The Non-Technical Side of Reliability

Implementing Rx can be the catalyst for evolutionary change. The benefits are significant and the extraordinary results of successful Rx implementations are well documented.

With gains that are so valuable and obvious, it would seem that the success of implementing a Rx initiative would be almost guaranteed. Industry Week reported that 72% of the 884 U.S. companies responding to their survey were in various stages of implementing an improvement strategy such as Lean manufacturing, Six Sigma, TPM, Theory of Constraints, Rx or others. Of these companies, 75% reported that they had made no or little progress toward their World Class manufacturing goals. Only 2% of the companies reported achieving World Class manufacturing status.

Why have so few companies achieved stronger results? The reason is simple – they often fail to fully address the non-technical side of performance improvement initiatives. Performance improvements like Reliability Excellence (Rx) offer dramatic changes in performance (improved production, lower production unit cost and reduced maintenance costs, just to name a few) by re-engineering processes and integrating the organization across functional boundaries. To be successful, the organization must embrace Rx as a strategic business initiative that will transform the organization – especially its culture. The really challenging problems that arise during a Rx re-engineering effort involve organizations, people and transformational change. Solving the non-technical problems will achieve process adherence, higher states of equipment reliability and overall manufacturing excellence.
Early on, we learn that some things “are they way they are, simply because they got that way,” sometimes defying logic. We often begin our careers by asking about these logic-defiers. We may even attempt to change them, only to discover that they are too deeply entrenched in the organizational culture. We learn that upholding tradition is rewarded, and questioning the process is discouraged.

So how do you motivate a workforce that has been indoctrinated in upholding “that’s the way things are done around here” to look for a better way to do things? In large part, it is through the application of sound change management principles. Rx must consider an organization's existing culture before it can work toward changing that culture. The first step in the process is addressing the systems, structures and leadership styles in place that support maintaining the status quo. By forcing these levers you can begin to transform your organization into one that lives, sleeps and breathes efficiency AND effectiveness.

### Three Factors to Reduce Variation

Implementing Rx involves re-engineering processes – eliminating non-value adding work – along with integration and standardizing processes across functional boundaries. This technical challenge can be readily solved with intelligence and hard work.

The greater challenge, however, is reducing the amount of process variation by the people charged with executing the new processes. For example, in most organizations there are performance differences from person to person and from shift to shift. Focus on process performance strives to reduce the amplitude and frequency of process variation.

Six Sigma methodologies help reduce variation to .1 – that is, performing within tolerance 99.9% of the time. Typically in our system, the component with the highest degree of variation is the human. A Six Sigma level of human performance variation is rarely achieved for prolonged, sustainable periods. The best that can be achieved and sustained with human behavior is Three Sigma - that is, maintaining performance standards more than 95% of the time. There are three factors that can help achieve this standard: selection, training and leadership.

#### 1. Selection.

In the selection process, seek people with the right attitude. A positive attitude will drive commitment to success. Where you can’t screen and select people with the right attitude, your organization should work to get the attitudes right. This is more difficult and will take more time, but it can be accomplished with sound and consistent leadership that takes the time to deal with the human needs and issues that arise in challenging, dynamic environments. Too often, a management approach of efficiency is taken in an attempt to save time and money. The net result is more effort expended as more and more human performance issues arise from unmet needs and multiple forces driving people in several directions at once.

In any organization, there are those who will readily recognize the need for change and grasp the concept of Rx quickly. They will realize the benefits to the organization and to themselves. These are the people best suited for the implementation teams. It’s easy to identify people with the right attitude. If you must choose between someone who is highly skilled with a compliant attitude and someone less skilled who is committed to the change initiative, select attitude first. People with the right attitude will have the energy to learn and strive for success.
2. Training. Once you select the right people for the implementation, give them the knowledge, skills and abilities necessary for success. Training accomplishes this in two ways. First, it provides the team member with the technical capability to make process changes and implement the necessary performance measures that will enable higher rates of equipment reliability. Second, it provides new knowledge and insight into a better way of doing things so that best practice changes are more readily accepted.

Changing perspectives or shifting paradigms can best be achieved through training and education. A paradigm is formed from our background, experience and information. Information is one variable that we can control in the short term. Using Steven Covey’s “See-Do-Get” Change Model, strive to change results (Get) by changing how people behave (Do). The most effective way to change behavior is to change the way people perceive the world (See). To change the way someone sees the world, new information is required that is both relevant and applicable to the situation. Building awareness can change culture-driving behaviors.

3. Leadership. Leadership is the most important factor in helping reduce human performance variation in organizational systems. A good leader influences others to achieve their goals and the goals of the organization. This is where organizations often fall short when trying to achieve Rx. The short-coming can best be explained in terms of being efficient vs. being effective. In terms of human behavior it is absolutely necessary to be effective. Leaders must take the time to communicate so expectations are clear and the team’s emotional and political needs are met.

It is here where the dichotomy lies. Most supervisors are placed in their supervisory positions based on good technical skills that are easily measured by achieving certain performance goals. Really good problem solvers move into roles of increased responsibility. A good problem solver is efficient, trying to obtain results with minimum impact on the organization. When dealing with the human component of our system, the tendency is to be efficient – to work within the rational domain. People are told to do something simply because it makes sense and will have a positive outcome.

