



Moving Beyond Reliability



Gary Dobson is the Asset Performance Management Practice Leader at USC Consulting Group (USCCG). He has an engineering degree and 25 years of international consulting experience in the area of maintenance

and reliability. His expertise includes the application of Reliability-centered Maintenance for improving maintenance and reliability strategies, and the use of advanced Critical Path Techniques for managing industrial outages and refurbishment projects.

Gary typically leads and manages core implementation teams comprised of USCCG personnel or in conjunction with client team members and contractors. Most projects involve improvement efforts encompassing increased production and unit cost reduction. They often include development of the clients' staff through the identification of training needs and the development and delivery of custom training.

The past two decades of assignments have taken Gary to seven countries on three continents where he has developed a formidable record of success in a wide range of industries. He is well versed in traditional and emerging methodologies, and has worked extensively with various client technology systems including Oracle, JD Edwards, DataStream, and SAP. He has developed custom software for both web-based systems and hand-held devices.

METRICS: You have recently assumed leadership of USCCG's highly successful asset performance management practice. Why the change?

GD: USC Consulting Group is constantly evolving to meet the requirements of clients in a world of continuous change. This is particularly true in the area of asset performance management. Many of our clients have made considerable investments in production-related assets and, while they still face the challenge of increasing output and reducing operating costs, there is a general reluctance to invest more capital. So their focus has shifted to getting more out of the assets they already have. At USCCG, we are proactively refocusing our offering to meet their needs.

METRICS: What do you envision doing differently going forward? How is the practice going to change?

GD: We'll be making several key changes. First, we will be broadening and redefining the scope of asset performance management.

And, we will be expanding the capabilities of our team. We'll also be introducing several new tools and techniques to improve our offering. Finally, we will be fine-tuning the way we structure our projects to become even more effective in the future than they have been in the past.

METRICS: When you say broadening the scope or expanding the capabilities, what do you mean by that?

GD: Previously, the scope of the asset performance management practice was limited to providing maintenance management services to augment our operations management capabilities. While, in fact, many of the tools and techniques are very effective, asset performance management as we see it today is far more significant and deserves a lot more attention. So we are focusing more on providing the overall service of managing the capability and performance of capital equipment. We are adding a whole lot of tried and trusted tools and techniques that have been used very effectively over the

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years, and then redefining the way we approach projects because the two areas (operations management and asset management) are so complimentary that we feel we can get far more out of the combined practice for our clients.

METRICS: Let's take a step backward; define asset performance management for our readers. Acquaint us with the way you view asset performance management.

GD: Asset performance management is a very broad term that includes all aspects of managing a company's assets in order to maximize the productive utilization of the asset while still maintaining its capability. We see many companies wanting to achieve more with existing assets. Often, their approach is simply to schedule more production shifts, or increase the utilization or throughput of their equipment in some way without a making corresponding changes to the maintenance strategies that support it.

From a simplistic point of view, the increased load on the asset is going to result in an increased requirement for maintenance support. And the increased operating time will translate to less time available for maintenance support. This invariably results in a short-term improvement in throughput followed by degradation in reliability and increased failure rate. We have seen situations where the resulting production levels were well down within weeks - in some cases lower than they were before the changes were made. So, from an asset performance management point of view, any changes to the utilization of equipment must be matched by corresponding enhancements to the maintenance support systems if the production increases are to be sustainable.

With less time available for maintenance in the new operating schedule, there is a very real need to work smarter. Asset performance management includes all the systems, techniques, planning, scheduling, and organization to make this happen.

METRICS: Are asset performance management and reliability, e.g., RCM, the same thing or are they complimenting concepts?

“Effective maintenance has a significant effect on the reliability and capability of equipment...”

GD: They are not the same thing. Reliability-centered Maintenance, or RCM, is a maintenance philosophy that includes a systematic approach to determining how to maintain equipment safely and economically. Reliability-centered Maintenance will remain an integral part of what we do and, in fact, a very important one. We are even expanding our offering in that area.

