DESIGNING FOR PERFORMANCE, PART 3: DESIGN, DEVELOP, AND IMPROVE

Ryan Watkins

In this final of three articles on how to design for performance, you will find practical steps and useful tools for developing the performance technologies that make up a performance improvement system. Use these systemic and systematic processes as the starting place in creating performance technologies that achieve the strategic performance objectives of your organization and its partners. Then improve on these processes by customizing them for the specialized Human Performance Technology (HPT) solutions you have selected for your performance improvement efforts.

THE ACCOMPLISHMENT OF VALUABLE results rarely occurs by chance. Rather, desired results are best achieved through the systemic and systematic design and development of comprehensive performance improvement systems. These systems use multiple performance technologies (such as Six Sigma, balanced scorecards, retention programs, coaching, training, motivational seminars, strategic planning, reengineering, and electronic performance support) to accomplish desired results. Going beyond quick fixes or narrowly focused efforts, the design of performance systems enables individuals and organizations to achieve strategic ambitions through processes that are both systemic and systematic.

The first article of this three-part series, "Designing for Performance: Aligning Your HPT Decisions from Top to Bottom" (Watkins, 2007a), provided guidance for identifying the strategic objectives of your organization and its partners as the starting place for defining what results should be achieved through any performance improvement efforts. These strategic ambitions were then translated into explicit performance objectives that could be used to guide decision making throughout the selection, design, and development of an improvement system. In the second article, "Designing for Performance: Selecting Your Performance Technologies" (Watkins, 2007b), processes were offered for developing performance assessments that could be used to evaluate the alternative performance technologies available to today's organizations. In addition, alternative performance technologies were identified for seven interdependent components of a comprehensive system for improving performance (Watkins, 2007b, 2007c). Guidance was provided for selecting the right combination of performance technologies for accomplishing strategic objectives.

This final article in the series focuses on the design, development, and implementation of the performance technologies that have been evaluated and selected to improve performance. Building on the foundational products of the first and second articles, this article offers processes, tools, and techniques for producing performance technologies that are capable of accomplishing valuable organizational results.

DESIGNING PERFORMANCE TECHNOLOGIES

The selection of performance technologies such as mentoring, recruitment programs, e-learning, leadership retreats, coaching, and workplace redesign provides a blueprint for implementing improvements within your organization. Although this blueprint can provide an essential map of the relationships between selected technologies and the desired results, you have to design and develop, and later implement and improve, performance interventions for useful results to be achieved. From executive coaching and process reengineering to job aids and performance appraisals, the multiple performance technologies included in your performance improvement system will require varying design and development processes. For instance, some technologies may require the creation of software support tools, while others may rely on the approval of new

Performance Improvement, vol. 46, no. 4, April 2007

Published online in Wiley InterScience (www.interscience.wiley.com) • DOI: 10.1002/pfi.124

organizational policies. Thus, the creation of each performance technology will involve a different series of steps as it moves from design and development to implementation and continual improvement.

Just as no single solution will improve performance in all organizations, no one set of performance technologies is the right choice for all organizations. For that reason, as a Human Performance Technology (HPT) professional, you should use a mix of performance technologies that address the complex performance discrepancies unique to your organization. These should also take into account the current processes of your organization, the contributing factors, the organization's culture, the people who will be asked to change, and the input of external partners and clients.

Most of us enter any performance improvement process with primary experience and skills related to the design and development of a specific performance technology. Whether they are instructional design processes for producing training interventions, multimedia development procedures for creating electronic job aids, or steps for establishing a comprehensive mentoring program, the majority of us are most familiar and experienced with the design and development processes of one or two performance technologies at most (and these may or may not be the selected performance technologies for this improvement effort). Generalizing these systemic and systematic processes is, therefore, a valuable first step toward success.

Many analogous processes can be applied across the design and development efforts of various performance technologies. Comparable team structures, equivalent roles and responsibilities, corresponding timelines, and similar formative evaluation requirements can help support the systematic creation of a complete performance improvement system. In addition, many generalized project management principles can help guide you toward success.

The tasks associated with designing and developing performance solutions build on the results of the previous processes. Findings from your needs assessment and SWOT analysis, for instance, will help guide you in making useful performance improvement decisions throughout the design and development process. The performance objectives and assessments that you identified prior to selecting performance technologies will also provide guidance throughout implementation and formative evaluations. You can improve efficiencies within your performance improvement system by capitalizing on the common components found among diverse performance technologies (see Table 1). For example, if each of three performance technologies requires the input of expert performers from the sales division, then all three design teams can work together to share data from their interviews and performance observations with these experts.

