



CMMI Institute

IMPROVING APPRAISAL EVIDENCE COLLECTION AND REVIEW EFFICIENCY

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TITLE: PRINCIPAL AND CEO

**ORGANIZATION: INTEGRATED SYSTEM
DIAGNOSTICS**

PROBLEM STATEMENT

SCAMPs are **still** considered to be “**too expensive**” relative to other appraisal mechanisms (right or wrong)

- Organizations still spend too much **effort preparing** for a SCAMPI A
- Organizations still spend too much **effort conducting** a SCAMPI A
- Organizations still too often treat each appraisal event as an independent end item and “**regenerate**” **data for each event**
- The 3 year Class A cycle actually encourages “**throw-away PIID**” behavior when there are no “required” interim events
- **Excessive focus on “PIID” preparation** detracts from the ultimate goal of process improvement
- Organizational **risk aversion** continues to drive effort overkill

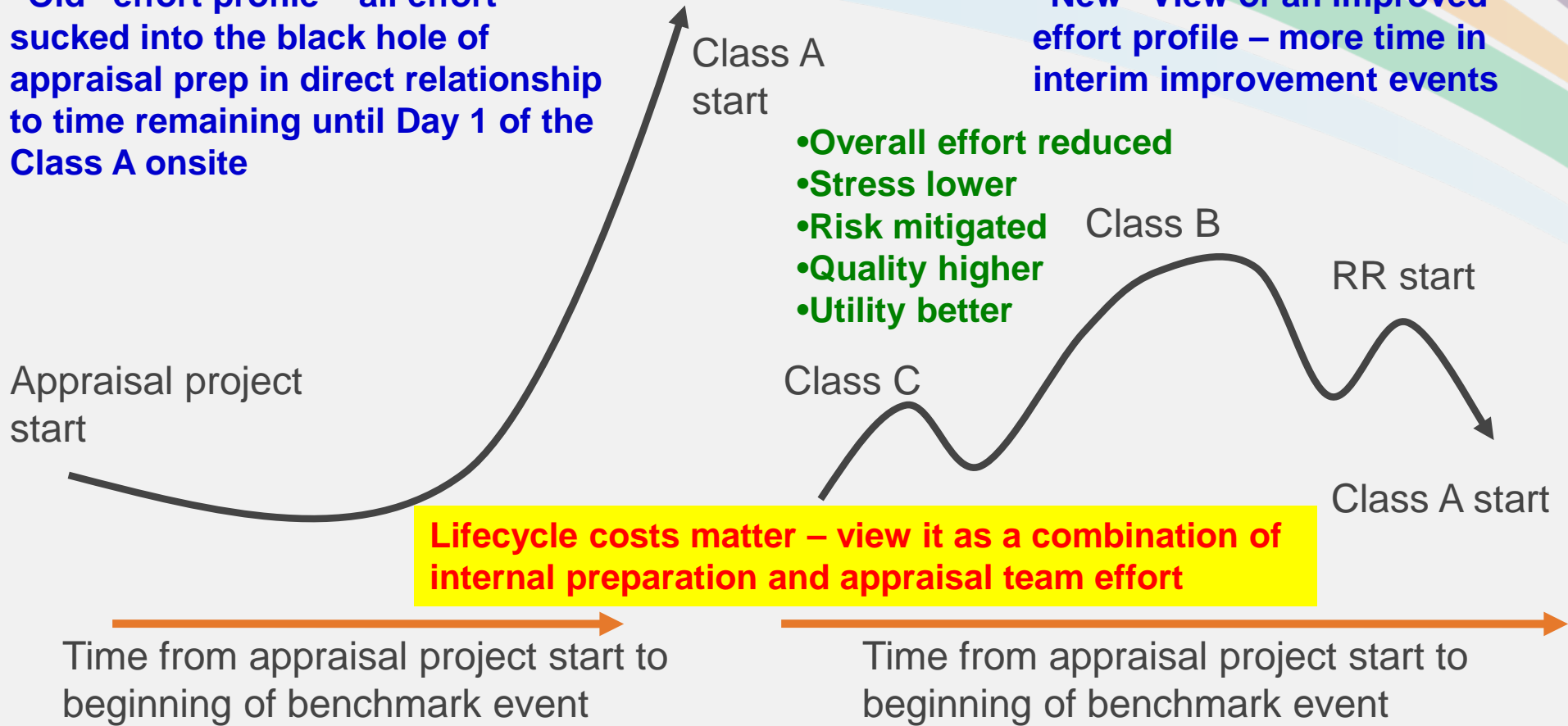
OTHER CURRENT CHALLENGES

- Practice based appraisal
 - Providing disparate evidence by practice gets in the way of seeing how work really gets done...
 - Practice by practice decomposition artificially fragments integrated activities.
 - Generic practices coupled with *perceived* evidence rules vastly expands the quantity of data required.
- Organizations routinely review more projects, and more PAs within projects, that is necessary. Organizations not making the best use of sampling factors still.
- Direct and Indirect Evidence rules changed, but behavior did not... Tendency to provide too much evidence still...wary to incur more risk in final events.

