

# Bridge Manager Competency Development Framework

A Guide for Bridge Managers Working in Global R&D Projects

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# **Introduction**

## **Global R&D projects**

In the increasingly interconnected world, diverse groups of people are working together more than ever before, including research and development (R&D) teams. R&D is an important function in helping businesses to gain competitive advantage. They provide innovative products and services for customers by utilizing knowledge of various fields. R&D projects of an organization extend their boundary to cover not only teams in the home country but also foreign countries. Researchers and engineers exchange their knowledge and ideas across borders. Organizations gain advantages from knowledge resources from around the world. Global R&D projects play an important role in businesses.

Multinational corporations (MNCs) establish R&D centers in foreign countries and collaborate with local researchers to explore local markets and exploit local knowledge resources. Teams at the headquarters of MNCs collaborate with foreign R&D teams and work together on global R&D projects.

## **Bridge managers**

Global R&D projects usually have intensive knowledge and information exchange between project members. Research activities in the projects are conducted in different locations by researchers and engineers who have diverse backgrounds. It is possible that problems and difficulties may occur especially when project members collaborate in global context. To ensure smooth operation and keep problems to the minimum, organizations employ bridge managers to take care of research activities between teams in different countries of global R&D projects.

Bridge managers act as a liaison to facilitate research activities between teams in the headquarters of the company and the foreign R&D subsidiaries, both of them might be in the same or different countries. Researchers and engineers work on global R&D projects and collaborate across time and geographical distances. Responsibilities of bridge managers include improving issues related to the quality of project outcomes, guiding research approaches, clarifying requirements, and solving communication issues. It is indispensable for the bridge managers to demonstrate knowledge, skills, and abilities to facilitate research activities in global R&D projects. Figure 1 shows relationships between bridge managers, headquarters team, and foreign R&D teams of a global R&D project.

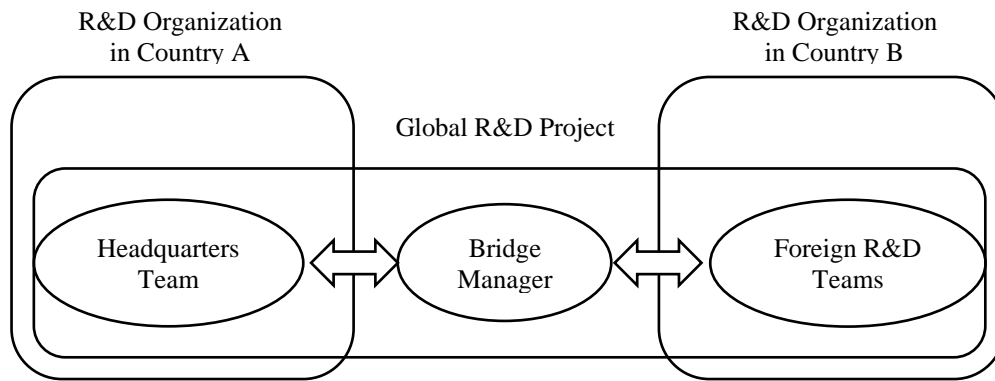


Figure 1. Bridge Manager in Global R&D Project

An example of the work of a bridge manager could be the case that the manager is assigned by the headquarters to go to a foreign country and perform tasks with R&D teams in the host country. The manager visits the R&D subsidiary, then explains requirements, guides research approaches, follow-ups progress, ensures quality, and helps the R&D teams deliver outcomes. The manager interacts with researchers and engineers to close gaps between headquarters and foreign R&D teams.

### **Bridge manager competency development framework**

A bridge manager competency development framework (BMCDF) is a framework that describes the competencies of bridge managers in global R&D projects. The framework includes the number of competencies that are applied to the role of bridge managers in global R&D projects. Each competency defines the knowledge, skills, and abilities in which the bridge managers are assessed. The framework is a guideline for bridge managers for which competencies are required for effective global R&D project facilitation. The framework also ensures that skills gaps are addressed and further developed. This competency framework can be used in many types of global R&D projects.

### **Purpose of the BMCDF**

The purpose of the BMCDF is to provide a framework for the list of competencies, definitions, and development of bridge manager competencies. The framework identifies competencies that help bridge managers solve the difficulties of facilitating global R&D projects. The application of the framework may vary depending on project types, organizational context, and cultures involved in the

projects which have to be considered when applying the framework in practice. This framework is a guideline for bridge managers on how they plan for competency development, including competency selection and development.