Maintenance and reliability are only part of asset performance management. Effective maintenance has a significant effect on the reliability and capability of equipment, but so does utilization of the equipment. Ultimately it's the business objective that is important here. So, if we are really going to get the most out of our investment in plant and equipment, we need to manage both the capability and utilization of the asset and maintain that capability. That's really our area of specialization.

METRICS: Can you cite a specific example, either an industry, a machine, or an asset to help illustrate your point?

GD: Recently, we did some work in a steel plant in Canada. There was plenty of opportunity from the point of view of improving the operation and the output. Throughput seemed to be an easy fix and early on in the assignment we achieved good results simply by making appropriate changes to the client's operation. But, after a while, the performance started to deteriorate. In fact, this happened before the expected results were achieved. In that situation the equipment was simply not capable of delivering the new, higher levels of performance. We had to refocus then and put a lot more effort into managing the maintenance and support of the equipment in order to improve its capability.

Now, if you looked at the rated value of the capability, there was no problem; there was plenty of room for improvement. In reality, the equipment had deteriorated through a process of neglect, and was no longer capable of delivering at the level needed. That's why it's essential to view both aspects of it - what improvements can be made in the area of the operation, and the utilization of equipment, as well as how to maintain and improve the capability of the equipment to a level that it was originally rated at or to a level we require.

It's not a matter of simply driving the equipment harder. In this situation we upgraded maintenance support to a more proactive strategy with improved planning, execution, and synchronization with production schedules. Within one month, they had moved from 900 tons behind in deliveries to 600 tons ahead, which positively affected their cash flow by several million dollars.

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METRICS: Why is asset performance management important and, given its importance, whose responsibility is it?

GD: In the end, it's the business objective that is significant here. Asset performance management covers the operation and utilization of equipment and, obviously, the maintenance of its capability. These management functions usually fall into different departments: the maintenance department and the operating, manufacturing, or production departments. These departments have significantly different objectives. Simply put, the manager in charge will basically fix all the problems that lie within his department. But, it is the interdepartmental disconnects that create the greatest opportunity. So the tools and process we use to effectively align the departmental management processes with the company's business objectives enable us to produce a step change only made possible by managing the bigger picture. Asset performance management must essentially be seen as a C-level responsibility for any step change in performance to be realized.

METRICS: Given your experience, are there any industries that come to mind that do a particularly good job of asset performance management? Are there any industries for which asset performance management is a more critical success factor than maybe another industry?

GD: In virtually all industries some companies do better than others. It becomes more crucial for companies that are interested in improving OEE or EBITDA or are facing any kind of step change in production or manufacturing requirements. Wherever there's a change in a business objective, or a change in a manufacturing objective which trickles

down into a change in a production objective, it's simply not a matter of stepping up the production.

We have to look at the capability of the equipment and support that change as well. A new business objective results in a new manufacturing and production objective, which ultimately must change the maintenance objective and the maintenance strategy to support it.

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Any organization facing that requirement is going to have an obvious need for improving, or making significant changes in the area of asset performance management.

METRICS: Are there any industries that are sorely in need of asset performance management or a higher degree of asset performance management than is currently prevalent?

GD: Any industry that is heavily dependent on very large, heavy equipment with high capital investment requirements facing a change in business requirements needs to put some effort into asset performance management.

For example, we were recently retained by an auto parts manufacturer facing a step change in production requirements as a result of introducing a new product line and increased orders for existing products. They increased their production shifts and soon found they were moving key maintenance technicians to the later shifts to cope with increased line calls and equipment failures. In their case, a complete upgrade of their proactive maintenance function, combined with careful scheduling between production shifts and maintenance service days, brought the line reliability back at the new production levels. They were able to do this because their new business objectives and resulting production strategies were matched by a corresponding change in maintenance support strategy.

METRICS: What are some of the fundamental tenets of asset performance management?

GD: The fundamental tenets include all of the essential components of Reliability-centered Maintenance, Lean manufacturing, project management, world-class work management, and good business and financial management. The capability of production equipment is ensured by the maintenance strategies and tasks that support it.

