Asset Management Co-Operation – The Key to Achieving Business Excellence

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The ability of a company to achieve "World Class" status depends largely on how well the various functions work together to accomplish the business objectives. This is the core of the definition of a world-class organisation. The co-operation between production and maintenance to effectively manage the asset is one of the most critical. Maintenance must be recognised as an integral part of the plant production strategy by which quality product is delivered to the customer at an acceptable cost.

However …… maintenance cannot achieve it alone.
To do it's job properly, maintenance requires the co-operation of, and collaboration with, virtually every department (production, procurement, engineering, accounting, human resources, etc.) in the plant--but especially with production. Not only must maintenance know what it's objectives, roles and mission's are, but it must also understand how they are related to, and in fact a derivative of, the larger mission, and strategic objective of the overall organisation

■ Asset Management

Over the past decade there has been a significant move away from the narrow view of maintenance focused on the assets themselves, towards profitable business outcomes. This approach is often referred to as profit centred maintenance or business centred maintenance. Organisations that have adopted the culture of profit centred maintenance integrate the cultural, process, and behavioural attitude within a plant's organisation to drive business processes forward.

The term "Asset Management" is often substituted as a modern term for Maintenance Management, however I would suggest that Asset Management encompasses a far wider spectrum in the life of any asset. In my opinion when it is used in the plant context, asset management encompasses the activities related to the operation and performance of routine, preventive, predictive, scheduled, and unscheduled actions aimed at preventing equipment failure or decline with the goal of improving safety, increasing production, efficiency, reliability and reducing total life-cycle cost.

Asset Management is, I believe, an excellent term and Maintenance is a very integral part of the overall management of the asset. However the operation of that asset is as critical to the overall performance as the maintenance. Co-operation between Maintenance and operations will allow the asset to perform at its most efficient in terms of cost and production during its full lifetime.

A successful asset Management program requires co-operation, dedication, and participation at all levels and cannot succeed without everyone involved understanding the basic principles and supporting the cause. For too long a conflict situation has existed between operations and Maintenance in many industrial situations. Typically maintenance would blame operations for breaking equipment and operations would have an excuse for production loss if it could be attributed to a maintenance issue. This situation unfortunately still exists in many industrial situations today with the resultant lost profit opportunities. To a lesser extent maintenance is in conflict with accounting and project engineering. This conflict exists because each group have entirely different individual objectives. Production will see their job as making product, while accounting will concentrate on minimising costs and maximising profit and project engineers will see completing the project and beating the budget as their objective. The point that most people miss, especially, many senior executives, is that maintenance contributes to profitability and increasing expenditure on a project to install a more reliable user friendly item of equipment will pay dividends many times over. This situation is exacerbated by asset Managers not being fluent in the "language of the board room".

To successfully interest management in asset management activities, asset managers need to be fluent in the language spoken in the boardroom. Projects and proposals brought forward to management, need to stand on their own merits and be competitive with other funding requests. While evaluation criteria may differ, generally some level of economic criteria will be used. Asset managers need to have a working knowledge of economic metrics such as:

- Simple payback,
- Return on investment,
- Net present value,
- Life-cycle cost.
- Asset Management Design

Asset management must begin at the concept stage in any project. Decisions made at that stage will have consequences far beyond what the project engineer ever imagined. Beginning at the concept stage operations and maintenance should be involved so that the best compromise can be identified. Equipment that is first and foremost reliable, easy to operate and that can be maintained quickly, easily and efficiently will result in far less unscheduled downtime. Hence profits will be increased. Total lifecycle cost must be a prime consideration at this stage and should (must) get priority over “cheapest installed equipment”.

■ The Maintenance Budget

Cost reduction is a fact of life today and good asset management should always focus on ways to reduce maintenance cost. But there are many variables that can be affected by lowering the maintenance budget. Accounting and senior management must understand the implications of maintenance budget reduction. It is, therefore, important to consider how the cost cut is implemented. It is easy to cut maintenance costs in any plant by a large percentage if required. All that is required is avoid doing scheduled maintenance work. However the consequences of short-term cost reduction will most likely be reduced uptime and reliability due to ill-maintained assets.

