CRITICAL SUCCESS FACTORS FOR COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEMS

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INTRODUCTION

Many organizations have pursued the implementation of a Computerized Maintenance Management System (CMMS) to drive efficiencies in the process of work execution, equipment reliability improvement, and supply chain process integration. To fully realize these benefits however, functional improvements in the maintenance organization must be paired with excellence in system implementation. In fact, 70% of CMMS implementations fail within the first 12 months or do not fully meet the functionality requirements of the customer.¹

KEY LEVERS OF SUCCESS

Fortunately, there are steps you can take to avoid failure. In our experience, successful organizations view CMMS as a means to transform their reliability and maintenance function, and look to a CMMS implementation to help engineer the future direction of the organization. This transformation does not come from software alone, but from taking a critical look at the business and adjusting various components.

KEY LEVER #1: MAINTENANCE OPERATING MODEL

A maintenance operating model connects the entity’s vision for maintenance and reliability with the practical requirements for execution. Organizations can execute without a clear maintenance operating model and be effective. However, the organizations that do take time to develop a maintenance operating model find that they:

• Are more adept at handling change in response to internal and external factors

• Have employees at all levels who better understand the mechanics of what it takes to operate and improve the business

• Are better able to manage complex changes to their business, such as the implementation of a CMMS

The process of building the operating model is likely to uncover areas of waste, inefficiency or conflicting priorities within the organization that may not have surfaced before. In addition, defining the maintenance operating model will provide a better understanding of how your maintenance organization gets things done, a view as to how changes will impact the organization, buy in from your organization through proper communication, and a set of improvement projects that will likely drive value to the bottom line.

¹ http://www.maintenanceonline.co.uk/maintenanceonline/content_images/Pages%208,%2010.pdf
LEVER #2: MAINTENANCE STRATEGY IMPLEMENTATION

Now that you know how your organization comes together to deliver the capabilities that are expected of it, you need to focus on the aspects of strategy that feed the bulk of work that maintenance technicians perform on a daily basis.

Over the last 40 years, many organizations have faced challenges with Reliability Centered Maintenance (RCM) and related business disciplines. Many organizations have tried to implement RCM but have been unable to fully deploy its capabilities. And for those who have implemented RCM, many have had difficulty sustaining its components or receiving the expected benefits.

So, should organizations drop RCM and look for the next best thing? Absolutely not.

In many cases, the initial work to implement maintenance strategies for significant items went well, in that:

- The consequences for equipment failure were identified by reliability engineers
- The appropriate maintenance tasks to avoid failure were proposed and adopted
- The intervals for executing the tasks were agreed upon
- Planners and schedulers were retrained to ensure they understood how to align these tasks and intervals into the current maintenance framework

The problem is that many RCM program teams assume that the program will sustain itself. However, the processes and capabilities that will sustain the RCM over the long-term must be understood and implemented as part of the program roll-out. Here are common gaps that are often missed by organizations during an RCM implementation:

**Feedback Loops**
- Preventive maintenance improvement
- Task optimization
- Spares optimization
- Defect elimination

**Capability Development**
- Operator basic care
- Engineer competency
- Models to support option development and decisions

**Supporting Toolsets**
- Business intelligence and analysis
- Actionable measures and KPIs
- Real-time data capture
Once addressed, these elements can serve as critical enablers to the delivery of RCM benefits. Likewise, these same elements should be core to setting the groundwork for a CMMS implementation.

**LEVER #3: PROCESS INTEGRATION**

A CMMS implementation can potentially expose process and governance weaknesses. Because of this, it is important to receive buy-in from all parties involved. One way to achieve this is with a Performance Level Agreement (PLA) that defines how two organizational entities will work together and manage each other to reach the goals of the agreement. PLAs focus on four key elements of interaction including:

- Interactions process
- Accountable parties
- Rules for interactions
- Management and monitoring

The final element – ongoing management and monitoring – is a key component of a successful PLA. A signed piece of paper is only as enforceable as the entities choose to make it. All parties must be willing to honor what they have agreed to as well as maintain on-going discussion, action, and leadership alignment to keep the PLA on track.

**LEVER #4: DATA MANAGEMENT**

Does your master equipment list align with what has been installed in the field? Do you have accurate reporting on failures? Do you have a clear picture of capacity vs. demand for each of your craft labor pools? Are you at risk of a stock-out on production-critical spares?

