

Implementing Reliability Excellence By Randy Heisler, CMRP

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The first question often asked is: *What is Reliability Excellence?* The answer to that question is found in the rest of this article, but in short, Reliability Excellence is:

- Organizing and managing an efficient and effective maintenance program
- Organizing and managing efficient and effective operational practices
- Assuring capacity to an operation
- Active participation from all employees
- Commitment from top level leadership
- Organizational culture embracing accountability and continuous improvement
- Cooperative partnership between maintenance and operations

Assessment

The first step toward realizing this goal is to figure out where you are presently. Determining the present baselines and gaps that exist in your processes and organization is best accomplished by performing a reliability assessment. This exercise will point out the areas within your business that need to be addressed from a reliability perspective. All facets of your organization must be analyzed. We have identified 21 key elements that, when integrated, provide the basis for reliability excellence (*see Figure 1 below*). Assessing the current state of each of these elements will identify the gaps that exist and provide the basis for a master plan of improvement.

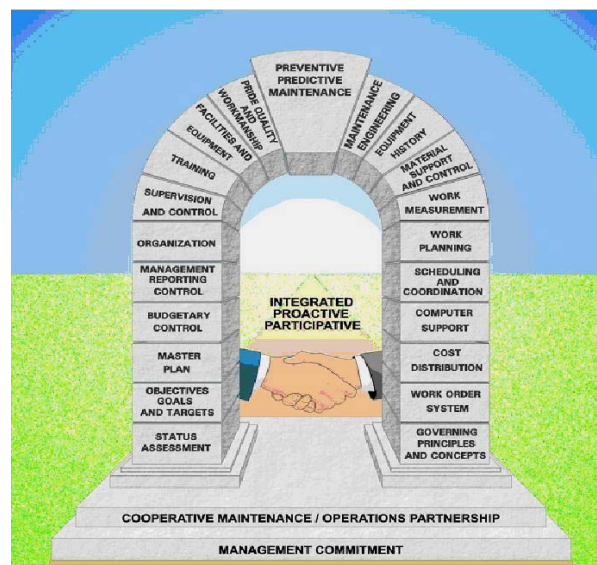


Figure 1: Arch

Master Plan

A master plan is the tool that tracks what must be done, who will do it, and in what time frame the task(s) will be completed.

The master plan should initially outline the process-launching activities. These activities include reviewing the master plan and initiating the improvement process, developing the return on investment, establishing a reliability excellence leadership team, and identifying focus teams and support resources.

The master plan should be illustrated in Gantt chart format showing the relationships between tasks. Some tasks identified for one focus team or member may not be able to start until a task is completed in another area. It is important to determine this up front to avoid frustration and/or lost time and effort. Each task should have a responsible individual or team assigned to it with estimated duration and completion dates. An updated master plan should be posted regularly in a conspicuous location so the team members will maintain focus; it also acts as a communication tool to the entire organization. This will allow others to see what progress is being made.

A typical master plan consists of several key areas where focus is generally needed, such as planning and scheduling, CMMS optimization, work control processes, PM/PdM programs, operational practices, and materials management (*see Figure 2 below*).

