

DOING COMPETENCIES WELL: BEST PRACTICES IN COMPETENCY MODELING

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The purpose of this article is to present a set of best practices for competency modeling based on the experiences and lessons learned from the major perspectives on this topic (including applied, academic, and professional). Competency models are defined, and their key advantages are explained. Then, the many uses of competency models are described. The bulk of the article is a set of 20 best practices divided into 3 areas: analyzing competency information, organizing and presenting competency information, and using competency information. The best practices are described and explained, practice advice is provided, and then the best practices are illustrated with numerous practical examples. Finally, how competency modeling differs from and complements job analysis is explained throughout.

The purpose of this article is to present a set of best practices for competency modeling based on the experiences and lessons learned from all the major perspectives on this topic including two major companies, a major consulting firm, a major university, and the Society for Industrial and Organizational Psychology (SIOP) taskforce on competency modeling. From all the different perspectives, we will delineate a set of 20 best practices and then illustrate them with practical examples from actual organizations. For the interested reader, we also link the practices to the existing literature which consists mostly of writings based on practical experience (e.g., case studies, commentaries) because little empirical

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research exists. This article is an outgrowth from a top-rated practice forum and subsequent workshop at SIOP conferences.

The authors feel it is important to acknowledge that our approach to best practices is experience based rather than empirically based. Our intention in this article was to share a set of lessons learned and insights into the effective use of competencies, based on the aggregated experiences of the authors across many years, industries, and settings. We explicitly acknowledge that there are limitations in this approach. We hope that by adding structure to the discussion about competencies, we will be able to provide frameworks that might not only inform good practice but also lead to solid science investigating competencies with more rigor than they have been afforded to date.

Definition of Competency Models and Key Differences From Job Analysis

Competency models refer to collections of knowledge, skills, abilities, and other characteristics (KSAOs) that are needed for effective performance in the jobs in question (e.g., Green, 1999; Kochanski, 1997; Lucia & Lepsinger, 1999; Mansfield, 1996; Mirabile, 1997; Parry, 1996; Rodriguez, Patel, Bright, Gregory, & Gowing, 2002; Schippmann et al., 2000). The individual KSAOs or combinations of KSAOs are the competencies, and the set of competencies are typically referred to as the competency model. However, they are more than just lists of KSAOs in several ways (as summarized in Table 1).

First, competency modeling is an important innovation in that it is a way to get organizations to pay attention to job-related information and employee skills in the management of employees. In fact, a key difference between job analysis and competency modeling may be that executives pay more attention to competency modeling. In that sense, competency modeling is a way to get job analysis into the mainstream of employee management decisions. Competency modeling could be considered the “Trojan Horse” for job analysis.

Second, they are often intended to distinguish top performers from average performers (e.g., Parry, 1996; Olesen, White, & Lemmer, 2007). They focus less on and may even omit descriptors of tasks or KSAOs that do not help understand employee performance (but cf., Lievens, Sanchez, & De Corte, 2004).

Third, they often include descriptions of how the competencies change or progress with employee level (e.g., Martone, 2003; Rodriguez et al., 2002). Such progressions may refer to job grade or pay level (e.g., junior, middle, senior) or to the level of proficiency (e.g., novice, expert).

Fourth, the KSAOs are usually linked to the business objectives and strategies (e.g., Green, 1999; Martone, 2003; Rodriguez et al., 2002).

TABLE 1
Description of Competency Models and Key Differences Between Competency Models and Job Analysis

1.	Executives typically pay more attention to competency modeling.
2.	Competency models often attempt to distinguish top performers from average performers.
3.	Competency models frequently include descriptions of how the competencies change or progress with employee level.
4.	Competency models are usually directly linked to business objectives and strategies.
5.	Competency models are typically developed top down (start with executives) rather than bottom up (start with line employees).
6.	Competency models may consider future job requirements either directly or indirectly.
7.	Competency models may be presented in a manner that facilitates ease of use (e.g., organization-specific language, pictures, or schematics that facilitate memorableness).
8.	Usually, a finite number of competencies are identified and applied across multiple functions or job families.
9.	Competency models are frequently used actively to align the HR systems.
10.	Competency models are often an organizational development intervention that seeks broad organizational change as opposed to a simple data collection effort.

That is, the KSAOs are described in a manner that highlights their relationships to the work or the objectives, or sometimes the KSAOs needed to achieve each objective are identified and grouped together. In addition, they are usually defined in terms of observable job behavior. Sometimes this characteristic even affects how the competency model is developed. A traditional job analysis is inductive (starting with job tasks and KSAOs to arrive at conclusions about what is important to the job), whereas competency modeling is more deductive (starting with the outcomes and backing into the tasks and KSAOs).

Fifth, they are developed top down rather than bottom up like job analysis. They not only start with gathering information from executives rather than lower level job employees like job analysis, but they usually start with defining the competencies for executive jobs and then work their way down.

Sixth, competency models may consider future job requirements either directly or indirectly (e.g., Parry, 1996; Rodriguez et al., 2002; Schippmann et al., 2000). They do not document the status quo but attempt to look into the future and sometimes try to even define that future.

Seventh, competency models are usually presented in a manner that facilitates ease of use. Designing for ease of use often includes the utilization of organization-specific language. Models may be in the form of

lists but are also sometimes presented in terms of pictures or schematics to facilitate understanding and memorableness or “stickiness.”

Eighth, typically, a finite number of competencies are identified, and applied across multiple functions or job families. Bounding the competency model in this way simplifies the human resource (HR) systems and facilitates comparisons across functions that support parity in systems like compensation and ease job movement across functions by illuminating similarities.

Ninth, and perhaps most importantly, competency models are used actively to align the HR systems (e.g., Green, 1999; Lawler, 1994; Lucia & Lepsinger, 1999; Schippmann et al., 2000). That is, an attempt is made to use the competency model to revise the HR systems so that, for example, the organization hires, trains, evaluates, compensates, and promotes employees based on the same attributes. This approach integrates, prevents inconsistency, and allows the HR systems to reinforce each other for maximum positive impact. Job analysis is usually tailored to the HR system for which it is conducted. A given job analysis may be conducted to inform several HR systems, but this usually means including several descriptor domains (e.g., Peterson et al., 2001) rather than attempting to align the HR systems in terms of the same set of KSAOs.

A tenth difference is that competency modeling is often more of an organizational development intervention that seeks broad organizational change (such as HR alignment) as opposed to a simple data collection effort. Characterizing competency modeling as OD incorporates how the competency modeling project is conducted (e.g., as an intervention) and how executives are attracted to these projects (because they attempt to create positive change). Job analysis is rarely used to change the organization in any dramatic manner. It mostly seeks to refine, improve, or defend specific HR systems or organizational practices.

The Uses of Competency Models

Competency models can play many roles in HR systems. For example, they can be used to:

- Hire new employees by using assessments and other selection procedures that measure the competencies (e.g., Bartram, 2005; Lawler, 1994). The fact that models often attempt to distinguish the characteristics of top performing employees from average employees makes them especially useful for selection. For example, executive succession programs are commonly guided by competency models in most organizations today (e.g., Lucia & Lepsinger, 1999).

- Train employees by creating courses aimed at the development of certain competencies (e.g., Lawler, 1994; Lucia & Lepsinger, 1999; Schippmann et al., 2000; Zemke, 1982). For example, executive development and coaching programs often have a competency model foundation. Likewise, many 360 surveys used for development are based on competency models.
- Evaluate the performance of employees by structuring the appraisal instrument around the competencies (Posthuma & Campion, 2008). Models that depict levels of proficiency for each competency are especially useful for appraisal (e.g., Catano, Darr, & Campbell, 2007; Lucia & Lepsinger, 1999; Martone, 2003).
- Promote employees by using the competencies to establish promotion criteria (Morgeson, Campion, & Levashina, 2009). Models that depict job grade or pay levels for each competency are especially useful for promotion.
- Develop employee careers by using the competency models to guide the choice of job assignments and make other career choices (Berke, 2005; Groves, 2007). Again, models that define job grade levels are especially useful for this purpose.
- Manage employee information by using the competency models to record and archive employee skill, training, and job experience information.
- Compensate employees by using the competency model to structure pay differences between jobs or to evaluate employees for pay increases (e.g., Lawler, 1994; O'Neal, 1995; Tucker & Cofsky, 1994; Zingheim, Ledford, & Schuster, 1996). The link to business objectives and performance levels facilitate the use of competency models for pay purposes.
- Manage retention of critical skills and reduction-in-force activities through the identification and measurement of competencies tied to current and future organizational objectives (Camardella, 2002; Cameron, 1994; Cascio, 2002).
- Support organizational change efforts by developing broad systematic support of future-oriented competencies (e.g., Lawler, 1994). The ability to train, assess, select, promote, and reward employees in alignment to a desired future state can help speed organizations through transition (Cummings & Worley, 2008).

