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F. Frank Chen, *Editor*

Continuous Process Improvement in Organizations Large and Small

A Guide for Leaders

Robert E. Hamm, Jr.

MOMENTUM PRESS
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Abstract

Continuous Process Improvement in Organizations Large and Small: A Guide for Leaders

Our world changes faster today than at any time in the history of mankind. Organizations, like living breathing organisms, must learn to adapt to changes in the environment in which each operates. It is generally held today, by those who study organizations, that those who fail to adapt to seemingly unending change are certainly doomed but those able to adapt to constant change tend to thrive.

Organizations, large and small, accomplish work through employees who carry out processes. These processes are made up of any number of steps designed to change the form, fit, or function of a raw material into a product or provide a service. But whatever the purpose of the process, one thing is certain, the constant change faced by organizations today ensures that no process will last forever. Processes that worked well when originally designed grow old and impact the effectiveness and efficiency of today's organizations, placing the organization's survival at risk. Continuous process improvement works to redesign and improve old processes by removing waste, constraints, and variation in critical processes—waste, constraints and variation that may have been acceptable when implemented but render the process useless or of little to no value to the organization today. Unfortunately, up to two-thirds of all attempts to implement continuous process improvement in organizations fail. The number one reason for failure given by most researchers is a lack of leadership. The purpose of this book is to describe the leadership required to successfully implement continuous process improvement in organizations. We begin our journey with a discussion of organizational culture as we set out to describe how leaders develop a culture where continuous improvement can thrive. Next, we tackle the challenges of organizational change faced by all leaders who strive to take advantage of the benefits of continuous process improvement and discuss what leaders must do to make change stick. We conclude with a description of the leadership traits essential to leading continuous improvement in organizations. Our goal is to provide a description of the leadership necessary to make continuous process improvement a reality in any organization.

Keywords

continuous process improvement, organizational culture, change leadership,

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Preface

We accomplish work through processes. Processes do not last forever. Over time a process that initially worked well for an organization will have to be redesigned and improved. To remain efficient and effective, organizations must redesign and improve processes continuously. However, this continuous process improvement will not happen in any organization unless leadership is committed to the effort, not just in words, but in deeds.

My colleagues and I have watched for years as leaders made the decision to try continuous process improvement only to abandon the effort shortly thereafter because they didn't feel like continuous improvement was providing an adequate return on their efforts. The reality is that those leaders did not understand that continuous process improvement isn't something that can be delegated to the employees; continuous process improvement must be led. Their failure in leadership is the reason they were less than enthusiastic about the results of their process improvement efforts. It's not enough for a senior leader to stand before the employees and announce that, ". . . I'm a believer in continuous process improvement and we are going to implement it right away," and then just walk away while the "magic" happens.

This book is about leadership. This book will not make anyone an expert on the various continuous process improvement methodologies available to organizations today. The book will, however, describe how leaders choose an improvement methodology that is right for the organization; the actions a leader must take to create a climate and culture conducive to continuous improvement; how leaders make redesigned and improved processes stick; and the leadership behaviors required to demonstrate commitment to continuous improvement to employees. The book offers a simple structured approach to problem solving that any leader can apply in any organization, large or small, to close performance gaps that prevent organizations from achieving the performance they desire in these demanding times.

In the most successful organizations, the work of continuous process improvement is led by those who demonstrate their commitment through active participation. Improvement cannot take place in any organization without leadership; and no one becomes a great leader by reading a book. The truth is that continuous improvement takes real leadership commitment and that commitment is demonstrated by a leader's behavior. This book describes the leadership behaviors necessary to make continuous process improvement work in organizations, based on our experiences as leaders and facilitators of improvement over the past two decades.

CHAPTER 1

The Anatomy of a Process

Beat horses and they will run faster-for a while.

—W. Edwards Deming

Think about it. Virtually, we accomplish everything through processes. The computer that I use as I write these words was built using a process. The airplanes that move us so swiftly from one part of the world to the other are products of a process. For that matter, the platforms that leave the earth and circle our planet daily, providing us with near instantaneous communications, were designed, developed, launched, and controlled through processes. Recently I took a group of students to a Toyota manufacturing plant in South Texas near where I live. On that day, we watched in amazement as a brand new Tundra or Tacoma pickup truck came off the assembly line every 64 seconds as the plant's 2,000 employees executed processes, some simple and some complex.

For most of us it is very easy to associate the idea of a process with mass production. After all we grew up reading the stories of Henry Ford's processes designed to deliver a standardized automobile for a growing American market. A few months ago I had the opportunity to visit the Henry Ford Museum in Dearborn, Michigan. The story of the moving assembly line is revealed as one walks throughout the Museum. When Henry Ford founded his company in 1903, the process used by his employees to build automobiles did not look like the moving assembly line we learned about in our junior high school classrooms or the ones we study today. Examination of the exhibits displayed on the walls of the Henry Ford Museum tells the stories of a process that grew from the bottom up as the plant's leaders drew on the experiences of workers as they experimented with new ways of completing their work. It is clear that a culture of improvement was present.

At first the process used by Ford called for teams of specialists to move from one car to the next as it was assembled. But the process was full of waste as the employees spent a great deal of their time looking for and then transporting the almost 10,000 parts that, when assembled, became a Model T. In the traditional manufacturing plant of the day it just didn't seem practical to keep all of the parts close to the automobile as it was assembled. However, orders for more and more cars arrived and it was clear that this process, in place from 1903 to 1910, would not meet demand. Ford and his managers could always drive the horses to run faster to produce more, but he must have known that driving the horses to run faster could only be a short-term solution until a new process could be developed. Through experimentation, it became obvious that moving parts and materials to where the work of building the automobile was accomplished, although difficult, was more efficient.

In January 1910, Ford constructed a new plant for the manufacture of automobiles in the Highland Park section of Detroit, Michigan. Although it does not appear that the plant was built with the idea of the moving assembly line process in mind, there were many improvements including electrical light and power, more open and flexible work space, and better ventilation, to name just a few improvements. But in 1913 a number of process improvements, most likely the result of experimentation and a culture of improvement, led to a new process where a rope was used to pull cars along a line. The parts were located in the correct sequence along the route, almost 300 feet in length, and a team of skilled craftsmen, 191 of them, walked with the vehicles, and parts were installed as they came to the supply point. This process cuts assembly time in half. The rope was replaced by a chain, and later the chain was replaced by a rail system. Eventually, the idea of assemblers walking alongside the automobile as it was pulled along the route was replaced, and by 1914, the process of producing an automobile by employees stationed along a moving assembly line produced 264,972 Model T's, each selling for less than $600.00. By 1921, an even more improved process delivered 971,610 Model T's, each selling for just over $200.00. The process used to produce an automobile in 1903 was not the same as the process used in 1913. Over a 10-year span of time, 1903 to 1913,

the process was incrementally improved by those who accomplished the work each day. As Ford leaders created an environment where ideas could be tested, took advantage of advances in technology, and harnessed the creative and innovative ideas of the workers, the process was redesigned and rebuilt over and over. Nye (2013) recounts this incredible story of continuous process improvement, long before the term was fashionable, in his book *America's Assembly Line*.

But Wait . . . There's More

Just two decades later, as the world prepared to fight the Second World War, President Franklin Roosevelt stood in front of the Congress of the United States and declared that the nation should plan to build 50,000 "military and naval" airplanes. To be clear, 50,000 airplanes a year! While everyone in attendance applauded, few believed the goal to be attainable. There were not a large number of airplane factories in America at the time, but there were plenty of automobile manufacturing plants. In his book, *The Arsenal of Democracy,* Baime (2014) tells the incredible story of how the processes Detroit used to build automobiles before the war were quickly adapted to the production of thousands of bombers during the war years.

Roosevelt called for the formation of the National Defense Advisory Commission and put William Knudsen, the President of General Motors, as the head of the organization responsible for the nation's wartime production effort. Baime writes that the President asked Knudsen if he could build 50,000 airplanes a year, to which Knudsen replied, "I can't but America can." Knudsen explained that when an airplane is taken apart, it's just a lot of little pieces, and he thought that the same processes used to build automobiles could be used to mass produce airplanes. The question now was who had aviation and mass production experience? Ford had helped pioneer aviation in the 1920s and put the process of mass production in place in the automobile industry. The rest of the story is, as they say, history.

A Process for Every Purpose

Certainly when most of us think of processes we think of manufacturing something, we think of aircraft, ships, automobiles, computers, radars, furniture, and DVDs. People can watch as workers executing steps in a process mold plastics or composites into pieces or subassemblies and then assemble the many pieces into a useful product. Processes are executed to manufacture things. We seem to have a little more difficulty understanding that almost everything we do is done through a process, and many processes are not easily seen. But just because we can't see it doesn't mean it didn't happen.

Let's Take a Trip

For instance, your last trip across the country by air, business or pleasure, was the product of many processes, many you could see, and many that you could not. A reservation was made, maybe by phone but just as likely through your computer. Before you boarded the aircraft, information related to weather was gathered and analyzed, a manifest and flight plans were provided to the crew, and a clearance to fly in national airspace was given. Long before you arrived to board the plane for the trip, the aircraft was inspected, repairs made, and fuel for both the aircraft and you has been brought on board, all using a standardized repeatable process consisting of many steps. You and the crew may not have seen it but you know it happened.

You arrive at your destination; your baggage is unloaded and transported to a carousel for your pickup. You make your way to a hotel where you are greeted with a smile and a key. You open the door to your room and it is clean and everything is in order. You are happy. You settle in for a night of well-deserved rest. On your way out of the room the next day you notice the receipt for your stay was gently tucked under your door as you slept, and by the way your account has been electronically debited to pay for the service.

You're excited; this trip is for pleasure and the business of the day is to visit Disney Land. You are greeted and cared for by people who behave in a special way, a way that makes you feel as if the only thing that

matters to them is your happiness. They were taught that behavior through a process. The day comes to an end and the next day it's time to make your way back home.

You reach home exhausted but grateful for the trip. You download hundreds of pictures from your camera and store each one on your computer. You contact an online service that will take your pictures and magically produce, by a process that you won't see and probably not understand, a photo album. You've made your trip, you've had your fun, and you have the album to provide the memories.

Without processes none of this would have been possible. Electronic reservations, banking, and financial transactions are products; something transpired, something was produced, a ticket, an adjustment to your bank account, the right to a seat on airplane. Your room was serviced, clean, and safe, by an employee executing a process. Services are provided by processes. You were greeted every step of the way by someone who worked hard to care for you and make you feel special. Hospitality is provided through processes. The airplanes you traveled on and the airfields that each operated from were designed and built by employees executing processes. Employees were taught and learned to execute these processes through, that's right, a process. Employees are taught organizational values, what acceptable behavior is and what it is not, through processes.

Why the discussion? Why did we take this little trip? Over the years that my colleagues and I have worked to improve processes in the organizations we led, we found it alarming the number of employees that told us that continuous improvement was not right for the organization. Maybe given the nature of change, the byproduct of continuous process improvement, we shouldn't have been alarmed. After all, the most difficult thing any leader will do is make change happen in an organization. The conversation would usually go something like this when we showed up. Leaders and employees alike would say, "I understand you guys are here because you are big on continuous process improvement. Isn't continuous improvement like lean or lean six sigma or something like that? We tried that here a long time ago. I think we called it Total Quality Management, yea, that's it TQM." At this point we would ask, "Well why do you think

it failed here?" The reply was almost universal, "We're different." "Well of course you are," we'd say. "No, you don't understand, we don't manufacture products here. Continuous improvement works well in on the shop floor or in a manufacturing plant but it won't work here, our processes just aren't the same." Getting past the "it won't work here, we're different" sentiment is one of the first barriers a leader must contend with if continuous improvement is ever to become a reality in an organization. Everything we do, we do through processes . . . everything.

That's why we took our trip. You can see from our trip that we use processes to design and build, to teach and learn, to entertain and provide hospitality, to provide services from aviation maintenance and operations to financial and health care, to engrain values and sustain organizational culture. Processes are designed to do more than mass produce things. Although the products and services provided through processes are varied, there are a couple of things we need to understand about the series of steps we call processes.

A Series of Steps

In its simplest form, a process is nothing more than a series of steps executed to produce goods or services. The assembly of an automobile is executed through a series of interdependent steps. Those interdependent steps are supported by a host of subprocesses, also a series of interdependent steps. Some steps are short in duration, maybe just fractions of a second, while others take hours or even days. Many steps are complex, while others are simple. Some steps in the process are performed by a human, others by a robot, and others by a computer executing a program designed by a human. Some steps are executed concurrently, while others must take place before another can be executed. And don't forget that the bits of information necessary to trigger and execute a step are all part of the process. All of the steps taken to produce a product or provide a service define the process. Sometimes all of the steps that make up a process take place in a small room, while other processes include steps executed across thousands of acres of plant or miles of terrain.

