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Implementing the Managed Discovery Approach What Worked, What Didn't Work

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Presented by

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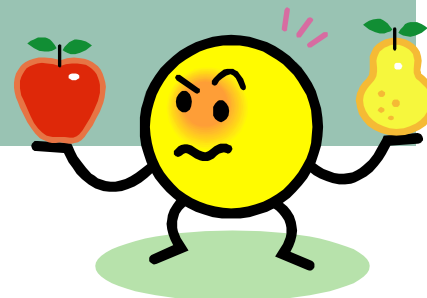
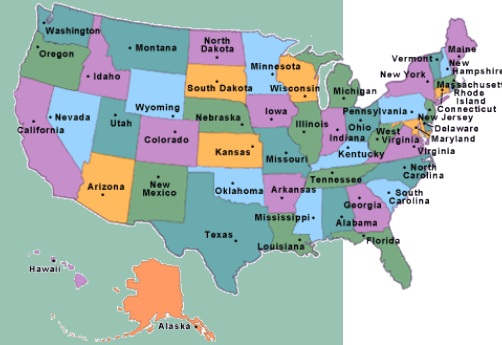
Gary F. Norausky

- Background
- Planning
- Executing
- Lessons Observed
- Results

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Background


- Dispersed campuses
- Dispersed team members
- Team availability
- Inexperienced team members
- Project choices



Appraisal Demographics

Parameters	2006	2009	2012
Team Size	9 (two LA* as team members)	8	7
LA	1	1	1
Projects	9 (6 primary)	12 (3 primary)	6 (3 primary)
Campuses	6	6	3 Business Units
Mini-teams	No	No	Yes
Readiness Reviews	Yes	Yes	Yes
Class C	Yes	Yes	No
Class B	Yes	Yes	Yes
Class A	Yes	Yes	Yes

*LA = Lead Appraiser

 Different lead appraiser for each appraisal (C, B, A)

- **Large number of projects involved**
- **Gigabytes of data collected and not used**
- **Large number of readiness review actions**
- **Excessive representation in interviews**
- **Inconsistent model interpretation**
- **Schedule lag**
- **Project teams burdened with collecting and mapping**
- **Costly**

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Planning

Objectives

**Reduce
Footprint**

Manage
data
collection

**Reduce
Duration**

Manage
schedule

Reduce Stress

Manage
process

Reduce Overall Cost

- **Discovery**
 - Limited objective evidence exists and appraisal team must probe/search for necessary evidence to obtain sufficient coverage of model practices with in scope
- **Managed Discovery**
 - Based upon a series of data calls starting with a key set of artifacts, e.g., project plans and supporting documentation
 - This approach was selected as a means to achieving the core appraisal objectives
- **Verification**
 - Based upon the assumption that all appraisal data has been identified and prepared by the organization in advance of the appraisal
 - Artifacts provided may not be applicable and/or never reviewed by the appraisal team leading to significant amount of time, effort and funding

Discovery 2006

- First appraisal for most campuses and projects
- Uncertainty in model interpretation
- Uncertainty in adequacy of data

Verification 2009

- Assumed projects had the “right stuff”
- Extensive rework

Managed Discovery 2012

- Defined data requirements
- Minimal rework

- Managed Discovery
 - Identify appraisal mini teams
 - Co-locate team members
 - Assign specific process areas (PAs)
 - Train data collectors
 - Create data lists
 - Plan data call schedule
 - Perform data calls
 - Review and map
 - Repeat to achieve 100% coverage of all maturity level 3 PA

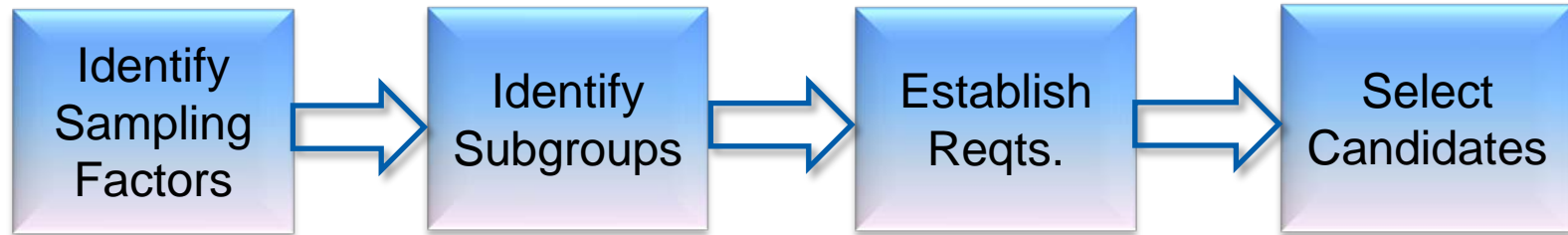


- **Experience - no experience**
- **Determine business unit coverage**
- **Break into mini-teams**