There may be additional uses of competency models as well. These many roles of competency models highlight the alignment function of competency models. Well-designed competency models not only help

TABLE 2
Best Practices in Competency Modeling

Analyzing Competency Information (Identifying Competencies)
1. Considering organizational context
2. Linking competency models to organizational goals and objectives
3. Start at the top
4. Using rigorous job analysis methods to develop competencies
5. Considering future-oriented job requirements
6. Using additional unique methods
Organizing and Presenting Competency Information
7. Defining the anatomy of a competency (the language of competencies)
8. Defining levels of proficiency on competencies
9. Using organizational language
10. Including both fundamental (cross-job) and technical (job-specific) competencies
11. Using competency libraries
12. Achieving the proper level of granularity (number of competencies and amount of detail)
13. Using diagrams, pictures, and heuristics to communicate competency models to employees
Using Competency Information
14. Using organizational development techniques to ensure competency modeling acceptance and use
15. Using competencies to develop HRs systems (hiring, appraisal, promotion, compensation)
16. Using competencies to align the HR systems
17. Using competencies to develop a practical “theory” of effective job performance tailored to the organization
18. Using information technology to enhance the usability of competency models
19. Maintaining the currency of competencies over time
20. Using competency modeling for legal defensibility (e.g., test validation)

ensure that all the HR systems are job related, but they help align the HR systems in terms of the same set of KSAOs.

Best Practices in Competency Modeling

In the sections below, some best practices for competency modeling are described based on the experiences of the coauthors. They are also summarized in Table 2. For each of the best practices, we will explain the issue and the recommendation, and then provide practical illustrations where possible from the various organizations of the coauthors. The best practices are divided into three topic areas: (a) analyzing competency information, (b) organizing competency information, and (c) using competency information.

*Analyzing Competency Information (Identifying Competencies)**1. Consider Organizational Context*

Competency models are often highly tailored to the organization. Customization includes not only the specific competencies developed but also the way in which the competencies are described. The context includes all those factors that influence the employee behaviors the model is trying to improve, including the organizational culture, life stage, market, customers, employee relations, presence of a union, and strengths and weaknesses of its management. In addition, although many organizations will adopt competencies that are similar in content and can be applied universally regardless of the organizational context (e.g., adaptability, communication skills), successful competency models also identify competencies that align to corporate strategy and foster competitive advantage. For example, organizations that view marketing and sales as a competitive advantage will likely have competencies promoting market analysis and creating sales strategies, whereas organizations that view engineering as a critical skill will favor competencies that highlight engineering design and testing.

Tailoring to the organization is particularly important when using competency libraries to pick initial competencies as opposed to developing competencies from scratch. The topic of using competency libraries is addressed further below.

2. Linking Competency Models to Organizational Goals and Objectives

Recall that one aspect that distinguishes competencies is that they are typically linked to business objectives and strategies (e.g., Green, 1999; Kochanski, 1997; Martone, 2003; Rodriguez et al., 2002). More specifically, they are the KSAOs that are needed to achieve an organizational goal. In this way, they direct the attention and the efforts of employees to the organizational goals. This business objective linkage of competency models is critical to the interest and commitment of senior management. In addition, the business linkage distinguishes competency models from job analysis, which usually stops short of translating how the KSAOs directly influence organizational goals.

In order to ensure that this best practice is met, the development of the competency model often starts with a definition of the organizational goals and objectives. With this guiding framework in place, competencies critical for obtaining those goals and objectives are identified (as illustrated in Figure 1). Sometimes the competencies are direct translations of the organizational goals. For example, if one goal is sales growth, one

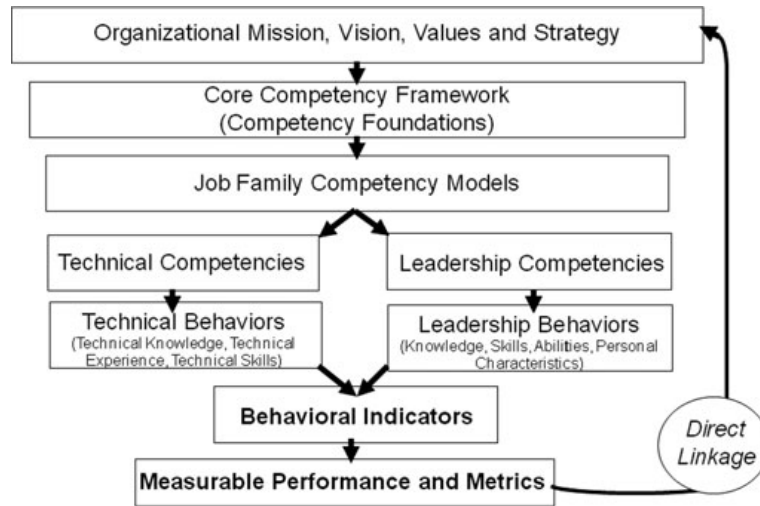


Figure 1: A Framework for Competencies.

of the competencies might be the KSAOs most needed for sales growth. Other times, the competencies might be one step back in the chain of efforts required for the organizational goals, such as the identification of innovative new products. Note that this best practice does not preclude the inclusion of some competencies that relate to fundamental requirements of organizations that are not necessarily linked to specific organizational goals, such as producing high-quality products or services. Competencies of this nature are more common for lower-level jobs, whereas competencies more clearly related to organizational goals are more apparent for management and executive jobs.

Although competency development may start with a clear link to organizational goals, it is also quite likely that organizational goals will impact details such as the proficiency levels linked to the competencies. For example, much like establishing effective performance objectives in a performance management system, the most effective proficiency anchors will have a clear linkage or alignment to organizational goals. Thus, the factors that distinguish various levels of the competency all tie back to the goals of the business/organization.

Aligning competencies to organizational goals may result in competencies that are complex or multidimensional. For example, a given competency may include both a particular knowledge area and a skill, or set of skills, in applying that knowledge effectively in a particular context. This

additional complexity is intended to enhance the usefulness of the model by showing the bundle of KSAOs needed to achieve an organizational goal.

3. Start at the Top

Traditional job analysis often starts with collecting information from employees. This certainly has many advantages, such as getting information from the people who actually do the work. However, it is better to begin competency modeling information collection with top executives. An important reason for doing this is to get their support for the project. Recall that top management support and involvement is one of the most important advantages of competency modeling. Top leadership buy-in is critical for obtaining sufficient budgetary support as well as ensuring that the resulting models are used by lower level managers for the management of employees. Leadership engagement is also important because executives are more likely to have insight as to the future direction of the organization and are thus in a better position to provide information on future job requirements. Top executives may also be more helpful in ensuring that the proper organizational language is used in the competency model. Although the effort will start with executives, all levels of employees will likely be involved in the development of the model as described in latter sections.

In cases where a hierarchy of competency models is developed, “starting at the top” may need to be iterated to start at the top of each profession or other unit of analysis. For example, Microsoft has built profession-specific competencies for all of its professions, and each one has intimately involved a group of senior leaders for that profession, as well as interviewing and surveying from the broader population of relevant job incumbents.

4. Using Rigorous Job Analysis Methods to Develop Competencies

Competency modeling does not inherently lack rigor. However, most early efforts were conducted by less methodologically rigorous consultants who were not researchers. They had many key advantages such as a broader view of management (considering more fields than just HR) and perhaps better rapport with management because of this. In fact, they were extremely helpful in bringing employee KSAO considerations to executive discussions, but they were not trained in research methods, and early models lacked rigor in terms of the standards of industrial and organizational (I-O) psychology. One of I-O psychology’s key contributions is bringing more appropriate research methods, primarily from research on

job analysis, to the development of competency models (e.g., Brannick, Levine, & Morgeson, 2007; Lievens et al., 2004; Schippmann et al., 2000).

A task force was commissioned several years ago by SIOP to study the state of competency modeling (Schippmann et al., 2000). Task force findings were based on an extensive literature review as well as 37 interviews with a diverse sample of subject-matter experts (SMEs). A primary finding was that competency modeling was typically far less methodologically rigorous than job analysis. Assessment of rigor was based on 10 variables including the method of investigation, assessment of reliability, documentation, and link to business goals and strategies. Competency modeling (as typically practiced at the time) was assessed to have more rigor on only one of 10 variables—link to business goals and strategy. The task force also concluded that there appeared to be much more variance in the level of rigor used in the practice of competency modeling than in the practice of job analysis. As part of the current project, an update was conducted to see if practices had become more rigorous as researchers with I-O backgrounds have become more involved. A literature review (including a review of the revised *Principles for the Validation and Use of Personnel Selection Procedures*; Society of Industrial and Organizational Psychology, 2003) and interviews with six of the original SMEs led us to conclude that although the practice of competency modeling has evolved, rigor is still a concern. As noted by others as well, competency models are too often a “hodge podge” of job and worker-oriented KSAOs—“ill-defined concepts with no clear meaning” (Sackett & Laczko, 2003).

