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Strategic Asset Management

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An ICOMS special

In this issue

I was most impressed by my first ICOMS, the International Conference of Maintenance Societies, Melbourne, 1996. It was run with military precision, the papers were excellent (all peer reviewed, a great rarity nowadays), the discussion was lively, and the between sessions exchange most stimulating. It was at ICOMS that I first met David Sherwin, the expert on terotechnology, Ben Blanchard, the US maintenance guru, and Dr Jezdemir Knesevic, the head of MIRCE, the Maintenance, Industrial Reliability and Cost Effectiveness Centre in Exeter, who later became the UK sponsor of the International Asset Management Competitions.

One of the really great things about ICOMS is that they always provide full papers in the conference proceedings and don't fob me off with power point presentations, which can rarely stand alone. So when I received an offer to buy CD copies of all the last five ICOMS (250 papers) for only $132 (incl gst), it was just too good an offer to refuse. I also think it is too good an offer not to pass on!

In this issue I have presented a few excerpts showing the interesting range of papers available – from case studies and practical guidance to keynote addresses and technical studies. Each excerpt can stand alone as an interesting idea to think about or pursue, but I hope they encourage you to go to the originals. (And by the way, this is an 'unsolicited testimonial' – the ICOMS people do not know that I am doing this, but I guess they will shortly, when you follow up with your requests for what I consider to be the bargain of the year! You will find follow up details on page 450.)

Enjoy!

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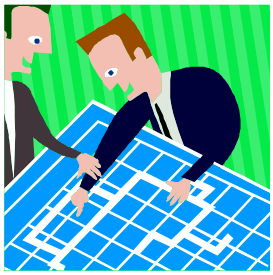
"Take advantage of your recurrent maintenance contractors to vet your building designs before going out to tender" Austin Chapman



Austin Chapman was responsible for the maintenance and restoration of the Rocks Area in Sydney, a task carried out with just one Maintenance Engineer and contract staff

"If you are going to build a building may I counsel you to have your recurrent maintenance contractors inspect the plans before the building is finally put out to tender?

This was a common practice in The Rocks. I would present a set of drawings for a building or renovation, call in all the contractors, pay them for one days work each and ask them to peruse the plans and advise any potential difficulties.

One I will always remember is a gentleman by the name of Kevin Fordam who was responsible for our air conditioning maintenance. Kevin quietly pointed out that between the electric motor and the fan, in the main duct chambers, there was no spacer coupling. Hence, if you needed to either replace the motor or the fan you would have to remove the complete piece rather than drop the spacer coupling and take out the item requiring replacement. Having pointed this out to me he then went on to say that the only way you could maintain either piece of equipment was to cut a hole in the container as no access had been provided.

Another example occurred when we were doing the three-year emptying and repainting of the swimming pool, plus other scheduled maintenance. During the work the boiler started to leak. It was a multi-tubed boiler and, on investigation, there proved to be four or five tubes leaking. If four or five tubes leak, and the boiler is some fifteen years old, then others will also leak. The only way to maintain the equipment was to remove it from the site. All I can say was that at the time of building someone must have said "fellas lets put the boiler in now because once we build this wall we'll never get it in". Needless to say we couldn't get it out unless we cut it into pieces.

You can and should save yourself a lot of money and time if you give some thought to maintenance during the building and construction phase.

From
MAINTENANCE OF BUILDINGS – A 30 YEAR SAGA
Austin Chapman BE MIE (Aust) CP Eng, Austin Chapman & Associates Pty Ltd,
Proceedings of 3rd International Conference of Maintenance Societies, 1998**,**

"The Prime Purpose of Indicators is to Change Behaviours" Brian Sharp

In this excerpt, Brian Sharp talks about goal congruence. He has equally valuable things to say about the perceived fairness of the indicators, and the level of controllability. His whole paper is really well worth reading – several times!

"To be of use, any performance indicator must be chosen so that improvement in the indicator means that the performance of the organisation has improved. This may appear obvious, but it is sometimes difficult to achieve.

Too often indicators are chosen because some convenient number already exists, and without too much thought as to whether improving this number is really what is required to support the organisation's goals.

