

Dr Penny Burns'

## ASSET MANAGEMENT QUARTERLY

ideas, contacts, good practice

June 1994

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**Next Issue:**  
**Special Feature: "Asset Disposals, Problem or Opportunity?"**

## Editorial

"The end point of the maintenance process", says John Edgar, General Manager of Monitek, in the article on page 14, "is to contribute to the production effort! Maintenance objectives may include words such as, availability, reliability and cost but it is their measure in relation to the operation and end product which is the key." John also cautions against mistaking personal desire for corporate objectives! These are timely warnings as we move down the asset management track.

This issue we feature asset management in private industry. While it may still be referred to as "maintenance management" as in John Edgar's article (reflecting the origins of many of the practitioners) or perhaps by the newer term of "property management", even "corporate industrial development", as in the article on the expansion of Southcorps (the old SA Brewing), the ideas are what matters. "For the New Asset Manager" this issue (page 17) attempts to define and delineate "facilities management", "properties management", "maintenance management" and "asset management" but it is clear that each function is in a transitional stage and moving towards wider and wider boundaries, boundaries that increasingly include a major focus on service delivery.

And, it is also clear that, whether in the private sector or in the public sector, asset managers are on a steep learning curve. "Asset Management Quarterly" is designed to help speed the learning!

*Penny Burns*

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If you are seeking information on a particular topic or wish to be put in touch with someone with experience of that topic then you may ring or fax (08) 281 5795. If I know the answer I will tell you. If not, I will try to find out for you. And, if all else fails, I will print your request, if you wish, as a "letter to the editor" so that others may assist. This service does not only apply to literature or people either. If you have a problem that you can't solve, you are welcome to write saying (a) what the problem is and (b) what you have tried so far and with what results. Again, if I cannot make a suggestion which gets you over your block, we will look for someone who can.

### Bonus Issues

Several bonus issues are planned. The first of these "Case Studies in Life Cycle Costing", approx 60pp, covers 15-20 separate life cycle cost studies. Publication around December. Individual copy price, if not included in subscription, of \$55 (including postage).

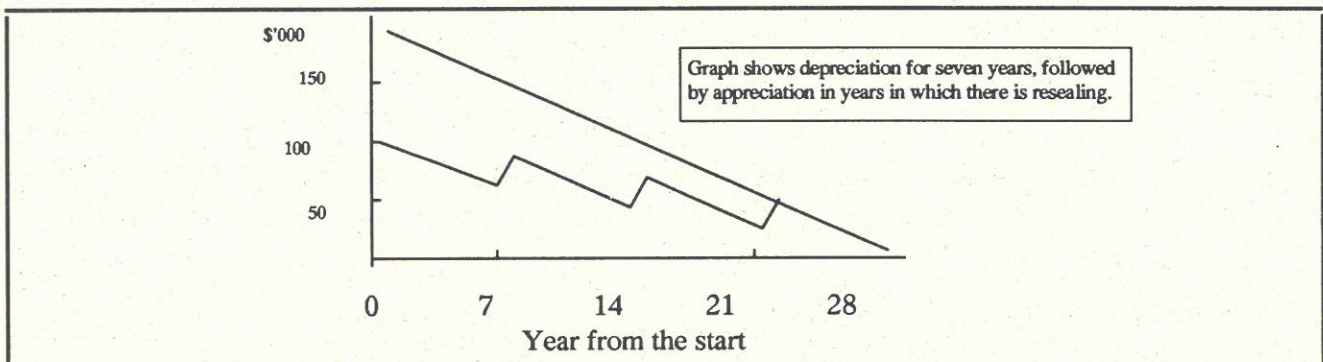
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## Letter to the Editor

Dear Penny,

I found your condition based approach to depreciation most interesting and valuable. I have an approach which is similar in some respects. It was designed in response to a request to address engineers on the topic of the implementation of AAS27. As an example I posed the case of a road which, to simplify it to the extreme I proposed would last 28 years with reseals every 7 years. Say the road costs 100,000 to construct and that a reseal costs 30,000. The whole of life cost is  $100,000 + 3 \times 30,000 = 190,000$ . If this is depreciated over the whole of life of the asset the written down cost could be graphed as follows:



You will note that the actual residual value line on the graph bears a strong resemblance to your real condition line. (Although being for a finite asset mine does hit zero)

I realise that the effect of what I am proposing is the same as identifying separate elements of an asset and depreciating each element over its useful life but I think it is a much easier approach in terms of the structure of asset registers, etc. I do see that there is a need in the real world to cope with assets which have neither a starting point nor an end point and that this may apply to most infrastructure assets. I have, however, two problems in applying your model.

First we are dealing with the recognition of existing assets and it is necessary to recognise the current condition. I suspect that in practice your method would tend to accumulate errors rather than eliminate them. Secondly I have a problem with the 20 year cut off. We know we are dealing with assets with very long lives and that the problem is that the need for substantial expenditure may not be recognised until towards the end of those lives. Condition based depreciation gives fluctuating charges and does not adequately recover costs.

I realise we don't have all the answers yet, but I am sure that engineers and accountants need to work together to achieve better management of assets.

David Grugeon, (07) 225 8678  
Senior Finance Officer, Local Government Finance Division  
Queensland Department of Housing, Local Government and Planning.

*Ed: David will be contributing to the solution of this problem through the NCRB-BAMC co-operative research program so there should be some interesting debate - and useful outcomes.*

## The BIG SAVINGS in Asset Management

**Principle #1: Whatever you can save by buying cheaper, you can save more by not buying at all!**

### Case 1.

#### Launceston Maternity Hospital saves 80% of Construction Costs

This is well illustrated by the Launceston Maternity Hospital. Some years ago when the Launceston General was being renovated it was decided to bring the Maternity Hospital on site to gain the benefits of co-location. When the construction team were handed the specifications pertaining to the existing hospital, the team leader queried whether these specifications were still relevant, since the existing hospital was designed and constructed in the mid 1960s. He offered to organise a small marketing exercise designed to fine up on the real maternity needs of the area. The results showed that since the date of original construction birthrates had fallen by about half and the population in the hospital's catchment area was ageing, so that a smaller proportion was now in the child bearing age range. In addition, new trends in delivery practices (eg, shorter hospital stays, greater use of homebirths) had further reduced total demands on the system. The reduction in the required capacity when combined with new, more efficient, design, resulted in a five-fold reduction in cost, from the original \$25m to \$5m. The total cost of the study, which then became the basis of the project brief, was in the order of \$30,000 - a worthwhile order of benefit from "not doing"!