It is clear, however, that the limited research literature around competency modeling is fairly consistent in promoting the integration of job analysis rigor with the broader organization focus of competency modeling. In fact, there is very little evidence that “best practice” of competency modeling is substantively different from the full range of traditional job analysis (e.g., Catano et al., 2007; Lievens et al., 2004; Lucia & Lepsinger, 1999; Mirabile, 1997; Rodriguez et al., 2002; Sackett & Laczko, 2003).

The combination of traditional job analysis and competency modeling methods can allow for a highly robust approach to competency modeling. These methods include the use of multiple data collection methods such as observations, SME interviews, and structured brainstorming methods in focus groups to identify potential competency information; the use of clear construct definitions in the competencies and linkages to theory and literature; the use of survey methodology to empirically identify the critical competencies and to differentiate the job grades where specific competencies emerge as most important (e.g., Lucia & Lepsinger, 1999; Parry, 1996; Rodriguez et al., 2002); the use of sampling techniques; the use of appropriate statistical analyses; the assessment of reliability

and other psychometric quality checks; the validation of models against important organizational criteria (e.g., differences in the job performance of employees demonstrating the competencies); and the validation of models across sources of information or job groups.

Another way to enhance competency modeling projects is to establish a project advisory group that can guide the process, make critical decisions, ensure buy in, and garner support. The advisory group can also help define the organization's business objectives, the purpose or function for which the model will (and might) be applied, the scope of positions and job titles to be covered by the model, and so forth. This systematic process of consulting with such a group around the purpose and scope of the project is essential to ensuring that the model will be successful. As noted earlier, one key difference between competency modeling and job analysis is that competency modeling is a broader organizational development intervention, which is facilitated by such advisory groups.

5. Considering Future-Oriented Job Requirements

This best practice reflects a feature of competency modeling that complements traditional job analysis (e.g., Parry, 1996). Both by definition and by the methods used, job analysis captures the requirements of the current job (the status quo) but does not explicitly consider the requirements of the future in most cases. "Future-oriented" job analysis or "strategic" job analysis is often mentioned in books and teachings on job analysis (e.g., Brannick et al., 2007; Sackett & Laczko, 2003; Society of Industrial and Organizational Psychology, 2003), but the experience of the authors is that future-oriented requirements are rarely considered, and there is almost nothing in the research literature on the topic.

A likely reason that future-oriented requirements are rarely considered in job analysis is probably due in large part to the use of job analysis to ensure (and document) job relatedness of HR systems such as hiring and promotion procedures because of the central role that plays in legal defensibility. However, this renders job analysis less useful for leading the organization into the future. It measures "what is" and not "what will be needed in the future" or "what should be." This may explain why job analysis results are mainly considered and used in staff organizations and not the executive suite.

There are many methods that can be used to include future-oriented job requirements in competency modeling projects. Although they vary in methodological rigor, all might yield some useful insight. One simple approach is to conduct a literature review (Rodriguez et al., 2002) of emerging business models and their associated competency requirements. Another simple approach is to conduct interviews and focus groups on

the topic of future-oriented requirements. Many executives and other key employees have insight into future requirements because of their broad perspective, access to information on new developments, and role in shaping the future. No one can predict the future with certainty, but most organizations have some idea about future products, markets, resource challenges, and competitive issues.

Complementing this, some organizations may conduct in-depth analyses of long-range business strategies and then use SMEs to identify the key competencies required to execute those strategies. Where business executives may understand the need for boundary-spanning products, for example, they may not appreciate the type of collaboration skills required to successfully bring boundary-spanning products to market.

Potentially more insight can be gained by using more novel approaches. For example, future scenario workshops can be conducted wherein alternative scenarios of the future are defined and then their competency implications determined by SMEs in a systematic manner. Future scenarios are a natural outcome of the now classic scenario planning process developed by the Global Business Network (Schwartz, 1991). A central concept in this approach is that the future cannot be predicted with accuracy, so it may be better to define a range of possible future scenarios and then either base strategic decisions around the common requirements across multiple future scenarios or invest in pursuing multiple scenarios in parallel.

An example of the future scenario approach is the recent planning initiative involving multiple federal government agencies called "Project Horizon" (2006). Based on interviews with hundreds of SMEs, five detailed scenarios were developed for the potential future world that could face the U.S. government. Examples include a future where China and Asia (and not the United States) dominate the world economy or a future where terrorism and security are the major concerns.

The U.S. Department of State used these future scenarios to help inform the revision of their competency model. Focus groups were convened for each scenario consisting of about 10 to 12 SMEs representing the range of job types and grade levels of employees (foreign service officers). The focus group members read the detailed scenarios in advance, and during the meeting they discussed the scenarios and used structured brainstorming techniques to derive potential competencies that would be required. They also rated the impact of the future scenarios on the competencies in their current model and some potential new competencies that were hypothesized to be important in the future based on previous executive interviews.

The U.S. Army has conducted a similar initiative. They studied the current developments in future weaponry and equipment and the likely

battlefield conditions of the future to define the competencies needed by the soldier of the future (Ford, Campbell, Campbell, Knapp, & Walker, 2000).

At one large consulting firm, a key step in conducting future-oriented competency modeling is to compile the SMEs who will be responsible for establishing or defining the future state. These may be senior business leaders, functional experts, senior HR members, or others as appropriate. The key is to have the individuals who will be helping to mold the future in the discussions around what the critical competencies are for those occupying the positions. In addition, effective group facilitation and consensus building are essential to creating competencies that are bought into and not just based on the input of the most senior or most outspoken SME.

Microsoft offers another good case example using a forward-looking orientation for competency work. Most notably, Microsoft's leadership competency model was built as a direct outcome of internal research on the company's future business strategy and analysis of the organizational attributes required to successfully meet those challenges. The initial hypothesized set of competencies aligned to those future needs was narrowed by examining the extent to which each competency was able to discriminate outstanding from typical performance among executives. A behavioral event interview process, conducted and content coded by highly trained experts, was used to identify competency proficiency levels for each proposed competency. The interview and analysis process is discussed in more detail below.

The resulting leadership competency model includes a balance of current or "baseline" competencies that cover key fundamentals that are required by all jobs, a set of "differentiating" competencies that statistically differentiate current outstanding from current typical leaders, and a set of future-oriented competencies, which are essential to the company's future business success but which are currently not widespread in either the outstanding or the typical group of leaders. (For more detail on Microsoft's approach to using competencies as part of culture change work, see Olesen et al., 2007).

6. Using Additional Unique Methods

There are other methods that are unique to competency modeling that can also be rigorous. A particularly notable example is the "behavioral event interview" (McClelland, 1998). To the experienced I-O psychologist, this may sound like little more than a critical incidents job analysis (Flanagan, 1954). However, to a competency modeler this is a highly in-depth interviewing process, usually with senior executives, that collects detailed information on past situations on the job and gives more emphasis

to the thinking behind the actions. The information gathered is then later studied and coded to identify the behavioral themes that lead to success or failure. Critical incidents are also used to clarify “fuzzy” competencies by using them to illustrate.

Employee surveys, a favorite tool for job analysis, are also commonly used to help develop competency models. Aside from the usual rating scales measuring importance, needed at entry, complexity level, and so on, additional unique rating scales are sometimes used in competency modeling. Examples include:

- Rating the importance of the competency in the future compared to the present
- Rating the extent to which the competency distinguishes high performing employees from average employees (e.g., Rodriguez et al., 2002)
- Rating the linkage of the competencies to organizational goals, objectives, or strategies

Because competency models usually attempt to identify the most important KSAOs needed for successful job performance (as opposed to all KSAOs), it is common to study contrasting groups of employees like highly successful employees and more average employees. These contrasting groups might be used in many ways. They might be used as the objects of discussion when asking executives about competencies, they might be the employees to invite to interviews and focus groups, or they might constitute the samples for a survey.

Similar to the idea of contrasting groups, unique groups of employees might be studied because they could help identify especially important or emerging competencies. For example, in a recent competency modeling project at the U.S. Department of State, employees who had been stationed in either Iraq or Afghanistan were invited to focus groups and sent surveys to understand the unique requirements of the jobs in a wartime context.

