

Executive Summary:

This issue of BPTrends focuses on activities, and especially on activities that are implemented by employees. We consider the types of activities and the various techniques that can be used to analyze them. Then we focus on how the Human Performance Improvement (HPI) model can be used to analyze and improve the performance of employees and their managers. We touch briefly on the use of the Six Sigma methodology as another approach to activity improvement.

Contents:

The Nature of Activities
Types of Activities
How Activities are Analyzed
Analyzing and Improving Human Performance
Activity Specifications
Activity Support
Consequences
Feedback
Skill, Knowledge and Capability
Analyzing a Complex Activity
Managing the Performance of Activities
Six Sigma
Summary



Paul Harmon
Executive Editor
pharmon@bptrends.com

Analysing Activities

In the last issue of BPTrends Newsletter, we considered large-scale process topics: enterprise architectures, value chains, and core business processes. In this issue, we want to go to the opposite extreme and consider some of the topics normally associated with the analysis of the small-scale elements of a process – its activities.

Activities are important because they describe what actually happens when a process is executed. Job descriptions often focus on activities. Simulation systems usually rely on activities to define the actual costs and times involved in a runtime process. Increasingly, Business Activity Measurement (BAM) tools are going to gather information on specific activity outcomes and report them to managers. Moreover, just as methodologies like the Supply Chain Council's SCOR, focus on large-scale processes, methodologies like Six Sigma tend to focus on discrete sets of activities in order to assure they are performed accurately and consistently.

In this issue we will provide an overview of the key role that activities play in defining employee's tasks and serving as a basic unit of determining process costs, simulations, and monitoring systems. We will only remark on simulation, the automation of activities, the management of activities, and on the Six Sigma methodology in passing, but will devote future newsletters to each of these important topics.

The Nature of Activities

A process is any sequence of steps that is initiated by an event, transforms information, materials, or business commitments, and produces an output. Obviously, activities are processes. Most analysts use the term *activity* rather informally to refer to a small-scale process that consists of one or a few closely related steps.

We define an *activity* as *the smallest unit of process that is normally pictured on any diagram used to define a specific business process.* At first glance, this definition may seem a little arbitrary, but it will make good sense to anyone who uses a business process modeling tool, a simulation tool or a workflow product. Most sophisticated modeling tools allow developers to nest subprocesses within processes. The bottom of the software tool's process hierarchy is the activity. Activity boxes can be opened, and information about the activity can be associated with it and stored in the tool's repository. Figure 1 shows a workflow model developed in Proforma's ProVision. The Review Order activity is highlighted and an associated window for that activity is opened in Figure 1. The analyst can enter information about resources used in the activity, including any steps that take place during the performance of the activity.

Obviously, our definition means that activities will vary greatly from one company to another and from one analysis effort to another. Our definition of an activity does not preclude the idea that an activity can be made up of smaller units of performance.



An activity can include steps or tasks, for example. Our definition simply asserts that, in given analysis effort, we don't choose to *diagram* the steps that occur within an activity.

Figure 2 provides a popular way of subdividing processes. Different groups assign different names to the various types of processes. There's no consistency among developers or vendors regarding the names used in a process hierarchy: The only thing we can do is be consistent. For us, the largest possible process is the value chain. The value chain includes all of the core business processes and support processes necessary to produce a product or product line. These processes are subdivided through various levels of subprocess until one arrives at activities that we arbitrarily assign to the bottom position in the hierarchy of graphically depicted processes. As we have already suggested, activities can be subdivided into subprocesses, usually called *steps* or *tasks*, but these are usually captured on worksheets, in lists, or by means of informal documentation, and are not pictured on the process or workflow diagrams that business analysts prepare.

Types of Activities

Many analysts divide activities into two categories: *simple activities* that only have a single step, and *compound activities*, that include multiple steps. Obviously, analysis teams that prepare very detailed diagrams are more likely to create diagrams that show simple activities, while teams that only create higher-level process descriptions are more likely to create diagrams that picture compound activities.

Another common distinction is between activities that are normally performed by a single individual and those that are performed by many individuals, simultaneously. Obviously one can imagine a matrix (Table 1) with simple and compound on one axis and single individual and multiple individuals on the other.

A third important distinction is between *value adding activities* and *non-value adding activities*. Value adding activities change the process or service as it passes through the activity, to increase its value to customers. An activity adds value if it satisfies all three of the following requirements: (1) the customer is willing to pay for the activity, (2) the activity physically changes the product or service, and (3)

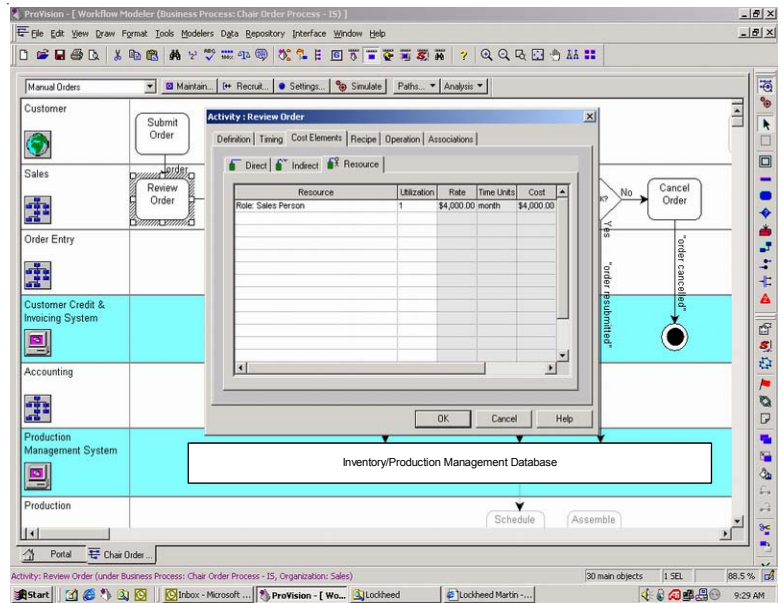


Figure 1. A workflow process with an activity highlighted and an activity window opened in Proforma's ProVision business modeling tool.

