



Competency Modeling: An Essential Practice for the Future of Strategic Human Capital Management

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Table of Contents

Authors..... 1

Introduction..... 3

Background 3

Implications for Practice..... 6

Conclusion 9

Notes 10

References..... 10

Authors



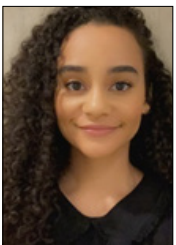
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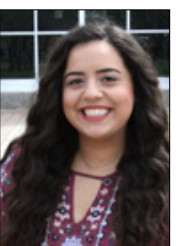
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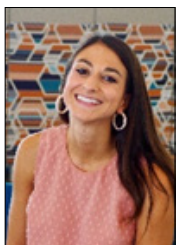
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Introduction

To say the future of work is uncertain would be an understatement. By 2030 the working world will look far different from what we know today. For example, it is estimated that 85% of the jobs that will be done in 2030 have not yet been invented (Institute for the Future & Dell Technologies, 2017). Moreover, in a recent survey of human resources and business executives, the Institute for Corporate Productivity (2021) found only 30% of organizations believe they have the skills necessary for future success. This poses several questions. Are there strategies/tools organizations can use to prepare for this future workplace uncertainty? How can organizations maximize emerging technology that is not yet in place and acquire talent for jobs that do not yet exist? From a business survival perspective, organizations that cannot adapt their strategic human capital management (SHCM) practices to keep pace with the changing nature of work will fall behind. SHCM represents a people-focused approach to HR that leverages the full employee lifecycle, empowering employees at all levels to achieve high performance and contribute to the company's strategic goals (Boon et al., 2018). A competency-centric approach is the gold standard for effective SHCM systems.

A competency model refers to a collection of behaviors, knowledge, skills, abilities, and other characteristics (KSAOs) that are necessary for effective job performance (Campion et al., 2011). Think of competencies as the building blocks of your workforce. Competency modeling is a proactive method for identifying the unique combination of building blocks that your workforce needs to be successful. With the proper design, you can use the same competencies to attract and hire qualified talent, identify and close skill gaps, guide employee development, plan future workforce needs, offer meaningful career paths, manage performance, and more. As a testament to their importance, an estimated 70–80% of *Fortune* 500 companies use competency models throughout their SHCM processes (Stone et al., 2013). Competency modeling is also used extensively by federal agencies across the U.S. government (Rodriguez et al., 2002). In this white paper, we demonstrate how organizations can leverage competency modeling to help them better prepare for the future of work and set up their SHCM systems for future success.

Background

What Is Competency Modeling?

As noted above, competency modeling is an employee-oriented method of job analysis that focuses on identifying the set of knowledge, skills, abilities, and other characteristics necessary to successfully perform a certain job or category of jobs (Campion et al., 2011). Competencies are also typically defined by on-the-job behaviors or, more broadly, behavioral themes that are critical to an employee's ability to deliver strategic performance results (Sanchez & Levine, 2009). Figure 1 provides an example of specific competencies (collectively referred to as a competency model) for a hypothetical lead data analyst job. This job requires two core competencies (attention to detail, verbal communication), two job-specific competencies (data analytics, database administration), and two leadership competencies (strategic thinking, team building) to achieve successful job performance. Competencies affect one or more core aspects of an employee's job, correlate to performance on the job, can be measured against organizational norms, and can be improved through training or developmental opportunities. Competency modeling can provide employees and organizations with many benefits. For example, they can provide a clear, memorable lexicon of expected employee behaviors (Benayoune, 2017), describe jobs as they currently exist *and* how they may exist in the future (Sliter, 2015), and be used to align and enhance all aspects of the human capital lifecycle (described in detail later). Many of these benefits are enhanced by the fact that competencies are "job agnostic" (see Popp et al., 2022; Sanchez & Levine, 2009) such that they can be understood by people regardless of the job in question. This also makes competency models extremely flexible and something that can be quickly adapted and implemented across jobs/job families and help facilitate between-job comparisons (because jobs can be compared on the same criteria). As noted in the introduction, most jobs that will be done in the coming decade do not yet exist. Conducting job analyses for specific jobs and keeping pace with the constant appearance and disappearance of jobs may not be tenable for many organizations. Fortunately, due to their job-agnostic and flexible nature, competency models can be used to navigate this new reality with greater ease.