Microsoft used a combination of several criteria to identify sets of outstanding and typical employees as a part of its competency research. In the case of the leadership competencies (discussed above), these criteria were supplemented with a subjective review by the executives. Although this approach added time and complexity to the project, it has yielded important benefits. The specific inclusion of those future-oriented competencies discussed above gave Microsoft a language and a platform to begin building those competencies in an intentional way. Specifically, they were addressed in executive development and considered in leader and executive selection. The success of this approach is illustrated in the fact that Microsoft updated its leadership competency model after 3 years. In 3 years, sufficient objective improvement in performance of leaders against

the competencies was observed so that the target proficiency levels had to be adjusted to maintain predictive efficacy; the “outstanding” leader profile in the original research had become the “typical” leader profile in just a few short years, and an updated profile of “outstanding” had to be derived.

Organizing and Presenting Competency Information

7. Defining the Anatomy of a Competency (the Language of Competencies)

Competencies are usually described very thoroughly by including several parts: (a) a descriptive label or title; (b) a definition, usually describing how the competency appears on the job in detailed behavioral terms (e.g., Parry, 1996); and (c) a detailed description of the levels of proficiency on the competency (see an example in Figure 2). In contrast, usual job analysis information usually consists only of a label and brief definition. Note that some practitioners have defined competencies as behaviors, but we believe that competencies are best defined as KSAOs, with behaviors used to describe or illustrate the observable actions on the job as a result of the competencies (as in behavioral indicators).

Figure 3 shows some terms used to define competencies. We believe these terms to be common to many competency modeling programs.

In general, the finer the level of detail contained in the competency model, the broader the possible applications. For example, a relatively fine level of detail is needed to help design training programs and performance management systems. However, such a model could also be used for multiple other uses that may not require that level of detail. That is not to say that one should always build the most detailed model possible simply to maximize possible functionality. Issues of cost, buy in, clarity, parsimony, and so forth must also be considered as these may be paramount issues with some organizations.

8. Defining Levels of Proficiency on Competencies

Although part of the competency anatomy, this is an especially important aspect of competency modeling and so is addressed in more detail here. The levels of proficiency may describe progressive levels of competency development on the job (e.g., novice, master, and expert), levels of competency performance (e.g., marginal, good, and excellent), job grade level (e.g., associate engineer, staff engineer, or senior engineer), or other levels depending on the purpose. The levels are usually defined in terms of highly observable behaviors and may include contextual factors and contingencies in the appearance and appropriateness of the competency

1		2	
<p>Project Management Project Management is the art of creating accurate and effective schedules with a well-defined scope while being personally accountable for the execution and invested in the success of the project. People who exhibit this competency effectively and continuously manage risks and dependencies by making timely decisions while ensuring the quality of the project.</p>			
<p>Proficiency Level 1 Identifies risks and dependencies and communicates routinely to stakeholders</p> <p>Appropriately escalates blocking issues when necessary</p> <p>Understands project objectives, expected quality, metrics, and the business case</p> <p>Champions project to stakeholders and articulates business value</p>		<p>Proficiency Level 2 Develops systems to monitor risks and dependencies and report changes</p> <p>Works effectively across disciplines and organizational boundaries to gain timely closure on decisions that impact own project/solution/portfolio</p> <p>Develops methods to track and report metrics, gains agreement on quality, and relates it to business value</p> <p>Asks the right questions to resolve issues and applies creative solutions to meet project objectives</p>	
<p>Proficiency Level 3 Anticipates changing conditions and impact to risks and dependencies and takes preventive action</p> <p>Effects timely, mutually beneficial outcomes on decisions that impact the whole product, multiple projects or portfolios</p> <p>Evaluates quality and metrics based on return on investment and ensures alignment to business need</p> <p>Proactively inspires others to take action on issues and implications that could prohibit projects success</p>		<p>Proficiency Level 4 Proactively identifies implications of related internal and external business conditions to risks and dependencies</p> <p>Instills a system and culture that facilitates effective decision-making across organizations, product lines, or portfolios</p> <p>Evaluates project results against related examples and incorporates best practices and key learnings for future improvements</p> <p>Champions business value across multiple organizations and gains alignment and commitment to ensure long-term project deliverables</p>	

- 1. Competency name**
 A brief description of the type of behaviors the competency addresses.
- 2. Competency definition**
 Describes the observable behaviors that represent proficiency in the competency
- 3. Proficiency levels**
 Behavioral descriptions representing demonstrated level of mastery. They are additive, building in complexity across the proficiency levels.

Figure 2: Anatomy of a Competency.

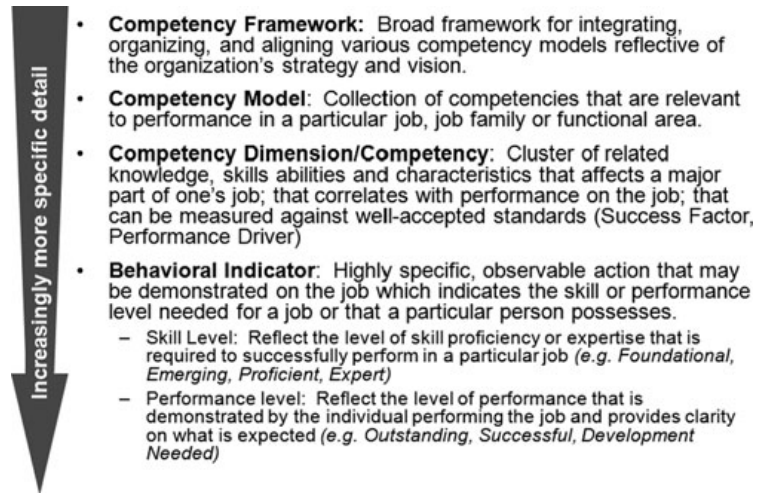


Figure 3: Terminology.

on the job (e.g., Catano et al., 2007; Martone, 2003; Mirabile, 1997; Rodriguez et al., 2002). The number of levels should depend on the number of levels that can be perceived by the eventual user of the information, but frequently a five-point scale is used with the one, three, and five levels described.

These detailed level descriptions are a distinct departure from normal job analysis information. The use of level descriptions is a direct descendent of the long history in I-O psychology of using anchored rating scales (at least since Smith & Kendall, 1963). These scales enable a wide range of immediate uses of the competency information (e.g., anchored rating scales for performance appraisals, structured interviews, and compensable factors). When used for development purposes as opposed to evaluation, the scales can be designed to motivate and grow skills by emphasizing how to stretch and advance. As such, they usually focus on performance that ranges from good to excellent rather than bad to good. Figures 4 and 5 illustrate examples of competencies and level definitions for typical line-facing and leadership roles.

9. Using Organizational Language

Although there are advantages of using common language to describe competencies across organizations, it is also desirable to tailor competency language to each organization. Competency models strive to use the

Competency	Level 1	Level 2	Level 3
Production Management	Completes job with leader's help	Completes job with minimal help	Independently completes job effectively and efficiently
	Understands department's role in company	Broadens knowledge of company's business	More involvement in company as a whole
	Familiar with some equipment in area	Familiar with all equipment in area	Familiar with all equipment in department
	Becomes familiar with processes and procedures	Ensures completion of processes and procedures	Manages/supervises processes and procedures
	Leaves area ready for next shift	Communicates any problems or changes to next shift	Knows what other shifts have done and anticipates needs
	Has some responsibility for production numbers	Achieves production goals	Sets production goals

Figure 4: Example of Levels: Product Supervisor.

II) PEOPLE MANAGEMENT (*Leadership Dimension*)

A) Performance Management and Development (*Leadership Competency*)

Establishes individual and group goals and expectations as well as providing opportunities for growth and development. Motivating, coaching, and supporting individuals to achieve goals and providing balanced feedback related to performance. Recognizes and capitalizes on individual differences, with a full appreciation of the need to manage diversity.

- 3) Focuses considerable time and effort toward developing the skills and abilities of all staff members. Freely shares all relevant knowledge and experience. Works to groom his/her eventual replacement and to build a solid talent pool within his/her department/unit. Identifies, as well as seeks out, growth opportunities for all staff members. Serves as a role model/mentor in both word and deed. Stands behind staff members and supports them at all appropriate times. Provides clear performance expectations and establishes clear, specific, and challenging goals/objectives for individuals and groups. Provides regular, specific, timely, and balanced feedback regarding performance and offers direction to help ensure goal attainment. Takes action to correct and prevent poor performance. Motivates and encourages staff to succeed through words and actions. Recognizes and rewards good performance as well as performance improvement.
- 2) Works to develop the skills of all staff members by providing direction and guidance as well as sharing experience and best practices. Supports staff in taking on growth opportunities. Stands behind staff in difficult situations. Sets general performance goals/objectives for individuals and groups. Provides immediate corrective feedback as necessary and often provides positive feedback and encouragement. Recognizes and rewards exemplary performance.
- 1) Provides direction, guidance, and instruction to build and improve the skill and performance of staff. Supports staff when necessary. Sets general, project-related goals/objectives for individual staff members. Occasionally provides performance feedback (positive and negative).