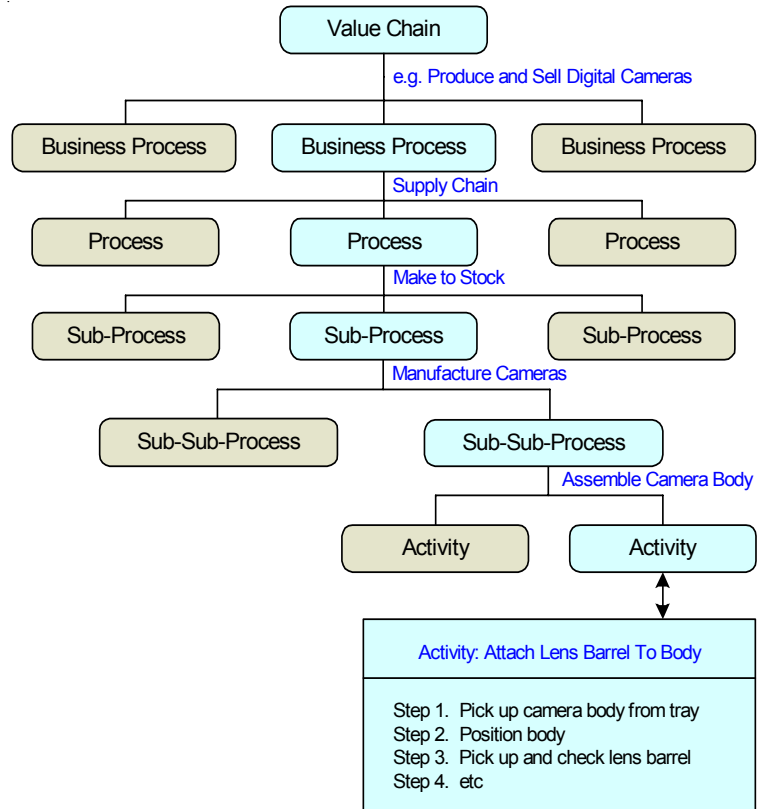


Figure 2. A hierarchy of processes.

	Simple Activity	Compound Activity
Single Individual	Approve Orders. A manager picks up an order, reads it, and either approves or rejects it.	Prepare Blueprints. An architect works through a hundred steps to prepare the blueprints for a house.
Multiple Individuals	Insert Part A into Assembly B. A production line in which dozens of individuals each perform the same, repetitive task.	Assemble Motors. A team of people work together, through a series of steps, as they assemble a complex motor.

Table 1. Types of Activities

two. In fact, when we talk about architectures, we are usually talking in terms of abstractions and generalizations, but when we talk about activities, we are talking about where the “rubber meets the road.” Managers need to understand how processes work with one another, and they need to monitor the flow between processes, but ultimately, it’s the performance of specific activities that either make or break the company. The differences between a company that delivers stellar performance that pleases its customers and those that don’t, ultimately lies in the details of how consistently specific activities are performed

How Activities are Analyzed

Activities occur within the overall framework of processes. Most organizations work in a top-down manner, first determining the scope of a process, then identifying the goals and activities making up subprocesses, and finally analyzing specific activities. Let’s assume we have analyzed a process and its subprocesses and have arrived at specific activities. What kinds of things might we focus on when it comes time to define the nature of an activity? Figure 4 provides an overview of the elements we might look at and the kinds of analysis we might undertake.

the activity is performed correctly the first time its undertaken. *Non-value adding activities* take two forms: *Value enabling activities* that occur in order to make a value adding activity possible, and activities that neither enable or add value. Management and accounting activities are obvious examples if value enabling activities. Activities that neither add value nor enable other activities should be eliminated whenever possible.

How Activities are Implemented

One way to think about how an activity might be implemented is to apply the same framework we used last month when we talked about large-scale processes. (See Figure 3.) In essence, whether it’s a large scale process or a single, simple activity, it will be performed by employees, by software systems, or by some combination of the

There are some kinds of analysis that we would do before thinking about how to implement the activity. There are other types of analysis we would only undertake if we decide to automate the activity and others we would undertake if we determined that the activity would be performed by employees. And there are still other types of analysis that we would only do once we had completed an initial implementation of the activity.

We can hardly consider all of the kinds of activity analysis we might do in this issue of BPTrends. As we suggested earlier, this issue of BPTrends is primarily designed to provide readers with an overview and to define some of

