A PERFORMANCE TECHNOLOGIST'S APPROACH TO PROCESS PERFORMANCE IMPROVEMENT

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Process performance management provides detailed understanding of the design of a process to improve performance. This article highlights a process performance model aligned with the DMAIC (Define, Measure, Analyze, Improve and Control) steps of the Six Sigma model, but with additional substeps to guide process improvement. It thus identifies process improvement as one of the key tools in the performance technologist's toolkit and provides recommendations for methods, practices, and tools.

"ONE MAN DRAWS out the wire, another straights it, a third cuts it, a fourth points it, a fifth grinds it at the top for receiving the head: to make the head requires two or three distinct operations: to put it on is a particular business, to whiten the pins is another . . . and the important business of making a pin is, in this manner, divided into about eighteen distinct operations, which in some manufactories are all performed by distinct hands, though in others the same man will sometime perform two or three of them." These are the words of Adam Smith (1776), who described the production of pins in an English pin factory. Although these words were spoken with the division of labor in mind, they do lead us to a process of pin manufacturing.

Here is another example. A driver of a shuttle service has picked up 10 passengers from the airport and has to drop them at their destinations. He designs a process in his mind on how he wants to go about dropping them off. He has a mental flowchart in mind, with the roads being the connectors.

And the last example: It is Thursday night, which is pizza night. You want to order pizza for dinner. You go online, look at the menus, customize your favorite pizza, and pay for it. The door bell rings exactly in less than 30 minutes. Your favorite pizza is there at your doorstep.

What do we see in common in the above three examples? A process. One is a manufacturing process, the second a service process, and the third is a combination of manufacturing and service. Every organization has processes in place for the work they do, from the way they manufacture products to the way they provide customer service. These processes are a collection of activities that create value by transforming an input into a more valuable output (see Figure 1). They have various items (materials, forms, records) in between, usually worked on by a number of different people located in different places and using various equipment (Graham, 1996). Process is not just about "what people do," but also about "what people produce" (Cousins, 2003).

Can performance be improved by setting the process in stage? Yes. To improve performance, organizations typically focus on people, procedures, tools, and technology. People and procedures change from time to time, but it is the processes that hold the people and procedures together (Chrissis, Konrad, & Shrum, 2005). People and technology cannot produce the best of products unless the processes are effective.

You might be familiar with how a process is identified within the field of human performance technology (HPT). At first glance, it may seem that process is only about work flow design. However, most of the HPT interventions (performance support, both instructional and noninstructional; job analysis and work design; personal

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FIGURE 1. A PROCESS

development; human resource development; organizational communication; organizational design and development; and financial systems) can be applied within a process. It has also been noted that most performance problems might have multiple causes identified and might result in using more than one intervention (Van Tiem, 2004).

Ramais (2005) talks about the emergence of business process management and the need for process to be recognized within the International Society for Performance Improvement (ISPI). I started thinking about how to connect the process improvement world within ISPI after attending a Capability Maturity Model Integration (CMMI) process improvement program. This article identifies process improvement as one of the key tools in the human performance technologist's toolkit and recommends methods, practices, and tools to help improve the process.

PROCESS PERFORMANCE IMPROVEMENT

You can't improve what you can't measure.

Processes have been widely researched over the past century, being first unveiled by American Society of Mechanical Engineers in 1921. Since then, this study has evolved, and several techniques have been developed in business processes. Several programs (reengineering, CMMI, Six Sigma) and certification organizations (CMMI, ISO) have emerged to study business processes. The concept of process performance improvement involves measuring the performance of a particular process and modifying the process to increase the output performance.

The concept of performance improvement can be applied to individual or organizational performance. The Six Sigma model is one of the most common process improvement approaches. Six Sigma techniques and some other total quality management approaches have been shown to be related to statistically significant improvements in some industries. The CMMI also includes a statistical process control method that promotes the consistency of results as a sign of maturity. Although these approaches explain how to use metrics, they do not define what the correct metrics are and how to capture them.

Performance measures called metrics or indicators are designed in the processes to measure the characteristics of the products, services, and operations the company uses to track and improve performance. Some of the metrics that control performance in the first example were number of pins manufactured, amount spent, and quality of pins made. In the second example, the process was the passenger drop-off, and some of the metrics were number of passengers dropped off, time taken, and fuel spent. Once the process can be measured by identifying the metrics, there is always a possibility of improving the process.

> *People and technology cannot produce the best of products unless the processes are effective.*

Are business process design and improvement left to the business managers alone? Is process improvement left to process engineers, process analysts, or operations consultants alone? When a situation arises that the processes in place need to be redesigned or improved, can performance technologists help? Can they be the facilitators helping out the business manager or the process engineer? Can a performance technologist take the role of a process analyst or of an operations consultant?