Figure 5: Example: Multi-Purpose Leadership Competency Model.

organization's unique language (e.g., Parry, 1996). This unique language may include common expressions, acronyms, technology, job titles, business unit titles, products, and so forth. The advantage of using the organization's unique language is not only that it enhances communication but also that it enhances ownership of the competency model by the

organizational members. The use of familiar language will increase the likelihood that organizational members will refer to the competency model when making HR decisions.

There are at least five disadvantages of using organizational language. First, it takes more effort to develop the competencies. It is much easier to pick competencies from a list provided by the researcher. Second, there will be a lack of consistency across organizations. Although for most purposes this does not matter, there may be situations where common terms would be helpful such as when purchasing commercial products for various HR needs (e.g., hiring tests and training programs). Third, this lack of consistency may pose a barrier when competencies are used for recruiting purposes. External candidates may find the use of nonstandard language confusing. For midcareer recruiting in particular, where job candidates may be more tied to their profession than an organization, the use of organization-unique language can be misunderstood or received poorly. Fourth, colloquial organizational expressions can date quickly. As is commonly observed, expressions of key executives are quickly adopted by subordinates, but such expressions can become distinctly unpopular when power shifts hands to new executives. Fifth, the use of common language usually represents a key advancement for a science, and efforts to have a common language in job analysis are relatively recent innovations (e.g., the U.S. Department of Labor's Occupational Information Network or O*NET; Peterson et al., 2001). Nevertheless, the bottom line is that there is no easier way to endear an organization to their competency model than to use their language, and it may be better to pay the costs of development and lack of standardization than to use the sterile and often alien language of researchers. Furthermore, competency models can promote common language within an organization (Rodriguez et al., 2002).

Figure 6 illustrates how a draft competency model can evolve into a tailored organizational model through the model development process.

In some cases, organizational language can be created through competencies as well. Particularly for those organizations using future-oriented competencies as a part of an organizational change effort, competencies can help provide a common understanding of new concepts and aid in providing a way to talk about them.

10. Including Both Fundamental (Cross-Job) and Technical (Job-Specific) Competencies

As with job analysis, some competencies may be common across jobs, whereas other competencies may be more unique to specific jobs (e.g., Mansfield, 1996; Martone, 2003; Parry, 1996; Rodriguez et al., 2002;

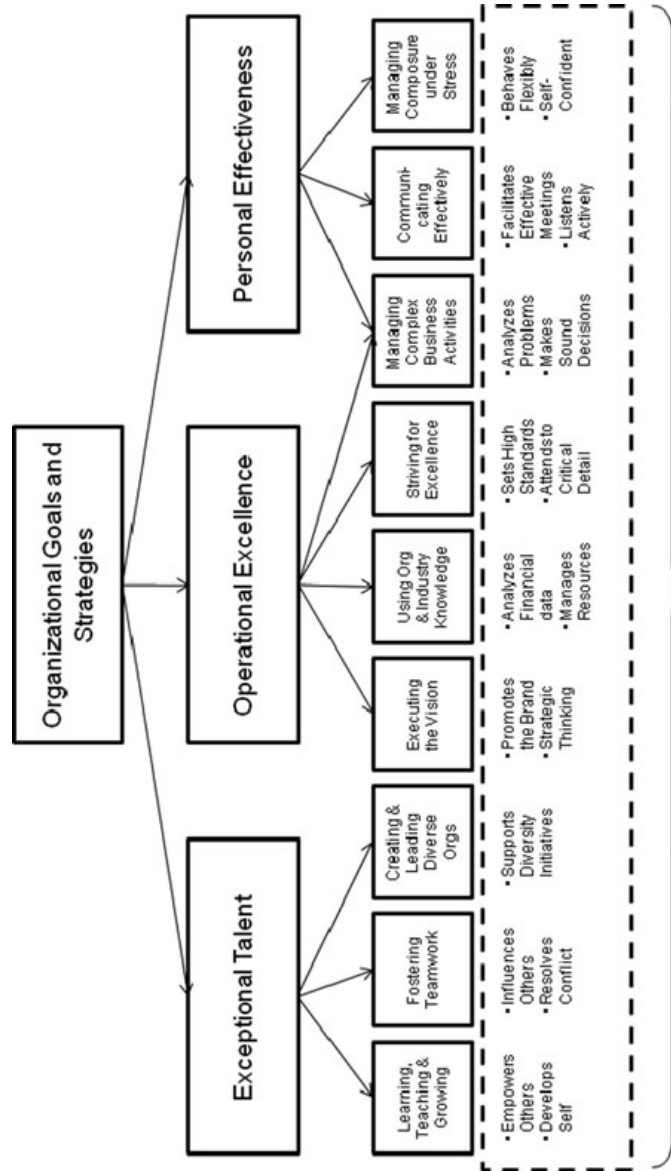


Figure 6: Draft Competency Model That Evolved Into Tailored Organizational Model.

Schippmann et al., 2000). The distinction between fundamental and technical competencies is not an important distinction when a competency model is designed to apply to only one job. However, when developing competency models that span across jobs, it may be necessary to include both common or cross-job competencies (sometimes called “fundamental” competencies because they refer to basic capabilities) and unique or job-specific competencies (sometimes called “technical” competencies because they often refer to specific technical knowledge).

Microsoft’s approach has been to identify a small set of “foundational” competencies, which are core and common across all competency models. These foundational competencies are essential to success in any role at Microsoft. These are then supplemented by other, more job-specific competencies. Additional competencies are defined for each profession in the company, although some, such as project management, are present in multiple profession models. Competencies have also been developed for management and leadership. The foundational competencies are applied to all employees in the company, and each profession has a set of more specific competencies. Individual contributors have a set of professional competencies, managers have professional competencies plus management competencies, and senior leaders have a set of leadership competencies.

11. Using Competency Libraries

Competency libraries refer to lists of competencies from which to select when developing a competency model. The advantage of competency libraries is efficiency. They make the development of competency models easier and faster because the users simply have to select the competencies that apply to their jobs. Competency libraries capitalize on the experience gained in other competency modeling projects, either in other companies or elsewhere in the same organization. Aside from efficiency, competency libraries have two other key advantages. First, they help ensure consistency of competency language across an organization. The same competency is called the same thing in different parts of the organization. Second, they help ensure that all the potentially relevant competencies are considered. By being presented with a fairly thorough list of competencies, the chances are smaller that an important competency will be overlooked.

Competency libraries are common offerings of consulting firms because of their experience developing competency models across many organizations. However, the idea of a competency dictionary (i.e., using similar labels for competencies and learning from other competency modeling efforts) can be applied within large companies that have different competency models in different parts of the organization.

There are at least two potential disadvantages of competency libraries. First, they may not be as tailored to the organization. They may not use the organization's language as much as competencies developed from scratch. Second, organizational members may not be as committed to a competency model if they have not been deeply involved in its development, which might happen if they merely pick competencies off a list. One of the authors found that having a laundry list of competencies in a survey resulted in many leaders choosing too many competencies, so the researchers had to tightly facilitate the process to have leaders identify competencies that were (a) tied to organizational objectives and (b) distinguished high from low performers.

Clearly these are potential disadvantages if the competency model was designed directly from the competency library. However, many competency modeling efforts leverage competency libraries as only a starting point and tailor the competency labels, definitions, and proficiency levels to the particular needs of the client organization. Adapting standard competencies from a library has the benefit of addressing the potential disadvantages in that the inclusion of organization SMEs in the process allows for tailoring while simultaneously building buy-in to the final model.

Many consulting firms have found that the use of off-the-shelf competencies and models is often cost effective and allow the use of other vendor-provided HR solutions (e.g., performance evaluation systems, assessment centers, and training courses) that are built from the vendor's library. However, as mentioned above, the organization should still evaluate the purchased competencies for relevance to the organization's unique environment. Likewise, care should be taken to ensure the purchased systems built on the vendor's competencies are flexible to incorporate tailored-language or organization-unique competencies. Competency libraries are typically based on extensive research on particular job types and/or industries, and therefore, they provide a valuable starting point for relevant competency modeling efforts. The time and cost saved by starting from a well-developed competency library can be significant relative to large-scale efforts that start from scratch.

Some consulting firms have competency libraries created for leadership, sales, and service positions among others. These libraries often represent research across multiple industries and organizations. What these firms have found is that certain competencies are universally important to certain job types, they are stable over time (i.e., they remain important despite internal and external changes), and there is considerable overlap (~80%) between models implemented in most organizations for similar positions. For example, the competencies associated with effective leadership are often highly similar across organizations and industries.