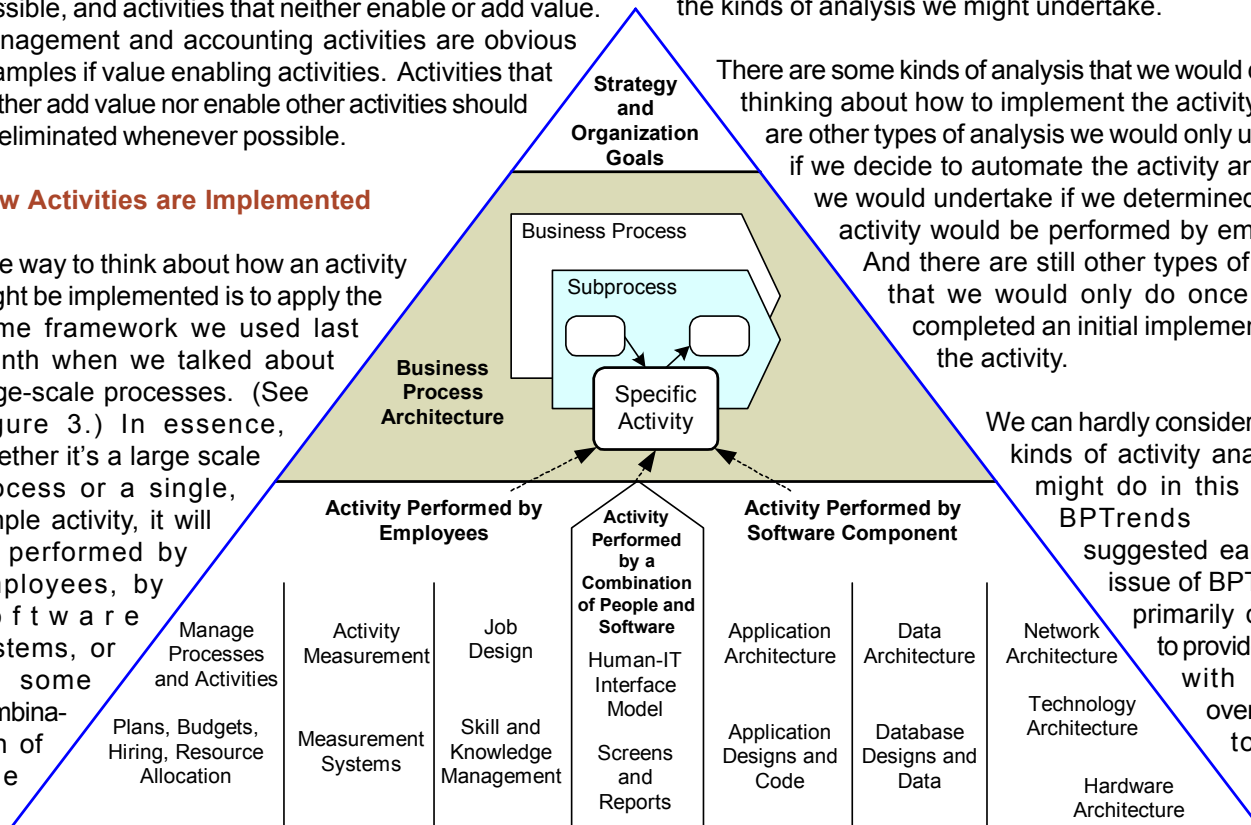
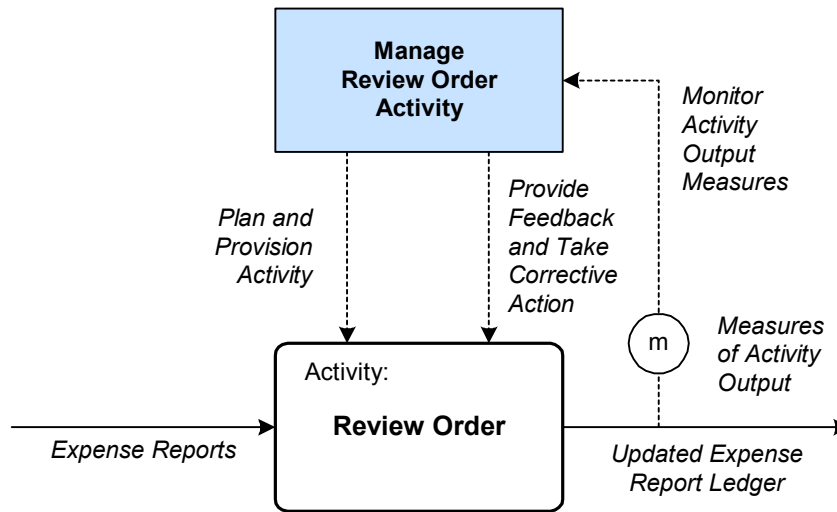


Figure 3. A framewrk for thinking about activity implementation.



- Define the goal of the activity.
- Analysis of actual tasks or steps involved in the performance of the activity.
- Determine if the activity adds or enables the addition of value.
- Define appropriate measures of activity outcomes.
- Define any decisions that must be taken in conjunction with the activity, and document appropriate business rules used to make decisions.
- Define any data or knowledge that must be available for the performance of the activity.
- Determine if activity should be done by an employee, a software component, or some combination.

Should be determined, regardless of implementation

Should be determined if activity is implemented by employees

- If it's to be done by an employee, do a human performance analysis that includes the management support system.
- Determine specific ways to measure successful employee performance.
- Use statistical measures to determine how consistently the activity is performed.

Should be determined if activity is implemented by software system

- If it's to be done by a software system, consider defining a use case or a class model.
- Determine specific ways to measure successful application performance.
- If it's to be done by a combination, define the interfaces between the performer and the system.

Should be done after the activity is implemented

- Define the cost and time consumed in the performance of the activity and the resources used and consumed.
- Simulate the process and determine if the activity will perform adequately.

Figure 4. Various ways of analyzing an activity.

the topics that we will consider in greater detail in future issues of BPTrends. We want to focus most of this Newsletter on some of the issues involved in analyzing human performance. In other words, we want to consider the types of analysis we might undertake once we know the activity is to be performed by employees.

Before moving to that, however, we will briefly touch on some of the things that we might check, before we decide on an

implementation. We would certainly want to analyze the steps in the performance of the activity. The easiest activities are those that simply involve physical steps that can be easily observed. In those cases we simply write out a description of what is done. More complex activities involve decisions. Truly complex activities involve analyzing a situation and then designing a tailored response. To really understand this kind of activity, we need to know the



SPECIFIC ACTIVITY ANALYSIS WORKSHEET			
Activity : <u>Enter Expense Reports</u>		Process : <u>XYZ Sales Process</u>	
Activity Performed by <input checked="" type="checkbox"/> employee, () software, () a combination		Major Output of Activity: <u>Updated expense report ledger</u>	
Measures of Output: Ledger reflects all reported expenses documented in expense reports filed by sales personnel. Ledger closed at the end of each month.			
Steps in the Activity	Responsibility	Decisions/Rules	Opportunities for Improvement
1. Date-stamp each expense report when its received. 2. Review expense reports for completeness and accuracy (Return if incomplete.) 3. Cross check information on expense report with supporting documentation. 4. Enter information on expense report into ledger. 5. Update ledger 6. File expense report and supporting documentation.	Expense Report Entry Clerk responsible for work. Work managed by Sales Accounting Supervisor	Rule 1. No expense report is processed before supporting documentation arrives. Rule 2. Incomplete reports are rerouted to submitter for completion. Rule 3. Submitter is notified whenever an item is disallowed. Rule 4. Any sign of a purposeful attempt at fraud should be brought to attention of accounting supervisor. Rule 5. Expense reports must be processed and paid in month submitted Rule 6. If expense reports are submitted that are over 3 months old, the Sales Accounting Supervisor should be notified to approve processing.	

Figure 5. A basic activity worksheet.