(The above example was originally reported in the Victorian Commission of Audit Report, volume 2, chapter 12, p296 from information supplied by the Tasmanian Department of Construction.)

### Case 2. Sheltered Workshop Saved from Bankruptcy

Similarly, consider the sheltered workshop to which a colleague of mine was assigned at a time when it was in considerable financial difficulties. His first task, naturally, was to look through the accounts and see where the money was going. "Do you realise", he said, "that whereas in your service strategy you have set yourself the goal of making your clients able to operate independently in the outside world, you are nevertheless devoting a large amount of your capital, as well as maintenance and operating costs, in providing a min-bus fleet to get clients to and from the workshops? Your asset strategy is not in line with your service strategy, the mini-buss fleet encourages dependence not independence."

When the sheltered workshop negotiated with the transport authority to put in a bus stop nearby, taught its clients how to catch a bus and divested itself of its mini-bus fleet, it was able to both meet its service strategy and get itself out of its financial difficulties.

Finally, consider the case of the school where the boiler had broken. The maintenance engineer reported the

### Case 3. Addressing the Real Needs of the Client.

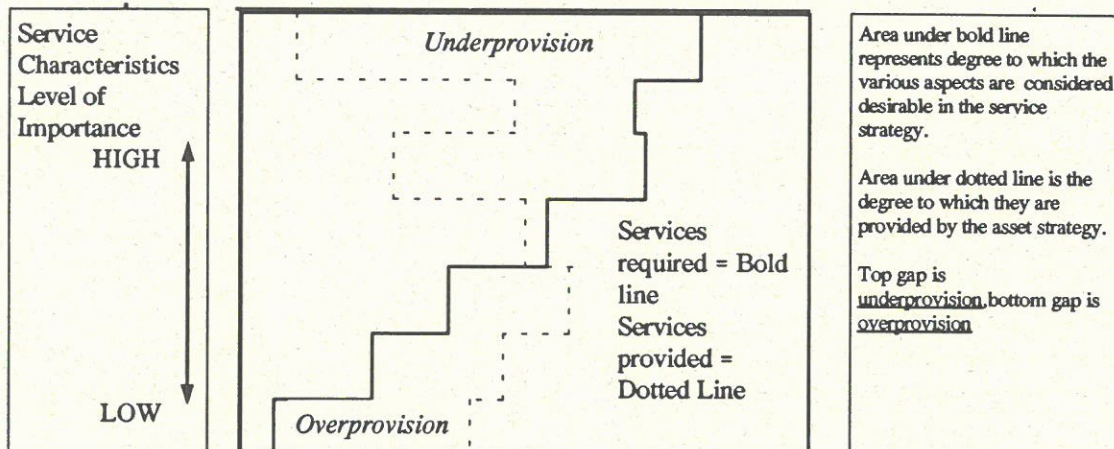
nonfunctioning boiler and recommended replacement. However, although the boiler had been out of operation for a full year and during a particularly harsh winter, it turned out that no word of complaint had been received from the school in question. When the school was approached about their need for a boiler, they replied, that their problem was not one of heating, it was one of cooling. They did not need a boiler, but please could they have an airconditioner! Like the Launceston Maternity Hospital, it is too easy to assume that simply because something used to be in existence, its future existence is required! The boiler is only a small scale savings - but there are many schools - and many instances where the question of need may be challenged. with benefit.

On the next page is a tool to establish whether existing assets, asset strategy, or intended asset acquisition, is in line with real service needs.

## Gap Analysis - Does Your Asset Serve Your Need?

**GAP ANALYSIS** is a marketing tool that could well be applied by asset managers to establish the relevance of their asset choices. Sigrid Pfaffle, of BDA- Business Decision Analysis explains.

Gap analysis is a tool for gathering information critical for optimal operation. It compares perceptions between the organisation and its environment - and between its asset choices and its service needs. Take for example, the sheltered workshop on the previous page. An analysis of its service needs would yield a large number from "creating an independent individual" to "providing useful daily occupation". Suppose that we were to rank these in the order in which workshop staff view these aspects, from those of highest importance down to those of lowest importance. For each aspect we can develop a rating (eg very important, pretty important, not so important, relatively unimportant, etc) or, where people are at ease with figures, a numerical scale of 1 to 5 or 1 to 10. This would perhaps give us a line similar to the bold line in the diagram below.



Now, independently, assess the asset configuration proposed for this function and measure its ability to achieve each of the aspects listed. Each aspect is rated on the horizontal quality scale for the degree to which it is provided by the asset. This might give us something like the dotted line above.

From this we can determine where the gaps are. Large gaps need to be addressed before smaller ones, and gaps in achieving important aspects before those designed to achieve lesser important aspects. Sigrid points out her clients frequently discover they are overproviding on the least important aspects and underproviding on the most important.

However, before any resource re-allocation, it pays to match staff perceptions against those of customers! A lot of our failure to meet service requirements may be the fault doing what we think the client wants rather than what they really want. Again the gap analysis can be used. It is a very useful tool - and one that could supplement traditional financial analysis to establish asset strategies that really mesh with service strategies. It can also be used for identification of relevant performance indicators, customer's perceptions of performance, critical design features, differences between operating and functional units and indicators for ongoing measurement.

Sigrid can be contacted on (08) 31 6686 or by fax on (08) 233 7423

**Your say!** Have you used Gap Analysis or perhaps a similar technique? With what results? What other techniques do you use and could you recommend for analysing demand? Please share your experience.

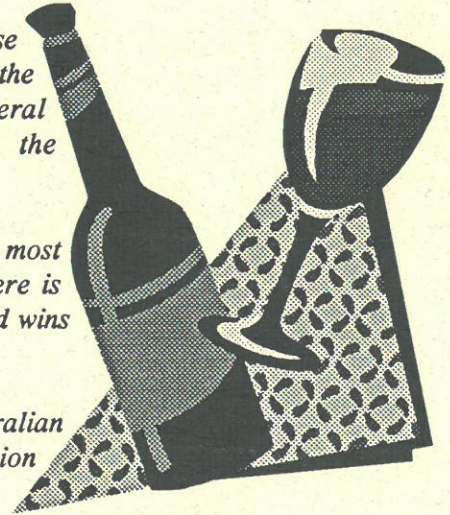
## Case Study Competition Winners

*Thanks to everybody who submitted entries for the case study competition.*

*An honorable mention goes to Phil Giltinan and David Mitchell whose entry began "In summary, we would fire the accountant and change the performance indicator (or on second thought, given the new Federal Government IR legislation, it might be easier to promote the accountant!)..."*

*However our winners this time are Bob Ritchie,, who submitted the most complete entry and David Gabriel-Jones who, recognising that there is always more than one answer to any problem, submitted three! David wins the style award.*

*Congratulations to Bob and David. Six bottles of premium South Australian red are on their way to each winner, together with a personal subscription for one year to AMQ.*



### Bob Ritchie - Senior Consultant, Infrastructure Portfolio, SA.

George Netherby's proposition is to spend \$100 million now in order to avoid spending \$4000 million in 40 years.

