

CONQUERING THE HIDDEN HAZARDS OF COMPETENCY MANAGEMENT IMPLEMENTATION



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Conquering the Hidden Hazards of Competency Management Implementation



“If you want to build a ship, don't drum up people to collect wood and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea.”

– ANTOINE DE SAINT-EXUPERY

Competency management is at the heart of workforce optimization and long-term success. Implementing a competency management system can be a rewarding and exciting activity, yet it can also be overwhelming. Opportunities are created for increased employee engagement, development of a solid knowledge and skills inventory, new competency-based project teams, and succession planning. It is exciting because a real knowledge and understanding of the organization's inner workings can be uncovered, analyzed, documented, and enhanced.

Yet, in most cases, it is such a large project to implement that it can be overwhelming. Particularly if the basics of solid project management are not adhered to, mistakes and hazards can occur. Of course, it is easier and less costly to learn from the mistakes of others who have gone before us.

This white paper describes the hazards that are commonly encountered as organizations implement competency management. Also included are recommendations for avoiding or resolving these hazards, which are segmented into three categories:

1. The Insufficient Planning Hazards
2. The Inadequate Competency Model Hazards
3. The Poor Implementation Hazards

For each of these hazards, three solutions are recommended, and for each of those nine solutions there are three suggested tips. If any of these situations do arise, these 27 tips should prove useful for finding resolutions.

I. THE INSUFFICIENT PLANNING HAZARDS

“Let our advance worrying become advance thinking and planning.”

– WINSTON CHURCHILL

Most large, complex projects require a solid project plan, and competency management implementation can be described as a large and complex project. Many of the hazards encountered by organizations are the direct result of a lack of planning and organization and a poorly-defined project plan.

Starting Too Big

Often organizations strive for perfection in the development and implementation of competency management. Leaving no room for error, only perfection is acceptable: each competency must be identified and defined, and stakeholder input is required for every word. The boundaries are pushed to achieve a comprehensive program. The result? Long delays, waiting on feedback, and frequently, discarding work previously completed. Then a decision is made to start over, causing even more frustration among those working on the implementation. Or worse, the entire project gets scrapped or put indefinitely on hold.



Competency management projects have the greatest chance for success if they are planned for implementation over time. It's best to start with a small start to the project that yields meaningful results in a short amount of time. This first step will provide learnings that can be built upon and momentum for the next phase, ensuring that employee and stakeholder enthusiasm remains high. Writing a clear statement of purpose to create boundaries around the jobs, roles, and skills to be included initially will ensure that this first phase is quickly manageable and achievable.

It's also important to keep key stakeholders involved and informed at each stage of implementation. Often senior managers are so bombarded with information and pulled in so many directions that they cannot give any one project the full attention it deserves. Selecting an initial phase that is closely aligned with the organization's strategy and goals is more likely to hold the attention of key stakeholders, yield meaningful results, and serve as a foundation for the next implementation phases.

Prevent Starting Too Big

- Break the project into manageable phases, avoiding a high-stakes, organization-wide project to be rolled out in one step.
- Select a first phase that will yield meaningful results and initial success in a short amount of time.
- Ensure that the first phase is clearly aligned with the organization's strategy and goals.



Lacking Stakeholder Participation

Often, projects of this magnitude suffer from insufficient stakeholder participation, and occasionally, a lack of participation or even resistance from key departments or teams. A good implementation plan should include participation at some level by every team that has a stake in the project's outcome. Before beginning the first phase, discussions and planning should identify which departments need to be involved in each phase of the implementation.

A Case in Point

One company had an enthusiastic learning manager who was fascinated with the idea of competency management and was interested in developing his own competence in this important workforce skill. He pursued a lot of work on his own: he read widely, attended several workshops, and had discussions with the organization's human capital vendor partners. He was strongly committed to creating a learning needs assessment and a development planning system that would be unique to the organization. He also worked hard to avoid some of the natural conflicts that can occur between the HR department and other departments, particularly IT and engineering. Leaders in some of these groups were less than enthusiastic about collaborating with HR, which resulted in the learning manager working a lot on his own. He developed a well-written and organized competency model that utilized a skills dictionary purchased from a leading vendor. Unfortunately, resistance to the model was high and participation in the initial needs assessment was low, particularly among the technical IT and engineering groups who had not been involved in developing the model. The project ultimately fell flat. The moral of the story is that the right teams and stakeholders should be involved at the very beginning of the project in order to avoid conflicts in the future phases of implementation.