A PROCESS IMPROVEMENT MODEL FOR PERFORMANCE TECHNOLOGISTS

This article provides an outline of a simple process model for a performance technologist as an operations consultant or process analyst (see Figure 2). It is meant to assist clients in developing operations strategies and identifying interventions for improving the production or service processes. An effective operations consultant brings about an alignment between strategy and process dimensions that enhances the business performance of the client (Chase, Jacobs, & Aquilano, 2006).

This model has been designed with the same five-stage framework of the Six Sigma model, but each stage has been further subdivided. The model has been aligned with the Six Sigma model and the HPT model and has been designed so that performance technologists

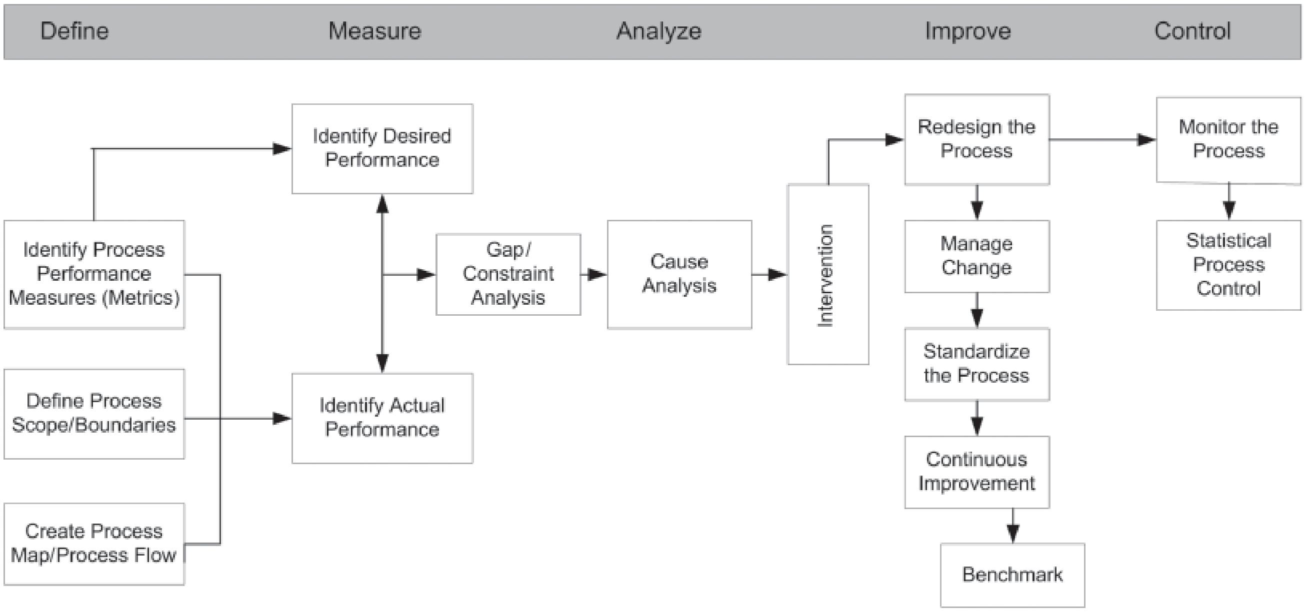


FIGURE 2. PROCESS PERFORMANCE MODEL

can conveniently follow the steps to improve the process performance.

Process performance management (PPM) provides detailed understanding of how a process can be designed and redesigned to improve the performance. It starts with identifying an opportunity for improvement and ends with an opportunity for continuous improvement. This can be viewed as an alternate way to the HPT model's performance improvement approach. It is not very heavy on the analysis front as the HPT model is, but it focuses more on identifying performance outcome measures.

Step 1: Define the Process

A. Identify Performance Measures (Metrics and Indicators). In most cases, the process owners would already have identified the process outcome measures that provide the best indication of their process health and efficiency (Debenham, 2002). However, if the outcome measures or metrics have not been identified, you will have to work with the leadership to identify them. Goldratt, the originator of the theory of constraints, has a very straightforward idea that the goal of any economic enterprise is to make money (Goldratt & Cox, 1992). Thus, every organization has a set of process outcome measures that contributes toward reaching this goal of making money.

Metrics help to assess the ability to meet customers' needs and business objectives. They are a system of parameters or ways of quantitative assessment of a process that is to be measured, along with the processes to carry out such measurement. Metrics define what is to be measured, and it is very important to measure the right thing. Otherwise, the ability to improve performance will be beyond reach.

