Maintenance guidance helps strengthen asset management

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Most businesses have assets and those assets must be efficiently and effectively controlled because this has a major impact on the bottom line. Maintenance – the servicing and monitoring – of fixed infrastructure and mobile equipment is an integral and important part of asset management that maximizes an asset's useful lifetime and minimizes its cost, whilst also enhancing its safety.

As a specialist insurance provider to ports, terminals and the freight transport sector, TT Club identified maintenance issues as a recurrent contributor to costly insurance claims. This was a key driver in the development of a newly published 76 page handbook 'The Importance of Maintenance – a handbook for non-engineers'.

The handbook – produced in association with the Port Equipment Manufacturers' Association (PEMA) and ICHCA International – is a comprehensive guide for good practice in maintenance procedures. It seeks to help port businesses assert or improve control over their infrastructure and equipment in straightforward and cost effective ways, thereby improving business operations and making meaningful cost savings.

TT Club analysis

Analysis by TT Club has shown that, in the port and terminal industry, issues resulting from the application of inadequate or incorrect maintenance procedures cause about 25 percent of the cost of equipment damage. Furthermore, about 50 percent of quay crane claims arising from weather issues where cranes are blown along their rails are exacerbated by poor maintenance of gantry motors or brakes. Poor maintenance should clearly be a prime concern to those aiming for the optimum performance of their assets.

The handbook offers readers a general understanding of the critical issues concerning asset management. The guidance aims to be accessible to non-engineers, seeking to help management and decision makers in port facilities. It is also relevant to other businesses involved in cargo handling; it offers advice for improving control of their assets, while, at the same time, maintaining customer service levels.

"The handbook concentrates upon two stages of the asset lifecycle – maintenance and monitoring – but gives a concise picture of the entire lifecycle," explains James Callahan, TT Club board member and chairman, president and chief executive of Nautilus International Holdings Corporation Los Angeles. "It was specifically written with non-engineers in mind and, therefore, not intended to be very technical. Rather, the aim was to emphasize certain key processes that will, ultimately, protect your bottom line and improve profitability."

Operations and engineering

The handbook highlights the need to balance the requirements of the operations and engineering and maintenance departments. There is often a cultural difference between these departments and operations people sometimes see maintenance as more of a hindrance than a help, but maintenance is like fuelling a car: if you don't do it then it will stop working!

While the engineering department is usually responsible for asset life cycle management, the operations department seldom has any significant involvement. As Laurence Jones, TT Club director global risk assessment argues, "This is a misguided strategy as the operations department has an integral role to play. We would urge port and terminal facilities to overcome inevitable cultural departmental differences and to implement an integrated maintenance policy and strategy."

Two common issues

Senior management must address two common issues that often disrupt efficient operations – task scheduling, or the allocation of assets to tasks, and budgetary constraints. Operations and maintenance functions compete for access to assets. However, satisfying short-term operational needs may lead to major asset downtime because of failure – postpone maintenance at your peril!

One of several useful case studies in the handbook describes an incident in Asia when a quay crane suddenly collapsed due to rope failure. Despite broken strands having been found in the boom ropes several weeks earlier, the rope change was deferred due to operational pressure. This failure of task scheduling resulted in the loss of a quay crane and significant operational downtime.

Budgetary constraints

When facing budgetary constraints, a quick and easy way to cut costs is to defer or reduce the maintenance budget – but take caution if considering this approach! A case study from Australasia details how a maintenance department was told to cut its budget by 20 percent. While this, initially, helped finances, it was continued for over six months, with planned maintenance jobs deferred and repetitive tasks and inspection frequencies extended. The number of equipment breakdowns increased, severely reducing ship loading rates, and more business was lost. The situation spiralled and, in the end, the only way to bring the equipment back to acceptable levels was to engage numerous contractors and additional staff for a year. The actual maintenance budget for that year was 200 percent above the norm.

So, if the maintenance budget must be reduced, make it a short-term solution! As an extended solution, it affects reliability and any costs incurred to regain reliability may substantially exceed any costs saved. Impacts on future reliability may adversely affect service delivery with consequent loss of business. It is, therefore, prudent to enforce a realistic maintenance budget on schedule.