Remember the Toyota plant in South Texas mentioned earlier? The assembly of the thousands of pieces that make up the trucks manufactured on the assembly line doesn't happen without the hundreds of subprocesses that take place across the entire Toyota physical plant. The plant in South Texas includes over 2000 acres of roads and infrastructure. To ensure the subassemblies are available when necessary, 21 suppliers call the Toyota plant home. The "campus" even includes a medical clinic to ensure the employees are ready to execute the thousands of processes necessary to turn out a truck every 64 seconds. The entire process, thousands of steps, comes together like a beautiful symphony at the assembly line. Compare this to a worldwide commercial air carrier executing processes to transport people and cargo around the world in a matter of hours, or the financial institution responsible for executing transactions around the world in just seconds, or a doctor performing surgery using a robot 25 feet away but in the same room. Yes, every organization, public or private, for-profit or not-for-profit, is in place to produce goods and provide services, and most employees see their organization as different from all the rest, but the work of the organization is accomplished through a series of steps defined as a process.

No Process Will Last Forever

Would you believe me if I told you that up to 80 percent, or even more depending on who's book you read, of the steps in a repeatable process are waste? I made the comment to a group of senior leaders during a course on continuous process improvement a couple of years ago. Trust me when I say that most senior leaders struggle with this idea and many even find it insulting. Routinely someone attending the course would ask, "Are you trying to tell me that 80 percent of what I do each day is waste?" They are angry and hurt. I understand and I quickly explain that it doesn't mean they aren't working hard because most certainly they are working hard. No doubt, the lives of most senior leaders are defined by long days and much sacrifice. But it doesn't change the fact that there is waste in every process. So I try to set their mind at ease by explaining that they didn't design the processes they are currently managing and so it's not all their fault.

Their processes were most likely designed and first executed in a much different environment than the one in which they currently operate. The organization looked different then, perhaps it was larger and the employees were more experienced. Technology taken for granted today may not have been present when the process was first introduced. The voice of the customer may have changed; maybe speed is more important to the customer today than before; maybe the customer can find the product or service for less somewhere else. Perhaps the operating cost of a piece of equipment was acceptable a decade ago but is hurting the organization today in a big way. We could go on and on, but it's not too much of a stretch to see that the environment we work in today changes faster than in any time in recorded history. Is it reasonable to expect a process designed and introduced 5 or 10 years ago to work for us today?

The current set of leaders probably inherited a set of processes that worked well for a time but has now grown old, and if not cared for, will no longer work for the organization. Orders will not be met. Quality will suffer. Costs will rise and profits will fall. Nonprofit organizations constantly striving to make a dollar go a little farther will find that waste is eating into scarce funds. Leaders can drive the horses harder to make up for the underperformance of these tired, worn-out processes . . . but this will work only for a while. The organization's culture will shift from one designed to produce quality goods and services to one that resorts to shortcuts and work–arounds to meet consumer demands. "I don't care what you have to do, just get that order out on time," will become the rallying cry of middle-level managers across the organization. Injuries and accidents will increase as employees face a moral dilemma, ". . . do I do the job right, or do I cut this corner or take this shortcut," to save time and improve the chances of providing the product or service on time. "I took the shortcut last week and everything worked out fine." But that was last week, this time around something is slightly different and last week's shortcut results in this week's injury or accident or an unhappy customer. Morale will suffer as leaders drop benefits packages to replace money lost to wasteful process that no longer produces value in the eyes of the intended recipient. Those who are able, seek employment elsewhere. The organization is in trouble, and if something doesn't change, the organization could disappear.

Kind of scary isn't it? Well here's the good news. We can repair that old, tired worn-out process through continuous process improvement. But first, as leaders we need to learn more about the anatomy of a process.

The Anatomy of a Process

In essence, processes consist of two kinds of steps, those that add value and those that do not. Those steps in a process that do not add value are considered waste and should be eliminated. It sounds fairly straightforward. Should be simple right? Well, try telling an employee that any steps he or she accomplished as part of a process for the past 2 or 3 years are non-value-added and thereby are considered waste. That employee has grown accustomed to a very specific way of doing things. She is comfortable. As a result of years and years of habit, she executes the process flawlessly. She feels good about her ability to "just get er done!" She doesn't think about each and every step; she thinks about the end product or the service she provides and how many or how much of each she is assigned to produce; and it will be provided on time. She probably doesn't think of value but she knows that every step in the process is essential to the product or service provided.

A value-added step in a process is defined by three characteristics. First, the step must be something that the customer is willing to pay for. Second, the step must directly change the form, fit, or function of something to produce a product or service. The final characteristic of a value-added step is that it is so important that it must be done right every time to successfully produce the intended product or service.

Every other step in the process is non-value-added and therefore renders the process less effective over time. Perhaps when first designed and introduced, the waste was acceptable but as the environment, both internal and external, changes the waste is no longer acceptable and must be dealt with, or the process grows old and dies.

Waste comes in many forms. Overproduction, overprocessing, waiting for anything whether material or information, motion, transportation, excess inventory, and injuries are examples of waste found in almost every process. Defects, whether the product of an employee's

mistake or poorly operating machines, are waste. Constraints or bottlenecks in a process generally cause waiting and are thereby considered waste. It is generally considered impossible to remove all the waste, variations, and constraints from a process; there are no perfect processes.

The whole idea of continuous improvement is that much of the waste can be removed through an incremental series of "passes" and the result is a redesigned process that will produce value in a new time. So, who defines value anyway? Value in a for-profit organization is always defined by the customer. Companies, big and small, that want to stay in business never forget that the voice of the customer drives the value proposition. Many a company has lost its way and disappeared because it lost touch with the customer's idea of value or was unable to produce value in a constantly changing and competitive environment.

But how then, is value defined in a nonprofit organization? Probably the best way for a nonprofit organization to define value is to keep the organization's mission in sight at all times. If a step in a process isn't something the organization's recipients hold dear, doesn't change the form, fit, or function of something to ensure mission success, or isn't so important to the mission that it has to be done right every time, it probably isn't value-added. It's hard for many nonprofit organizations to grasp the value proposition from the perspective of a customer. But all of the members can understand that a value-added step is one that helps the team achieve a mission.

Can I Fill It up for You?

I want you to think about a process that you do regularly; let's say filling your car up with gas. How many steps would you say there are in that very routine process, five, 10, maybe a dozen? Well let's see. You drive up to the pump, place the transmission in park, turn off the ignition, release your seat belt, and unlock the door. That's five. Now to continue, you open the door to your car, push the door open, step out of the car, close the door behind you, and depending on your habit pattern, reach into your back pocket and remove your wallet and take a credit or debit card from the wallet. That's 10 steps and still no gas has moved

into the car. We insert the card into the pump and begin an electronic transaction with your financial institution. Hopefully all goes well in this endeavor and we move on. That's 12 steps. Still no gas is flowing. You open the access door and remove the gas cap and then place the gas cap out of the way. Fifteen steps. Now you remove the fuel nozzle from the pump and place it inside the fuel filler pipe, squeeze the trigger on the nozzle, and lock it in place. After 19 steps, you now have fuel flowing to your car . . . and you wait and wait and wait. Twenty steps, yes, the waiting is waste! Now the tank is full and you reverse the process. Your process consisted of approximately 40 steps. Of all the steps just completed to fill your car with gas, how many of those steps were value-added? Only step 20, the gas flowing into your automobile, is considered value-added. Let's run our test for value. Is step 20 in the process something you as a customer are willing to pay for? Yes, it's the reason you stopped at the pump to begin with. Did the step change form, fit, or function to provide value? Certainly, your fuel tank was less than full when the process started and now it is full. Is step 20, gas flowing into the fuel tank, so important to the value proposition that it must be done right every time? If this step isn't done right, no gas is transferred into the tank, it may go on the ground, it may not flow at all, but if the gas doesn't flow into the tank, you have not received value for your trouble.

Do you remember earlier when I explained how upset my students were when I told them that up to 80 percent of the steps in any repeatable process are non-value-added and therefore waste? Here is a process made of 40 steps, 97.5 percent of which are nonvalue-added. Why? Because that's the way you've always filled your tank. Or is it?

The Value Proposition Changes . . . Will You Be Ready?

When I was younger, I took a part-time job as a filling-station attendant. My job was to pump the gas into your car. Gas at the time was cheap and one way to get you to buy gas from my boss was to provide you with service beyond just filling up your car with gasoline. I would check your fluid levels, the pressure in your tires, and clean your windows as gas flowed into the fuel tank of your automobile. When the tank was full or I had filled it to the level you requested, I would take your cash and

provide change. Or I would take your credit card and imprint it onto a receipt for the purchase, dutifully returning a copy to you and retaining a copy for my boss who would forward it your credit card company. The service was provided and you paid for it in the price of a gallon of gas. The year was 1970 and the average price for a gallon of gas at the pump, service and taxes included, is just $0.29 a gallon.

In 1973, members of the Organization of Arab Petroleum Exporting Countries (OAPEC) proclaimed an embargo in response to a US decision to resupply the Israelis during the Yom Kippur war; the embargo lasted until March 1974. As a result of the embargo, gasoline prices in the United States rose. By 1978, the average price for a gallon of gas jumped to $0.72. I noticed a change in our service station. Customers who once pulled up to the full-service pumps were now driving to the self-service pumps and pumping their own gas. What happened? Did the customers not appreciate the way I cleaned their windows, checked the fluids, and aired up the tires on their car? No, the customer appreciated the service but was no longer willing to pay for it in the price of a gallon of gas. Gasoline was cheaper at the self-service pump because no other services were provided. The value proposition had changed. The steps in the old processes, cleaning windows, pumping gas for the customer, checking under the hood, and ensuring proper tire pressure, were no longer value-added steps. The customer was no longer interested in paying for these services. The customer was interested only in the cheapest gasoline available, everything else was non-value-added and therefore waste and became a target for elimination from the old process. The result is a new process. Did we get rid of all the waste; not hardly. The process still contains waste and we'll continue to use the process until it grows old and no longer provides the value we desire. What do you think the next process will look like?

Here's the News

Everything we do through a series of steps that we call a process. Processes serve a variety of purposes, but by and large, processes produce something, goods or services. Some processes are easy to see and some are not. Some are executed by people, some by robots or computers instructed by

people. Some of the steps in the process provide value and others do not. We want to go after the steps that produce no value because these steps represent the waste, variation, and constraints which reduce efficiency and effectiveness. All processes contain waste; it's difficult to get rid of all of it, but the more waste we can remove from the process the more efficient the process, allowing us to produce better products or provide better service at greater value to the customer.

Here's the bad news. No process lasts forever. Over time, the waste that was built into the process in the beginning is no longer acceptable. Why? We produce goods and provide services in a world that is constantly changing. The world changes faster today than at any other time in human history. The process designed for a different world and a different time will grow old and inefficient. Organizational leaders that fail to realize that a process is failing tend to drive the horses to run faster, and that might work for a short time. If nothing is done to improve the process, our employees will do their best to make the old process work well enough to meet production targets or provide necessary services, usually through shortcuts, some type of work-a-round or by throwing away the cultural values that previously held the organization together and made it successful in the first place. But even this will work only for a while if it works at all. Soon the organization will no longer manufacture products or provide services of value in a competitive and ever-changing world and the organization is no longer relevant; large or small, public or private, for-profit or not-for-profit . . . it makes no difference and it is reality. Change the process or it will die.

Now here is the good news. Given the right leadership, organizations can redesign old processes and make each one better than before. Incrementally, the waste can be removed through structured problem solving, creativity, innovation, and teamwork. This is what continuous process improvement is all about.

And there is even more good news. Continuous process improvement through structured problem solving, creativity, innovation, and teamwork can be fun and rewarding. The tools of continuous process improvement, six sigma, theory of constraints, lean manufacturing, or business process reengineering, take your pick, are not hard tools to

learn or use. The tough part is creating an environment where the tools can effectively make continuous process improvement a reality. And that's the job of a leader! Leaders who understand the importance of organizational culture and are able to embrace change themselves, can lead the change necessary to take these tired, old, worn-out processes from the past and redesign each one to work in today's tough environment. This is the standard work of a leader.

Key Points

- We accomplish everything through processes
- A process is a series of steps designed to produce products or services
- No process lasts forever
- 80 percent of process steps are non-value added
- Value is defined by the receiver of goods and services
- The definition of value changes over time

CHAPTER 2

Continuous Process Improvement

The majority of innovation is implementing a new way of doing things, such as improving on old processes or existing product designs.

—La Verne Abe Harris

I've been in a ridiculous argument with a good friend of mine for a number of years now. When the argument started, my friend, one of the most energetic and positive people I've ever met, was an organization lead for innovation, and I had just left a job as the lead for continuous process improvement in another organization. "You know, what you do is not innovation Bob," he would say. "You simply take old processes and redesign them." I would say, "Exactly, and isn't that innovation?" "No, innovation is much more difficult. Innovation is all about new ideas; ideas that have never been thought of before now; we're taking advantage of technology that didn't even exist until recently; knowledge we didn't possess until now. You process improvement guys are just building on old processes," he would say. "You bet! We take old processes, and using ideas gained from new knowledge, the application of new technology, and the removal of waste, variation, and constraints, whenever possible and we build a new process. If that's not innovation I don't know what is?" At some point in the conversation we would simply agree to disagree and go about our business of trying to help organizations find better ways to get work done. But the discussions always left me thinking that continuous process improvement and innovation sure have a lot in common.

