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Integrated Asset Management

You remember that shaver fellow?

The one that liked the shaver so much that he bought the company?

Well, I liked the work of “The Troubleshooter” so much that I have persuaded him out of semi-retirement to be associated with my company, AMQ International. The Troubleshooter brings his extensive private sector experience, both here and overseas, to bear on public sector AM problem solving. To have the Troubleshooter focus on *your* problems, *see page 69*.

The Troubleshooter’s work is integrated asset management at its best. You may remember his ability to ‘go past the obvious’ when faced with a problem—such as the problem of increasing production (and profits) by identifying asset trouble spots, and integrating training and capacity improvements (AMQ International, 1998, p.17). Or, his integrated solution that reduced lead times in production, increased customer satisfaction, reduced work-in-progress, costs, managerial load—and increased profits (AMQ International, 1998, p.18)

In this issue are two more studies from the Troubleshooter’s casebook—both replete with examples that you can use to improve your performance. See pages 67-69.

“Integrated” is the latest buzzword. But what is “integrated” when applied to asset management—and how can you benefit from it? On page 66, a number of different levels of integration are indicated—and you can follow up on these ideas, and others, at the IIR Public Sector Asset Management Conference on “Integrated Asset Management” to be held in Sydney 5-7 June. Full details of the many offerings can be found on

www.amqi.com

Beyond the coloured pin heads

An Asset Manager's office nearly always contains a wall map of the 'empire'... with coloured pin heads or lines showing the geographic location and distribution of assets.

Over the years the pin heads have been managed with greater and greater intensity and diligence – condition assessments, compliance audits, AAS27 valuations, digital photos, asset management information systems - the works. The past 10 years has been about good corporate prudential asset management and 'heads down'.

It's time now to look up and around. A community is made up of everyone's pin heads, yet rarely do asset-owner neighbours speak about opportunities which could exist through collaboration and a more 'community strategic' approach - opportunities that would reward not only the community but the pin head owner too.

As examples, a road asset takes on a 'community' life as a part of a key transport route, a School oval as a part of an open space network and electricity infrastructure as one incentive, along with good roads, to attract new business.

Collaboration does not have to mean being in everyone's pockets. It's about making asset decisions in reference and relation to other's community assets.

David Bernard, dbernard@playford.sa.gov.au Playford City Council will illustrate how you can facilitate services for your community with assets that you own—and assets that you do not! - at the IIR Conference on Public Sector Asset Management "Optimising the potential for your Assets from Integrated Asset Management" June 5-7 2000 in Sydney (see Conferences at www.amqi.com)

Life Cycle Planning - Why Bother?

Whenever we fly into a city the scale, structure and order of the scene below usually impress us. Long term planning is evident and the key infrastructure framework reflects the broad development objectives. But when we leave the brightly lit, well ordered and architecturally innovative environment of the airport terminal we are hit by another reality.

Life cycle planning for facilities, like long term planning for a city, is essentially about creating a high level vision of the future. Is it just an interesting intellectual exercise or can it be a useful aid in dealing with the realities of the present and its pressing activities and challenges?

Graeme Lowe [loweg@pcug.org.au], Strategic Facilities Services, has been working extensively in Canada applying life cycle concepts. He will explore ways of achieving the benefits of life cycle planning by integrating the process with day to day facilities management activities.

Integrating AM into Wider Whole-of-Government Service Planning

In October 1999 the Department of Public Works and Services revised both the introductory sections of the Total Asset Management manual and its accessibility, in order that the whole manual could better communicate the Whole of Government view of asset planning as part of the allocation of all resources.

The proposed Framework is intentionally simple, and provides for agencies to 'mix and match' components and vary the suggested order in line with individual requirements. It is not prescriptive. The Framework places emphasis on inter-agency collaboration.

Ted Smithies, NSW Public Works, will explain the new integrated framework and how it will apply to agencies.

How Quantifying Life Cycle Costs Paid Off!

If you are frustrated by the tendency of your finance people to buy on price only, not on value, and you are convinced that the alternative higher capital price item would return life cycle efficiencies, take a lesson from this success story – and quantify!

The situation

In early times our motors were easy to sell. They were of solid cast iron construction and had nice features such as being able to grease the bearings whilst the motor was running. Thus mining companies, conveyor designers would specify our motors almost automatically.