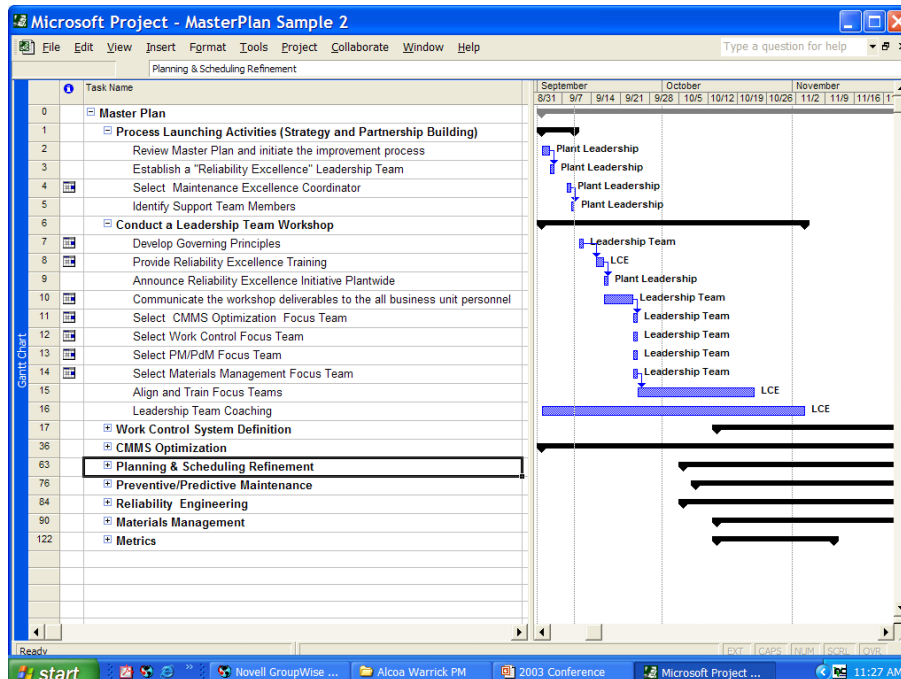


Figure 2: Sample Master Plan

Return on Investment (ROI)

Whether it is outside consultant help or the cost of software upgrades, hardware, or additional resources, it is important to calculate the return on this investment in reliability excellence. In most cases, the assessment identifies significant opportunities available to the organization. Presenting this business case can be an important step in getting buy-in from not only upper management, but also all parties involved. Getting everyone to understand what this initiative is worth to the bottom line can help motivate people to make it happen. Typical opportunities are areas such as increased labor utilization, decreased overtime, reduced material costs, decreased downtime, and reduced inventory.

Savings in these areas can range from 25-40 percent when a transition from a reactive culture to a proactive one is realized. It is best to break down these savings into what will be annual increments over the life of the initiative and also project what the permanent savings will be each year. Improvements of this nature typically take between 18 months and 5 years, depending on the current state and size of your organization. Once the return on investment has been calculated and accepted favorably, it is time to organize for the change process.

The Change Process

Implementing reliability excellence is almost always a process of significant change to an organization. Changing the long-standing habits of management and the workforce can be extremely difficult. A successful approach is to use focus teams led by an executive sponsor, a leadership team, and a reliability excellence facilitator (see Figure 3 below).

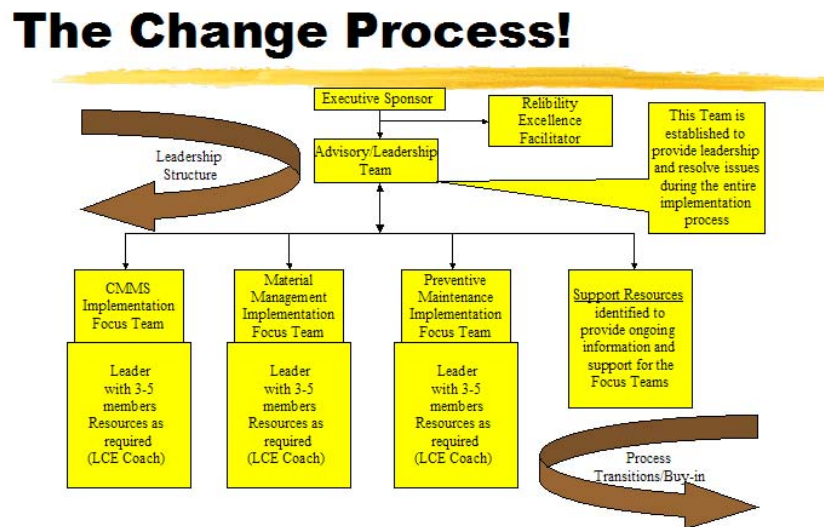


Figure 3: Change Process

Executive Sponsor. The first step is to identify an executive sponsor for the initiative. The executive sponsor provides leadership and direction for the overall reliability excellence initiative. Getting an executive to provide sponsorship is key to showing the organization that there is commitment at the top level. This role ensures all corporate requirements are followed, and is a resource to the leadership team to assist in resolving issues and barriers. This individual also monitors and analyzes results and communicates the initiative's status at the corporate level.

Leadership Team. The leadership team provides leadership for the implementation initiative and is a learning leader to foster and establish a common understanding of the principles of reliability excellence. Team members should demonstrate and promote behavior that follows the governing principles and program mission of the improvement initiative.

They set the overall direction and priority of the initiative and ensure that all company policies and procedures are followed. They also participate in finalizing the proposed program mission, objectives, goals, targets, and milestones that define the initiative and ensure its success.

They review all proposed implementation plans to ensure stated mission, objectives, goals, milestones, and targets are met as well as provide required resources and funding for the identified tasks. In conjunction with the executive sponsor they monitor and analyze the initiative status and ensure that appropriate action is taken to eliminate any issues or barriers. This role typically requires approximately 10 percent of an individual's time.

