Special Services To Successfully Bridge The Economic Downturn

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ABSTRACT

Facing an economic downturn the availability of cash for capital expenditures is greatly reduced. To still maximize the ROCE (return on capital employed) and hence survive in the market, large investments have to be postponed. As a result, additional free cash is available for operational expenditures with focus on enhancement of plant life. Now services are needed which can deal with an extended equipment lifetime and still address the key challenges of cost reduction per ton of paper or board without compromises in quality:

- Increase the production output
- Ensure the required equipment availability
- Optimize raw material recipes
- Enhance the energy efficiency
- Reduce maintenance costs

Successful papermakers now capitalize on proven services that support their equipment even further during the enhanced lifetime as well as on measures to fully use the technical potential of the installed base:

- Industrial Plant Service
- Performance Review
- Services to Reduce Sporadic Faults
- Services to Enhance Machine Speed
- Re-optimization of Drive Systems
- Horizontal Modernization of Drive Systems

This paper describes these services and measures with focus on automation, drives and energy transmission including relevant references.

In times where paper makers postpone large investments to secure their financial health it is cost cutting which is intended to secure profits. The question now is how to achieve a better business performance and at the same time reduce the capital employed? Where is the golden rule which helps to place investments wisely to stay up to date and in front of the competition? “Special Services” are now relevant more than ever. In maintenance targets for these services are:

- Efficient and effective maintenance processes
- Enhanced lifetime and reliability
- Reduced stock assets

RESULTS AND DISCUSSION:

Many companies still see maintenance and related services only as a cost factor. Nevertheless flexibility, uptime, speed and quality are directly influenced by their performance and have a considerable impact on financial results. Production losses are “hidden” costs that need to be understood and controlled in order to extract maximum performance from the company's assets. Improving maintenance performance means achieving the right balance between maintenance resources, services and processes to ensure optimum maintenance costs and production levels according to the company's targets and, at the same time, maximizing profit levels.

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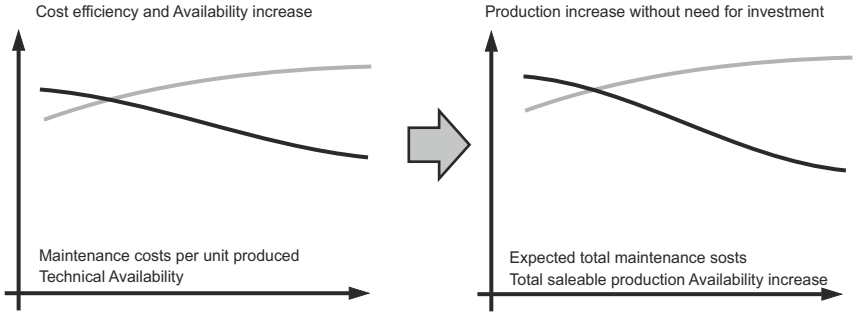


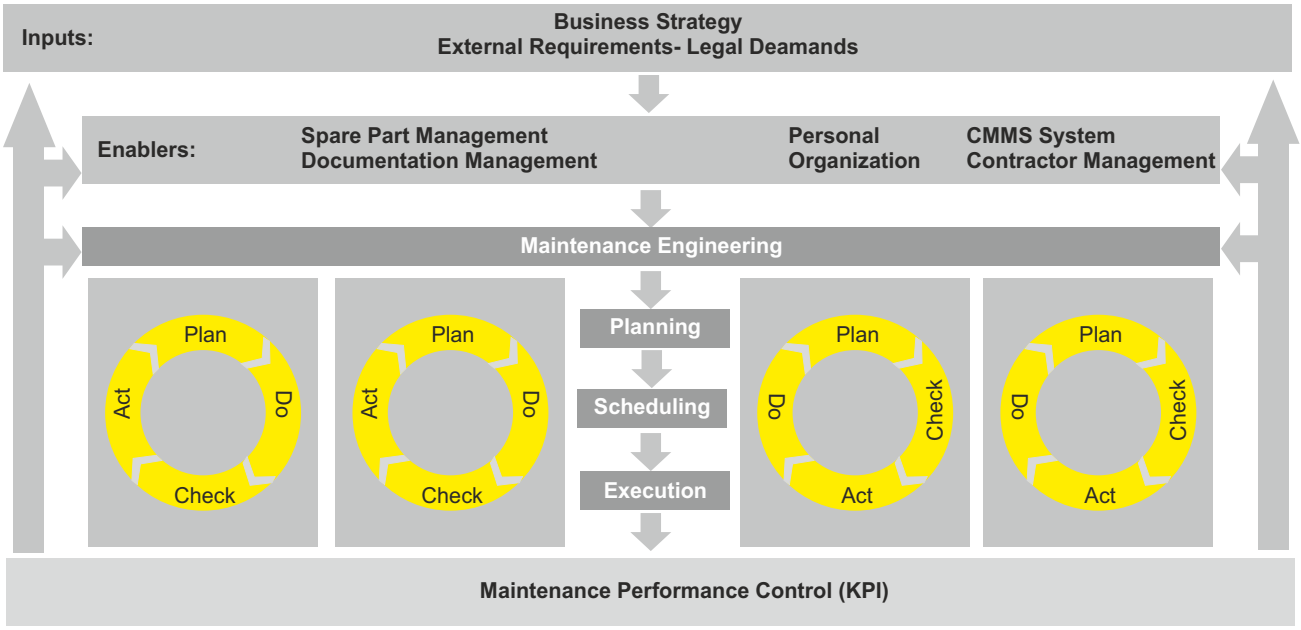
In addition to production increase and cost efficiency, the achievement of a high level of maintenance performance means reducing the capital employed by the company by increasing the lifecycle of the equipment and optimizing spare parts stocks.

