Leveraging PIIDs for Continuous Process Improvement

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Presentation Coverage

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- PIID as an Appraisal Instrument
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- Project Manager Self Assessment
- Leading the Way for Process Tailoring
- Enabling Continuous Process Improvement

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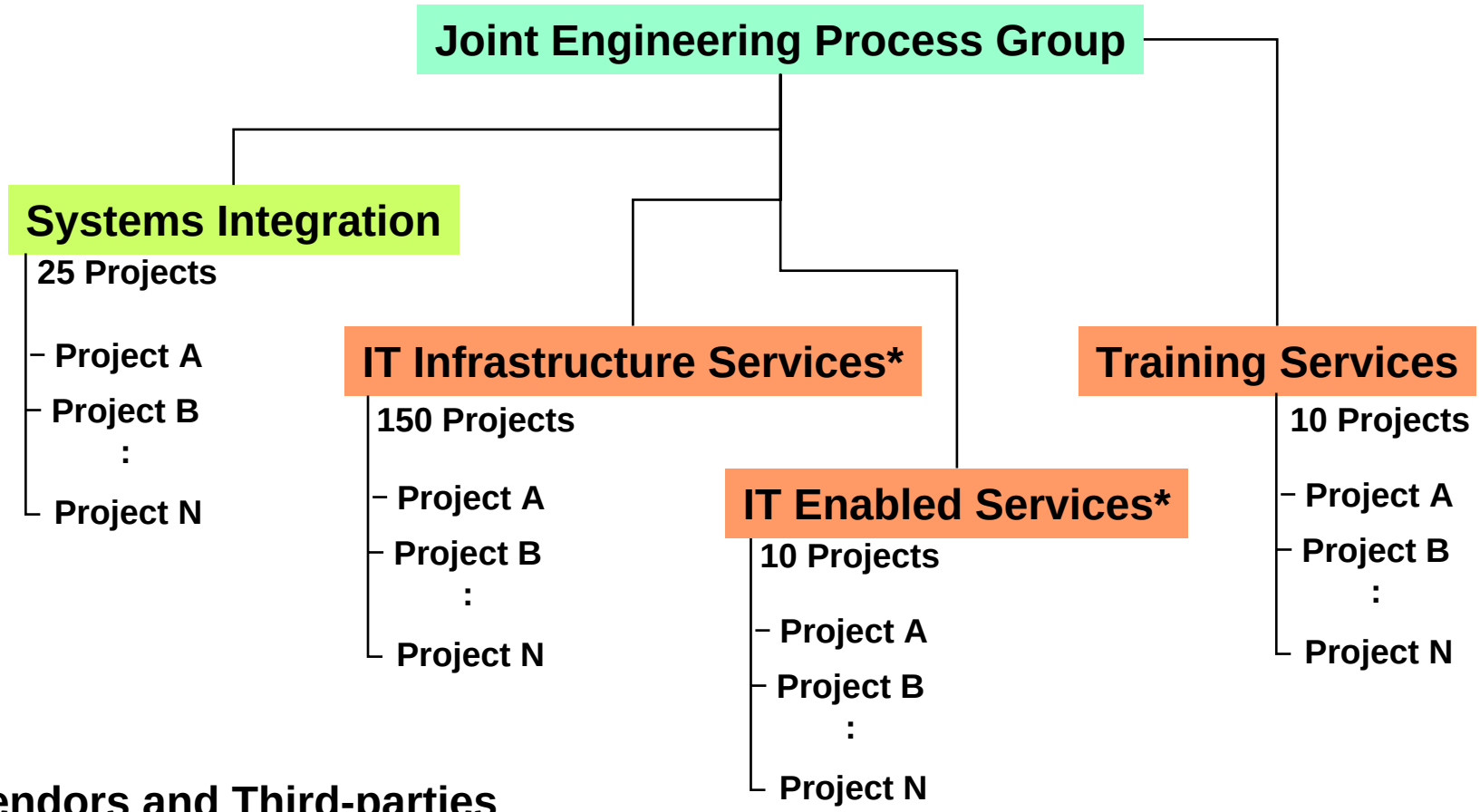
The Context

- **CMC provides IT solutions covering**
  - Hardware and equipment supply and maintenance
  - Infrastructure and support, including facility management
  - Training services
  - IT enabled services through 3rd party vendors
  - Systems Integration – products and solutions
- **Systems Integration Business Unit is at S/w CMM Level 5**
- **Customer Services Business Unit follows IT/SM**
- **CMMI is in the context of all Business Units**
- **There are several functions (Customer Services, Training Services, IT Enabled Services, Help Desk) who are aligning to the CMMI for the first time**

Organizational Structure



* Vendors and Third-parties

Why are PIIDs Important?

