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People Capability Maturity Model® (P–CMM®)

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FOR THE COMMANDER

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Competency Integration

A process area at Maturity Level 4: Predictable

Purpose

The purpose of Competency Integration is to improve the efficiency and agility of interdependent work by integrating the process abilities of different workforce competencies.

Description

An *integrated competency-based process* is one that has been integrated from the separate competency-based processes used by different workforce competencies. At the Defined Level of the People CMM, individuals used defined interfaces between their separate competency-based processes to manage mutual dependencies. An integrated competency-based process is formed from integrating and interweaving different competency-based processes to achieve a seamless process-based interaction among individuals possessing different workforce competencies. These integrated competency-based processes provide for much more tightly interlaced interactions among different competency communities that allow problems among product, service, or work dependencies to be identified and corrected much earlier. Thus, individuals with different workforce competencies work together using a single, integrated, multi-disciplinary process, rather than working separately using the independent processes of their respective competencies or disciplines.

Integrated competency-based processes are beneficial to product design teams by accelerating the processes of making design decisions and identifying and correcting design problems. They are beneficial to product production teams by increasing flexibility in designing work procedures and by avoiding problems with workflows isolated within functions. They are also beneficial to service delivery teams by integrating the workforce competencies required to satisfy a customer's needs. For simplicity of expression throughout the Predictable and Optimizing maturity levels of the People CMM, the phrase “competency-based processes” will be used to refer to both the competency-based processes defined in the Competency Analysis process area and the integrated competency-based

processes defined in the Competency Integration process area. Thus, "competency-based processes" could refer either to the processes of a single workforce competency, or to multi-disciplinary processes integrated from the processes of several workforce competencies.

Competency Integration involves analyzing work to identify high leverage opportunities to integrate the processes used by different workforce competencies. These integrated competency-based processes are defined and work situations are tailored for their use. Individuals involved in multi-disciplinary activities receive the preparation needed to work in a multi-disciplinary environment. Multi-disciplinary work is reviewed with regard to status, development needs, and improvement opportunities. Workforce practices and activities such as staffing, performance management, compensation, and arranging the work environment are adjusted to support multi-disciplinary work using integrated competency-based processes.

Goals

Goal 1 **The competency-based processes employed by different workforce competencies are integrated to improve the efficiency of interdependent work.**

Goal 2 **Integrated competency-based processes are used in performing work that involves dependencies among several workforce competencies.**

Goal 3 **Workforce practices are designed to support multi-disciplinary work.**

Goal 4 **Competency Integration practices are institutionalized to ensure they are performed as defined organizational processes.**

Commitment to Perform

Commitment 1 **The organization establishes and maintains a documented policy for conducting Competency Integration activities.**

Issues typically addressed in the policy include:

1. Competency Integration activities serve the business objectives and stated values of the organization.
2. Competency Integration activities are included in the organization's strategic workforce plan and the planned workforce activities within units.
3. Competency Integration activities are conducted to improve the efficiency of committed work that involves substantial dependencies among individuals possessing different workforce competencies.
4. Procedures are developed for guiding the organization's Competency Integration activities. These procedures typically specify:
   - ❑ how work is to be analyzed and designed to integrate the process abilities of different workforce competencies,
   - ❑ how integrated competency-based processes are defined and maintained,
   - ❑ how individuals and workgroups are prepared to use integrated competency-based processes, and
   - ❑ how workforce practices and activities are adjusted to support competency integration.
5. Competency Integration practices and activities comply with relevant laws, regulations, and organizational policies.

Commitment 2 **An organizational role(s) is assigned responsibility for coordinating Competency Integration activities across the organization.**

Ability to Perform

Ability 1 **Within relevant organizational units or other entities, an individual(s) is assigned responsibility and authority for ensuring that Competency Integration activities are performed.**

> When all activities for integrating multiples workforce competencies can be conducted within a single unit, such as an engineering department or a marketing and sales department, the individual(s) in charge of that unit will usually either accept or delegate responsibility for ensuring that competency integration occurs. In some instances, the workforce competencies to be integrated report into different organizational units (an engineer, a customer service representative, and a marketing specialist). In these instances, a virtual management team composed of management delegates from the different organizational units may assume responsibility for integrating multiple workforce competencies.