I suggest that we compare the value of \$100 million invested for 40 years with the \$4000 million to be spent in 40 years. In constant dollars (that is assuming no inflation), the value for a range of real interest rates<sup>1</sup> is given in the following table for \$100 million invested for the next 40 years. The table shows that for real interest rates less than 10%, it is better to spend the \$100m as proposed, rather than invest it.

\$100m invested, would yield, in 40 years time

5%	6%	7%	8%	9%	10%
\$704m	\$1029m	\$1497m	\$2172m	\$3141m	\$4526m

The relationship between future value and the assumed real interest rate for the period is apparent in the above table. This begs the question of the reliability of some of the other assumptions: such as whether the pipes (if not given cathodic treatment) would have to be replaced significantly earlier or later than 40 years from now. For example, if all other things were as assumed but replacement was in the event not required until 50 years from now, then it would be better to invest \$100 million rather than spend it on the proposed project if the real interest rate for the period is greater than 7.5%. On the other hand, if the pipes had to be replaced in 30 years, the project would be a good investment for any conceivable real interest rate.

Therefore, if George has correctly represented the time at which replacement of these pipes will be economic, and if the real interest rate for the period will be less than 9.6% on average, then the proposal appears to be economic and it should be compared with other investment proposals, for decision on which investments will occur.

Incidentally, the value of the proposed \$100 million investment is not \$900 million. It is the net present value of the investment: \$167 million if the real interest rate is 7%.

We now consider Anna's view that the increase in the value of assets will decrease the rate of return on assets, the agency's key performance indicator.

Indeed it will! All other things being equal, it will also increase profit because annual depreciation will be halved. For the first year, however, there will be a once only very large increase in both profit and the rate of return on assets, arising from the revaluation.

The rate of return on assets is an imperfect indicator. This may be demonstrated by assuming no changes<sup>2</sup>. Year after year, depreciation expense remains constant and the value of assets is written down a little more. While the numerator remains constant, the denominator decreases, yielding annual increases in the rate of return on assets for no management action or operational improvement.

**Bob Ritchie, Senior Consultant, Infrastructure Portfolio (08) 201 1808**

<sup>1</sup>Crudely expressed, real interest rate is the difference between the market interest rate and the rate which the market assumes inflation will be.

<sup>2</sup>Other than, possibly, introducing cathodic protection as proposed. (The argument does not depend on whether the investment occurs)

## David Gabriel-Jones, Royal Melbourne Botanical Gardens

### Advice to George and Anna

1. Dump the cathodic protection and install state of the art anodic destruction technology, which will corrode the pipelines away in 20 years. Their residual value will halve, Clena's rate of return performance indicator will enjoy a spectacular rise, and George and Anna will both get big bonuses.

2. Go ahead with the cathodic protection. 40 years ago Clena Waterways built the pipelines with capital borrowed from the World Bank. The loan runs for 80 years - the projected life of the asset. Clena's consumer charges have been set to cover the capital and interest repayments. Now that the loan can be restructured over a much longer period, it can readily be demonstrated that consumers have been grossly overcharged. George and Anna should take the story to the media. The Minister for Wet and Dry will be forced to resign, the consumers will all get a windfall cash reimbursement, and George and Anna will be elected to Parliament on a tidal wave of popular acclaim.

3. Clena should enter into a sale and lease-back arrangement with Mega National Investments. Mega National will purchase at valuation (\$2 billion), install the cathodic protection (\$100 million) then on-sell the asset to Ultra Global at its revised valuation (\$3 billion + \$100 million). Mega National's profit will be \$1 billion, of which a mere 1 percent (\$10 million) will fall due to George and Anna as their consultancy fee. They can run away together and live happily ever after in a villa in Majorca.

**David Gabriel-Jones, Manager, Major Projects, Royal Botanic Gardens (03) 655 2300**

## An Asset Register For Accrual Accounting & Asset Management

Munno Para Council can easily answer questions such as the following:

"What is it costing council to operate its sporting reserves or to maintain its office/depot buildings?"

"Are sufficient funds being allocated to the maintenance of assets?"

"What are the unit costs of constructing footpaths, installing traffic signs, etc?"

"How much should be allocated to replacing existing assets?"

Council has implemented Stowe's Total Corporate System (TCS) software on an IBM AS/400. A "PC" based application brings together corporate data from Stowe's cost ledger and asset register and provides supervisors with a facility to produce work orders for individual work groups. The system is known as PC-Works, and contains a register of all streets within the city, a copy of the asset database maintained on the AS/400 and a list of about 600 standard jobs (sub-accounts) that can be performed on assets (eg mow lawn, repair footpath). Council can track the efficiency and performance of any of these standard jobs.

The account structure consists of a 2 digit code for the ACTION undertaken (eg operate, maintain, upgrade); a 3 digit code for the ASSET CATEGORY (eg Office/depot land, vehicle) a 2 digit account qualifier (hardly ever used but available for exceptions) and a 3 digit STANDARD JOB code (eg water grass, repair door) The combination of the first five digits of the code define activities undertaken by council, eg Operate Road Res Land, Maintain Play Equipment, or Install Street Furniture.

The Stowe asset register is a non-structured system, a 6 character ID is followed by two lines of description which can be searched for key words! This means that you do not have to anticipate all your future and changing needs at the time of setting up your register. Wayne has used it quite flexibly, mass creating header lines for all possible assets in each street (using a DBase fill type operation) gradually filling in the detail with works in progress or expensed (ie acquired).

Work requests are created in PC-Works by selecting a work address, eg Samuel St, Smithfield; an asset, eg Footpath, Samuel St and a standard job, eg repair footpath. The selection of an asset and standard job automatically assigns the correct cost account to the work request. This eliminates the need for supervisors to try and work out which account/job number should be used for the work to be performed. Work orders are completed and the information fed back into the system on a daily basis, eliminating the need for time sheets (the starting and finishing times are on the work orders) and providing an up to date information system for all management purposes.