People are more likely to support projects that they help to create. Before the project even begins, it's best to include representatives from each stakeholder group, as well as those employees who can be considered "bridge builders" – people who are natural translators, who speak the language of multiple subgroups or departments, and who help to bring them together to focus on common ground. These consensus builders help to bridge communication and culture gaps that often exist in organizations.

It is also important to include individuals from all levels of the organization, especially those who will be assessed. The differing perspectives inherent to positions such as employees, supervisors, managers, and executives are

imperative to understanding how skills are used in the organization. Keep in mind that the input from the employee level sometimes can be more accurate and insightful than that from managers.

A study by Zwikael¹ demonstrated that top management support was critical to the successful implementation of computer software projects. They found that executives can improve project implementation results by implementing critical support processes unique to top management,¹ such as ensuring that the communications plan includes the timing of status reports, and monitoring the project team's workings with other departments.

Throughout the implementation process, it is important to be respectful of each stakeholder's time. These stakeholders are also part of other teams, with projects and deadlines that ebb and flow throughout the year. Keeping meetings on task, relevant, and timely will also build loyalty and commitment from those involved. Consider using other communication tools in lieu of meetings, such as emails, blogs, or dedicated intranet websites to disseminate progress updates or quick announcements like meeting reminders or room changes. Before meetings are established, consider the value of each meeting: whether it is necessary, whether every participant is required, the value to be contributed by each participant, and the value that each participant will gain from the meeting. Stakeholders who understand and feel that their time is valued will be more enthusiastic about participating and contributing.





Open lines of communication are also critical. Divergent opinions are inevitable and conflict can be good as long as it doesn't derail the overall process. Encourage dissenters to explain their perspective and help everyone understand them. Ensure that the overall value of the competency management program resulting from these efforts is clearly defined and understood by all. Provide concrete examples of the benefits that will be experienced. Listen to and address concerns in each phase, and provide support to those raising objections, to keep all participants on board with the overall project.

Failing to Identify Risks

Recognizing the right time to implement competency management within the organization is critical. If the organization has recently overcome a period of turbulence – or may be facing one in the near future due to a re-organization, acquisition by another company, or merger – the timing may not be ideal for moving down the implementation path. If anxiety is high among employees and rumors are rampant, fear can start to creep into the employees' mindset. This can lead to inflated proficiency assessments, manipulation of assessments to retain or release specific employees, and ultimately the discounting of assessments because these flaws are known. The resulting momentum loss for the competency management program can be detrimental to the long-term success of the project.

Assessing the potential risks of the implementation as a whole is another crucial step needed in the early stages

Prevent Lacking Stakeholder Participation

- Ensure that all stakeholders and groups are represented at the appropriate times, listening to them to keep them engaged, and using “bridge builders” to help find common ground.
- Push to keep the process moving forward and be conscious and respectful of each participant's time and other work deadlines.
- Keep lines of communication open, finding ways to amicably resolve natural conflicts to keep moving forward.



of the project. In his book *Managing Project Risk*, Newton² describes how a thorough risk analysis sheds light on critical areas, which then ensures that the appropriate time and resources are allocated to the more significant risks.² Ultimately, this allows time to address and correct the risks far in advance of when they could have a detrimental impact on the organization.

Ensuring that competency management is embarked upon at a time of (relative) calm in the organization is critical. Consider the impact that competency management assessments could have at the individual, team, departmental, and organizational levels. Again, clear communication about the program and its alignment with the organization's strategy and goals can go a long way toward answering questions and dispelling fears. Employees at all levels should understand the impact that competency management will have on them personally and on their teams, how it could help (or alter) their career path, and how it will ultimately help the organization be more successful.