Ability 2 **A responsible individual(s) coordinates the activities for defining, developing, and maintaining each integrated competency-based process.**

Ability 3 **Adequate resources are provided for performing Competency Integration activities.**

1. The work processes to support each of the organization's workforce competencies have been defined.

> Refer to Practices 2 and 5 of the Competency Analysis process area for information regarding analyzing and documenting these competency-based processes.

2. Experienced individuals with expertise in process analysis and definition are available for defining integrated competency-based processes.

Examples of individuals with expertise in process analysis and definition include the following:

- Process owners
- Subject matter experts
- Process improvement or quality assurance groups
- Organizational effectiveness or development professionals

3. Resources for supporting Competency Integration activities are made available.

Examples of resources to support competency integration include the following:

- Process analysis and definition tools
- Space for integrated activities
- Communication equipment
- Tools for managing process and role definitions

4. Funding to accomplish Competency Integration activities are made available.

5. Adequate time is made available for defining, training, and facilitating the adoption of integrated competency-based process abilities.

Ability 4 **Those involved in defining integrated competency-based processes develop the knowledge, skills, and process abilities needed to perform process analysis and definition.**

Ability 5 **Affected individuals and workgroups develop the knowledge, skills, and process abilities needed to perform the integrated competency-based processes involved in their work.**

1. Documentation of the organization's business activities and processes are made available for analysis.

2. Preparation in integrated competency-based processes is provided to all affected individuals and workgroups.

Preparation in integrated competency-based processes can be planned and delivered in a number of ways, including the following:

- As competency development activities
- As specific training and development activities in personal development plans
- As workgroup development activities

3. Those who manage work performed through integrated competency-based processes receive the preparation needed to manage in multi-disciplinary situations.

Examples of topics to be covered in preparing responsible individuals to manage multi-disciplinary work include the following:

- Typical management approaches and techniques appropriate to each of the workforce competencies involved
- Management techniques appropriate for multi-disciplinary activities
- Techniques for adopting, deploying, and installing integrated competency-base processes
- Diagnosing problems and improvement opportunities in multi-disciplinary work
- Resolving conflicts among different disciplines
- Adjusting and performing workforce practices in multi-disciplinary situations
- Methods for continuously improving multi-disciplinary work

4. Individuals participating in integrated competency-based processes are cross-trained as needed in the competency-based processes employed by other workforce competencies so that they can:
   - ❑ better understand the context of integrated competency-based processes,
   - ❑ develop more accurate expectations about how those possessing other workforce competencies may react under changing conditions, and
   - ❑ expand their ability to fill roles in the workgroup that they would not ordinarily undertake.
5. Additional facilitation is made available, as necessary, for workgroups deploying integrated competency-based processes.

6. Additional preparation is made available, as necessary, when integrated competency-based processes are changed.

Ability 6 **The practices and procedures for performing Competency Integration are defined and documented.**

1. Practices and procedures are defined and documented at the organizational or unit levels, as appropriate.
2. Guidelines for tailoring the practices and procedures for use in different circumstances are documented and made available, as necessary.
3. The individual(s) assigned responsibility for Competency Integration activities across the organization ensures that defined practices and procedures are:
   - ❑ maintained under version control,
   - ❑ disseminated through appropriate media,
   - ❑ interpreted appropriately for different situations, and
   - ❑ updated through orderly methods.
4. Experiences, lessons learned, measurement results, and improvement information derived from planning and performing Competency Integration practices are captured to support the future use and improvement of the organization's practices.

Practices Performed

Practice 1 **Business activities involving dependencies among multiple workforce competencies are identified.**

1. Business activities where individuals representing two or more workforce competencies have shared dependencies or defined interfaces between their competency-based processes are identified and evaluated on such factors as:
   - ❑ how frequently they occur in ordinary business operations,
   - ❑ the opportunity to improve operating efficiency or quality by integrating their processes more tightly,

- ❏ the frequency with which coordination problems occur in these interactions that result in poor efficiency or reduced quality, and
- ❏ the impact that greater efficiency or accuracy in these operations would have on improving business performance, quality, or customer satisfaction.