Wayne demonstrated the capabilities of his system to a keen audience at a recent National Seminar on Asset Management in Parks and Recreation. He says the key to success is having software flexibility and the imagination to use the software to the maximum. (Wayne practices what he preaches: on the day we spoke, he was heading off to one of the regular users sessions run by Stowe Computing for its clients)

Contact: Wayne Wright at Munno Para Council on (08) 254 0123 and Mark McInerney or Gary Dohnt at Stowe Computing Australia (08) 372 6111

**Your Say:** What asset register hints or advice do you have? What would you like your register to do, but it can't? What systems could you recommend to others? Write to the Editor or start a dialogue with Wayne.

## Life Cycle Costing & the Effect of Time

Anyone who has ever put some good bottles down in the cellar to mature knows that time has a value - it also has a cost. Failure to recognise that cost in life cycle analysis can result in overstating the benefits of building in longer life.

John Howard, Manager Technical Services and City Engineer of the City of Devonport, Tasmania, demonstrates how this operates. The Australian Model Code for Residential Development specifies a life of 20 years for urban residential roads. What, he asks, would be the effect of increasing the design life?

Say the cost of a pavement with a 20 year life was \$33,550. Then with a life of 20 years the annual depreciation cost would be \$1,678. However, if the design life were to be increased to 50 years, the capital cost would increase to \$36,542 to allow for additional excavation and pavement depth costs but annual depreciation would fall to \$731. For a design life of 100 years, the pavement capital cost would increase to \$38,786 but the annual depreciation cost would fall to \$388. This is summarised in the following table.

Design Life	Capital Cost	Annual Depreciation	Annual Savings from adopting longer life
20 years	\$33,550	\$1,678	
50 years	\$36,542	\$731	\$947
100 years	\$38,786	\$388	\$1,290

It would appear absurd to do anything other than build to the longest life possible.

However, John recognises that the extra capital will require extra interest payments. At an interest rate of 10% the interest payable on each option would be \$3,355; \$3,654; \$3,879 and the all up annual cost would be:-

Design Life	Capital Cost	Annual Depreciation	Interest (10%)	Annual Costs	Annual Savings from longer life
20 years	\$33,550	\$1,678	\$3,355	\$5,033	
50 years	\$36,542	\$731	\$3,654	\$4,385	\$648
100 years	\$38,786	\$388	\$3,877	\$4,265	\$768

Introduction of the interest component has greatly reduced the attractiveness of the 100 year option relative to the 50 year option as well as the savings to be achieved overall, although both still offer useful benefits over the 20 year life option.

At an interest rate of 15.5% the 100 year option would actually yield less savings than the 50 year option (try it!)

Failure to account for the interest costs can lead to such proposals being rejected by Councils or Boards even when they are intrinsically well founded.

John Howard is the Immediate Past President of the Tasmanian Division of IMEA (Institution of Municipal Engineers) and convenor of the IMEA National Asset Management Steering Committee which will shortly be releasing its National Asset Management Manual and training program for local government. John may be contacted on (004) 24 0551.

## In Brief

**Maintenance and Repair Required Earlier in Remote Housing.** Of the 12,000 houses in rural and remote area housing managed and owned by Aboriginal and Torres Strait Islander organisations, 39% appeared to require major repair or maintenance. This was occurring at a much earlier age (around 10 to 15 years) than that suggested for urban houses (around 30 years) in an earlier study carried out on stock owned by the SA Housing Trust, reported Ray Kent, Manager, Community Housing Infrastructure Program, ATSIC at the Indigenous Australians Shelter Conference held in Brisbane last November. Analysis of the needs survey is proceeding. For further information, ring Terry Mowle on (06) 289 3133. or write Colin Plowman, AstGM Community Services, ATSIC, PoBox 17 Woden ACT 2606.

**Asset Revaluation and the RAT test.** This NSW Government Pricing Tribunal's discussion paper is in preparation for a major electricity review. The Recoverable Amount Test (RAT) supports the revaluation of non-current assets, to ensure that values recorded are not in excess of the discounted cash flow that could reasonably be expected to be generated by those assets. With RAT, asset values are determined by the NPV of discounted future cash flows. If prices are set below recoverable levels, the value of the assets thus obtained will be below the replacement cost. The discussion paper reports that "Sydney Electricity's recoverable amount valuation remains well below the written down replacement cost. Despite a 25% increase in the reported asset value in 1992/93, supported by a more favourable pricing outlook and RAT outcome, the recoverable value was still 10% below the written down replacement cost." The paper also comments on the impact of the Grid, and on extended asset lives for Pacific Power, on the value of assets. A copy of the paper is available from the author, Elsie Choy, who may be contacted on 02 290 8488.

**Benchmarks 1991.** The International Facility Management Association (1 East Greenway Plaza, 11th Floor, Houston, TX 77046-0194, USA) have issued a 58 p research paper (#7) covering facility description, size and use, vacancy rates, churn rates, financial indicators and maintenance costs. (or contact the Sydney office 02 331 6920.

**Benchmarks in Pictures!** But for those who would like to see rather than read, Video Communicators (08 267 2788) have produced a 15m video "What is Benchmarking?", using Xerox and Toyota as case studies and covering the what and how to of benchmarking.

**Cash accounting can be rigged to give any answer that is desired,** according to Professor Robert N Anthony in "Games Government Accountants Play" in Harvard Business Review, vol 63, no 5 Sept/Oct 1985, pp161-170. Although now an old reference it may be worth refreshing memories on why so much effort is now being made to adopt accrual accounting methods. Anthony lists seven methods of rigging - all of which were consistent with GAAP! "In 1979 Buffalo, New York, recorded a small surplus of \$317,407. After the proper adjustments, the real bottom line was a deficit of \$19,345,020 - or more than 10% of its revenues!

**How Managers can cut expenses they once ignored.** "Uncovering your Hidden Occupancy Costs" by Mahlon Apgar, IV, in Harvard Business Review, May-June 1993. pp124-136. "In the 1980s, Shearson's branch occupancy costs grew faster than revenues, earnings, and even personnel expenses." reports Apgar, in this article in which he presents four basic tools to get occupancy costs under control (1) Occupancy cost history, (2) Occupancy Loss Analysis (3) Component Cost Analysis and (4) Lease Aging Profile. The three cost drivers, he says, are Leasing, Location and Layout. A detailed, useful reference article.