WHY DO SCAMPIS COST SO MUCH? OLD VIEW VS. NEW STATE

“Old” effort profile – all effort sucked into the black hole of appraisal prep in direct relationship to time remaining until Day 1 of the Class A onsite

“New” View of an improved effort profile – more time in interim improvement events



- Overall effort reduced
- Stress lower
- Risk mitigated
- Quality higher
- Utility better

ALTERNATIVE SOLUTIONS IMPLEMENTED

- Use a more **expert driven, incremental, managed evolution of data collection and review tasks** to make the outcomes **both significantly more efficient** and **improved the data quality**.



- Summary of techniques used:
 - *Greater use of sampling rules and Managed Discovery*
 - *Incremental data evolution and reuse used through the appraisal lifecycle.*
 - *Reduced emphasis on PIID preparation*
 - *Integrated events. Interim events manage risk focus*
 - *Use evidence “threads” to present the data. Data primarily presented data by “topics,” rather than “practices”*

The set of techniques used *greatly increases efficiency, reducing effort and cost.*

Make Managed Discovery work for you!

DATA COLLECTION AND REVIEW

- **Managed Discovery** – Use an integrated set of incremental appraisals. Smaller, targeted, focused.
- The **Data Collection Plan (DCP)** is initialized at the start; refined after each event; requires less effort each round.
 - Outputs from each event are inputs into planning and tailoring subsequent events, increasing synergy and reducing effort.
- Links entered directly into the appraisal database
 - Link to *folders* rather than specific documents.
 - Minimizes need to “gather” more recent evidence.
- Maximize use of the 90 day clock.

EVIDENCE COLLECTION AND REVIEW

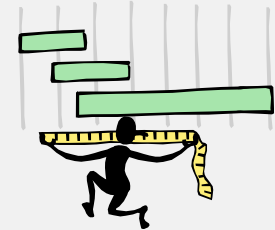
- Use your interim appraisals to *incrementally “build” the appraisal database.*
- Reuse appraisal data. *Don’t treat appraisal events as one-time.*
- Characterization and rating – *When are you “conducting” the appraisal? Blow up the old on- site period paradigm!*
- Automated tooling is essential to enable efficient application of these techniques.



Use method rules to maximize data reuse. Within Class A 90-day window, if data is 0-3 months current: use as is – full reuse

USE RISK MANAGEMENT APPROACHES

- Take an integrated approach to conducting events
 - Conduct interim appraisals (Class C, Class B) as a risk reduction technique – tailor based on risk.
 - Integrate outcomes from a series of events. (*this is practical!*).
 - Prioritize events and scope and sampling based on risk assessment.
- Defining the approach up front – the piece parts go together
 - Scope: Organization scope and Data Collection Plan
 - Events: Number and type of interim events
 - Team: Number, experience, and location of team members
 - Infrastructure: IT support, tooling, VPN)
 - Techniques: Managed discovery, virtual reviews, evidence threads, 90 day window



REPORT SPECIALIZED FINDINGS TYPES

Finding Type	Class C	Class B	Desired Trend
<i>Information Needed</i>	188	72	↓
<i>Link Issues</i>	69	30	↓
<i>Evidence Issues</i>	139	41	↓
<i>Recommendations</i>	10	14	↑
Compliant	536	807	↑
Minor Weakness	50	49	↓
Weakness	95	19	↓
<i>Improvement Activities</i>	18	25	↑
Total Records	1132	1086	

Note specialized findings types in *italics* – these are specific to the “build up” of the objective evidence in the appraisal database.