The key point about competency libraries is that if well-designed, they can provide an excellent starting point in development of an organization's competency model, but tailoring and refinement of the competencies to the organization is the critical next step in ensuring buy-in and usability. It should also be recognized that even start-from-scratch models will often start with lists of competencies from other projects to stimulate the thinking of the SMEs on the jobs in question.

The use of competency libraries may be conceptually rooted in the similar use of descriptor taxonomies in job analysis, which are perhaps best illustrated by the Position Analysis Questionnaire (McCormick, Jeanerret, & Mecham, 1972) and the Occupational Information Network (O*NET) developed for the U.S. Department of Labor (Peterson et al., 2001). Descriptor taxonomies refer to lists within various descriptor domains such as knowledge, skills, abilities, personality traits, generalized work activities (duties), tasks, work context features, and so on. Such taxonomies have evolved from extensive research to ensure that the items on the lists are fairly exhaustive and conceptually independent (Fleishman & Quaintance, 1984). In the authors' experience, most current competency dictionaries could not be considered taxonomies because they lack this foundational research.

12. Achieving the Proper Level of Granularity (Number of Competencies and Amount of Detail)

This is perhaps one of the most difficult issues in developing competency models. There is a tension between a desire for detail on the one hand and a desire for simplicity and parsimony on the other (e.g., Mirabile, 1997; cf. Parry, 1996; Schippmann et al., 2000). Detail is helpful for developing HR systems and demonstrating job relatedness, but parsimony is better for getting organizational members to remember and actually use the competencies and can support integrated enterprise-wide efforts, such as large-scale change or learning agendas.

This issue refers not only to the number of competencies but also to the amount of detail in describing each competency. Generally speaking, most organizations try to limit the total number of competencies to a reasonable number, often those considered most important to distinguishing superior from average performance. But the amount of detail is another matter. Usually, each competency is described with a fair amount of detail (as explained above). A fully described competency may take a half page, or possibly even a full page, but rarely more. It is considered better to have fewer and more detailed competencies than a large number of brief descriptors, as is common in job analysis.

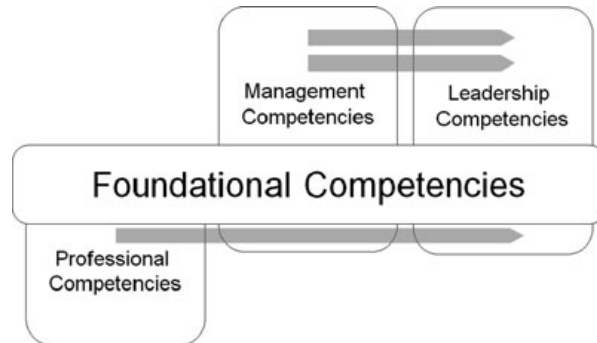


Figure 7: Foundational, Profession, and Manager/Leadership Competencies.

Finally, competencies can be hierarchically arranged, meaning they can be divided into categories and subcategories. A hierarchical structure can often organize the competencies and simplify their presentation for the user, especially if there are a large number of competencies. Two levels seem to be the preferred maximum, if levels are used. This approach is especially popular when there are a large number of competencies due to the inclusion of both cross-job and job-specific competencies. Figure 7 illustrates a model with two levels of granularity (competencies and subcompetencies).

During its competency modeling project, The Boeing Company recommended choosing only those competencies that would contribute to job and organizational performance, distinguished high performers, and would be directly used in management of employees (i.e., selection, promotion, retention, and development). In total, leaders were limited within each job family to a maximum of 10 to 12 general competencies and an additional 10 to 12 technical competencies. Within a job family, a subset of competencies could be identified for lower job grades and higher job grades, which helped reduce the total number of competencies for a job family and focused employees' attention on those competencies most relevant to their work.

Similarly, Microsoft limits its competency models to a total of 8 to 14 competencies applied to each role. To gain the additional detail needed for some applications, these competencies are supplemented with an additional layer of information, referred to as Career Stage Profiles. These describe in more detail how the competencies are demonstrated in a particular discipline and level.

There really is no ideal number of competencies, and many factors such as the purpose of the model, the scope of the model, the organization's

preferences, and the organization's experience with competencies and competency models can all impact the target number of competencies. For example, an organization that initially adopted a relatively robust or detailed competency model may feel compelled to streamline or simplify the model in future updates. Alternatively, some organizations want a clear, memorable, and parsimonious model but may want to use it for multiple purposes. In this case, one might design a two- (or occasionally three-) level model that includes a small number of memorable and impactful competency categories or dimensions (e.g., people leadership) defined by a small number of more specific competencies (e.g., coaches and develops, resolves conflict, and empowers others). With all this in mind, consultants are still often asked what the appropriate number of competencies is, and our collective experience is to keep it to around 12.

13. Using Diagrams, Pictures, and Heuristics to Communicate Competency Models to Employees

Job analysis tends to rely on lists to communicate job information. Competency models often augment this with visuals. Such augmentation enhances communication by presenting information in multiple modes. It also helps enhance memorableness and is particularly important for people who think visually.

Diagrams, pictures, or other heuristics are not commonly used in I-O psychology, except for the ubiquitous box and arrow diagram. This may perhaps be due to our reluctance to imply causation among variables unless we can provide research proof. The suggestion here is not to portray complex causal linkages that cannot be demonstrated but instead to consider augmenting lists of competencies with some sort of visual representation.

When using visual portrayals of competency models, consider the following guidelines:

- Simplicity will enhance memorableness.
- Focus on the core idea of the model. Not every detail of the model needs to be included.

Figure 8 illustrates a competency modeling visual used by the co-authors.

Using Competency Information

14. Using Organizational Development Techniques to Ensure Competency Modeling Acceptance and Use

Although not a method of using competency information per se, this best practice helps ensure that competency information will be used (e.g.,

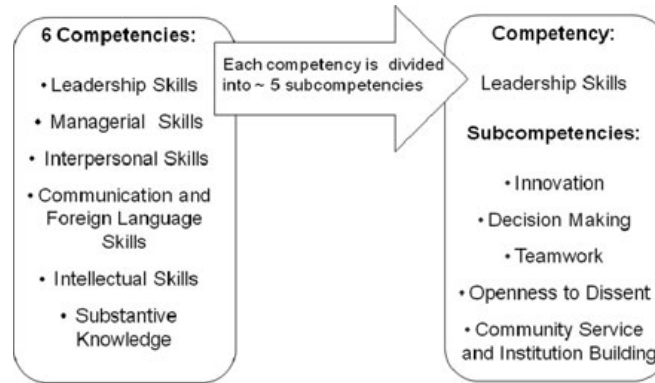


Figure 8: Levels of Granularity—6 Competencies, 30 Subcompetencies.

Lucia & Lepsinger, 1999; Mirabile, 1997). Using good organizational development, defined here as widespread involvement of organizational employees in the creation of the competency model, may be more important than the model itself in terms of getting people to use the model. It is better to have a simple and crude model that people will use than a highly sophisticated, research-based model that people may ignore. Organizational development is at the core of competency modeling, unlike job analysis where it is usually a peripheral activity.

Competency modeling fits the definition of an organizational development intervention in the following ways (Cummings & Worley, 2008):

- It is based on behavioral science
- It is an adaptive and iterative process
- There is extensive stakeholder involvement
- The project includes model implementation, as well as model development
- It focuses on both employee satisfaction and organizational effectiveness

Furthermore, competency modeling combines the two most predominant approaches to organizational development: action research and social constructionism (Cummings & Worley, 2008). It is action research in the sense that data are collected and fed back to the organization in the creation of competency models. It is social constructionism in the sense that a shared definition of a desired future of the organization (in this case, employees with the attributes required for the success of the organization)

is created through consensus (achieved through widespread involvement in the creation of the model).

Opportunities for organizational development exist at all stages of a competency modeling project as illustrated below:

- Planning and initiating the project—such as involving senior management in planning the project objectives so they will be committed to the project and thus endorse and promote it
- Collecting data and diagnosing—such as using various organizational development techniques like structured brainstorming, Delphi, and nominal groups
- Developing and evaluating—such as using action research methods (survey feedback and action planning) to validate model components or make changes in the project direction
- Implementing and institutionalizing—such as using the concepts of “unfreezing” and “refreezing” to communicate the importance of considering resistance to change and the challenges of sustaining momentum for the project

Competency modeling projects offer an opportunity to enroll significant numbers of employees in the organizational development efforts. At Microsoft, leadership teams were created for each of the professions as part of the competency model development process. These leadership teams were active from the beginnings of each project. Their use created an environment that eased implementation and institutionalization.

