

TECHNOLOGY UPDATE: 2007

The Effective Use of Collaboration to Drive Improved Business Value

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BACKGROUND

With the emphasis on technology for automation and information management so prevalent in industrial operations, a resource that offers the greatest potential for generating improved business value - the human resource -- is often overlooked. Many executives have expressed frustration that they have not been able to extract maximum value from their employees. Research has shown that one of the major barriers to human performance improvement in industrial operations has been the development of “silos” in the organizations, meaning that each part of an operation only works vertically within its own narrow space, not horizontally across functions. These silos have become barriers to the level of interaction across organizational functions necessary to drive maximum value from industrial assets.

ORGANIZATIONAL SILOS

These organizational silos, the greatest barrier to value generation in industrial facilities, are of primary concern in the areas of automation, information technology (IT), engineering, operations, maintenance, and business management. Tradition and differing skill requirements have contributed to the development of these silos, and to some degree, focusing skill areas into these functional groups is essential to the effective operation of a plant.

However, much of valuable, and even critical, information required across silos is actually embedded and contained within a single silo. If the sharing of information across these organizational silos were the only issue, it would appear as though the solution would be merely to provide technology enabling cross-organizational information sharing. However, these technologies have been deployed in many industrial operations and the results have been less than spectacular. The reason is that the sharing of the information by itself is insufficient. In particular, a certain level of intellectual property associated with each silo is required to contextualize and truly understand the ramifications associated with the information. In other words, to get the full value from the human resources distributed across organizational silos, managers must get the people in these silos to start working together to the same end - driving improved business value. This is called “collaboration.”

It would seem that collaboration across silos supported by actionable information would be an organizational objective that should be fairly easy to meet. But it is not! In complex environments, such as industrial operations, turning information into action often requires specialized knowledge and understanding of what the information is actually revealing. This specialized knowledge may be owned in the talent in separate organizational silos. Often the workers in these silos are reluctant to share their unique knowledge because they see it as a loss of power. The challenge is to both make the information available and to get talented personnel from the various silos to work together toward transforming this information into performance-enhancing actions.

PERFORMANCE-GENERATING COLLABORATION

Technology silos are the first silos to overcome in developing a performance-based collaboration environment. In most production operations, the IT and automation functions are provided by different groups. These groups do not often get along very well and have very different lexicons and skill sets. Getting the IT and automation teams to work together can be a challenge, but focusing them both on the common mission of creating the basis for plant and enterprise collaboration can help. Effective industrial collaboration environments must be underpinned by a technology base that spans IT and automation, since the required information for collaborations is in both technology systems.

Once the technology teams are working together to drive a collaborative infrastructure, the real challenge begins. Many organizations approach the development of a collaboration plan top-down, but since industrial plants are run bottom-up, it is useful to approach collaboration in the same way. When taking this approach, it becomes immediately apparent that the two organizational groups that have the greatest impact on the working performance of the plant from a minute-to-minute, hour-to-hour and day-to-day basis are the plant's operators and maintenance teams.

The traditional measure of the performance of maintenance has been “asset availability” while for operations it has been “asset utilization.” Studies on the interrelationship between these two measures have shown that asset availability and asset utilization for industrial asset sets are inverse functions. As a result, they work against each other. It is no wonder that plant operators and maintenance people seldom get along very well. They are measured in a manner that actually drives them into conflict.

A simple analogy of this relationship may help. On an automobile race team, drivers perform the role of process operators while the pit crew represents the maintenance team. If the measure of the pit crew is the maintenance level of the vehicle and the measure of the driver is current vehicle operation (utilization), then the pit crew will continually be calling for the driver to come into the pit and the driver will never want to make a pit stop. Their objectives are at odds. If, on the other hand, both the pit crew and the driver are simply measured on winning, their behaviors will change significantly. They will work in a much more collaborative manner.

The real question is, “What is the equivalent measure to winning in industrial plants?” The simple answer is the business performance level of the plant assets under evaluation. Business performance has seldom been measured in real time down to the sub-plant level to align with the work activities of operations and maintenance. With the advent of real-time accounting in industrial plants, business performance can finally be measured in real time, down to the process unit or work cell levels. Actual implementations have revealed that business performance is a direct function of an efficient balance between asset availability and asset utilization. By building a single view of any industrial asset set that combines a real-time presentation of asset availability, asset utilization and business value, true collaboration between operations and maintenance teams will result. Interestingly, the same collaboration presentation is of interest to the plant's business management team because of the real-time accounting perspective and to the plant's engineering team because their job is to support maintenance, operations and business management.

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A simple collaboration view that combines asset utilization, asset availability and business performance is the basis for full operational collaborations within industrial plant organizations. Since each plant in an industrial enterprise is essentially an asset set, the collaborative view of each plant is essentially the same as the collaboration view for the plant sections. In addition, the industrial collaboration view for the enterprise as a whole is a composite view of all the plants in the enterprise. The net result of providing these views will be much greater cooperation and collaboration among the people across industrial organizations and significant, measurable business performance improvements.

CONCLUSION

Creating collaboration across industrial organizations is one of the keys to extracting maximum value from the talent in the organization and releasing the trapped value from the industrial asset base. Building collaboration sounds very challenging, but with the advent of real-time accounting and performance measurement systems, it can actually be much simpler than previously believed. A simple asset collaboration view for each team of operators, engineers, maintenance people and business managers can be developed to define what "winning" in industrial businesses really is. This asset collaboration view can be developed through a top-down analysis of strategy and accounting to determine the performance measures of each individual and team in the organization. Performance measures developed in this manner will naturally align. This alignment will work to encourage collaboration to achieve the same end goals. Experience has demonstrated that this simple view is the key to driving maximum business performance from every asset in the operation. It is the key to winning! And everyone wants to be on a winning team!

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