

# **Skill Standards for IT Professionals, Version 2**

## **Part 3: Skills**

*English edition Draft 1.0    December.2006*

**INFORMATION-TECHNOLOGY PROMOTION AGENCY, JAPAN**

**IT Skill Standards Center**

**Ministry of Economy, Trade and Industry**



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## Introduction

Part 3: Skill describes skills from the following perspectives: *skill dictionary*, which covers all skill items and all knowledge items for each job career and all specialty fields for each job career; *skill area*, which is organized by skill structure and knowledge structure for each career; *skill proficiency*, which is organized by skill items and proficiency level on each level for the career; and *training roadmap*, which illustrates the training subject that should be learned corresponding to the skill standards for each career.

This part organizes the capabilities necessary in order to achieve the business experience and performance described in the KPI. Those are the indexes utilized while designing education and training.

Figure 1 is the total constitution of Part 3: Skills.

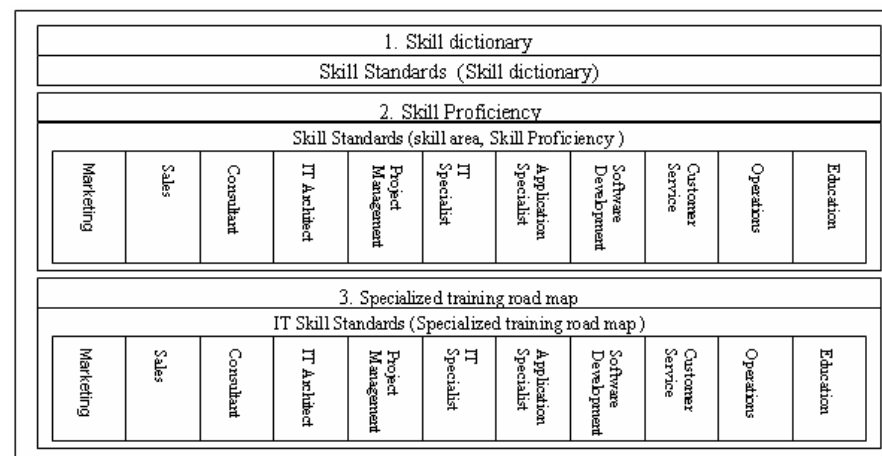


Figure 1. Total constitution of Part 3: Skills

- Records of revision date
  - April 1, 2006, First edition compilation

## 1. Skill Dictionary

### 1.1 Skill Dictionary

The skill dictionary covers and organizes all skill items and knowledge items that are defined in the skill standards. Skill items and knowledge items are organized into a hierarchy and show the corresponding job career and specialty fields in catalogue style.

Furthermore, the skill dictionary changes the color for every career, which improves visibility.

[Description Style]

- Job Career: Shows all the job career commonalities or each job career name
- Skill category: Shows the skill classification based on the characteristics. Technology, methodology, project management, business/industry, and personal.
- Skill item: Shows the skill item. In addition, the separate column is used for the job career common skill items and specific specialty field skill items.
- Knowledge item: Shows the knowledge item for each skill item. Knowledge items are extended to two layers to describe the detail. Middle layer items (or middle items) are included in the skill description and skill proficiency, but lower layer items (or small items) are only included in the skill dictionary.
- Specialty field: The corresponding skill item and the knowledge item for the career and specialty field is shown with the ○ symbol