**"The Handbook of Capital Investing: Analyses and Strategies for Investment in Capital Assets."** by Anthony F. Herbst. Harper Business. New York, 1990. A handbook with warnings. A good overview of the many ways of evaluating capital projects with the strong and weak points listed for each. A good basic book for the accountant but probably too detailed for the general reader. Some advanced work on capital budgeting under risk - with and without diversification, including the capital asset pricing model. and the arbitrage pricing theory. Has a 60 page appendix of financial mathematics tables and formulas.

## ANSETT AUSTRALIA - Contracting Out

The airline industry has undergone major change throughout the 80s and 90s evolving from a position where many airlines purchased aircraft and capital equipment outright to the leasing of such equipment.

This, along with the return to the "core business" of moving people and freight, has seen airlines restructure their maintenance facilities into commercially oriented profit centres and in some cases opt to contract out selected areas of maintenance.

Whilst the practice of benchmarking is widely undertaken in the aircraft industry, the airline that opts to contract out must be committed to benchmark their own fleet performance against industry standards and published worldwide fleet statistics. In addition to this the customer should also have an understanding of their own service level expectations, which may vary from the industry standards and will need to be clearly communicated to the contractor. A failure of the contractor to meet these service criteria should result in corrective action, the invoking of punitive measures or at worst a change of contractor.

Wayne Smith, Engineering Business Manager for Ansett Australia says that whilst the industry standards of repair and overhaul are tightly controlled by regulatory authorities and manufacturers requirements, customer experience with the quality of the product delivered may vary from contractor to contractor. Poor quality repairs may not manifest themselves until an engine is removed prematurely or serviced by another contractor at the next major overhaul.

**"Monetary recompence may be an inadequate deterrent to poor contractor performance"**

In the airline industry the provision of punitive measures such as discounted costs or other monetary recompence may not be an adequate deterrent to poor performance and contractors are unlikely to accept liability for foregone revenue. In such cases the provision of a replacement item where practical, may be the best solution.

For example, a failure to meet contracted turn around times on an engine through the actions or inactions of the contractor may force the customer airline to ground an aircraft. In this case the provision of a free of charge engine until the delivery situation is corrected implies that the contractor make an investment of roughly US\$4M (for a modern small engine) or meet the lease costs of such an engine. Either option is expensive and helps to keep the contractor focussed.

However, in the end, good performance can rarely be "punished in" and a successful, proactive maintenance program requires close cooperation and hard work by both parties. It is a Partnership in the truest sense of the word.

- Wayne Smith may be contacted on (03) 3396061

**Your Say.** What suggestions do you have for achieving an effective relationship with contractors?

**Point to Ponder:** "Quite often the thinking behind road construction is muddled. Usually they are built to "ease congestion" - only to create more elsewhere. The fact is, of course, that roads do not cure traffic, they produce it. The average person is willing to spend some forty minutes getting to work and whether he travels five kilometres or five hundred in that time is a matter of supreme indifference to him. Thus better road systems tend to result in people living further from their place of work and spending more money getting there" Alan E Thompson. "Understanding Futurology. An introduction to futures study." p.18 David and Charles. London. 1979

## BP - a "Re-Engineering" Approach

After successfully tackling a number of other processes in their businesses, BP Australia is now taking a Business Process Simplification ("re-engineering") approach to asset management.

A process is any activity or interlinked group of activities which takes an input, adds "value" to it and provides an output to an external or internal customer. Process go across the business; they cross departments and functions rather than go down them.

At BP Australia the purpose of the Manage Asset Resources BPS is to achieve maximum value from investments over the long term by identifying and prioritising improvement opportunities that support the strategic direction, appropriately timing their implementation and taking them from idea to start up faster and more effectively than the competition.

Over the past 6 months the BPS Team has been undertaking an "end to end" analysis of the total process - from asset specification, design and obtaining approvals, to asset installation, commissioning and establishment of an asset register. Asset operations and standards audits, repairs and maintenance, asset movement, utilisation and performance tracking, asset decommissioning and asset disposal (including indemnity) have all been examined. A large number of interviews have been conducted to establish the issues that need resolution and shortly a series of workshops will begin, to identify options for improvement.

**BP are seeking to establish benchmarking partners to improve their asset management. Interested? Ring David Cahill on (03) 268 4449 or Mike Lloyd on (03) 268 3663.**

The team are also currently seeking to establish benchmarking partners. Benchmarking enables us to understand the "health" of the process compared to our partners and track continuous improvement. Benchmarking is seen as a key success factor for BPS, along with strong support from senior management, integration with customer responsiveness work and communication; elements which support BPS as a vehicle for success.

### Acknowledgements

*A number of the contributors in this issue of Asset Management Quarterly have spoken at previous IIR Conferences: - Wayne Smith of Ansett Australia, Peter Mansfield, Shell Australia, John Edgar, Monitek and, one of our case study winners, Bob Ritchie, Infrastructure Portfolio, SA. If you enjoyed and benefitted from their contributions, you will have an idea of the quality and calibre of people that IIR attract and would probably also enjoy and benefit from attendance at the IIR Asset Management "Best Practice" Conference which is detailed on the inside back cover. I will be chairing the first day's session and speaking on the second day and I would love to meet you - so please come up and introduce yourself. Penny Burns.*

## BRIDGESTONE - Organisation Simplifies Asset Management

Paul Roocke, Divisional Financial Controller at the Bridgestone Tyre Plant says that asset registers have a way of getting out of date unless checked regularly but stocktaking is a heavy periodical resource drain. To overcome this, Bridgestone have developed a 24 month continuous checking cycle, with one section of the plant checked each month. Assets are tagged and location noted. Engineers are responsible for advising of transfer between departments but, if missed, these are picked up by the co-ordinator in his checking cycle. This system has now been in place for five years, and Paul reports that the system has clarified asset control procedures for both engineering and line management, ensuring that disposal decisions are correctly made and authorised and, on the accounting side, ensuring that assets in the Balance Sheet correctly reflect what is on site.

The problem of integrating supply and demand analysis in asset management has been overcome by an organisational arrangement whereby the marketing division is the client for the manufacturing division. The marketing division makes the demand assessments - what markets, what quality, what quantities - and it is then the task of the manufacturing division to meet the quality and quantity targets at the lowest possible cost. This enables the manufacturing division to focus on the engineering and financial aspects without the company, as a whole, losing sight of the demand side of the equation.