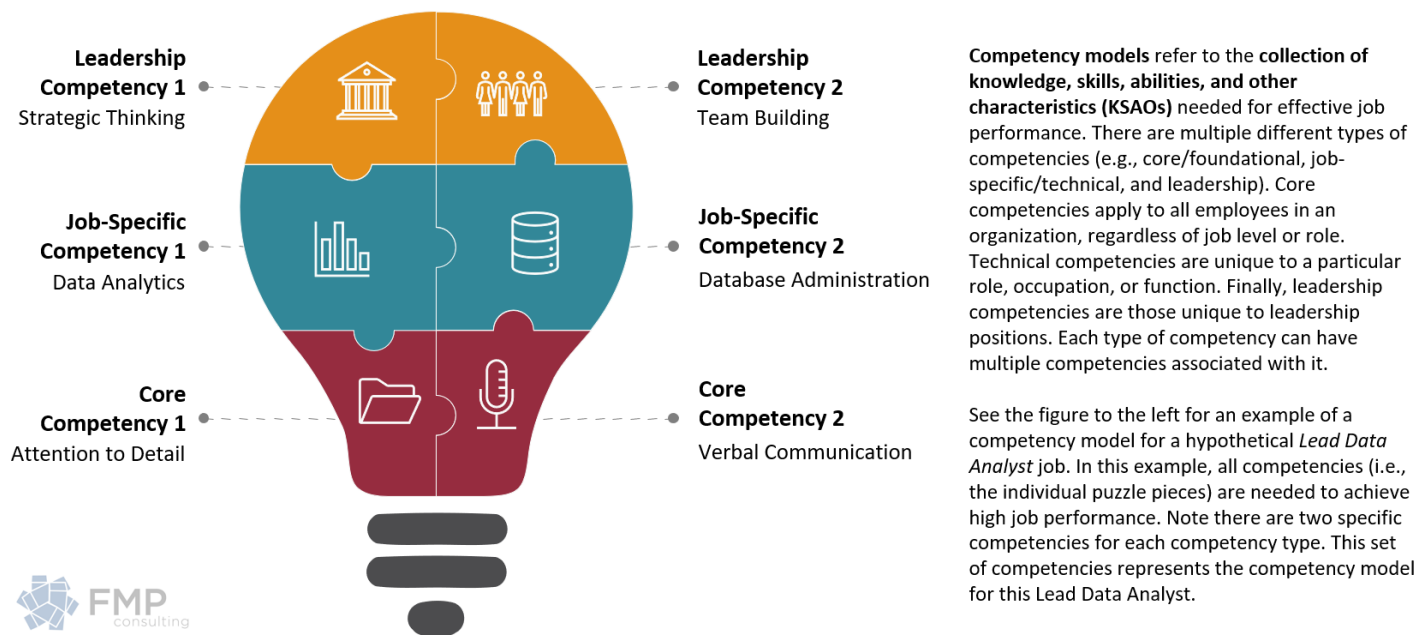


Figure 1. Visual representation of a competency model

Competency Modeling and Traditional Job Analysis

Rather than opposing traditional job analysis (TJA), competency modeling serves as an extension of it. TJA and competency modeling both aim to define employee behavior and outline the details of a job, but competency modeling extends this focus by also looking to influence employees’ future behavior and performance in a job or position (Stevens, 2013). Specifically, competency modeling seeks to encourage behavior that is in line with an organization’s strategy, and the competencies that are outlined in a competency model serve as a guide for optimal employee behavior (Campion et al., 2020; Sanchez & Levine, 2009). Although TJA tends to focus on one job, competency models can be applied across multiple jobs/job families and thus provide a more holistic and efficient understanding of an organization (Sanchez & Levine, 2009).