ACTIVITY COST WORKSHEET				
Process or Subprocess: <u>XYZ Sales Process</u>			IS <input checked="" type="checkbox"/> or SHOULD () Analysis	
Activity	Outputs of Activity	Time/Output	Costs/Output	Problems or Decisions
<u>Enter Expense Reports</u>	<u>Updated Expense Report Ledger</u>	<u>15 minutes/report and update or 4 per hour.</u>	<u>@\$24/hr (loaded with overhead) the cost per report is \$6'</u>	<u>1 in 20 involves an exception which takes up to 30 minutes to process.</u>

Figure 6. An activity cost worksheet

knowledge that the performer brings to the situation, and the business rules he or she follows as they analyze the situation and design a response. Whole disciplines have developed to assist with the elicitation and documentation of business rules, analyzing knowledge used in the

performance of a task, and managing knowledge used in an activity.

We often use the two worksheets pictured in Figures 5 and 6 to gather information about activities. The first is used to

Analyzing and Improving Human Performance

In a recent study, Gartner estimated that, at present, only 20 percent of a typical business can be automated. Put the other way, about 80% of the activities at a typical company are performed by employees. Obviously, this varies greatly, depending on the business. Some companies, like the telephone companies, have pushed automation quite far, eliminating most of the phone operators that used to dominate their employee rolls. On the other hand, even the highly automated Telecoms have managers, operators for exceptions, phone banks of callers to promote new services, and huge numbers of employees that actually install and maintain the phone network in the field.

In other newsletters we'll focus on what's involved in automating activities and what results in good human-software interfaces. Here, however, we will focus on the human side of activity implementation. Specifically, we want to consider the kind of human performance analysis that someone might undertake in order to understand why employees are performing as they are. There are different approaches to human performance analysis. The overall

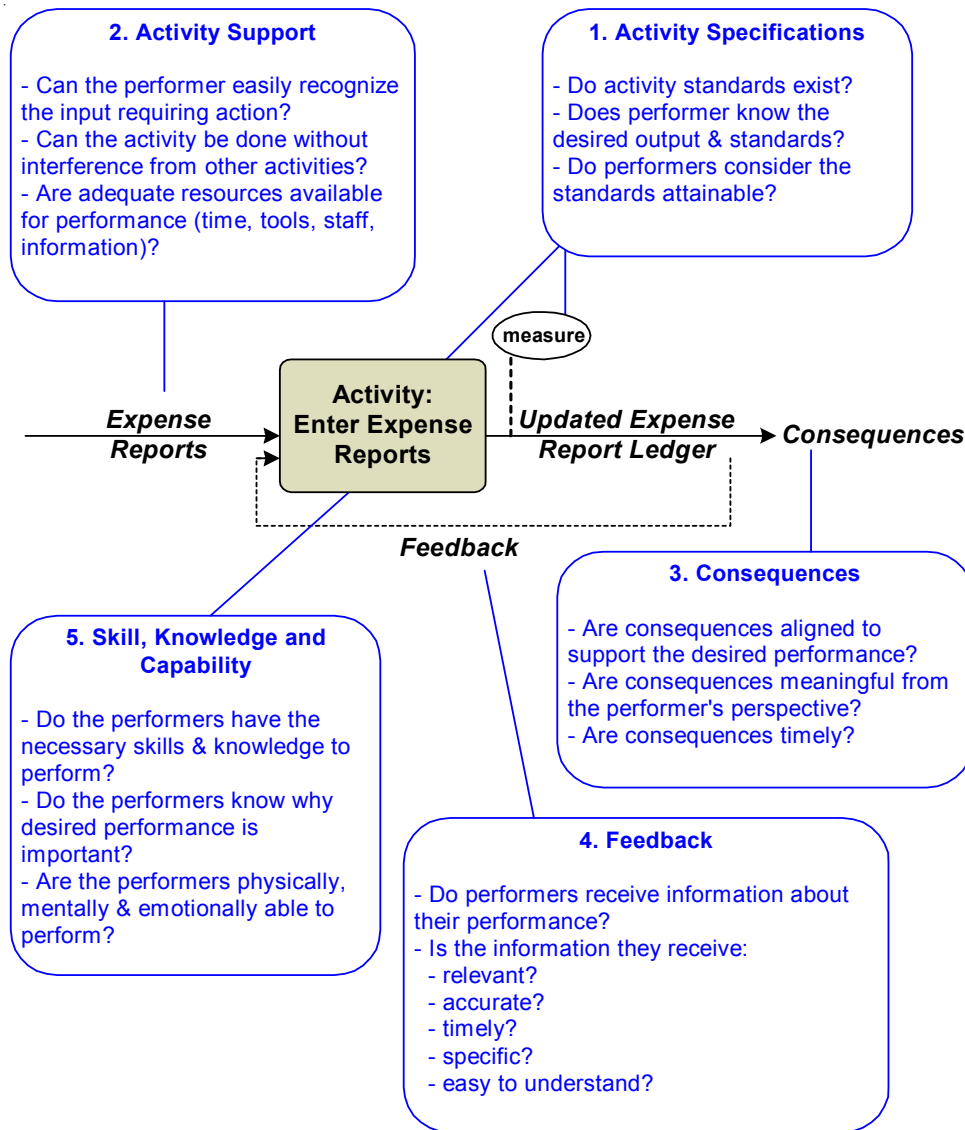


Figure 7. The human performance model of an activity.

document the steps, who is responsible and some of the decisions and business rules used in the activity. Complex activities often require much more extensive analysis efforts to capture the knowledge used in the performance of a task. Really complex tasks often depend on knowledge and use of hundreds or even thousand of business rules.

Figure 6 emphasizes information needed for cost analysis or as a basis for running a simulation. It asks for the outputs of the activity, the time required per output, the cost per output and any problems or decisions required. A cost worksheet can be much more complex than this.

approach that we have found most useful over the years is what is popularly termed Human Performance Improvement (HPI). In essence, the HPI approach treats a each employee-enabled activity as a system and examines it, one element at a time.

The organization that has led in the creation and formalization of HPI is the International Society for Performance Improvement (ISPI). The member of ISPI who is probably best known to those engaged in business process change is Geary Rummler, whose 1990 book, *Improving Performance*, has been used by many process analysts, especially those faced with processes that were largely

employee implemented. (Figures 4 and 7 and much of the discussion of the HPI model were derived from publications of or conversations with Dr. Rummier.)