Here is a list of performance measures or metrics that help determine the efficiency of the process:

- *Profitability and productivity:* The measure of business success through comparing profit made with the amount sold or invested. It is a relation between the value of the factors of production used and the value of the goods and services produced.
- *Customer satisfaction:* A measure of the degree to which a product or service meets the customer's expectations. It is dependent on the quality of the product or service.
- *Product quality:* The totality of features and characteristics of a product that satisfies stated customer needs. It is achieved by controlling the internal processes with product quality measurements. A typical measurement for outgoing product quality is defect rate.
- *Service quality:* Delivering the promised product at the promised time and ensuring reliability. This step is more than just delivery time; it is the interface step with the customers and how happy they are with the service provided.
- *Capacity or quantity of output:* The amount of output a system is capable of achieving over a specific period of time. It is normally measured in tons or units or using relative key figures. When a new process is in place, the first priority is to get functional. At start-up, capacity is one of the main process outcomes.

- *Manufacturing time:* The total time taken for a product to be manufactured. It is the time period during which the input is converted into the output in a manufacturing process.
- *Service time, delivery time:* The time taken during which service has been provided to the customer. It is measured as the difference between service ordered and service provided.
- *Quantity of rejects:* The number of products that do not meet the customer's requirements. It is the measure of the products that require rework before they meet the customer's expectations.
- *Quantity of waste:* Unwanted or undesired material left over after completion of a process.
- *Safety, containment of risk:* The condition of being protected against failure, damage, error, accidents, or harm. It is the expectation that a system does not, under defined conditions, lead to a state in which human life is endangered.
- *Cycle time:* The time it takes to complete a process or sequence of processes; the time that transpires from the time a task (or series of tasks) is initiated to the time a task is completed.
- *Employee satisfaction:* The company's ability to fulfill the physical, emotional, and psychological needs of its employees. Satisfaction increases the employee performance rate, and high retention rates decrease new employee hiring and training costs.

Lynch and Cross (1995) proposed a four-level performance pyramid that integrates external effectiveness and internal efficiency. The levels of the pyramid from top to bottom are organizational vision, strategic elements (market and financial) to achieve the vision, tactical goals (customer satisfaction, flexibility, and productivity) to achieve the strategic objectives, and operational goals (quality, delivery, cycle time, and waste) to achieve the tactical goals. These performance measures tie in to the needs of both the external and internal customers. As a first step in this process performance improvement model, we work toward identifying the process outcome measures, which in turn helps identify the process goals and process objectives.

Metrics are usually specialized by the subject area, in which case they are valid only in certain domains and cannot be directly benchmarked or interpreted outside those domains. Generic metrics, however, can be aggregated across subject areas or business units of an enterprise. Too often due to lack of time or information, organizations pick metrics that fit within the generic mold as opposed to identifying essential drivers of performance (Higgins, 2004). It is also important to be able to identify metrics that help yield valid and reliable data.

Historically, corporate performance management focused on measures such as return on investment (ROI), cash flows, and cost of sales. However, with the total quality management approach, nonfinancial measures became popular. Some of the nonfinancial metrics that analysts use are measures of flow time, throughput rate, process time, capacity utilization, idle time, and setup time. The balanced scorecard approach includes metrics that contribute to customer satisfaction and behaviors (Higgins, 2004). The measures of the balanced scorecard are often indicators of future performance, and they help measure nonfinancial measures along with financial measures. Thus, there should be performance metrics identified for customers, performance of internal work processes, suppliers, financial indicators, and employees.

B. Define the Scope or Boundaries of the Process. Processes can be at the organizational level, the department level, or even the employee level, so it becomes necessary to set process boundaries. The entry points of the process inputs and the exit points of the process outputs form the process boundary. Based on the need, we can analyze the level of processes such as broad processes involving many steps and many employees, or narrower processes involving specific steps and specific employees. Ramais (2006) designed a six-step hierarchy that helps identify the level of processes to set boundaries.

C. Process Mapping and Process Flowcharting. In most situations, there is no need to build a process from scratch because the process owner always inherits the processes (Debenham, 2002). But if a situation arises where there is no process map in place, then you are responsible for creating one. This is normally created by talking to the people who do the work—line managers, operators, and every other person involved in doing the task—and asking them to describe what they do. Based on the boundaries identified, manufacturing tours or service tours are conducted to get an understanding of the process, and then a flowchart is prepared.

Process mapping refers to a picture of activities in the process. The processes are broken down into simple, manageable, and easily understandable units. These maps define the inputs, outputs, controls, and resources for all the processes. Interactions are represented in a logical and objective way. Process mapping is also known as system task analysis, process task analysis, process diagramming, and work mapping (Langdon, 1999, 2000; Marrelli, 1998; Siever, 1993; Swanson, 1994; West, 1997).