The Reliability-centered Maintenance approach ensures that the tasks performed are both effective and cost-effective. Some of this work needs to be performed while the equipment is down, and the critical path planning and scheduling techniques make it possible to maximize use of the downtime window. Some of the tasks can be performed while the equipment is running, which requires an effective maintenance organization, first-rate backlog

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management system, world-class work order system, and an efficient CMMS. Some equipment will fail anyway, so maintenance shift coverage may be required to ensure prompt and effective repairs. This pre-supposes that the spare parts inventory includes the critical spares. Most important of all, the maintenance support strategies must support the business objectives of the operation and all staff must be familiar with the objectives and priorities.

METRICS: Let's focus on the practice again for a moment. How do you envision USCCG's asset management practice differing from similar practices of competing consulting firms?

GD: Although we're making some changes in the area of asset performance management, our real strength will remain USCCG's strength. We are really business consultants able to operate very well at the boardroom level, but our true strength is on the floor where we get to study and understand our clients' business. Once we understand their business, we work with them to make the necessary changes. So, we live their life for the duration of our assignments, put the required changes in place, and stay at it until we get results.

And finally, having improved their operations, we then do the teaching, coaching, and install the necessary systems and procedures to make the improvements stick after we leave. That is how we differ from many consulting firms in the area of asset management. We are not going to conduct a study, produce a report, and say, "Look, this is what you need to do to become world-class," and then leave.

METRICS: What markets do you anticipate serving over and above those we have focused on to this point?

GD: Utilities is definitely an area where we're going to expand our involvement, but virtually all manufacturing and mining verticals will be targeted as well. In power generation and water treatment our shutdown, turnaround, and outage management experience, combined with our distribution and pipeline integrity experience, is of real value to utilities and companies operating pipelines.

“...our focus on improved equipment capability is having a marked effect on OEE and EBITDA.”

In the mining and metals verticals, our planning and scheduling methods combined with the RCM programs are having a profound effect on throughput. This is evident in our recent work in the steel industry. In lighter manufacturing, our focus on improved equipment capability is having a marked effect on OEE and EBITDA.

And, despite the economic downturn, there are several industries with a strong interest in improved throughput without capital investment. Chemical processes, oil, and gas can all benefit from our outage management expertise as well.

METRICS: In what other industries are outage planning and management critical?

GD: In virtually any process industry - any industry that has significant investment in production-related assets. And then in those that rely very heavily on their assets running continually. It's typically organizations that have a very high overhead and that are process related which means that, as soon as you take the equipment down for any rebuild or repair, you are going to have an expensive overhaul or rebuild cost, or you are going to be producing no product during the time the equipment is down.

There is a significant advantage to closely controlling activities, to minimize downtime, and control expenditures. Power plants, refineries, chemical processing plants, steel mills and furnaces, paper mills, mining metallurgical plants, cement and limestone kilns and mills, aircraft, ships, draglines, and shovels are all prime candidates for performance improvement from our techniques.

METRICS: You mentioned improving OEE earlier. What other ways do you anticipate that the practice will deliver value and what form will that value take?

GD: Probably the most significant benefit will be in the area of improved throughput. For any organization facing an increase in sales that needs to respond very quickly but does not have the capital to invest in more production-related equipment, the benefit is right there.

For example, one client of ours, a food manufacturer, had streamlined its operation in order to move more production into one of its facilities. They were still limited to the capability of their production lines due to

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the downtime required for the routine sanitization and servicing of the moguls (candy manufacturing machines). A complete reconfiguration of their maintenance support strategy gave them a 22% increase in productive operating time stemming from improved mogul capability.

The next benefit is probably improved cost-per-unit of output. We can sometimes achieve that without adding operating costs by simply increasing the size of the denominator and producing more product with less scrap. Another significant benefit is improved predictability of throughput because, wherever we manage to make significant changes to our operation from a reliability and capability point of view, our output becomes a lot more predictable, which is very valuable to anyone who has delivery schedules to meet.

