

Overview of CMMI V2.0

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Agenda

- 1. 10,000 foot view of CMMI V2.0**
- 2. Deeper dive on key elements**
- 3. Appraisal Sampling**
- 4. Questions (and hopefully, Answers!)**

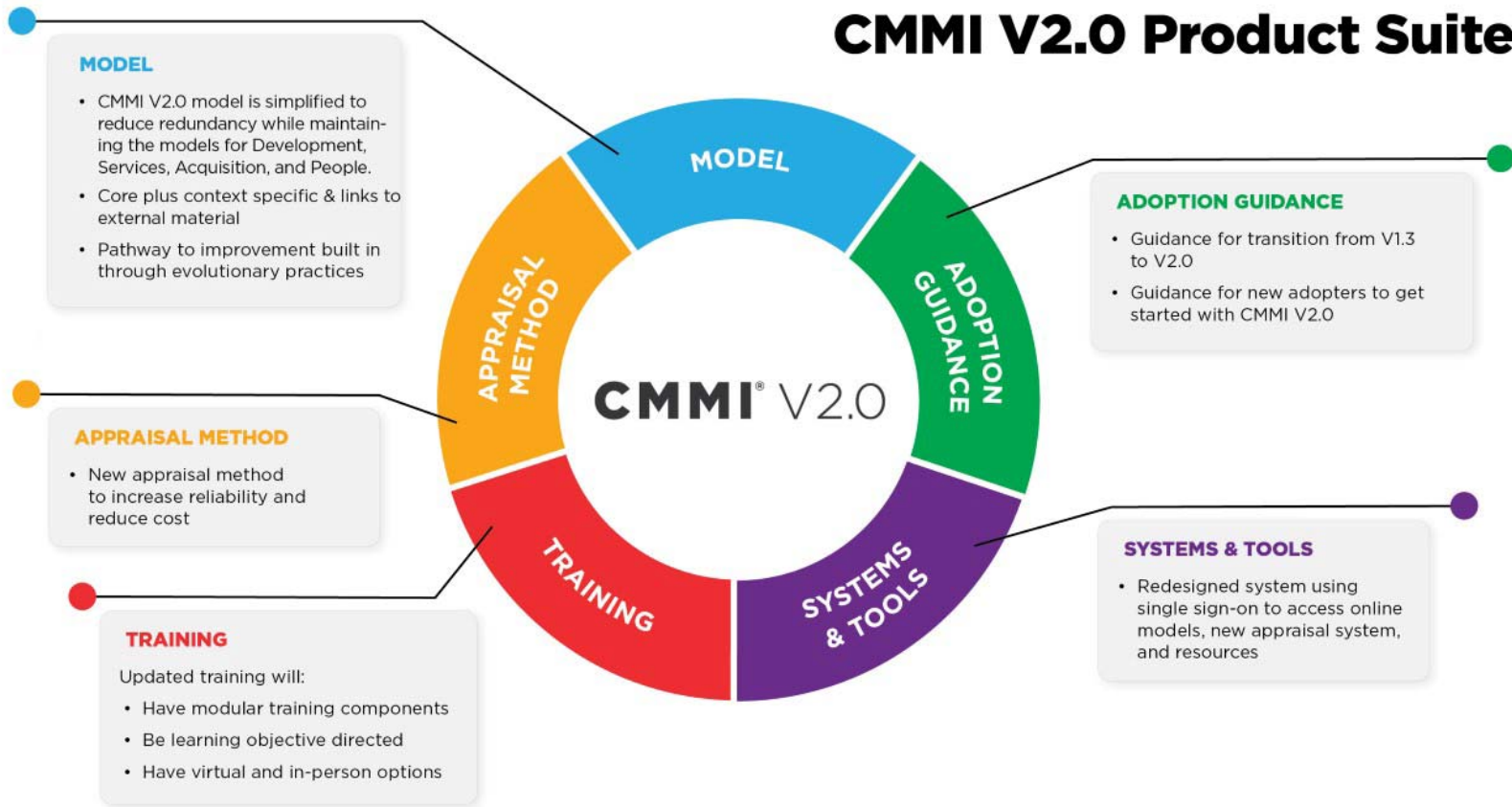
Agenda – Part 1

- 1. 10,000 foot view of CMMI V2.0**
 - A. CMMI V2.0 Product Suite**
 - B. Key Improvements**
 - C. Focus on Performance Improvement**
 - D. Release Roadmap**

(15 minutes).

CMMI V2.0 Product Suite (1 of 3)

CMMI V2.0 Product Suite



CMMI Institute slide

CMMI V2.0 Product Suite (2 of 3)

- **Model**
 - Will include DEV, SVC, ACQ, People and others
 - Core + context specific + links to external material
- **Appraisal Method**
 - Benchmark (think: “SCAMPI A”)
 - Sustainment (think: “ISO Surveillance”)
 - Evaluation (think: “SCAMPI B/C”)
- **Training & Certification**
 - 1-day Upgrade Training – Instructor led and e-learning
 - 2-day “Foundations” course
 - Series of 1-day “Excellence” courses (DEV, SVC, etc.)
 - All courses bundled with Model Viewer & Associate Exam.

CMMI V2.0 Product Suite (3 of 3)

- **Adoption Guidance**
 - **Guidance for transition from CMMI V1.3 → CMMI V2.0**
 - **Guidance for new adopters**
- **Systems & Tools**
 - **Online Model Viewer (no book, but downloadable pdf)**
 - **Appraisal system support (“Son of SAS”).**

CMMI V2.0 Key Improvements (1 of 2)

- **Demonstrate the value and ROI of adopting CMMI**
 - **Performance capabilities are incorporated in every level to help organizations:**
 - **Identify performance needs**
 - **Establish performance goals**
 - **Track, measure, and achieve performance goals**
- **Improve value of CMMI appraisals**
 - **Lower time, effort, and cost**
 - **Improve confidence and reliability of results**
 - **Extend validity period with Sustainment appraisals.**

CMMI V2.0 Key Improvements (2 of 2)

- **Keep CMMI current with latest methodologies**
 - Scalable architecture includes additional method guidance
 - Hosted online so more readily updated
 - New content additions like “Safety and Security”
- **Make CMMI more user friendly**
 - Non-technical language is easier to read and understand
 - “Lexiconical Decomplexification”
 - Online platform allows customization and tailoring
 - Multiple languages:
 - English-only for Phase 1
 - Simplified Chinese was released in July, 2018
 - Next up: Spanish(?), French(?), Brazilian Portuguese(?), Japanese(?), and Korean(?).