Another data collection tool used in the construction of process maps is process flowcharting, a powerful technique for recording, in the form of a picture, exactly what is done in a process. The various process activities and their interrelationships and every control point (input, supplier, outputs, and customers) should be included in the flow diagram. Some of the best process improvement models (CMMI included) suggest that every single step be documented. Flowcharts can be used to track materials, information, and people flows. The four major flowchart symbols that are used to document a process are rectangle (tasks or operations), diamond (decision points), inverted triangle (storage areas), and arrows (flows). Documenting provides an understanding of the degrees or steps of customer contact, process complexity, and process divergence along various steps in the process (Krajewski, Ritzman, & Malhotra, 2007).

Figure 3 shows a sample flowchart of a process of ordering pizza from home.

Step 2: Measure Performance

Once data have been collected about the process and the targeted outcome measures, the next step is to measure the desired and the actual performance. Desired performance measures are set as business goals in an organization. However, actual performance is measured at every stage where there is a transformation of the input.

A. Identify Desired Performance. Desired performance goals are identified from stakeholders and business input. Five types of stakeholders (customers, stockholders, employees, suppliers, and community) have a significant impact on the organization's performance (Chase et al., 2006).

Process goals can also help to identify the desired performance. Goals for the cost of process, the quantity, and quality of the output, manufacturing, and delivery time are set when the process has been designed. Access to the business goals will help identify the desired performance.

In the pizza delivery example, the desired performance could be set as:

- Selling 100 pizzas per hour
- Cycle time for the order being 30 minutes
- Pizza bake time of 5 minutes (will vary with crust type)
- Ingredients used per number of pizzas made
- Profit: $100,000 per month

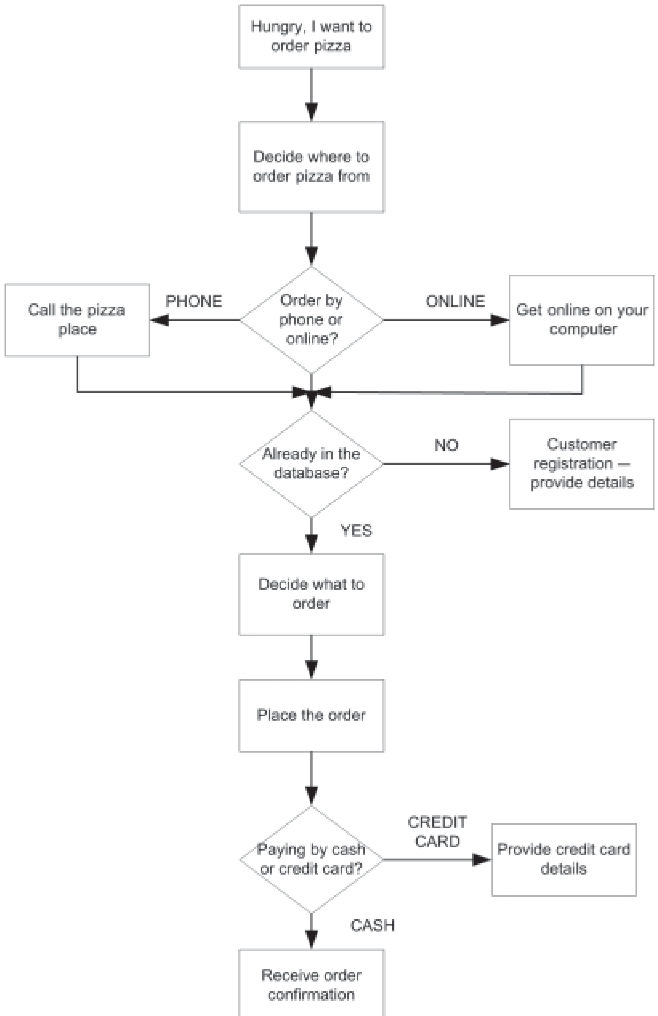
B. Identify Actual Performance. Having identified specific outcome measures for each level of desired performance, now we are ready to measure the actual process performance (see Figure 4).

Some example outcome measures and metrics for the pizza delivery example would be profitability, customer satisfaction, pizza manufacturing time, and pizza delivery time. Some of the metrics and their sources for these outcome measures could include:

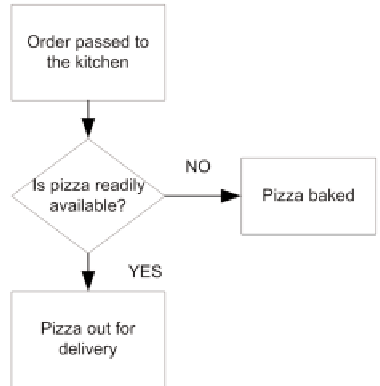
- Profitability productivity: Amount (return on investment) made by selling the pizzas; from financial data
- Customer satisfaction; from customer satisfaction survey data
- Pizza quality; from quality satisfaction data
- Baking time, that is, time taken to make the pizza; from baking time logs
- Delivery time, that is, time taken to deliver the pizza; from delivery logs