Planning for the coordination of the multiple performance technology development processes within your set of solutions is a priority in generating a comprehensive and synergistic performance improvement initiative. Maintain a systemic perspective throughout the design and development of selected performance technologies. This coordination of performance technologies ensures that all strategic performance objectives are addressed, all contributing factors are responded to, and all technology interventions capitalize on the efforts of other improvement efforts to maximize efficiency and effectiveness (Watkins, 2007c).

Work to avoid "random acts of improvement" when designing and developing the performance technologies. The sustained success of a performance improvement initiative hinges on the capacity of distinct performance technologies to achieve desired results while supporting the accomplishments of other performance technologies in the performance system. Therefore, use systemic and systematic processes to develop each technology intervention, producing consistent and sustainable results that are aligned with strategic performance objectives.

MANAGING THE DEVELOPMENT PROCESSES

Most interventions selected to improve performance will necessitate changes for both the organization and those who work within it (see Lick and Kaufman, 2000). As a consequence, develop a management plan that aligns information collected during the planning stages of the improvement initiative to the implementation requirements of the individuals, small groups, teams, divisions, and organizations tasked with accomplishing useful results. This comprehensive management plan can then address the integration of the collaborative performance technologies, the procedures for developing each distinct technology, and the successful implementation of the technologies in your organization.

Successful performance improvement initiatives rely on the support and commitment of key individuals within an organization as well as the valuable backing of external partners. Organize and develop the support you require for accomplishing useful results as an ongoing responsibility (see Table 2). This includes not only developing appropriate performance technologies but also creating the infrastructure capable of sustaining (and continually improving) the performance initiative. Leading change in your organization is a role you must take on when you develop a performance improvement system.

The design and development of performance technologies routinely requires specific procedures and processes that are unique to each organization. For instance, in one

TABLE 1	STEPS IN PLANNING FOR THE DESIGN AND DEVELOPMENT OF PERFORMANCE TECHNOLOGIES
STEPS TOWARD SUCCESS	BRIEF DESCRIPTION
Step 1 Verify alignment of selected performance technologies	Begin by creating a visual representation (or map) of multiple performance interventions and their associated performance objectives. Use this to verify that the selected performance interventions will work together to produce the desired results and that you can create synergy among the design processes for each performance technology included in the system.
Step 2 Define roles, responsibilities, and partnerships	For both the overall performance improvement initiative and each of the individual performance technologies you have selected for implementation, identify the key roles that internal and external organizational partners can play in the effort. In addition to the general roles (including leader, advocate, and manager) of almost any performance technology project, there are commonly unique technical aspects to each performance technology that require specialized staff to be assigned to the individual development project. For each role that you identify as a necessary component for designing and developing the included performance technologies, define the associated responsibilities (see Table 2).
Step 3 Design and develop performance technologies	Apply a generic development process to guide the development of various performance technologies. Although a generic process will not provide you with the details for managing all aspects in the creation of any single performance technology (for which there are likely many books available), as a framework it can offer guidelines and structure that are useful in developing a more detailed plan. Examples of how a generalized process can be applied to specific performance technologies are included in Table 3 (based on Watkins, 2007c).
Step 4 Align common and unique processes	Within your performance improvement initiative, there will be multiple performance technologies selected to accomplish valued performance objectives. During the design and development of these performance technologies, there will also be objectives, tasks, and resources that are shared among the projects. Therefore, capitalize on the similarities, maximize the benefits of the unique aspects, and ensure the alignment of all performance interventions. Throughout the design and development process, maintain your systemic perspective. You can then avoid both suboptimization and the development of performance technologies that do not accomplish desired results. Monitor the accomplishments and tasks of each development project to assess where improvements to the development processes can be made.

Source: Based on Watkins (2007c).

organization, the development of an interactive e-learning course may require a task analysis, while another organization may find that earlier task analyses provide the necessary information for its development process. Yet while the specific steps in creating performance technologies may require distinctive applications within an organization, there are generalizable development processes that can be applied across multiple technology development projects. For example, the ADDIE (analyze, design, develop, implement, and evaluate) process that is applied in many instructional design projects can also be applied in its generic form to the development of many other performance technologies (see Table 3).

Create a design and development plan for each performance technology selected for implementation. It is often helpful to involve both internal and external partners in all steps of creating the plans for each performance technology to learn from their experience, expand their knowledge of the performance improvement system, and gain their support for the specific performance technology.