2. The organization selects those business activities that involve multiple workforce competencies evaluated as having the most impact on its business performance as candidates for integrating their competency-based processes.

Practice 2 **Dependencies and interfaces among multiple workforce competencies are analyzed to identify opportunities for integrating their competency-based processes.**

1. Individuals who perform business activities that involve multiple competencies are involved in analyzing and integrating competency-based processes.
2. Competency-based processes used by different workforce competencies are analyzed to identify opportunities for improved efficiency such as:
   - ❏ iterative processes within or among workforce competencies that could be reduced by tighter integration among competency-based processes,
   - ❏ sequential processes within or among workforce competencies that could be performed in parallel,
   - ❏ idle time that could be eliminated by tighter integration,
   - ❏ sources of defects that could be reduced or eliminated, and
   - ❏ joint rather than separate activities that reduce effort, lower costs, shorten schedule, reduce errors, or improve the quality of products or services.
3. Analyses are performed to identify the most efficient methods for integrating competency-based processes for each situation selected for integration.

Situations may differ in the most efficient methods for introducing integrated competency-based processes. Some situations may benefit most from integrating the processes of all involved workforce competencies at once, while other situations may require that different workforce competencies have their processes integrated in stages. For instance, the organization could decide to integrate all of the individuals possessing different workforce competencies involved in a product deployment into a multi-disciplinary product development team from the initiation of a project.

Alternatively, a staged integration would initially involve integrating several engineering disciplines into a multi-disciplinary design team, while other competencies maintain defined interfaces with the development team. Over time, other competencies such as field service, customer training, or marketing may have some of their competency-based processes integrated into the product development team as well.

4. The most efficient methods for integrating multiple competency-based processes are selected.

Examples of options for improving the efficiency of processes performed by multiple workforce competencies include the following:

- Defining an integrated competency-based process that integrates separate, defined processes used by different workforce competencies
- Integrating the performance of multiple competency-based processes
- Re-organizing competency-based processes to improve the timing and coordination of dependencies among several workforce competencies that continue to work independently
- Re-engineering business processes that involve multiple workforce competencies

Practice 3 **Integrated competency-based processes are defined and made available for use.**

Examples of integrated competency-based processes include the following:

- An integrated product design process created by integrating the competency-based design processes used independently by software engineers, hardware engineers, usability engineers, manufacturing engineers, and product line specialists
- An integrated customer solution sales process created by integrating the competency-based market research, customer needs forecasting and determination, requirements development, and sales processes used independently by customer relations, marketing, and sales specialists representing a vendor's different product lines
- An integrated supplier management process created by integrating the competency-based processes of purchasing agents, project or product managers, and financial specialists

1. Integrated competency-based processes are defined for use in multi-disciplinary organizational structures, such as multi-disciplinary workgroups.

Examples of concerns that must addressed in defining integrated competency-based processes include the following:

- Accountability and authority
- Planning to meet common objectives
- Decision-making processes
- Issue and conflict resolution
- Vertical and horizontal communication
- Efficiency of business activities and operations

2. Integrated competency-based processes are documented and made available for guiding those performing business activities involving dependencies among multiple workforce competencies.

> Integrated competency-based processes may be made available for use through a variety of media, which may include the following:
>
> - Documents
> - Web pages
> - Videos and training materials
> - Scripts in automated tools
> - Other knowledge assets, such as competency-based assets. Refer to the Competency-Based Assets process area for information regarding the capture and use of competency-based assets.

Practice 4 **Work is designed to incorporate integrated competency-based processes, where appropriate.**

When necessary or beneficial:

- ❑ existing business processes and activities that would most benefit from integrating competency-based processes are redesigned to facilitate competency integration,
- ❑ the processes defined for a specific workforce competency are enhanced or redesigned to incorporate integrated processes performed with those possessing other workforce competencies,
- ❑ the defined processes used by workgroups are enhanced with integrated competency-based processes, and
- ❑ new business processes are defined to exploit the benefits of integrated competency-based processes.