C. Data Analysis Tools and Techniques. Once the actual and desired metrics have been established, a data collection method for analyzing each of these performances indicators is needed. There could be different ways of measuring this information, from collecting data to interviewing people to observing the process. In the pizza example, surveys, financial reports, and logs are all data collection tools used to measure the various metrics. All performance technologists should have data collection and analysis tools in their toolkit. Sample data collection and analysis tools are:

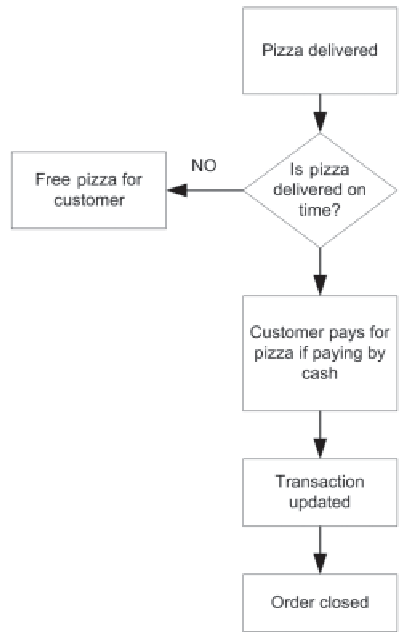
- *Checklist:* A list of performance criteria for a particular activity or product on which an observer marks the performance on each criterion using a scale. The frequency of occurrence related to performance is measured on a continuous scale (example: customer satisfaction, weight).
- *Bar charts:* A graphic display of data in the form of a bar showing the number of units (for example, frequency) in each category. The charts represent frequency of occurrence, and the bar height indicates the number of times a particular quality characteristic was observed.
- *Histograms:* A graphical representation of a frequency distribution on a continuous scale. The distribution is normally a quality characteristic such as resource use over a period of time (in statistical terms, it is central tendency and the dispersion of data).
- *Pareto chart:* A bar chart on which the factors are plotted in decreasing order of frequency. The chart has two vertical axes, the one on the left showing frequency and the one on the right showing cumulative percentage of frequency. It shows the relative importance of all the data and is used to direct efforts to the largest improve-



A. Phase 1: Ordering Pizza Online



B. Phase II: Pizza Ordering Processing and Preparation



C. Phase III: Pizza Delivery

Steps in the pizza ordering/processing/preparing/delivery process.

Phase I

1. Decide where I want to order pizza from.
2. Initiate transaction: Do I want to order online or by phone?
3. Already registered/in the system?
4. If not, provide/enter customer information.
5. Decide what to order. This is done by looking at menus or asking for recommendation.
   Pizza image preview
   Price preview
   Calorie preview
6. Place the order, provide payment information.
7. Receive the confirmation.

Phase II

8. Order received.
9. Order passed to the kitchen.
10. Is pizza readily available?
11. If not, pizza baked.
12. Delivery man picks up the pizza.

Phase III

13. Pizza delivered.
14. Is pizza delivered on time?
15. If not, free pizza for customer.
16. Payment made for the pizza if paying with cash.
17. Transaction updated.
18. Order closed.

D. Pizza Ordering Steps

FIGURE 3. PIZZA ORDERING FLOWCHART

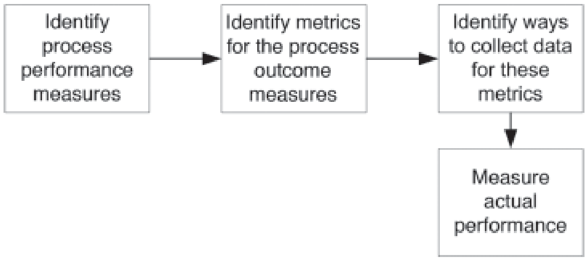


FIGURE 4. MEASURING ACTUAL PERFORMANCE

ment opportunity by highlighting the "vital few" in contrast to the "many others."

