Outperforming excellence

Full Service oil and gas site achieves cost reduction while improving client satisfaction

Richard M. Rockwood

The desire to do more with less is an ubiquitous but often elusive objective. However, the ability to achieve it often distinguishes failure from success. All businesses dream of finding the metaphoric Gordian knot: a rationalization step whose advantages by far outweigh costs. In reality, such measures are increasingly difficult to identify and businesses content themselves with minor adjustments whose advantages are often difficult to sustain.

In process industries, companies are facing intense pressure, either directly or indirectly, from global competition, and are adopting cost-cutting as a key corporate strategy. There is nothing inherently wrong with cost-cutting. However, to be meaningful in the long term, it must be combined with further strategic and sustainable steps that lead to what is termed “manufacturing excellence”. A long history of failed initiatives based exclusively on cost-cutting demonstrates that this choice does little to improve the knowledge base or strengthen processes. Improvements in plant operations, equipment and process reliability, and hence ultimately operational excellence, remain elusive.

It can take great commitment to break out of this circle. *ABB Review* presents an example of sustainable improvements being implemented on a customer site.

In addition to cost-management pressures, organizations also face increasing demands for higher performance. Pressures to increase first-pass yield, attain higher levels of safety and environmental compliance pose unprecedented challenges to organizations the world over.

These and other pressures further combine with demands for higher levels of customer service and satisfaction. Consequently, many organizations are facing a difficult "sandwich effect" in which they are required to achieve more with fewer resources. This was exactly the challenge faced by ABB Full Service on an oil, gas, and petrochemical site in Argentina.

Since November 2006, ABB has been responsible for the electrical, instrumentation, and motor management for the Solvay Indupa site located outside Bahia Blanca, Argentina.

Customer satisfaction: a KPI

ABB, through its service-partnership offering, ABB Full Service®[1)], can look back on a long history of delivering consistently high levels of customer service. ABB took on Solvay Indupa's challenge to deliver higher levels of customer satisfaction while seeking to maintain or reduce the manning, budgets, and other support resources. An important part of this challenge was demonstrating that client satisfaction does not have to be compromised when maintenance costs are reduced.

ABB Full Service uses a framework developed by ABB to deliver standard, repeatable approaches to improve operations at customer sites. This practice, common to all sites, is supported by common processes, site assessments, and knowledge sharing, with customer-satisfaction management, and people satisfaction being essential ingredients to its success 1.

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This site-assessment process is not only effective in the ascertaining of current performance, but is also highly effective in developing forward-looking strategies.

Turning data into action

The customer satisfaction process was followed and implemented by the ABB Solvay site. Solvay participated in the ABB site-satisfaction survey process Factbox 1. The results of the survey were analyzed by ABB's team on the Solvay site and were used as the basis of a roadmap for future improvement initiatives.

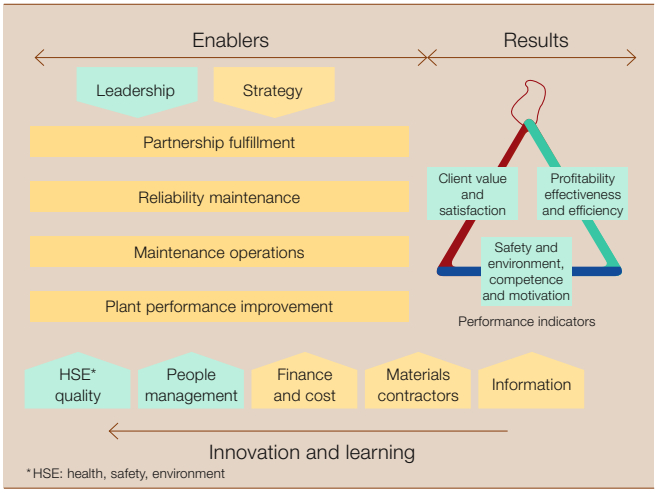
While overall high marks were received, three key trends emerged as needs that Solvay looked to ABB to resolve. These needs were:

1) Form partnership practices with product units
2) Reduce maintenance costs
3) Continue to deliver equivalent if not better service delivery

Factbox 1 Customer satisfaction

The ultimate measure of a customer's satisfaction with site service is measured by how that customer feels about the value of the service being provided by ABB's site team. To objectively measure this, ABB has developed a global customer satisfaction survey assessment that provides valuable feedback to the site and the ABB management team. The tool is invaluable for the identification, measurement, and execution of action initiatives behind improvements. It identifies trends, shows performance levels against client expectations and tracks customer loyalty. The survey results assist ABB's site team in setting targets, managing actions to close any gaps, and then communicating improvement to the customer.