- **Understood chosen appraisal strategy**
- **Willing to work with team on new approach**
- **Flexible**

- **Develop sampling strategy**
- **Establish Sampling Factors**
- **Establish subgroups**
- **Identify candidate projects**

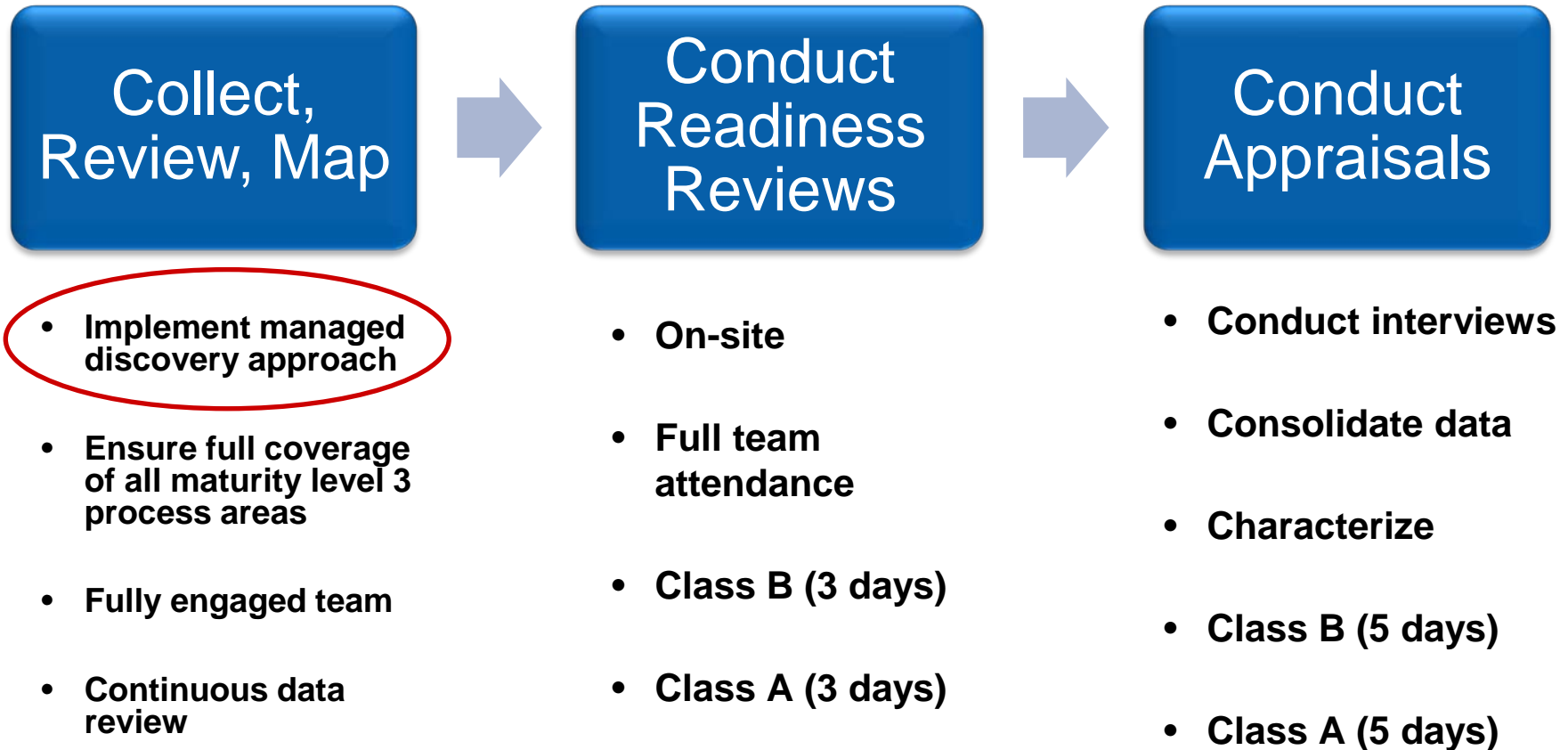
Appraisal Candidate Program Selection



- Size
- Location
- **Customer**
- **Work type**
- Duration
- Other

- DoD
- Development
- Production

- One “primary” program per/BU
- One “support” program
- Small- Medium-Large spread