In some cases we can reduce operating costs by carefully questioning the content and effectiveness of the work we do and, also, by specifying and controlling it a lot more closely. In virtually all cases, whether we are reducing operating costs or not, there is improved cost control from closer management control of the activities we undertake.

Finally, if you take into account the management of the maintenance and capability of the equipment together with the improved operation in all operational sectors, the bottom line is better OEE and EBITDA. Ultimately, what we are after is improved business performance.

METRICS: I can understand the value of asset performance management in the example you just cited, where sales are increasing, but does its importance diminish when sales are declining, for example, when it may be necessary to shut down a

plant, close a mine, or mothball a piece of equipment?

GD: I have been through processes like that in the past, going through a mothballing process in power generation. As soon as we have a step change in business requirements, whether suddenly having to produce more or less, the whole playing field changes.

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So now we have a change in the business objective which results in a manufacturing change which means that our equipment is no longer going to be utilized the way it was in the past. Now that translates to we no longer need as much support of that equipment because its rate of deterioration is going to decrease.

We are no longer using it as much, so we don't need as much maintenance support as before, so we need to reevaluate what maintenance costs and what support activities are required. Typically, in that situation (in the case of mothballing)

support activities would decrease to the bare minimum necessary to keep the equipment operable. When we have a vastly reduced requirement for maintenance activities, we are going to use less on the materials and parts side and we are going to require less on the maintenance labor side.

Even a step change by way of a reduction in production requirements should result in a change in the maintenance support strategy. Obviously, in the case of mothballing, we need a significant change in maintenance support strategy to still keep the equipment capability there even though it's not currently being used. We still want it operable, but there certainly is no need to incur the maintenance and support costs we did in the past. So you are looking in a vast reduction in maintenance cost.

METRICS: Whether we are talking about increasing throughput or mothballing equipment you keep coming back to the concept of asset capability. Why is that? The two would seem to have little in common.

GD: Quite the contrary. Conventional wisdom would have us believe that we can simply increase the utilization of equipment in order to produce more as long as we have the availability and in some cases we can get away with it. But as we've learned time and time again, that isn't always the case. The truth is that any change in utilization will have an effect on equipment capability and, in some cases, the effect can be dramatic. Even a reduction in utilization will have an effect. If we were to continue our existing maintenance strategies, we would be losing the opportunity to reduce maintenance costs. Traditional reliability theory draws little attention to this concept, but it is significant in practice. In the end it

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is simple. The mere fact that we have a change in utilization, in either direction, indicates that there is some change in the business objective which in turn should drive a corresponding change in production and maintenance support strategies if we are to be truly successful.

This common denominator, which I think of in terms of asset capability, is frequently misunderstood and/or overlooked and, because of that, often represents an uncommon opportunity.

METRICS: Other than what you have already talked about, does the practice have any unique offerings or claims to fame?

GD: In the area of shutdown and outage management, we now have some processes that are unique and certainly very effective that will give us a competitive advantage. In the area of Reliability-centered Maintenance, we have some new tools that will enable us to assist clients in transitioning from an almost theoretical area of defining the best maintenance management practices and best maintenance programs to one of actually administering them effectively. We also have some new tools to help companies make their maintenance operations more efficient (simplified) from an administrative point of view.

Finally, again, a focus on what USCCG does best - get in there, make the system work, and make the improvements stick. Get very close to the operation, really understand the client's business, and drive results.

METRICS: What kind of prospects are you going to be targeting going forward, either from the industry perspective or individual companies?

GD: We are going to be targeting markets that have a maintenance component of any sort especially where there is an interest in improved OEE or EBITDA. Possibly, as a change from the past, we will be including a maintenance component in virtually all of our industrial consulting jobs.

“New business objectives drive new manufacturing objectives which in turn necessitate new maintenance support objectives, strategies, and schedules.”