Maybe it's a pointless argument. But I bring it up because over the years I've found that many senior leaders will start the organizations down the road of constant improvement but fail to sustain the effort

over time and eventually abandoned altogether. I conducted research a few years back in an effort to determine why leaders seem to lose interest in the idea of incrementally improving processes over time, even after significant investment in time and resources. What I found is that most of the senior leaders I spoke with want huge improvement and they want it now. They believe that innovation, not continuous process improvement, is the way to get the huge gains in performance that will somehow save the organization. They want improvement teams to hit a grand slam every time they come to bat. They have no patience for singles, doubles, and triples, and they won't tolerate a strike out. So after a couple of singles or doubles and maybe a strike out or two, senior leaders will abandon continuous process improvement and turn to something else in hopes of getting greater improvement, the grand slam home run, faster. Each of the senior leaders I spoke with said they needed their employees to be more creative and innovative; continuous process improvement just takes too long and the results of their continuous process improvement efforts were not worth the investment in time and resources. These leaders think in the very short-term.

But consider this. I'm betting the senior leaders of corporate giants like Microsoft, Toyota, GM, Ford, Amazon, Apple, Deere & Company, or ALCOA don't spend a lot of time arguing about whether continuous process improvement is innovation or not. Yet each of these companies is famous for finding new ways to produce value at the lowest possible cost by constantly searching for new ways to do the important things, either by designing new processes or by redesigning old ones over time to make each work better than before. These organizations do this by taking a long-term view. Each has learned to adapt to changes in the environment, embrace failure and learn from it, reward creativity, leverage innovation, and strive to continuously improve processes, little by little, over time through a structured approach to problem solving. To pull it off though takes leadership.

Read the amazing story of Toyota in Liker's (2004) *The Toyota Way* and learn the value of the long-term view. Toyota is a process-oriented company, dedicated to solving the root causes of problems that hold a process back. Organizations like Toyota, Microsoft, Apple, Ford, and many

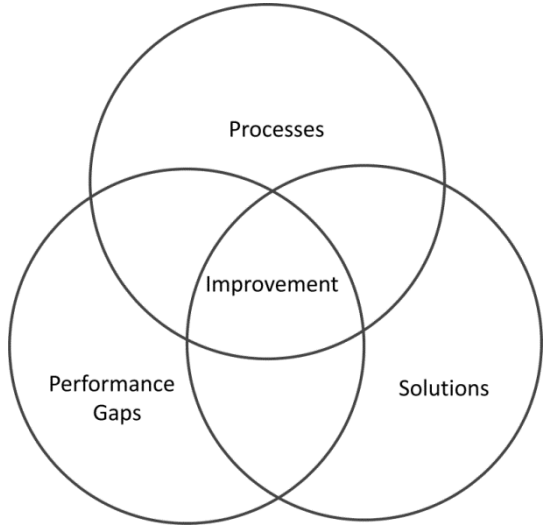

Figure 2.1 An Improvement Model

others—some public, some private; some for–profit, some not-for-profit; some large and some small—have found ways to harness the power of a structured approach to improving processes to stay alive through the good years and the bad. All work is accomplished through processes; performance gaps appear as processes grow old; solutions are developed through structured problem solving; the result is improvement or innovation, take your pick.

Continuous Process Improvement Defined

Simply stated, continuous process improvement is the art and science of designing and implementing better processes, designed to meet the customer's definition of value on time and at the lowest possible cost, through a structured approach to problem solving. Continuous process improvement, by design, is incremental in nature. Small improvements are made to existing processes over time as problems arise.

Continuous process improvement assumes that at birth, the process delivered a product or service correctly and economically; the customer was satisfied with the value provided at the time; our environment constantly changes over time and this drives changes in the definition of

value; (remember our discussion of the service station in Chapter 1) and that leaders have created an organizational culture that embraces change when necessary to improve the performance of critical processes. Note that the last assumption includes necessary change; not change for the sake of change. Changes come at a price; so change the processes that count. Finally, continuous process improvement assumes that when something goes wrong, the failure is usually the result of a bad process, not a bad employee. The name, blame, and then shame game has no place in organizations striving to continuously improve processes.

Here's The Way It Works

A problem is usually described by a performance gap. Let's say, for example, that for some reason, a process that needs to produce 30 widgets every 60 seconds with no defects is producing only 20 widgets every 60 seconds, and five of those widgets don't meet the customer's definition of value and are considered costly scrap. Practitioners of continuous process improvement assume that the performance gaps, 10 fewer widgets and five too many pieces of scrap are not the fault of the employees, but instead are the result of waste, variation, and constraints within the current process. It's the standard work of the organization's leaders to create an environment where everyone feels comfortable identifying problems and everyone feels a responsibility to improve processes when problems emerge.

The goal is to make small improvements over time; a 5-percent reduction in variation or waste or the removal of a constraint during a process improvement effort is considered just fine. We'll implement the changes and then let the process stabilize for some time. We'll look to see if our solution to the problem closed the performance gap. If not, we'll make another pass and squeeze another 2 or 3 percent of waste out of the processes. The idea is to constantly work on the process until enough waste, variation, and constraints are removed to close the performance gap.

There Is No Such Thing as a Perfect Process

Waste, variation, and constraints are imbedded in every process. More importantly, not all processes react to waste, variation, and constraints in the same way. For example, the process used by a pilot to fly an air-

liner to a safe landing on a runway with visibility at less than one half of a mile will not withstand variation the same as a process used by the newspaper delivery person to toss a newspaper on to your front porch. If the person executing the process of delivering your evening newspaper to your porch tosses a little stronger or a little weaker (variation), the paper may end up in the bushes or short of your porch; although this is a nuisance, little damage is done. On the other hand, a pilot executing the process of landing an aircraft in poor visibility has to conform to tighter standards since the process doesn't tolerate variation in the same way as the process to deliver a newspaper to your front porch. Failure of the pilot to keep the aircraft on speed and on the proper glide path during the approach could have much graver consequences than a failure of the newspaper delivery person to control the strength of the toss. The approach an organization takes to problem solving depends a great deal on the type of processes required to produce value.

There's More Than One Way to Skin a Cat

There are a number of continuous improvement methodologies available to organizations today, lean manufacturing, six sigma, and theory of constraints, to mention three of the most popular. Which one is right for the organization you lead? Well, that depends.

Six Sigma

If you lead an organization that strives to reduce variation and values statistical tools to solve process problems, six sigma could be the right continuous process improvement tool for you. Made famous at Motorola and General Electric, organizations that practice six sigma assume that the quality of the product or service produced is improved when variation is reduced throughout the process. The emphasis is on reducing the opportunity for defects to occur in the first place. Companies that must produce to tight tolerances, for example, are fans of this rigid approach to problem solving. A good friend of mine is the continuous improvement lead for a company that produces lenses for prescription glasses. Tolerances are tight and small defects result in costly scrap and unhappy

customers. Employees in his organization embrace the idea that the performance of a process is expressed in numbers and they are comfortable with the use of descriptive statistics to describe what's going on with any process. As you might imagine, engineers and scientist find great comfort in this continuous process improvement methodology.

As with any other approach to continuous process improvement, six sigma is a series of steps: 1) define 2) measure, 3) analyze, 4) improve, and 5) control, often written as DMAIC. Organizations that follow the DMAIC process **define** performance gaps that impact the ability of a process to meet the customer's definition of value. Next, team members **measure** the process characteristics. Are products and services meeting the needs of the customer in terms of quality, time, quantity, and cost? Practitioners of six sigma ask, "What does the data say?" Next, the data collected in the measure step is **analyzed** and presented through descriptive statistics. The goal of this step is to identify root causes of the performance gap. The fourth step is to develop solutions to mitigate the root causes of the performance gaps and thereby **improve** the process. The improvement team assesses the value of each step in the process; some steps are eliminated, others are modified; countermeasures such as removing non-value-added steps or constraints, error proofing, or new standard work are put in place. Once the improvements are in place, the process is monitored through performance metrics. If the numbers indicate the process is now performing as required and it is under **control**, the new process is put into effect, allowed to stabilize and monitored. If the problem resurfaces, the DMAIC steps are repeated.

Lean Manufacturing

If your organization is looking to improve process flow through the reduction of waste, lean manufacturing could be the right continuous process improvement methodology for your organization. When Womack and Jones wrote their book, *Lean Thinking: Banish Waste and Create Wealth in Your Corporation,* lean manufacturing, a product of the Toyota Production System, became the buzz. Lean practitioners believe that value is produced by a series of steps called a value stream and they concentrate on the elimination of waste to make the value stream flow. Flow

allows products or services to move through the value stream uninterrupted, allowing products and services to be provided to the customer at the right place and the right time. Organizations that embrace lean see waste as the number one restriction to profitability and continuously seek to remove it from processes. Waste comes in many forms: defects or variation, overprocessing or overproduction, waiting on anything, nonuse of intellect, transportation, injuries, motion, or excess inventory. Lean thinkers value simplicity and believe that many small improvements, one right behind the other, are better than the detailed analysis called for by those practicing six sigma.

The lean model of continuous process improvement consists of a series of five distinct steps, beginning with the identification of **value**. Value is always defined by the customer or a downstream process. Remember the value proposition from Chapter 1? Lean companies understand value and work to build processes that deliver value to customers at the right time and at the lowest cost.

Once value has been defined, the **value stream** is identified. Remember from our earlier discussion of processes that some steps in the process are identified to be value-added, while others are declared to be waste. Do you remember the test? Value-added steps must meet three criteria: 1) the customer is willing to pay for the step, 2) the step changes the form, fit, or function of something to provide value, and 3) the step must be performed correctly time after time if the customer's definition of value is to be achieved. Any other step in the process is declared to be waste by lean believers, and they will do their best to remove it. Recognize that there are activities within the process that are necessary to make the process work, but unless that activity meets the criteria for value, the step is still non-value-added. For example, most customers are not willing to pay for the activities associated with training your workforce, although training is essential if the value stream is to produce goods or services.

The third step is to improve **flow**. Flow means that products and services move through the value stream to the customer, with as little interruption as possible. Anything that interrupts flow is singled out for elimination. Any time materials are stacked in front of a machine waiting to be processed you can bet that flow is impacted and lean practitioners will work hard to eliminate that constraint.

In the fourth step, lean believers will allow customers to **pull** products or services through the value stream instead of pushing products or services through the system. Pushing products and services through the value steam means something is provided earlier than required by a customer and will surely produce costly excess inventory and impact flow. In a lean system, the goal is to produce no product or service unless first ordered by the customer. To make flow a reality, the value stream must be responsive enough to produce a product or provide a service when the customer needs it, not earlier, not later.

Think about the Toyota plant in South Texas we mentioned in Chapter 1. On the day we visited the plant, a truck was coming off the assembly line every 64 seconds. The plant was operating two shifts and each shift produced 438 trucks. The plant had orders from customers for all 876 trucks built that day. That's pulling a product through the value stream. If the plant produced 876 trucks but only had orders for 800, that's overproduction (a type of waste) and an example of pushing products through a system.

Finally, lean believers constantly work to achieve **perfection**. There is no such thing as a perfect process, but those who follow the lean methodology of continuous process improvement will make a series of passes, each designed to improve flow through the removal of waste, constraints, and opportunities for defects. The process keeps getting better and better until any performance gap that existed is eliminated; then the next performance gap is tackled; it never ends.

Theory of Constraints

If you are leading an organization that values a systems approach (a system is nothing more than a series of interdependent subprocesses working together to produce value) to problem solving and is striving to increase the speed and quantity of products and services produced, you might consider the continuous process improvement methodology known as theory of constraints. Goldratt and Cox wrote a book in 1994 called, *The Goal: A Process of Ongoing Improvement*, describing the theory of constraints. Theory of constraints seeks to identify and then eliminate bottlenecks in processes. Processes are seen as a chain of activities that

when working together produce goods and services. Practitioners of this methodology believe that performance gaps are created by the weakest link in the chain. Once the link is identified and improved, practitioners work to identify the next weak link and improve it as well. The idea is that there is no such thing as a perfect process; therefore, weak links are never in short supply. So, much like the game of "whack a mole" we all played at county fairs growing up, we can hit a mole on the head with a mallet when it pops up and it will disappear. But then another mole will pop up someplace else. We will whack that mole on the head and it will disappear but then another mole will appear.