The discussion that follows presents an overview of the approach advocated by those involved in HPI. The specific approach is modeled after the approach advocated by Geary Rummier. In essence, one starts with the specific activity, and then explores variables that might keep an employee from performing correctly. Figure 7 provides an overview of the human performance model that has evolved in the course of the last fifty years. Each of the variables pictured in Figure 7 is considered in more detail in the discussion that follows.

Activity Specifications

Do activity standards exist? If measures exist, then one assumes they measure whether the activity meets one or more standards. Obviously, if you are a new manager, and there are no existing measures or standards in place, then your first job is to create them. It's always useful to check to see if standards are documented and to ask performers how they interpret the standards. It's always possible that someone provided performers with standards, then established measures, or changed measures without realigning the standards and advising the employees. Similarly, it's worth checking on what standards software developers used when they created any software component used in the activity, to assure they are current and aligned.

Does the performer know the desired output and standards? Once the manager knows that standards exist, he or she should next determine that the people or systems performing the activity know what the standards are. Obviously, people can't systematically achieve a standard they don't know about. If performers don't know about a standard, it's the manager's job to not only assure that they learn about the standard, but also to devise a means to assure that current performers don't forget it and new performers learn of the standard. .

Do performers consider the standards obtainable? Few people persist in trying to achieve something they can't achieve. Unobtainable standards shouldn't happen, but occasionally they are established by someone who isn't being realistic. A manager needs to check to see that everyone agrees that the standards are, indeed, obtainable. If they aren't, either because no one could achieve the standard, or because an existing performer can't, the manager needs to make changes. In the first case, one changes the standard. In the second, one changes the performer or system.

Activity Support

Can the performer easily recognize the input requiring action? Consider a situation in which salespeople are "wasting their time on unqualified prospects." The manager should begin by determining if the salespeople know what a "qualified prospect" is. If the salespeople don't know, then one step in solving the problem is to teach them how to distinguish between qualified and unqualified prospects. There are lots of problems that arise from similar causes. Diagnosticians don't check for some potential problems because they don't recognize the signs that suggest they should make such a check. Developers create systems that respond to one set of inputs, but don't build components that respond to other inputs because they don't realize that those inputs could occur.

Can the activity be done without interference from other activities? Sometimes one activity will interfere with another. For example, sometimes achieving one activity might preclude the successful completion of another. Consider that one person may need to answer phones right next to someone who is trying to write a report. The report writer is constantly distracted by the person carrying on phone conversations. Or, consider that a given activity may require a forklift, which someone else is always using for some other activity. In an ideal workplace none of these things happen, but in the real world they often do. Managers need to check the environment in which the work is to take place to assure that the performance of one activity isn't interfering with the performance of another.

Are adequate resources available for performance (Time, Tools, Staff, Information)? Are needed resources available to those performing the activity? Do they have the time required? Do they have the tools needed for the job? If staff support is required, is it available and adequate for the job? If information is needed, is it available? These are obvious sorts of things, but more performance failures can be tracked to environmental problems than to lack of trained employees, or employees who willfully choose not to perform some task. This is an extension of resource budgeting – assuring that employees and systems have the resources needed to perform their jobs.

Consequences

Are consequences aligned to support the desired performance? Motivation can be turned into a complex subject. In most cases, it's really quite simple. It involves knowledge of the task to be performed, consequences, and feedback. Consequences refer to whatever follows the performance of an activity. Sales people who close sales



usually expect praise and bonuses. Every sales manager knows that a good incentive system gets good results. If people perform and only get complaints that they didn't perform even better, in most cases, the result will be even less adequate performance. Imagine two activities: sales and maintaining the sales database. . Imagine that the salesperson has less time than is needed to perform both tasks well. Further imagine that he or she gets a significant bonus for every sale, and gets complaints when the database hasn't been updated. What is the salesperson likely to do? It's always important to not only consider the consequences of each individual task, but to also consider the effect of asking one individual to do several tasks with different consequences.

Are consequences meaningful from the performer's perspective? Different individuals respond to different types of consequences. It's important that the consequences be appropriate to the individual. Bonuses usually work, but in many situations, a day off will be more appreciated than a small bonus. Some employees look forward to the opportunity to do some travel, and others regard it as punishment. A good manager should have a clear idea about the consequences that will be valued by different employees.

Are consequences timely? Lots of research shows that consequences that immediately follow an activity are more likely to affect performance than those delayed. This doesn't mean that you need to hand salespeople money as soon as they return from a successful sales call. It does mean that the reward system should be clear so that the sales person can calculate what bonus he or she can anticipate. Making an effort without knowing if there will be consequences isn't a good practice. Giving someone a big, surprise bonus at the end of the year isn't nearly as good as giving smaller bonuses that are clearly associated with excellent performance. Best is a system that makes the consequences clear so that the employee can mentally reward him or herself when success occurs. The same thing is true in reverse. Punishment (Can you use criticism or some other word – punishment sounds so punitive and a bit heavy handed) should be closely associated with the action that deserves punishment. Waiting for a yearly evaluation to tell someone they aren't performing adequately is a bad policy.

Feedback

Do performers receive information about their performance? Forgetting more explicit rewards, every manager should make certain that employees receive information about the outcomes of their work. Assume the

manager collects information about the number of chairs that arrive at the distributor's site undamaged, or with defects. As soon as the manager gets such information, he or she should pass it along to the employees involved. If defects decrease. Employees should learn about it and receive praise). If defects increase, employees should be also be informed immediately. In too many companies, employees try to do their jobs, and month in and month out, no one tells them if their work is adequate or not. After awhile, most employees will take a little less care if, as far as they can tell, no one notices or cares. This is an area where the Process Sponsor plays an important role. Often the feedback needed by people in one subprocess isn't immediately available to the functional manager managing that subprocess. Care taken in packing may only pay off in reduced customer complaints, which go to sales and service and never directly to manufacturing or packaging. It's the Process Sponsor's job to design a process-wide feedback system that assures that subprocess managers have the information they need to provide their people with timely feedback.