15. Using Competencies to Develop Human Resources Systems (e.g., Hiring, Appraisal, Promotion, Compensation)

This is the central purpose of developing competency models (e.g., Green, 1999; Kochanski, 1997; Lawler, 1994; Lucia & Lepsinger, 1999; Rodriguez et al., 2002). Competency models are much easier to use in creating HR systems than traditional job analysis information (Figure 9) for the following reasons:

- The descriptions of level of proficiency that are part of most competency models make the development of many HR systems virtually automatic. As noted, the level descriptions can be easily converted into rating scales for structured interviews, performance appraisals, job evaluations, measures of promotion readiness, career development guides, and so on. Figure 9 illustrates one example of such a use, illustrating how a competency model’s level descriptors were used to develop a performance appraisal for production supervisors.

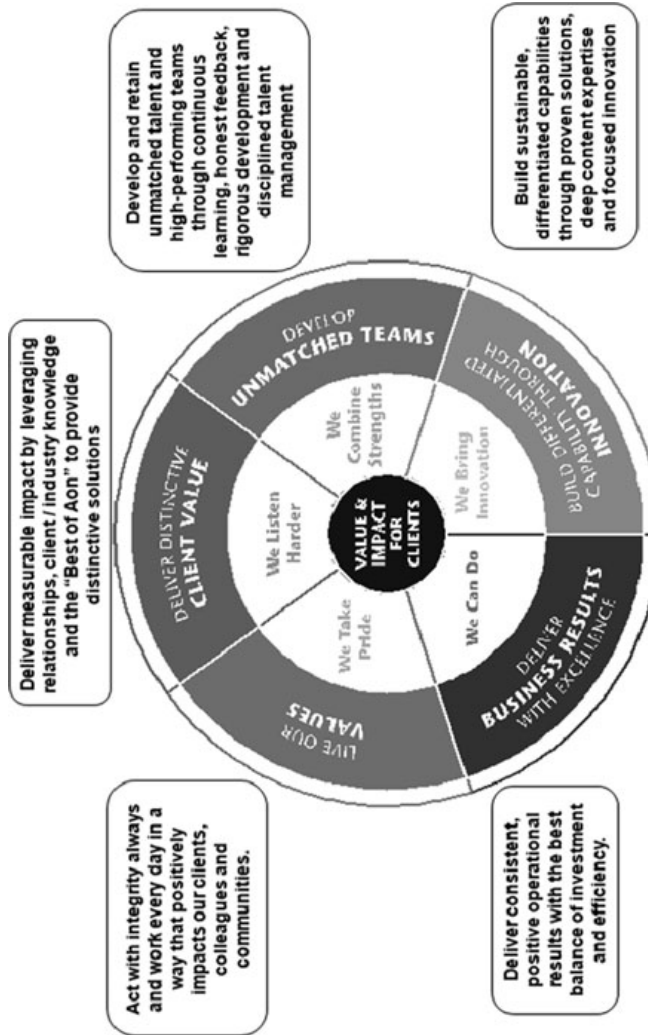


Figure 9: Using Visuals.

1	2	3	4	5	6	7	8	9	10
	Level 9 Skill		Level 11 Skill		Level 12 Skill		Level 13 Skill		Level 14 Skill
	<ul style="list-style-type: none"> •Skill in planning and organizing <u>small-scale</u> projects. •Skill in coordinating <u>routine</u> projects with <u>supervision</u>. 		<ul style="list-style-type: none"> •Skill in <u>independently</u> planning, organizing, and managing <u>routine</u> or <u>small-scale</u> projects. •Skill in <u>assisting</u> with planning on <u>large-scale</u> and unique projects. 		<ul style="list-style-type: none"> •Skill in planning, organizing, and managing <u>most</u> projects <u>without</u> supervision. •Skill in <u>assuming</u> responsibility for projects from beginning to end. 		<ul style="list-style-type: none"> •Skill in organizing and planning <u>large-scale, long-range</u> projects. •Ability to think <u>strategically</u> and understand <u>long-term</u> implications of planning decisions. 		<ul style="list-style-type: none"> •Skill in identifying <u>priorities</u> and <u>optimizing</u> resources and assuming responsibility for <u>overseeing</u> plans. •Skill in <u>ensuring</u> that all the <u>important</u> issues are properly handled. •Ability to <u>involve</u> other <u>staff</u> in planning.

Figure 10: Example: Structured Interview Rating Scale.

Figure 10 illustrates another example. It shows how the competency model descriptor can be used for a structured interview rating scale.

- The fact that competency models attempt to distinguish high from moderate or low levels of job performance make them appealing for developing HR systems (e.g., Olesen et al., 2007; Parry, 1996). That is, the resulting HR system would then presumably be useful for developing above-average employees.
- Likewise, the linkage between the competency model and organizational goals and strategic objectives should help ensure that the resulting HR systems will also support and help attain those objectives (e.g., Green, 1999; Martone, 2003; Rodriguez et al., 2002).
- The use of organizational language makes their job relatedness clearer to employees (e.g., Martone, 2003; Mirabile, 1997; Rodriguez et al., 2002).
- The use of organizational development techniques that ensure high involvement in the creation of the competency model to those responsible for the various HR systems should result in ready customers for the data (e.g., Lucia & Lepsinger, 1999; Mirabile, 1997).
- Using a finite number of competencies that are present in multiple models and, in particular, the use of competencies that integrate across all models, such as Microsoft's foundational competencies, allow for enterprise analyses in a way that job analysis typically does not. For example, examining the distribution of proficiency levels on particular competencies across segments of the organization can help identify areas of relative strength or

weakness. This identification, in turn, can help target interventions to address weaknesses and highlight particular “talent schools” within the organization.

The Boeing Company has incorporated competencies into multiple HR processes including structured interviews, reductions-in-force, and training and development. The structured interview process incorporates behavioral anchors describing low to highly effective behaviors, and interview questions are written to align to entry, career, and advanced levels of the job. The reduction-in-force process begins by selecting those competencies identified for a job family that are most critical for current and future performance. Employees are then evaluated on those competencies using an anchored rating scale. Finally, training and development opportunities were created to align to general and technical competencies needed for current job performance and also to prepare employees for future jobs and career paths.

Similarly, Microsoft has incorporated competencies into multiple HR processes. Most notably, competencies are the center of the mid-year career discuss (MYCD) process. During MYCD, employees and their managers each complete competency and career stage profile (CSP) assessments. These assessments form the basis of developmental planning, and for targeting future roles that are a good fit for that employee’s skills, abilities, and interests. These assessments are also used for aggregated analyses, such as examining the competency and CSPs for professions or organizational subunits (also see Olesen et al., 2007, for further examples).

At Indiana Precision Technology (subsidiary of Honda), competency models for production and maintenance employees were used to develop “pay-for-skills” programs that integrated training, appraisal, promotion, and pay systems. Models were also developed for engineering and office staff employees and used to create similar pay-for-skills programs for salaried workers. The detailed descriptions of the levels of the competencies were used to define the skill requirements at each job grade (e.g., associate/senior, associate/master, production employee; apprentice/journeyman/expert maintenance employee; associate/staff/senior engineer.). This defined the training requirements in terms of classes, time on the job, and so on. The levels were used to develop appraisal rating scales and assessment rating scales (to score on-the-job performance tests) to determine readiness for promotion. The competencies and level definitions also became compensable factors and point scales to determine pay. As such, the competency models helped integrate and align all the HR systems for each job to enhance and accelerate skill development, which is critical to the organizational objective of international manufacturing competitiveness.

At the U.S. Department of State, the competency model consists of six major competencies and 30 subcompetencies, each defined at the three major career stages of foreign service officers (junior/mid/senior). The model (called the core promotion precepts) is used to define the job requirements in the employee evaluation report. All six of the major competencies must be addressed in the yearly narrative appraisal. The competencies, in turn, guide promotion panels that review the evaluation reports to determine promotions in a grade-wide competition for each job category each year. The competency model is also used to determine required training courses at each career stage and to organize course offerings at the Department's internal university, the Foreign Service Institute. Officers rotate jobs on a 3-year cycle, and the model is used to guide career development choices to enhance competitiveness for promotion. The model is also used to organize information in a skills profiling system. Finally, the model was recently used to revise the skills assessed in the hiring process (including reviews of work and educational history, accomplishment records, and an assessment center). As such, the model integrates and aligns all the HR systems to create an intensely development-oriented personnel system that ensures the readiness of the workforce, and readiness is the fundamental requirement for an organization whose main purpose is to face every new international diplomatic crisis.