Then the "boom" was over - and in hard times financial people became the managers - making decisions that were once left to technical people. Suddenly motors were being bought on price only. Further, as other countries suffered downturns, many saw Australia as an outlet for their motors. Dumping and similar practices became rife - particularly from South America. (it was later established that these motors were being landed at less than the cost of the steel and copper in their own country). Hence sales were "not good"

The Challenge

How to regain our market share despite the double whammy of price only and dumping?

The Action

After studying everything published by both the opposition and ourselves, it seemed that that we were pretty much on par with the competitors. However a brand offering a "high efficiency" range of motors was actually less efficient than

our stock standard motors. Now we're talking 1/2 to 3/4 of a percent difference here. To communicate the impact of this to our customers we needed to "QUANTIFY".

Take a pretty common 37.5 kW motor, running two shifts (or 80 hours a week), 48 weeks/year and assume 10¢/kWhr. For this level of use the running cost becomes \$14,400/year which is about ten times the purchase cost of the motor! (A check in April 2000 says that nothing has changed, the ratio between capital and operating is still pretty much the same.)

Gaining 1/2 to 3/4 of a percent difference may not seem very large, but it represents some \$72 to \$108 a year per motor – or about 10-15% of the initial purchase price on a two year pay-back period. (Even higher if working a 6 or 7 day week!)

We knew that the price differential between us and the dumpers decreased as the motors increased in size, so our efficiency gains were likely to really tell in our favour for the larger 500 hp (375 kWhr) motors.

This information was put to all the State Managers at a national sales conference. They were shown how to calculate the life cycle efficiency savings.

The Results

Some days later, the State Manager went to a major northern mining company where he had lost an order to a South American motor supplier that was dumping. He used the life cycle costing calculations to show that the extra cost of our motors could be justified, due to their 24hr/day 265 day operation, on a 3 month payback basis.

Two days later the company rang back asking if our motors were still available. Apparently our contact had discussed this with his accountant and since they generated their own power at more than twice the cost that we'd allowed and they ran 21 shifts/week for the whole year, the payback was even lower than we suggested - of the order of 1.5 months!

Thus we actually stole an order away from a "dumper". Smiles all round.

The Learning

- There was the general feeling that we were more efficient - but it was more of a "feelgood" thing than a marketing tool. Once quantified it became a tool.
- It was necessary to change with the times. Selling tech products to techs was once sufficient - now it was necessary to sell to non-techs and therefore to understand and appreciate the "new" customers needs.
- In retrospect this was an example of the universal rule - know your customer's needs better than they do.

When the 'More Money' solution fails - try something else!

How many times do we grumble when our 'first solution' (generally a 'more money' solution) is rejected? Take heart – there is quite often a better solution around the corner. It just requires a little thought – and an integrated approach.

The Situation

There are two methods of removing stalks and bits of grapeskin from wine. The old fashioned method, with which management was comfortable, was to use settling tanks. The newer centrifuge method however was quicker and had been in use for a number of years but always with the idea that, if necessary, it could revert to the older settling tank method. What no-one had noticed was over the years the size of the vintage had steadily grown – it was now too large for the old

From the Troubleshooter's Casebook

settling tank method to manage with the tanks available, which made the winery in effect completely dependent for its production on the efficient running of the centrifuge.

Therein lay the problem for the centrifuge had a habit of "throwing" its bearings about "every other vintage". The last time it happened, it took about 2 weeks to get these specialized and expensive bearings from Europe. If this happened again we would be unable to handle the amount of grape and there would be a shortage of "bubbly" by the following Xmas.

Solution? We put a proposal to Head Office that we hold a set of these bearings on site. This proposal was rejected. (But, curiously, we were allowed to order them if the bearings did fail – wait the two weeks, and lose production!)

The Challenge

To assure the winery's ability to handle the tonnage of grape and therefore protect the marketing arm from product shortage.

The Action

If we could not hold a spare set of bearings, maybe somebody else could?

We rang our local agent to ask how many of these centrifuges there were in the country and how common was this bearing fault. "Not many, not often" was the reply. Nevertheless we suggested that they might hold a set or two of these bearings here in Australia and they agreed. Furthermore, the storage site would be in our nearest capital city. We then devised a "break glass - turn key" approach whereby, for a premium, they would immediately courier the bearings to a halfway point upon a call from us.

The Result

Soon into the vintage the centrifuge threw its bearings - at 4 pm on a Friday afternoon. Realizing that a courier would be impossible the local manager personally brought them to the agreed spot. Bearings and paperwork were swapped

From the Troubleshooter's Casebook

and our man headed back whilst the maintenance crew were stripping the unit. *The centrifuge was back on line in 6 hours* - and stayed on line for the whole vintage. And they never did charge the agreed premium.

