

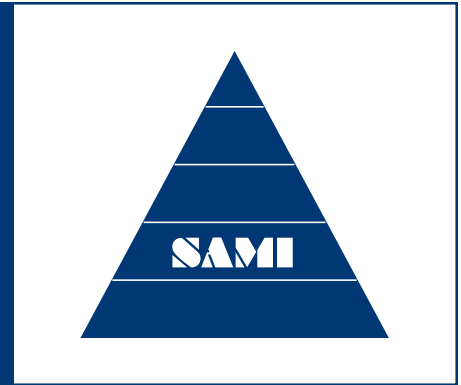
WE DELIVER CHANGE!

THE SAMI TIMES

Fall 06

Volume 7

Issue 3



THE PRESIDENT'S CORNER



The Importance of Strategy: Developing and Executing a Viable Strategy Part II

By Brad Peterson

Second in a series of three topics:

- The Importance of Strategy
- Developing and Executing a Viable Strategy:Part II
- Benefits of Consistently Executing a Viable Strategy (Case Studies)

In the Summer SAMI Times we discussed the necessary criteria for creating a viable strategy for Asset Management. We also discussed the first step in developing a strategy for Asset Management which is to develop current state assessments against the functions we are planning.

The next step in creating a strategy for Asset Management is the Strategic Plan. We employ a classic strategic planning methodology:

1. Creating a vision for future operations
2. Itemizing the gaps between the current reality and the future state
3. Develop strategies to close the gaps
4. Create projects to implement the strategies
5. Group the project into logical stages and initiatives
6. Develop the business case to implement the initiatives

Once again we leverage our client's resources. This is our Client's Plan, not SAMI's. Yet the biggest obstacle to developing this plan is visioning the future. Most of us are "boiled frogs"; we only know what our environment tells us, and we take our perceived limitations to be fact. We might visit some plants where they are doing better in maintenance and reliability than we are, but we seldom understand the path by which they got there.

In practical application, most of our clients accept the SAMI triangles (Asset Healthcare, Production, Logistics and Capacity Development) as a practical growth "vision". (For details, please see our website at www.samicorp.com.) In addition, we encourage them to have an operating vision as well. To do this, we work with them to develop Perfect Day in the Life of statements, which cover the major jobs in the facility, from craftsman and operators, to managers and planners. In other words, we focus on future behaviors that will demonstrate our new environment. This gives

us a target for bridging, and to develop the gaps against current practices.

Next we develop gaps. These gaps include practices, processes, knowledge, communications, planning and coordination, and behaviors. Gap development is a most important activity, as it gives the team, for the first time, a practical and comprehensive point of view about what needs to change. After grouping the gaps into like areas, we proceed to create strategies to close the gaps.

A strategy will cover a wide range of actions. One strategy might be to modify the current IT system, say in the inventory control, because we don't have visibility of the total inventory and order cycle. Another strategy might be to change the format of the shift turnover meeting, to make it more effective and assure full disclosure and follow-up. But for each gap there are one or more strategies to close. For any function of the SAMI Pyramid, there will be literally hundreds of strategies if the team has a strong background and experience.

We group related strategies, and rationalize them, and view the group as an entity. As we discuss and model, action steps begin to emerge, and integrate into projects. We develop project descriptions, with a title, an overall description, outcomes expected, resources required (internal staff, external staff, other costs such as software), measures to be applied, who will be the champion, and a sense of relative timing (Is this a foundation piece, or should it start after other skills are in place). The sum of the projects becomes our first pass implementation plan.