### **Application of the BMCDF**

For individuals, the BMCDF could be used on several occasions throughout one's career as a bridge manager. These events include getting jobs, preserving jobs, and changing organizations. Getting jobs is the period when bridge managers try to get the job for the first time. Preserving job, bridge managers have to develop necessary specific competencies in order to facilitate particular global R&D projects effectively. Changing organization, when bridge managers move to new organizations, they need specific competencies that are suitable for the new environment.

For organizations, human resource management could utilize BMCDF in its process. Hiring, developing, and retaining personnel are events that BMCDF can be used. Hiring personnel is the time when organizations want to select, evaluate, and assign bridge managers to facilitate global R&D projects. In developing personnel, the organization needs to improve bridge managers' existing competencies and develop newer competencies so that the manager can support the organization's goals. Retaining personnel, to prevent the loss of organizational talent caused by employee turnover, the BMCDF can be used in strategies of organizations to make meaningful work for the bridge managers and make good use of their skills and abilities.

# **Bridge Manager Competencies**

## **Difficulties of facilitating global R&D projects**

Facilitating global R&D projects is a challenging task for bridge managers. The managers work with the uncertainty of R&D activities and the complexity of global collaboration. R&D activities usually have a high level of complexity in the processes and a high level of uncertainty in the outcomes. In addition, the global context of the projects contains additional difficulties such as the virtuality of the project teams, the diversity of project members, and dealing with tacit elements of knowledge. This kind of challenge brings negative impacts on global R&D projects. Bridge managers play an important role to cope with these challenges and improve the situations. Their competencies are important for them to perform their role effectively.

Different projects may have different difficulties that the managers have to deal with. Several managers encounter the following four difficulties. First, facilitating quality control is a difficult activity for managers, especially in basic research projects. It is more difficult than applied research because, in basic research, researchers aim at finding new knowledge without clearly defined goals. Second, guiding research approaches where foreign R&D teams want to deliver outputs as soon as possible using existing knowledge and technologies without considering alternatives. However, headquarters prefer to use particular techniques due to marketing, cost-related, or other reasons. Third, requirement transfer, especially tacit elements of the requirements. The managers have to transfer requirements from headquarters to foreign R&D teams. Fourth, team communication is also a challenging task. The managers facilitate communication between project members of different cultures and backgrounds.

## **Competencies of bridge managers**

Competency has been defined as knowledge, skills, abilities, attitudes, and characteristics that help individuals to perform their tasks effectively. Competencies can be measured and evaluated. They are important for defining jobs, recruiting, retaining, and developing staff. Competency helps individuals to have a clear understanding of behavior to be possessed in order to achieve the organization's goals. Using competency frameworks helps organizations to align the knowledge, skills, and abilities of employees with the organization goals.

Bridge managers use their competencies to facilitate research collaboration and support project delivery to satisfy project stakeholders. The bridge managers' competencies that helpful for facilitating global R&D projects are listed below. These competencies help managers to deal with difficulties related to the facilitation of research collaboration between teams in different countries. Their definitions and indicators are summarized in Table 1.

- Knowledge management skills
- Perception (self-awareness)
- Resilience
- Decision making skills
- Ability to understand worldwide business
- Ability to learn foreign cultures
- Communication skills

<b>Competency</b>	<b>Definition</b>	<b>Indicator</b>
Knowledge management skills	Ability to elicit and integrate knowledge from different cultures. Encourages project members to share knowledge through networking. Facilitates the development of knowledge management.	<ul style="list-style-type: none"> <li>•Identifies critical knowledge areas and develops methods to create, share, and preserve knowledge</li> <li>•Encourages project members to participate in knowledge sharing activities</li> <li>•Ensures that project members are knowledgeable</li> </ul>
Decision making skills	Ability to get information, judging the qualities of things, services, or people. Facilitates dialogue and development of practices to support judgment or decision making.	<ul style="list-style-type: none"> <li>•Makes decisions with transparency</li> <li>•Maintain a broad perspective, and respects the competence and responsibilities of other project members</li> <li>•Ensures confidentiality during the decision-making process</li> </ul>