Is the information they receive relevant, accurate, timely, specific, and easy to understand? As with consequences, there is more and less useful feedback. It's important to tell the packaging people that chairs are getting damaged in transit because chairs aren't properly packed. It's much more useful to tell them exactly how the chairs are being damaged so they will know how to change their packaging process to avoid the problem. Many companies provide managers with accounting data that is summarized in ways only accountings can understand. This isn't useful feedback. (One good reason for moving to an activity-based costing system is to assure that cost information tells employees whether specific activities and subprocesses are contributing to the value of products, or costing the company money.) A manager that yells that a subprocess isn't performing up to snuff without being specific about what's wrong, is only creating anxiety and increasing the problems facing the people in that subprocess.

Skill, Knowledge and Capability

Do the performers have the necessary skills and knowledge to perform? In many companies, the solution to all performance problems is to provide more training. For many employees, one of the worst aspects of a job is having to sit through training courses that drone on about things he or she already knows. The performance of a task requires specific information and the skills needed to evaluate the information, make decisions, and perform tasks. In most cases, the place to begin is to identify the performer that is

doing the job right, and then ask what is missing in the case of a performer who isn't doing the job right. If the deficient performer needs to learn specific knowledge or specific skills, then some kind of training is appropriate. Before training, however, be sure you really are facing a skill/knowledge problem. If employees have performed correctly in the past, it's very unlikely they have forgotten what they knew. It's much more likely to be an environmental problem, or a problem arising from lack of feedback or consequences.

Do the performers know why desired performance is important? The importance and effort we assign to a task usually reflects our understanding of the importance or the consequences that result. If employees don't realize that some seemingly minor shutdown procedure can potentially cause a major explosion, they might tend to skip the shutdown procedure. On most days, indeed for months or years, there may be no consequence. In these situations it's important that employees have a good overview of what's important and why it's important.

Are the performers physically, mentally and emotionally able to perform? Finally, it's important to assure that performers can actually perform the tasks assigned. If an employee can't understand English, and all information related to job performance is communicated in English, he or she will probably not be able to perform the required tasks. In some cases, changes in the environment will help. Steps can be provided or signs can be posted in another language. In some cases, however, an individual simply isn't able to perform a task. In those cases, another performer needs to put on the task.

Obviously, most of these same performance improvement criteria can be applied to the analysis of problems that occur when a software implementation of an activity isn't producing adequate results. However, in the case of systems, the understanding and the feedback usually involves the person maintaining the software system, and not the software itself.

Analyzing a Complex Activity

Now, let's consider a more complex activity, like selling. Assume that the same company that employs the Expense Report Entry Clerk also employs salespeople. These salespeople sell the company's products throughout North America by calling on customers, explaining the products and taking orders. The salespeople are divided into regions managed by regional managers, and so forth. To keep things relatively simple, we are only going to focus on the sales

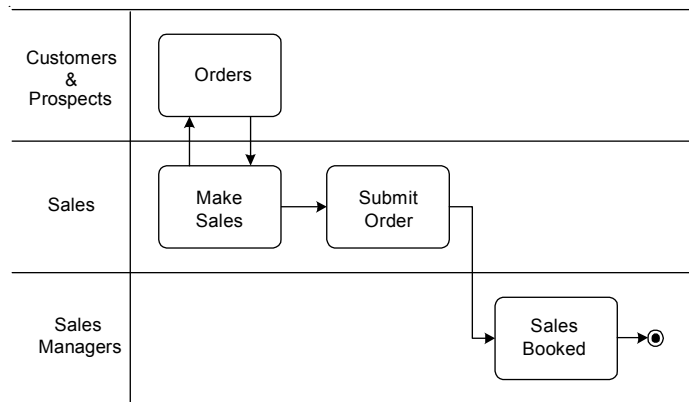


Figure 8. A simple sales process.

SALES JOB DESCRIPTION

Selling Tasks

1. Customer-Related Tasks
 - 1.1 Prepare Account Related Paperwork
 - 1.2 Prepare Cross Selling Proposals
 - 1.3 Make Maintenance Calls
 - 1.4 Maintain Customer Contact by Phone or Email
2. Prospect-Related Tasks
 - 2.1 Identify New Prospects
 - 2.2 Contact and Qualify New Prospects
 - 2.3 Make Sales Calls
 - 2.4 Develop Proposals
 - 2.5 Maintain Prospect Contact by Phone or Email

Overhead Tasks

3. Planning and Coordinating Tasks
 - 3.1 Time and Territory Planning
 - 3.2 Prioritizing Accounts
 - 3.3 Key Account Strategizing
4. Organizational Tasks
 - 4.1 Meeting with Manager
 - 4.2 Attending Sales Meetings
 - 4.3 Accounting for Time and Expenses
 - 4.4 Preparing Special Reports
5. Product Knowledge
 - 5.1 Keeping Current on New Products
 - 5.2 Keeping Current on Competitive Products
 - 5.3 Maintaining Contacts with In-House Specialists
6. Self-Development and Motivation
 - 6.1 Keeping Current on General Business Trends
 - 6.2 Keeping Current on General Selling and Marketing Trends and Practices
 - 6.3 Arranging a Personal Schedule of Contingencies

Figure 9. A Salesperson's Job Description.

job, in its most generic form. The job might be described by the process diagram in Figure 8.

Once again, we could easily analyze the sales activities in much greater detail. For our purposes, however, it is easier to provide a job description in a text format. Figure 9, for example, is an overview of our generic salesperson's job description.

We could go further and write more detailed descriptions of each of the tasks listed in the Job Description in Figure 9, and assign measures to each or at least to the more important tasks. For example, we could specify how many

sales per unit of time should be closed, how many prospect calls should be made each month, or when expense accounts needed to be submitted.

In effect, the job description in Figure 10 defines the salesperson's job. Assuming we only want to list two activities – *Make Sales* and *Submit Orders* – on our process diagram, then this description defines the tasks that define those activities.