Practice 5 **Organizational structures support multi-disciplinary work that integrates competency-based processes.**

Different workforce competencies often work in different parts of the organization or report to different managers. Examples of concerns that must be addressed in adjusting organizational structures to better support integrated competency-based processes include the following:

- Accountability and authority
- Decision speed and accuracy
- Vertical and horizontal communication
- Integrity of workforce practices and activities
- Continued evolution of competency integration
- Efficiency of business activities and operations

Examples of how organizational structures can be adjusted to support integrated, multi-disciplinary work include the following:

- Redesigning organizational structures
- Realigning management reporting relationships
- Establishing empowered, multi-disciplinary workgroups
- Establishing integrated management teams that cross organizational boundaries
- Enhancing communication and coordination mechanisms among different organizational components

Practice 6 **Skills needed for performing integrated competency-based processes are developed.**

This practice focuses on development needs specific to the performance of integrated competency-based processes. This may involve the multi-disciplinary work of a single workgroup, of multiple interacting workgroups, or of other organizational structures through which multi-disciplinary work is performed. Different instances of multi-disciplinary work may have different development needs. Development needs could be identified that are related to the workforce competencies of individuals (refer to the Competency Development process area), to the workgroup's operating processes (refer to the Workgroup Development or Empowered Workgroups process areas), or to process coordination among those from different workforce competencies (the focus of this process area).

1. A responsible individual analyzes situations in which integrated, competency-based processes are performed to determine development needs.

Examples of responsible individuals who interact with those performing multi-disciplinary processes to analyze and plan for meeting their development needs include the following:

- The individual(s) to whom the a multi-disciplinary workgroup reports
- A management team to which a multi-disciplinary group with members drawn from different parts of the organization reports
- An individual from the training function
- An expert in multi-disciplinary work
- A representative from the human resources function or other appropriate professionals

2. Plans for developing skill in performing integrated, competency-based processes are documented as:
   - ❑ development objectives for the workgroup or other multi-disciplinary entity,
   - ❑ specific training and development actions to achieve these objectives,

- ❑ input to competency development or workgroup development plans and activities, or
- ❑ the schedule for performing the development activities.

3. Those involved in multi-disciplinary work perform their planned development activities.
4. Plans are reviewed for the accomplishment of development activities and their impact on multi-disciplinary performance.
5. Corrective action is taken when development activities do not achieve their intended objective.

Practice 7 **The work environment supports work by individuals or workgroups using integrated competency-based processes.**

1. Individuals using integrated competency-based processes for a significant portion of their committed work are co-located to the extent possible.
2. When needed, common workspaces are provided for performing integrated competency-based processes.
3. Communication and coordination tools are provided, as necessary, for performing integrated competency-based processes.
4. Joint access to information that may be specific to a given competency is provided when needed for performing integrated competency-based processes.

Practice 8 **Workforce competency descriptions are revised to incorporate integrated competency-based processes.**

Documented descriptions of workforce competencies are revised to include the knowledge, skills, and defined processes required to fulfill business activities using integrated competency-based processes. Refer to Practices 3, 4, and 5 of the Competency Analysis process area for information regarding establishing and maintaining descriptions of workforce competencies and competency-based processes.

Practice 9 **Workforce practices and activities are defined and adjusted to support integrated competency-based activities.**

1. Recruiting and selection activities are adjusted, where appropriate, to identify candidates with the skill and willingness to work in interdisciplinary environments and using integrated competency-based processes.
2. Where appropriate, units plan their business activities to expand the use of integrated competency-based processes where they offer performance benefits.
3. Competency development plans and activities are enhanced to include preparation for performing integrated competency-based processes.
4. Communication and coordination activities are enhanced to improve integration and cooperation among different workforce competencies.
5. Performance discussions with individuals or workgroups include feedback on the performance of integrated competency-based processes, where appropriate.
6. Career planning practices and activities incorporate:
   - ❏ capability in integrated competency-based processes among the criteria for advancement, and
   - ❏ the ability to move between workforce competencies as a component of graduated career opportunities, where appropriate.
7. Adjustments to compensation and reward activities reflect capability and performance of integrated competency-based processes.