Key performance indicators

Having dealt with effective maintenance, the handbook considers the use of key performance indicators (KPIs) in monitoring asset performance from the perspective of both the engineer and the operational manager. In effect, the employment of such KPIs provides benchmarks of the asset status, availability and fitness for purpose.

Many companies view engineering, in general, and maintenance, in particular, as necessary evils, as an expense to the organization or as a non value-added function. Such companies

see little or no value in engineering, they have never learned to measure it and they may not understand how their future competitiveness hinges on it. After all, what you do not monitor and measure, you cannot manage.

Other companies view engineering as a way of reducing product or service delivery costs – in effect, they use asset management as a competitive weapon. Such companies can use the cost advantage to reduce their prices, improve their profit margins and deliver increased shareholder value.

Two different levels of KPIs should be developed: for senior management, the executive summary, indicating performance and, for the engineering department, detailed engineering reports to analyze the things that drive the results. This leads to better understanding and greater control. The handbook offers detailed examples of what should be included in the different levels of KPIs.

In general, the three main KPIs that monitor how a site's assets are being maintained include the safety of personnel and the environment, the performance of equipment and the cost of engineering.

A preventative strategy

Rather than a reactive, tactical, approach to investment in maintenance, the Club argues for a preventative strategy to drive day to day decisions about how to sustain assets – from servicing intervals and frequency, to a responsibility hierarchy. The publication explains software tools that can aid the administration of a planned, efficient, cost based maintenance schedule, but it emphasizes that the fundamental issue is one of management attitude.

From on the ground experience, Laurence Jones says, "Maintenance performed too infrequently will lead to a loss, resulting in unplanned down time. Additionally, the cost of unexpected failure and repair can be up to six times that of planned preventative maintenance. Costs saved by delaying routine servicing are short-term savings that are likely, eventually, to incur financial loss."

Maintenance should only be carried out within the structure of a documented plan, when all the required resources are readily available and at a time that will cause least disruption to customers. It may be performed by in-house employees or outsourced to contractors. This decision is based upon the degree of expertise and equipment which is required, as well as the funds and time available.

It is important that there is a well organized asset management structure. Frontline supervision, engineering and maintenance management, engineering support, training, participative teamwork, and planning and maintenance data management are all key aspects.

Maintenance policy

Every maintenance department should have a maintenance policy that maximizes uptime and minimizes cost. The principal objectives of an overall maintenance policy are to: ensure a safe working environment; protect the company's investment in infrastructure and equipment by introducing a framework for regular maintenance and routine inspections thus maximizing useful life; and provide a structured plan for cost effective maintenance expenditure.

There are two important objectives of an equipment maintenance policy. The short-term objective is to satisfy day to day operational requirements by having equipment available as required. The long-term objective is to maximize the return on investment by performing ongoing maintenance to maximize whole life cost – minimum overall cost is not necessarily achieved by maximizing lifespan.

Practical experience

The handbook brings together the practical experience of those in engineering, maintenance and the operation of ports and terminals, with the TT Club's claims and loss prevention expertise. The TT Club has also deliberately consulted widely with manufacturers and safety experts. The result is a cogent argument that from the strategy or policy level through to the detail of the maintenance plan, effective maintenance is the key to protecting and improving profitability. As James Callahan concludes, "Maintenance is the bedrock of efficient and effective asset management."

'The Importance of Maintenance – a handbook for non-engineers' is available both in printed form and as a download online. It is free to members of the TT Club, PEMA and ICHCA International, and can be purchased by non-members at £36 (about $57) through the TT Club website.

ABOUT THE AUTHOR

Peregrine Storrs-Fox has been with the TT Club since 1984, firstly handling claims and providing advice to all types of transport and logistics operators, until the late 1990s when he was directing claims operations worldwide for the Club. Since 2002, Peregrine has led the TT Club's internal risk management framework as well as directing its loss prevention services to members. In this latter role he has particularly developed links with like-minded trade organisations and NGOs with a view to promote good practice in health and safety matters as well as general operations.

ABOUT THE COMPANY

TT Club is the international transport and shipping industry's leading provider of insurance and related risk management services. The Club specializes in the insurance of liabilities, property and equipment for shipping and cargo handling companies. Its customer base comprises ship operators, forwarders, ports and freight terminals. As a mutual insurer, TT provides its policyholders with industry leading benefits, including specialist underwriting expertise and first class risk management and loss prevention advice.

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