**"A 24 month continuous checking cycle relieves the pressure on human resources that stock take often presents."**

Corporate policy for acquisitions has been well established and integrated with the three year business plan, but, as with other agencies, Bridgestones recognise that disposals still present a problem. In today's cost conscious world there is a natural reluctance to spend money on disposal so that unless assets have a salvage value that exceeds their cost of dismantling (often not the case) they tend to stay on the books, and on site, even though non-operational. Decision analysis then looks at the holding costs (ie space availability).

On the forward planning list is a computer system that can measure down-time, production and inventory control by machine so that regular feedback can be provided to supervisors to help them improve productivity. However Paul warns against the "excess information" syndrome - there is no use, he says, in producing information unless it is in a form that the people on the floor can understand and use.

Paul may be contacted on (08) 282 2222

### Point to Ponder:

"In 1989, Australians were duly horrified when a head on collision between two passenger coaches killed 35 people and injured many more. The coaches were travelling between Sydney and Brisbane, on a highway that runs parallel to a high capacity and relatively lightly utilised railway line.

The New South Wales Government, whose responsibility the road is, called for a special levy of \$1 billion to be made against the whole of Australia's taxation revenue to improve the Sydney to Brisbane highway.

At the same time, the New South Wales government, which owns the railway line, is eliminating sleeper, dining car and motor-rail facilities in an attempt to save \$1m or so per year, and double that when the passenger numbers fall to the point that passenger services can be cancelled altogether.

The present (1990) government in New South Wales has been praised for its economic rationalism."

John Legge. *Chaos Theory and Business Planning*. p. 75

## Monitek Clarifying production objectives to improve maintenance

The end point of the maintenance process says John Edgar, General Manager of Monitek, is to contribute to the production effort! Maintenance objectives may include words such as, availability, reliability and cost but it is their measure in relation to the operation and end product which is the key. John cautions 'against mistaking personal desire for corporate objectives or confusing activity with improvement.

John adopts a process approach and focusses on a couple of areas which he calls "leverage points". In his process model these are "planning" and "stores". John explains that planning brings together the key inputs of condition monitoring, communications and statistics and outputs to demand for stores and to job efficiency. Similarly "stores" also sits at the node of inputs (such as total workload) and outputs (such as availability and job efficiency). Improvement in these two areas has been, he says, a catalyst for improvement throughout the entire process.

The Bougainville Copper Concentrator Division Crushing Plant addressed these issues in the late 70s. As a result, engineering down time fell from close to 600 hours per year to about 200 in just 3 years and has continued to fall.

Howick Coal which is a medium size coal mine operating in the Hunter Valley addressed the issues in the early 90s and Maintenance Hours per Machine per Month fell from an average of 119 to an average of 88 in less than six months.

**".. the maintenance staff were able to develop a vision for the future, one that involved them! They knew what was wanted! They understood the process and identified the leverage points."**

This happened because the maintenance staff were able to develop a vision for the future, one that involved them! They knew what was wanted! They understood the process and identified the leverage points.

The final part of the story is the "management equation". Put simply, says John, 'it is the quality of the information combined with how it is managed, together with the quality of the people, their understanding, how they are managed, how they are structured, their freedom and willingness to make decisions, which are the salient factors in the equation. This combined with the structure and organisation of the resources are the foundation elements in achieving the correct action at the correct time and at the desired quality.'

John spoke on this topic at the IIR Conference on Maintenance Management in March this year. He may be contacted on (07) 832 5138 or by fax on (07) 832 4769.

### A design solution.

A professor of mechanical engineering gave his class an exercise in the design of a pressure vessel. Their designs, with costings, had to reflect the following specifications:  
 to withstand positive pressure to 250 psi  
 to withstand vacuum to 3 or 4" water guage  
 must be transportable & re-usable/refillable  
 to be made in capacities of .5 to 2.5 litres

must withstand acids to pH-2  
 must withstand alkali to pH-12

At the next class, student papers were pinned around the room showing the results. There were stainless steel vessels with flanged lids, carbon steel units internally coated, a fibreglas vessel and even one made of titanium. Costings varied from \$70 upwards. The Professor walked to the board and wrote "beer bottle, seven cents!."

## Shell - Adopting a holistic approach to maintenance

Shell Refining at Geelong is moving from a "fire fighting", close focus maintenance approach to a wider more holistic approach that is very much asset management oriented in its focus on service. Already good results have been achieved. Peter Mansfield, Technical Manager, explains the approach and its results to date.

He explains the holistic approach of the Shell refinery maintenance team as "a partnership between operations, maintenance and technical support", all in support of improved plant reliability. To do this Shell's approach is to involve maintenance personnel in operation and vice versa and, in general, to remove the big functional organisation separating people.

Peter illustrates this point by referring to an everyday example of the owner of a car with a manual transmission and a clutch. "As robust as a modern clutch may be, its life can be dramatically shortened by the way the driver uses (or abuses) it. Unfortunately, the quality of any subsequent repairs by a Motor Mechanic will do little or nothing to extend its future life - unless the Mechanic takes a little time

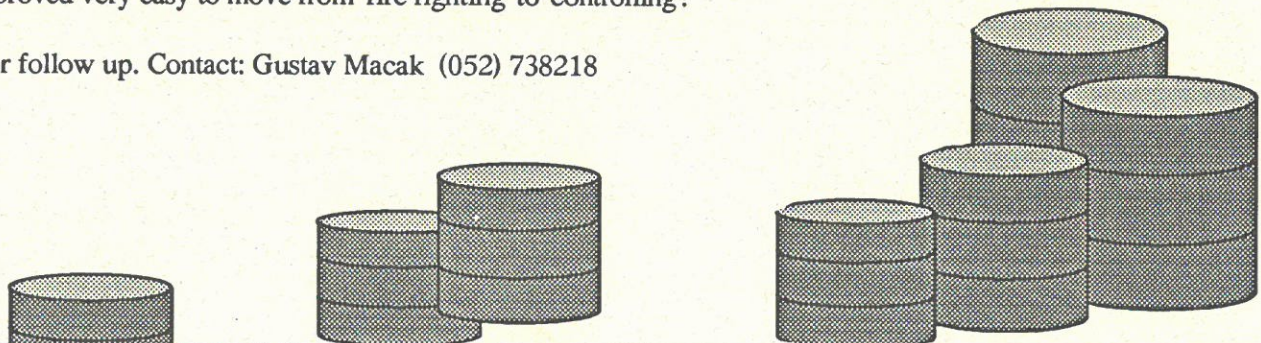
to understand the previous failure history of that clutch,  
to understand whether or not it had been used within design parameters and finally,  
*to train the driver in a more appropriate way to use his clutch."*

Everything needs to come together he says, equipment design, operations, maintenance effectiveness, reliability management (including recording, setting targets, investigating failures) and human reliability (including a belief in the vision, competence, training, flexibility and loyalty).

