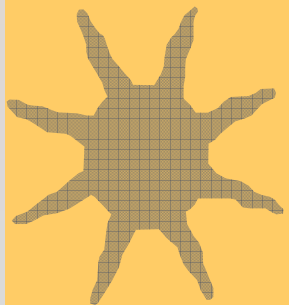
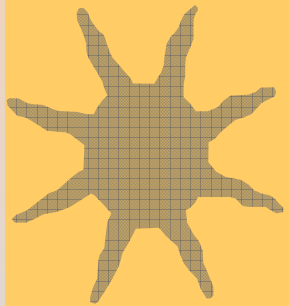
**The First
approached the
Elephant, And
happening to fall**

**Against his broad
and sturdy side, At
once began to
bawl:**

**“God bless me! but
the Elephant Is
very like a wall!”**



An Indian Fable: Blind Men and the Elephant



The Second, feeling of the tusk, Cried, “Ho! what have we here

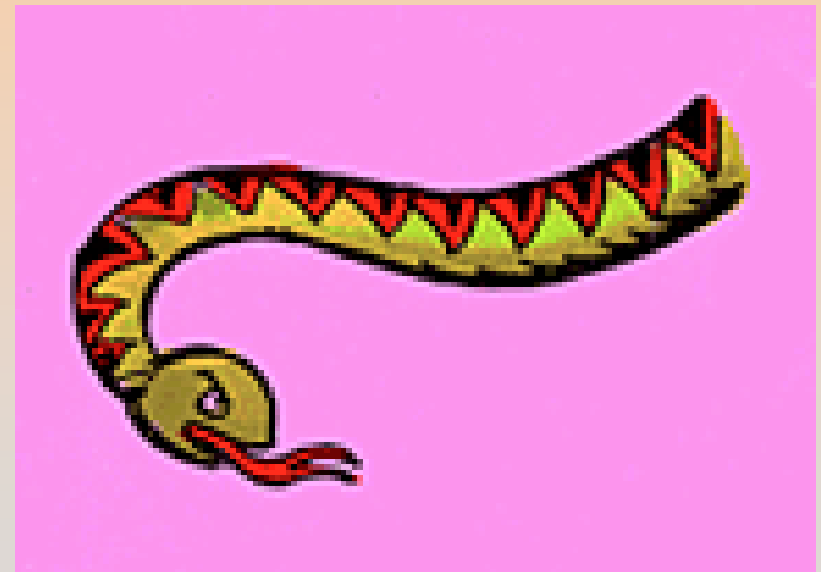
So very round and smooth and sharp? To me 'tis mighty clear

This wonder of an Elephant Is very like a spear!”

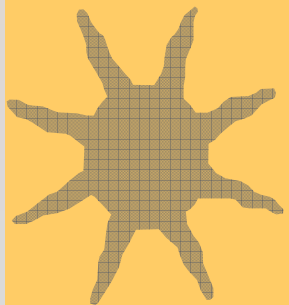
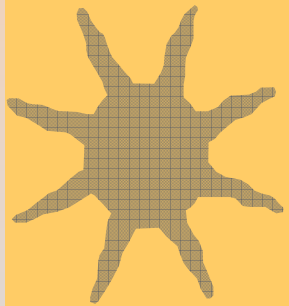
An Indian Fable: Blind Men and the Elephant

**The Third
approached the
animal, And
happening to take
The squirming trunk
within his hands,
Thus boldly up
and spake:**

**“I see,” quoth he,
“the Elephant Is
very like a snake!”**



An Indian Fable: Blind Men and the Elephant



The Fourth reached
out an eager hand,
And felt about the
knee.

“What most this
wondrous beast is
like Is mighty
plain,” quoth he;

“ ‘Tis clear enough
the Elephant Is
very like a tree!”