Practice 10 **Workgroups performing integrated competency-based processes tailor and use them for planning committed work.**

1. Workgroups that include members with different workforce competencies define their workgroup processes from tailored combinations of:
   - ❏ the competency-based processes defined for performing business activities unique to each workforce competency involved, and
   - ❏ integrated competency-based processes for performing the business activities in which they share dependencies, and
   - ❏ standard workgroup processes tailored for use with interdisciplinary situations.

2. The workgroup's integrated processes are used for:
   - ❑ planning their business activities and establishing commitments,
   - ❑ defining roles for workgroup members,
   - ❑ guiding the performance of committed work,
   - ❑ orienting new members to the workgroup,
   - ❑ coordinating work dependencies with other organizational entities, and
   - ❑ collecting data and developing lessons learned.

Practice 11 **Workgroups use integrated competency-based processes for work involving multiple workforce competencies.**

1. Work being performed using integrated competency-based processes is reviewed on a periodic or event-driven basis to determine status and make necessary adjustments.
2. If significant deviations of progress from plan are observed, corrective actions are taken, which could include making adjustments or improvements to integrated competency-based processes.
3. Data on the performance of multi-disciplinary work are captured and maintained.

Examples of later uses for performance data and other information on integrated competency-based processes may include the following:

- Estimating and planning multi-disciplinary work
- Establishing benchmarks or capability baselines for integrated competency-based processes
- Analyzing integrated competency-based processes for improvement opportunities
- Evaluating the benefits of integrated competency-based processes

Practice 12 **The performance of integrated competency-based processes is evaluated to identify needed adjustments and updates.**

1. Those using integrated competency-based processes to perform at least part of their committed work evaluate these processes on a periodic or event-driven basis to determine needs for adjustment.

2. Adjustments to integrated competency-based processes that are specific to a situation are implemented and recorded.

3. Adjustments that may be generic across situations are recommended for incorporation into the documented integrated competency-based process.

Measurement and Analysis

Measurement 1 **Measurements are made and used to determine the status and performance of Competency Integration activities.**

Examples of measurements include the following:

- Number and extent of situations employing integrated competency-based processes for performing at least part of their committed work
- Number of integrated competency-based processes defined and in use
- Status of planned activities for defining and employing integrated competency-based processes
- Status of updating learning materials and experiences for preparing individuals or workgroups to perform integrated competency-based processes
- Number of individuals or workgroups trained to perform integrated competency-based processes
- The rate at which the competency-based processes of different workforce competencies are integrated within the organization

Measurement 2 **Measurements are made and used to determine the effectiveness of Competency Integration activities.**

Examples of measures the effectiveness of Competency Integration activities include the following:

- Extent to which business objectives pursued through performing integrated competency-based processes are accomplished
- Performance-based evidence of increases in unit or organizational performance related to competency integration
- Value of performance increases through the use of integrated competency-based processes
- Workforce ratings of the effectiveness of integrated competency-based processes
- Improvements in cost, schedule adherence, time to market, quality, or other performance measures related to the use of integrated competency-based processes

Verifying Implementation

Verification 1 **A responsible individual(s) verifies that the Competency Integration activities are conducted according to the organization's documented policies, practices, procedures, and, where appropriate, plans; and addresses noncompliance.**

These reviews verify that:

1. Competency Integration activities comply with the organization's policies and stated values.
2. Competency Integration activities comply with relevant laws and regulations.
3. Competency Integration activities are performed according to the organization's documented practices and procedures.
4. Noncompliance issues are handled appropriately.

Verification 2 **Executive management periodically reviews the Competency Integration activities, status, and results; and resolves issues.**

These reviews verify:

1. The appropriateness of Competency Integration activities.
2. Effectiveness of Competency Integration activities at the organizational, competency, and unit levels.
3. Progress in performing Competency Integration activities.
4. Results from reviews of Competency Integration practices and activities.

> Refer to Verification 1 for practices regarding reviews of Competency Integration activities to ensure adherence to the following:
>
> - Relevant laws and regulations
> - Organizational policies, practices, and procedures

5. Status of resolution of non-compliance issues.
6. Trends related to Competency Integration.
7. Effectiveness of Competency Integration activities in accomplishing multi-disciplinary work.

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