A few years ago I was allowed to spend a couple of weeks in a manufacturing plant that produced components for a specific model of turbo-fan engine used to power giant airliners. I was assigned to a team of managers working to determine why the plant could not produce enough turbine blades to meet engine production goals. The plant had a number of machines capable of changing the form, fit, and function of a block of exotic metal into the form of the turbine blade, an essential component of the engine. Once a blade was formed, however, each had to move through a number of additional activities, or links in the process chain, before it could be installed on a turbine wheel and eventually used to build an engine. Keep in mind there are hundreds of these turbine blades in every engine. The managers found turbine blades were stacking up in front of a very complicated and extremely expensive piece of capital equipment designed to place cooling holes in the base of the turbine blade. The links in the chain prior to this link were able to produce turbine blades much faster than the machine that placed the cooling holes in the turbine blades. All of the links that formed the remainder of the chain downstream of the machine were waiting—flow was being impeded and the plant was not able to meet the customer's demands for engines. "Eureka!" they exclaimed, ". . . we've found the weak link, we've found the constraint! It's this machine. Now what are we going to do about it?"

Like six sigma and lean, theory of constraints consists of a series of problem-solving steps. Those who strive to improve processes using this problem-solving approach first **identify** the constraint, the weakest link in the process chain, the thing that is slowing the speed at which products or services are provided to the customer. Next, they **exploit** the constraint

by improving it to achieve top performance without costly changes. Next, they **subordinate** the subprocesses or other links in the chain to the weakest link; in other words the other processes are paced to the speed of the constraint. At this point, if the system can't meet the customer's value proposition, something must be done to mitigate the effects of the weak link in the chain. Practitioners of theory of constraints **elevate** the constraint. Elevating the constraint may call for replacing a piece of capital equipment or purchasing a duplicate piece of equipment to double production. Another possibility might be to add an additional shift or use overtime to increase capacity. The possibilities are endless. Once the constraint has been dealt with satisfactorily we stand back and see how the entire process is performing. If another performance gap emerges, and it always does, we go in search of the next weak link and **repeat** the process.

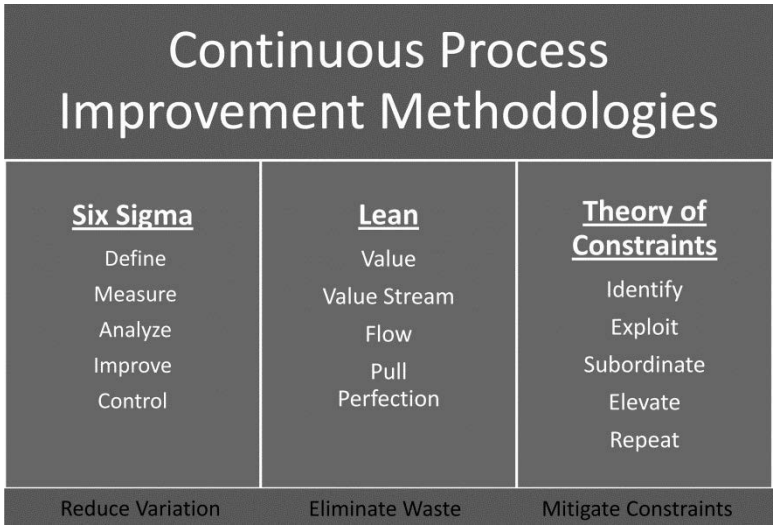

Figure 2.2 Continuous Process Improvement Methodologies

Something to Think About

We don't mean to advocate for one methodology or another in this book; each methodology is capable of delivering process improvement if leaders provide the necessary commitment. If you are leading an organization that is always looking for better ways to provide goods or services that provide value at the lowest possible cost in today's environment, try one of these

proven approaches to continuous process improvement. Each of these improvement models has its following and they will tell you that their model is the best. We, on the other hand, argue that each of the models has strengths and weaknesses, and in Chapter 6 we'll present a well-proven model that combines the best of six sigma, lean, and theory of constraints.

But here is something to think about. The success of any continuous process improvement methodology depends entirely on the behavior of the organization's most senior leaders. Study after study has shown that the number one reason continuous improvement methodologies fail to take hold in organizations is a lack of leadership commitment. Committed leaders create the organizational culture that allows continuous process improvement to become a reality through their actions, not just their words, but their actions. How does the leader react to failures? What happens when a mistake is made? How does the leader deal with change? When solutions require resources for implementation, does the leader come through? Is continuous process improvement just another program, or is it accepted across the organization as, ". . . the way we solve problems to make things better around here?" When continuous process improvement fails, it's not because there is something wrong with the methodology; it is because there is something wrong with the organization's leadership.

The Three "Cs"

Without leadership, no organization can fully realize the benefits of continuous process improvement; but with leadership comes amazing performance. If continuous process improvement is to take hold in your organization, there must be a **culture** in place that supports continuous improvement; the organization must not fear **change**; and the organization's leaders must demonstrate their **commitment** every day.

Let's call these critical components the three "Cs." It's the leader's job to ensure the three Cs are in place if an organization seeks continuous process improvement. That's a tall order for sure; but you can do it. The next three chapters describe the culture of improvement, provide some thoughts on change, and describe the behaviors of leaders truly committed to continuous process improvement.

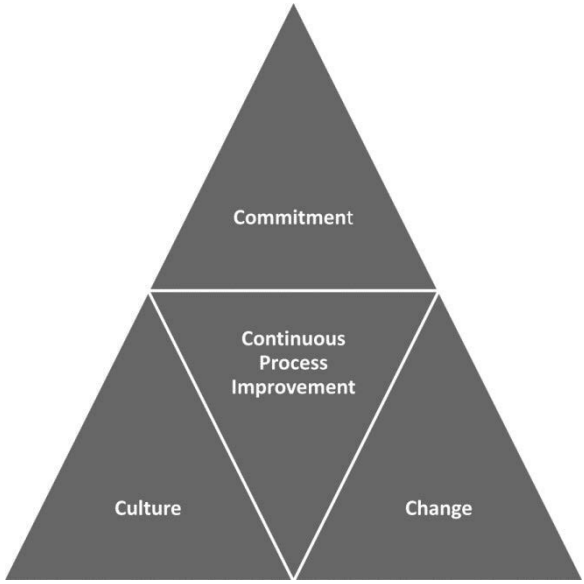

Figure 2-3 The Three "Cs"

Key Points

- Continuous improvement and innovation are two sides of the same coin
- Continuous improvement closes performance gaps in process through structured problem solving
- Performance gaps are closed through the elimination of variation, waste and constraints
- A culture of learning must be present in the organization for continuous improvement to take place
- There can be no improvement without change
- Leadership commitment is essential to the success of continuous improvement

CHAPTER 3

The First C "Culture"

…leadership and culture are two sides of the same coin.

—Edgar Schein

One of my favorite films of all time is *Twelve O'Clock High*. Released in 1949 and adapted from their novel of the same name, screenwriters Sy Bartlett and Beirne Lay Jr. tell the story of an American Bomber Group flying missions against Germany in World War II. One of the first groups to fly daylight precision bombing missions, the organization was in trouble, losses were increasing; it had earned the reputation as a "hard luck" group. The Group's leader was a "stand-up" guy, well-liked by the bomber crews; but he had become too close to the members of the group and this behavior allowed discipline to lapse to the point that the performance of the group was not meeting Bomber Command's definition of value; bombs on target. Morale and self-confidence within the group was at an all-time low. After an especially poor performance during an important mission, the loss of nine aircraft (90 crewmembers) and all of the bombs on board, it was decided that something had to change. The leader was replaced.

As a young captain, teaching leadership at the US Air Force Officer training school in the 1980s, my fellow instructors and I used the situation presented in Bartlett and Lay's film to discuss principles of leadership. We would show a piece of film and then stop to have a guided discussion about situational leadership. We would ask the very young officer candidates, "If you were the new leader of this organization, where would you start?" The answers were "all over the place" and the discussion was fascinating. Then we'd roll some more of the movie.

In the movie, the new leader started by instilling a culture of compliance with standards and discipline. New expectations were set; crews were trained on the new standards and held accountable for their performance.

The processes that weren't working before were revamped or replaced; tighter formations to take advantage of all the guns on the B-17 bomber when flying over enemy territory became the order of the day and crews were expected to perform to that standard. Every mission was critiqued in an attempt to learn and close performance gaps.

The crews rebelled against the new leader and performance didn't improve, at least at first. Change is always hard! But the leader was tough and knew that he needed a little time for the new processes to stabilize. Slowly, performance improved. The crews delivered their bombs to the target, even if no other bomb groups could. Of course, there were still losses but not as many as before. The group continued to learn from its mistakes and find new and better ways to deliver value, not to make money, but to fly, fight, and win a war in the air.

Redesigned processes became the new way of doing business. As performance improved so did confidence and morale. Crews that would try to find ways not to fly missions changed their behavior in response to new assumptions. No one wanted to be left on the ground; despite the danger and the risk, everyone wanted to fly.

We stopped the film again. "What did the new leader do?" we would ask the future leaders of America's Air Force. "He was tough, that other guy was too easy," said one. "He held them accountable," said another. "He told them what he wanted done and they did it," said another. "He led from the front. He flew on missions with his crews, especially the tough ones. He taught them a new way to think about problems. He searched the entire unit for anyone who could lead and then he got out of their way and let them lead," exclaimed another.

"Yes, that's right," we would explain. "There was a crisis. Something had to change. He set a new course for the organization. The members of the organization behaved differently. Performance improved and so did morale and confidence. The culture changed didn't it? His actions, instilling discipline, clearly communicating vision and mission, holding members accountable, modeling acceptable behavior, and rewarding that behavior, all changed the way the group felt about the job at hand. The entire organization behaves differently now than before he arrived." Those were the days.

Figure 3.1 Creating a New Culture

Compare the story of this organization and the impact of culture to another organization, Enron Corporation. Enron was an energy-trading, natural gas, and utilities company that employed 21,000 employees in 2001, that is before it was forced into bankruptcy. A culture of corruption, comprised of assumptions that made it acceptable behavior for employees to use "creative" accounting techniques, allowed Enron to be listed as the seventh largest company in the United States. Successful right? Wrong!

After a series of accounting scandals that lead to its demise, Enron is now associated with one of the largest bankruptcy scandals in history. The company no longer exists, and today the scandal serves as a case study of how culture can destroy an organization, in most management classrooms. Never underestimate the power of organizational culture!

Why discuss organizational culture in a book about leading continuous process improvement in organizations? In short, culture is the glue that holds any organization together; leaders influence the culture of their organizations through their behavior. Any leader who tries to implement continuous process improvement without first understanding organizational culture is in for a big surprise and a lot of disappointment. What is organizational culture? Why is it important that leaders understand it? How does one describe the culture of continuous process improvement?

What is Organizational Culture?

In his book, *Organizational Culture and Leadership*, Schein (1992) describes culture as, ". . . a set of structures, routines, rules, and norms that guide and constrain behavior." Said another way, culture drives how members of organizations perceive, think, and feel about what's going on around them. Culture helps members to understand *what is* acceptable and *what is not* acceptable behavior.

All organizations share a culture; as a matter of fact, several cultures can exist within the same organization. For example, the culture in the research and development department may be different than the culture in operations or maintenance or the culture in marketing or sales. How does this happen?

Well, it turns out that organizational culture is the result of the experiences shared by members of the group; in other words, culture is the result of learning over time. In reality, culture consists of a set of assumptions. These assumptions are formed over time as an organization solves problems created by what's happening inside and outside the organization. Solutions that work well enough to keep the organization alive become the "way we do things here" and are taught to members. These assumptions are then taken for granted and dictate the way the group behaves. In their book, *Corporate Culture and Performance*, Kotter and Heskett (1992) explain that the ideas and solutions that help form the assumptions can come from anywhere and from anyone in the group.

So What?

It is important for leaders wishing to make continuous process improvement a reality in their organizations to understand culture. Why? None of the continuous process improvement methodologies will work unless there is a culture of continuous process improvement in place first. Sure, organizations can go through the motions, but unless there is a set of assumptions in place that supports organizational learning, no organization will enjoy the full benefits of continuous process improvement.

Culture influences how members of the organization produce value, how the organization deals with problems, and how it improves. These

assumptions about how things are done become stronger over time. The stronger the culture the more difficult it is to change. But what happens if the definition of value changes? What happens if changes in the environment prevent the organization from providing goods and services that delight the customer at a reasonable cost? As long as the organization's culture is one that can help an organization adapt to these changes and continuously yield processes that produce value—all is well. After all, that is what continuous process improvement is all about. But, if you find yourself leading an organization with a culture that does not include assumptions that drive members to adapt to the constant change that surrounds us today—it is *your* job to change that! And before you can do that, you need to understand the assumptions associated with a culture of continuous process improvement.

The Culture of Continuous Process Improvement

The best way to describe the culture of continuous process improvement is to think of a learning organization. Members of learning organizations understand that we can learn as much from our failures as we can from our successes. This basic assumption creates an environment where risk-taking is encouraged. It's acceptable to try new and different ideas to solve problems and close performance gaps. Members of these organizations do not fear failure, they learn from it.