Focus Teams. Each focus team must have an identified leader from within the organization who leads and facilitates all focus team activities and ensures that team meeting minutes are prepared and submitted to the reliability excellence facilitator at specified intervals. The teams should develop detailed action plans and present them to the leadership team for approval, at least every two weeks.

In large organizations, the focus teams will develop the processes or models that will be used throughout the site. It is important that they both measure and report progress on established milestones and targets to the reliability excellence facilitator on a regular basis. Being a focus team member requires approximately 15 percent of each individual's time. Being a focus team leader requires approximately 25 percent of an individual's time. A focus team should be made up of a cross section of the organization so that input and buy-in will be across the board throughout the site.

A typical team makeup would include representatives from operations, maintenance, planning, reliability, and stores.

Reliability Excellence Facilitator. The reliability excellence facilitator assists improvement initiative activities including implementation team meetings, interfaces, and support team requirements and activities. This person also coordinates and communicates all initiative activities with all levels of the organization ensuring that assignments resulting from focus team activities are carried out in a timely manner, while maintaining the overall master plan.

It is the responsibility of the facilitator to communicate the results of this effort in the form of a standard monthly report. This report should include the progress being made by each team as well as a “dashboard” of metrics and associated trend charts. The dashboard should graphically display the direction in which the overall initiative is headed, so that if any of the measurements are going in the wrong direction, corrections can be made to get it back on course. Someone assigned full time in this position is important in order to manage this initiative and ensure positive results.

Support Resources. It is also important to identify support resources to assist as needed throughout the initiative. Typical resources that should be identified include safety, quality, finance, human resources, bargaining unit, CMMS vendor, production, information technology, equipment suppliers, and consulting and technical resources.

The support resources must be informed of their role and that they may be called on by the teams to attend meetings as needed, to support the initiative. The names and contact information for these individuals must be made known to the focus teams.

The key benefit of this approach is that it establishes a leadership structure, and participation and buy-in at all levels of the organization. The finished product produced by these teams stands a much better chance of becoming institutionalized and sustained within an organization, than by a corporate edict to make improvements.

Work Processes

Once the teams have been formed, the real work can begin. Current process flows must first be developed that identify how work is done today (see Figure 4 below). This often-painful effort is necessary so that the existing gaps can be identified.

These identified gaps can be closed when mapping out the new target processes. Along with work control processes, there are typically many other processes that must be developed or reviewed, such as material management processes, equipment maintenance plans (EMP) development processes, planning and scheduling processes, and configuration management processes.

Best practice must be at the forefront when mapping the new processes to prevent the team from going off in the wrong direction. A common pitfall is to design a process that may be readily accepted by the masses but fails to be a process that will achieve reliability excellence. This initiative must be about going from what may be good to what is great. Once these new processes have been developed, it is time to look at the organizational structures that will be needed to support them.

