

## Business-oriented Maintenance

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Pulp and paper industry is facing, as many times in the past, nervous moments of many worries and new challenges. The depressed market price for pulp products is forcing some new trends in the business. Along the decades, industry has showed a production-oriented style of management. The most frequently used language was the technical one. Most indicators of performance in the mill site have been completely technical: only few of them could speak the language of the money. At mill sites, profitability was a subject of someone else at the headquarters. Few people were able to talk about the own business.

Today's most frequent concepts in the pulp and paper industry are:

- a) quality: in all operations, from “the crib to the coffin”;
- b) productivity: taking the most from the resources, in a sustainable way;
- c) environment: to guarantee minimum impact;
- d) survival: to resist and to save energy during the crisis for enhanced performance in steps ahead;
- e) business sustainability: to keep market and competitive position, not losing ground to the competitors;
- f) resources availability;
- g) consolidation: to join efforts to simplify operations;
- h) economy of scale;
- i) cost reduction
- j) high performance human resources
- k) excellence in business (Business-oriented management), including strategy, innovation, competence, urgency and profitability.

During the past two/three years, the industry discovered many ways to reduce costs. Some of them, very painful, as downsizing

of talent people. Others, very creative and innovative. Cost reduction became a flag to all. However, we cannot go too deep in this game. Cost reduction is a restrictive game and many times it can blind the players. Cost reduction is also a short-term management style. It is essential to be played, but those who are involved, they are required to know all rules. One of these rules, very often forgotten, is the difference between Life Cycle Cost (LCC) and lowest cost. LCC implies in taking decisions about costs of assets/operations based on its economical life, instead of solely on purchased/actual prices and expenditures.

World-class organizations are developing the professionals to think in long-term, since early in the project stage, till the end of the life cycle. At the same time, these professionals are taught to evaluate margins, costs, cash flows and profits. As a consequence, they become oriented to business results, not only to technical performance.

Several management tools have been given to the managers along the past few years: re-engineering, benchmarking, quality systems, just-in-time, etc. In some cases, these tools generated complicated systems and structures. Today, the new rule is simplification, a game we play everyday in our ordinary life.

The health of the organizations is been measured, as never before, by their financial/economical performance. As a consequence of globalization, the stock market share value of any organization gives an indication of its competitive position in the market. This competitive position is now clearly known by everybody: competitors, financing banks, investment funds, employees, community, etc. Shortly, profit became essential to any organization. Profitability is the result of a sound management performance, no matter how turbulent and chaotic the market is. In situations like these, we always have winners. Winning a competitive advantage is not solely a question of luck.

Today, all managers accept the fact that the arena is turbulent, very dynamic, in continuous changes and in different directions. The understanding of the scenarios to take decisions about allocation of resources is becoming a common rule. Managers are now required to have a wide overall view; a very good knowledge of the specific project/activity he is responsible for, to be flexible and fast to take decisions; and to think continuously about the business results. In short, managers are required not only to keep mills running, but to make money, acting as entrepreneurs. The organizations are now obliged to prepare their human resources to open the mind to the business. They

shall find ways to develop people according to the values of the organization and oriented to results and profitability. This surely applies to the maintenance people, as well. Maintenance managers are key people to performance operations and profitability. Their successes are measured by low cost / high performance / high return on expenditures. They are not only area managers, but whole mill / business managers. They have, as few in the mills, the power to improve profitability. Why? Simple, profitability is function of market position, competitive position and production position. These positions are not static and they are engaged to each other. Thus, maintenance managers have to be committed to company's results, to have a clear vision of the strategies, to participate in forums related to business opportunities and to provide reliability to their customers. Till now, we are used to say that maintenance is a supplier area to the operation team. The reality is changing fast, because maintenance people are also operation team. Worldwide, many organizations have made the option to promote maintenance managers to top positions, as industrial directors, for example. This trend is simple due to the fact that mills have to run as much as possible. This is a typical situation in the process industry. Process industries are production-oriented. Higher the efficiency, lower the costs and wider the margins. Surely, this is not the only rule, but it is one of the commandments. Process industries depend on scale of production and operating efficiency. This industries are in general oriented to few products. Production has to be continuous and shall not be disturbed.

In the competitive arena, the efficient use of the time and capacity (time availability and operating efficiency) are key points to the success. Why? Because they significantly affect costs and margins, as far as quality parameters are kept constant.

Operating efficiencies varies from 80 to 90% in mills. World class mills have few stops, short time losses and very short maintenance shutdowns.

