

What is Human Performance Technology (HPT)?

To define Human Performance Technology, we must begin by defining each word - human, performance, and technology - within the HPT context:

Human precedes performance technology due to the fact that the HP technologists deal with the performance of people operating within results-oriented systems. The HP technologist is focused on how to enhance individual human performance by looking at the organization, the process and the individual in the defined setting.

Performance in the HPT context is defined as the outcomes and accomplishments valued by the organization or system that one works in. These accomplishments are what HP technologists are concerned with.

Technology is a term that within the HPT context has been used increasingly to denote the application of procedures derived from scientific research and professional experience to the solution of practical problems. Merged with the word performance and introduced into the workplace it suggests objectivity and systematic procedure, it implies the application of what is known about humans and organizational behavior to the enhancement of accomplishments, economically and effectively, in ways that we value within the work setting.

Therefore, Human Performance Technology can be viewed as a field of endeavor that serves to bring about changes to a system, and in such a way that the system is improved in terms of the achievements it values. However, there are many ways that theorists have tried to define this approach to enhancing organizational performance, and none of them have come to agree upon one definition. Nor do professionals believe that there ever will be a consensus reached on a definition - but they do agree upon its critical attributes.

HPT is systematic. It is an organized and applied in a methodical manner. Methods exist that allow HP technologists to identify performance gaps, characterize these in measurable or observable ways, analyze them, select proper interventions, and apply them in a controlled manner.

HPT is systemic. It looks at human performance gaps as elements of systems, which in turn, work with other systems. Without an evaluation of all the facets of the system it rejects the apparent causes and solutions to the problem at hand. In this method, performance is seen as the result of a variety of influencing variables, all of which must be analyzed before proper, cost-effective interventions are selected and deployed.

HPT is grounded in scientifically derived theories and the best available empirical evidence. When possible it seeks to achieve desired human performance through ways that have been derived from scientific research. If that is not possible then it turns to documented evidence. Also, it does not believe in enthusiastic, unsubstantiated interventions that cannot demonstrate firm theoretical foundations or valid performance results.

HPT is open to all means, methods, and media. HPT is not limited by a certain set of resources or technologies that it must apply. On the other hand, it is constantly in search of the most effective and efficient way to obtain results in the most cost-efficient way.

HPT is focused on achievements that human performance and the system value. HPT looks for bottom-line results. HPT's goal is worthy performance as perceived by both the performer and the organization in which he or she performs.

To answer the question, "what is human performance technology?" one can say that HPT is *an engineering approach to attaining desired accomplishments from human performers*. Those who use HPT are those who adopt a systems view of performance gaps, systematically analyze both gaps and systems, and design cost-effective and cost-efficient interventions that are based on analysis of data, scientific knowledge, and documented precedents, in order to close these gaps in a most desirable manner.

From Where did Human Performance Technology Evolve ?

No matter what one may think, HPT did not just come to be within a matter of a few months or even a few years. It did not just spontaneously come to one person who had a problem within their organization. Human Performance Technology evolved from instructional technologists' realization that organizational instruction and training systems were ineffective or inappropriate if other organizational factors were not attended to. There are many components to HPT, and each one has built upon one another to form what is known today as human performance technology.

Learning Psychology is believed to be the root of where this technology stems from. There seems to be general agreement that HPT ultimately stems from the work of a number of behavioral psychologists who began, in the 1950's, to experiment with innovative methods of enhancing learning. This research also led to new perspectives on how human beings learn. Most of the pioneers in the field point back to the work of Skinner, who proposed the revolutionary idea that small-step instruction, coupled with extensive feedback, could significantly enhance learning. Out of Skinner's work came two important events: 1) In 1961 and 1962, Thomas F. Gilbert, a former student of Skinner's, published the *Journal of Mathetics*, where he laid the groundwork for what would later develop into the field of instructional technology; and, 2) In 1962, many of the people who had contributed to the *Journal of Mathetics*, came together to form the National Society for Programmed Instruction (NSPI). Today this newly formed discipline of instructional technology has come to be known as *instructional systems design* (ISD).