Appraisal Success Comes from:

- **Practitioners having a good understanding of the CMMI**
- **A good PIID**

- **When CMMI model understanding is incomplete, mapping practices to the model and preparing the PIIDs is incomplete**
- **Preparing for an appraisal consumes lot of resources**

PIIDs Enable Appraisal Success

The PIID Elements

Goal	**Goal Statement**		
Practice ID	**Practice Statement**		
Implementation Evidence	**Direct Artifact**	**Indirect Artifact**	**Affirmation**
Supporting Organization Level	**Tangible outputs from implementing the practice**	**Artifacts / consequences substantiating the implementation**	**Oral or written statements supporting the implementation**
Appraisal Considerations	**ATM notes, reviewed status, appropriateness of evidence**		

Problems in PIIDs

- **Confusion between direct and indirect artifacts**
  - Direct artifact of one practice can also be an indirect artifact of another practice
  - Plans, process descriptions, approach notes, are not direct, or indirect artifacts for SPs
  - Most projects list as many artifacts as are available – usually none of the artifact(s) addresses the practice

- **Generalization of the process**
  - Typically refers to emails, MoMs, action items. The actual artifacts linked into the PIID do not cover the practice
  - Doesn't reflect the real state of implementation of processes

Extensive rework in PIID (appraisal) preparation

Complexity (Size) of PIID

Size (and effort) of PIID (Level 5)

- **Organization + 1 Project**
  - (187 SPs + 300 GPs) X 2 artifacts each (Direct and Indirect or Affirmation) = 974
- **Each Additional Project:**
  - (156 SPs + 240 GPs) X 2 = 792
- **SCAMPI with three projects (974+792+792)**
  - Minimum objective evidence = 2558 artifacts

Challenges

- **Some practices require multiple artifacts**
- **Some practices require evidence over time**
- **Understanding direct and indirect evidence for different contexts**
- **Optimizing the data (especially, Generic Practices) from an appraisal perspective**

PIID as an Appraisal Instrument

- **Plan and allocate time - PIID preparation requires 100% focus**
  - 2 months of end-to-end activity (with significant overtime); average of two PAs per week
- **Provide PIID Preparation Guidance**
  - Just-in-time model training
  - Re-enforce Generic Practices (integrity of the PIID) – Commitment and Policy, Stakeholder Involvement, Planning a Process, Objective Evaluation of Adherence, relationships with PAs
  - PIID preparation orientation – Do's and Don't's
  - Continuous facilitation and support ("go-to" person)
- **Readiness review should include review of PIIDs and Objective Evidence**

- **Extensive efforts for one-time use**
- **Leverage the efforts in a better way – usability of data in the PIID**

Appraisal Work Products

- **Appraisal (mini and benchmark appraisal) results provide**
  - Gaps in practice implementation
    - Inadequate deployment
  - Gaps in process descriptions
    - Processes that are missing
    - Processes that are only implicitly implemented
    - Non-availability of adequate tailoring guidelines

- **PIIDs provide useful information about current processes**
  - Work products (direct and indirect artifacts)
  - Who is responsible
  - Resources deployed (experience and skills, training, systems and tools)
  - Stakeholders
  - Measurements
  - Which practices are most useful for projects
  - Variation of practice implementation across projects

Limitations of Appraisal-based Process Improvements

- **Practitioners do not understand the CMMI**
- **Process improvement plans are based on aggregated Organization-level findings; focus is on:**
  - Closing gaps in organizational standards
    - Big difference in current processes and new (required) processes
    - Idealized standards are difficult to implement
    - New processes cannot be coherently integrated into existing processes
  - Generalizing the implementation to the organization unit level, project-level focus is lost
  - Prioritization is focused around “Not Implemented” and “Partially Implemented”; “Largely Implemented” practices are mostly not addressed
- **Process changes are driven by the CMMI (compliance), not by business need**