For example, the lost time accident frequency rate is often used as a measure of an organisation's safety, but does it truly support the 0rganisation's goals? Well if the goal is to reduce the number of lost time accidents, then yes. But if the goal is to improve safety and reduce risks, maybe not. Monitoring safety by monitoring lost time accidents is based on the "pyramid assumption". That is, it is assumed that say (choosing numbers as an example only) for every 100 minor injuries, there is 1 major injury, and for every 10 major injuries there is a fatality. Therefore, if the number of minor injuries is reduced, then general safety must also have been improved, and the risk of a fatality reduced. In practice however, the link between minor injuries and fatalities is by no means linear. Therefore care is required in using the lost time accident frequency rate as an indicator of safety. There is a hidden assumption that must be validated.

The prime purpose of indicators is to change behaviours.

The other key word in goal congruence is behaviour. The prime purpose of indicators is to change behaviours. That is, performance does not improve merely because we measure something, it improves because people will change their behaviours (ie work practices) to maximise the performance measure. Now, continuing with the lost time accident frequency rate example, one behaviour that will improve the indicator is to not report minor injuries (the "walking wounded" effect). This behaviour is generally easier than actually improving safety, so it often becomes the first behaviour change employed. Clearly this behaviour does not contribute towards the safety goal, and must be managed out somehow. It is essential when selecting performance indicators to examine all possible behaviours that will improve the indicator, and then set up systems to ensure only those that actually contribute to the goal will occur.

From
Correct Design and Use of Performance Indicators
Brian Sharp, Manager Plant Strategies, Powerlink Queensland
3rd International Conference of Maintenance Societies, Adelaide, 1998

"Incorporate costs in the life cycle equation" Ben Blanchard

Referring to life cycle analysis Ben Blanchard, the US Maintenance Guru, said

"From my experience in the United States, I find that there has been a great deal of attention directed toward the [technical] "effectiveness" side, but very little attention paid to the "economic" side of the balance. This is particularly true when dealing with the costs of doing business from a system's lifecycle perspective; i.e, the cost of factory operations and maintenance over time.

When visiting different industrial firms, I often ask the following questions with regard to the area of maintenance:

1. What percentage of the final product cost can be attributed to the maintenance of the equipment that is used to manufacture the product?

2. In terms of the "functions" being accomplished, what are the "high-cost contributors" from a life-cycle perspective?

3. What are the basic "causes" of these high costs?

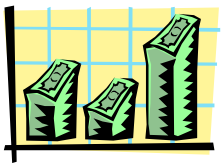
I find that there is, in most instances, a lack of "visibility" in addressing the costs of "functions" over time. While there is a great deal of attention directed toward the end-of-year annual accounting reports, there is little attention paid to the true costs of doing business, using activity-based costing (ABC) and similar methods. Yet, the knowledge of such is critical in the pricing of products and being successful in the highly competitive world in which we live. There is the ongoing question:

What can I do to reduce the costs of maintenance and support in order to reduce the cost of my product and be more competitive in the market place?

There may be any number of system design changes that one can implement for improvement in response to this question. However, one has to identify the problem first and to gain some visibility as to the cost-generating causes! Finally, let me conclude with the thought that one really can't adequately assess the risks associated with the day-to-day decision-making process unless these decisions are viewed from a life-cycle perspective. While your decisions may be based on some aspect of cost, you need to view these within the context of life-cycle cost in order to determine the associated risks.

From
A STATEMENT ON "IMPROVING THE EFFECTIVENESS OF PRODUCTIVE ASSETS"
BS Blanchard, Professor-Emeritus Virginia Tech Blacksburg, Virginia USA
4th International Conference of Maintenance Societies, 2000, Wollongong

"Decision Support Analysis—What happens when the cost structure of the replacement asset is different from the original?"
P. Buckland and N. Hastings



I have always been a fan of the fine work done by Peter Buckland at Hunter Water. Here is just a taste from a joint work with N Hastings of Albany Interactive Pty Ltd.

The full paper covers the economic tools and methodologies appropriate for application to the decision as to when, and how much of, a long asset such as a road or pipeline should be replaced. It demonstrates that those responsible for the management of such assets face unusually complex replacement decisions, the optimisation of which can only be achieved by the development of sophisticated decision support systems.