16. Using Competencies to Align the Human Resource Systems

Different HR systems are often disjointed. They exist in isolation or work at cross-purposes because each HR function creates its own solutions to problems and uses different language to identify and solve problems. As illustrated many times above, a key advantage of competency models is that they help align the HR systems in terms of the same set of KSAOs and the same language (e.g., Green, 1999; Lawler, 1994; Lucia & Lepsinger, 1999; Schippmann et al., 2000). Each of the systems reinforces the others such that we hire, train, appraise, develop, promote, and pay in terms of the same KSAOs. And these KSAOs are linked to high job performance, business strategies and objectives, and future requirements, so aligning all the HR systems to reinforce the same competencies can meaningfully help promote these organizational goals.

Alignment is facilitated by the fact that the number of competencies is relatively small, and they are stated at a level of generality that their relationships with different HR systems can be readily seen. These factors combine with competencies' relevance and face validity to aid expansion of competencies beyond HR systems and help them become an integral way of thinking about the business. Alignment is also facilitated

by providing within-organization common language to discuss different HR systems (Rodriguez et al., 2002).

17. Using Competencies to Develop A Practical “Theory” of Effective Job Performance Tailored to the Organization

Competency models explain the nature of effective performance in an organization. They describe what really matters in terms of job performance and how to be successful. In this way, they are not only much more than lists of KSAOs that result from job analysis but instead are more of a theory in the following ways (Whetten, 1989):

- They explain why the KSAOs matter in terms of creating effective job performance, connecting with organizational goals, and so on.
- They usually include a description of the process (how effective performance occurs) as well as the content (what is effective performance).
- They are internally consistent in that performance on one competency should not conflict with performance on another competency. They should reinforce each other in clear ways.
- They predict and explain successful performance in a wide range (hopefully all) of job domains.
- They may inform judgments with respect to likely outcomes (e.g., who will get hired, promoted, or rewarded).
- They are provocative and promote thought and discussion about effective job performance. As such, they should yield more insight than a list of KSAOs.

18. Using Information Technology to Enhance the Usability of Competency Models

Information technology (IT) is often used to make competency models more useable in many ways including:

- Providing a place to store the competency model that is available electronically to organizational members (e.g., Rodriguez et al., 2002). The use of a single source of competency model information helps ensure consistency in the competencies applied to a job family and reduces the likelihood of competing competency models being independently developed by specific businesses, professions, or other organizational units.
- Facilitating the use of the competency model by housing the HR applications that derive from the model (e.g., selection procedures, performance appraisals, career development tools).

- Developing the competency models (e.g., collecting ratings, providing a lexicon for writing competencies, soliciting reviews and revisions of the model).

An important caveat is in order. In our zeal for IT, we often forget that it is a tool and not an end in itself. Do not confuse a sophisticated technology application for a useful competency model. The IT should always accommodate the competency model not the reverse. Indeed the use of IT systems for housing competencies can be particularly limiting when using off-the-shelf systems with prescribed fields for competencies. These systems are often intended to be used with preestablished competency libraries and may limit attempts to tailor competencies to the organizational context. The technology should not limit or dictate anything about the model.

The Boeing Company modified an already established HR information system to house competencies and the linkage between competencies, job families, and job grades. This single-source database for competencies and job information is available for downstream HR processes to use in their systems. Although complex, the use of the IT system ensures a single source of information and allows easier configuration control as the competencies are maintained over time.

The key uses of IT for the consulting firm hired to assist in the design of the competency model(s) is in the data collection process. For example, some consulting firms utilize Web-based competency survey systems for collecting, managing, and analyzing competency data.

19. Maintaining the Currency of Competencies Over Time

Organizations often invest considerable resources in the initial development and implementation of their competency models; however, equal consideration should be given to maintaining the currency and usefulness of the models over time. Many aspects of competency models can change over time, such as organizational objectives, senior management, environment, likely future, and language. So having a plan for updating is critical.

The challenges of maintaining competency models are inherently more difficult the greater the complexity of the model, the greater the degree to which complex IT systems constrain the format and application of existing models, and to the extent that the model is used to create common, integrated HR processes. The ideal time for creating the maintenance plan is during the initial competency modeling and analysis. To be successful, the maintenance process should preserve data integrity of the initial

competency analysis while allowing updates to the models to meet changing business needs. The frequency of updates will depend on the amount and nature of the roles and the organization involved. Although some organizations may be able to successfully use a competency model for many years without needing to update it, others may be best served by a more frequent refresh cycle.

Based on the experiences at the Boeing Company, there are four primary considerations for maintaining the competency models over time. First, long-term executive leadership and skill leader buy-in and involvement are key. Educating leadership on the value of competencies for growing and retaining intellectual capital is necessary to ensure ongoing support for the use of competencies. Often this involves showing a direct link between the incorporation of competencies into HR processes and subsequent job performance and bottom-line returns. It is also useful to communicate the cost reductions through reduced restaffing costs, greater workforce stability, and lower risk of legal action.

Second, the Boeing Company chartered a cross-functional team of HR process partners to ensure ongoing integration of competencies into HR systems. This team is responsible for creating common definitions and usage of competencies across the company. It is also responsible for exploring ways to build feedback mechanisms into HR processes to identify when competencies are outdated or when new competencies may be required.

The third consideration involved creation of decision rules for ongoing data gathering and analysis to ensure data integrity as competencies are added or removed from competency models. Although the initial analysis involved focus groups, surveys, and top leadership reviews, Boeing adopted a streamlined maintenance process that allows skill leaders to identify necessary changes and verifies importance of added competencies through the use of surveys.

The final element of Boeing's maintenance process involves the incorporation of changes into HR systems. Although the database architecture should not constrain the structure or content of the competency model, it is important to work with system architects early on to ensure the IT system supports its intended use. Although there appear to be no hard and fast rules on the life of a competency model, a general rule of thumb is to revisit and update the model at least every 5 years. This time frame does not apply universally, however. For example, for an organization undergoing rapid growth or change, 5 years may be much too long, and the model should be reviewed and refined annually. In more stable organizations and industries, 5 years should be quite sufficient.

20. Using Competency Modeling for Legal Defensibility (e.g., Test Validation)

The legal defensibility of HR systems is a key concern for many, if not most, large organizations. That is a key reason why many of them conduct job analyses. This is a potential concern for competency modeling, especially traditional competency models that may have been developed using less rigorous methods. However, if competency models are developed in scientifically rigorous ways, then they should be appropriate for demonstrating job relatedness.

In fact, there are at least three major advantages of competency models for validation purposes. First, they are linked to organizational goals and objectives, thus their “business necessity” should be more obvious and easier to document as required by the Uniform Guidelines on Employee Selection Procedures (Equal Employment Opportunity Commission, Civil Service System, Department of Labor & Department of Justice, 1978). Second, because competencies are usually described in terms of observable on-the-job behaviors, they may be more useful for showing content validity than many lists of KSAOs that result from job analysis. The link to observable behaviors is fundamental to content validation in the professional guidelines (Equal Employment Opportunity Commission, 1978; Society of Industrial and Organizational Psychology, 2003). Third, because competency lists are usually shorter and broader than job analysis lists, it may be easier to show their linkages to HR systems and be more obvious to laypersons. When coupled with more traditional job analysis approaches (e.g., use of incumbent surveys to identify critical KSAOs), competency models provide a more comprehensive demonstration of job relevance than use of job analysis alone.

Nevertheless, some experts prefer exhaustive lists of tasks and KSAOs for validation purposes, including a clear delineation of fundamental attributes (e.g., reading and math skills), which usually do not result from competency modeling projects. Where such exhaustive lists of tasks and KSAOs are preferred for one reason or another (for example, highly routinized jobs), it would not undermine the competency modeling project to include this type of information. Because competency modeling shares so much with traditional job analysis methodologically (Schippmann et al., 2000), data gathering for this more granular information could fit easily into an overall competency-based approach.

Conclusion

Whether competency modeling is anything new is a source of debate among I-O psychologists. The term “competency” can be traced back

in the applied psychology literature nearly 40 years (e.g., McClelland, 1973). In addition, many aspects of competency modeling have been practiced by job analysis researchers for years. Perhaps what *is* new is how competency modeling brings together so many of these best practices into one program. The result is an impact on organizations far surpassing that of traditional job analysis and may provide a platform and opportunity for I-O psychologists and our colleagues to elevate our talent discussions in the organizations we serve.

We hope that describing these best practices in this paper and illustrating them through the experiences of several large organizations will promote good practice around competencies. We believe the practical advice and examples contained here can guide and inspire more effective and efficient use of competencies. In addition, we hope that the principles and approaches outlined around analyzing, organizing, presenting, and using competency information may guide and inspire greater empirical research on competencies.

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