**"Within weeks of analysing the root causes of the failures and applying preventative and monitoring techniques, the number of out-of hours calls dropped by an order of magnitude."**

Peter admits that they haven't got it all right, yet. In fact, since the goal is continuous improvement, they probably never will have it 'all right'. He cites a recent example of a newly commissioned processing plants where quality measuring instruments played an important role in plant performance. During its first year of start up, it was common to have the maintenance technicians called into the refinery for out-of-hours adjustments several times a week. We would not have been the first operation to live with this "fire fighting" approach, he says, but the solution proved to be surprisingly easy. Within weeks of analysing the root causes of the failures and applying preventive and monitoring techniques, the number of out-of- hours calls dropped by an order of magnitude. Although the reduction in overtime costs and the maintenance effort was appreciable, it was insignificant compared to the benefit to the business. The point I wish to stress is that - at least in a small part of our business, it proved very easy to move from 'fire fighting' to 'controlling'.

For follow up. Contact: Gustav Macak (052) 738218



## Southcorps - rapid expansion



Southcorps Holdings Ltd has grown from a company that owned a brewery, a winery and about 100 hotels - mainly in South Australia, to the position today, some six years later, where it owns over 88 manufacturing sites (minus the original brewery and hotels, which it has since sold) and operates in 180 locations in Australia, NZ, Asia and North America.

How does the company control such a rapidly increasing, diverse and geographically spread asset base? Answer: good organisation and a sound information base.

Damien Brown, General Manager, Property, says two and a half years ago each site was visited and analysed - was it required? what was the level of mobility of the operation carried out on the site (ie could it be located elsewhere)? was it adequate for current operational purposes? Was it flexible (ie usable for other purposes)? What were the development opportunities?

Information collected included basic details such as address, land titles, etc, who owned it (ie which subsidiary) building area and land area, and location cross referenced to locational characteristics - such as "4km N.E. Brisbane, 2km from river, separated from a narrow peninsula of land from another factory site owned by the company." Constraints included zoning and potential for rezoning, whether it conformed to current use, potential flooding and description of possible limitations such as "narrow block, limited street access".

Damien is well pleased with his incredibly rich, but pragmatic, information base designed and carried out by Geoff Hayter, of Colliers Jardine, with options on each property, including valuations, and recommendations for action. Geoff classified the extensive holdings into four operational groups (packaging, wine, appliances, and international) and analysed them state by state. Property information is now instantly available to Damien via computer screen allowing him to be fully informed of the site characteristics when receiving telephone requests for development options from anywhere in his far flung territory.

**".. a prime function is corporate image.. but site managers have an incentive to reduce maintenance to keep up operating profits, they may not understand property matters and corporate image may not be high on their agenda"**

Up to now, Damien says the major decision has been what to own and what to lease. Now that these issues have largely been addressed, he is turning his attention to the vexed question of assuring that adequate maintenance is being carried out at the unit level. "For us, a prime function is corporate image. It is not sufficient to produce a good product, the whole business has to look good too. But individual site managers have an incentive to reduce their maintenance costs to keep up their operating profits (at least in the short term), they may not understand property matters, and corporate image may not be high on their agenda!" We have developed maintenance policies for prime sites and decided which are long term expendable - it is the many in between which will be the focus of our attention now.

Damien Brown, Southcorps may be contacted on (08) 239 7777

For information on developing property data bases contact Geoff Hayter, Colliers Jardine, on (08) 231 7711

## For the New Asset Manager

I asked the Financial Controller of General Motors Holdens about his asset management. What assets do you mean, he replied, people, finance, technology, information or real property? And if that is not confusing enough, consider the many branches of management dealing with fixed assets or real property - facilities management, property management, maintenance management and, of course, asset management. Where does one start and the other end? All branches are in the process of widening their boundaries and, in the process, overlap each other. But here are some starting definitions:

**Facilities Management.** The Glossary of Building Terms defines this as: "The process of planning, managing, maintaining, rationalizing, and accounting for facilities and associated services, whilst simultaneously seeking to reduce the associated overall costs. The primary focus of facilities management is to provide the optimum level of facility for the least financial outlay."

Facilities Managers are involved with building fitouts and maintenance, rents, running costs, communications and computer equipment, engineering services and occupational health and safety. Facilities Managers are "hands on" doing managers.

The related "strategic" role is taken by the **Property Manager**. The Property Manager is not involved in the day to day running of the facility but will be concerned with the general disposition of the agency's properties, which to keep, which to sell, which to lease, which have long term potential, which will be kept temporarily because of the market situation but are long term disposable. This "strategic" property role is rising in corporate importance.

"In the past, corporate management often did not consider the corporate real estate function to be as important as the four corporate resources of capital, people, technology and information. Senior managers had not learned to ask how the function could create more value for the company and help to meet the overall corporate mission. Today that goal is being pursued aggressively. Senior managers now are be-

ginning to recognise that real estate is a critical strategic asset, one that supports the financial, work environment and operational needs of the total corporation. As a result... corporate real estate is emerging as the fifth vital business resource." (Introduction to "Corporate Real Estate 2000, Phase One, Strategic Management of the Fifth Resource: Corporate Real Estate, A Summary of the May 1993 Report to the IDRC (Industrial Development Research Council).)

Whether the agency is a private corporation or a large property owning government department (eg Health Commission, Education Department) the role of the Property Manager is a strategic one and differentiable from that of the facilities manager whose job is tactical.

**Maintenance Management**, is defined in the Glossary of Building Terms as "The organization of maintenance activities *within an agreed policy*." (where maintenance itself is understood to be "all actions necessary for retaining an item or asset in, or restoring it to, its original condition.) The essence of this definition is "within an agreed policy". It is the determination of these policies that is the role of "Asset Management". Thus, in a sense Asset Management is to Maintenance Management what Property Management is to Facilities Management. Both Asset Management and Properties Management are strategic - that is they focus on the service mission of the agency as a whole. **Asset Management**, being the broadest of the terms, could be said to encompass Property Management as a buildings subset.