		<ul style="list-style-type: none"> <li>• Takes into consideration various and complex matters, alternative options, and ways to address issues</li> </ul>
Communication skills	<p>Able to communicate directions and vision to staff and adapt communication styles to the interest of audiences. Ability to use communication styles to inspire audiences. Encourages open communication and builds consensus. Keeps project members informed of decisions and directives as appropriate.</p>	<ul style="list-style-type: none"> <li>• Keeps project members informed of decisions and presenting them in the way that generates understanding and acceptance</li> <li>• Actively share information and encourages other project members to share their views and concerns</li> <li>• Provides constructive and positive feedback to the project team</li> <li>• Identifies and present conflict viewpoints in a fair and constructive manner</li> </ul>
Perception	<p>Ability to understand their emotions, strengths and weaknesses, needs and drives, sources of frustration, and reactions to problems. An extent of self-belief in the capability to manage emotions and to control their impact on the environment of the workplace.</p>	<ul style="list-style-type: none"> <li>• Assesses individual differences in the time spend focusing on private or public self-aspects and social anxiety</li> <li>• Aware of possible emotional responses one may have in new or familiar situations</li> <li>• Identifies and accesses various resource to provide help and assistance with personal problems</li> </ul>



		<ul style="list-style-type: none"> <li>• Takes ownership of personal decisions and their related consequences</li> </ul>
Resilience	Able to behave consistently in different pressing situations and adjust their behavior accordingly. Able to recover from stress, adjust to stressful occasions, and behave above the norm regardless of stress or adversity.	<ul style="list-style-type: none"> <li>• Able to resist the pressure to make quick decisions</li> <li>• Responds to challenges with logic and reason, avoiding emotional reactions</li> <li>• Manages conflicting pressures and tensions</li> </ul>
Ability to understand worldwide business	Ability to obtain a worldwide perspective and to combine worldwide diversity necessary for multinational firms.	<ul style="list-style-type: none"> <li>• Focuses on multiple countries</li> <li>• Manages relationships between headquarters and multiple foreign subsidiaries</li> <li>• Learns about trends, technologies, and approaches to conducting business in foreign countries</li> <li>• Interacts with foreign colleagues as equals</li> </ul>
Ability to learn foreign cultures	Ability to interact with people from diverse cultures at the same time, and adjust to living in foreign cultures. Conscious of, appreciation, thoughtful, and adjusting to cultural differences.	<ul style="list-style-type: none"> <li>• Learns about many foreign cultures' perspectives</li> <li>• Skillful at working with people from many cultures simultaneously</li> <li>• Adapts to living in other cultures</li> <li>• Negotiates with people from other countries</li> </ul>

Table 1. Competencies of Bridge Managers

It is suggested that particular competencies could be helpful for solving specific difficulties. The managers may consider using specific competencies to cope with difficulties they encounter in particular projects. Table 2 shows competencies that are useful for solving difficulties.

<b>Difficulty</b>	<b>Competency</b>
Quality control	<ul style="list-style-type: none"> <li>• Perception</li> <li>• Decision making skills</li> </ul>
Research approach guidance	<ul style="list-style-type: none"> <li>• Perception</li> <li>• Decision making skills</li> <li>• Ability to understand worldwide business</li> <li>• Ability to learn foreign cultures</li> </ul>
Requirement transfer	<ul style="list-style-type: none"> <li>• Perception</li> <li>• Decision making skills</li> <li>• Resilience</li> <li>• Ability to understand worldwide business</li> <li>• Ability to learn foreign cultures</li> </ul>
Team communication	<ul style="list-style-type: none"> <li>• Perception</li> <li>• Resilience</li> <li>• Ability to understand worldwide business</li> <li>• Ability to learn foreign cultures</li> </ul>

Table 2. Competencies for Solving Specific Difficulties

For interpretation of competency assessment, a radar chart can be used for visualization. Organizations could use a competency radar chart to see how competent their bridge managers are and develop competency development plans. Bridge managers could assess their competence level and compare it to their colleagues, or the expected level identified by their organizations. The radar chart should be used together with the competency levels. Figure 2 shows an example of a competency radar chart, comparing between expected competent level (blue line) and the existing competent level (orange line).