Job Career	Skill category	Skill item		Knowledge item		Specialty Field																				
		Job career common skill	Specialty field specific skill	Knowledge item (middle item)	Knowledge item (small item)	Marketing		Sales		Consultant		IT Architect		Project Management			IT Specialist						Applic. in Spec.			
						Marketing management	Sales management	Sales by selling customers	Consulting by selling customers	Market communication	Sales channel management	Sales in media	Products sold by selling customers	Application of a package	Application of IT	IT Business Transformation	Application software	Integration architecture	Infrastructure architecture	System development	IT outsourcing	Network service	Software product development	System management	Database	Network
Common to all job families	Project Management	Project Integration Management		Develop Project Charter	Project selection methods Project management methodology PMS(Project Management Information System) Expert Judgment	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Common to all job families	Project Management	Project Integration Management		Develop Preliminary Project Scope Statement	Project management methodology PMS(Project Management Information System) Expert Judgment	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Common to all job families	Project Management	Project Integration Management		Develop Project Management Plan	Project management methodology PMS(Project Management Information System) Expert Judgment	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Common to all job families	Project Management	Project Integration Management		Direct and Manage Project Execution	Project management methodology PMS(Project Management Information System) Expert Judgment	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Common to all job families	Project Management	Project Integration Management		Monitor and Control Project Work	Project management methodology PMS(Project Management Information System) EVT(Earned Value Technique)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Figure 2. Example of Skill dictionary

## 2. Skill Proficiency

Skill item, knowledge item, skill proficiency, and skill area are indexes defined in order to utilize business capabilities, which are necessary for the career and specialty field, in education and training.

### 2.1 Skill items, Knowledge items

The capability for business performance and experience defined in the KPI, is breakdown into elements, then rearranged by Skill items. Knowledge items indicate the knowledge that is utilized in each skill item. Each skill item is classified into the following category.

Skill category	Explanation
Technology	Technology skills necessary for successful job performance
Methodology	Skills such as methods, methodologies, and problem solving techniques needed for successful job performance
Business / Industry	Knowledge need- to-know for in the job career and specialty field. Industry specific phenomenon, industry trends, laws, codes, etc.
Project Management	Skill necessary for successful project performance
Personal skill	Personal skills needed for job performance

The skill standards does not include the following detailed descriptions from a general perspective as a standard.

- Elemental technology regarding individual products or services that are necessary in the short term according to the project phase

- Industry application knowledge that differs in every industry, such as production or finance
- Individual motivation and traits, including social responsibility and ethics as a professional

These are what each company needs to select for assigned project, business strategy of employer, and the career path of individual imagined. In addition, specific skills, which are necessary for performing assigned jobs, are what an individual needs to voluntarily acquire as a professional.

### 2.2 Skill Proficiency

#### (1) Contents of Skill Proficiency

Skill proficiency systematically demonstrates the degree of proficiency and its corroborating knowledge , regarding the skill items necessary for experience and performance indicated in KPI (key business performance indicators).

For example, within the same knowledge item, the degree of understanding differs largely from the level of simply knowing a summary to the level of deep understand sufficient to write a paper. Skill proficiency is an index of clear degrees of proficiency. Figure 3 is an example of skill proficiency and knowledge items for Project Integration Management, which is a job career common skill items in the project management career.

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Specialty Field: System development	Skill Proficiency/Knowledge Items of Project Management	
Skill Item and Knowledge Items	Skill Proficiency	
[Career common skill item] ●Project Integration Management [Knowledge Items]  -Develop Project Charter -Develop Preliminary Project Scope Statement -Develop Project Management Plan -Direct and Manage Project Execution -Monitor and Control Project Work -Integrated Change Control -Close Project	Level 7	Able to perform the project successfully as a project manager in charge of the project with 300 persons or more during peak periods, or an annual contract value of 1 billion yen or more, by performing Project Integration Management such as Develop Preliminary Project Scope Statement, Develop Project Management Plan, Direct and Manage Project Work, Monitor and Control Project Work, Integrated Change Control, Close Project. In addition, able to present the related subjects at academic societies and symposia.
	Level 6	Able to perform the project successfully as a project manager in charge of the project from 50 but less than 300 persons during peak periods, or an annual contract value of 500 million yen or more, by performing Project Integration Management such as Develop Preliminary Project Scope Statement, Develop Project Management Plan, Direct and Manage Project Work, Monitor and Control Project Work, Integrated Change Control, Close Project.
	Level 5	Able to carry out the project as a project manager in charge of the project from 10 but less than 50 persons during peak periods, or an annual contract value of 100 million yen or more, by carrying out Project Integration Management such as Develop Preliminary Project Scope Statement, Develop Project Management Plan, Direct and Manage Project Work, Monitor and Control Project Work, Integrated Change Control, Close Project.
	Level 4	Able to carry out the project as a project manager in charge of the project with less than 10 persons during peak periods, or an annual contract value of less than 100 million yen, by carrying out Project Integration Management such as Develop Preliminary Project Scope Statement, Develop Project Management Plan, Direct and Manage Project Work, Monitor and Control Project Work, Integrated Change Control, Close Project.
	Level 3	