We also estimate the value to be created by the project. Some projects will create value directly, such as implementing improved work management practices. Others, like training, will have an indirect impact and have only costs associated. However, the sum of the value to be created, especially be reducing production losses and downtime from all sources, will pay for the costs manifold! In Shell's case the first stage of the rollout reduced downtime by 5% average across 30 facilities, leading to \$700 million in additional oil production. This was a 100X return on investment with SAMI.

continued on page 4

The Importance of Strategy: Developing and Executing a Viable Strategy Part II	1
The Arabian Gulf	2
Reliability Continuous Improvement	3

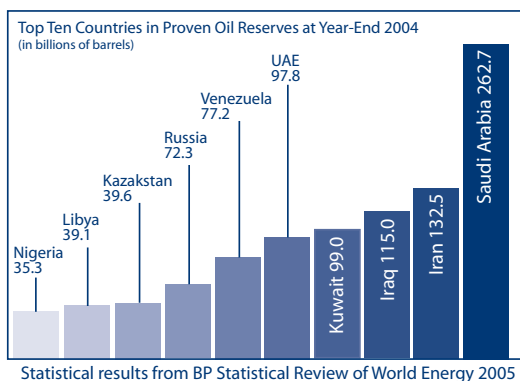
We are a consulting group for industrial organizations working to improve profitability, efficiency and equipment reliability. Our Mission is to improve our clients' production equipment health, by tapping the desire, creativity and dedication of all plant staff, and our vision is to be the firm consistently chosen by companies serious about making change; because our values of integrity, content knowledge, advanced practices and compassion for the workforce match the values of our clients.



In the last few years many industrial companies in the Arabian Gulf and Gulf Corporation Council (GCC) have begun to realize the importance of Strategic Asset Management (SAM) as an enterprise strategy that, if properly implemented, will result in Sustained

Business Performance Improvement (SBPI). Typical results of an effective Strategic Plan for Asset Management include a 20% - 50% reduction in maintenance cost accompanied by a 15% - 20% increase in real capacity, with no capital investment in production equipment. The tangible results include a significant increase in profitability accompanied by a dramatic reduction in unit cost.

In the modern world, the leadership and management of the large industrials in this region are highly competent, well educated individuals. They are actively seeking strategies that will enable their companies to compete successfully in regional and global markets. They are supported by engineers and other technical disciplines who are well trained and competent in their chosen professions. This is no longer the Arabia of Lawrence; it is a modern, growing industrial base with no foreseeable limitation on revenue to support growth and expansion.



In order to understand the impact of this phenomenon, one must first get a grasp of the culture and history of the region. Most of you probably know the Arabian Gulf as the Persian Gulf. However, in the region and especially among the oil producing countries, it is known as the Arabian Gulf. Most of these countries are monarchies with government and industry controlled by various royal families. In recent years there has developed a very strong move toward privatization of the local industries.

Small Area – large global impact. According to published OPEC data, Saudi Arabia has approximately 26% of the world's known crude oil reserves; Iran and Iraq have about half that amount and the United Arab Emirates and Kuwait each control reserves that equal approximately 40% to the Saudi reserves. Tiny Qatar has one of the largest known "un-associated" gas fields in the world. This represents a critical source of energy for industrial development as well as feeds gas for petrochemical production.

The current crude oil market is delivering a huge influx of cash into the region. The region is using the opportunity to invest heavily in expansion of existing industrial facilities as well as the development of new facilities and new industry; both petroleum and petrochemical related and non-petroleum

industry. These industries can be very competitive in global markets due to their geographical location, the low cost of expatriate labor from third world countries, and the very low cost of energy in countries where crude oil is produced at a cost of approximately 2.5 US Dollars per barrel.

A good example of the move toward privatization is MARAFIQ, the Power and Water Utility for Jubail and Yanbu. MARAFIQ is a Saudi Joint Stock company established by Royal Decree, through the Royal Commission, Kingdom of Saudi Arabia to serve the utilities requirements in the Industrial Cities of Jubail and Yanbu. The MARAFIQ founding partners are as follows:

- Saudi Arabian Oil Company (Saudi Aramco) – 24.81%
- Saudi Basic Industries Corporation (SABIC) – 24.81%
- The Public Investment Fund (PIF) – 24.81%
- The Royal Commission for Jubail & Yanbu – 24.81%
- Seven (?) Saudi Private Investors – 0.76%

Under the visionary leadership of President, Abdullah Al-Marei, MARAFIQ initiated a project In July of 2004 to develop a strategic plan for Asset Management. Strategic Asset Management Inc. (SAMI) was selected to support the development of the strategic plan based on proven strategic planning methodology, a logical model of maintenance and reliability progression (the SAMI Asset Healthcare Triangle), and a track record of successful implementations. MARAFIQ appointed a Strategic Planning Team and a Senior Management Steering Committee to conduct the Strategic Planning.