Evaluating each initiative prior to implementation can clarify the approach that is needed, ensuring that the testing and validation rigor are matched to the stakes of the program. For example, if competency assessments are being used to create a skills inventory to match staffing or project requests, the skills and definitions used probably only need to pass a surface-level validity test.

Prevent Failing to Identify Risks



- Ensure that the timing for implementing competency management “feels right” within the organization; assessments can support large-scale organizational change such as re-organizations or mergers if they are timed correctly.
- Evaluate the impact that assessment results will have at all levels of the organization: individuals, teams, departments, and the organization as a whole.
- Confirm that the testing and validation rigor is matched to the stakes of the competency program.

However, if the competency assessment could potentially impact individual employment decisions, the stakes are considerably higher. Every skill tested must then be shown to measure job-related skills. Some high-stakes assessments may even require the input of internal or external employment law experts to ensure that they do not have a discriminatory impact on employees in protected classes, or otherwise violate fair employment practices and laws.

2. THE INADEQUATE COMPETENCY MODEL HAZARDS

“Start where you are. Use what you have.
Do what you can.”

– ARTHUR ASHE

It rarely makes sense to start from scratch. Some companies have spent months building a skills dictionary only to later find that an off-the-shelf version encompassed 80% of the organization’s needs. Efforts could have been conserved and then better spent on developing the additional 20% of



skills that were unique to their industry and culture. The best competency models are based on both internal and external research. Numerous groups – from government agencies to industry associations to vendor consultants – have developed competency models and skills dictionaries which can provide a solid foundation upon which to build.

The Employment and Training Administration of the U.S. Department of Labor³ has developed competency management skill sets for numerous job families. One example is the skill set created for information technology organizations; various companies from software developers, to file server manufacturers, to IT consulting firms have been able to utilize these skill sets, customize and enhance them, and more quickly execute them in their organizations.

Also, the Department of Labor’s CareerOneStop⁴ created a Clearinghouse comprised of the “Building Blocks” for competency modeling, numerous competency models, and examples of competency programs implemented in various industries. Companies can use these tools to jump-start their own program. Models are available for many industries, such as manufacturing, health care, retail, and energy.⁴

Developing a strong competency model is a blend of art and science, and the resulting, well-designed model of knowledge, skills, abilities, and success factors required for success is well worth the effort.

Ill-Suited Competencies for the Organization's Needs

With numerous commercially available competency models, it can be tempting to simply purchase and implement one. However, off-the-shelf competency models without modifications and some customization typically lead to limited success. As the adage goes, you get what you pay for. Skills and knowledge definitions that are “vanilla,” or generic, in nature tend to yield data that is also generic and of limited value to the organization. What is desired is rich, actionable data about the workforce’s competencies, which can assist long-term strategy development and decision-making.

Prevent Ill-Suited Competencies



- Conduct research both inside and outside of the organization.
- Ensure that every competency is relevant to the organization’s long-term success.
- Dig deep to identify competencies that set your organization apart from its competitors.

The first step is to conduct research both within and outside of the organization. A variety of tools can be implemented to identify which skills are critical for success across the organization’s vital roles. Tools such as questionnaires, focus groups, interviews, and checklists can be used to dive deep into each role and learn the most important components. It is through the use of multiple tools that the reality of the organization is revealed: redundant roles or teams are uncovered, black holes where no work is being done are identified, and critical functions in need of a tune-up are revealed. [Avilar’s WebMentor Skills™](#) application provides an excellent starting point, with a variety of tools that deliver deep dives into each job role.

Weakly-Worded Competencies

Writing competencies can be challenging. Every employee has a unique style developed during their career, and some writers are more skilled than others. Levels of detail can vary, and those levels can often make or break the success of the program. Some technical or role-related jargon is understandable and acceptable; but an entire list of competencies written in jargon and acronyms is of little value to the remainder of the organization. While there is no one “right way” to define skills or competencies, there is a level of consistency that should be adhered to.

The implementation team must determine the level of detail needed – both overall and for each job role. This detail level is one of the most important aspects of the entire process, and should be kept in mind at each phase. The writing of competencies is done within a Job Task Analysis, which identifies and defines each job at four levels of detail: **Job, Role, Task, and Activity**.