These good problem-solvers use the most efficient means of communication such as email and web sites, assuming that everyone not only reads the information, but also understands it, accepts it and is committed to achieving the desired outcome. This is frequently not the case. There are often different understandings or no understanding at all of what the organization is attempting to do. The result is a wide variation in understanding and expectations.

There are two other arenas that leaders must manage as well – the affective (emotional) domain and the political domain. The emotional aspect is something that is often neglected. People do not check their emotions at the door when they arrive at work. The “what’s in it for me” is not always obvious or logical. Peoples’ needs vary from task to task and from situation to situation. If these needs are not addressed then performance variation will occur. The political aspect of change must also be addressed. People want to know what is expected of them and what they can expect from their leaders. They need to comprehend new roles, authority and responsibility and understand where they fit in.
Most organizations are designed with functional silos, each with its own set of goals, incentives and measures. Processes are fragmented and hidden within each silo to be managed by the silo owner. Each silo manager strives to achieve his or her goals and often working at cross purposes with other silos, thus sub-optimizing the performance of the organization as a whole.

According to W. Edwards Deming, “every organization is perfectly designed to get the results it gets” and “if you have a problem with performance, blame the system and not the people.” To gain significant performance improvements, changes to the “system” focus on process re-engineering and process integration – eliminating non-value-added steps in flow, integrating processes across functional boundaries and designing a reinforcing structures and systems for sustaining the “doing things differently.” This radical change to an organization can be best defined as the battle of the “horizontals” (processes) versus the “verticals” (silos).

Rx focuses on process and therefore is transformational in nature. It re-engineers and integrates processes across multiple functional boundaries and forces changes in organizational culture.

Implementing a reliability program re-engineers work control processes, material management, reliability engineering, operational excellence, and planning and scheduling. These processes cross functional boundaries and require radical changes in perspective and behavior to create disciplined processes. This is a significant challenge in an organization with legacy systems that reinforce old behaviors. The problems that arise from this type of initiative are always about organization, people and change. Herein lies the non-technical challenge of implementing Rx.

The organization must strive to change from a culture in which operations runs the machines and maintenance fixes them when they break to a culture in which maintenance and operations work together to ensure the machines run when needed.

Because it strives to change an organization’s culture across multiple functions, implementing Rx must be positioned as a business initiative with a maintenance component. It requires active participation and support from the entire organization, especially operations. Too often it is viewed as a maintenance project that attempts to improve weaknesses in the maintenance arena and is given to maintenance to manage. This approach does not position Rx as a transformational initiative. When implementing Rx is delegated to maintenance it can be perceived by the remainder of the organization as having secondary importance, diminishing the likelihood of a successful implementation.

The re-engineering and integrating of maintenance processes across functional boundaries, requiring production to adhere to new standards, must be driven from the top levels of the organization and include operations participation. Process re-engineering is a radical change that results in: processes becoming visible and standardized; jobs broadening; power shifts to the front line; and the dissolving of organizational boundaries. It is crucial to build organization-wide involvement in order to avoid tremendous process variation as people resist changes.
The nature of the problem is not one of re-engineering the technical side but overcoming the organizational, emotional and political hurdles that cause resistance to change. Re-engineering requires radical changes in process. Process performance is the payoff; Rx is the tool. The technical side of re-engineering and establishing key performance indicators is easier than the non-technical challenge – changing the behavior of the entire organization.

### Three Most Common Errors

The three most common errors among organizations trying to implement transformational performance improvement initiatives are disengaged leadership, under-communication and competing initiatives. The net effect is an inability to achieve any real successes and replacement with a new program. Rx then becomes the latest “flavor of the month.”

1. **Disengaged Leadership.** Disengaged leadership delegates the performance initiative to subordinates. This is usually because leaders believe they are too busy. It is paramount that leadership shows commitment to the project, not just support. A committed leader takes time to participate and communicate the change initiative’s importance to the participants and the organization.

   Too often, the leadership team tries to be efficient and empowers their focus teams to make the necessary changes. The result is that leadership sends coded signals to the organization that the change isn’t really important to them. If it were important, and a strategic business initiative that will transform the organization, they would certainly act differently. If it is perceived to be unimportant to the leadership, then it becomes of secondary importance to those charged with implementing the initiative, and they will treat it accordingly.

   A disengaged leadership team loses touch with the nature of the obstacles facing their teams and they have difficulty understanding recommendations for changes from focus teams. Rx employs best practice processes which may or may not be grasped by the leadership team if they are not actively involved. This usually causes delays in decisions and stalls the program’s momentum.

   Additionally, focus teams create a parallel organization within an existing legacy organization. A pilot area is selected because it is easier to control all the variables necessary to beta test the processes and metrics, stabilize them and show benefits. During implementation of new processes in the pilot area, focus teams are always subjected to the pushes and pulls of the legacy organization’s controls and face multiple, competing demands.