Let's have a look in a comparison between two mills of the same capacity and product, but running at two different efficiencies:

## Case study 1:

### Mill A:

- daily capacity: 2000 t/d (maximum sustainable production)
- average operating efficiency: 90% (running time with pulp bale production)
- average along the year daily production: 1800 t/d
- total achievable yearly production: 655 000 t/y

### Mill B:

- daily capacity: 2000 t/d (maximum sustainable production)
- average operating efficiency: 80% (running time with pulp bale production)
- average along the year daily production: 1600 t/d
- total achievable yearly production: 565 000 t/y

Let's imagine both mills have the same variable cost, equal to 200 US\$/t and they sell the pulp by the same net FOB market price of 550 US\$/t. Sales margin is 350 US\$/t, but we have mill B in a result disadvantage of 30 million US\$. All specific costs are affected by production (depreciation, financial, logistics, raw material consumption, etc.). Imagine that mills A and B spend the same amount/year as fixed cost, for example 80 million dollars. The specific fixed cost/t results to be 122 US\$/t for mill A and 142 US\$/t for mill B, a difference of US\$ 20/t. Thus, efficiency in production does really make a difference to business results.

Raw materials (wood, chemicals, electricity, steam) are very much related to the production efficiency. Losses, stops are sources of wastes and generate extra costs in cleaning, quality, pollution abatement, etc.

The maintenance manager should know, as few in the organization, how much the bad maintenance costs to the business. However, most of them know only how many dollars/t are applied to repair the maintenance problems. This is a good knowledge, but it is not the most important.

Talking about indices of maintenance performance, along the years, a bunch of them have been developed. Many are essentially administrative and technical, involving the measurement of performances and productivities (labor, lubricants, hours, machinery, inspections, downtime). Some are cost related: cost of breakdowns; cost of yearly shutdown; cost of

maintenance, both direct and indirect; manufacturing cost, as affected by maintenance cost; cost of idle man or machinery; cost of overhead; cost of inventory, etc.

Only few companies give responsibility to the maintenance manager to judge bad business performance due to low equipment performance. This is supposed to be a job of production and accounting people. However, for some reasons, in general production people accept as inevitable the “not so good performance” of an equipment.

Let's have a look in some case studies as examples:

### **Case study 2:**

Mill A has a vacuum drum washer that performs well and it delivers pulp to the bleaching line with consistency of 14%. Mill B has the same equipment, but due to vacuum problems, the pulp is delivered with 11% consistency. The filtrate following the pulp is considered to be similar, and the COD (Chemical Oxygen Demand) concentration is 1,500 ppm. This means that both mills are delivering different carry-over charges to bleaching line. Mill A delivers 9.2 kg COD/t and mill B delivers 12.1 kg COD/t. The difference in active chlorine consumption is roughly 1.5 kg/t favoring mill A. At the end of the year, due to a production of 600,000 t in both mills, the active chlorine consumption in mill A was 900 t shorter.

### **Case study 3:**

Mill A has wood chippers in good performance and generates 0.8% sawdust (based on dry wood) after screening. Mill B has some problems in the chippers (knives, blocks, etc.) and the sawdust removed is 1.5%. Both mills have consumptions of 1,200,000 tons of dry wood/year. Mill A discards 9,600 t/y of sawdust and mill B 18,000 t/y. The difference 8,400 t of wood is enough to make 4,200 t of pulp/year.

Due to the high production rates the pulp/paper industry performs, all saved cent of dollar turns in a huge figure in the yearly figure. Are you sure, in your mill, that everybody know and act about this?

Since I started this article, I'm trying to prove that a world class maintenance requires open-minded and wide-view people. Learning experience and different focus are required. The management team shall pay attention not only to the traditional indices of maintenance performance, but how to improve business results (margins, returns on investments, cost savings, long-term costs, performances, etc.).

The management team must include operation, engineering, maintenance, R & D, sales, purchasing and accounting, as a minimum force. Our organization, to be winner, has to focus on business performance not on cutting costs until it sees what results it gets (or what lasts!).

Be simple, do not waste time controlling everything. Do it cleverly and focus your attention to key points, as a team and as an entrepreneur. To be a good entrepreneur you need to know how to invest your money. All money has a cost and the production team has to be aware of this. Money is not a gift provided by the top management to buy a new "toy" (or equipment). Money is spent to have a return at least better than the interest rate that the banks are charging for it.

Maintenance management focused on business results may be the difference in to be or not to be competitive in the today's global arena. But do not forget, this is not the only game to play. Those related to human being welfare and motivation cannot be forgotten.