"It will be evident that if we carry out a "like with like" replacement program the minimum cost of providing the ongoing service will be achieved if we replace each asset with a like asset at the point in time which minimises tan ø "

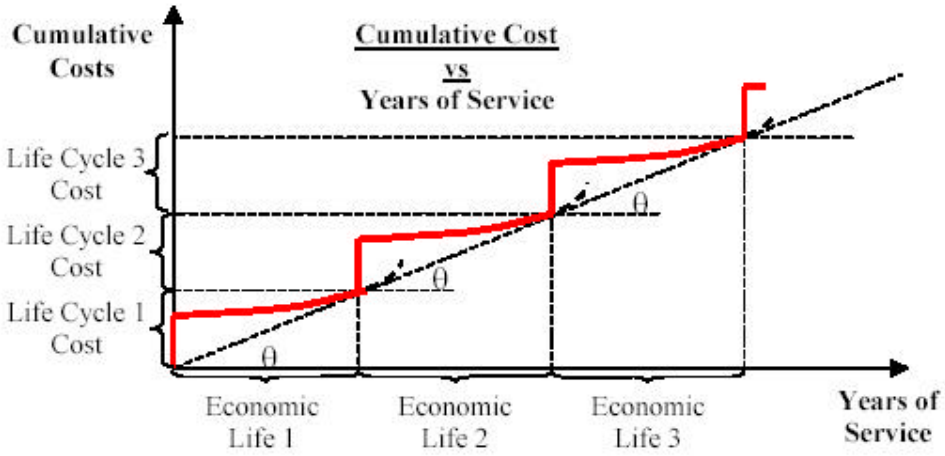


Figure 2

Let us consider what happens when the cost structure of the replacement asset is different from that of the retiring asset. Figure 3 demonstrates this situation with the replacement asset featuring lower capital outlay and a lower operational cost structure.

See over page

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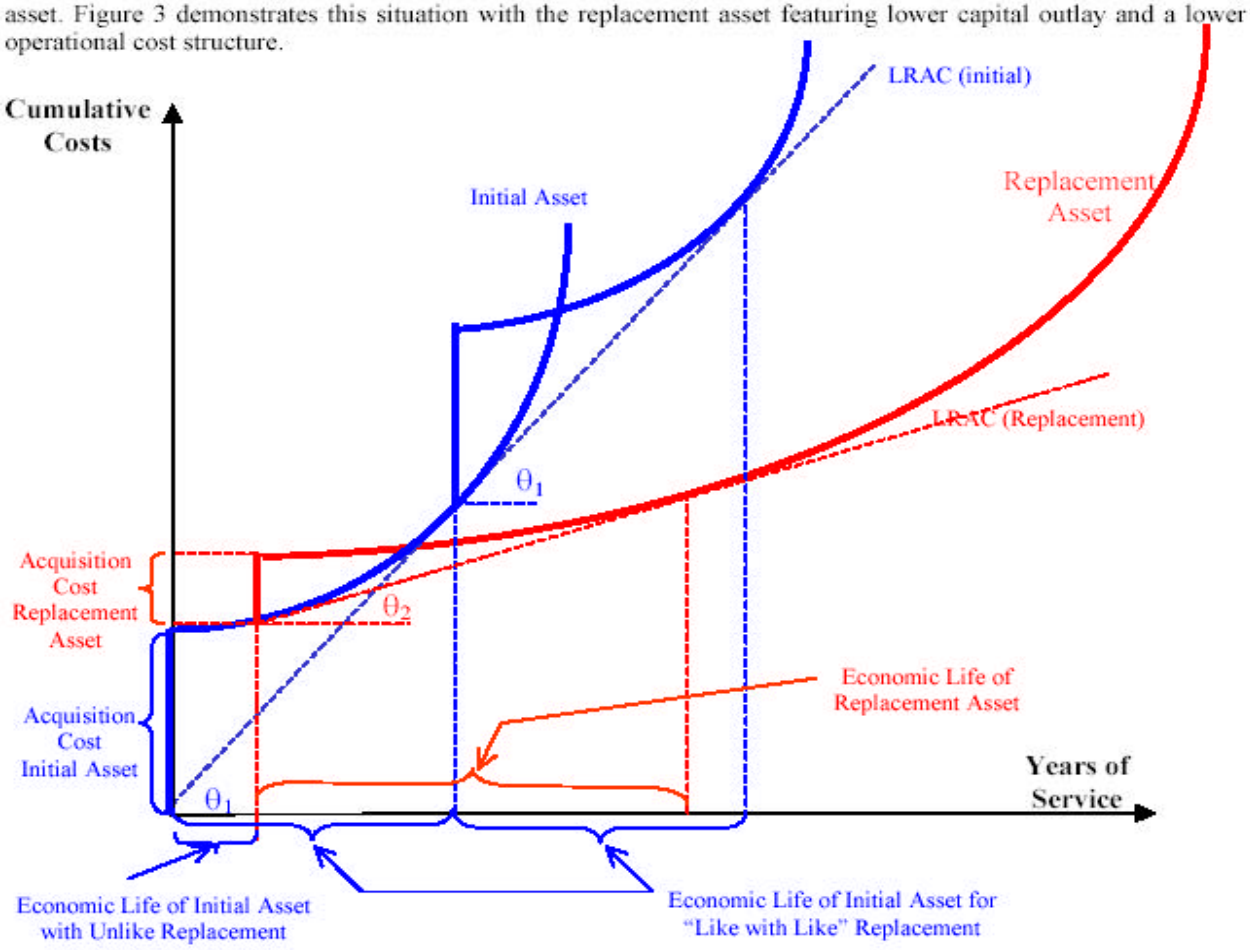