Focus on Performance Improvement

- **Provide more timely appraisals**
 - Less intense appraisals conducted more frequently
- **Performance-related practices at all levels**
- **Performance Report**
 - Used to establish performance objectives and baselines
 - Used in appraisals to validate performance improvement
- **Transition from:**
 - “Using the GPs to institutionalize the SPs” to
 - “Promoting persistent and habitual use of your processes.”

Release Roadmap

- **Phase 1: Released on March 28, 2018**
 - CMMI DEV V2.0
 - Context specific information for Agile with Scrum
 - Foundations and DEV Excellence courses
 - Adoption guidance
 - Just released 1-day instructor led Upgrade Training
 - 1-day e-learning Upgrade Training (August 2018 - \$600)
- **Phase 2: CMMI SVC V2.0 (4Q18)**
- **Phase 3+: Safety and Security (2Q19), ACQ/People (TBD)**
- **CMMI V1.3 and SCAMPI sunset date: April, 2020**
- **CMMI DEV V2.0 appraisal sunrise date: January, 2019.**

Agenda

1. 10,000 foot view of CMMI V2.0
2. Deeper dive on key elements
3. Appraisal Sampling
4. Questions (and hopefully, Answers!)

Agenda – Part 2

2. Deeper dive on key elements

A. Key Model Differences

- **Structure (and Meaning) of PA**
- **Practice Comparison**
- **Practice Groups and “Levels”**
- **Institutionalization vs. “Persistent and Habitual”**
- **“Views.”**

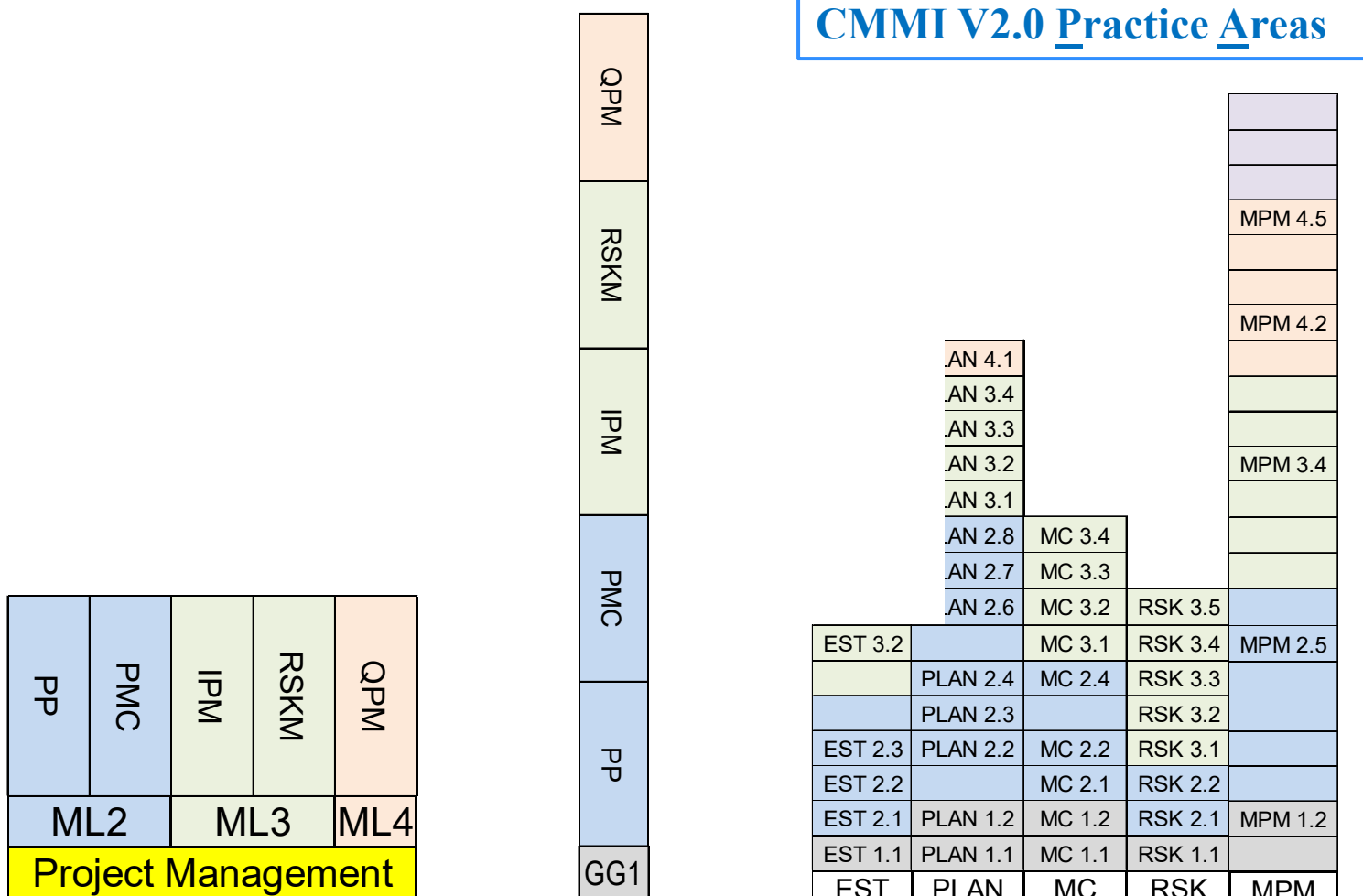
Structure (and Meaning) of PA (1 of 3)

CMMI V1.3 Process Areas

| | | | | |
|--------------------|-----------|-----------|------------|-----------|
| PP SP3.3 | | | | |
| PP SP3.2 | | | | |
| PP SP3.1 | | | | |
| PP SP2.7 | | | | |
| PP SP2.6 | PMC SP2.3 | IPM SP2.3 | | |
| PP SP2.5 | PMC SP2.2 | IPM SP2.2 | | |
| PP SP2.4 | PMC SP2.1 | IPM SP2.1 | | |
| PP SP2.3 | PMC SP1.7 | IPM SP1.7 | RSKM SP3.2 | QPM SP2.3 |
| PP SP2.2 | PMC SP1.6 | IPM SP1.6 | RSKM SP3.1 | QPM SP2.2 |
| PP SP2.1 | PMC SP1.5 | IPM SP1.5 | RSKM SP2.2 | QPM SP2.1 |
| PP SP1.4 | PMC SP1.4 | IPM SP1.4 | RSKM SP2.1 | QPM SP1.4 |
| PP SP1.3 | PMC SP1.3 | IPM SP1.3 | RSKM SP1.3 | QPM SP1.3 |
| PP SP1.2 | PMC SP1.2 | IPM SP1.2 | RSKM SP1.2 | QPM SP1.2 |
| PP SP1.1 | PMC SP1.1 | IPM SP1.1 | RSKM SP1.1 | QPM SP1.1 |
| PP | PMC | IPM | RSKM | QPM |
| ML2 | | ML3 | | ML4 |
| Project Management | | | | |

| | | | | |
|--------------------|-----|-----|------|-----|
| PP | PMC | IPM | RSKM | QPM |
| ML2 | | ML3 | | ML4 |
| Project Management | | | | |