In other words one can benefit from increased and more flexible production, with lower costs and for a longer period. This is the best way to avoid new need for investment while at the bottom line generating a higher return on the company’s capital employed.

Efficient and effective Maintenance Processes

Having efficient and effective maintenance processes contributes significantly to the set targets and the challenges of the economy downturn.

The first step to achieve more efficient and effective maintenance processes is to evaluate the maturity and

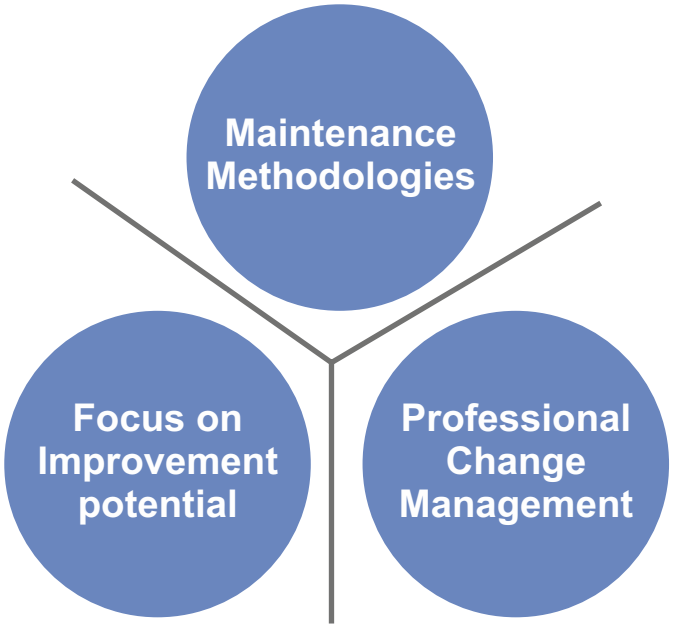


performance of the actual processes and understand the strengths and the weaknesses of your processes. The processes to be analyzed must cover all aspects of the maintenance function and relations to other internal functions such as production, purchasing or human resources.

The following maintenance model shows what aspects should be evaluated:
In general the performance of the maintenance processes can be measured against Key Performance Indicators (KPI) that can be compared and benchmarked. The KPI can be divided in lagging and leading:

- Lagging indicators – show the actual performance reflecting measures and activities done in the past. Are normally the strategic indicators used to compare performance on corporate level. Examples: OEE, availability, maintenance costs, resources usage;
- Leading indicators – support the evaluation of actual activities indicating the trends of the future performance. Are normally the tactical and operational indicators used by the maintenance managers to control the daily activities to assure the achievement of the strategic targets. Examples: Planned maintenance ratio, preventive maintenance schedule compliance, incidents #, etc.