**WHAT DATA SHOULD THE MAINTENANCE ORGANIZATION CARE ABOUT?**

- Equipment information
- Preventive maintenance schedules
- Maintenance tasks and procedures
- Failure reports
- Alignment with engineering information
- Work orders
- Bills of materials/ Spare parts lists
These questions are directly applicable to the management of maintenance and reliability data and should not be left to the realm of IT departments.

Gaining control over disparate but connected data is a challenge, which is why clear data management standards and processes should be implemented. These standards enable organizations to have clarity on the use and application of its information and provide a framework for information that:

- Defines each data entity
- Describes its various attributes
- Explains how it should be used
- Offers how it should not be used
- Connects it to metrics and key performance indicators.

In addition, the standards must describe the processes that enable the maintenance organization to develop the content that fills out the defined structure. It’s not enough to know that a piece of equipment requires a bill of materials if there is no guidance on how to determine whether an item is maintainable or how to rank the criticality of spare parts.

The interplay between structure and content is important, because without both, the maintenance build will fall apart. With both, the maintenance staff begin to build a common vocabulary on which they can execute business processes.

A CMMS helps a maintenance organization house the incredible amount of data required to effectively plan, manage, and monitor maintenance activities. However, it does not tell you how to manage that data or how to use data to gain insight into organizational and equipment performance.
LEVER #5: GOVERNANCE

The previous levers help to improve your maintenance organization and guide you in laying the groundwork for a CMMS implementation. However, what happens if change occurs? There may be mergers or divestitures, new major initiatives, or changes in market conditions that will require you to react. To deal with these effectively, you need to establish clear governance to manage change in the organization. Building out a Change Management Team to design and drive these efforts is critical to successful governance.

Many people believe that governance is an organization chart or a document similar to a PLA. To clarify, both of these are components of governance as they employ control mechanisms that drive decision making within an organization. However, many organizations do not govern for change, or even understand the impact that certain changes will have on their organization until after the fact.

The operating model serves as a good starting point for understanding how change will impact the organization, as it can define the integration points where stress is likely to occur when a change is implemented. Change impacts may also be identified by your Change Management team. Either way, no maintenance organization should be without processes and organizational constructs that help manage changes to policy, organization, engineered equipment, or process. These processes should require:

- Document the change taking place
- Review the change with stakeholders
- Execute activities that are required to set the foundation for the change
- Authorize and implement the change
- Execute any activities to ensure that the change takes hold within the organization

BUILDING A CHANGE MANAGEMENT TEAM TO DESIGN AND DRIVE THESE EFFORTS IS CRITICAL TO SUCCESSFUL GOVERNANCE
LEVER #6: LAYING THE GROUNDWORK WITH STAFF

The most dynamic element to a CMMS implementation will be the staff of the maintenance organization and their willingness to align with the changes that will impact their jobs and the way that the organization does business. The Change Management Team you put in place as part of your governance efforts is key to getting staff behind your CMMS implementation. Without these efforts, a strong showing on all other levers discussed could be derailed by resistance within the organization to the implementation.

Many models and frameworks exist to manage the people side of change. Based on experience with multiple large clients across the oil and gas, utilities, mining, and manufacturing industries, below are the basic elements to get right:

- **Organizational Change Management Strategy**: Lay the groundwork
  - Share where we’re going and how we will get there

- **Sponsorship**: Drive the change and walk the talk
  - Create clear executive alignment, commitment and engagement

- **Stakeholder Management**: Get everyone on board
  - Identify who is impacted and how
  - Understand and manage stakeholder reactions, resistance; provide transition support
  - Drive involvement and generate buy-in

- **Communication**: Get the right information to the right people at the right time
  - Move stakeholders from awareness to buy-in, commitment, and readiness

- **Training**: Build the skills
  - Provide the education and training needed to be successful in new environment

- **Organization Alignment**: Make it stick
  - Ensure roles, structure, processes, policies and systems align with the changes and desired business outcomes
READY FOR CMMS IMPLEMENTATION

The concepts above, while simple in premise, are incredibly difficult to master and may require various attempts to make them come together in a cohesive message and vision for the staff. However, with these prerequisites successfully completed, your organization is now ready for a CMMS implementation.

A CMMS brings with it key benefits in labor productivity, inventory optimization, regulatory compliance, equipment reliability, and performance management. By driving these six key levers, an organization will have a significant head start on achievement of these benefits and return on the CMMS investment.

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