Benefits of PIID-based Process Improvements

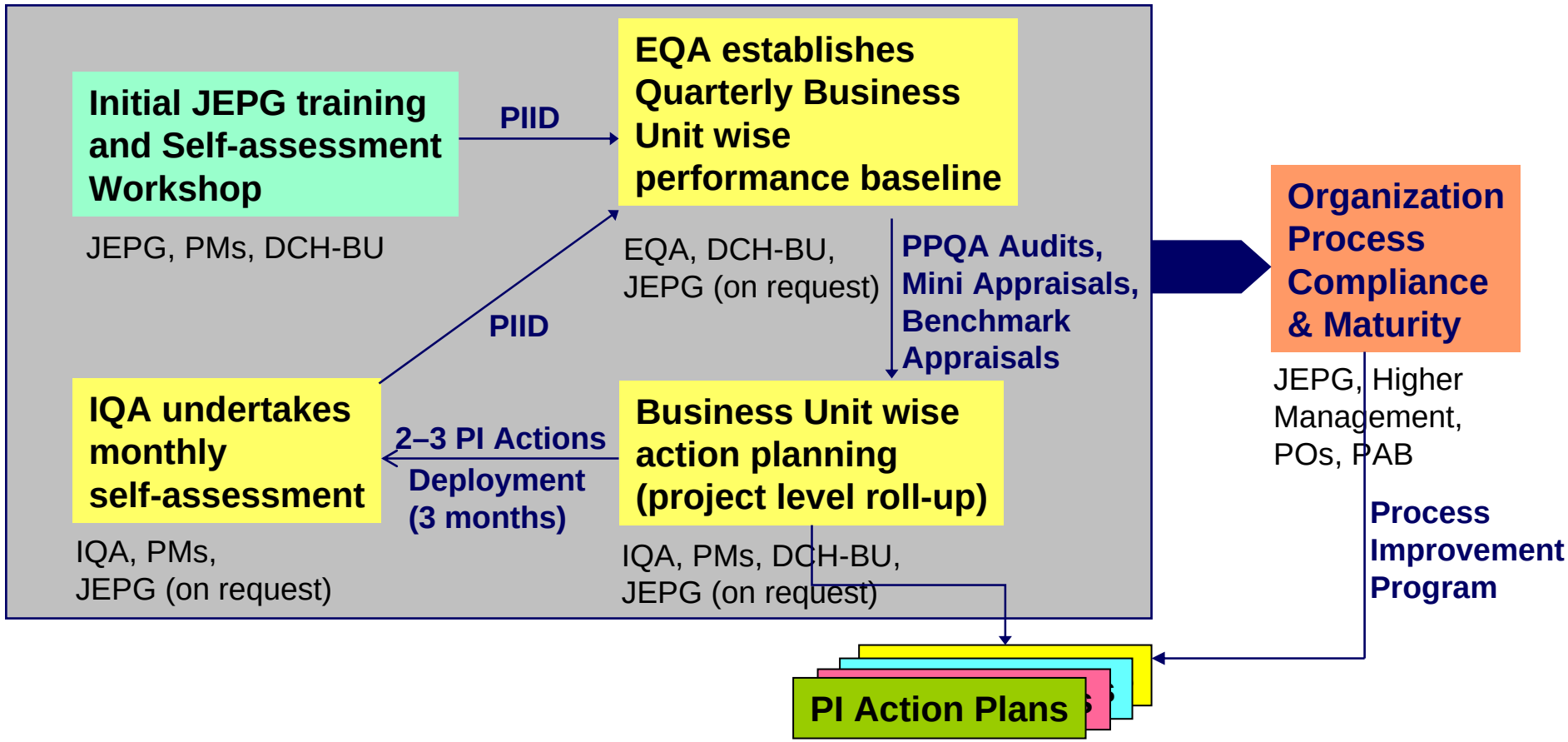
- **Current practices of projects (especially the work products) drive process improvements**
- **Process compliance is associated with project performance - quality improvement and productivity enhancements**
- **Practice maturity is assessed in a business (focus) context**
- **Ensures project-level focus**
  - Implementation is assessed in the context of the project – highest priority process improvements
  - Focus is on tailoring criteria – results in a more flexible OSSP
  - Encourages comparison across projects – leads to project best-practices
- **Enables periodic assessment for practice compliance without much additional effort (manageable)**
- **Re-enforces the CMMI model on a continuous basis among the practitioners**
- **Process Improvements becomes integral to project execution**
- **Continuous visibility into extent of deployment & associated performance**