Figure 3

LONG ASSET REPLACEMENT DECISIONS
P.Buckland, Hunter Water Corporation, and N. Hastings,Albany Interactive Pty Ltd
International Conference of Maintenance Societies, Melbourne, 2001

A. Tanner **Problem Solving and the Granville Rail Disaster**

Just finished reading the article on problem solving in issue 107. Some time ago I did a training course in Analytical Trouble Shooting (Kepner Tregoe). The idea behind ATS was to write a trouble statement for the problem ie what, where, when. An important strength in the proposal was to also include in the trouble statement where the problem didn't occur. For example the problem is with MC1 but not MC2 or it happens on the night shift but not the day shift.

A possible cause was then analysed to see if it fit all the facts (for those assets with the problem and those with out it). If causes don't satisfy the trouble statement then the process asked us to identify the differences between where the problem is and where it is not. The next step was to identify any changes related to identified differences. For example MC1 has a cast iron manifold installed 6mths ago. By this stage the problem is usually glaringly obvious.

My reason for going through all this is to raise an issue with the coronial inquiry for the Granville Rail Disaster. Of the reasons why the accident happened I couldn't see an explanation for why the accident happened on that day and not the previous day. Similarly the bridge had been hit on two other occasions but not by every train that went past. This makes me think there is something missing in the factors that contributed to the accident.

G. Johnson **Asset Numbering**

Reading Norm Eason's Chapter 6 was of particular interest to me as we are currently evaluating the pros and cons of trying to somewhat unify our asset naming convention. We are a water and wastewater utility and use a number of naming conventions sometimes even within the same type of asset. I am interested in examples, references, things to avoid, successes etc

David Grugeon **Replacement earlier than planned**

Pet Gripe One of the things we need is to have an infrastructure depreciation system with FEEDBACK. When we find that we are replacing assets earlier than anticipated we need to feed this information into our calculation of useful life of all assets. The decision to make early replacement will then be multiplied by the number of assets and show how, by replacing assets before their scheduled date, the asset base and the wealth of the entity is being run down.

The purpose of financial statements is to provide useful information and this information is not only useful, it is vital to councillors and electors for making decisions

To respond, or have your say, go to www.amqi.com and click "Discussions"

What's New on
The Virtual Asset Management Community Website?
www.amqi.com

Week ending February 23rd

- Norm Eason on "New methodologies and vendor strategies in AIS" (Chaps 12&13) available now on your members page, see **"Members Profiles"**
- New sites added to our **"Great Links"** - want to access and search 2,500 books on line, a number of them with key infrastructure focus? into modelling and systems work? or perhaps facilities management? Then have a look at our new sites.
- **"What's On?"** Find the latest conferences. And if you are an organisation with an asset management theme running in your national conference, or you are running a special asset management workshop, then LIST IT.
- And, at last! Find the complete study on local government infrastructure in South Australia "A Wealth of Opportunities" at **"For Councils"** This report has been designed for easy reading in simple two page modules with pictures, graphs, case studies and anecdotes that underpin the key themes.

Week ending February 16th

- SAM Online - Issue 107 - Looking for the cause of disasters and other mishaps, using root cause analysis and a case study on Australia's biggest rail disaster see **"Sam Online"**
- Norm Eason on "Interlinking your AIS with existing computerised packages"
- Great Links is now operational! Lots of government sites with useful content and a few institutional and company sites that are particularly relevant and useful.

Membership of the Virtual Asset Management Community now stands at 236
(as of Friday 21st February)

Of the last dozen members registering, 2/3 have been from North America

You can gain a lot from communicating with other members via the networking system on www.amqi.com If you haven't joined yet, why not do it now?