Learning organizations that embrace continuous process improvement absolutely reject the old saying that, ". . . if it ain't broke don't fix it." Members of learning organizations believe that any process can be redesigned and improved by taking advantage of new technology, new knowledge, and new techniques. The quest for better processes never ends. It is not uncommon for learning organizations to routinely revisit old processes in search of waste, variation, and constraints in order to deliver value at the lowest costs possible.

Organizations that are able to successfully implement continuous process improvement assume that the people closest to where the work is accomplished know where the problems exist in any process. The focus is always on value as defined by the customer or whoever is expected to benefit from the value stream. Leaders in learning organizations believe

that performance gaps are the result of bad processes, not bad employees. So, when performance gaps emerge, learning organizations gather teams of employees together to collaborate and share knowledge to find ways to make processes more efficient and effective through the incremental elimination of waste, variation, and constraints.

- ✓ There must be a vision
- ✓ Culture precedes methodology
- ✓ The focus is on value
- ✓ Any process can be improved; see change as an opportunity
- ✓ We can learn from failure; risk taking is encouraged
- ✓ The quest for better processes never ends
- ✓ Performance gaps come from bad processes not bad people
- ✓ Those closest to the work know where the problems are
- ✓ Teamwork and collaboration is key

Figure 3.2 Assumptions of a Culture of Continuous Process Improvement

Schien (1992) once wrote that, ". . . culture and leadership are two sides of the same coin." What did he mean? He meant that leaders play a critical role in the creation of organizational culture. In Chapter 5, we propose that development of culture that successfully delivers value is a function of a leader's behavior. If the assumptions associated with the current culture become dysfunctional and delivery of value is in jeopardy, in other words, a crisis exist, some assumptions, even those that have worked well in the past, may have to change. Processes must be improved to adapt to a constantly changing environment. As we'll see in the next chapter, it is the leader's job to make that change happen. Change is the second "C."

Key Points

- Culture is the glue that holds the organization together
- Culture describes acceptable behavior for the organizations employees
- Leaders influence culture through their behavior
- Continuous improvement thrives in a culture that values learning

CHAPTER 4

The Second C "Change"

Only leadership can get change to stick by anchoring it in the very culture of an organization.

—John P. Kotter

The product of continuous process improvement is change. Old processes that no longer provide value at the lowest cost are changed when employees working together use a structured approach to problem solving to remove the waste, variation, and constraints that prevent the creation of value. But the reality is that most employees just don't care for change, at least initially. Most managers and employees view change much differently than leaders. For employees, change can create fear. In his book *Leading Change*, Kotter (1996) explains that managers strive for predictability and order; but change means disruption and turmoil. Leaders, on the other hand, strive to produce useful change in response to the environment within and outside the organization. Let there be no doubt; it is a fundamental responsibility of a leader to produce useful change in response to the ever-changing environment in which most organizations operate today.

Did you notice I used the term "useful" when describing change? Why? Change is hard work, and although the rewards can be enormous, it takes energy and there is some risk. Jack Welch, former CEO of General Electric, is fond of saying, "Change does not always have to upset things and make things worse; but trust me, change is always hard work." Leaders should not demand change for the sake of change. Instead leaders should lead the effort to change the most important or key processes—not every process. Leaders would be best served by dedicating their efforts toward those processes in the most need of change; in other words, on those processes that would provide the biggest payoffs once the changes are implemented.

The sad truth is that, by most accounts, up to 70 percent of all change efforts fail. Teams of employees are assembled, continuous process improvement methodologies are used to identify waste and develop the best ways to deal with it; this leads to new ways to produce value. An action plan is proposed to leadership. The leader likes the solution, thanks the team, and lets everyone know that he supports the action plan for making the new process a reality. There is usually a celebration of sorts; everyone is smiling.

But now comes the tough part, making the change stick. Making any new process, ". . . the way we do business here," can be one of the toughest tasks a leader can face. Comments like, ". . . here we go again, we tried this before, it didn't work then and it won't work now," or ". . . why can't they leave us alone, there was nothing wrong with the way we did it before," or ". . . don't they understand we're different" are common responses to the proposed process improvements that lead to new ways of getting the work of the organization done. It's natural; people just don't like change. In their book, *The Leadership Challenge*, Kouzes and Posner (2007) explain that leaders need to understand not only what change is, but also why organizations resist change. More importantly leaders need to understand their role in dealing with resistance to change to make changes stick in the organizations they lead.

What is Change?

As it relates to continuous process improvement, change is the replacement or complete removal of undesired activities within processes to achieve greater effectiveness and efficiency. Said another way, remove the waste from the process to produce goods and services that meet the receiver's definition of value at the lowest possible cost. New technology, changes in the receiver's requirements, competition, government legislation, or economic cycles drive the need for improved processes. Processes that once produced goods and services that meet the needs of the intended recipients become inefficient or ineffective over time, generally as a result of changes inside or outside the organization. Non-value-added steps that may have been acceptable when the process was

initially designed and implemented must be removed or replaced if the organization is to continue to produce value. This change results in a new and better process designed to produce products and services that delight the receiver.

Change results when the new process is put into use and becomes the way "we do things now!" While change may sound simple, it is far from it. Change is messy, disruptive, and complex. Change can be uncomfortable and even painful for some employees; but success for many organizations is the result of small incremental changes over time. It has been proven time and time again that those organizations that embrace change and consider change a natural and even necessary occurrence enjoy greater success than those organizations that do not.

Continuous process improvement involves examining the current process, changing the process, and finally implementing the new process. At first there may be some confusion, disorientation, and anxiety; leaders must understand that this is natural and be prepared to address any concerns presented by members of the team. Over time, as employees gain confidence in the new process they become more comfortable with the change. Finally, the change becomes a part of the daily routine and many employees will wonder how anything ever got done using the old process. Although it may sound simple, change is incredibly hard.

Why is Change so Hard?

We humans enjoy order and consistency. Stable processes make us feel comfortable. We learn processes and through habit we become very good at accomplishing the steps in the process used to produce value. The older the process, the more confident we become in our ability to execute the process and the greater the resistance to leave the process behind. It's like children that won't give up their favorite blanket or toy. You'll hear employees exclaim, "Why I've been doing this so long I can do it with my eyes shut!" Think about it, as leaders we usually reward those managers and employees who consistently meet production goals executing the current process. In the eyes of an employee or manager, change means risk. I've lost track of the number of times a manager or

employee has made it clear to me that, ". . . there is nothing wrong with the way we do this; it worked for 20 years, why are we changing now? We get the job done, don't we?" Managers and employees alike will work hard to reduce risk and keep current processes operating in a predictable fashion, the older the process the harder they'll work to keep it even when it's clear the process is inefficient and becoming ineffective.

As an adult I followed in my father's footsteps and chose the same profession in the same organization. He started out in this profession as a young man in 1952. Things were different in 1952, especially with respect to technology, and I know that doesn't surprise you. Twenty-three years later, my father left the organization and went into a different profession. The very next year I joined the organization my father left behind. After a few years, I became a leader in that same organization. However, things were much different in 1975 than in 1952 when my father started his journey. The organization my father worked in included almost 950,000 employees when he started in 1952. The same organization I joined had been cut to almost 750,000 by 1975. Today that organization is comprised of 326,000 employees. Here's my point: although we've managed to make many improvements, we still ask our employees today to accomplish the work of the organization using many of the same old worn-out processes that my father used in 1952 . . . why? Change is hard work.

A wise individual once told me that humans don't resist change; they fear the effects of change. Employees may fight change for fear of having to do more work for less or fear of losing control. "Will I lose my job as a result of this change?" "I don't understand this new technology; what if I can't use this new contraption?" Let's not kid ourselves, change is disruptive. Employees may question the value of the change when compared to the effort involved in implementation. Expect members to question how changes to processes will affect their role and status within the organization; it is a natural response to the uncertainty that accompanies change.

Don't be surprised if some members of the organization feel insulted that anyone feels a change is even required. "So, what you're saying is we've been doing a terrible job?" Some employees will even claim that

the change is the result of some sort of hidden agenda. "All you guys are really trying to do is to reduce the size of the workforce . . . I'm going to lose my job as a result of this crazy new way of doing business!" Have you ever heard this one, ". . . Hey, if this change is such a great idea, why hasn't it been done someplace else before?" My personal favorite is, ". . . this change is too complicated for our workforce; they'll never understand this; how can we possibly make this happen; this is too hard!"

But here is some more good news . . . as a leader you have a profound impact on whether or not a redesigned process sticks or not. More specifically, your behavior, not just your words, will either increase or decrease the chances that process improvements become the new way of producing goods and services that please the recipient—or not!

The Leader's Role in Making Change a Reality

The best leaders expect resistance to change and understand that "job one" for any leader is to lead the organization through resistance, to acceptance, and finally execution. It is the leader's job to keep the organization focused on what needs to change, help employees make sense of the new process, and help members of the organization learn a new way to produce value. Clearly, your behavior as a leader is crucial to successful implementation of the changes that result from continuous process improvement. Here are a few tips that may help you as you work to help your employees accept a new way of doing business.

First, communicate the need for change by explaining how the new process closes performance gaps aligned to the organization's strategy. As we will demonstrate in Chapter 5, if your organization has developed an "easy to understand" vision outlining where the organization is headed and deployed that vision throughout the organization, it is easy for employees to see where improvement is needed. A set of objectives that must be met to achieve the vision, coupled with metrics that highlight the performance of those objectives, is a priceless commodity for any leader hoping to convince employees that a change is worthwhile. Most employees loathe "change for the sake of change," but look on useful change as a necessity if the organization is to survive in tough times.

There may still be some resistance to the new process but the level of pushback will be much less when employees understand why the change is required.

Second, gain "buy-in" by allowing the employees closest to the work to participate in process improvement events designed to close performance gaps. When employees are provided an opportunity to help redesign processes through continuous process improvement, they have a vested interest in the success of the new process they helped to build. They take ownership of the changes they've developed and will work hard to ensure the solutions are given a "fair chance" by their coworkers. As a leader your job is not to force the organization to embrace the new process; instead allow those closest to the work to convince their coworkers that the new process is worth a try. Your job is to let the employees know that you're committed to making "their" new process a success through your support and visible commitment.

Third, keep your cool! Expect resistance. It is natural. People react to change differently. Be patient! Don't lose your temper when members of your organization question the new process. Reassure your employees that you understand that it is natural to fear the impact of change. Allow some pushback. Invite your employees to give you all the reasons they think the new process won't work. If the new process was designed by members of your team, let them help answer questions from concerned employees. Let the employees know that the process was designed by the employees closest to the work, employees just like them, and it deserves a chance.

Fourth, make a big deal out of change! Celebrate; change is hard work. Reward creativity. Show your appreciation for employees who accept and implement new processes, which will help the organization create value—publicly! Let everyone know that you value those who embrace change. Reward failure as well as success. Many argue that we learn as much or more from our failures as we do from our successes. Remember, change is risky. Not all changes result in "grand slams" for the home team. Some changes will yield small improvements in processes; celebrate those changes as well. Employees will resist change if they feel like they are going to be punished for implementing changes that don't

yield improvements immediately or yield no improvement at all. Celebrating failure as well as success lowers the resistance to change that may result from fear of failure.

Finally, explain to employees "what's in it for them." Resistance to change will decrease if employees understand how the process improvements will make their work easier. Processes improvements that reduce physical and mental stress or reduce unwanted overtime are certainly easier to accept than the status quo. New processes that increase the employee's chances of successfully meeting production goals are almost always a hit as long as their lives are not made more difficult in the process. Any process improvement that improves working conditions such as lighting, cleanliness, condition, and availability of tools and equipment or ergonomics is easier to accept because such change demonstrates leadership's desires to make life better on the job. Make sure employees know why it's important to them personally to make the new process a reality.

Continuous process improvement is designed to produce change. The best process improvement efforts are the result of teams of employees closest to work using standardized problem-solving methodologies to close performance gaps. But there will almost always be resistance to new processes; it's a natural phenomenon in organizations, and leaders should plan to deal with it. Leaders who understand change expect employees to resist and pushback but they don't fear the resistance; instead leaders explain how the change will make the organization better, keep their cool, gain buy-in, accept failures as learning opportunities, and make sure that when it comes to change, the employees always know "what's in it for them."