Structure (and Meaning) of PA (2 of 3)



| | | | | |
|--------------------|-----|-----|------|-----|
| PP | PMC | IPM | RSKM | QPM |
| ML2 | ML3 | ML4 | | |
| Project Management | | | | |

| |
|------|
| QPM |
| RSKM |
| IPM |
| PMC |
| PP |
| GG1 |

Structure (and Meaning) of PA (3 of 3)

| | | V2.0 | | V1.3 | | | | V2.0 | | V1.3 | | | | | | | |
|------------|--|-------------|--|------------|--|------------|--|------------|--|------------|--|--------------|--|--------------|--|----------|--|
| | | PLAN 4.1 | | QPM GP3.1 | | | | MPM 5.3 | | OPM SG2/3 | | | | | | | |
| | | PLAN 3.4 | | IPM SP1.3 | | | | MPM 5.2 | | OPM SP1.2 | | | | | | | |
| | | PLAN 3.3 | | IPM SP2.2 | | | | MPM 5.1 | | OPM SP1.1 | | | | | | | |
| | | PLAN 3.2 | | IPM SP1.1+ | | | | MPM 4.5 | | QPM SP2.2+ | | | | | | | |
| | | PLAN 3.1 | | PP GG3 | | | | MPM 4.4 | | OPP SP1.5 | | | | | | | |
| | | PLAN 2.8 | | PP SP3.1 | | MC 3.4 | | IPM SP2.3 | | MPM 4.3 | | OPP SP1.4 | | | | | |
| | | PLAN 2.7 | | PP SP2.7 | | MC 3.3 | | IPM SP1.3+ | | MPM 4.2 | | QPM SP1.4ish | | | | | |
| | | PLAN 2.6 | | PP SP3.2 | | MC 3.2 | | IPM SP2.2 | | MPM 4.1 | | OPP SP1.1 | | | | | |
| EST 3.2 | | IPM SP1.2 | | PLAN 2.5 | | New | | MC 3.1 | | IPM SP1.5 | | MPM 3.6 | | New | | | |
| EST 3.1 | | New(ish) | | PLAN 2.4 | | PP SP2.6 | | MC 2.4 | | PMC SG2 | | MPM 3.5 | | OPF SP1.2 | | | |
| EST 2.4 | | New(ish) | | PLAN 2.3 | | PP SP2.1 | | MC 2.3 | | New | | MPM 3.4 | | IPM SP1.3 | | | |
| EST 2.3 | | PP SP1.4 | | PLAN 2.2 | | PP SP2.5 | | MC 2.2 | | PMC SP1.5 | | MPM 3.3 | | New | | | |
| EST 2.2 | | PP SP1.2 | | PLAN 2.1 | | New(ish) | | MC 2.1 | | PMC SP1.1 | | MPM 3.2 | | GG 3.1 | | | |
| EST 2.1 | | PP SP1.1 | | PLAN 1.2 | | PP GG1 | | MC 1.2 | | PMC GG1 | | MPM 3.1 | | OPF SP1.1ish | | | |
| EST 1.1 | | PP GG 1 | | PLAN 1.1 | | PP GG1 | | MC 1.1 | | PMC GG1 | | MPM 2.6 | | MA SP2.3 | | | |
| | | | | | | | | | | RSK 3.5 | | RSKM SP3.2 | | MPM 2.5 | | PMC SG2 | |
| | | | | | | | | | | RSK 3.4 | | RSKM SP3.1 | | MPM 2.4 | | MA SP2.2 | |
| | | | | | | | | | | RSK 3.3 | | RSKM SP1.3 | | MPM 2.3 | | MA SP2.1 | |
| | | | | | | | | | | RSK 3.2 | | RSKM SP2.2+ | | MPM 2.2 | | MA SP1.2 | |
| | | | | | | | | | | RSK 3.1 | | RSKM SP1.1+ | | MPM 2.1 | | MA SP1.1 | |
| | | | | | | | | | | RSK 2.2 | | PMC SP1.3 | | MPM 1.2 | | PMC GG1 | |
| | | | | | | | | | | RSK 2.1 | | PP SP2.2 | | MPM 1.1 | | MA GG1 | |
| | | | | | | | | | | RSK 1.1 | | RSKM GG1 | | | | | |
| EST | | PLAN | | MC | | RSK | | MPM | | | | | | | | | |

Practice Comparison (1 of 2)

CMMI V1.3 Practices

New(ish) in that it captures rationale for size, cost, and effort estimates

PP SP1.4 Estimate the project's effort and cost for work products and tasks based on estimation rationale

PP SP1.2 Establish and maintain estimates of work product and task attributes

PP SP1.1 Establish a top-level work breakdown structure to estimate the scope of the project

PP GG1 Achieve Specific Goals as applied to PP SP1.1, PP SP 2.1, and PP SP 1.4

CMMI V2.0 Estimation

EST 2.4 Record rationale for the estimates

EST 2.3 Based on size estimates, derive effort, duration, and cost estimates for the solution

EST 2.2 Develop and keep updated estimates for the size of the solution

EST 2.1 Develop and keep updated the scope of what is being estimated

EST 1.1 Develop a rough order of magnitude estimate

Practice Comparison (2 of 2)

CMMI V1.3 Practices

IPM SP1.2 Use organizational process assets and the measurement repository for estimating and planning project activities

New(ish) – a bit of PP GP3.1 perhaps...

CMMI V2.0 Estimation

EST 3.2 Use the organizational measurement repository and process assets for estimating work.