Further, because TJA is focused on defining a current job, it tends to be rooted in the past/status quo. Competency modeling helps to extend TJA by providing organizations with a more forward-looking and strategic process (Campion et al., 2020). For example, competency models can specify what KSAOs combinations and/or relevant behaviors will be needed for a job in the future (e.g., data analytics, human–AI interactions) and how these collections of KSAOs can be leveraged to meet business objectives. Competencies are also easy to adapt to meet changing requirements, which can serve organizations well in an ever-changing work landscape. For example, if jobs are frequently being created and restructured, job analyses will need to be continually conducted, whereas a single competency model could be applied to multiple jobs. Moreover, competency models can also describe how job requirements change as employee levels change (e.g., the Government Schedule [GS] system used in the U.S.).

Despite being a robust and necessary method for capturing and detailing employee behavior and job requirements, TJA can be viewed by organization leadership as a tedious legal requirement. Many of the qualities that separate competency modeling from TJA (i.e., job agnostic, holistic, forward looking) contribute to its ability to inform proactive organizational change and development. The strategic planning that competency modeling enables tends to attract and require greater interest and participation from executives relative to TJA.

Integrating Competency Models Across the Human Capital Life Cycle

Competencies enable an organization to have a consistent, integrated, and streamlined approach to managing and advancing its workforce. Once the competencies necessary to be effective on the job are identified, the organization can leverage the model to structure and define its SHCM practices across the employee life cycle (Lucia & Lepsinger, 1999; see Figure 2).

This approach can assist organizations in creating strategic, cohesive, and data-driven human capital practices and guide successful employee and organizational performance. Below are several examples of human capital areas (e.g., selection, training, performance management, succession planning) that can be optimized and aligned through competency modeling.



Figure 2. Overview of key human capital areas where competency models can be applied

Selection

Communicating the competencies necessary to successfully perform a job provides prospective candidates with a realistic job preview. Such transparency can help applicants better assess their fit and help organizations make better hiring decisions. Overall, competency modeling can also contribute to a more accurate and consistent selection process as all applicants are compared to the same criteria/structured set of competencies (Lucia & Lepsinger, 1999). Because competency modeling also focuses on identifying KSAOs/behaviors needed for enacting an organization’s strategic goals, competency models could be used to identify these at the time of hire.

Training and Development

A competency model provides an organization with a list of the competencies necessary for employee development and success. Competency modeling can help focus the organization’s use of resources by ensuring that training and developmental offerings align with organizational strategy and values. A list of competencies can be used to build training courses and individual development plans that focus improvement efforts on areas that will contribute to and sustain organizational culture (Lucia & Lepsinger, 1999). Organizations with competency models can see reductions in training costs, specifically through the usage of competency gap assessments (Benayoune, 2017). During a competency gap assessment, employees are evaluated on their current proficiency in the required competencies. The current proficiency levels are then compared to the target proficiency levels (established during competency modeling) and the largest gaps between current and target proficiency levels reveal where training and development are most critical. This process takes the guesswork out of identifying training needs and uses data to drive investment decisions.

Performance Management

A tailored list of competencies provides a framework for identifying relevant, work-related behaviors, evaluating employee performance, discussing appraisal results, and providing ongoing coaching and feedback. Building a competency-based performance management system ensures a shared understanding (between employee, supervisor, and orga-

nization) of what will be monitored, measured, and evaluated. Additionally, performance feedback linked to competency behaviors is critical to individual, team, and organizational success (Lucia & Lepsinger, 1999). Overall, competency models provide employees with a roadmap for their development, guiding and directing their efforts to grow and improve.

Succession Planning

A well-defined competency model also contributes to an organization’s succession planning efforts by clarifying the competencies required to successfully perform the target job, providing a method for assessing a high potential employee’s readiness and supplying a means for measuring an organization’s bench strength. Competency models communicate the values of senior management to the larger workforce by transforming the organization’s strategy into specified behaviors. A shared understanding of the behaviors that contribute to employee and organizational success across the employee life cycle increases retention rates, job satisfaction, and an organization’s ability to achieve its business objectives and execute its strategy (Lucia & Lepsinger, 1999).