1 The site assessment process is an effective tool used to ascertain current performance and is also highly effective in developing forward-thinking strategies



2 The Solvay Indupa site located outside Bahia Blanca, Argentina, showing the different areas

Footnotes

1) For further background on ABB Full Service, see also "Outsourced maintenance" on pages 79–83 of *ABB Review Special Report Process Automation Services & Capabilities* (2008).

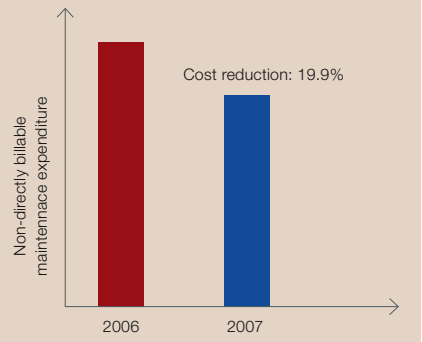
Maintenance for productivity

Attempting to fulfill the above three needs would stagger many organizations. However, the ABB Solvay team rose to the challenge. ABB carefully evaluated what Solvay was saying, analyzed how all these needs could be addressed and then developed an action plan to ultimately not only meet these needs but also exceed them.

Creating partnership practices

ABB drew on the extensive knowledge of individuals within its organization to understand how the first need, that of creating partnership practices with production, could best be accomplished.

3 The plant's maintenance budget was reduced by almost 20 percent



Factbox 2 Improvement methodology

1) Review budget data and conduct benchmarking analysis
2) Classify parts as A,B or C:
   - "A" the most expensive
   - "B" next most expensive
   - "C" most common and least expensive
3) Create short- and long-term goals
4) Short-term
   - Storeroom clean-up…5S*)
   - Part count and location accuracy audit
   - Clean-up part descriptions in SAP
5) Long-term
   - Select parts based on a balance between cost and process, safety, and environmental criticality
   - Continue to drive for equipment standardization

*) The 5S concept is discussed in **Factbox 3**

Although, at first sight, taking such a step may not sound too innovative, it is far easier said than done. In order to get closer to the production areas and to build and strengthen partnerships, ABB reorganized its on-site presence, assigning supervisors to each of the site's major production areas. On the Solvay site, these were the three areas, Cloro, PVC and CVM 2.

The maintenance budget was reduced by 19.9 percent. Furthermore, this adjustment did not have any negative or adverse impact on the delivery of maintenance services.

Beyond the organizational chart

Reorganizations, as a tactical approach, are nothing new. However, ABB went a step further and arranged that ABB supervisors attend beginning and end-of-shift meetings at the customer size. This partnering became part of the supervisor's job expectations and resulted in the development of the weekly practices of work identification and agreement of the prioritization of upcoming maintenance work. This was reinforced through the use of weekly work schedules.

ABB's proactivity in creating partnership practices had an effect that no one could forsee at the time but that would have a profound positive impact on furthering ABB's relationship with Solvay.

Operational improvements

As a result of this collaboration, the ABB supervisors began to become intimately aware of the challenges facing their Solvay counterparts. During feedback sections, it was communicated to ABB's Supervisors that Solvay was looking to the company to help it with cost reduction.

Getting started

It is not uncommon that when faced with a challenge, some organizations never progress beyond the analysis stage leading to the classic phenomenon of paralysis due to over-analysis. However, ABB reviewed the maintenance budget and soon came to realize that spare part expenditures represented between 35 and 40 percent of the overall maintenance budget. Drawing upon ABB's vast global experience network in site management, ABB benchmarked the site against the best of ABB's other involvements, clearly revealing that there was room for improvement.

Standard processes yield quick results

Using a standard process model **Factbox 2**, the ABB team efficiently organized for action and followed a logical step-by-step process improvement methodology.