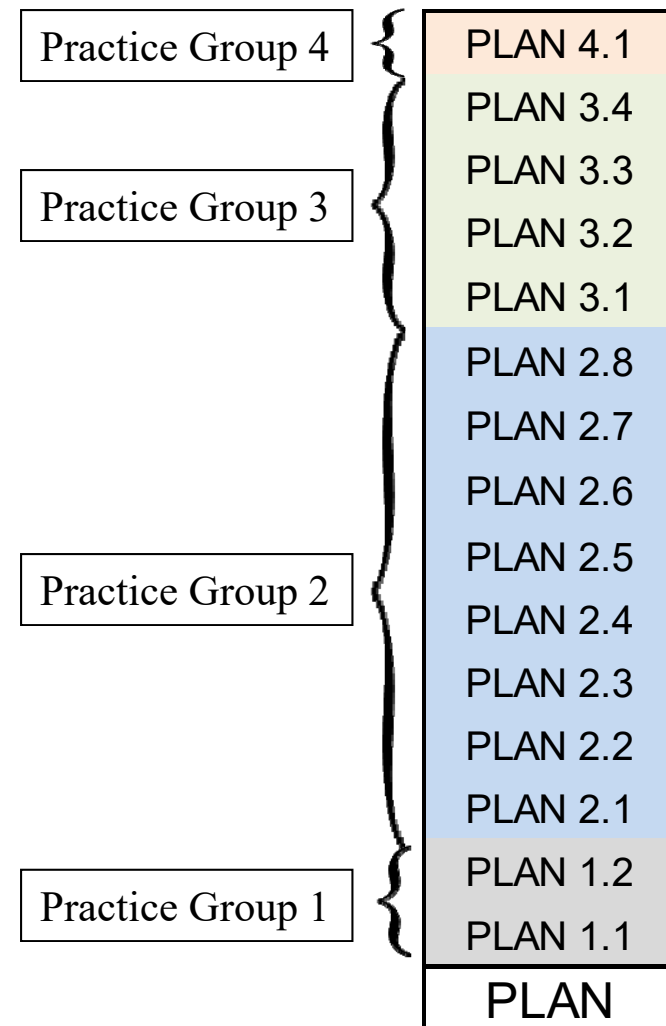
EST 3.1 Develop and keep updated a recorded estimation method

Practice Group and “Level”

- **Practice Group – the group of practices within a given practice area whose intent must be met to perform at that (capability) level**

Note: In CMMI V2.0, “goals” are gone! Meeting the intent of the practices is now required, not expected

The concept of Practice Group is closely aligned with the V1.3 concept of “capability level.”



Institutionalization



Institutionalization – CMMI V1.3

| Practice Characterization | | | | | | | | | | | | | | | | | | | |
|---------------------------|------|----|-----|-----|----|------|----|----|----|----|-----|-----|-----|-----|----|-----|------|-----|----|
| | ReqM | PP | PMC | SAM | MA | PPQA | CM | RD | TS | PI | VER | VAL | OPF | OPD | OT | IPM | RskM | DAR | |
| GP 2.1: Policy | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI |
| GP 2.2: Plan | FI | FI | FI | LI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | LI |
| GP 2.3: Resources | FI | FI | FI | LI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI |
| GP 2.4: Responsibility | FI | FI | FI | FI | FI | FI | FI | LI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI |
| GP 2.5: Training | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI |
| GP 2.6: CM | FI | LI | LI | LI | LI | LI | LI | FI | FI | LI | LI | FI | LI | LI | LI | LI | FI | LI | |
| GP 2.7: Stakeholders | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI |
| GP 2.8: Monitor | FI | FI | FI | LI | FI | FI | FI | FI | FI | FI | FI | LI | FI | FI | FI | FI | FI | FI | FI |
| GP 2.9: Verify | FI | FI | FI | LI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI |
| GP 2.10: Snr Mgt. | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI |
| GP 3.1: Process | FI | FI | FI | LI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI |
| GP 3.2: Improvement | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI | FI |

Institutionalization → Persistent & Habitual

- V1.3 is perceived as institutionalizing *the process area*
- Intent of V2.0 is to make the *behaviors performed to execute your processes* persistent and habitual
- This is supported by two practice areas:
 - Implementation Infrastructure (II)
 - Governance (GOV)



Aye aye, Gov!

Governance

| Level 1 Practice Group | |
|------------------------|---|
| GOV 1.1 | Senior management identifies what is important for doing the work and defines the approach needed to accomplish the objectives of the organization. |
| Level 2 Practice Group | |
| GOV 2.1 | Senior management defines, keeps updated, and communicates organizational directives for process implementation and improvement based on organization needs and objectives. |
| GOV 2.2 | Senior management ensures resources are provided for developing, supporting, performing, improving, and evaluating adherence to expected processes. |
| GOV 2.3 | Senior management identifies their information needs, and uses the collected information to provide governance and oversight of effective process implementation and improvement. |
| GOV 2.4 | Senior management holds people accountable for adhering to organization policies and achieving process implementation and improvement objectives. |
| Level 3 Practice Group | |
| GOV 3.1 | Senior management ensures that measures supporting objectives throughout the organization are collected, analyzed, and used. |
| GOV 3.2 | Senior management ensures that competencies and processes are aligned with the objectives of the organization. |
| Level 4 Practice Group | |
| GOV 4.1 | Senior management ensures that selected decisions are driven by statistical and quantitative analysis related to performance and achievement of quality and process performance objectives. |

Implementation Infrastructure

| Level 1 Practice Group | |
|------------------------|--|
| II 1.1 | Perform processes that address the intent of the Level 1 practices. |
| Level 2 Practice Group | |
| II 2.1 | Provide sufficient resources, funding, and training for developing processes. |
| II 2.2 | Develop, keep updated, and verify that processes are being followed. |
| Level 3 Practice Group | |
| II 3.1 | Use organizational processes and process assets to plan, manage, and perform the work. |
| II 3.2 | Evaluate the adherence to and effectiveness of the organizational processes. |
| II 3.3 | Contribute process related information or process assets to the organization. |

“Persistent and Habitual” (1 of 2)