Mini Team Assignment

Mini Teams	Process Areas					Total # of Practices	1st review period	2nd review period	3rd review period	Required number of practices mapped per week		
							(50% complete) 7 wks	(75% complete) 4 wks	(100% complete) 3 wks	Period 1	Period 2	Period 3
MINI T1	PP	PPQA	IPM	RSKM						Period 1	Period 2	Period 3
Practice	78.00	48.00	88.00	57.00		271.00	135.50	203.25	271.00	19.29	17.50	22.67
MINI T2	RD	TS	PI	VER	VAL							
Practice	66.00	60.00	84.00	60.00	51.00	321.00	160.00	241.00	321.00	22.85	20.25	26.66
MINI T3	REQM	CM	DAR	MA	PMC							
Practice	51.00	57.00	54.00	60.00	66.00	288.00	144.00	216.00	288.00	20.57	18.00	24.00
ORG T3	OPD	OPF	OT	SAM								
Practice	19.00	21.00	19.00	18.00		77.00	38.50	57.75	77.00	5.57	5.00	6.67
Total practices						957.00	478.00	718.00	957.00			

Optimize Team Expertise

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Executing

- **Develop data lists – 12/11**
 - Budget turned on 1/12
- **Set up appraisal tool per project per mini team**
- **Perform 3 data calls (7, 4, 3 weeks apart)**
 - Mini teams review and map data received
 - Refine next call list
 - Repeat process until all data is collected
- **Assign cross-team PA reviews**
- **Develop interview list requirements**
 - 1 representative per process area per project
 - Interview candidates cover several process areas
- **Track status**

High-Yield Work Products

The following table is intended to provide some examples of key work products that can provide one-to-many relationships to multiple practices in the CMMI-DEV v1.3 reference model in scope.



Category	Key Work Products	Products Identified
Organizational Assets	<ul style="list-style-type: none"> ✓ Policies, Processes, Procedures, Templates ✓ Process Asset Library ✓ Process Improvement Plan ✓ Lifecycle Model Descriptions ✓ Tailoring Criteria and Guidelines ✓ Work Environment Standards ✓ Rules and Guidelines for Teams ✓ Organizational Training Plan ✓ Organizational Tactical Training Plan ✓ Train-the-Trainer process ✓ Training Waivers ✓ Training Records ✓ Training Effectiveness' Measures 	
Planning Products	<ul style="list-style-type: none"> ✓ Program Management Plan (PMP) ✓ Project Tailoring Matrix/Records ✓ Integrated Master Plan and Integrated Master Schedules (IMP, IMS) ✓ Risk Management Plan ✓ Decision Analysis and Resolution Records ✓ Configuration Management Plan (CMP) ✓ Systems Engineering Management Plan (SEMP) ✓ Software Development Plan (SDP) 	

Readiness Review Status

RR_status.xlsm - Microsoft Excel

Home Insert Page Layout Formulas Data Review View

Clipboard Font Alignment Number Styles Cells Editing

M6

Readiness Review - Ready Status

Legend

- G Ready for B event
- Y Reviewed, Actions Needed
- O Ready for Review
- R Not Ready for Review
- Blank Space
- Not Included in Appraisal

Process Area	Program	GP 2.1	GP 2.10	GP 2.2	GP 2.3	GP 2.4	GP 2.5	GP 2.6	GP 2.7	GP 2.8	GP 2.9	GP 3.1	GP 3.2	SP 1.1	SP 1.2	SP 1.3	SP 1.4	SP 1.5	SP 1.6	SP 1.7	SP 2.1	SP 2.2	SP 2.3	SP 2.4	SP 2.5	SP 2.6	SP 2.7	SP 3.1	SP 3.2	SP 3.3	SP 3.4	SP 3.5		
CM - 19 57	Unit 1	G	G	G	Y	G	Y	Y	Y	Y	Y	Y	Y	G	G	G															G	G		
	Unit 2	O	O	O	O	O	O	O	O	O	Y	Y	O	O	O	O	O													O	Y			
	Unit 3	O	Y	O	O	Y	O	O	O	O	O	O	O	O	O	O	O													O	O			
	None	Not Included in Appraisal																																
DAR - 18 54	Unit 1	G	G	G	G	Y	Y	G	Y	G	G	G	Y	G	G	G	G	G	G	G														
	Unit 2	Y	Y	R	R	Y	R	R	R	R	R	Y	Y	Y	O	O	O	O	O	O														
	Unit 3	O	R	O	O	O	O	Y	R	Y	R	O	R	O	O	O	O	O	O	O														
	None	Not Included in Appraisal																																
IPM - 22 88	Unit 1	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G														
	Unit 2	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O														
	Unit 3	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O														
	Unit 4	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G														
None	Not Included in Appraisal																																	
Other	Not Included in Appraisal																																	