Other Uses of PIID

- **A template for OSSP description (Master PIID)**
  - Policies associate with appropriate GPs
  - Work products associate with templates from OPAL
  - Work products for SPs associate as direct artifacts with practices
  - Other bi-products of the process associate with GPs as direct artifacts or with SPs as indirect artifacts
  - Implicitly implemented aspects of a practice associate with affirmations for both SPs and GPs

- **Re-validate project role / responsibilities and data management plan**
  - Fix responsibility at a work product (practice) level
  - Map project roles to process practices
  - Ensure role combinations that work (non-conflicting roles)
  - Establish the Create-Use matrix (create, review, finalize, update, reference) for information objects (work products)

PIID-based PI Approach



Business Unit takes Ownership of PI Activities
Enables Business Focus; Enables "Discipline" Focus

Key Enablers

- JEPG develops a personal relationship with projects
- Enables JEPG to identify and address against common problems
- Enables JEPG to identify and harness best practices
- Facilitates cross-BU learning and sharing

Directs Implementation of PPQA

- Periodic process audits (IQA) are based on project PIIDs
- PIID gaps / implementation gaps (non-conformances) are determined through assessment of PIIDs
- Practices directly map to the gaps found
- SCAMPI Class C type categorization is used for PIID assessment at practice level
- Project's update PIIDs every three months – ensures ownership of PIIDs
- Organization PPQA (EQA) provides oversight through monthly review of PIID – implementation of action plans and change in implementation status of practices in PIID

Create a Status Baseline and Provide Visibility into PI Progress

Process Improvements are Self Assessment Driven - 1

- Contextual assessment – project needs and goals
- System is self-regulatory - PMs (explicitly) have ownership for PIIDs – creation, updation, validation, practice implementation status
- Early use of PIIDs provides useful project insight, better tailoring
- PIID preparation enables projects to understand their level of compliance
- Some practices in the model (GP2.8) are driven by the CMMI, not business need; PIID based process improvements enforce such practices

Process Improvements are Self Assessment Driven - 2

- **Focus on institutionalization is ensured (through GP compliance)**
- **Re-enforces model understanding, helps PMs and practitioners to be better prepared for the appraisal**
- **Forced alignment to organization level process improvements:**
  - Enhancements to Organization's Measurement Program
  - Alignment to performance targets
  - Adoption of new processes / technologies / tools

Process Optimization and Tailoring

- Establishes a database of process implementation indicators for projects
- Maintain balance of process and project; non-value adding, repeating processes are optimized – usefulness of practices, alignment of process steps, project context, tailoring
- Provides insight based on similarities or differences across projects, and organization

Leading the Way - Best Practices and Innovations

- PIID provides lessons learned to organization
- PIID provides better understanding of the model and process
- PIID enables identification of best practices
- PIID identifies the need for innovations - can point to specific sub-processes that are not delivering (performing)
- Integration of PIID into overall organizational process improvement enhances the value and effectiveness of Process Improvement efforts

PIIDs Provide the Platform for Further Improvements

Examples – Project Management PAs

- Revalidate project roles/responsibility
- Revalidate project Data Management Plan
- Project (non-) compliance audit
- Project self-assessment
- Process Optimization and Tailoring
- Consolidate project best-practices and innovations

To be distributed at the conference

Word of Caution

- **Projects must understand the CMMI**
- **Strong continuous orientation to re-enforce**
  - The CMMI
  - The OSSP
  - The Measurement Program
  - The Tailoring Criteria
  - Organizational Process Improvements
- **Adoption without assessment and adaptation**
- **Loose focus (project to CMMI); business (focus) context is lost**

Conclusion

- Continuous focus on PIID ensures better appraisal preparedness
- Explicit ownership for project compliance to processes
- Process(es) are contextual – balance of process and project
- Continuous progress through periodic tracking, monitoring and control
- Minimizes appraisal effort
- Brings about a cultural transformation

Q & A ?

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