There is a balance between cost reduction and asset maintenance. When this balance is not maintained asset management will deteriorate rapidly. If an asset becomes unreliable due to reduced maintenance the overall management of that asset will deteriorate rapidly especially as operations will not have any degree of confidence in production capability. This lack of confidence will result in conflict with maintenance leading to a lack of co-operation and ultimately further lost production. The subsequent loss in production will impact on the plant profitability. Thus a vicious cycle is set up which becomes difficult to stop. It is a mystery why many plants don't pick up on this simple concept of balance. It is not uncommon to see an organisation completely focused on cost without considering the total picture. If the maintenance budget is reduced without change to other aspects of the business practice, the results will most likely be very poor.

Product quality and production output are interrelated to maintenance. A reduction in maintenance cost will not lead to improved quality and production. However an improvement in equipment reliability will most likely improve production output and quality. Improved reliability, quality and production will quickly recoup any maintenance cost. Maintenance cost cannot be reduced quickly because it takes time to improve equipment reliability. Production can support maintenance on this issue by highlighting the fact that equipment is reliable and efficient when production statistics are being discussed.

To achieve the best and most efficient Asset management regime it is essential that all parties and especially maintenance and operations co-operate. This co-operation

helps to ensure equipment is operated correctly and released on time for maintenance. While operation and release are important operations can provide a significant source of information on impending difficulties. Operators will visit their equipment on a regular basis. By working with maintenance and communicating simple indicators such as unusual noise, increased temperature, unusual gauge readings etc. many impending issues can be identified, thus allowing a proactive approach. This is the most cost effective approach and will yield benefits in terms of yield and quality and increased co-operation.

When prioritising the criticality of equipment, both production and maintenance must be involved in the process. This will allow maintenance and production to see each other as partners. It is an important step in developing a partnership that will allow the organisation to sell, quality product to the customer. No matter how friendly the atmosphere may become, there will be occasions when maintenance and production will be in conflict. There are times when maintenance has one priority and production has another. Production should have the final say in some cases . By letting production take priority goes a long way toward establishing credibility. When push comes to shove, production does take precedence over maintenance work as it is production that pays all of our salaries. However this should be the exception rather than the norm.

■ Availability, Utilisation and Reliability

These are the factors that ensure the a company makes a quality product at the best possible which customers are satisfied with. The are also the indicators that highlight how well maintenance and operations co-operate. Before continuing, it is important to make sure that we all have the same understanding of the terms Availability, Utilisation and Reliability.

Availability:

$$\frac{\textit{total hours – downtime hours}}{\textit{total hours}} \times 100\ \%$$

Utilisation: the proportion of the time that the equipment is available that it is used for its intended purpose.

Utilisation:

$$\frac{\textit{total hours – downtime hours – standby hours}}{\textit{total hours – downtime hours}} \times 100\ \%$$

It is important to realise the difference between availability and reliability. While availability measures the proportion of the total time that the equipment is available, reliability measures the frequency with which it breaks down.

Reliability: how often the equipment does not fulfil its intended purpose – usually measured by Mean Time Between Failures (MTBF).

Reliability:

$$\frac{\textit{total hours – downtime hours – standby hours}}{\textit{number of failures}}$$

Clearly Reliability and Availability are related, but not necessarily directly - it is possible to have a piece of equipment that breaks down frequently, but for short periods, which as a result has a reasonable level of availability. Similarly, it is possible to have a piece of equipment that is highly reliable, but has a low level of availability because it is out of service for maintenance for long periods at a time.

The traditional view of Availability and Utilisation maintains that achieving high equipment Availability is a Maintenance responsibility, while achieving high utilisation is a Production responsibility.

How do these work together to assure control?

The first issue to consider is whether the work backlog is increasing. This could indicate “failure to release”. If so, over a period of time, there is a danger of not maintaining the equipment properly. A small problem not dealt with early can lead to catastrophic failure. Completing scheduled work on time is the best and most effective method of averting breakdowns. Also inventory management plays a very important part in the overall asset management structure by having the correct parts available in suitable quantity and serviceable condition.

In conclusion businesses that have succeeded in creating an atmosphere of cross function co-operation reap significant rewards. This co-operation allows the creation of plans for maintaining equipment that runs 24 hours per day, seven days a week, and permits all departments to achieve their objectives.

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