If you were the sales manager and you decided that sales were inadequate, you would need to define the tasks as we

HUMAN PERFORMANCE ANALYSIS WORKSHEET						
Process or Subprocess: <i>XYZ Sales Process</i>		Activity or Job: <i>XYZ Sales Activity</i>		IS <input checked="" type="checkbox"/> or SHOULD () Analysis		
Tasks Included in Activity	Measures of Task Performance	Potential Performance Problems				
		Activity Specifications	Activity Support	Consequences	Feedback	Skill, Knowledge & Capability
1. <i>Customer-Related Activities</i> - <i>Preparing account related paperwork</i> - <i>Preparing cross selling proposals</i> - <i>Making maintenance calls</i> - <i>Maintaining customer contact</i>	<i>Increase sales to existing customers by 12% per quarter..</i>	<i>Does the sales person know the goals?</i> <i>Does the sales person consider the goals obtainable?</i>	<i>Does sales person's territory have enough prospects?</i>	<i>Does the current bonus system reflect the effort required?</i>	<i>Does the sales person get e-mail whenever the company gets a complaint, or a complement from one of his/her customers?</i>	<i>Does the sales person understand the new product line?</i> <i>Does the sales person understand how to demonstrate the new product with his/her laptop?</i>
2. <i>Prospect-Related Activities</i> - <i>Identifying new prospects</i> - <i>Contacting and qualifying prospects</i> - <i>Making sales calls</i> - <i>Developing proposals</i> - <i>Maintaining prospect contact</i>	<i>Make 20 new sales per month.</i>		<i>Does the sales person get leads whenever they come to company?</i> <i>Does the sales person have the new laptops with the new demo loaded?</i>			
3. <i>Planning and Coordinating Activities</i> - <i>Time and territory planning</i> - <i>Prioritizing accounts</i> - <i>Key account strategizing</i>						
4. <i>Organizational Activities</i> - <i>Meeting with manager</i> - <i>Attending sales meetings</i> - <i>Accounting for time and expenses</i> - <i>Preparing special reports</i>						
5. <i>Product Knowledge</i> - <i>Keeping current on new products</i> - <i>keeping current on competitive products</i> - <i>Maintaining contacts with in-house specialists</i>						
6. <i>Self-Development and Motivation</i> - <i>Keeping current on general business trends</i> - <i>Keeping current on general selling and marketing trends</i> - <i>Arranging a personal schedule of contingencies</i>						

Figure 10. A partially completed Human Performance Analysis Worksheet for a sales process.



have and measure results to obtain some ideas about what could be wrong.

Measures might reveal that most sales people were performing in an adequate manner, but that a few weren't. In that case, the sales manager would need to focus on the sales people who weren't performing adequately. If all or most sales people were performing inadequately, however, and failing in about the same manner, that would suggest a systems failure. In that case the manager would need to consider redesigning the sales process, specific activities, or the sales job description.

Whether the manager was faced with individuals who weren't performing, or a more systematic failure, one approach to a more detailed analysis of the problem would involve the application of the Human Performance Model we presented in Figure 7.

To make this easier when we analyze sales problems, we often use a Human Performance Analysis Worksheet, which is pictured as Figure 10.

We haven't filled in the complete worksheet, but we entered a few questions to suggest how a sales manager might begin to analyze what might be wrong with a deficient sales activity.

This isn't the place to go into a more detailed performance analysis. Suffice to say that one should not assume that everything is wrong, but study the problem and identify specific sources of failure. In the past, many sales managers might have simply decided to send all their salespeople to a sales training program. That approach assumes that all the salespeople are deficient in every skill, and that a few days of training would correct the problem, whatever it is. Today, knee-jerk training isn't a very popular option. It costs too much and it is generally inadequate. Additional analysis and highly specific interventions targeted at the individuals who need help, give a lot more bang for the buck and are the hallmark of the HPI approach business process improvement.

Managing the Performance of Activities

One feature of the HPI approach that should have been obvious from the model pictured in Figure 7 was the equal emphasis on employees and managers. Most HPI analysts find that it is almost impossible to consider a given activity without simultaneously considering the management activity associated with it. It is the supervisor or manager that

assigns people to tasks, presumably after checking to be sure they can do the job. Similarly, it is the supervisor or manager that checks outputs and provides feedback and consequences that let performers know that they are on target, or that they need to change what they are doing. Significantly, the human performance model considers both employee performance and the associated management activities at the same time. Figure 4 suggested how we might think of the relationship between an activity and the management process that is tied to it.

Broadly, an operational manager or supervisor is responsible for four things:

1. Identifying goals to be accomplished
2. Organizing activities to accomplish those goals
3. Monitoring the output of the activities to assure they meet their assigned goals and, when activity output is inadequate,
4. Diagnosing problems and fixing them

A quick glance at the problems associated with human performance suggested by the Human Performance Model and the questions we provided in association with Figure 7 suggest that, in most cases, employee performance failures are as likely to be caused by a deficiency in the management process as in the activity itself. Problems that arise because employees don't understand what a correct output looks like, or don't get timely feedback are the result of a management failure. The only way to correct them is with changes in the management process. Geary Rummler has summarized years of work in process improvement by suggesting that changes in the management aspects of a defective process usually yield larger results than changes in the activities themselves.

The good manager begins by understanding the overall process, and improves it if he or she can. Only after the process is well organized does the manager turn his or her attention to the specific activities and to specific performers, and then, only after studying all of the variables that affect the specific activity.

The close relationship between activities and associated management functions doesn't usually receive the same attention in process analysis efforts oriented toward the automation of processes, but we expect that will change as more attention is paid to automating business activity measurement. Business Activity Measurement (BAM) is a recent class of software applications beginning to be used to

provide managers with real time data about the performance of automated activities.

Six Sigma

Stepping back from HPI and taking a broader look at improving activities, we usually turn to the Six Sigma methodology. Six Sigma is the latest in this series of quality control methodologies to sweep US companies. The Six Sigma approach was created at Motorola in the late Eighties. It was popularized by a Mikel Harry, who combined several quality control techniques into an approach to process improvement. Harry's work caught the attention of Motorola's CEO, Bob Galvin. Galvin, in turn, spread the Six Sigma approach throughout Motorola, applying it to a wide variety of different processes. Somewhere along the line, Six Sigma became much more than a set of process control techniques and evolved into a systematic methodology for process improvement.