FORMATIVE EVALUATIONS

Include in the development of all performance technologies time and resources for formative evaluations (see Table 4). Formative evaluations provide multiple opportunities for an intervention's deliverables to be examined by future users, demonstrated for experts, and pilot-tested in the performance environment. It is, therefore, valuable to plan for ongoing formative evaluations throughout the creation of each performance technology. Going beyond the interim revisions that are characteristic of most any project, formative evaluations are done to identify specific design and development considerations. These considerations can add to the quality of performance technologies and ensure that the performance improvement initiatives focus on accomplishments.

Be sure to incorporate formative evaluations into your performance interventions prior to implementation. Key roles for formative evaluations in any performance improvement initiative include receiving feedback, docu-

TABLE 2	SOME COMMON ROLES AND RESPONSIBILITIES ASSOCIATED WITH PERFORMANCE IMPROVEMENT SYSTEMS
COMMON ROLES	RELATED RESPONSIBILITIES
Performance improvement initiative leader	• Oversees the design and development of multiple performance technology projects within a performance improvement initiative • Develops plans for the coordination of multiple performance technology projects • Assembles and manages the necessary partners (internal and external to the organization) • Communicates among the internal and external partners to ensure initiative success • Responsible for the successful accomplishments of the performance improvement initiative
Initiative advocates (internal and external)	• Communicate the benefits of the performance improvement initiative to internal and external partners • Work with partners to ensure alignment of strategic directions • Ensure that the initiative and related projects receive the support required for success • Serve as a change agent within the organization
Performance intervention project manager	• Manages the design and development of one or more specific performance technology interventions • Works with the initiative leader to ensure the alignment of performance technologies • Leads the technical development team • Responsible for the accomplishments of specific performance objectives
Technical development team	• Provides the design and development support necessary for creating performance technologies • Offers a range of professional backgrounds (for example, information technology, human resources, instructional design, computer interfaces) necessary for the design and development of distinct performance technologies • Creates draft products and obtains feedback through formative evaluations • Revises design and development products as necessary

Source: Based on Watkins (2007c).

menting recommendations and changes, and assessing performance. In its initial role, feedback from formative evaluations offers essential input into the revision process that should be part of the development life cycle for any performance technology project. From specific information on which processes are not taking place in the correct sequence to general concerns regarding employee attitudes about policy changes, let feedback from formative evaluations guide the revision of project deliverables.

In your formative evaluations, pull together performance data using a variety of data collection techniques (see Table 5). This helps ensure the quality of your evaluations and provides sound justifications for changing your current design and development processes. For example, use a combination of data that is externally verifiable to supplement data that may represent the unverifiable perspectives of employees, clients, or other community partners. In addition, collect data that are numerical along with data represented in text, prose, audio, or illustrations. By combining data from numerous sources, you can gain a fuller view of how performance technology contributes to desired results.

Within a formative evaluation, each data collection technique has unique advantages and disadvantages that should be considered in determining which is most appropriate for meeting your objectives. For instance, if you are conducting a formative evaluation of a new employee recruitment program that focuses on interviewing, you would likely want to include survey data from potential employees who were interviewed (providing soft quantitative data), focus groups with interviewers (providing hard qualitative data), and performance data related to the performance objectives achieved by the recruitment program (providing hard quantitative data). The triangulation of data from each of these sources can provide valuable information for making decisions about how the technology can be improved (Watkins, 2007c).

Collect formative evaluation data for each of the performance technologies in your system, and then work with your development teams to identify systematic steps for improving effectiveness and efficiency. Sometimes achieving desired performance objectives requires only a few tweaks to a performance technology; at other times, you may have to go back to performance objectives to redesign an entire performance technology. Since the lat-

TABLE 3	A GENERALIZABLE DEVELOPMENT PROCESS APPLIED TO SAMPLE PERFORMANCE TECHNOLOGIES
Electronic Performance Support System	1. Analyze performance requirements 2. Complete a task and performance analysis 3. Define system specifications 4. Identify integrated performance assessments 5. Select performance support requirements 6. Define media and software requirements 7. Create rapid prototype of support system and do formative evaluation 8. Review and revise based on formative evaluations 9. Complete development of performance support system, and do formative evaluation 10. Review and revise as required
Balanced Scorecard[1]	1. Analyze performance requirements 2. Identify critical success factors 3. Identify and define appropriate performance measures for financial, external, internal, and innovation perspectives 4. For each measure, collect baseline data 5. For each measure, identify desired performance standards based on objectives at the societal, organizational, and individual and team levels 6. Review and revise performance measures as necessary 7. Identify performance gaps or measures 8. Define implications of performance gaps 9. Create action plans for addressing performance gaps 10. Monitor action plan implementations 11. Review, revise, and repeat process, as necessary

Source: Based on Watkins (2007c).
[1]For more information on balanced scorecards, see Kaplan and Norton (1993).

ter scenario can be costly, routinely conduct formative evaluations throughout the design and development process, as well as when the performance technology is nearing completion.