Tools improve results

To improve the delivery of results, the

4 Monthly tracking of customer satisfaction revealed that customer satisfaction not only approached, but actually exceeded the mutually agreed target levels

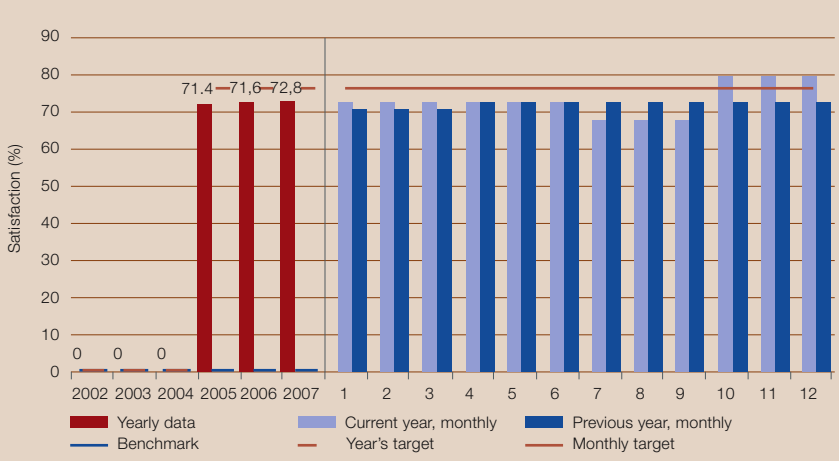


ABB site team leveraged the site's Computerized Maintenance Management System (CMMS) SAP-PM. SAP was used to "drill down" and generate reports that provided data on spare-part issues, inventory turns, stock outs and frequency of use. Additionally, significant value was derived from an inventory cross-reference report that searched for parts used on common equipment and also parts that might not have originally been set up correctly in the SAP system.

Some organizations never progress beyond the analysis stage leading to the classic phenomenon of paralysis due to over-analysis.

ABB also used process-mapping techniques to analyze external repair and rebuild cycle time and identify bottlenecks. Thus, through the application of lean maintenance techniques, the ABB site was able to quantify lead times and repair cycle times. This provided insight into external repair and rebuild processes that functioned well, but also highlighted those that were disconnected or dysfunctional.

Going back to the solid foundation laid through partnership practices with Solvay's production supervision, ABB's supervisors held monthly progress meetings and data review meetings to obtain clarification, support and understanding regarding which parts should be retained and which ones should be further reviewed. This critical step made sure that Solvay supervisors supported the findings and results as they were proactively involved in the inventory classification process.

The ABB team then divided the approach into several "sub-tasks" that were more manageable and offered improved project and progress tracking. The result was a greater surfacing of and focus on the parts that really mattered. In particular, the team used Pareto charts[2] to identify the 80 percent of problem parts affected by 20 percent of the causes[3]. A simple Pareto bar chart thus highlighted the relative contribution of each part or component to the total problem. This provided the team a valuable tool to focus and leverage on the critical few, which allowed energies to be channeled into those areas representing the biggest impact. These could be tracked by part-related KPI's.

Positive results achieved

As a result of the inventory improvement project, the maintenance budget was reduced by 19.9 percent 3. Furthermore, this adjustment did not have any negative or adverse impact on the delivery of maintenance services.

Customer satisfaction exceeds target

After successfully reducing the maintenance budget by almost 20 percent, monthly tracking of customer satisfaction revealed that customer satisfaction not only approached, but actually exceeded the mutually agreed target levels 4.

The trending of monthly maintenance costs shows that a steady management of these costs on a monthly basis has been achieved, and that there is little variation around the monthly target 5.

Continuous improvement is a marathon and not a sprint.