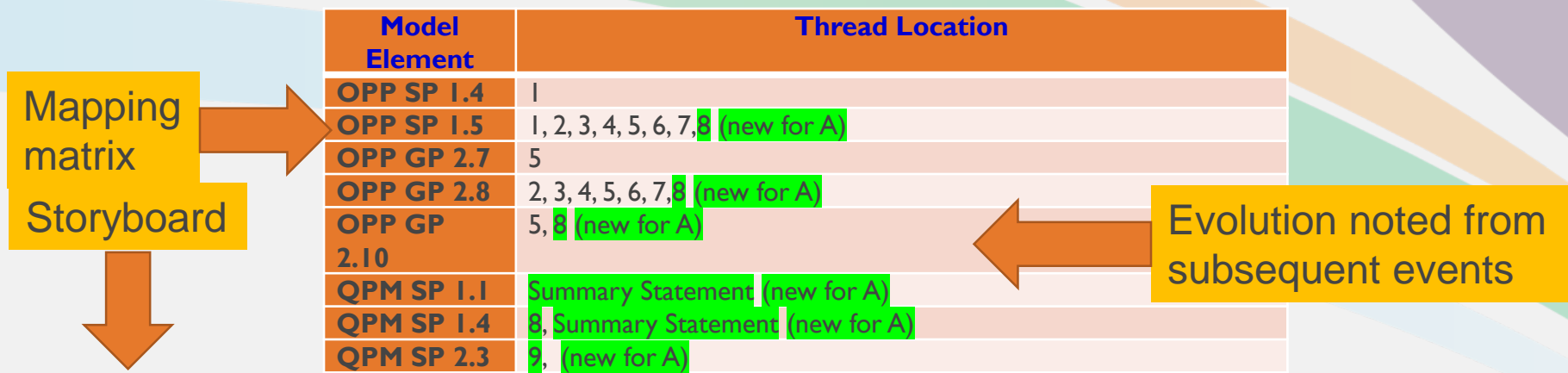
THREAD BASED APPRAISAL CONCEPT

- Practice based appraisal
 - PIIDs often get in the way of seeing the real work...
 - Practice by practice decomposition artificially fragments a highly complex integrated set of activities.
- Present data as integrated “stories” by topic rather than individual documents in separate practice buckets.
 - Much more “natural” – follow a more natural language approach
 - Much easier for evidence database maintenance.
 - Much easier to see both legacy and evolution.
 - Easier for team to review
- *A holistic approach to presenting evidence is much easier to collect for the organization, and much easier to review, understand, and analyze for the team.*



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SAMPLE THREAD – CR PRODUCTIVITY



Summary Statement:

New for SCAMPI A: The “CR Closure Rate (Dev)” and “CR Closure Rate (Maint)” metrics are defined in ORG Standard Process <xyz> with the performance objective “decrease cycle time”. The objective is correlated to Strategic Plan Goal number 1 - <insert goal statement>. (QPM SP 1.1) The Quality Audit SPC slides are presented to management as the means of monitoring the performance against the goal and assessing the QPPO. (QPM SP 1.4). The Metrics Group created a CR Productivity Model (OPP GP 2.4, OPP SP 1.5). This model uses historical performance characteristics to predict the number of CRs that will be implemented per staff month for the CR work packages provided by the customer. Inputs into the CR Productivity Model are the predicted CRs from the Development and Maintenance Defect Models.

Activity Details:

Prior to Nov 20xx - CR Productivity rate of <#> CRs per staff month was used when bidding on contract

1. See Project X Cost Model <date>. (QPM SP 1.1, QPM SP 2.2).
2. Based on improvement suggestions from a causal analysis team, to improve CR Productivity, the process was changed from random assignment of personnel to implement CRs to maintaining the same staff from baseline to baseline (CAR SP 1.2, CAR SP 2.1).
3. (Same staff charging CR implementation from one Project X release to the next.) Statistical Analysis performed on historical projects to determine the historical CR Productivity rate. (The time line was ordered based on the projects’ period of performance.) (OPP SP 1.5, GP 2.8)
4. ORG CR Productivity Presentation to Senior Management (October 20xx). Statistical Process Control (SPC) performed on current projects (Pjt X and Pjt Y) to determine the current CR Productivity rate as well as the stability and capability of the process for the specific projects. (OPP SP 1.5, OPP GP 2.7, 2.8, 2.10).....

Don't look at every practice in every event!

PRACTICE SAMPLING

- Purpose: Tailor appraisal events to minimize cost and disruption.
- Obtain *maximum actual* model coverage by focusing on a tailored set of practices. Choose “heavy hitter” and “repetitive” practices:

Level	Process Area	Goal	Practice	E L	O U	Decision Criteria Rationale
2	REQM		SP 1.3 SP 1.5 GP 2.6 GP 2.8	X	X X X	Need to be able to manage changes and reconcile project issues as they change and ensure all relevant assets are getting updated. Making sure controlling requirements key. Ensure Org level is collecting requirements metrics.
2	PP		SP 1.2 SP 2.7 SP 3.2 GP 2.6 GP 2.2	X	X X X X	Estimates always an issue. Plan updates affect everything else and will see the other goal 2 practices. Reconciling tasks/resources always an on-going challenge. Controlling changes to plans, estimates, etc. tends to be a typical issue area. Ensure org level is getting plans from programs

APPRAISAL CONDUCT IMPROVEMENTS

- **Leverage** model “overlaps/dependencies” (threads).
- More **virtual reviews** and activities. More **parallel effort** (interview sessions, 90-day clock).
- **Tailor** interim events based on risk and prior experience.
- **Automated tooling** essential and extremely beneficial. It facilitates maximizing data reuse and collaboration.
- **Appraisal lifecycle effort**: shift more of the burden to the team again.