Job Task Analysis Components

JOB: A collection of roles, tasks, and responsibilities assigned to a specific job title.

Example: Website Developer for external, customer-facing Website, and internal, employee-facing Intranet

ROLE: A set of responsibilities or functions and the expected results associated with a Job. Most Jobs typically contain several Roles.

Example: Conducts analysis of Website Visitors, determining frequency of visits, pages visited, and length of time spent on pages. Updates Intranet with new content as directed.

TASK: A unit of work performed as part of a Job or Role.

Example: Compile and disseminate the Website Visitors Report.

ACTIVITY: An activity that is specific, discrete, and observable, which is performed to complete a task.

Example: Run the Website Visitors Report every day and send to Marketing Manager.

Usually, skills identified in competency assessments are those in use at the Task level. Behaviors associated with specific activities are then part of the skills definition. However, some activities could be “elevated” to the skill level, for example, if the purpose of the assessment is to determine employee advancement potential. However, the skills needed for several related tasks usually can be combined and condensed, reducing duplication and minimizing the quantity of skill sets to be assessed. When determining the level of detail required for competency definitions, consider these four important yet intangible factors:

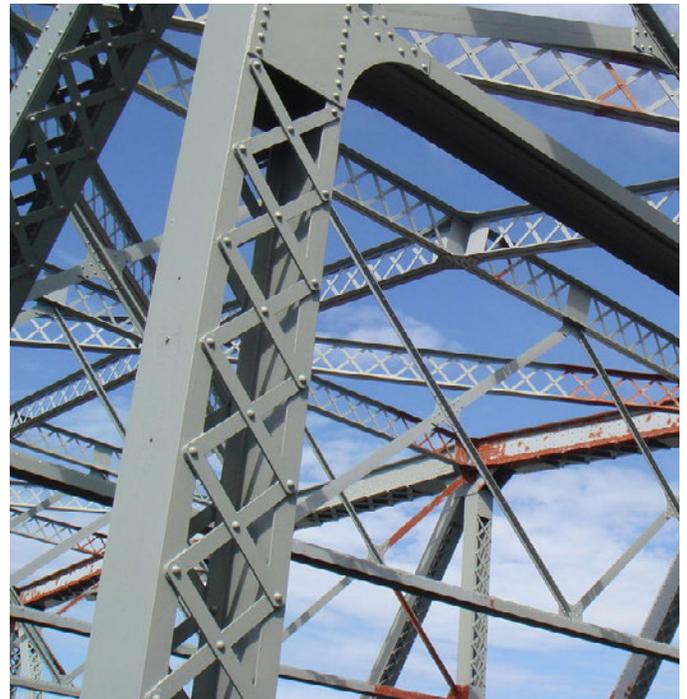
1. The level to which behaviors in the skill definition are likely to vary together and in the same direction. Often, proficiency in written and oral communications are combined into one skill. However, good speakers are not always good writers, and vice-versa.
2. The skills and definitions must be clearly understandable for the survey respondent. More precise definitions will eliminate confusion or inaccurate responses; however, the level of detail should be appropriate to the job. Jargon should be used sparingly, to ensure that employees at all levels of the organization can interpret the question and results in the same way.
3. The data collected in the assessment must be valuable to the organization. Senior management especially – and the organization as a whole – must be prepared for what the results indicate. Understanding and responding to the results is a crucial next step, one that will be expected by employees at all levels.
4. The use of observable, behavioral terms will ensure that the assessments are accurate and objective. Descriptions written with objective terms should be created. Compare the differences in this example:

SUBJECTIVE: Is goal-oriented and driven to achieve objectives. Is highly motivated to advance his/her career.

OBJECTIVE: Able to articulate purpose and desired end result for work efforts. Makes personal sacrifices when needed to achieve important goals. Persistent in pursuing important goals despite setbacks and obstacles.