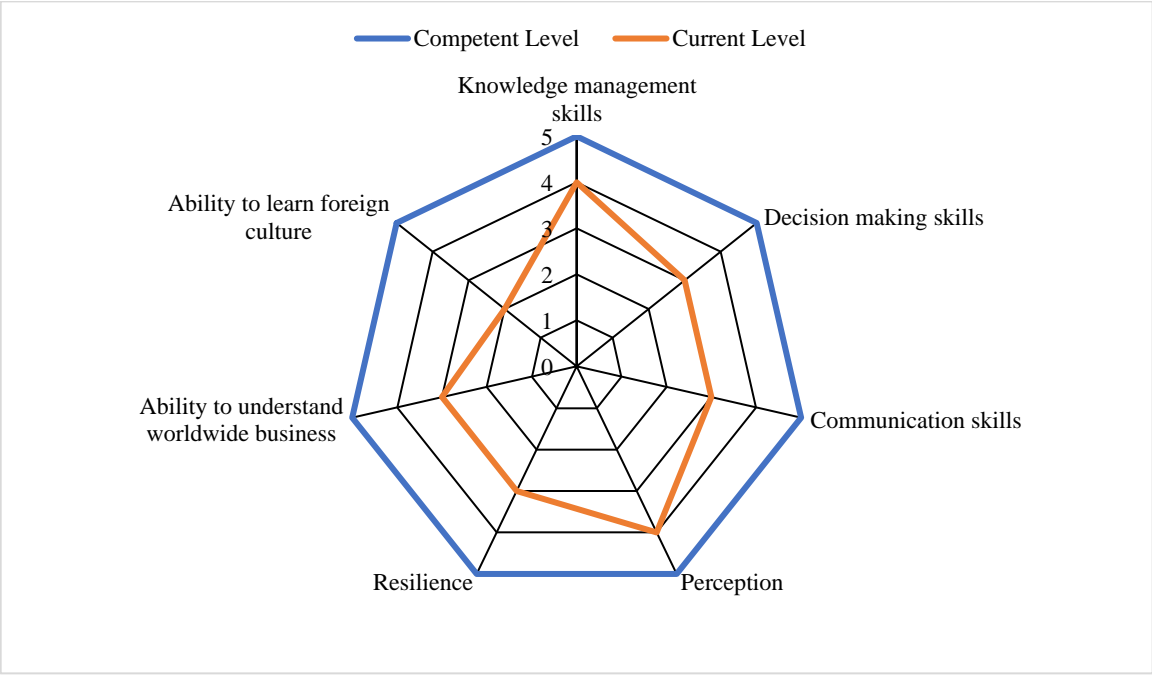


Figure 2. Competency Radar Chart (example)

## Competence level for bridge managers

To understand levels of competence, a scale is identified. This scale should be adapted to align with the context and requirements of an organization. In addition, the scale may vary depending on the responsibility of the bridge managers as well as the situation in particular projects which may require bridge managers to pay more attention to specific competencies.

<b>Competence level</b>	<b>Description</b>
1) Novice	Limited experience or knowledge. Following set of rules for determining actions.
2) Advanced beginner	Some experience and knowledge. Experienced to cope with real situations and understand relevant context.
3) Competence	Partially demonstrate and perform under supervision. More experience to determine rules and reasoning procedure for making decision.
4) Proficiency	Supported by experience and knowledge. Having situational discrimination and able to see goals more obvious.
5) Expertise	Supported by broad experience and deep knowledge. See immediately how to achieve goals with ability to make subtle and refined discriminations.

Table 3. Competence Levels

Bridge managers demonstrate competencies differently. Some examples in Table 4 provide a guideline for competency assessment. The indicators for different levels of each competency include but not limited to the list in Table 4.

Competency	Competence Level				
	Novice	Advanced beginner	Competence	Proficiency	Expertise
Knowledge management (KM) skills	<ul style="list-style-type: none"> <li>•Recognizes roles of mentor or facilitator for KM in the projects</li> <li>•Considers integrating knowledge from different cultures</li> </ul>	<ul style="list-style-type: none"> <li>•Works with project members to coordinate KM activities</li> </ul>	<ul style="list-style-type: none"> <li>•Displays creativity on KM</li> </ul>	<ul style="list-style-type: none"> <li>•Integrates knowledge from different cultures of project members</li> </ul>	<ul style="list-style-type: none"> <li>•Devises KM improvement plan for future projects</li> <li>•Develops new approaches for KM in the projects</li> </ul>
Decision making skills	<ul style="list-style-type: none"> <li>•Recognizes roles of decision maker</li> <li>•Considers judging the qualities of things, services, or people</li> </ul>	<ul style="list-style-type: none"> <li>•Uses appropriate information in decision making process</li> <li>•Works with project members to make decisions</li> </ul>	<ul style="list-style-type: none"> <li>•Displays confidence when judging the qualities of things</li> </ul>	<ul style="list-style-type: none"> <li>•Facilitates dialogue and development of practices to support judgment or decision making</li> <li>•Organizes processes to</li> </ul>	<ul style="list-style-type: none"> <li>•Develops decision making process that support project goals</li> </ul>