Instructional Systems Design concepts, theories, and practices are among the most significant underpinnings of HPT, especially when viewed from a historical perspective. In this system, task analysis became critical as instructional technologists realized the need to locate and identify, before instruction was designed. It began to be believed that the outcomes of instruction must be identifiable, observable, and measurable. ISD directly attacked the problem of inefficient and ineffective instruction.

Due to the demands of society and the growth in knowledge as well as the need to train large numbers of people in short amounts of time, new approaches to teaching and learning were required. This led to the advent of audiovisually based instruction. The research consistently showed that audiovisual media could teach as well as people could. This proved to be a significant breakthrough in the field.

A systematic model was developed in this construct known as ADDIE: **analysis, design, development, implementation, and evaluation**. Today there are many operational ISD models that exist in practice, however, most can trace their roots to ADDIE or accept the ADDIE concept as a foundation. The development of these types of models was crucial to the establishment of HPT. With arising questions concerning the phases of analysis and evaluation, a new more analytical approach was needed.

Analytical Systems were developed due to the need for more effective strategies to analyze and evaluate organizations. Harless coined the term front-end analysis from this concept of analytical systems because he realized that the analysis of an instructional problem usually comes too late in the process. When this analysis is pushed forward, ahead of an instructional program's design, it becomes possible to look at a particular performance problem in isolation from any perceived solution.

A researcher by the name of Gilbert designed process of assigning value to performance by measuring its accomplishments, thus providing a framework for assessing impacts of HPT beyond changes of behavior. Gilbert's behavior-engineering model identified six aspects of behavior that can be manipulated to enhance performance: data, instruments, incentives, knowledge, capacity, and motives.

Rummler and Brache, using a systematic analysis technique to examine organizational structure, found that individual performance is influenced by organizational performance, and that organizational performance is influenced by individual performance. They also stated that all these systems, and their subsystems, are all influenced by a complex and ever-changing variety of outside forces. Collectively, the work of Harless, Gilbert, and Rummler forms a large part of the base on which performance analysis and HPT are built.

Cognitive Engineering is a fascinating example of how multiple fields combine to form a new discipline for dealing with new challenges. Cognitive engineering is defined as an applied cognitive science that draws on the knowledge and techniques of cognitive psychology and related disciplines to provide the foundation for principle-driven design of person-machine systems. This field shows the learning psychology's ability to adapt when it encounters new vehicles, such as machines or computers, of knowledge delivery.

The goals of cognitive engineering and HPT are quite similar. The cognitive engineer links the world of learning with that of computer technology and measures success in terms of the human-machine interface and its resulting productivity. They also see their field as systemic. The critical system here, however, is the human-machine system rather than the machine and its electronic and mechanical components.

Information Technology and its advances have had a huge impact on human performance technology. In the future electronic-support systems and HPT will become and will be closely intertwined. In the traditional view of HPT, in which particular jobs are a given and interventions for improving performance in the jobs are developed, may give way to the design of organizational structures and information architectures. In other words, it may be necessary to redesign the jobs themselves. With the explosion of the Internet the face of HPT has been greatly influenced. Having access to just-in-time information and knowledge databases is a capability essential to the modern organization.

Ergonomics and Human Factors link our quantitative skills to the integrated systems of people, machines, and materials. It helps make sure that the design of systems complies with the requirements of users. For HP technologists the field encompasses more than the role of human beings; it includes their interactions with their tools.

Psychometrics is the measurement of human achievement and capabilities. In the past, Psychometrics was used to primarily to measure learning and general ability. Recently, valid and reliable tests have been developed to predict performance in task accomplishment or in the demonstration of sets of behavior. These recently developed psychometric techniques for accurately predicting performance have become important HPT tools. HP technologists use these tools in personnel selection and staffing.

Feedback Systems have had a tremendous impact on human performance technology. Feedback about the effectiveness of an individual's behavior has long been recognized as essential for learning and for motivation in performance-oriented organizations. Human performance technology embraces feedback as an effective and efficient strategy for improving performance.