- It’s easiest to think of II and GOV as simply replacing the generic practices - but it’s also easy to be **wrong!**

| | | Requirements Elicitation | Requirements Analysis | Requirements Change Mgt | High Level Design | Low Level Design | Construction | Unit Test | ... | Estimation | Backlog Grooming | ... | Performance Improvement | ... | New Employee Recruitment | ... |
|---------|----------------|--------------------------|-----------------------|-------------------------|-------------------|------------------|--------------|-----------|-----|------------|------------------|-----|-------------------------|-----|--------------------------|-----|
| II 1.1 | Perform | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM |
| Gov 1.1 | Approach | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM |
| II 2.1 | Resources Dev | FM | FM | FM | LM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | LM |
| II 2.2 | Verify | FM | FM | FM | LM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM |
| Gov 2.1 | Directives | FM | FM | FM | FM | FM | FM | FM | LM | FM | FM | FM | FM | FM | FM | FM |
| Gov 2.2 | Resources | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM |
| Gov 2.3 | Governance | FM | LM | LM | LM | LM | LM | LM | FM | FM | LM | LM | FM | LM | LM | LM |
| Gov 2.4 | Accountability | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM |
| II 3.1 | Use Assets | FM | FM | FM | LM | FM | FM | FM | FM | FM | FM | FM | LM | FM | FM | FM |
| II 3.2 | Effectiveness | FM | FM | FM | LM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM |
| II 3.3 | Improvement | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM |
| Gov 3.1 | Measure | FM | FM | FM | LM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM |
| Gov 3.2 | Competencies | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM |
| Gov 4.1 | Quant Analysis | FM | FM | FM | LM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM | FM |

“Persistent and Habitual” (2 of 2)

- Perhaps a better way to think about this is to evaluate each II/GOV practice to determine who is:
 - A. Directly responsible for implementing the practice
 - B. Typically involved in supporting the implementation
 - C. Affected by the implementation

| Practice | Tag | Senior Mgt | EPG | PQA | Training Group | All Practioners | |
|----------|----------------------------------|------------|-----|-----|----------------|-----------------|--------|
| | | | | | | Proj Mgrs /SMEs | Others |
| II 2.1 | Process Development Resources | | A | | C | | |
| II 2.2 | Process Maintenance/Assurance | | A | A | | | C |
| II 3.1 | Process Use | | | | | | A |
| II 3.2 | Process Effectiveness | | A | A | | | C |
| II 3.3 | Process Experience/Assets | | B | | | | A |
| GOV 2.1 | Organizational Directives | A | B | | | | C |
| GOV 2.2 | Resources | A | B | B | | | B |
| GOV 2.3 | Mgt Information Needs/Governance | A | B | | | | C |
| GOV 2.4 | Accountability | A | B | | | | B |
| GOV 3.1 | Measurement | A | B | | | B | |
| GOV 3.2 | Competencies | A | B | | B | | C |
| GOV 4.1 | Quantitative Analysis | A | B | | | B | |

CMMI V2.0 “Views” (1 of 3)

- **“Views” are like using V1.3’s continuous representation where you select how much of the model you want to use**
 - **But remember, CMMI V2.0 includes all constellations**
 - **A view is your selection of practice areas / practice groups**
- **There will be pre-described “benchmark views”:**
 - **DEV ML2 – ML5**
 - **SVC ML2 – ML5**
 - **ACQ ML2 – ML5**
- **Maturity levels still exist, and they can be determined by evaluating the org against a given benchmark view**
 - **Just like Equivalent Staging in V1.3...**

CMMI V2.0 “Views” (2 of 3)

CMMI V1.3 Equivalent Staging

| <i>Name</i> | <i>Abbr.</i> | <i>ML</i> | <i>CL1</i> | <i>CL2</i> | <i>CL3</i> | | | |
|---------------------------------------|--------------|-----------|-----------------------------|------------|------------|-----------------------------|--|--|
| Configuration Management | CM | 2 | Target Profile 2 | | | | | |
| Measurement and Analysis | MA | 2 | | | | | | |
| Project Monitoring and Control | PMC | 2 | | | | | | |
| Project Planning | PP | 2 | | | | | | |
| Process and Product Quality Assurance | PPQA | 2 | | | | | | |
| Requirements Management | REQM | 2 | | | | | | |
| Supplier Agreement Management | SAM | 2 | | | | | | |
| Decision Analysis and Resolution | DAR | 3 | Target Profile 3 | | | | | |
| Integrated Project Management | IPM | 3 | | | | | | |
| Organizational Process Definition | OPD | 3 | | | | | | |
| Organizational Process Focus | OPF | 3 | | | | | | |
| Organizational Training | OT | 3 | | | | | | |
| Product Integration | PI | 3 | | | | | | |
| Requirements Development | RD | 3 | | | | | | |
| Risk Management | RSKM | 3 | | | | | | |
| Technical Solution | TS | 3 | | | | | | |
| Validation | VAL | 3 | | | | | | |
| Verification | VER | 3 | | | | | | |
| Organizational Process Performance | OPP | 4 | | | | Target Profile 4 | | |
| Quantitative Project Management | OPM | 4 | | | | | | |
| Causal Analysis and Resolution | CAR | 5 | | | | Target Profile 5 | | |
| Organizational Performance Management | OPM | 5 | | | | | | |

CMMI V2.0 “Views” (3 of 3)

| Benchmark View - DEV ML3 | | | | | | |
|---|------|---------|---------|---------|---------|---------|
| Practice Area | PA | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Causal Analysis and Resolution | CAR | ■ | ■ | ■ | ■ | ■ |
| Decision Analysis and Resolution | DAR | ■ | ■ | ■ | ■ | ■ |
| Risk and Opportunity Management | RSK | ■ | ■ | ■ | ■ | ■ |
| Organizational Training | OT | ■ | ■ | ■ | ■ | ■ |
| Process Management | PCM | ■ | ■ | ■ | ■ | ■ |
| Process Asset Development | PAD | ■ | ■ | ■ | ■ | ■ |
| Peer Reviews | PR | ■ | ■ | ■ | ■ | ■ |
| Verification and Validation | VV | ■ | ■ | ■ | ■ | ■ |
| Technical Solution | TS | ■ | ■ | ■ | ■ | ■ |
| Product Integration | PI | ■ | ■ | ■ | ■ | ■ |
| Managing Performance and Measurement | MPM | ■ | ■ | ■ | ■ | ■ |
| Supplier Agreement Management | SAM | ■ | ■ | ■ | ■ | ■ |
| Process Quality Assurance | PQA | ■ | ■ | ■ | ■ | ■ |
| Configuration Management | CM | ■ | ■ | ■ | ■ | ■ |
| Monitor and Control | MC | ■ | ■ | ■ | ■ | ■ |
| Planning | PLAN | ■ | ■ | ■ | ■ | ■ |
| Estimating | EST | ■ | ■ | ■ | ■ | ■ |
| Requirements Development and Management | RDM | ■ | ■ | ■ | ■ | ■ |
| Governance | GOV | ■ | ■ | ■ | ■ | ■ |
| Implementation Infrastructure | II | ■ | ■ | ■ | ■ | ■ |

Agenda

1. 10,000 foot view of CMMI V2.0
2. Deeper dive on key elements
3. **Appraisal Sampling**
4. **Questions (and hopefully, Answers!)**

Agenda – Part 3

3. Appraisal Sampling

- Subgroups
- Sampling Approach
- Sampling Example using CMMI V1.3 terminology
- Capability Areas
- Sampling Example using CMMI V2.0 terminology.