TOOLING IS FOUNDATIONAL

- Reuse data from each appraisal
- Build the evidence database incrementally
- Merge appraisal data from various events
- Cross correlate evidence across practices and process areas.



BEST PRACTICES – A GP PERSPECTIVE

Generic Practices	Implementation Issues	Best Practices
Plan the Process (GP 2.2)	Organizations often don't know how much data is needed prior to each event.	Managed discovery literally means build a little at a time! Do more data and practice sampling.
Provide Resources (GP 2.3)	Need a mechanism to efficiently archive and reuse data over a period of time	Use your IT infrastructure – virtual reviews, data reuse, incremental build up.
Manage Configurations (GP 2.6)	Data likely to be in multiple repositories. Significant IT and security issues.	VPN, Sharepoint, appraisal tooling to manage incremental appraisal database build up and reuse.
Establish a Defined Process (GP 3.1)	Efficiency and productivity lost by not following an integrated plan.	Establish evidence threads. <ul style="list-style-type: none"> • Map those (with links) to appropriate practices.
Monitor and Control the Process (GP 2.8)	Projects gather too few or too many documents.	Track appraisal metrics, e.g.: <ul style="list-style-type: none"> • Effort to prep and build database • Effort to conduct • Coverage: Number/type of documents • Action Item burn down

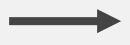
QUALITY ATTRIBUTE COMPARISON

Method > Attribute	“Old” SCAMPI	SCAMPI V1.3	Latest Techniques
Cost	Most costly	Less event costs due to tailoring and sampling options	Reduced cost 50%+
Schedule	Longest events	Still long events – needlessly so	Reduced schedule 30%”+
Performance	Rigorous	Maintained quality outcomes	Maintained quality outcomes

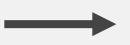
REDUCED TEAM EFFORT – HISTORICAL SAMPLE

Team Size	Days on site for A	Team Comp: External – External to OU – Internal to OU	Effort hours /Team Member
10	15	4 – 0 – 6	134
8	10	2 – 2 – 4	96
6	5	2 – 1 – 3	40

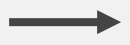
This was the “oldest” appraisal



This was the “middle” appraisal



This was the “latest” appraisal



Notice the trend!



Trend: More targeted C's, tailored B's, smaller A's



Is there are trend??

Use techniques already built into the method!

APPRAISALS SHOULDN'T BREAK THE BANK!

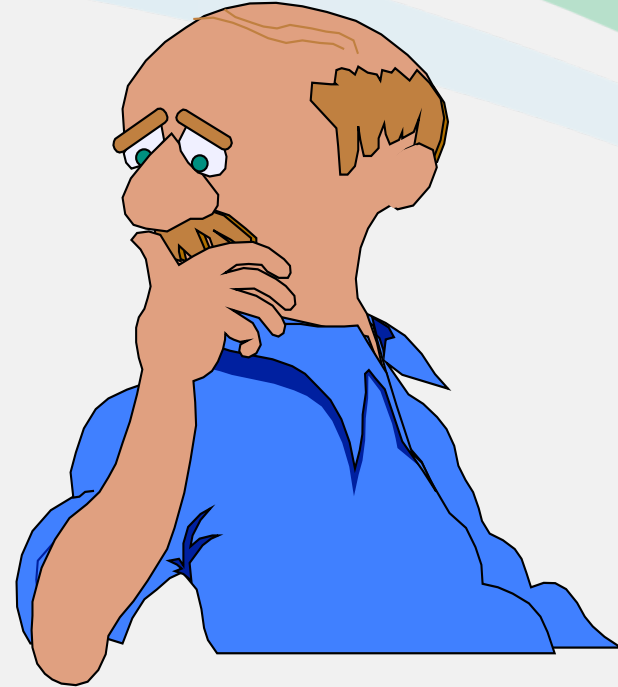
- *Trend has been down in cost, time, and effort.*
- Applying **risk management** principles makes it all more effective.
- Predefined *technical approach facilitates* easier comparisons, integration across events, and verification.
- *IT infrastructure* for evidence collection, asset repository, and team activities is *essential*.

QUESTIONS AND ANSWERS

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