However, having said all this, we will find - of Shell's "holistic" approach to maintenance on page 15, that increasingly those involved in maintenance are taking the wider, service, perspective. The active Asset Manager will find something of use in all of these disciplines. Be eclectic, learn from all disciplines. In the next issue I will report on the development of Facility Management training courses around the country.

NCRB/Standards Australia. Glossary of Building Terms. 4th edition. \$56, For your copy ring (02) 934 3444.

## CONSTRUCTION EMPLOYMENT MULTIPLIERS

Maintenance generates 25% more employment than house or building construction and from 50% to over 100% more employment than forms of engineering construction, according to a study available from the Department of Industry, Science and Technology.

Estimates cover the total labour directly used on the project and the indirect labour associated with the production of intermediate materials and services ultimately used on the project. Together these amount to the total sum of employment generated in Australia by the project.

No account is taken of the induced employment effects associated with the resultant expenditure by recipients of payments for the direct and indirect labour defined above or of payments to the providers of capital. The use of regional multipliers involves a host of assumptions regarding income and expenditure in the absence of the project and may not always be appropriate in work types such as construction where there is a high indirect employment multiplier. Furthermore the generation of employment in one part of Australia will normally be at the expense of employment somewhere else unless the supporting funds come from overseas.

**“Maintenance generates 25% more employment than house construction and from 50% to 100% more employment than engineering construction.”**

The employment co-efficients are based on the results of studies undertaken in the Central Office of the (former) Department of Housing and Construction, giving the direct labour proportion of expenditure. The indirect labour was based on an analysis of representative projects and information from the 1977-78 ABS input-output tables which the Bureau of Industry Economics (BIE) converted into suitable form for this purpose. The original study in 1983 was updated by Evan Tully, Assistant Director, Construction Industry Group, Department of Industry, Science and Technology, to take account of price increases between 1983 and 1992 and a short paper with further detail is available from him.

Evan may be contacted on (06) 276 1071.

### CONSTRUCTION EMPLOYMENT MULITIPLIERS (Man - Years Per \$ million)

WORK TYPE	DIRECT	INDIRECT	TOTAL
REPAIRS AND MAINTENANCE	12.5 TO 21	3 TO 10	22.5 TO 24
HOUSE CONSTRUCTION	7.5 TO 8	11.5 TO 12	19.5
OTHER BUILDINGS	8.5 TO 10.5	9 TO 10.5	19 TO 19.5
ENGINEERING CONSTRUCTION	3 TO 6	4.5 TO 11	10.5 TO 16

Forthcoming IIR Conference

**“Best Practice” In Public Sector Asset Management  
8 & 9 August 1994, Sebel Town House, Sydney**

**Day One (August 8)**

*Strategic asset planning* - Tom Crow, Managing Director, TW Crow Associates

*National asset valuation policies for GTE's* - John Chan-Sew, Manager, Accounting Policy Branch, NSW Treasury

*Cityrail case study: striving for “world best practice” in asset management*- Peter Niven, General Manager, Engineering, City Rail

*Case study: Sydney Opera House* - Ian Stephens, Deputy General Manager, Sydney Opera House

*Capital expenditure decision processes, an inquiry into “best practice”* - Bob Ritchie, Principal Consultant, Infrastructure Portfolio, South Australia

*Case study: adopting commercial practices- the corporatisation / commercialisation road to improving performance and service* - Geoff Haberfield, Director Corporate Finance, Engineering And Water Supply Department, South Australia

*Case study: total asset management in the NSW Roads and Traffic Authority* - Grant Sheldon, Manager, Asset Strategy, NSW Roads & Traffic Authority

*Risk based asset management - case studies involving reliability and consequence assessments* - Mark Andrew, Senior Consultant, Price Waterhouse Urwick

**Day Two (August 9)**

*Auditing the audit commissions: tracking the changes in emphasis on asset management in five state audit commissions* - Dr Penny Burns, Editor, Asset Management Quarterly

*Case study: implementing an integrated asset management system in local government* - Jeff Roorda, Executive Engineer, Penrith City Council

*Case study: a capital charging regime for Victoria*- Grahame Scriven, Principal Consultant, Deloitte Touche Tohmatsu, Senior Rep, Dept of Treasury, Victoria

*Demystifying and clarifying value management and making it work* - Brian Farmer, Managing Director, Capital Insight

*“Blind and in a bind?” developing a health asset management plan - a South Australian case study* - Pamela Upton, Researcher, South Australian Audit Commission

*Backlog maintenance - fact or fiction?* - Dr David C Payne, Senior Engineer, Kinhill Pty Ltd

*Contracting out of asset management* - Roger Byrne, Associate & Principal Engineer GHD

**The fee for the two day conference is \$1395. The half day workshop on asset risk management that follows on 10th August is \$395 or, together with the conference \$1610 (save \$180). Provisional registration can be made, and further information obtained, by telephoning (02) 954 5844 or by faxing your request to (02) 959 4684.**

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## The Back Page Case Study Competition

The staff meeting at RX Industries was in highly animated mode.

**General Manager.** "I am concerned. Our backlog maintenance is too high. The figures here say \$26m - that's more than three times our annual maintenance allowance."

**Chief Accountant.** "Sheer inefficiency! We should contract out all maintenance!"

**Research Economist.** "Look, this graph shows the average service life of major assets is 15 years, 25% are over 15 years that means that 25% should have been replaced already!"

**Operations Engineer.** "Exactly what I was saying, if we had some ground rules here life would be easier. We should say that if an asset breaks down more than twice, on the third we should replace it and not attempt to patch it up any more. Then we would not be spending all of our money on breakdown maintenance, we would have some decent equipment to work with - and we wouldn't have a backlog."

**Chief Accountant.** "But at what cost? Each new machine costs over \$2m. Surely we should be weighing the capital costs against the maintenance savings. And anyway who knows whether it is worth spending the \$26m, what does it all mean?"

**General Manager.** Stop! This is getting out of control. I am going to call in the experts.

You are that expert. The GM asks you to give him an operational (ie measurable) definition of backlog. Is it maintenance, is it replacement, and what should he be attempting to do about it - and why? (The GM is known for his refusal to accept all advice that exceeds one page!)

Most useful answer wins; as usual, style counts! A personal subscription to AMQ and six bottles of our premium red (and instant fame and fortune) for the lucky winner(s). Entries due in no later than August 31st.

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