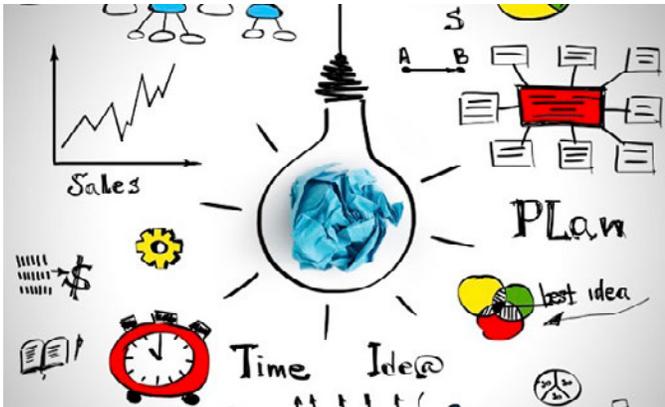
Prevent Weakly-Worded Competencies

- A consistent grammatical structure across competencies, titles, and descriptions will make the entire program more useful to everyone in the organization. Use action verbs wherever possible.
- Write titles and descriptions with action verbs whenever possible, including enough detail so that anyone reading it will have a comprehensive understanding of the competencies.
- Define non-technical skills within assessments by using observable, behavioral terms that are objective instead of subjective. Avoid technical jargon whenever possible.



A Poorly-Designed Competency Framework

One common hazard in numerous organizations is that the competency model takes on a life of its own, getting very large, very quickly, as it expands from an initial, pilot program (in many cases) to other parts of the organization. As it grows, it becomes unwieldy, so much so that even the competency manager, working with the model daily, doesn't know where to find specific skills due to overlaps and duplication.



Consciously creating a logical and predictable structure will benefit users at all levels. It helps to plan ahead, anticipating what the ultimate model might one day include, even if starting with a small subset of skills used in the organization. Early in the creation of the competency structure, it is helpful to establish rules for the hierarchy based on both the initial project as well as what might be logical in a few years. It is easier to grow into a competency structure than to retrofit and adapt an ill-fitting one.

Competency models are typically tailored to the unique characteristics of the organization and its culture. A successful competency framework will reflect those characteristics, while aligning to the organization's strategy and goals and fostering a competitive advantage for the organization.⁵

Competencies that can be used in all jobs – or across a majority of them – should be included, such as core value competencies that define the organization's culture. These should include ethics levels, business conduct definitions, knowledge of the industry, rules of communication, etc. Consider also including horizontal, or job-level, competencies, which vary according to job type.

For example, supervisory employees must exhibit critical levels of coaching skills, while executives and senior management need to be competent at strategic and

long-term planning. These varying levels should be included in the competency model. Similarly, unique competencies related to vertical disciplines or job families – such as engineering, production, marketing, or human resources – must be well-defined for each field of specialization.

It is also helpful to group competencies in a logical sequence, which makes assessments easier to complete and reporting more meaningful when interpreted. One method for grouping involves presenting assessments in a life-cycle format, starting with skills needed for the first step. Another method could be creating logical clusters by functional area. In human resources, for example, grouping assessments with staffing competencies could be separated from those requiring learning competencies.

In addition, use of a numbering system will permit the easy addition of new skills in the future. Skipping a set of numbers to allow for internal expansion could be considered. As the business grows, expectations, skills, and processes will also grow and evolve, creating the need to retire certain skills and add new ones. Additionally, entirely new competency sections may need to be added. It is wise to leave room in the numerical system to permit room for growth and inevitable future changes.

Prevent a Poorly-Designed Competency Framework



- Make use of the competency model easy for everyone by logically grouping competencies in ways that make sense to survey respondents and those interpreting the data.
- Create logical sequences that best fit the organization, such as life cycle, sequential, basic to advanced, etc.
- Create a numbering system that permits changes, removals, and additions within the structure, which will ease use in the future.



The pilot group will need extra support, and with the right approach, they can become strong project advocates for the entire competency management implementation. Overall, it's best to take a hard look, evaluating what worked and what didn't, before rolling out the assessment to others in the organization. New pilots might even be needed in order to test aspects again, ensuring that the desired, high-quality data is being delivered.