- *Scatter diagram:* A plot representing corresponding observed values of two variables, *x* and *y,* and shows if they are related. Each point represents one observation. Scatter diagrams, also known as scattergrams, are used to explore the influence of one variable on another and display dependence or independence.
- *Cause-and-effect diagrams or Ishikawa diagrams:* A chart showing an outcome or result and the reasons that the outcome occurred. It is sometimes called a fishbone diagram, with the major performance gap labeled as the fish's head, while the rest are the fish's bones and ribs.
- *Line and pie charts:* Line charts represent data sequentially with data points connected by line segments to highlight trends in the data. A pie chart is a circular chart that displays data as slices of a pie. The size of each slice is in proportion to the number of occurrences of the factor.
- *Matrix analysis:* A variety of methods for comparing alternatives by using a matrix.
- *Dot plot or tally chart:* A table that uses tally marks to record data; a means of displaying statistical information to show the relative frequency in which things (such as problems) occur.
- *Control charts:* Charts used to distinguish between normal and abnormal variation. They are used to determine if the process needs adjusting.
- *Force field analysis:* A problem-solving technique that identifies the forces for and against a specific problem and assigns weights to each individual force to determine a total score on each side.
- *Simulations:* A model that goes a step further than the data analysis tools and tells how the process dynamically changes over time (Krajewski et al., 2007). It is the act of reproducing the behavior of a process, using a model that describes each step.

Once the appropriate data analysis tools are identified, they are used to compare measures of actual and desired performance outcomes.

Step 3: Analyze the Process

A. Identify the Gap (Gap Analysis) and Constraints (Constraint Analysis). Gap analysis is used to assess the client's performance relative to the expectations of customers or relative to the performance of their competitors (Chase et al., 2006). Once there are metrics data for both the desired performance and actual performance, measuring the gap is relatively simple (see Figure 5):

Gap = Desired performance – Actual performance

Some of the gaps that might exist in the pizza delivery example could be the desired performance of delivering 100 pizzas per hour compared to the actual performance of delivering 75 pizzas per hour. Any gap that exists is identified at this step. It is important for the process analyst also to identify constraints in the process. Constraints are factors that limit the performance of a system and restrict its output. Goldratt and Cox (1992), in this theory of constraints, mention that every organization has one key constraint that limits the system's performance relative to its goal. A bottleneck is a special type of constraint that relates to capacity shortage in a process. Capacity and utilization of a process are measured to identify bottlenecks. In this step, bottlenecks and other constraints that decrease the process performance are also identified.

B. Causes for the Gaps and Constraints (Cause Analysis). The causes and root causes for the gaps and constraints are identified in this step. Gaps and constraints could be due to missing process steps or illogical arrangement of process steps or other factors. Causal factor charting helps to analyze the causes for the gaps. Root causes are those for which effective recommendations can

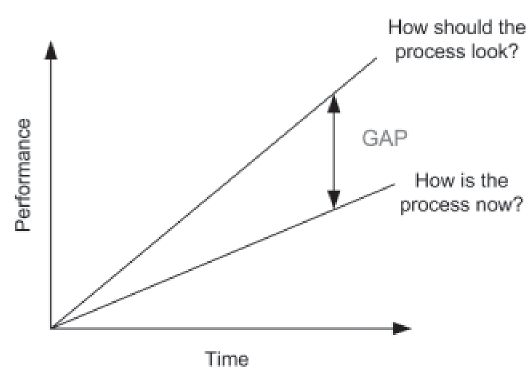


FIGURE 5. IDENTIFYING THE GAP

be generated. They are underlying causes that the organization has control over. It is not about identifying minor mistakes made in the process, but the causes for the mistakes such as unclear labeling or a confusing procedure (Rooney & Heuvel, 2004).

Causal factor charting helps in charting every cause that might be seen in the process as the reason for any decrease in performance. It provides a structure for the performance technologist, who is playing the role of a cause analyst, to organize and analyze the information gathered during data collection. The causal factor chart is a sequence diagram with logic tests that describe the events leading up to an occurrence, plus the conditions surrounding these events (Rooney & Heuvel, 2004).

For example, if a gap is identified in the delivery time of pizzas, a chart of possible causes for this gap can be drawn. Figure 6 is the causal factor charting for this outcome. Numerous questions are usually generated during this process of identifying the causes. Every step in the delivery phase, between when the order was taken and pizza is delivered, should be analyzed.

Following the causal factor chart, a cause-and-effect diagram can be drawn for in-depth analysis (see Figure 7). This helps us identify the reasons for each factor. The diagram structures the reasoning process of the performance technologist as to why particular causal factors exist or occurred. Thus, identifying the causes helps the performance technologist identify the reasons so that the problem can be addressed.

Waiting line models, simulations, and decision trees are some of the tools used for capacity planning, which is done to deal with the bottlenecks. More data collection can be done to measure causes that have not already been measured. The metrics connected with each of these causal factors are looked into, and this information helps to prioritize the causes based on the lowest metric value. The causes are prioritized and the root causes are identified.

C. Identify Intervention for the Causes. In this step, solution recommendations are made as a way to close gaps, address root causes, and achieve desired performance measures. Many process performance problems look to automation as a performance improvement solution. However, automation is not always the best or only solution (see Table 1).