Implications for Practice

Now that we have provided a brief overview of competency modeling, we will highlight some emerging/expected trends in work that would benefit from competency modeling and then provide practitioners with a set of best practices for how to develop competency models within their organizations.

Competency Modeling and the Future of Work

As noted throughout this paper, the future of work is full of uncertainties. With these increased uncertainties, the competencies required of the average worker will look quite different. Organizations need to be able to anticipate and react to these changes to remain relevant and competitive, but this is far from an easy task to tackle. Because competency modeling can support the identification of current and future workforce needs, more and more companies are beginning to develop and implement competency models. As previously explained, more “typical” forms of job analysis tend to focus on describing jobs as they currently exist. With the landscape of work changing rapidly, such information will become outdated very quickly. Organizations should use competency modeling to stay innovative, which will keep them relevant but also save valuable time and money as expectations will not have to be continuously updated. Further, looking into the specific competencies that will become more relevant for employees in the future will be of utmost importance. Competencies such as agility, adaptability, and flexibility may become more pertinent for employees, as these will help them properly navigate the changing work landscape (Pandya et al., 2022). An example from a technical perspective concerns the competencies required by IT professionals. Cloud-based technology solutions are shifting technology infrastructure in organizations. The technical competencies necessary for IT professionals today (e.g., hardware, software, cybersecurity) are hardly the competencies that will be necessary in 1 to 3 years. Even if they are still relevant, technology will be far more advanced and, as a result, so will the competencies required to effectively work in the positions that develop, implement, and sustain those systems.

Competency Modeling and Hybrid/Remote Work

Competency models can provide structure and direction to an organization’s human capital practices in the ever-changing remote/hybrid work landscape. When an organization finds itself or its ecosystem in flux, it is more important than ever to make sound, well-informed decisions that are guided by, and in turn contribute to, the organization’s vision and values. A competency model can assist leadership in making strategic decisions for workforce planning, remote work eligibility, and training and development. A detailed competency model can help an organization’s hiring staff discern what attributes a new employee must possess to successfully perform their job in a remote or hybrid environment. Additionally, competency modeling can inform decisions surrounding which positions do or do not lend themselves to a remote or hybrid work format. The

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pandemic quickly revealed the jobs that cannot be done remotely (e.g., grocery store workers, hospital staff, factory workers) and, for those that could, forced us to reassess our ability to work effectively in a completely remote setting. Competency modeling, through its forward-looking nature, has a lot to offer to these discussions. Finally, a well-designed competency model can be the first step in identifying what development opportunities could be used to narrow gaps in employee skills and knowledge, thus enhancing the workforce’s ability to remain competitive and excel in this tumultuous environment.

Competency Modeling and Technological Advances

One of the main reasons the nature of work is changing so rapidly is due to the pace of technological advances and the competitive marketplace for innovation. Indeed, technologies such as automation, AI, human–robot working arrangements, and big data are quickly becoming dominant forces within the workplace (and will only continue to increase in prevalence and importance; Bankins & Formosa, 2020; Hamamah et al., 2020; Tippins et al., 2021; World Economic Forum, 2020), with data-related skills becoming ever more important (Dondi et al., 2021). Competency modeling can provide organizations with a means for adapting to such technological changes. For example, competency models can specify the data-related competencies that employees need to possess, the level of proficiency required, and the positions where these are needed; identify employee competency gaps; and serve as a way for specifying developmental needs. Competency models can be developed for employees’ current jobs, or even entire job families, while also incorporating anticipated future needs. This flexibility that is afforded by competency modeling is one of the reasons this method is well-suited for the future of SHCM, where agility and adaptability will be needed for business success. Furthermore, competency models will be particularly useful for jobs where the required competencies are currently not well understood. For example, interacting with robot coworkers likely requires a very unique set of competencies, and many companies may not yet have a grasp on what these are, let alone how to assess, select, and train on these competencies. Competency modeling may, however, be used to better understand what these may be and help inform the design of SHCM systems. If implemented properly, competency models can also be used to identify technological gaps/training needs and may also be used as a basis for hiring workers with the right set of core, leadership, and technical competencies.