Subgroups

- **Glossary:** a *subgroup* is [a set of projects] *that share common sampling factor values and exhibit similar process implementations*
 - **Standard sampling factors: example sampling factor values**
 - **Location:** development centers in London, Paris, Mumbai
 - **Customer:** government and commercial industry
 - **Size:** large and small projects
 - **Organizational Structure:** divisions A, B, C, and D
 - **Type of Work:**
 - Agile vs. Waterfall life cycle
 - Development vs. maintenance projects
 - Embedded vs. non-embedded software
 - Mechanical, electrical, and software engineering
 - Etc.

V2.0 Sampling Approach (1 of 2)

- 1. Generate a project inventory for the organizational unit**
 - A. Indicate each project's subgroup and applicable PAs**
 - B. Include support functions (e.g., training, CM, QA, etc.)**
- 2. Send the inventory to the CMMI Institute**
- 3. The CMMI Institute randomly selects the project/PA and support/PA combinations to be evaluated**
 - A. Selection will be communicated to the organization no more than 60 days in advance of the Conduct Appraisal phase**
 - B. The selection will include fewer “project equivalents” but will be spread across a greater number of projects.**

V2.0 Sampling Approach (2 of 2)

| # Projects in the OU | Minimum # Instances Sampled per PA |
|----------------------|------------------------------------|
| 1 - 10 | 1 |
| 11 - 40 | 2 |
| Over 40 | 3 |

The following examples is a poor artist’s depiction of how project selection *might* work

- This example uses CMMI V1.3 components and terminology for ease of understanding
- However, you will NOT be able to mix and match V1.3 and V2.0 models and/or appraisal methods!

Example #1: CMMI V1.3 Terminology

| Appraisal Attributes | |
|------------------------------|----------|
| CMMI model | DEV v1.3 |
| Maturity Level | 3 |
| # of projects in the OU | 20 |
| # of impact subgroups | 3* |
| Min # of instances evaluated | 2 |

*Subgroups:

SubG-A: Large application enhancements

SubG-B: Small application enhancement

SubG-C: New development

Example #1: CMMI V1.3 Terminology

| Step # | Action |
|--------|---|
| 1-2 | Randomly assign 2 instances of PM/CAI to 2 different projects from 2 different subgroups. |
| 3-4 | Randomly assign 2 instances of the ENG/CAI to 2 different projects not yet assigned. |
| 5-12 | Randomly assign 2 instances of each Support PA to different projects not yet assigned. |
| 13 | Issue "ticket" |

| Projects Proj # - SubG | Project Mgt | Eng | Support | Process Mgt |
|---------------------------|-------------------|--------------------|--------------------|----------------|
| 1-A | | | | |
| 2-A | | | DAR ⁷ | |
| 3-A | | | | |
| 4-A | <PM> ¹ | | | |
| 5-A | | | | |
| 6-A | | | PPQA ¹¹ | |
| 7-A | | | | |
| 8-A | | <ENG> ⁴ | | |
| 9-A | | | | |
| 10-A | | | | |
| 11-A | | | MA ⁹ | |
| 12-B | | | MA ¹⁰ | |
| 13-B | <PM> ² | | | |
| 14-B | | | | |
| 15-B | | | DAR ⁸ | |
| 16-B | | | PPQA ¹² | |
| 17-B | | | | |
| 18-B | | | CM ⁵ | |
| 19-C | | <ENG> ³ | | |
| 20-C | | | CM ⁶ | |
| Org Groups | | | | |

| Project | Sampled For: |
|------------|---------------|
| 2 | DAR |
| 4 | <PM> |
| 6 | PPQA |
| 8 | ENG |
| 11 | MA |
| 12 | MA |
| 13 | <PM> |
| 15 | DAR |
| 16 | PPQA |
| 18 | CM |
| 19 | <ENG> |
| 20 | CM |
| Org Groups | <Process Mgt> |

Capability Areas (1 of 2)