Skill Area and Skill Proficiency

PM-5  
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Figure 3. Example of Skill Proficiency/Knowledge Items (Project Management)

## (2) Description Style of Skill Proficiency

Skill proficiency is structured with skill items, knowledge items, and criteria for proficiency. It represents the level of each skill item possessed by an individual, and it is defined in expressions of capability, such as “able to do ....”

### [Description Style]

Able to do <degree of behavior> as a <responsibility> with <quantitative and qualitative job condition> by performing <behavior content>

- Quantitative and qualitative job condition: Provides the quantitative and qualitative aspects of experience and performance. The details differ depending on the career, specialty, and level.
- Responsibility: The range of responsibility and empowerment.
- Action content: The contents of action for a skill item, regardless of level,
- Degree of action: Describes the degree or a range of capability to perform action contents, such as “able to perform successfully”, “able to carry out”, and so on.

For responsibility, the roles assumed in each level are provided as follows.

Level	Responsibility
Level 7	As a responsible person
Level 6	
Level 5	
Level 4	As a leader
Level 3	As a member
Level 2	
Level 1	

Skill proficiency describes the middle-layer items. Detailed knowledge items for the low-layer are described in the skill dictionary only.



## 2.3 Skill Area

The skill area rearranges the necessary skill items and knowledge items in each career and specialty field. Skill items are defined after dividing the career common skill items and specialty field specific skill items.