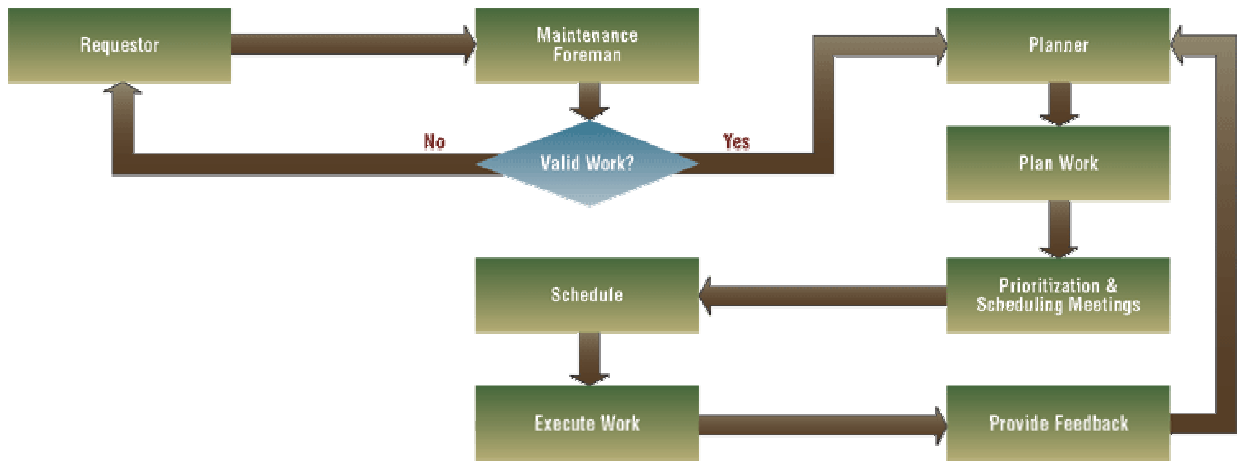


Figure 4: Current Process

Organization

A critical factor in achieving reliability excellence is the manner in which the entire organization is structured. Best practice span-of-control ratios must be used to ensure that the processes can be accurately supported. As an example, without the proper ratios of planners and supervisors to craftspeople, frustration will set in across the organization.

Roles and responsibilities must be defined and adhered to by everyone. These responsibilities should be identified for each block of your process flows by developing a RASI chart that identifies who is Responsible, Accountable, Supports, and Informed for each part of the process. This takes a significant amount of discipline, but if followed it will create long-term sustainability.

Many parts of the organization may require restructuring in order to achieve best practice span-of-control figures that will support the business processes. In maintenance, for example, the structure must address the three types of typical maintenance activities—routine, backlog, and emergency.

The first step is to determine the number of full-time equivalents required to achieve full compliance to the PM program. Secondly, the number of resources required for emergent operational support must be determined. This will allow you to more accurately calculate your corrective backlog based on the remaining labor hours. This data will provide the basis for management decisions such as overtime requirements to reduce backlog or achieving PM compliance, temporary contracting out or hiring, until the reactive situation is brought under control.

Organizationally addressing these types of work, in a dedicated fashion, will position the organization for the transition from a reactive culture to a proactive one.

Implementation Rollout

Once the teams have defined the processes and developed the solutions to close the gaps, an implementation rollout plan must be developed. This plan includes where, how, and when these changes will take effect. It may include what physical items must be put in place as well as what type of training will be required for each role in the organization. Footprint type checklists should be used to monitor the progress and completion of each element of the plan. Only when all the criteria are satisfied should implementation begin. Once implementation has begun, regular audits must be performed to identify if what we say we are doing is really happening, and if not, these broken processes must be repaired and then sustained.

Measure Success

It is important in any initiative to measure performance. The leadership team should choose metrics to track the organization's performance throughout this effort and going forward. Several key metrics should be selected that indicate the effect on the bottom line (lagging indicators), as well as organizational effectiveness measures (leading indicators).

Make sure people know the score. These metrics should be shared throughout the organization with monthly reports going to the executive level of the company as well as to the floor level.

Performance dashboards should be prominently displayed within the facility. Action must be taken if the expected results are not achieved. These measurements must be utilized as a tool that indicates where improvement is needed not be just meaningless numbers. These measurements must become just as important to upper management as safety, quality, and output goals.

Achieving reliability excellence can be a daunting task, but a very rewarding one. Culture change can be very difficult and the fear of failing, or fear of confrontation, is why some organizations choose not to try. An organization must focus on what it can do, not what it cannot do. Putting the right processes and structures in place, with the right focus and vision, have been proven to achieve extraordinary organizational effectiveness and bottom line results.

Sidebar: The Characteristics of Rx

1. A set of shared beliefs is apparent:
 - The organizational focus is on reliability excellence
 - A maintenance mission statement is prominently displayed
 - A master plan for maintenance improvement exists
 - Maintenance is recognized as a contributing resource center
2. A fully functional CMMS is in place
3. An equipment configuration control system is in place
4. Cost distribution to work orders is complete
5. Resources are balanced with work load
6. An effective organizational structure is established
7. Job descriptions and responsibilities are clearly defined
8. Critical maintenance measures are defined
9. Quantified goals with interim targets are established
10. Work is performed efficiently
11. Well-defined job plans are developed and utilized
12. Weekly schedules by crew, day, individual, and job are used
13. Equipment uptime is improving due to a reliable PM program with reliability engineering support
14. Equipment history is meaningful and effectively used
15. Job estimates are continually refined
16. Effective control of the maintenance budget is evident
17. An effective maintenance skills training program is in place
18. Production, maintenance, and quality Improvement processes are integrated
19. Trend charts of progress relative to goals and targets are in place:
 - Maintenance costs (labor and material)
 - Schedule compliance, performance, and effectiveness

- PM schedule compliance
- Crew efficiency

20. Advanced technologies are applied where applicable