The way forward

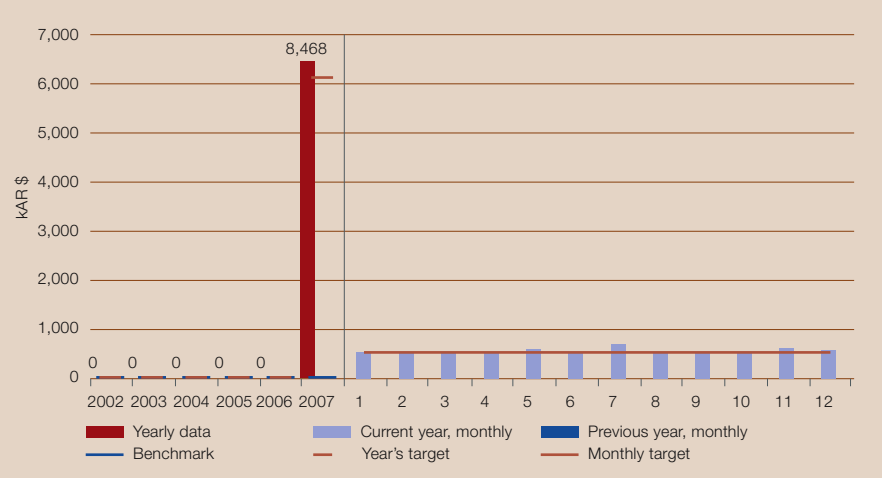
Not resting on the laurels of its success, the site is now poised to take performance to higher levels with a focus on equipment reliability. It has been said that "equipment doesn't fail, components fail." With that in mind, ABB configured SAP to deliver specific reports that allow the "drilling down" into specific data to yield additional opportunities for continuous improvement. The focus area was again driven by the customer satisfaction survey which highlighted addi-

Footnotes

[2] Pareto charts are bar charts in which the values being plotted are arranged in descending order, and an ascending curve is traced showing their cumulative value. Pareto charts are used in quality assurance and often used to illustrate the 80–20 Rule.

[3] The 80–20 Rule states that in many situations, about 80 percent of effects are due to 20 percent of causes.

5 Monthly maintenance costs could be sustainably reduced, and show little variation around the monthly target



Factbox 3 The 5S concept

5S is a tool contained within the Continuous Improvement methodology (Kaizen). Kaizen is a Japanese word literally meaning change for the better. 5S is comprised of the following elements:

1) Sort (Seiketsu)...remove unnecessary items
2) Straighten (Seiri)...organize
3) Scrub (Seiso)...clean
4) Standardize (Seiton)...develop standard routines
5) Spread (Shitsuke)... continue 5S initiative and carry to other areas

ABB's site manager, Duilio Magi

"Achieving results year after year requires excellent communication, cooperation, and a talented, skilled team of professionals. We have those vital components here at the ABB Solvay site."

tional areas for ABB to deliver initiatives to improve client site satisfaction.

"Bad actor or culprit" equipment was identified 6. Such equipment excessively consumes both labor hours and spare parts used in the repair and maintenance of that equipment. The hypothesis being applied is that equipment consuming more labor hours and spare parts than allocated or budgeted is also likely to have a low reliability or a high failure rate. This process provides an excellent entry point into equipment life-cycle cost-management practices. It is anticipated that this will provide another value-adding service delivery to Solvay.

6 ABB engineers apply the lessons learned from the inventory improvement initiative to pinpoint equipment that causes excessive costs

Recognized for leading practices

The Solvay site recently completed the site-assessment process. Among many notable achievements, the site received specific recognition for the way it has developed site improvements and cataloged these into an improvement library. This serves an added benefit by providing objective examples of the added value received by the client as a result of ABB's management of the site.

Not resting on the laurels of its success, the site is now poised to take performance to higher levels with a focus on equipment reliability.

ABB's Solvay site documents and retains each improvement initiative in a library that functions not only as a reference for further improvement initiatives but also serves as a reminder of the numerous benefits being delivered by ABB to Solvay.

Great achievements

It has been said that continuous improvement is a marathon and not a sprint. The ABB Solvay site is an example of the benefits that can be obtained through analyzing the client-satisfaction survey, forming close partnership practices with the customer and then creating a plan of action to address those opportunities that the survey shed light upon.

These initiatives are then sustained through the effective use of key performance indicators, which ensure that the performance gains are monitored. The analysis also revealed how a passion for delivering client value drives additional continuous improvement opportunities for attaining operational excellence. These deliver sustainable client value and thereby further underscore the importance of creating lasting partnership practices between the site and ABB.

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