				support decision making	
Communication skills	<ul style="list-style-type: none"> <li>•Recognizes the importance of different ways of communication</li> <li>•Considers different communication styles to different audiences</li> </ul>	<ul style="list-style-type: none"> <li>•Uses appropriate communication styles</li> </ul>	<ul style="list-style-type: none"> <li>•Encourages project members to communicate openly</li> <li>•Displays openness when communicate with project members</li> </ul>	<ul style="list-style-type: none"> <li>•Creates communication styles to inspire audiences</li> <li>•Organizes adequate communication between project members</li> </ul>	<ul style="list-style-type: none"> <li>•Devises communication plan throughout the projects</li> <li>•Develops new communication styles as appropriate for the diverse audiences</li> </ul>
Perception	<ul style="list-style-type: none"> <li>•Recognizes own emotions, strengths, and weaknesses</li> <li>•Considers an impact of emotions on work environment</li> </ul>	<ul style="list-style-type: none"> <li>•Uses own strengths and weaknesses as appropriate</li> </ul>	<ul style="list-style-type: none"> <li>•Displays ability of controlling own emotions</li> </ul>	<ul style="list-style-type: none"> <li>•Organizes emotions and to control their impact in the environment of the workplace</li> </ul>	<ul style="list-style-type: none"> <li>•Develops new capability to control and use own emotions, strengths, and weaknesses to support project goals</li> </ul>
Resilience	<ul style="list-style-type: none"> <li>•Recognizes the demanding work environment of</li> </ul>	<ul style="list-style-type: none"> <li>•Works consistently in different pressing situations</li> </ul>	<ul style="list-style-type: none"> <li>•Adjusts behavior to deal with different</li> </ul>	<ul style="list-style-type: none"> <li>•Recovers from stress, adjust to stressful occasions</li> </ul>	<ul style="list-style-type: none"> <li>•Devises stress management to cope with different projects</li> </ul>

	<p>global R&amp;D projects</p> <ul style="list-style-type: none"> <li>• Considers behaviors to perform under stressful situation</li> </ul>		<p>pressing situations</p>		<ul style="list-style-type: none"> <li>• Develops new behaviors to deal with challenges of future projects</li> </ul>
<p>Ability to understand worldwide business</p>	<ul style="list-style-type: none"> <li>• Recognizes diversity in global R&amp;D projects</li> <li>• Considers perspectives to understand worldwide business information</li> </ul>	<ul style="list-style-type: none"> <li>• Works with project members from international community</li> </ul>	<ul style="list-style-type: none"> <li>• Solicits different viewpoints of international business to benefit the projects</li> <li>• Obtains worldwide perspective</li> </ul>	<ul style="list-style-type: none"> <li>• Combines worldwide diversity necessary for global R&amp;D projects</li> </ul>	<ul style="list-style-type: none"> <li>• Devises techniques to combine worldwide business information from different sources</li> <li>• Develops new approaches to obtain worldwide business information</li> </ul>
<p>Ability to learn foreign cultures</p>	<ul style="list-style-type: none"> <li>• Recognizes differences in foreign cultures</li> <li>• Considers interactions with people</li> </ul>	<ul style="list-style-type: none"> <li>• Interacts with people from diverse cultures at the same time</li> <li>• Works with project</li> </ul>	<ul style="list-style-type: none"> <li>• Adjusts to living in foreign cultures</li> <li>• Solicits feedback from project</li> </ul>	<ul style="list-style-type: none"> <li>• Creates environment for multicultural collaboration</li> <li>• Organizes interaction</li> </ul>	<ul style="list-style-type: none"> <li>• Devises new approaches for interact with people from diverse cultures</li> <li>• Develops</li> </ul>

	from different cultures	members from diverse culture	members about working in multicultural environment •Displays appreciation to cultural differences	activities between project members of different cultures	•Adjusts to new cultural differences in the projects
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Table 4. Example indicators of Competency Levels



# **Competency Development**

## **Competency development workshop**

Workshop is one of the competency development methods for bridge managers. New knowledge, skills, abilities, attitudes, and characteristics can be developed in many ways. Competency development covers activities that expand existing knowledge, skills, and abilities of individuals. The new competencies will be used for dealing with future challenges. Managers should consider what would be the best competency development method to serve their needs.