Key Points

- There is no improvement without change
- Change is always hard work; up to 70 percent of change efforts fail
- Resistance to change is natural
- A leader's behavior will make change stick in an organization – or not!
- Communicate, get buy-in, be patient, celebrate change, explain "what's in it for them"

CHAPTER 5

The Third C "Commitment"

. . . leadership is not about personality: it's about behavior
—James M. Kouzes & Barry Z. Posner

Tragically, up to 70 percent of attempts to improve the way members of organizations produce value will fail. Continuous process improvement requires time, money, and effort, and failed attempts to implement improvements are wasteful and frustrate everyone in the organization. A great deal of study has been conducted to determine why process improvement fails in organizations. Is the premise of continuous process improvement flawed? Is there something wrong with using a structured approach to problem solving to remove waste from processes? Is continuous improvement just too hard for employees to grasp? The truth is that there is nothing wrong with the concept of continuous process improvement and most employees appreciate the opportunity to improve the way they get the job done every day. So, why do so many attempts to implement continuous process improvements in organizations fail? Would you believe that research indicates the primary reason continuous process improvement fails in organizations is due to a lack of leadership commitment? It's true.

Time and time again leaders stand in front of the employees and declare their commitment to continuous improvement: ". . . I want you all to know that I'm a believer in continuous improvement and innovation and I need your commitment as well." But commitment is about more than the words we speak as leaders; commitment is really more about the behavior we demonstrate than it is about the words we speak. To demonstrate commitment we have to "walk the talk." Abrashoff (2002) wrote in his book, *It's Your Ship*, "Whenever I could not get the results I wanted, I swallowed my temper and turned inward to see if I was part of the problem. I asked myself three questions: Did I clearly articulate the goals? Did

I give people enough time and resources to accomplish the task? Did I give them enough training? I discovered that 90 percent of the time, I was at least as much a part of the problem as my people were."

Without senior leader commitment, most attempts at continuous process improvement will fail. Employees look to senior leaders to tell them what is important to the organization. It's been proven time and time again that what is important to the organization's leadership becomes important to all the other members of the organization. While employees listen to the words of leaders for clues as to where the organization is going and how it will arrive, members of the organization will watch how the leader behaves to determine their true commitment.

What we are really describing here is credibility. In their book, *Credibility*, Kouzes and Posner (1993) describe credibility as doing what you say you will do. The best way to demonstrate your commitment to continuous process improvement is to do what you say you will do. My cohorts and I have lost track of the number of senior leaders we have witnessed who express their commitment to making processes better in their organizations with words but have no idea how to demonstrate that commitment in behavior. This is critical because as Kouzes and Posner explain, "People listen to the words and look at the deeds."

Committed leaders craft strategy and deploy the strategy down to the lowest levels in the organization. Leaders demonstrate commitment when they review progress with members of the organization so that everyone knows where to invest scarce resources. When performance gaps are identified, committed leaders are willing to invest money, time, and energy in continuous process improvement efforts in areas that make a difference. Committed leaders make the tough and unpopular decisions that are sometimes necessary to drive useful change in organizations. Committed leaders demonstrate that they have accepted ownership of and the responsibility for implementing the changes that result from the organization's continuous process improvement efforts through their active participation.

Strategy Alignment and Deployment; It's Your Job

Strategy, when deployed throughout the organization and executed, can produce a well-choreographed dance in which everyone moves together in unison to deliver value. All efforts are aligned to produce the dance. All of the dancers know the moves they must make to produce the desired outcome. Mistakes are made. But with each mistake comes learning and improvement. Perfection of the dance takes time, energy, and resources. The result is wonderful and a joy to watch.

Strategy provides focus and direction. Best-selling author and speaker Tony Robbins notes that any organization able to consistently achieve success has a strategy. Professor Mike Mazzeo of the Kellogg School of Management defined strategy as the plan that an organization implements to help meet its objectives. Every military officer learns early in their career that strategy connects the ways, means, and ends through which an organization achieves its purpose.

Michael Porter of Harvard Business School offers the following three imperatives for any strategy:

- Strategy must create a clear and valuable position that defines clearly the set of key activities.
- Strategy must identify trade-offs essential to any group in a resource-finite world.
- Strategy must define the fit between all departments in the organization.

The key to converting a strategy into the delivery of products and services that delight the receiver is to keep it simple so that everyone can understand their role in the production of value. Complexity is the enemy of execution. The key components of a simple, easily understood strategy include hard-hitting, easily remembered statements that describe the leader's ***vision*** for the organization; a short, simple ***mission statement*** that describes the purpose of the organization; ***objectives*** that succinctly state what has to be done to produce value and accomplish the mission; and ***performance indicators*** that describe how well the objectives are being achieved.

Figure 5.1 Components of a Simple Strategy

Conduct Strategy Reviews to Highlight Performance Gaps

Strategy, when communicated and understood allows members to align their efforts to what's truly important to the production of value and the ultimate success of the organization. The beauty of strategy is that it describes success for the organization; but strategy also identifies areas that need to be improved.

Communicating the strategy to every level in the organization is difficult. We've all seen the beautifully bound copies of strategies that sit on bookshelves or adorn the tables in the offices of executives or conference rooms. We've walked the halls of organizations and seen the framed posters of vision and mission statements mounted on the walls. You might ask just how effective are books and posters when aligning the organization's efforts? Here's the test: the next time you are out on the shop floor, ask any employee, "What is the vision of our company?" or "What is the mission of our organization?" Better yet, ask your employees, "How are we doing?" and "How do you know?" We suspect if you ask 10 employees, you'll get 10 different answers to each question, and most responses will not come close to what's written in the strategies that make such great coffee table books in the offices of the organization's senior leaders.

Kaplan and Norton developed the Balanced Scorecard in 1996 as one way to align and deploy strategy in organizations. In their book, *Balanced Scorecard: Translating Strategy into Action*, Kaplan and Norton presented a method to translate vision into operational goals and communicate each throughout the organization. The Balanced Scorecard approach to strategy alignment and deployment has evolved over the years and is probably worth the read.

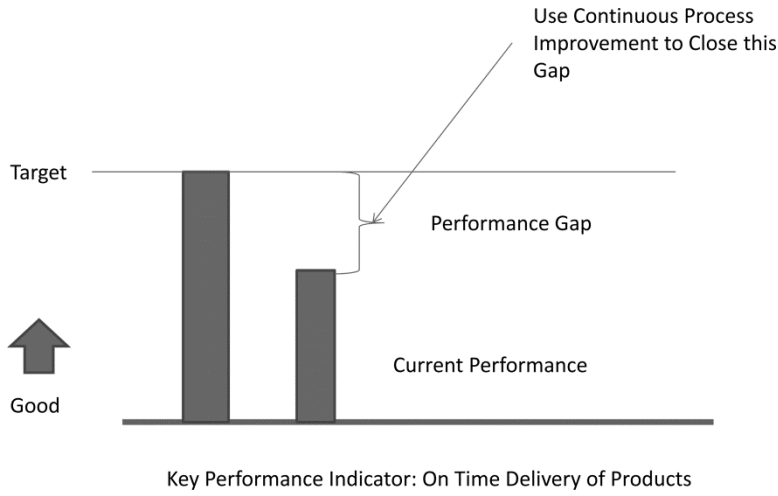

Figure 5.2 Use Continuous Process Improvement to Close Performance Gaps

But our recommendation is that whatever approach you take as a leader, keep the strategy as simple as possible and use simple visual tools to communicate it to all levels in the organization. We've found that a simple one-page strategy map works nicely. Strategy maps include the mission, vision, objectives, and performance indicators on just one sheet of paper. Members of organizations who use strategy maps to communicate what's important don't have to search through pages and pages of corporate or organizational strategy to figure out where to put their efforts. Once the strategy map is developed and made clear to everyone in the organization, use it to conduct periodic reviews with your leadership team. Focus your improvement efforts to close the performance gaps that show up on the strategy maps.

At the center of a well-conducted strategy review are the objectives and the associated metrics or indicators that tell the story of how the organization is accomplishing its mission and the progress being made toward its vision. Objectives should be specific, measurable, attainable, results-focused, and have a time component (SMART). For example, "Increase the on-time delivery of products from 93 percent to 96 percent by the end of the fourth quarter FY15," is a workable objective; it's easy to understand and easy to measure. Objectives, and the performance indicators associated with each,

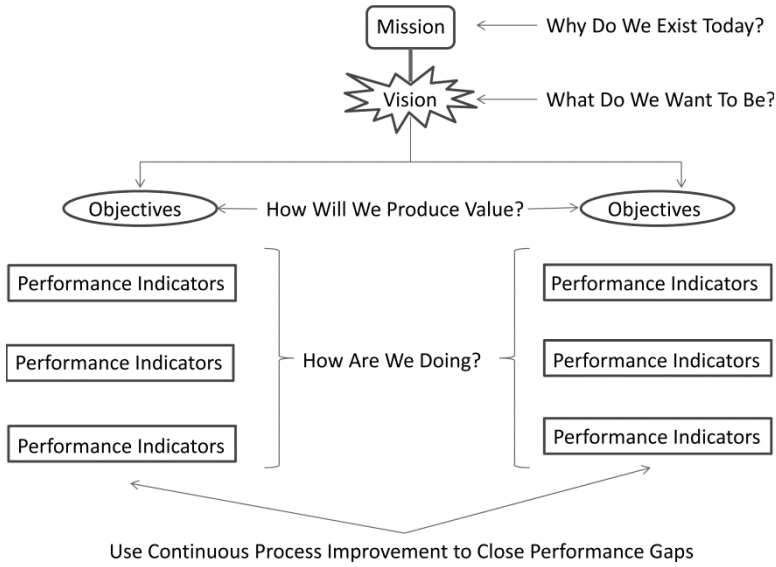

Figure 5.3 A Simple Strategy Map

help all members of the organization understand what needs to be done to produce products and services of value. These objectives and measures prevent organizations from wasting scarce resources trying to improve processes that won't make a difference in the organization's ability to produce value. Instead use performance indicators to identify performance gaps. Performance gaps visually identify processes in need of improvement. Target the organization's improvement efforts toward these gaps. When your improvement teams develop solutions to process problems, dedicate resources to the solutions. This is easier than it sounds.

Make the Tough Calls

Leaders demonstrate their commitment by making the difficult decisions necessary to make solutions become reality. The result of any effort to improve a process is going to involve change and most employees would rather do just about anything other than change. But committed leaders support the solutions developed by improvement teams. When improvement teams generate solutions it's up to leadership to decide

what changes to implement and when. These are tough decisions since most employees are going to resist the changes necessary to improve processes. It's some of the toughest work a leader will ever do. But as we mentioned in Chapter 3, when leaders express the need for change, they gain buy-in from their employees, keep their cool when employees resist, and celebrate successes; the work of change is made a little easier.

Leaders demonstrate their commitment when they dedicate valuable resources to continuous process improvement. These are always tough calls in today's competitive and resource-constrained environment. Continuous process improvement requires an investment in training, effort, time, and, in some cases, money. Members of organizations will watch you for signs that you are truly committed to continuous improvement. Have you invested time in training the right people in the tools of continuous improvement? Continuous process improvement takes time and effort. Are members of the organization given the time to participate in process improvement activities? Individuals assigned to process improvement events are not usually available to their departments to conduct the work needed to produce value; production schedules may need to be adjusted. It's not uncommon for many production managers to cry, ". . . we don't have time for another improvement event; this is going to cause us to miss our production targets." Committed leaders understand the "give and take" required to make improvement a reality and take the long view. These leaders understand that while improvement efforts may hurt production in the short team, over the long haul the short disruption will pay off in a big way.

In some cases, solutions developed by improvement teams will require investment in capital equipment. These teams can almost always show return on investment, but in tough financial times, leaders have to make tough calls on how to spend limited dollars. Smart leaders set aside money for improvement in their budgets. When new equipment is needed, these leaders dip into the improvement fund, thereby displaying commitment to members of the organization.

Clearly improvement is tough work. It takes a committed leader to help the organization through the change. Members of the organization are watching you to determine if you are truly committed before they

commit their time and energy to any improvement effort . . . and why should they? Nothing frustrates employees more than to work tirelessly to develop solutions that they know will make processes better only to see nothing change. Your willingness to make the tough decisions necessary to implement the solutions they worked so hard to develop will earn their commitment.

Actively Participate

Committed leaders demonstrate that they have accepted ownership of and the responsibility for improvement when they participate in process improvement efforts. We know what you're thinking, "Where am I going to find time to participate in process improvement; there aren't enough hours in the day to do what needs to be done as it is and now you want me to hold their hands through a process improvement event?" Certainly it would be great if you could find the time to participate as a member of an improvement team but let's be realistic . . . that's a pretty tall order (although it has been done!).

Participation comes in many forms. Developing the organization's strategy is a start. Reviewing the key performance metrics associated with strategic objectives is another. Targeting areas for improvement through identification of performance gaps is another. When everyone can see where improvement is needed, committed leaders can direct improvement teams use problem-solving methodologies to design new processes and improve overall performance through the reduction or elimination of waste, variation, and constraints.

Leaders demonstrate their commitment and active participation when they serve as champions for improvement events. Champions challenge teams to improve specific processes by crafting charters. Charters clearly describe to all members of the improvement team the problem to be solved, the performance gap to be closed, and an improvement target. Leaders can also participate by providing vector checks throughout the problem-solving effort. More on vector checks in Chapter 6.