The Human Performance Technology Approach

The HPT approach was developed because there was a need for a system that can address the range of performance improvement situations within organizations. The approach focuses on three major issues: problems, opportunities, and new situations. *Problems* are defined as an indication of a clear gap between desired and actual performance. *Opportunities* occur when current performance standards are being met but there is a chance to improve by 20 percent and thereby create a significant competitive edge. *New situations* are created by the introduction of new services or by the design of a new organization. The HPT approach has evolved over many years and has shown to be able to address this range of situations. Even though there are limitless variations on the basic approach it is always a systemic (reflecting a holistic view), performance focused, and data-driven approach. In the larger context of the organization as an adaptive system, the HP technologist focuses on three levels of performance variables that ultimately determine the performance of organizations and individuals: the levels of the organization, of process, and of the job/performer. It is these levels that one should understand first before looking at and understanding the HPT approach, as these levels are integral to the analysis of an organization.

The Organizational Level

At this level the HP technologist knows that the key performance variables are the organization's strategy and goals, its structure, measurement, and management.

The Process Level

As we look into the heart of an organization one can see the myriad of cross-functional and cross-organizational processes by which work gets done and managed. Looking at that, one can see that organizations produce their outputs through these processes. These numerous processes can span organizations and countries as well as functions. For example, we could have the need for a certain type of electronics in the United States, an organization can then have the product designed in a Japanese design facility, have it developed in England, and then having the product manufactured in California.

The HP technologist understands the following about processes and brings this knowledge with them to every situation they encounter: 1) An organization is only as good as its internal process; 2) The cross-functional processes are the flywheel that drives the organization; 3) Processes are the link between individual performance and organizational performance; 4) Organizations tend to manage according to function, a practice that seriously inhibits effective cross-functional process flow; 5) Cross-functional processes are largely invisible, hard to fix, and seldom managed; 6) The performance variables that determine the effectiveness of a process are parallel to those at the organizational level and include process goals, process design or structure, process measurement, and process management.

The Job/Performer Level

As we know now, organizational outputs are produced through processes. Processes in turn are ultimately performed and managed by individuals and teams doing various jobs. Every HP technologist knows that every performer exists in what is called the Human Performance System (HPS), and whether the desired job output will be produced is determined by the five components of the HPS: 1) Performer, 2) Inputs (forms, sales apps, and etc.), 3) Output (inquiry answered, forms processed), 4) Consequences (events that effect the performer either positive or negative), and 5) Feedback on the consequences of the output.

The significance of the HPS is that individual performance in an organization is always a function of these five components. Therefore, individual performance is a function of 1) Performance Specification, 2) Task interference, 3) Consequences, 4) Feedback, 5) Knowledge and Skill, and 6) Individual capacity.

The HP technologist understands the following four principles concerning the job/performer level of performance and the human performance system: 1) Consistent performance is a function of all six of the factors, not just five out of the six, 2) In a large majority of cases of poor job performance, the cause is a breakdown in one or more elements of the nonperformer components of the HPS, 3) If you place a good performer against a bad HPS, the system will win every time, and 4) The preceding three principles apply to all levels of an organization and all cultures.

Understanding the three levels that were just described is the fundamental part of the HPT approach - the final part is the process. Listed below are the five steps that the HP technologist will follow to conduct a diagnosis and identify and implement the appropriate treatment.

Step 1: Problem/Opportunity Definition

The goal of this step is to identify and reach agreement on the performance desired by the client or organization. This definition is the starting point of the approach. Along with a definition of desired performance, the first step usually includes a statement of the project's scope and a plan of attack.

Step 2: Analysis

This step is the most important in the entire approach. The goals, techniques, and tools used in this step will be discussed in depth. The analysis step is where the HP technologists apply the HPT framework to diagnose the problem, determine its cause, and specify or prescribe the treatment. Complete and total analysis requires that the HP technologist look at each of the three levels of organizations that were already discussed: the organizational level, the process level, and the job/performer level.

The objectives of the *organizational level* are to determine what changes will be required in the organizational level variables in order to attain the desired level of performance and identify the cross-functional processes that, because they are having a negative effect on the performance, need to be examined further and more in depth. The steps here usually include developing a systems picture of the organization and analyzing performance data to identify gaps in performance and name the critical processes.