Practitioner Best Practices for Competency Model Development

Not all competency models are created equal. Proper development and validation are critical to meeting the level of rigor required by federal law¹ and best practices² while considering the practical realities of getting the work done in an applied setting. This section will detail the industry-accepted methodology for competency development from the practitioner perspective (see Figure 3).

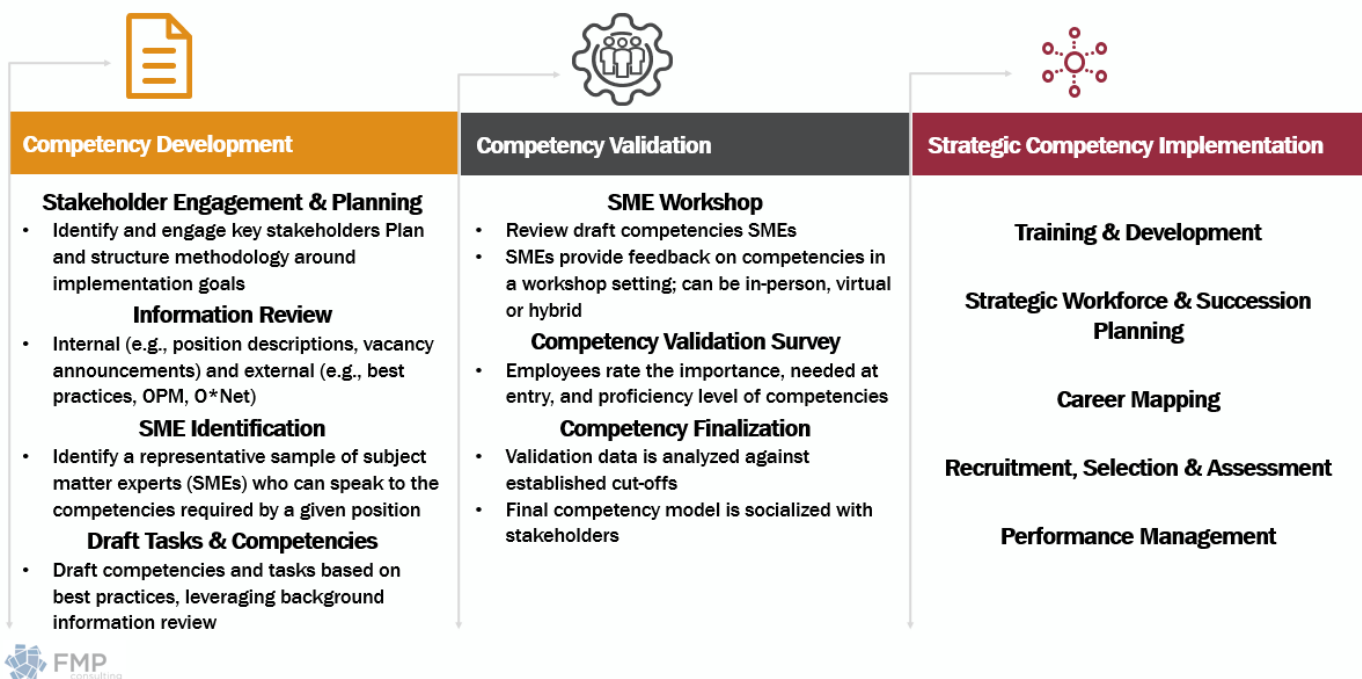


Figure 3. Overview of the competency modeling process.