Prevent Insufficient Testing and Validation

- Implement a pilot project to test processes, obtain feedback, and evaluate areas for improvement.
- Take note of the strong project advocates – and critics – among various job families, and identify ways to appropriately respond to each.
- Provide the pilot group with extra support, reviewing results and recommendations with key participants, to gain their advocacy as the project moves forward.



Inadequate Communication

Through the entire implementation process, clear and consistent communication will be crucial for the competency management program to be a success. Rumors and distrust, fueled by the “gossip grapevine,” can kill a large project like this before it has a chance to get off the ground. Planning communications before the program is launched, and in advance of each stage, will prove to be highly beneficial when it's time for phases to be rolled out. The key stakeholders can provide initial direction, particularly related to employee concerns, the benefits that are expected from the program, and any objections that employees have. Thinking through these in advance, and addressing them from various employee perspectives, can create a natural communications timeline for the implementation team.

Chihocky and Bullard⁶ describe the value that strategic internal communications can have on a business and its strategy. Communications that are consistent and regularly reinforced are more likely to result in a stronger message which is absorbed, understood, and accepted.

“Open, informative, honest and continual communication creates advocates among staff members who then initiate a ‘ripple effect’ by advancing the organization’s mission and programs” internally.⁶

Consider establishing a forum where questions can be asked and answered with all employees (or large geographic teams) represented. Also useful are Frequently Asked Questions (FAQs) in document form or on an intranet portal, where the most common questions and objections can be addressed (and documented). The FAQs can be expanded as new questions arise, and as the project moves forward through various phases.

Bring in the supervisors, team leaders, and managers to assist with advocacy and clear communications. Since they have daily contact with their teams, they will likely be asked the majority of the questions, and will need to be able to explain the program, its purpose, and benefits in a clear and constructive manner. Reinforcing positive messages such as how the competency management program will create clear career paths, or movement to better positions, for example, will go a long way toward obtaining company-wide support. In turn, these team leaders should be asked to provide feedback on what they’re hearing to the competency implementation project team.

Prevent Inadequate Communication

- Create a communications program that clearly articulates the key messages and benefits of implementing competency management in the organization.
- Consider one or more forums where most employees can hear questions and answers together, in one setting.
- Train supervisors, team leaders, and managers in the key benefits and messages of the program, ensuring that each can answer “Why are we doing this?” when asked.



Waning Momentum

The development and implementation of a competency management program will require concentrated effort by numerous people, detailed record-keeping and documentation, enthusiasm and patience. Over time, it is inevitable that efforts will get redirected, team members will get reassigned, some setbacks will occur, and the project may start to flounder.

To keep the project on track with forward momentum, it is important to have more than one “keeper of the spreadsheet;” fortunately, many of today’s file-sharing systems allow collaboration and editing, even in real time. It’s beneficial to have more than one project team member who understands the details related to the organization’s skills, wording of competencies, and the decisions and policies the project team has made. It also spreads the perceived “burden” of all the “additional work” across several people and functional areas. This helps to avoid the possibility of purposeful or inadvertent project sabotage – either through attrition or other factors.

As with any large project, a system of redundancies should be in place, for tasks that are completed and for persons responsible for specific phases or initiatives. Creating competence redundancy within the competency management implementation will prevent the need to completely start over if a key stakeholder leaves the organization.

In addition, consider that the effort to implement this program and maintain it over time is likely to be more than initially expected. Multiple factors such as changing business conditions, new applications, and marketplace competitiveness will affect how competency management is used and advanced over time. Decision-making, record-keeping, and the communications program will all need to be updated at various times in the future.

Unfortunately, it is unrealistic to think that a setback or two will not happen during the implementation. The ability of the project team and the organization to bounce back from these setbacks and continue to move forward

are seen most frequently in organizations that face the setbacks head-on and enlist the key stakeholders to assist in recovering from them. Stakeholders can help bring people together, identify the cause(s) of the setback, and provide direction for recovery and revisions needed. More than simply cheerleaders, they can help convey and reiterate the importance of the lesson learned and how the organization will ultimately benefit in the long term.

An important and on-going task for the competency management implementation team is that of keeping the topic interesting to the rest of the organization, and keeping the enthusiasm level high for the project. One way to do this is to ensure that employee competency and improving skill sets is a discussion topic at all levels of the organization.