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Skill Area of Project Management		
Specialty Field	Skill Item	
Career common skill item	All Specialty Field	<ul style="list-style-type: none"> <li>• <b>Project Integration Management</b> <ul style="list-style-type: none"> <li>Develop Project Charter, Develop Preliminary Project Scope Statement, Develop Project Management Plan, Direct and Manage Project Execution, Monitor and Control Project Work, Integrated Change Control, Close Project</li> </ul> </li> <li>• <b>Project Scope Management</b> <ul style="list-style-type: none"> <li>Scope Planning, Scope Definition, WBS preparation, Scope Verification, Scope Control</li> </ul> </li> <li>• <b>Project Time Management</b> <ul style="list-style-type: none"> <li>Activity Definition, Activity Sequencing, Activity Resource Estimating, Activity Duration Estimating, Schedule Development, Schedule Control</li> </ul> </li> <li>• <b>Project Cost Management</b> <ul style="list-style-type: none"> <li>Cost Estimating, Cost Budgeting, Cost Control</li> </ul> </li> <li>• <b>Project Quality Management</b> <ul style="list-style-type: none"> <li>Quality Planning, QA (Perform Quality Assurance), QC (Perform Quality Control)</li> </ul> </li> <li>• <b>Project Human Resource Management</b> <ul style="list-style-type: none"> <li>Human Resource Planning, Acquire Project Team, Develop Project Team, Manage Project Team</li> </ul> </li> <li>• <b>Project Communications Management</b> <ul style="list-style-type: none"> <li>Communications Planning, Information Distribution, Performance Reporting, Manage Stakeholders</li> </ul> </li> <li>• <b>Project Risk Management</b> <ul style="list-style-type: none"> <li>Risk Management Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Risk Monitoring and Control</li> </ul> </li> <li>• <b>Project Procurement Management</b> <ul style="list-style-type: none"> <li>Plan Purchases and Acquisitions, Plan Contracting, Request Seller Responses, Select Sellers, Contract Administration, Contract Closeout</li> </ul> </li> <li>• <b>Analytical of Business applications</b> <ul style="list-style-type: none"> <li>Analytical of business application requirements, Analytical of technical requirements, Informationization and management, etc.</li> </ul> </li> <li>• <b>Utilization of consulting techniques</b> <ul style="list-style-type: none"> <li>Selection and adaptation of consulting techniques</li> </ul> </li> <li>• <b>Knowledge management and utilization</b> <ul style="list-style-type: none"> <li>Management and utilization of intellectual properties</li> </ul> </li> <li>• <b>Leadership</b> <ul style="list-style-type: none"> <li>Leadership</li> </ul> </li> <li>• <b>Communication</b> <ul style="list-style-type: none"> <li>2-Way communication, Distribution of information, Organization and analytical and retrieval of information</li> </ul> </li> <li>• <b>Negotiation</b> <ul style="list-style-type: none"> <li>Negotiation</li> </ul> </li> </ul>
	System development	<ul style="list-style-type: none"> <li>• <b>Management of IT solution design and development and Development management</b> <ul style="list-style-type: none"> <li>Software engineering, Requirements definition techniques, Techniques for solving technical problems, Latest technology trends, Latest IT market trends, Latest general-purpose application trends, Latest business application package trends, Implementation and inspection of security systems, etc.</li> </ul> </li> </ul>
	IT outsourcing	<ul style="list-style-type: none"> <li>• <b>Information System Management</b> <ul style="list-style-type: none"> <li>System management systems, Relationship management with a department of user services, Formulation of information systems planning, Formulation and implementation of system developments, Application to actual systems, Support for information services, Officing of information services, Information resources management, Requirements definition techniques, Techniques for solving technical problems, etc.</li> </ul> </li> </ul>
	Network services	<ul style="list-style-type: none"> <li>• <b>Designing Communication Environments and Management of Operation</b> <ul style="list-style-type: none"> <li>Grasp of communications industry trends, Utilization and practice of knowledge on network devices, Utilization and practice of network management technologies, Utilization and practice of knowledge on network protocols, Understanding and utilization of network technologies, Requirements definition techniques, etc.</li> </ul> </li> </ul>
	Software product development	<ul style="list-style-type: none"> <li>• <b>Development of New Software and Improvement of Existing Software</b> <ul style="list-style-type: none"> <li>Utilization and practice of software development techniques, Management of customer environments, Software product, Utilization and practice of knowledge on software products and package software, Software engineering, Requirements definition techniques, Management and utilization of intellectual properties, Techniques for solving technical problems, etc.</li> </ul> </li> </ul>

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Figure 4. Example of Skill Area (Project Management)

Among the job career common skill items, the skill items that are listed in the next table are defined commonly for all careers.

Skill Category	Skill Item	Knowledge items
Project Management	Project Management <sup>1</sup>	Project integration management
		Project scoop management
		Project time management
		Project cost management
		Project quality management
		Project human resource management
		Project communication management
Personal	Leadership	Project risk management
		Project procurement management
		Leadership
		Two-way communication, transmission of information, organization, analysis, and retrieval of information
Personal	Communication	
		Negotiation

The skill items common to all careers are necessary skills as a base for business.

<sup>1</sup> The description of Project Management is consistent with “A Guide To The Project Management Body Of Knowledge, Third Edition”.

For example, it is popular to work in the project form in the information service industry; therefore, a certain knowledge about project management is required regardless of the level (for example, entry level).

However, even though the skill item names are same, these details, which are required in each job career, are not identical because of the difference in subjects, ranges, and responsibilities of exercising skill in performing the assigned duties. These skill items, which differ in every career, vary with the circumstances and environment. Therefore, the definition of each career simply describes the common level as the knowledge item.

The statement of the details differ depending upon the career even though the skill item names are the same and include the meaning that it is necessary for considering the skill contents, which are adjusted for their business. This is a point that should be considered during a skill appraisal.

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Skill Standards for IT Professionals, V2. Draft Part 1. December.2006

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Publisher INFORMATION-TECHNOLOGY PROMOTION AGENCY, JAPAN IT Skill Standards Center

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