The cumulative gross benefits identified are SR 89.8 MM in efficiency gains and SR 31.5 MM in effectiveness gains. The SAMI fees and expenses for implementation assistance are estimated to be SR 29.3 MM, over 2 ½ years, generating an annualized return of 4.1 to 1. In US\$, the cumulative gross benefits are US\$23.9 MM in efficiency gains and US\$8.4 MM in effectiveness gains. The SAMI fees and expenses for implementation assistance are \$5.6MM.

Implementation Plan. Implementation began in February of 2006 following the SAMI Closed Loop Improvement Process. The first step was a thirteen week Design Process. MARAFIQ formed a Design Team to develop and validate the detailed activities that will support the implementation activities. This group included personnel from various organization areas, guided by Subject Matter Experts from SAMI. Design was completed in May of 2006 and the Install / Sustain / Certify process has begun in Jubail and Yanbu.

Jim Davis is the Managing Director of the Middle East. With 30+ years in maintenance management his focus is on developing and implementing Asset Management Strategies as a way of increasing Profitability through better Asset Utilization for our clients. jdavis@samicorp.com

RELIABILITY CONTINUOUS IMPROVEMENT

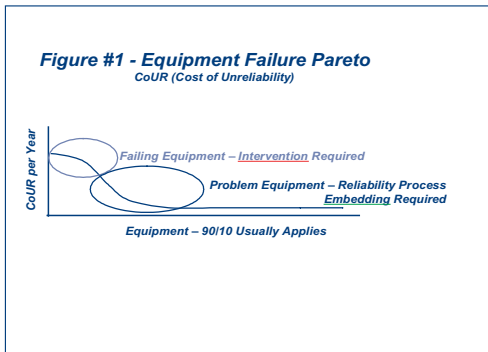
BY J. STANTON MCGROARTY CMRPC CMFGE



When a company is experiencing equipment-related production losses, injuries, and quality problems, Reliability Engineering's focus has to acknowledge the environment.

Here a survey of potential failure modes may have to be postponed while we pursue solutions to actual failure modes. Using CoUR and safety reporting, we can identify the equipment causing the organization the most grief and start there. This is also where we will join forces with Production and Maintenance people, making our work clearly relevant to theirs.

A good working definition of CoUR can be developed for most organizations using costs that are already being tracked; maintenance labor and material, lost production, and emergency management (expedited shipping, overtime, etc.) As a rule, these costs are already assigned to the equipment groups that cause them. The result can be expressed as a graph like Figure 1. Note that the X-axis is not time, rather it is the company's "fleet" of equipment.



Pareto's rule nearly always applies to this kind of distribution. Five to twenty percent of all equipment will be causing eighty to ninety percent of CoUR. Starting here will deliver the most improvement for the resources spent, and it will help the rest of the organization understand that Reliability Engineering is focused on the same goals that they are – safety, quality, productivity, and cost management.

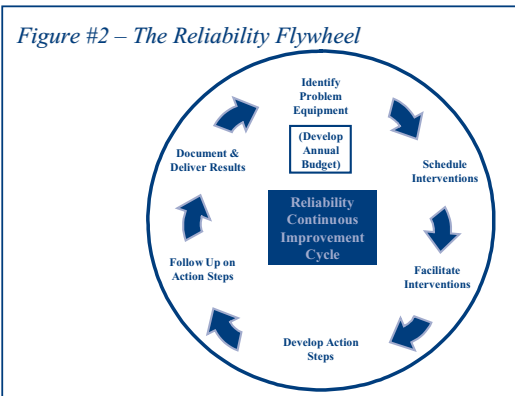
Concentration on current failure modes grows naturally into a later focus on problems that haven't happened yet. The organization begins with its problem equipment, but continues to move down the Pareto curve to the point where it is imbedding basic Reliability techniques and outlooks across the equipment fleet and throughout the organization.