Another way that leaders demonstrate their commitment to improvement is by assigning the appropriate team lead. The team lead must be credible, someone other members of the team will follow, and someone

who can work closely with a facilitator grounded in the fundamental principles of continuous process improvement methodologies. Leaders hold the team leads accountable for the conduct of the improvement team.

Once the team is assembled, leaders demonstrate their commitment by opening the event with a challenge to the team to work together to find ways to improve the way work is done. The most effective leaders find time to visit the team throughout the improvement event to keep the team motivated, provide vector checks, or just say thanks for the team's efforts. Once the team has completed its work and developed an action plan to improve the process, it is useful to have the team brief their work to the champion. The leader championing the event approves the improvement plan; now the real work begins as the organization implements the team's solution.

Committed leaders dedicate resources to the tasks, monitor the progress of the improvement plan, and break down any barriers to implementation. Once the plan is implemented, senior leaders verify that the performance gap has indeed been closed and lead the team members in celebration. Team members are recognized and rewarded in a very public way so that everyone sees how important continuous improvement is to the organization's leadership. But the celebration is short-lived because there is always a process in need of improvement! Improvement never ends.

Key Points

- Without leadership commitment most attempts at improvement will fail
- Leadership commitment is demonstrated through a leader's behaviors
- Committed leaders draft and deploy strategy throughout the organization
- Objectives should be specific, measurable, attainable, results focused and time based
- Committed leaders dedicate resources to continuous improvement efforts
- Committed leaders participate in improvement activities

CHAPTER 6

Closing Performance Gaps through Structured Problem Solving

If I had an hour to solve a problem I'd spend 55 minutes thinking about the problem and 5 minutes thinking about solutions.

Albert Einstein

Culture, change, and commitment are essential to organizations seeking to continuously improve in today's competitive environment. Continuously improving organizations use key performance indicators associated with strategic objectives to highlight performance gaps and help focus improvement efforts on what's really important. These organizations use a structured problem-solving methodology to close the gaps.

Over the past 10 to 15 years, we've found success in closing performance gaps with an 8-step problem-solving model that incorporates the best of the most popular continuous improvement methodologies in use today—lean thinking, six sigma, and theory of constraints. We didn't develop this structured problem-solving approach; the model was taught to us. We've used it with great success and we'd like to share it with others.

Keep in mind, as we mentioned in Chapter 2, it's important to choose and apply a methodology that works best for the organization you lead. The key is to have a structured approach to problem solving that objectively identifies the root causes of the performance gaps holding your organization back and addresses each one. This allows continuous improvement to take place in any organization instead of waiting on costly, risky transformations that generally yield little return on investment or fail all together. A continually improving organization doesn't

rely on random moments of inspiration. Organizations need problem-solving models and systems that are repeatable and not dependent on any one individual for success. The model we offer consist of eight steps:

1. Clarify and validate the problem.
2. Break down the problem and identify performance gaps.
3. Set improvement targets.
4. Determine root causes.
5. Develop countermeasures.
6. See countermeasures through.
7. Confirm results and process.
8. Standardize successful processes.

The steps can be accomplished in hours, days, weeks, or months, depending on the complexity of the problem and the resources a leader is willing to dedicate to developing solutions. One thing is for certain, there is a positive correlation between the effort put forth by the team and the quality of the solution. Problem solving is hard work and requires teams of employees dedicated to making the organization better than it was before. If the organization isn't ready for change, doesn't embrace a culture of continuous improvement, or lacks real leadership commitment, you're wasting your time. If you think your organization is ready to improve, let's get started.

It All Starts with a Champion and a Charter to Improve

A common beginning point for most problem-solving efforts is the development of a charter. This single one-page document is used to communicate to everyone that as the organization's leader and champion for this improvement project, you are committed to closing a performance gap that is standing in the way of success and you are willing to put the organization's energy against the challenge. The basic elements of a charter include a problem statement, a brief (no more than 10 high-level steps) description of the process, the performance gap, an improvement target, a scope that clearly describes what processes or subprocesses are in play, the key stakeholders, a team leader, a facilitator, and the names of employees assigned to the team.

Charter development begins with a conversation between the organization's leadership and a facilitator skilled in the art and science of leading problem-solving teams. The champion must have the authority to implement solutions developed by the team. By developing and then signing the charter, the champion agrees to dedicate time, resources, and people to the problem-solving effort. It is important for the champion to understand that the success of the effort is his or her responsibility, and taking the time and effort to clearly describe what the team is required to accomplish will help improve the chances of success. When the champion signs the charter, it becomes a powerful document that directs the team to develop solutions designed to make the organization better. But more importantly, the champion's signature guarantees commitment, follow-through, a willingness to break down barriers, and most importantly a willingness to trust the team to develop quality solutions.

As facilitators, we've seen instances when the champion did not participate in the charter development at all. Charter preparation was minimized or ignored and delegated to the facilitator or a team leader with little, if any, formal authority. As soon as the team was brought together, the champion attempted to force his "solution" on the team and as a result created significant animosity at the worker level. Additionally, the champion's "solution" ran counter to all previous direction and authority he had received. The champion then compounded the problem by repeatedly telling the team what they should think and didn't seek their input. He did not trust the team's opinions. Good charter preparation and facilitation could have significantly altered this dynamic by establishing clear boundaries and scope prior to the event. The approach used in this case seldom yields solutions that close performance gaps, and it always amazes us when a leader is disappointed in the lackluster solutions, lack of buy-in and less-than successful implementation. As Albert Einstein once said, "We cannot solve our problems with the same level of thinking that created them."

Luckily, we've also facilitated events where a solid charter and positive leader involvement resulted in greater success than we could have imagined. The leader committed to the improvement event, helped identify key stakeholders and team members, and provided timely vector

checks during the event. In this positive environment, the team devised creative solutions which were fully supported by the champion and the improvement targets were achieved.

Ford and Crowther (1922) wrote in *My Life and Work*, "Before everything else, getting ready is the secret of success." Our recommendation: do the leg work up front; you'll be amazed at the results. With charter in hand, the first step toward closing any performance gap is to clarify and validate the problem.

Step 1: Clarify and Validate the Problem

Simply put, a good problem statement identifies the who, what, when, and where of the performance gap. Did you notice that a good problem statement doesn't include a "why"? Our problem statement is also void of potential solutions. As a leader, if you already know the "why" or have a solution in mind, implement the solution! Save your facilitator and team members time (and your resources) and just do it. Additionally, it's helpful from the team's point of view if the problem statement includes "so what." In other words, why is important that we put the time and energy toward solving this problem? Ideally the "so what" is tied to your strategy and helps motivate the team, that is, it's not a manufactured problem to drive change for change's sake or any other motive other than making the organization better.

Good problem statements are the product of good data. Many organizations collect performance data. In these cases, the team's work is made easier. But in many cases, the data necessary to write good problem statements is not available. Good data is the basis of any good decision, so if there is limited data, the team has some work to do and a trip to where the work is done will help. The team will stand back and observe as the process is carried out. They'll take notes, measure, and ask questions. Making this trip is time well spent but it's too early to start solving the problem; we're just gathering data so we can write a workable problem statement. It's okay at this step for members of the team to leave the place where the work is being done with data and ideas, but not solutions. It is not uncommon for members of the team to come away saying, "We don't need a process improvement event, we can already see where

the problem is right now." But to try to solve the problem at this point in the process robs the organization of the creative thoughts of each and every member of the team. There is much more work to do; let the process work, don't try to rush it.

We facilitated an improvement event once where the leader was concerned about the integrity of data entered in to a company database. A charter was created; the facilitator and a team member who entered the data went to work collecting information for the problem statement. The information collected did in fact indicate a high rate of erroneous entries. Unfortunately, the formula used to derive entries was complex, and the problem statement was crafted using the collected, albeit confusing, data. When the team finally met for the event, a solid two days were exhausted trying to explain the problem to the team that wasn't even aware there was an issue. Eventually, consensus was reached on the data. The lesson learned was that without a clearly defined problem, an improvement team will struggle to identify appropriate root causes and countermeasures. Not surprisingly, months later when the results were collected, the errors were still occurring.

A good problem statement is supported by data that is clearly understood by the team. Take a look at the problem statement in Figure 6.1. It includes all of the elements of a good problem statement: who, what, when, where, and so what. No solution is offered. A wise man once exclaimed, "Every time a leader offers a solution to a problem, he or she robs the employee of an opportunity to learn." With the problem statement in hand, the team is ready to learn and solutions will jump from the knowledge they are about to gain.

To meet customer demand, the ABC company
machine shop must produce 17 widgets per hour but currently
the shop is only producing 12 widgets per hour.
Failure to produce 17 widgets per hour is limiting production
downstream and preventing ABC from meeting customer demand for our product.

Who: The ABC Company
When: Currently
Where: Welding Shop
What: Must produce 17 widgets/hr but only producing 12 widgets/hr
So What: Limiting production downstream/not meeting customer demand

Figure 6.1 A Workable Problem Statement

Step 2: Break Down the Problem and Identify Performance Gaps

Now that your team has verified there is a problem, the next step is to determine "what is the performance gap?" Step 2 helps problem solvers break down the problem and identify performance gaps. Facilitators use a variety of tools to aid the team at this point, from bottleneck analysis to value-stream mapping; but the goal of Step 2 is to clearly identify the performance gap that must be closed.

Here's a good example. While trying to help a team determine how many parachutes to produce to meet the customer's requirement, we noticed the team had fallen back on the typical solutions, more people, more time, and more money. Most organizations are resource-constrained; people, time, and money are precious commodities. Leadership believed the process could use some work and put a team together to find ways to remove waste, variation, and constraints. With some help from the facilitator, the team gathered production data and compared current performance to customer demand; the result was a performance gap. The current process could produce parachutes but not in time to meet customer demand. A good technique is to illustrate the performance gap with a bar chart, as we demonstrated in Chapter 5. Take another look at Figure 5.2. Once the performance gap is identified it's time to move to Step 3, setting improvement targets.

Step 3: Set an Improvement Target

Armed with a clearly defined performance gap, setting improvement targets should be a fairly straightforward exercise for the team. In Step 3, the team determines how much of the performance gap it wants to close during this improvement effort. Our experience has shown that most leaders want the entire gap closed and they want it close yesterday! In some cases this might be possible but in most cases the best we can hope for is a 3- to 7-percent improvement in the performance of a process during the first improvement pass.

Remember, the whole idea of continuous process improvement is that organizations accept the notion that all processes contain waste,

variation, and constraints and it's impossible to remove all nonvalue steps from a process in one pass. The organizations that get the most from continuous process improvement efforts are the ones that remove some waste, let the new process stabilize, compare performance to requirements, and if necessary make another pass, and another, and another until the process produces value for the customer at the lowest possible cost.

The best way to communicate an improvement target is through a specific, measurable, attainable, results-focused, and timely (SMART) statement and adding a target line in the bar chart used to show the performance gap in Step 2. Again take another look at Figure 5.2. Note the target? Now add an improvement target statement like "Improve welding shop production of widgets from 12 to 17 per hour by November 2016," and you have an improvement target for the team to work toward.

Before the team moves to Step 4, it's a good idea to bring the event champion back to the team to review the problem statement, performance gap, and improvement target. A quick vector check at this point in the event ensures the champion agrees that the team has a solid grasp of the problem to be solved, the gap to be closed, and the improvement target to be met. Getting a "thumbs up" from the champion at this point will save a great deal of frustration on the part of the team and the champion. There is nothing worse than expending effort solving the wrong problem or building solutions that do not adequately close the performance gap.

Without the vector check a team may wander off from the original problem, attempt to solve all the world's problems or "drain the entire swamp" in one pass or conversely set mediocre improvement targets or even seek the status quo. Even worse, some on the team may use Step 3 as a means to set a target that serves his or her agenda instead of a target designed to serve the organization. Champions should be aware of all of these potential pitfalls during the vector check. Once the vector check is complete, it's time for your team of experts to move on to Step 4, determining the root causes for the problem.

Step 4: Determine Root Causes

Now the team is ready to start problem solving. This is where the tough work begins. This is where the decision to use a structured problem-solving model starts paying off.

Many times, the team will bring preconceived root causes to the table and attempt to move straight to developing countermeasures for these root causes, but this robs the organization of the collective innovative ideas of the entire team. Common root causes such as lack of funding, lack of manpower, and lack of training will undoubtedly surface, and easily become the recommended fixes. A good facilitator will recognize what's happening and work to bring the team to instead identify waste, variation, and constraints in the current process . . . the true root causes of poor performance.

Facilitators use fishbone diagrams, 5 Whys, brainstorming, value-stream mapping, or any number of tools to help the team identify the root causes of performance gaps. The team will break the process down step by step to verify if a step is value-added or a candidate for elimination. Regardless of the tools used, it's during this discovery period that terms like "that's the way we've always done it" or "I'm not sure why we do it that way" are often heard. It's also when waste, defects, or bottlenecks in the process (true root causes to the problem) begin to appear to the team. Rather than jump to conclusions or chase hunches and theories, your team will look at the entire process from a value perspective and seek out true root causes so they can develop countermeasures with lasting effects in Step 5.