Step 4: Improve the Process

Improving is more than just planning or redesigning. It involves implementing the new process with an implementation plan for redesign.

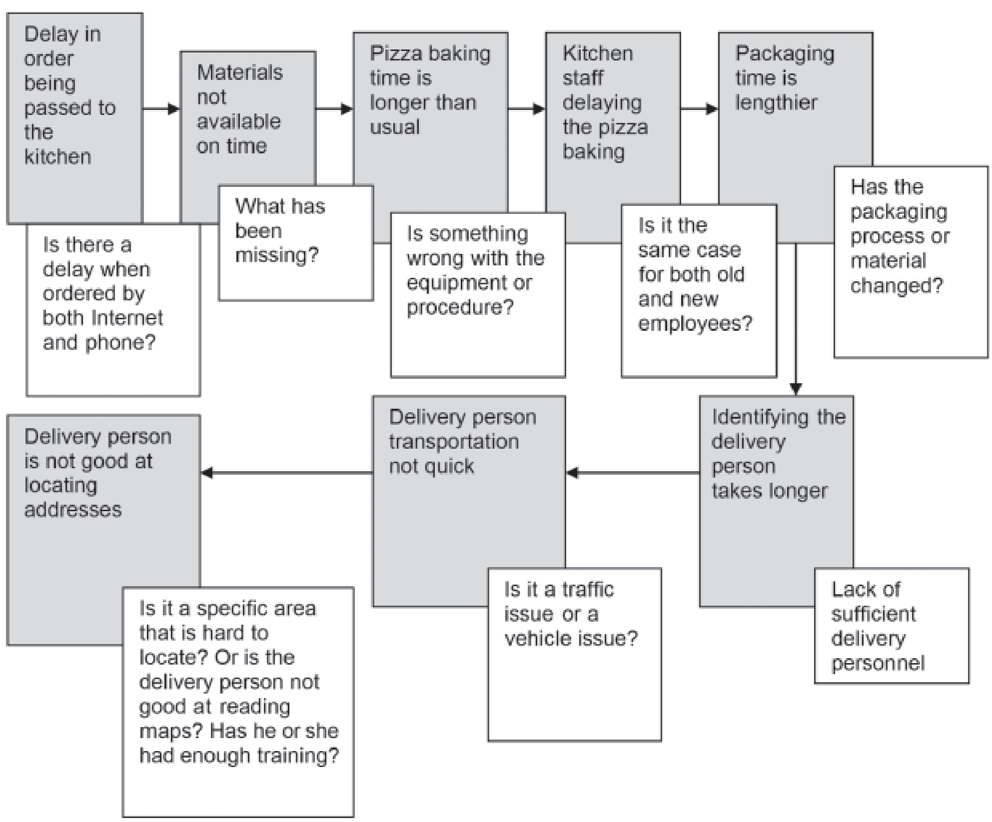


FIGURE 6. CAUSAL FACTOR CHART

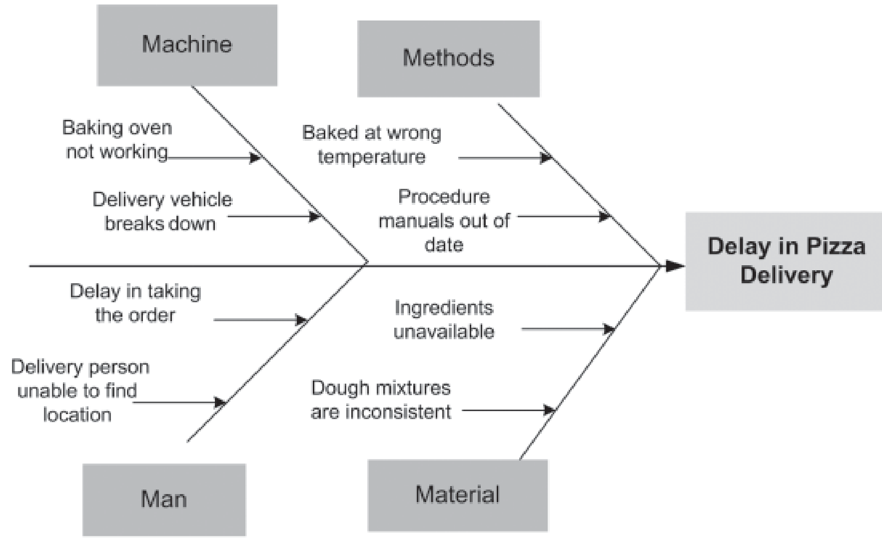


FIGURE 7. CAUSE-AND-EFFECT, OR FISHBONE, DIAGRAM

A. Reengineering/Redesign. Based on the cause identified and interventions recommended, the process typically has to be redesigned. If the root cause is discovered to be a training issue, the employees will have to be trained. If it is a missing step, the missing step must be included in the reengineering of a process. Michael Hammer initiated the reengineering movement, which is defined as the fundamental rethinking and radical redesign of processes to improve performance dramatically in terms of cost, quality, service, and speed (Krajewski et al., 2007).