While you may be tempted during the formative evaluations to focus solely on the operational details of single performance technologies (for example, improved communication strategies for promoting a new incentive system or more interactive elements in an e-learning course), you can risk losing sight of the long-term strategic objectives that are to be achieved. Balance the recommendations for specific revisions to a performance technology with those related to the accomplishment of identified strategic objectives.

Plan for and make continual improvements throughout the implementation of the multiple performance technologies in your improvement system. Use your performance objectives to establish performance standards and criteria. From small changes that can improve process efficiencies of a single technology to performance reviews that ensure that the system of performance solutions is accomplishing necessary results, continual improvement processes lead to sustainable success.

Furthermore, continually assess your performance improvement processes. The procedures, steps, techniques, and processes that you are using to select, design, and develop a system of performance technologies should be continually assessed and improved to make future performance improvement efforts even more effective and efficient.

CONCLUSION

The desire to improve individual or organizational performance is an admirable ambition and one that HPT professionals can achieve through the application of systemic and systematic processes. In this three-article series, the performance-by-design framework provided systematic steps for creating performance improvement systems that accomplish desired results (see Figure 1). Guided by the strategic objectives of your organization and its partners, you can apply this framework to most organizational settings and not be tied to any one performance solution such as training, electronic performance support, e-learning, balanced scorecards, mentoring, or coaching. The framework provides a systematic guide for selecting, designing, and developing a system of complementary performance technologies that can be aligned with your strategic goals and objectives.

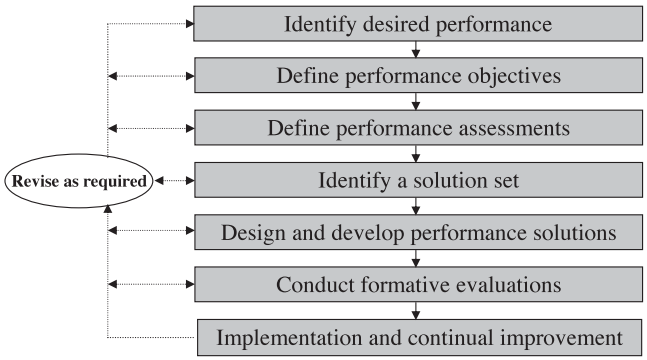
Use the framework as a starting place when planning your next performance improvement effort, realizing that it provides an initial guide rather than a restrictive

TABLE 4	STEPS IN THE FORMATIVE EVALUATION AND CONTINUAL IMPROVEMENT OF YOUR PERFORMANCE SYSTEM
STEPS TOWARD SUCCESS	BRIEF DESCRIPTION
Step 1 Define objectives of formative evaluations	Formative evaluations can be conducted using a variety of techniques and a range of participant groups. Therefore, begin by defining the results you want to achieve through the evaluations. Specify evaluation objectives for each development project independently to ensure that you collect all the useful data for making improvement. You may, however, be able to capitalize on similar objectives for the formative evaluation of each of the performance technologies focused on the achievement of shared performance objectives.
Step 2 Select formative evaluation techniques	Select a combination of data collection techniques that ensure the attainment of adequate and useful information for making future decisions. Use a combination of one or more evaluation techniques to ensure that you have data from several perspectives. For example, you can combine focus group reviews of the performance technology with both a one-on-one review by an expert performer and a pilot test of the technology with future users.
Step 3 Manage formative evaluations	Plan for the formative evaluation of each performance technology early in the design and development process. Let the desired results that are expected from the formative evaluations guide your decisions, and consider combinations of multiple evaluation techniques. Consider the sequencing and timing of formative evaluations within the development process to ensure that adequate time and resources are available for making necessary revisions.
Step 4 Apply results	Begin by taking an inventory of the findings from the formative evaluations of each performance technology, and compare the results from each of the evaluation techniques. This gives you the opportunity to assess and analyze the feedback from the multiple participants and perspectives. In the analysis, look for similarities, contradictions, recommendations for improvements, and opportunities to capitalize on related performance improvement activities. Prioritize the recommendations based on the potential value (for example, effectiveness, efficiencies) they add to performance and the potential costs (for example, time, financial, resource) associated with implementing the recommendations. Not all recommendations for improving a performance technology will lead to specific alterations to the current development processes. Some recommendations may be catalogued for use in subsequent continual improvement efforts after initial implementation, while others may be shared with other performance technology projects. All reasonable recommendations should, however, be documented, and an action should be assigned to each.
Step 5 Continually assess and improve performance	While formative evaluations provide for the improvement of performance technologies before they are implemented, systematic and continual improvement efforts are necessary for making improvements during and throughout implementation. No performance technology will accomplish all of its desired results in the most effective and efficient manner when it is first implemented. Therefore, plan for the continual improvement of all performance technologies during their design and development.