Here are the steps for RCI in the mature equipment environment:

1. Identify Problem Equipment. – An area Reliability Engineer should have the top 10 pieces of problem equipment on the tip of his/her tongue at all times. Financial information should be kept in this package. CoUR has identified the problem equipment. CoUR is also the beginning of the business case for fixing it.

2. Schedule Interventions for Problem Equipment. – The plant Reliability leader is in a good position to understand what has to be done with problem equipment. He/she can also select a team with the knowledge to make it happen. Financial, safety, and productivity information will help the organization understand the urgency of what Reliability Engineering is trying to do.

3. Facilitate Interventions. – Reliability Engineering also has



the skills to facilitate a cross functional team and drive the discussion of problems and solutions efficiently and accurately.

RE is also well positioned to moderate discussions between operations groups who are trying to assign the blame for equipment problems. Maintenance, Production, HR, Process Engineering, etc. are likely to be viewed as partisan in these discussions. A good Reliability Engineering Team is a clearing house for information and a training function to all these groups.

4. Develop Action Steps. – Work with a cross-functional team to perform the necessary gap and RCA analyses and determine what steps will solve immediate problems. Also determine where the current Asset Strategies (Maintenance Plans, Schedules, etc.) have missed important problems and show Maintenance how to drive new strategies with Predictive Maintenance tools. Build business cases by associating the financial data (CoUR) with the fixes.

Problem equipment in a mature environment typically has multiple causes that create repetitive failures. This frustrates RCA teams who are looking for the one, true cause of all problems. RCA procedures for problem equipment must be broadened to enable a team to treat "bundles" of related problems, eliminating multiple root causes for repetitive failures. A modified FMEA approach can provide the missing tool for this analysis.

5. Follow up on Action Steps. – The real work starts at the end of analysis. Action steps must be completed and the results delivered. This is where most plans fail. A list of things that

continued on page 4

Stanton McGroarty is a Consulting Manager for SAMI. His expertise includes project management and PM Training for manufacturing and process engineering industries. smcgroarty@samicorp.com



Strategic Asset Management Inc.
25 New Britain Avenue
Unionville, CT 06085

PRSR STD
U.S. POSTAGE PAID
HARTFORD, CT
PERMIT NO. 2386

continued from page 1

The key to the implementation plan is the sequence of the projects, and balancing the resourcing required over time. A very important consideration is the sequence of facility roll-out. We usually advise a “waved” rollout rather than a big bang. This should not be confused with a “pilot”.

If we are doing a plan for 10 facilities, we might do the top 2 facilities in benefits in wave 1, then 4 facilities in wave two and wave three. We plan for a period of full time support for each wave, going to half time, going to quarter time, in order to assure the facilities are learning to function on their own. In Shells case we made full time support for wave 1 five months, half time support for 3 months, and quarter time support for 3 months. In wave two we went down to three months of full time support, as the organization was now ready to proceed after the first five months of learning.

You will see how thoroughly this method develops a long term plan of action. It’s backed by a huge business case, and is appropriate to take to the board of directors as a major operational excellence program, with a 5 to 10 year horizon.

In our next issue, we will deal with selling the plan to the organization, and specific tips on implementation, and maintaining consistency in implementation.

continued from page 3

ought to happen is a necessary step, but the job isn’t done until someone actually makes them happen.

6. Document and Deliver Results. – If Reliability’s follow-up has been the key to fixing equipment that has been malfunctioning for years, you have earned the right to carry the results to top management and take partial credit for them, and to share credit as appropriate.

7. Finally, use equipment information and RCI results to help drive the Annual Budget process. Reliability should commit annually to deliver improved financial results to the business unit.

In Figure 2, the seven steps are shown as a flywheel driving RCI in the business unit.

As time goes on, problem equipment will become a smaller part of the organizational picture. The focus of RCI will shift from problem equipment to the embedding of sound Reliability Engineering practices throughout the plant. The RE team will continue to drive Continuous Improvement throughout the asset base. This is Reliability Engineering’s rightful place in the organization.

Strategic Asset Management Inc.; 25 New Britain Avenue; Unionville, CT 06085

(800) 706 0702 info@samicorp.com www.samicorp.com