During the evaluation the improvement

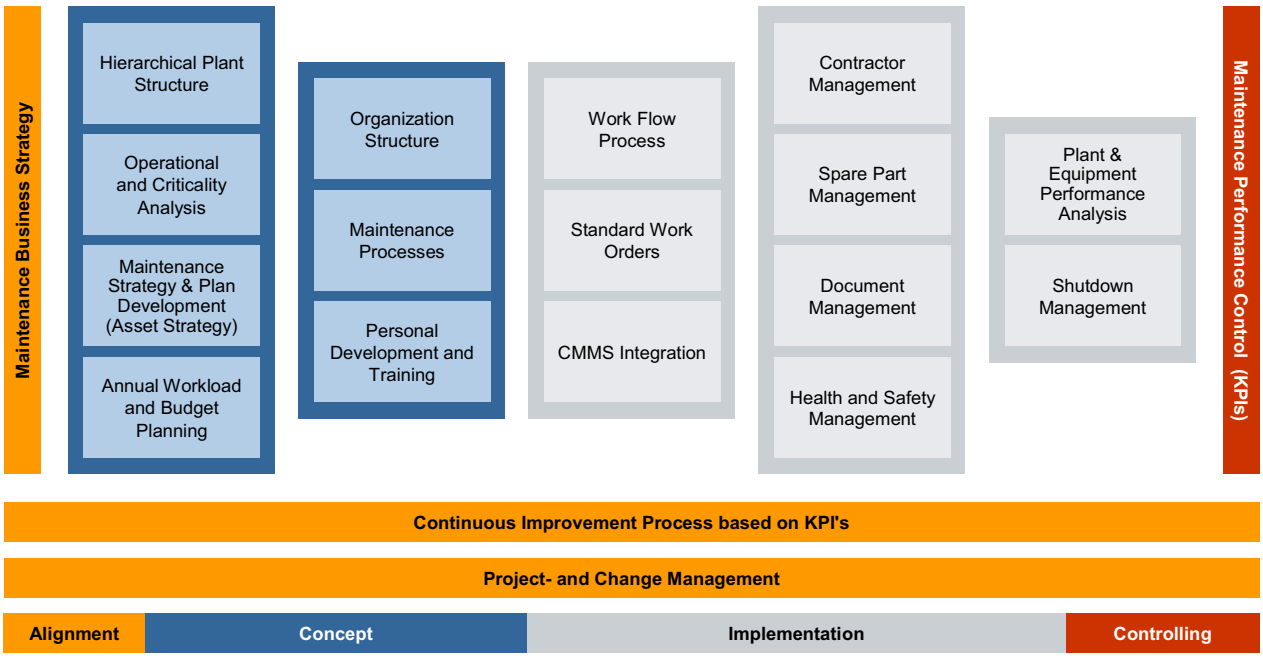


measures and the improvement potential needs to be identified and confirmed. Fast improvements, also called "low hanging fruits" must be identified and be implemented first.

Once the maturity and the performance have been evaluated, the second step is to identify what actions need to be implemented in order to improve the maintenance function, reduce the overall efficiency losses and achieve the improvement potential identified in the first step and implement them within an improvement project.

Therefore the right competences and a well managed project are needed to achieve these targets. The implementation of efficient and effective maintenance processes depends on three factors:

- Focus on improvement potential
  The improvement project must be focused on the determined potential and specific and measureable targets must be defined and constantly followed up based on KPI.
- Maintenance Methodologies
  In order to implement the right processes and develop the necessary competences to make them live, a set of maintenance methodologies and tools are

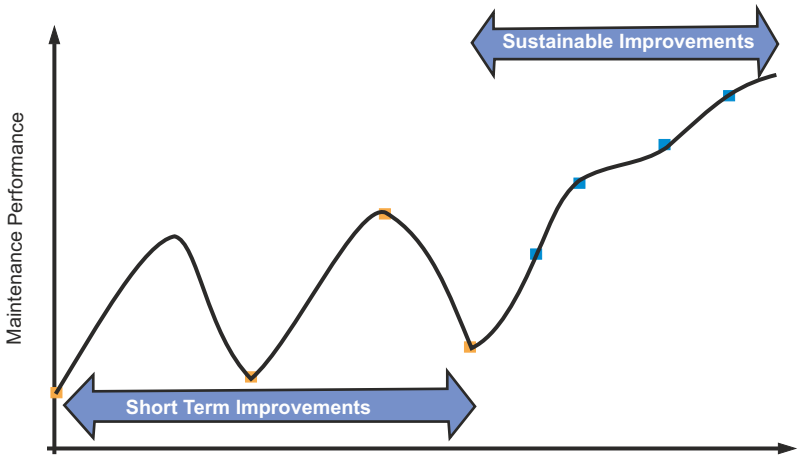


needed. The most common processes and methodologies to be implemented are shown in the picture above:

- Professional change management A change in the daily processes, an in particular in the maintenance function, is only possible, if the people are positively involved. Only they can animate new structures. But through their resistance they also can stop the change process. Within the implementation project, the new processes are implemented and the low hanging fruits are achieved. In order to allow the continuous improvement of the performance of the maintenance function, the third step is to take actions to guarantee the management attention to achieve sustainable improvements.