Source: Based on Watkins (2007c).

TABLE 5	EXAMPLES OF DATA COLLECTION TECHNIQUES	
	HARD (EXTERNALLY VERIFIABLE DATA)	SOFT (NOT EXTERNALLY VERIFIABLE DATA)
Quantitative (numerical expressions of a variable)	• Performance data • Budget analysis	• Surveys with a Likert-type scale that quantifies perceptions • Performance ratings
Qualitative (nonnumerical expressions of a variable)	• Focus groups • Analysis of posting to a listserv • Document review • Multisource performance observations	• Open-ended opinion surveys • Individual interviews • Single-source performance observations

Source: Based on Watkins (2007c).



Source: Based on Watkins (2007a).

FIGURE 1. THE PERFORMANCE-BY-DESIGN FRAMEWORK

procedural set of rules. In application, the steps in the framework will regularly overlap and be completed in various sequences. So while the framework may appear to be rigid, in use it is quite fluid and dynamic. When starting out, however, you may want to follow the process closely. As you build expertise, use the framework as a heuristic that can be adapted to many situations. Later, the framework may become an integral part of your approach to improving performance, offering a unique and systemic perspective on selecting, designing, and developing performance technologies.

Nevertheless, no matter how you apply the steps of the framework, always maintain a focus on results. Use the strategic objectives of your organization and its external partners to guide your decisions, continually differentiating between the results to be achieved (performance) and the processes, tools, and resources used by individuals and organizations (performing). Appling this performance-focused approach to your improvement efforts will lead to valuable performance outcomes for you and the organizations you serve.

References

Kaplan, R., & Norton, P. (1993, September–October). Putting the balanced scorecard to work. *Harvard Business Review,* 134–147.

Lick, D., & Kaufman, R. (2000). Change creation: The rest of the planning story. In J. Boettcher, M. Doyle, & R. Jensen (Eds.), *Technology-driven planning: Principles to practice.* Ann Arbor, MI: Society for College and University Planning.

Watkins, R. (2007a). Designing for performance: Aligning your HPT decisions from top to bottom (Part 1 of a 3-part series). *Performance Improvement, 46*(1), 7–13. (DOI: 10.1002/pfi.033).

Watkins, R. (2007b). Designing for performance: Selecting your performance technologies (Part 2 of a 3 part series). *Performance Improvement, 46*(2), 9–15. (DOI: 10.1002/pfi.102).

Watkins, R. (2007c). *Performance by design: The systematic selection, design, and development of performance technologies that accomplish useful results.* Amherst, MA: HRD Press, and Silver Spring, MD: International Society for Performance Improvement.

Related Readings

Gilbert, T., & Gilbert, M. (1989). Performance engineering: Making human productivity a science. *Performance and Instruction, 28*(1), 3–9. (DOI: 10.1002/pfi.4170280103).

Kaufman, R. (2006). *Change, choices, and consequences: A guide to mega thinking.* Amherst, MA: HRD Press.

Kaufman, R., Oakley-Brown, H., Watkins, R., & Leigh, D. (2003). *Strategic planning for success: Aligning people, performance, and payoffs.* San Francisco: Jossey-Bass.

Watkins, R. (2006). Aligning performance technologies with organizational strategic plans. In J. Pershing (Ed.), *The handbook of human performance technology.* (3rd ed., pp. 191–207) San Francisco: Jossey-Bass/Pfeiffer.

Watkins, R., & Leigh, D. (2001). Performance improvement: More than bettering the here and now. *Performance Improvement, 40*(8), 10–15. (DOI: 10.1002/pfi.4140400805).

Watkins, R., & Wedman, J. (2003). A process for aligning performance improvement resources and strategies. *Performance Improvement, 42*(7), 9–17. (DOI: 10.1002/pfi.4930420704).

RYAN WATKINS, PhD, author of *Performance by Design: The Systematic Selection, Design, and Development of Performance Technologies That Accomplish Useful Results,* is an associate professor of educational technology at George Washington University in Washington, D.C. He is also an author of four other books, including the best-selling *75 E-learning Activities: Making Online Courses More Interactive,* and *E-Learning Companion: A Student's Guide to Online Success.* In addition, he has published more than 60 articles and chapters. Recently Watkins was a visiting scientist with National Science Foundation, and he has been an active member of ISPI for the past decade. He may be reached at rwatkins@gwu.edu.