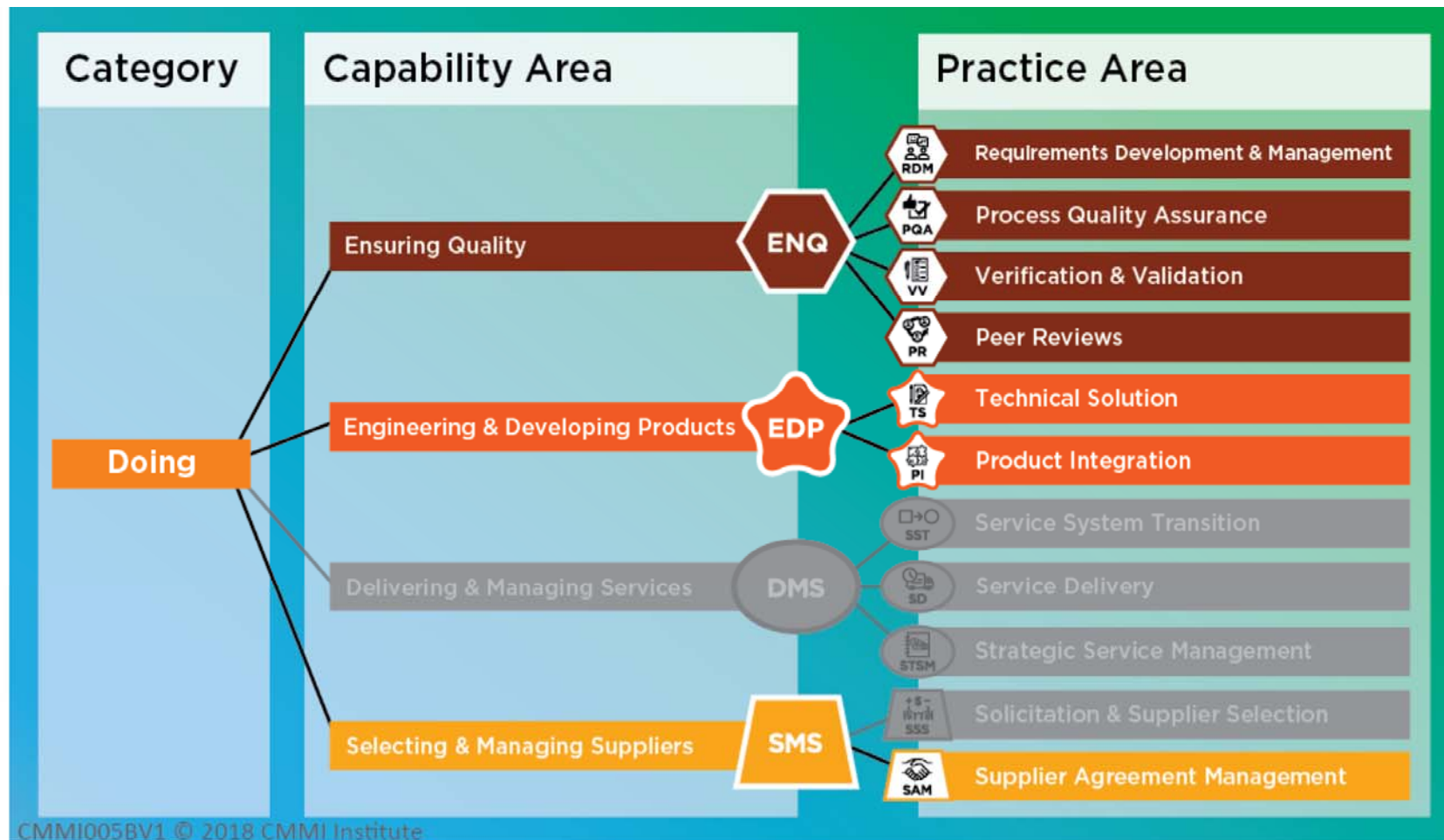
- Glossary: “*capability area* is a group of related practice areas that can provide improved performance in the skills and activities of an organization or project”
 - The closest analogy we have in CMMI V1.3 are the process area categories in the continuous representation:
 - Project Management
 - Process Management
 - Engineering
 - Support.

Capability Areas (2 of 2)



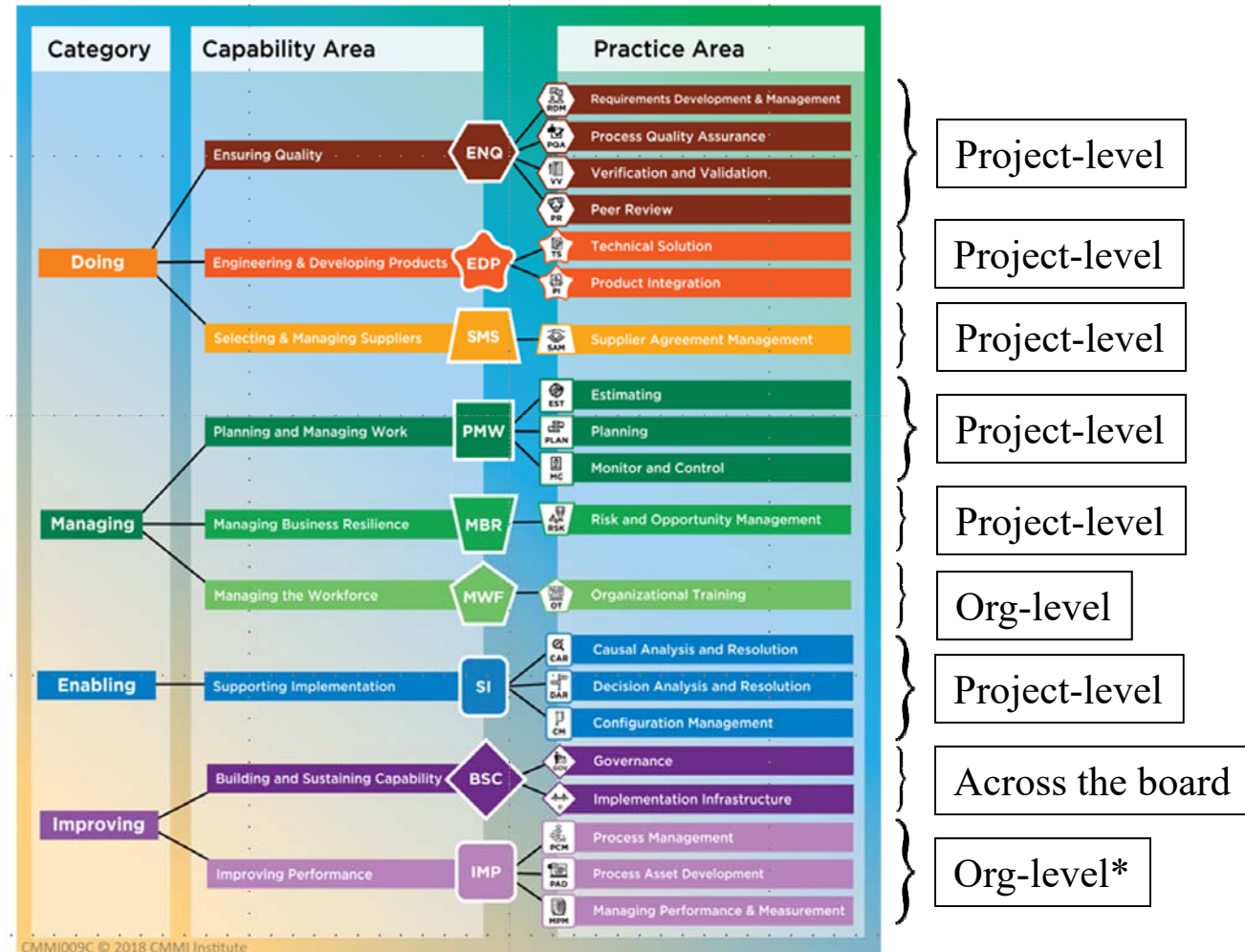
CMMI Institute slide

Capability Areas within a Category



CMMI Institute slide

Capability Areas for DEV



CMMI Institute slide

Example #1: CMMI V2.0 Terminology

| Appraisal Attributes | |
|------------------------------|---------|
| CMMI model | DEV 2.0 |
| Maturity Level | 3 |
| # of projects in the OU | 20 |
| # of impact subgroups | 3* |
| Min # of instances evaluated | 2 |