In the immediate future, we will be focusing on the mining and metals vertical and any heavy industry with a substantial dependency on a large capital investment in plant and equipment, especially where the equipment is very process related and there is a significant potential for improving outage and shutdown management and improving equipment capability in that area.

METRICS: If you could leave our readers with one key thought, what would it be?

GD: Getting the most out of our existing assets involves more than simply streamlining the operation and increasing the production shifts. It involves proactively optimizing both the utilization and capability of the equipment and carefully aligning the production and support strategies with the business objectives. It is a live process. New business objectives drive new manufacturing objectives which in turn necessitate new maintenance support objectives, strategies, and schedules. These invariably result in new demands on asset performance. Strategic changes to utilization must be matched by corresponding enhancements to the maintenance support systems, if the production increases are to be sustainable. It is this managing of both asset capability and utilization that is at the heart of effective asset performance.

Letters to the Editor

We invite *Metrics* readers to share their thoughts with us in writing. If you've got a comment to make or observation to share, an issue to raise, or simply would like to request that we cover a specific topic in a future issue, please e-mail us at metrics@usccg.com or write to us c/o USC Consulting Group, 3000 Bayport Drive, Suite 1010, Tampa, FL 33607.

We look forward to hearing from you.

Stan Garrison Joins USC Consulting Group



Stan Garrison has joined USC Consulting Group (USCCG) as a Senior Account Executive. Mr. Garrison has more than 20 years' experience as a corporate transaction advisor and operations improvement leader.

In this new role, he will be responsible for cultivating the operations management consulting firm's relationships with major manufacturing and distribution companies, and private equity sponsors.

Most recently, Mr. Garrison was a Managing Director with Huron Consulting Group leading its Restructuring and Turnaround

Practice in the Southeast. Earlier, he was CEO of Horizon Performance, LLC, an implementation consulting firm focused on operations improvement and M&A transaction support.

His clients have included a broad range of manufacturing companies in food production and distribution, paper and packaging, industrial and automotive components, plastics, resins and chemicals products, and steel. He has conducted numerous engagements on behalf of private equity sponsors, including operational due diligence, turnarounds, and transitions.

Mr. Garrison graduated from the University of Georgia, where he earned a degree in international business and economics. His experience also includes many years of

service with Ernst & Young LLP as a partner in corporate finance and KPMG LLP as a managing director over the cross-border M&A practice.

According to David Riggs, executive partner at USCCG, "Stan has an impressive record of achieving strong results in cost reduction and performance improvement with companies of all sizes and in all stages of development including financially stable, under-performing, and large organizations growing rapidly through strategic acquisitions. His domestic and international experience in leading delivery teams on projects using Six Sigma and Lean techniques, process analysis and labor optimization, and change management will no doubt prove invaluable to USCCG clients."

USCCG Tops in Client Satisfaction Ratings

USCCG clients continue to demonstrate solid satisfaction with the consulting firm's performance. Here are the latest survey results:

Overall Satisfaction95.7%
95.7 percent of USCCG clients expressed overall satisfaction with the firm's work, while 79.7 percent said they were "extremely" or "very" satisfied.

Willingness to Rehire90.6%
90.6 percent of its clients would consider hiring USCCG for other engagements, while 69.6 percent said they were "extremely" or "very likely" to do so.

Learn more about what USCCG's clients have to say about the company's work by visiting their website at www.usccg.com.

Personnel90.6%
90.6 percent rated USCCG personnel as "exceptional" or "very good."

Willingness to Recommend87.7%
87.7 percent of the firm's clients said they were "very" or "somewhat" willing to recommend USCCG to a friend or professional colleague.

Results88.4%
88.4 percent of clients said the results the consulting firm achieved for them "met" or "exceeded" expectations.



First we make it work. Then we make it last.®

For more information contact us at (800) 888-8872 or visit us at www.usccg.com.

Metrics is a publication of USC Consulting Group, LLC, specialists in business performance improvement. In coming months you'll read more about how USCCG works and how we help executives go about the process of significantly improving their organizations.

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