In the early Nineties, companies like Allied Signal and Texas Instruments adopted the Six Sigma approach in their organizations. Then in 1995, Jack Welch, the CEO of GE, decided to use Six Sigma at GE. Welch announced that "Six Sigma is the most important initiative GE has ever undertaken...it is part of the genetic code of our future leadership." More important, Welch decreed that henceforth, 40% of each business leader's bonus was going to be determined by his or her success in implementing Six Sigma. Welch's popularity with the business press, at the time, and his dynamic style, guaranteed that Six Sigma would become one of the hot management techniques of the late Nineties.

Six Sigma originated as a set of statistical techniques that managers could use to measure process performance. Using the techniques, a manager could make changes in a process to see if it improved the process. Once the process was as efficient as they could get it, managers then used the statistical techniques to maintain the process. As Six Sigma's popularity increased in the late 90's, it was extended to improve processes far removed from manufacturing. In keeping with the then current interest in business process reengineering, Six Sigma consultants evolved their methodology to incorporate techniques and definitions from the process reengineering consultants. Today, for example, most Six Sigma books begin by defining three types of process change efforts: 1) process management, 2) process improvement, and 3) process redesign.

Process management, in the world of Six Sigma, means developing an overview of the company's processes, linking

it with corporate strategy, and using it to prioritize process interventions. In other words, what Six Sigma folks would call *process management*, we would call *process architecture*. We prefer to use *process management* more broadly to describe how manager's jobs are organized and how manager's take responsibility for the processes they oversee.

Process improvement, as Six Sigma proponents use it, refers to a set of techniques used to incrementally improve and maintain process quality. In practice, Six Sigma practitioners tend to focus on sub-processes or activities for improvement efforts. The nature of their statistical tools tends to make it easier for them to work with smaller, well-defined units of process.

Process redesign refers to major changes in a process. In other words, Six Sigma practitioners use process redesign to refer to large-scale processes.

After defining the three types of process change, as we just described them, every Six Sigma book we have ever looked at, proceeds to focus almost all of the remaining chapters on process improvement: how to organize project teams, how to measure process outcomes, how to improve activities, and the statistical techniques used to analyze outcomes. What is key, from our perspective, is that most Six Sigma improvement efforts focus on one or a few existing activities. Their primary goal is to improve the consistency with which the activities are performed. If you want to focus on measuring and improving activities, Six Sigma has the tools you will probably need. In a broad sense, the HPI approach fits nicely within the overall Six Sigma approach, since it offers tools for analyzing the causes of problems, and options for overall improvement.

What Six Sigma is very good at is describing how to think about measuring process and activity outcomes, and about how to use statistical techniques to analyze the outcomes and decide on corrective action. We believe that every process manager should study one or two Six Sigma books and use their insights to help define measures for the activities he or she manages. Six Sigma techniques are just as useful, when practiced by a manager who is responsible for a process or activity, as they are when they are used by a project team that is focused on improving a process or activity. A team approach, however, is often superior in situations when the manager wants to engage and motivate an entire group of employees to improve a process.

Summary

Most business process redesign efforts start by looking at large scale processes, and then work down through successive layers of detail. One hardly needs to define activities in any detail if one is going to replace one's existing processes with packaged applications. On the other hand, most activities performed at companies aren't automated. They are performed by employees. Drilling down to specific activities and working to assure that they run as efficiently as possible might not be as exciting as introducing major changes in large-scale processes, but its ultimately where business process change groups need to go if they want to create highly proficient companies.

We've hardly considered all the issues that a manager or process improvement team needs to consider when they try to improve activities, but hopefully we laid the groundwork for subsequent discussions of this topic.

Notes

The Workflow Management Coalition (WfMC) offers a good set of definitions for most of the terms used in process change in its *Workflow Management Coalition Terminology & Glossary* (Document Number WfMC-TC-1011, April 1999).

They define an **activity** as follows:

"A description of a piece of work that forms one logical step within a process. An activity may be a manual activity, which does not support computer automation, or a workflow (automated) activity. A workflow activity requires human and/or machine resources(s) to support process execution; where human resource is required an activity is allocated to a workflow participant."

They go on to say: "An activity is typically the smallest unit of work which is scheduled by a workflow engine during process enactment (e.g. using transition and pre/post conditions), although one activity may result in several work items being assigned (to a workflow participant)."

For more information on defining and using business rules to document activities, check the website of the Business Rule Community, www.brcommunity.com

Tony Morgan's *Business Rules and Information Systems: Aligning IT with Business Goals* (Addison Wesley, 2002) is also a good introduction, although slanted to IT.

For information about knowledge engineering and the AI techniques available, I recommend the book I wrote with Curt Hall in 1993, *Intelligent Software Systems Development*. (Wiley).

Also, if you can still find it, *A Practical Guide to Knowledge Acquisition* by Carlisle Scott, Jan Clayton and Elizabeth Gibson (Addison Wesley, 1991) is an invaluable step-by-step guide to how to acquire and document the knowledge of expert practitioners.

I don't know any really good introductory books on either Knowledge Management or Activity Based Costing to recommend and would be grateful if readers would point one or both out to me.

Information about the International Society for Performance and Instruction (ISPI) can be located at www.ispi.com. An ISPI white paper on HPI is posted on the BPTrends site at Publications/White Papers.

Geary Rummler's book, *Improving Performance: How to Manage the White Space on the Organization Chart*. (2nd Ed. Jossey-Bass, 1995) in which he discusses many of the issues covered in this issue, was coauthored with Alan Brache.

More Information about Dr. Rummler's current research, and information about his popular workshops can be found at the Performance Design Lab (PDL) website: www.performancedesignlab.com

My recent book, *Business Process Change* (Morgan-Kaufmann, 2003) covers many of these topics and I borrowed several ideas from that book for this newsletter.

For more information on Six Sigma, consider the following:

Mikel J. Harry and Richard Schroeder. *Six Sigma: The Breakthrough Management Strategy Revolutionizing the World's Top Corporations*. (Doubleday and Company, 1999)

George Eckes. *The Six Sigma Revolution: How General Electric and Others Turned Process into Profits*. (John Wiley, 2001)

Peter S. Pande, Robert P. Neuman and Ronald R. Cavanagh. *The Six Sigma Way Team Fieldbook: An Implementation Guide for Process Improvement Teams*. (McGraw-Hill, 2001)

You might also visit the websites of:

The International Society of Six Sigma Professionals at www.isspp.org

The American Society for Quality at www.asq.org.