Readiness Status Table Chart Plan

Ready

- 3 teams making data calls overwhelmed POC
 - Teams developed a staggered call schedule
- Funding was not available until 1st quarter 2012
- Duplication of collected data
 - Teams used sandboxes for data collection
 - Failed to check for existing data
- AT members assigned tasks outside of appraisal
 - Add additional appraisal team member to compensate
- AT members added unnecessary interview candidates



Lessons Observed

- High marks for managed discovery approach
- Early data calls reduced schedule lag
- Having data collector POC reduced confusion and saved time
- Managed discovery allowed plenty of time to conduct team reviews
- Early identification of best practices and recognized issues enabled efficient and successful readiness reviews
- Minimal rework resulted from all appraisal reviews
- Efficiencies gained using managed discovery accommodated late inclusion of one project
- Process flexible – added last minute project

- Hold appraisal team training prior to first data call
- At first data call request all program plans; review plans; develop next data request list
 - Missing or non-existent data will be apparent
- Coordinate data lists between teams
 - Use index list to eliminate duplication of data
- Refine interview process
 - Identify primary and backup interviewees
- Pattern data directory structure after program data structure
- Communicate and manage expectations with team, campus, program

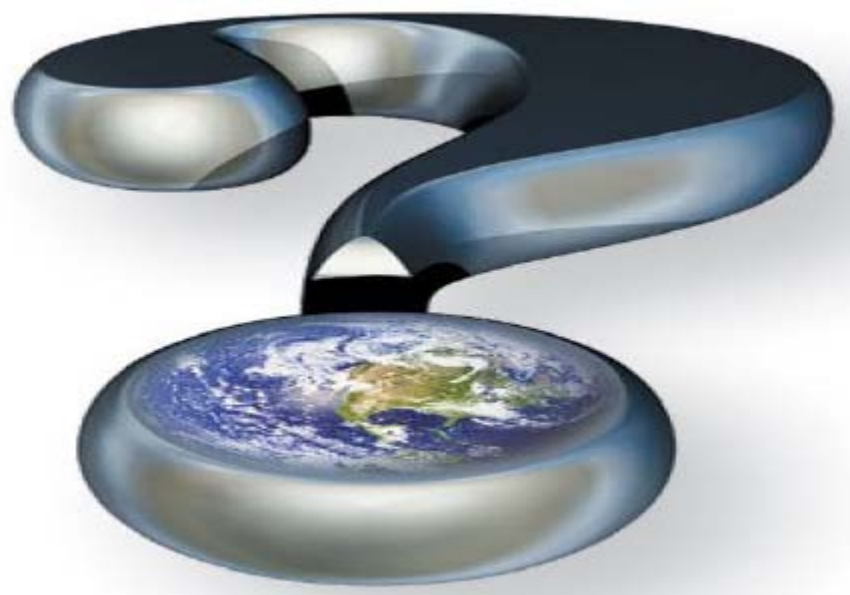
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Results

Results

- Reduced data footprint by several gigabytes (8Gb to 4Gb)
- Reduced number of projects (12 – 6)
- Reduced number of interviewed project personnel (139 – 58)
- Reduced appraisal team time on site (31 days – 16)
 - Reduced travel costs
- Reduced time spent collecting, sorting, and mapping (6 mo.- 3 mo.)
- Eliminated burden on projects
 - Minimal impact to schedule
 - No impact to budget
- Mini-teams became very knowledgeable in assigned PA
- 37% reduction in cost over 2009 appraisal (1 campus' numbers)
 - Total hours for all appraisal related activities = 4492 hours

Questions



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