Supervisors, team leaders, and managers can assist by starting discussions with their teams that keep the topic at the forefront; for example, asking what skills the team might lack when a new assignment is received. Meetings with senior management can be directed to focus on the impact that new initiatives will have on competencies; for example, asking which job functions will require retraining, or how to redeploy when a new product is being prepared for development.

By keeping competence at the forefront of employees' and senior management's thinking, ultimately a cultural focus of the organization will be on worker skills and competence.

Prevent Waning Momentum

- Create redundant competence in competency management.
- Setbacks will inevitably occur; acknowledge and evaluate them, enlisting stakeholders to assist with the recovery process.
- Consciously keep competency management at the forefront of discussions, team meetings, and senior management gatherings.



IN SUMMARY

“Opportunity is missed by most people because it is dressed in overalls and looks like work.”

– THOMAS EDISON

Competency management is at the heart of workforce optimization and long-term success. When reinforced by sufficient resources and contemporary technology, a solid competency model can allow an organization to leverage competency management throughout the entire employment cycle. It can play a key role in recruiting, compensation management, training and development, and performance management. Competency management allows employees to get more engaged with the organization because they understand how their role fits within the organization, and that they are a good fit in their role. Performance expectations are clear, and opportunities for career advancement are identifiable. At each stage of the competency management implementation process, the organization reaps benefits, in the forms of a current knowledge and skills inventory, the creation of competency-based project teams, and succession planning. The numerous opportunities created by implementing a competency management program are well worth the effort and time to complete it.

■ ■ ■ About Avilar



How Do We Begin?

Implementing a competency management initiative can seem like a daunting challenge, but you don't have to face the challenge alone. Avilar – The Competency Company – can help you transform your organization from ordinary to extraordinary. Contact us today at info@avilar.com for a complimentary consultation or visit our website www.avilar.com to schedule a demo. You can be confident that we will listen to your organization's specific needs and help you find the best solutions to the competency management challenges you're facing.

About Avilar

Founded in 1997, Avilar is a leader in competency management and workforce optimization. We believe that a competency management method is one of the most effective ways to develop a workforce and deliver results in an organization. Our flagship WebMentor product line, introduced in 1998, includes a complete suite of affordable, easy-to-use, and full-featured competency development and management tools. Avilar is a recipient of the Excellence in E-Learning for Customer Satisfaction Award from Brandon Hall Group and eLearning Magazine, and has been cited by Training Magazine as a top "price-to-value" provider. Avilar blends leading human capital management and business intelligence professionals with our state-of-the-art workforce management system to solve the complex issues facing managers in the globalized business arena.



Sources



- 1 Zwikael, Ofer (2008). Top management involvement in project management. International Journal of Managing Projects in Business (Vol. 1, No. 4, pp. 498-511). Wellington, New Zealand: Emerald Group Publishing Limited.
 - 2 Newton, Paul (2015). Managing Project Risk: Project Skills. <http://www.free-management-ebooks.com/dldebk-pdf/fme-project-risk.pdf>. Accessed June 2017.
 - 3 U. S. Department of Labor, Employment and Training Administration (2012). Information Technology Competency Model. https://www.careeronestop.org/competencymodel/info_documents/it-industry.pdf. Accessed June 2017.
 - 4 U. S. Department of Labor, CareerOneStop (2017). <https://www.careeronestop.org/CompetencyModel/>. Accessed June 2017.
 - 5 Campion, Michael A., et al (2011). Doing Competencies Well: Best Practices in Competency Modeling. Personnel Management (Vol. 2011, No. 64, pp. 255-262). Hoboken, New Jersey: Wiley Periodicals, Inc.
 - 6 Chihocky, Janet, and Melissa Bullard (2009). How Strategic Internal Communications Can Positively Affect Your Business. <https://jansoncom.com/wp-content/uploads/2011/06/How-Strategic-Internal-Communications-Can-Positively-Affect-Your-Business.pdf>. Accessed June 2017.
- Quotes courtesy of BrainyQuote (2017). <https://www.brainyquote.com/>. Accessed June 2017.