The bridge manager competency development workshop is designed for bridge managers to develop competencies for facilitating global R&D projects by taking advantage of intensive discussion and knowledge sharing between participants. Workshop is a meeting where a group of people engages in intensive discussion on a particular subject (Pearsall, 1998). The workshop includes a discussion session in which participants talk about difficulties in global R&D projects and competencies for solving the difficulties. The case scenario is prepared for workshop participants as a discussion material. This document describes situations in a global R&D project and identifies key problems related to the project difficulties.

In addition to the case study and discussion session, the workshop has a questionnaire for assessing opinions of participants regarding the importance of competencies for solving difficulties in global R&D projects. The questionnaire includes an explanation of the difficulties in global R&D projects and the importance of competencies for solving difficulties. Participants are requested to answer the same questionnaire on two different occasions, before and after the discussion session.

After answering the questionnaire for the first time, before the discussion session, participants are invited to share their opinions regarding the case scenario and their experience in facilitating global R&D projects. Participants are asked to identify competencies for solving particular difficulties indicated in the case scenario assuming that they are the bridge manager in charge of research collaboration and face several difficulties in the global R&D project. Participants have to think about solutions to solve difficulties and competencies that could help them accomplish those solutions.

## Competency development cycle

As a guideline, the bridge manager competency development framework should be used in accordance with the needs of organizations. It is recommended to review the framework regularly to ensure usability and consistency with the goals and strategies of organizations. The framework should be adapted to suit the context and condition of the bridge managers' working environment. The following steps provide a general guideline for the managers to use the framework, starting from reviewing requirements, assessing competencies, preparing a competency development plan, and implementing the plan. More details are provided as follows.

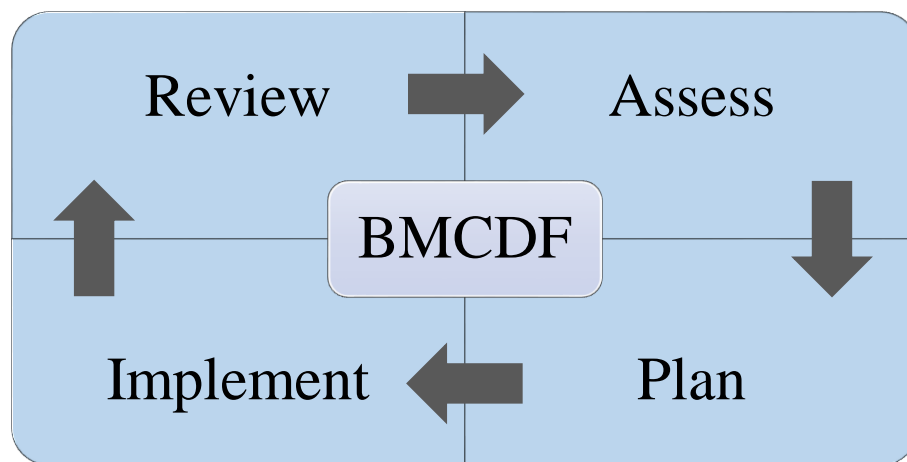


Figure 2. Competency Development

### Review requirements

The organizational and personal requirements should be identified to ensure the effectiveness of competency development and assessment. Strengths and development needs are identified. The organizational and project context are important sources of information for requirement identification for bridge managers. This information may include but is not limited to organizational structure, R&D processes, communication channels, and cultural diversity. The role and responsibility of bridge managers also influence the requirements and help adapt competencies to suit specific tasks.

## **Assess competencies**

The assessment methods and processes are defined. The evidence and the process how to collect evidence to be used in the assessment are identified as well. The bridge managers are assessed against the criteria defined in the previous step. There are tools for assessment such as observation, interview, and training. These methods, processes, and tools should be documented. Therefore, they are repeatable and consistent for future assessments.

## **Prepare competency development plan**

The competency development plan could be created after getting results from the previous step. The plan is created based on the information gathered in the assessment. Competency gaps can be identified. That suggests the development needs and competency development of bridge managers. Experiential learning and formal learning help address competency development needs. The formal learning may include workshops where bridge managers have an opportunity to exchange their ideas and knowledge regarding their competency development needs. The competency development plan should be adapted to the organizational and project environment, and the current competency of individual bridge managers.

## **Implement competency development plan**

Once the competency development plan from the previous step is finalized and agreed upon, then the plan can be implemented. The bridge managers are responsible for delivering competency development outcomes. These outcomes allow bridge managers to improve their performance, change their behavior, and inform future competency development. It is a continuous process to evaluate the progress of the plan. This process ensures that bridge managers achieve identified competency development needs. The manager can compare their competency before and after the execution of the competency development plan.

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