The Structure of a Competency

Before reviewing the approach for competency development, it is important to have a baseline understanding of the components of a competency. A competency is comprised of four parts (see Figure 4):

1. **Label:** Title that conveys what the competency is (e.g., customer service).
2. **Definition:** A short description summarizing the main points or intent of the competency.
3. **Behavioral Indicators (BI):** These are the nuts and bolts of the competency. Behavioral indicators operationalize the competency into observable behaviors in the work setting context. BIs identify successful performance at varying levels of mastery (or proficiency) in a standardized manner. BIs answer the question “How do we know performance at this proficiency level when we see it?”
4. **Proficiency Level:** Used to differentiate the extent to which someone demonstrates mastery of a competency on the job. This scale can range from three to seven levels with increasing levels of independence and complexity.

	Label				Definition
Program/Project Planning and Conceptualization	Designs and develops program/project objectives; determines short- or long-term goals and strategies to achieve them; organizes work and sets priorities; defines the deliverables and milestones to accomplish goals, and associated performance metrics.				
Proficiency Level	1 - Fundamental Awareness	2 - Novice	3 - Intermediate	4 - Advanced	5 - Expert
Develops program/project plans (long and short-range plans for current and incoming work projects)	Assists in the development of short and long-range plans for the efficient and effective operation of programs/projects	Establishes expectations and/or objectives for projects, programs, and other appropriate assignments that are reasonable and achievable	Contributes to the development of long-term objectives for the programs/projects under own purview	Coordinates with pertinent stakeholders to develop the overarching vision and strategic direction of the agency	
Provides administrative and analytical support to program/project activities	Provides analytical support on feasibility studies, business case development, planning methodologies, policies, and procedures	Identifies and effectively applies relevant methodologies, analyses, policies and procedures during all phases of the planning and budgeting process	Leads feasibility studies and business case development with key stakeholders to assess program investment against potential benefits and analyze alternative options	Leads planning efforts for long-term, complex programs involving the participation of an extensive community of complex, multi-mission agency components	
Contributes to the development of project plans by gathering requested data and/or supporting plan writing	Supports the identification of program/project goals and functional requirements, and drafts project plans according to established guidance and procedures	Identifies potential program/project scope, goals, and functional requirements; analyzes and translates requirements into specific project plans (e.g., close out plans, budget plans, communication plans)	Defines overarching program/project scope, goals, and functional requirements considering stakeholder needs and potential environmental influences and risks that could impact projects	Ensures each program's goals are aligned with broader agency/office objectives; develops and tests innovative ideas and solutions to national challenges	
Behavioral Indicators	Supports centers in the identification of project resources and deliverables	Contributes to the estimation of resource needs (e.g., human, financial, material) depending on project deliverables	Outlines deliverables and estimates program resource needs (e.g., human, financial, material), including where to source/acquire resources	Reviews deliverables and validates program/project resource needs (e.g., human, financial, material) based on cost projections and integration of historical or trend data	Oversees and approves (or gains approval for) program timelines, deliverables, and resource requirements across multiple programs with broad and/or complex scope

Figure 4. Structure of a competency

Step 1: Collect and Review Background Information and Data

A job analysis is the first critical step in developing a valid competency model. You should begin with a comprehensive review of existing information (e.g., existing job analyses/competency models, position descriptions, vacancy announcements, performance standards, certification program content, training information) in addition to data from external sources (e.g., training certifications, existing competencies from other positions, the [Office of Personnel Management's \(OPM\) MOSAIC Competencies](#), or from ["O*NET OnLine" by the National Center for O*NET](#) to identify key tasks, roles, and responsibilities. Additionally, recent research demonstrates that some of these job analysis tasks can be augmented by text analytic methods, such as natural language processing (Putka et al., 2022).

It is important to note that existing data typically reflects current, and not future, needs. Therefore, data collection must go beyond reviewing existing information and leverage strategies like environmental scans and analyses, focus groups, and/or interviews with industry leaders to better understand the industry landscape over the next 3–5 years.

Step 2: Identify and Engage Subject Matter Experts (SMEs)

Involving the proper SMEs in the competency modeling process is perhaps the most critical aspect of this work to ensure the validity, accuracy, and applicability of the competencies (McClelland, 1976). SMEs must possess the experience and expertise to speak to the current and future expectations and requirements and be representative of the target workforce to ensure that all points of view are incorporated. Who serves as SMEs is dependent on the type of competencies being developed. For organization-wide competencies (like core and leadership), SMEs should be organizational leaders to ensure the competencies reflect organizational vision and strategy. For technical competencies, SMEs should be tech-

nical experts from across the field. Anywhere from 8–12 SMEs are recommended, however, it is more important that the workforce is adequately represented than to limit the number of SMEs.