A successful maintenance improvement approach can never be based on cosmetic improvements and the implementation of standard processes and tools to provide short term gains. All maintenance improvement projects have a crucial human factor that requires change management and constant management attention.

The risks that the "old processes and manners" will return and efficiency will come back to the levels they were



before the project are high, and all efforts will seem in vain.
One common way of achieving the sustainable improvements is by outsourcing the maintenance function, on a performance based contract, to a professional company whose focus is the maintenance process, not the production, keeping then the necessary management attention to sustain and continuously improve the performance.

Enhanced lifetime and reliability

Successful papermakers now capitalize on proven services that support their equipment
even further during the enhanced lifetime as well as on measures to fully use the technical potential of the installed base:

- Industrial Plant Service
  Rare but complex faults in a paper or board machine, in the coater, winder, calender, or sheet cutter typically lead to severe quality problems or production downtime. The complexity of this production equipment and processes requires specialized expertise together with in depth systems experience in the paper making process in order to eliminate these faults as fast as possible. Nevertheless, having these qualified specialists on the own payroll is in many cases not economical. Savings by addressing these faults by contractual services have to be levered.

- Performance Review
  This service is to identify potential for enhancing production capacity, product quality and equipment availability. It is a systematic process that helps to highlight typical problem areas and potential weaknesses. The result is an optimized and improved process.

- Services to Reduce Sporadic Faults
  Sporadic faults can never be entirely eliminated from paper or cardboard manufacturing. Web breaks, and the consequential unexpected production downtime, are among the most frequent faults. However, the frequency of web breaks can be significantly reduced in many cases by systematic root cause analyses utilizing sophisticated data acquisition and analysis method.

- Services to Enhance Machine Speed
  Services that find out exactly what performance reserves the installed equipment yields greatly reduce the necessity for expensive measures that are needed to increase machine speed.

- Re-optimization of Drive Systems
  As equipment is run over a period of several years, changes occur over time, e. g. mechanical clearances increase – due to wear. As a result, the control loops for these components are prone to oscillate. If this condition continues for a prolonged period, the risk of unexpected downtime and damage to the mechanical components of the machine is rising. A service for a cyclic optimization of the control loops reduces future cost due to this issue.

- Horizontal Modernization of Drive Systems
  The complete modernization of the sectional drive system requires a large amount of cash which is potentially not available during the downturn. Vertical modernization of only the most necessary drives yield integration problems and more risks in operation. Therefore horizontal modernization is an option for a partial modernization with low risk, high benefit and still not consuming too much free cash necessary. It avoids parallel operation of renewed and old plant sections and therefore eliminates expensive temporary work around and other unnecessary compromises.

Reduced stock assets

On the one hand, spare parts in stock represent tied up capital. On the other hand, the fast availability of spare parts often determines the duration of production standstills - and with that the height of potential outage costs. In order to resolve this conflict and to ensure economical availability of spare parts in line with requirements special programs are available to match the installed base against the spare parts and optimizing the stock considering MTBF and delivery times as well as criticality of the equipment.

Results in numbers

By deploying the described measures and changing the focus from investments to higher efficiency, the results can be very satisfactory. The experience shows that the low hanging fruits can vary from 7 to 15% of the overall maintenance costs, 2-4% of the overall equipment efficiency (OEE) and 10-20% of reduction of the maintenance stocks. This means that it is possible to improve output, reduce costs and at the same time reduce the employed capital, generating cash available for other priorities in such a downturn.

One real case example from a paper plant in Germany shows that, with the approach described in this paper, the plant was able to achieve around 20% of maintenance cost reduction, 5% of improvement of technical availability and 30% improvement of production speed, in a 7 years project, with no additional investments, where the sustainability and continuous improvement has been the focus to achieve the planned goals.

CONCLUSIONS:

Looking on the financial results it shows that focused invests in aintenance and special services yield high earnings plus a good future perspective at almost no extra spending. The downturn can now be used to optimize maintenance processes, technology and capital employed to be ready for a new shaped future.