*Subgroups:

SubG-A: Large application enhancements

SubG-B: Small application enhancement

SubG-C: New development

Example #2 – CMMI V2.0 Terminology

| Step # | Project | Sampled For | Action |
|--------|---|-------------|--------|
| 1 | In the project inventory submitted to the CMMI Institute, the OI indicated that 2 projects (#10, 11) were too early in the life cycle to evaluate TS and PI, while 4 had no suppliers (#2, 3, 7, 9, 10, etc.), so SAM did not apply to these. | | |
| 1-2 | Randomly assign 2 instances of ENQ Capability Area to 2 different projects from 2 subgroups. | | |
| 3-4 | Randomly assign 2 instances of the EDP Capability Area to 2 different projects not yet assigned. | | |
| 8-A | DAR, <BSC> | | |
| 9-A | <PMW>, <BSC> | | |
| 12-B | <PMW>, <BSC> | | |
| 13-B | <ENQ>, <BSC> | | |
| 15-B | <SMS>, <BSC> | | |
| 5-10 | Randomly assign 2 instances of the SMS Capability Area to 2 different projects not yet assigned. | | |
| 16-B | DAR, <BSC> | | |
| 17-B | <MBR>, <BSC> | | |
| 18-B | CM, <BSC> | | |
| 19-C | Randomly assign 2 instances of each applicable SI practice area to 2 different projects not yet assigned. | | |
| 11-14 | Randomly assign 2 instances of each applicable SI practice area to 2 different projects not yet assigned. | | |
| 20-C | <SMS>, <BSC> | | |
| 15 | Assign <BSC> to all previously assigned projects. | | |
| 16 | Issue Ticket | | |

| Projects Proj # - SubG | ENQ | EDP | SMS | PMW | MBR | SI | BSC | MWF / IMP |
|------------------------|--------------------|--------------------|--------------------|--------------------|---------------------|-------------------|---------------------|------------------|
| | RDM, POA, VV, PR | TS, PI | SAM | EST, PLAN, MC | RSK | CAR, DAR, CM | II/GOV | OT, PCM PAD, MPM |
| 1-A | | | | | <MBR> ⁹ | | <BSC> ¹⁵ | |
| 2-A | | <EDP> ⁴ | | | | | <BSC> ¹⁵ | |
| 3-A | | | | | | | | |
| 4-A | | | | | | CM ¹¹ | <BSC> ¹⁵ | |
| 5-A | | | | | | | | |
| 6-A | <ENQ> ¹ | | | | | | <BSC> ¹⁵ | |
| 7-A | | | | | | | | |
| 8-A | | | | | | DAR ¹³ | <BSC> ¹⁵ | |
| 9-A | | | | <PMW> ⁷ | | | <BSC> ¹⁵ | |
| 10-A | | | | | | | | |
| 11-A | | | | | | | | |
| 12-B | | | | <PMW> ⁸ | | | <BSC> ¹⁵ | |
| 13-B | <ENQ> ² | | | | | | <BSC> ¹⁵ | |
| 14-B | | | | | | | | |
| 15-B | | | <SMS> ⁵ | | | | <BSC> ¹⁵ | |
| 16-B | | | | | | DAR ¹⁴ | <BSC> ¹⁵ | |
| 17-B | | | | | <MBR> ¹⁰ | | <BSC> ¹⁵ | |
| 18-B | | | | | | CM ¹² | <BSC> ¹⁵ | |
| 19-C | | <EDP> ³ | | | | | <BSC> ¹⁵ | |
| 20-C | | | <SMS> ⁶ | | | | <BSC> ¹⁵ | |
| Org Groups | | | | | | | | |

Appraising II and GOV

| Capability Area | Practice Areas | Sampled Projects | Applicable OU Processes | Governance (GOV) Practice Area | | | | | | | |
|-----------------------------------|--------------------------|------------------|---|---|------------------------|---|------------------------|--|--|--|-------------------------------------|
| | | | | GOV 1.1 | GOV 2.1 | GOV 2.2 | GOV 2.3 | GOV 2.4 | GOV 3.1 | GOV 3.2 | GOV 4.1 |
| | | | | N/A | FM* | LM* | LM* | FM* | LM or PM* | FM* | N/A |
| Engineering & Developing Products | TS PI | 2, 19 | Preliminary Design Detailed Design Evaluate COTS Code Software Build System Integrate Systems Component Test System Test | Level 1 practices are subsumed by Level 2 practices | Snr Mtg (A) EPG (B) | Snr Mgt (A) EPG (B) PQA (B) Proj 2, 19 (B) | Snr Mtg (A) EPG (B) | Snr Mgt (A) EPG (B) Proj 2, 19 (B) | Snr Mgt (A) EPG (B) Proj 2, 19 (B) | Snr Mgt (A) EPG (B) Training (B) | Not Applicable for an ML3 Appraisal |
| | | | | | FM | FM | LM | FM | FM | FM | |
| Planning & Managing Work | EST PLAN MC RDM | 9, 12 | Estimate Work Integrate Estimates Plan Engineering Plan Project Measurement & Reporting Milestone Review Stakeholder Review Develop Requirements Allocate Requirements Manage Requirements | Level 1 practices are subsumed by Level 2 practices | Snr Mtg (A) EPG (B) | Snr Mgt (A) EPG (B) PQA (B) Proj 9, 12 (B) | Snr Mtg (A) EPG (B) | Snr Mgt (A) EPG (B) Proj 9, 12 (B) | Snr Mgt (A) EPG (B) Proj 9, 12 (B) | Snr Mgt (A) EPG (B) Training (B) | Not Applicable for an ML3 Appraisal |
| | | | | | FM | LM | LM | FM | PM | FM | |

* The denoted OU practice characterizations assume that the Capability Area practice characterizations were FM for all other Capability Areas.

GOV 2.2: Senior management defines, keeps updated, provides for, and oversees organizational performance, progress, and quality improvement to external organization needs and objectives.

GOV 2.3: Senior management identifies the information needed to support organizational performance and improvement.

GOV 3.1: Senior management ensures that competencies and projects are aligned with the objectives of the organization, collected, analyzed, and used.

Agenda

1. 10,000 foot view of CMMI V2.0
2. Deeper dive on key elements
3. Appraisal Sampling
4. **Questions (and hopefully, Answers!)**

Questions???