   This can have a substantial impact on success and requires awareness by the leadership so that they can provide a damper to the legacy organization’s influence and allow the focus teams to stabilize the new reliability processes and achieve the benefits necessary to declare a success. If the leadership is disengaged, there is much frustration on the part of the team members as they react to the forces of the old system while trying to establish a new, parallel organization. As the delays continue, momentum is lost and the team’s commitment wanes to discouragement. With the sails stalled, and new initiatives on the horizon, the current effort loses ground and a disengaged leadership becomes yet one more contributing factor to the “flavor of the month” syndrome.

2. **Under-Communicating.** The most critical aspect of the non-technical side of implementing a Rx initiative is providing information about why the organization is undertaking the project: what the change will look like, how improving reliability
will affect each individual, what is expected from everyone and what they should expect from the organization’s leadership.

Typically, technical problem solvers underestimate the value of communicating information to the organization. The tendency is to wait until there is a success and key performance indicators are in place showing improvement and returns that support the business case. This is too late in the re-engineering process. In the absence of information, impatience and dissatisfaction grow and momentum can be lost.

The expectations of both senior managers and front line workers must be managed to maintain momentum and build critical mass. The most effective method for doing this is to provide information regularly that answer the four questions in the first paragraph, as well as provide status of the project – what the focus teams have accomplished this week and expect to tackle the next week – in other words, the project status and progress toward milestone achievement.

Benefits of re-engineering will not be realized until the processes are in use and stabilized. Also, the process benefits and overall equipment effectiveness are limited to the pilot area only and the full business case returns will not be realized until the processes are scaled to the entire organization. Waiting until this point in the Rx project to communicate status is too late.

3. Competing Initiatives. All other performance improvement initiatives can be built on the foundation of Rx. It is impossible to achieve any other process performance improvements if machines are unreliable. Accordingly, a Rx initiative is a strategic business initiative that transforms the organization – especially culture. The project often competes for leadership attention and resources with other performance improvement initiatives and pet projects throughout the organization.

The leadership team must integrate and align these initiatives. Where this is not possible, the Executive Sponsors must set priorities and remove the obstacles to laying the foundation of reliability. Too often, leadership fails to set priorities, the organization attempts to implement all the initiatives at once and none of them succeed.

The “go live” in a pilot area faces the unique challenge of running as a parallel organization. It must overcome the challenge of implementing new processes and systems in a small area surrounded by the legacy process and systems. There will be a pull from the legacy organization on the resources implementing the pilot as they are asked to respond to reactive emergencies and other priorities set by the legacy organizational functions. The leadership team often must act as a damper between the legacy organization and the pilot

Six Key Tactical Responses

1. Position Rx as a strategic business initiative that will transform the organization. This approach should integrate all the functional managers as drivers for success. Relegating the implementation to maintenance alone sends the signal that it is a maintenance project and the rest of the organization will resist the reengineered processes.

2. Provide strong, passionate and committed leadership. Commit the resources and remove the barriers that invariably crop up as processes are reengineered and integrated across organizational boundaries.
3. **Provide strong project management.** A Rx implementation is the equivalent to a capital improvement project and should be treated accordingly. It requires adept skills in project management methodology set forth by the Project Management Institute in the Project Manager’s Body of Knowledge, particularly in the areas of communication, risk management and earned value management.

4. **Provide strong communication throughout the project.** The most fundamental change management strategy is to keep the information flowing. Communicate both the status of the project and the status of the benefits as they are attained. Explain “why”, “what”, “impact”, and “expectations.” Anticipate needs, prepare and provide information accordingly to manage expectations at all levels of the organization. The absence of information creates impatience and misperceptions that can significantly hinder the success of the project.

5. **Provide adequate training to ensure the knowledge, skills and abilities to execute the re-engineering.** Avoid the urge to be “efficient” and cutting back on the time to train. On the other hand, ensure the training is of good quality, adds value, and achieves the desired outcomes.

6. **Don’t underestimate the human side of the equation – the non-technical challenges are the difficult challenges.** Be prepared for the organization, people and change problems that inevitably arise when implementing Rx.

**Summary**

Most organizations today are functional organizations that have fragmented processes hidden within the various functions. Performance improvements like Rx offer dramatic changes in performance by focusing on re-engineering processes and integration across functional boundaries. Processes becoming visible and standardized, jobs broaden, organizational boundaries fall, power moves to the front line, and information is shared. This is profound change and it will produce profound resistance to change.

The organization must be aware of the nature of the problem Rx re-engineering is trying to solve, and embrace it as a strategic business initiative that will transform the organization – especially its culture. This requires strong, committed and visible leadership, communication, commitment of resources and removal of the barriers that get in the way of successful implementation.

To sustain the change, new systems must be put in place to provide incentives for the new way of doing business and disincentives for going back to old ways of doing business. The old, legacy organization and systems must be systematically dismantled.

The really challenging problems that arise during a Rx re-engineering effort involve organizations, people and transformational change. Solving the non-technical problems will achieve process adherence, higher states of equipment reliability and overall manufacturing excellence.

To find out more about implementing Rx in your organization, please email us at info@LCE.com or call 843-744-7110.