Recently, several contributors to this book were working with a team trying to reduce the number of days required to perform periodic scheduled maintenance on a fleet of aging aircraft. Aircraft spent too much time in this periodic inspection process and therefore were not available to the customer/receiver when promised. The team needed to figure out how to close a 7-day performance gap.

As expected, the team jumped to lack of manpower as the top root cause for production delays. The problem . . . the process was embedded in a government, not-for-profit, organization and due to congressionally mandated personnel cuts; the performance gap would have to be closed

through innovative ideas, not by throwing people at a process full of waste, variation, and constraints. The champion made it clear from the start that a lack of manpower would not be accepted as a root cause and he expected the team to determine the root causes of this performance gap through a thoughtful analysis of the value stream.

After value-stream mapping, the process back in Step 4, the team discovered that an aircraft waited on average 5 days (one aircraft actually waited 11 days) between one step in the process and the next. Five days of waste due to waiting! The owner couldn't use the aircraft and the next step in the process couldn't accept the aircraft. Total waste! What was the root cause of this delay? Lack of people . . . no waste! Aircraft were being pushed blindly into the process based on an unrealistic annual schedule that may have looked good when developed but was not realistic in execution due to unforeseen variation and constraints. There was no flow, and aircraft began to pile up in front of a critical step in the periodic inspection process.

During root cause analysis in Step 4, the facilitators led the team through an exercise that allowed the team to see the process from end to end. The team was able to identify that "pushing" instead of "pulling" aircraft into scheduled maintenance-disrupted flow and forced aircraft to sit idle for five days, just one of several root causes identified by the team. Now the team was ready to move on to Step 5, developing countermeasures to address the root causes of the performance gap.

Step 5: Developing Countermeasures

In Step 4, the team has identified the potential root causes of the performance gaps through a structured and thoughtful analysis of the value stream. It should be noted that there is seldom one root cause of any performance gap. It has been our experience that teams identify a number of root causes and typically attempt to develop countermeasures for each one. The reality is that teams seldom are given the time and resources necessary to solve for every root cause. As a result, the facilitator will lead the team through an exercise to prioritize the root causes to solve. The root causes that the team believes will provide the greatest improvement in the process will be solved first using the Pareto principle or what most

of us know as the 80/20 rule. Simply stated the Pareto principle asserts that a team can achieve as much as an 80-percent improvement in the performance of a step in the process by providing countermeasures for the top 20 percent of the root causes for poor performance. It's only a rule of thumb; but application of the 80/20 rule can help teams determine which root causes to address with countermeasures with the time and resources available.

In Step 5, the team develops countermeasures to address the root causes identified in Step 4; it's hard work. Various brainstorming techniques are used to garner innovative solutions from employees that execute the process every day. The best solutions come from the minds of those closest to the work. The trick is getting those great ideas out into the open, so that the team can build on those ideas and develop countermeasures to address the root causes of performance gaps. Typical countermeasures include, but are not limited to, development and implementation of new standard work, the elimination of non-value-added steps, creating flow by pulling instead of pushing materials through the value stream, error proofing, and visual management.

In the periodic aircraft inspection example presented earlier, a simple technique was developed to send a signal to "pull" the next aircraft to the next step in the process as space became available. Pulling instead of pushing aircraft through the inspection process eliminated the bottleneck, thereby reducing five days of wait time and returning aircraft to service on schedule. Other countermeasures were developed to eliminate wait, transportation, and motion in the inspection process itself.

Once again, it's time to bring the champion back for another vector check to review the root causes and countermeasures developed by the team. The team will provide the champion with a list of countermeasures prioritized by the anticipated level of effort required to implement the countermeasure and the impact it will have on the performance gap. The countermeasures that provide the greatest return for the least effort are at the top of the list and implemented first.

It's the job of the champion to validate whether the countermeasures are realistic for the organization. Champions should express their concerns through open-ended questions. Our experience has been that

champions who listen closely and ask, "What do you need from me; how can I help?" get the best results. Not surprisingly, we've found that the most successful changes are the ones developed by those closest to the work and are supported by the champion when the time comes to see the countermeasures through in Step 6. As we mentioned in Chapter 5, committed, supportive leaders make changes stick. Although the team may have come up with countermeasures difficult to attain, the chances of closing the performance gap using the solutions developed by the team are pretty good if the champion will support the team's work. If a champion finds that a countermeasure just isn't realistic, now is the time to let everyone know, because in Step 6 the team will build an action plan that will implement the countermeasures and create a new process designed to deliver improved performance.

Step 6: See Countermeasures Through

The next step is to implement the countermeasures or said another way, see the countermeasures through. The team will build a detailed list of action items required to turn the countermeasures into action items that when fully implemented produce a new process. Action plans consists of specific actions, estimated completion dates, and the names of those responsible for seeing the action items through to completion.

In the most successful events, committed champions take an active role by leading periodic action item reviews. These reviews are easily added to regularly scheduled meetings and should move quickly. Active leadership is essential at this point. We've lost track of the number of times a team was called together to improve a process and developed sound action plans, but no countermeasures were implemented. Our experience has shown that failure to close performance gaps following an improvement effort is a direct result of the champion's failure to ensure the action plan is implemented.

Failure to implement the ideas created by a team of employees is demoralizing, and employees will lose interest in continuous improvement; if this occurs often enough, members of the organization will avoid process improvement events all together and learn to work around poorly designed processes. The result is shortcuts and work-a-rounds

that can lead to incidents, accidents, and processes that will continue to deliver poor performance. Remember, action plans mean change, and as we described in Chapter 4, leadership is essential if the changes developed by the improvement team are going to stick.

It's very easy to be excited about a change effort immediately following a team event. But it takes discipline and committed leadership to keep the organization focused on the action items; follow-through is extremely important. Follow-through on action items not only ensures the success of the current project, but also demonstrates leadership commitment, keeps employees interested and excited about continuous improvement and, more importantly, creates trust between problem solvers and leaders.

Beware! Implementing your countermeasures may cause an initial drop in performance. Don't panic; this is normal and it won't last long. It may take some time for the new process to become a part of how work is performed in the organization. Equipment may need to be moved, employees trained, and leaders will need to break down barriers to change. Eventually, the organization will begin to see the results hoped for when the event was chartered. It is not uncommon for "non-believers" to use the initial drop in performance to make the case that improvement efforts yield little benefit and there was nothing wrong with the way work was accomplished before the improvement event. Just be patient; our experience has shown that following a process improvement event, process yield improved 90 percent of the time. How do you know the process is performing better? Read on.

Step 7: Confirm Results and Process

Once the action plan is fully implemented, it's time to start measuring the performance of the new process. Watch the same key performance indicators that led the champion to charter the improvement event in the first place. Using these metrics, simply compare the results of the new process to the improvement target set in Step 3.

Remember, failure to reach the target doesn't mean the entire effort was a failure. Be patient and take care to let the new process stabilize before making any changes. If the countermeasures developed by the

team didn't close the performance gap after a few months, it's possible they didn't capture all of the root causes in Step 4. If this is the case, the champion can bring the original team, or a completely new team, back together to brainstorm for additional root causes and solve for these. Another option is to solve for root causes that may have been discarded on the first pass. A final option is to make another pass with a completely new team. This team should be given a new charter and conduct another improvement event building on the work of the last team. Repeat as necessary until the performance gap is closed. Once it's determined that the countermeasures will yield the improvement necessary to close the performance gap, it's time to move on to the final step, standardizing successful processes.

Step 8: Standardize Successful Processes

Once the new process is stable and yielding the performance necessary to produce value for the receiver, the last step is to standardize the successful process and make it stick. New standard work is distributed throughout the workplace. First-line supervisors ensure their employees are trained and periodic audits are conducted to make sure everyone understands and can execute the new way of accomplishing work. Champions should visit the workplace periodically to answer questions, receive feedback from those performing the work, and identify barriers to improved performance. Keep in mind that old habits are hard to break; there will be constant pressure in the workplace to return to the old ways of doing business. Don't let it happen! Understand that most employees were comfortable with the old way of accomplishing work even though the process wasn't producing value at the lowest cost. Make it clear that the organization is going to give the new process a chance to stabilize and there will be another opportunity to adjust the process during a future pass.

You're Done . . . For Now!

It's time to celebrate. Your team worked hard to close a performance gap that was holding the organization back using a simple 8-step approach to problem solving. We've offered an approach that uses the best

of three popular approaches to continuous improvement. We offer it as one approach, not the only approach to problem solving. As we mentioned in Chapter 2, use the approach that works for your organization.

Whatever problem-solving approach the organization adopts, take the time to pat members of the team on the back and make a big deal out of their efforts in front of others. Remember, in the world of continuous process improvement, not all "at bats" result in "home runs." Sometimes a game is won with a lot of singles, doubles, and triples and only an occasional home run. Employees watch to see how leaders react to the singles as well as home runs. Recognize and reward teams that use a structured approach to problem solving to improve the way value is created . . . no matter how big or small the improvement. When it's time to close the next performance gap, employees will line up to participate instead of running the other way.

Key Points

- Leaders use charters to guide improvement teams
- Clarify and validate the problem.
- Break down the problem and identify performance gaps.
- Set improvement targets.
- Determine root causes.
- Develop countermeasures.
- See countermeasures through.
- Confirm results and process.
- Standardize successful processes.
- Improvement NEVER ends!

CHAPTER 7

Final Thoughts

Excellent firms don't believe in excellence - only in constant improvement and constant change.

Tom Peters

We accomplish everything through processes. It is not realistic to expect any process to last forever. Over time, as the world around us changes, processes that worked well in the beginning no longer work for us. As a result, we must redesign or improve those processes to survive. While some find change frustrating, others find it exciting. Most of us just find it necessary.

There can be no improvement without change. And there can be no change without leadership. It was never our intention to make the reader an expert on continuous improvement. To be honest, the tools of continuous improvement are not difficult to comprehend or perform, and there are plenty of experts who can apply the various methodologies.

The challenge is to create an organizational environment where continuous improvement can thrive and that takes leadership. This point cannot be overstated. Leaders create organizational culture through their behaviors. Leaders provide direction through strategy. Leaders help identify performance gaps and charter teams to close the gaps through structured problem-solving methods. Leaders break down barriers that stand in the way of implementation of the solutions developed by those closest to the work. Leaders provide resources. Leaders accept responsibility for improvement and participate in making changes a reality. There can be no continuous improvement without leadership.

Yet we're continuously amazed at the number of leaders who believe something as important as improvement can be delegated to others. The outcome is predictable; when leaders try to delegate the responsibility for improvement to subordinates, improvement efforts fail 70 percent of

the time. Leaders who are serious about improvement must participate in the process; it's really that simple. Improvement is hard work and it won't happen without committed leadership. Improvement cannot be delegated to others. Improvement is a leadership responsibility.

So, here is the question. Are you ready to make continuous process improvement a part of the culture of the organization you lead? Are you ready to lead your employees to excellence? Well, reading this book isn't enough. No one ever became a great pilot, a great leader, a great engineer, a great soldier, or a great CEO by reading a book. The same is true for continuous process improvement. This book can help you learn about the challenges associated with implementing continuous process improvement, and even offer tips for success. But unless you take responsibility for improvement in your organization, unless you get involved and participate, unless you roll up your sleeves and work alongside your employees to solve the problems preventing your organization from becoming world-class, you're going to be disappointed in the results of your continuous improvement efforts. So get involved and enjoy the journey.

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Continuous Process Improvement in Organizations Large and Small

A Guide for Leaders

Robert E. Hamm, Jr.

Our world changes faster today than at any time in the history of mankind. Organizations, like living breathing organisms, must learn to adapt to changes in the environment in which each operates. It is generally held today, by those who study organizations, that those who fail to adapt to seemingly unending change are certainly doomed but those able to adapt to constant change tend to thrive.

The purpose of this book is to describe the leadership required to successfully implement continuous process improvement in organizations. The author begins the journey with a discussion of organizational culture as he sets out to describe how leaders develop a culture where continuous improvement can thrive. The challenges of organizational change faced by all leaders who strive to take advantage of the benefits of continuous process improvement is discussed, as well as what leaders must do to make change stick. The goal is to provide a description of the leadership necessary to make continuous process improvement a reality in any organization.

Robert E. Hamm, Jr., PhD, earned a PhD in organization and management from Capella University, a master of arts in management from Webster University, a master of arts in strategic studies from the US Army War College, and a bachelor of science in trade and industrial education from Oklahoma State University. Dr. Hamm is a 34-year veteran of the US Air Force, serving around the world in a variety of leadership roles in organizations responsible for the maintenance, repair, and overhaul of aircraft, aircraft components, and support equipment. Dr. Hamm's research in leadership commitment to continuous process improvement in organizations, large and small, led to this book.

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