Step 3: Develop Competency Models

1. **Draft Competency Models:** To minimize the burden on SMEs, it is recommended that trained I-O psychologists draft competencies with definitions and BIs spanning the proficiency levels. Drafting competencies in advance utilizes SMEs in the most effective manner (i.e., SMEs review/revise instead of develop from scratch). The draft competencies are meant to be a starting point to which the SMEs can react (Dubois, 1993; Lucia & Lepsinger, 1999).
2. **Review and Refine Competencies with SMEs:** The draft competencies and BIs should be reviewed and refined with the SMEs. This can be done as an interactive workshop (either in-person or virtually) where SMEs review the competencies, and provide real-time edits, providing and engaging in rich conversation about the current and future skill requirements.

Step 4: Validate Competency Models

Once the content of the competencies is reviewed and finalized by SMEs, data establishing legal defensibility and supporting subsequent integration into human capital processes will be established. Establishing legal defensibility is required to document that competencies are representative of current/anticipated job requirements and that leveraging competency models across the human capital lifecycle does not yield decisions that violate laws or result in adverse impact. It is also important to note that in legally contentious contexts, competency models will typically augment, rather than fully replace, TJA techniques. Validation data are most easily collected via a survey where participants rate the competencies on several dimensions including level of importance, whether a competency is needed at the time of hire or can be learned on the job, and target proficiency (or maximum level of mastery) required at each job level. This survey can be completed by the SMEs or all job incumbents in the target position (Tippins et al., 2018) and will be dependent on the intended use.

Step 5: Implementation and Maintenance

Once you have adequate validation documentation, the competency models are ready to implement across human capital systems to maximize the value and impact of this work. Implementation includes communications and implementation strategies; training and supporting documentation; processes and tools for monitoring the program and evaluating results. Additionally, competency maintenance is an often overlooked yet critical part of implementation. Creating a plan for how and where competency models will be stored (e.g., SharePoint, learning management system), how employees will access and use competencies, and who is responsible for maintaining competency information is paramount to widespread adoption and use. Additionally, it is recommended to revisit and/or update competency models every 3–5 years (Campion et al., 2011; Getha-Taylor, 2010; Goldman & Scot, 2016). This can vary depending on the job or external factors that cause significant change. For example, the IT field is advancing at a rapid pace. Competency models should accurately reflect the most up-to-date skills and programs necessary for job success. Rigorous competency development takes time and effort. But, when done properly, competencies lay the groundwork for successful implementation across the human capital lifecycle.

Conclusion

For businesses to be successful in the future, they must be able to adapt their SHCM practices to an increasingly uncertain, ever-changing, and volatile world. Although this task may seem daunting, competency modeling represents an effective, evidence-based method for assisting with this kind of adaptation. The successful development and implementation of competency models throughout all phases of the human capital lifecycle may even help companies gain a competitive edge. To assist with this, this white paper provides a set of current best practices that practitioners can use to help implement competency models within their organizations. This white paper also outlines the benefits of competency modeling and highlights several increasingly important workforce areas where competency modeling will be beneficial (e.g., future work skills, hybrid work, emerging technologies). Indeed, one of the main advantages of competency modeling is that it can be used for both present-oriented (e.g., by assessing those competencies currently needed by the workforce) and future-oriented purposes (e.g., by assessing those competencies that will be needed by the workforce in the future). Although the future is uncertain, competency models, if properly implemented and managed, can be a useful tool for adapting to this inevitable uncertainty.

Notes:

¹ Title VII of the Civil Rights Act of 1964; Equal Employment Opportunity Act of 1972

² Uniform Guidelines on Employee Selection Procedures; SIOP Principles for the Validation and Use of Personnel Selection Procedures

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