Hammer and Champy (1993) set seven principles of reengineering, and Guha, Kettinger, and Teng (1993) developed the process reengineering life cycle that helps in business process reengineering. In the example, the issue was a lack of proper training for the pizza baking employees, so the process had to include a training session before these employees were sent to the kitchen to learn from the other employees. Retention and training programs were put into place to bring about the change.

B. Manage the Change. Changes typically occur with a redesign process. Based on the extent of changes that have occurred, either there has been incremental improvement where a process is enhanced in one or two departments, or perhaps there has been a redesign of a variety of processes where the change has to be managed. Although incremental improvements may not require much change, some type of change management program is recommended in the implementation phase. Change management is a structured approach to change in individuals, teams, organizations, and societies that enables the transition from a current state to a desired future state. In any redesign, job

TABLE 1 INTERVENTIONS FOR THE CAUSES

CAUSES	INTERVENTIONS AND RECOMMENDATIONS
1. Pizza baking time longer than usual	The new employees have not been trained on the procedure for the new pizza or on using the equipment; hence the delay. Data from the old employees show a much quicker baking time than with the newer employees. Things to be considered: work toward retaining employees.
2. Passing on the order information to the kitchen staff	There is a different process for passing on the Internet orders and phone orders. Phone orders get passed quickly, whereas the Internet orders seem to go unnoticed for a while. An alarm has to be set in place whenever a new order has been received, and this will be brought to the kitchen staff right away.

content is likely to be changed, and training should be considered during implementation (Curtice, 2007). The training programs did not much affect the other process steps in this pizza manufacturing and delivery example, except that it took the employees away from their job tasks whenever a new procedure was in place.

C. Standardize and Document the Process. For a new process to be accepted and followed by the entire organization, it must be standardized. This involves documentation and often training. In the example, the new pizza baking procedures were documented. It became mandatory for employees to participate in the training program whenever there was a procedure or equipment change. These changes were documented, flowcharted, and standardized. Employees were required to follow the baking process strictly. Periodic retraining sessions were also introduced.

> *Process performance management provides detailed understanding of how a process can be designed or redesigned to improve organizational performance.*

D. Continuous Process Improvement (CPI). This is based on the Japanese concept of *kaizen,* a philosophy of constantly seeking ways to improve the process. It includes identifying benchmarks and implementing the improvements. Continuous improvement focuses on improving customer satisfaction through continuous and incremental improvements to processes. This includes removing unnecessary activities and variations.

E. Benchmarking. Benchmarking is systematic procedure that measures a firm's processes, services, and products against those of the leaders of its industry. This is another term that is applicable during the redesign phase and is a valuable source for process redesign. The different types of benchmarking are competitive benchmarking, functional benchmarking, internal benchmarking, and generic benchmarking (Anderson & Peterson, 1996):

- *Competitive benchmarking* involves analysis of competitor processes and is comparison of own performance against competitors who manufacture the same product or deliver the same service.
- *Functional benchmarking* involves the analysis of a particular function (e.g., billing) and is comparison of own processes or functions against noncompetitor companies within the same industry.
- *Internal benchmarking* is comparing similar operations between departments, units, subsidiaries, or countries within the same organization.
- *Generic benchmarking* is comparison of own processes against the best processes around, across different industries.

5. Control the Process

Once the performance of the process has been improved, it is essential to maintain the improvement. Hence the process has to be controlled. In a way, both the improving phase and the controlling phase go together.

A. Monitoring the Process. The process has to be monitored continuously so that the performance rate can be maintained. Data analysis tools can be used to control the process.

B. Statistical Process Control. Classical quality control is achieved by inspecting 100% of the finished product and accepting or rejecting each item based on how well the item meets specifications. In contrast, statistical process control uses statistical tools to observe the performance of the production line to predict significant deviations that may result in rejected products. Statistical process control indicates when an action should be taken in a process, but it also indicates when no action should be taken.

CONCLUSION

Process performance management provides detailed understanding of how a process can be designed or redesigned to improve organizational performance. It starts with identifying an opportunity for improvement and ends with an opportunity for continuous improvement. Applying concepts and tools from a systematic process improvement model can help the performance technologist be more effective as a process analyst, operations consultant, gap and cause analyst, and process improvement specialist. Tools for managing and measuring process improvement should be in every human performance technologist's toolkit.

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