An Indian Fable: Blind Men and the Elephant

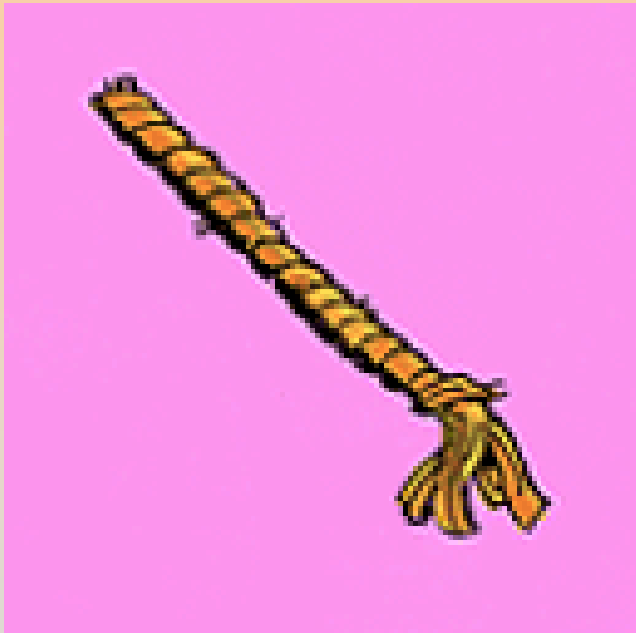
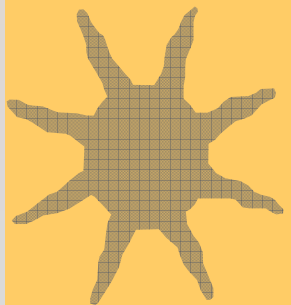
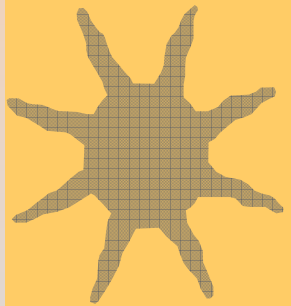
**The Fifth, who
chanced to touch
the ear, Said: “E’en
the blindest man**

**Can tell what this
resembles most;
Deny the fact who
can**

**This marvel of an
Elephant Is very like
a fan!”**



An Indian Fable: Blind Men and the Elephant

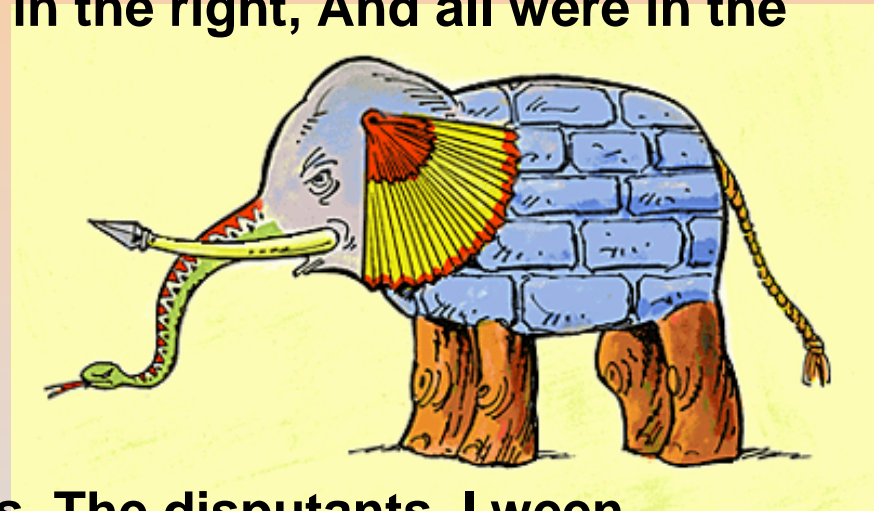


The Sixth no sooner had begun About the beast to grope, Than, seizing on the swinging tail That fell within his scope,

“I see,” quoth he, “the Elephant Is very like a rope!”

An Indian Fable: Blind Men and the Elephant

And so these men of Indostan Disputed loud and long,
Each in his own opinion Exceeding stiff and strong,
Though each was partly in the right, And all were in the wrong!



So oft in (appraisal) wars, The disputants, I ween,
Rail on in utter ignorance Of what each other mean,
And prate about an Elephant Not one of them has seen!

Conclusion

Only Qualitative Appraisals are **capable of unmasking camouflages and pretensions** about process effectiveness that show up in most processes

Only Qualitative Appraisals have the **ability to appeal and inspire practitioners** to set and improve their own performance standards

Appraisals should take **a proactive position** such that,

- They serve as a catalyst to facilitate/render process improvements while helping to optimize process institutionalization
- They identify improvement opportunities for the organization with which to enable follow-up action plans

Conclusion

A strong foundation of **process evaluation** is a necessary **pre-requisite for effective process improvement**

- Appraisals must evaluate not just the process capability (*impacting organizational maturity*), but also workforce capability (*impacting organizational competencies*)
- Establish the *intelligence* behind the system of practices or the process in vogue

In other words, we have just established **the need for making qualitative judgments** of the process with value added or qualitative appraisals



Thank You!

DISCUSSIONS, Q&A

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