The objective of the *process level* is to determine the changes that will be required at the process level in order to improve performance and identify jobs that are key in the effectiveness of the organization, and decide whether or not they should be examined further. The steps here usually include determining the operation of key processes, identifying which process steps are not being performed properly and are leading to the poor operation of those processes, and determining the actions required to improve the operation of the processes.

The objectives of the *job/performer level* are to determine what job outputs of which critical jobs need to be improved in order to for the key processes to work effectively and produce the desired quality and to identify the actions required to improve job outputs.

Let us look at the three goals of the analysis step:

1. Find out what is going on in the organization (finding and disseminating information and to verify those perceptions).
2. Involving Key Figures and Data (the need for extensive participation is great because analysis, consultation, and HPT represent new perspectives for most organizations).
3. Modeling and Employing a Systematic Process (A systematic analysis has defined purposes and components. It is orderly and consistent. Most important, the output of each of its activities serves as input for subsequent efforts and decisions).

There are many tools that one can use to analyze and organization, its processes, and its workers. There are four tools that the HP technologist will employ in certain situations:

1. Interviews

- This is the most popular tool for analysis
- Interviews can be conducted in person or by phone and can be used to gather information about optimal and actual performance, feelings, causes, and solutions
- One is able to formulate follow up questions
- Most important to the HP technologist is that when one conducts an interview in person he or she is able to develop a rapport with that person

2. Observation

- This technique is used to determine what is going on in the workplace
- Observation allows the HP technologist to make inferences about the work climate, supervision, tools, workflow, etc., however, the analyst must be cognizant of the impact that an observer tends to have on the people and the workplace, an influence that has the potential to tamper with reality
- There are two levels of observation:
 - One, the observer has a general take on the situation-an establishing shot of what is going on and,
 - Second, it is possible to capture the details of a persons interactions with another, with the observers attention focused on the actions of the employee towards the customer for example

3. Surveys

- Good for getting thoughts from a large number of people
- Due to the fact that surveys are completed anonymously, the analyst can be hopeful that people will answer honestly
- Professionals rarely begin an effort with a survey, surveys rely primarily on forced-choice questions, and so a survey should be constructed only after the analyst knows enough to devise credible, feasible, and realistic options

4. Focus Groups

- These are appropriate when the analyst wants to involve many groups, or people from different geographical locations, and wants people's ideas to build on each other.
- A focus group can be difficult to facilitate which is why it should be planned very well
- Most important, the participants should be thoroughly briefed before they appear in the focus group

Step 3: Design and Development

By the end of the second step (analysis) the HP technologist should have made a thorough diagnosis and identified a comprehensive, multilevel set of treatments that will address the company's quality problem. The objective of this step is to design and develop the recommended changes or treatments that were specified in the previous step. Step three may include a broad range of actions, from modifying organizational strategy to redesigning process and jobs, to designing a new measurement system, a performance management system, and training. In this step there must also be a process that is developed to evaluate the effectiveness of the treatment.

Step 4: Implementation and Maintenance

The objective of this step is to successfully implement and maintain the various solutions or cures that the HP technologist has developed. Keys to success at this step are not only planning of the sequence for introducing the various treatments, but also top management's support. Otherwise it will be rather difficult to implement any treatment at any level of the organization.

Step 5: Evaluation

The objective of this step is to gather data on performance and to assess whether the treatments are producing the desired results. If they are not, then the HP technologist must determine how the treatments must be modified to achieve the desired results. The HP technologist's evaluation starts at step one, it is not just done at the end. The tracking of performance starts at the implementation stage and should continue as an aspect of the ongoing management of the performance in question. It is important to note that evaluation procedures are developed along with solutions. As the data is gathered and analyzed, the loop is closed: either the treatment is effective and the problem is eradicated, or the performance/evaluation data provide more insight into the changes that are required at one or more levels, at which point the treatment is altered or a new one is prescribed. One must always remember that the evaluation stage starts when the process starts, and it is an ever changing and ongoing process.