The Learning

- Good suppliers can work minor miracles for

you - if you involve them as an essential part of your business.

- Planning ahead, trying to predict problems before they happened, and thinking through possible solutions – really pays. (“What if” or “Risk” analysis in action)
- Without Head Office’s rejection we would never have found this more elegant solution.

The Troubleshooter

If you would like the Troubleshooter to apply his talents to your problems, call *AMQ International* on 08 8281 5795 to discuss or email: info@amqi.com If you are prepared to share his findings with readers of SAM, (suitably disguised to protect your identity) we will pay half the fee!

And to hear more examples of integrated asset management from the Private Sector casebook of the Troubleshooter - hear him speak at the IIR Conference on Public Sector Asset Management - “Optimising the potential of your assets through Integrated Asset Management” - 5-7 June Carlton Crest Hotel Sydney. (Full details on www.amqi.com)

Forecasting Asset Renewal

Ami Sudjamin, Strategic Facilities Management

If you don't know what is coming up next, how can you manage it? These notes by Ami were in response to a discussion dialogue we ran on the website last year.

1. Selecting and Recording Assets

Grouping Assets

It is often better to group assets according to their complexity rather than simply on their size, type of construction or name. The complexity provides a grouping that brings together assets with similar long term maintenance and renewal issues.

A four category complexity classification could use

High complexity - covering hospitals and laboratories where the building is fitted with both environmental controls as well as other specialist services.

Medium complexity – covering structures such

as air-conditioned offices and lecture theatres, shopping centres, commercial buildings and glass houses.

Low complexity - includes houses, nursing homes, schools, service stations and non-airconditioned buildings.

Simple structures - consist of storage sheds, carports and hangars, where the asset may have limited electrical services and lighting.

A structure should not be regarded as an asset when it is left vacant or not being used for any useful purpose. Such assets are often in a state of disrepair and potentially a fire hazard.

Asset Register

Compiling an Asset Register, or Recording the assets is always more difficult than originally anticipated. Like the experience in the Victorian Councils Study, this task is difficult to co-ordinate, particularly if we aim for consistency, accuracy and quality of data. Either it is necessary to use the same small team to do the whole portfolio, or provide intensive briefing and training sessions. Every one involved must understand the task, the reasoning behind the methodology and the consequences of not abiding by the 'rules'.

2. Assigning Values

The renewal value for each asset will be the total current renewal value of all the components within the asset if they were all renewed or replaced at the same time.

However, it is more likely that the asset will be progressively renewed, where the components will be renewed at different times, due to the differing useful lives of the components and the operational demand on each. Hence, the concept of total renewal at a point in time is artificial and so there is no ready body of experience on which to base the costs.

Original procurement values are more often used by organisations because the information is easier to obtain from historical records generally available in archives or other sources. Obtaining current renewal values may involve engaging an outside consultant, a task and expenditure which many organisations are reluctant to make, *'just to get a list of assets and their values'*.

There are special difficulties in relation to heritage assets, which are regarded as 'invaluable'. The thought of simply applying the same principle of estimating their current replacement values may horrify some people, but it may be a practical and realistic solution.

3. Useful ('economic') lives

The economic life of an assets depends on the

economic life of each of the major components forming the assets.

Simple structures, with limited components, generally will have shorter economic lives because the respective components associated with the assets have limited economic lives.

Like infrastructure assets, the economic life of more complex building assets are almost indefinite, as they remain in a state of progressive renewal. This is because each of their major components have different economic lives and hence may be renewed at different times.

The economic life of the simple asset or the components of the more complex ones, is determined by various factors, including:

- published estimates of economic life for certain components – this is often their theoretical economic life
- the environment in which the component is required to operate
- the severity of operational demand
- the actual physical condition or performance of a component when it is considered to be no longer achieving its function effectively and therefore in need of renewal.

It is not appropriate to estimate a single economic life for a complex building . For example a general hospital in a major city is often fairly old (established in mid 1950's), but has been expanded, refurbished and remodelled over the years, to cater for current and future demands. A life cycle cost approach to the asset management plan is more appropriate as it identifies all the renewals required by the various components of the asset over a period of time. Instead of having one single figure for the economic life of an asset, we will end up with a series of economic lives for each of the major components.

A dilemma often occurs when an organisation erects a temporary/ demountable building to meet a 'short term' accommodation need. The life of this kind of asset is often extended well beyond the expected (designed) economic life of its components. A 15 year old temporary ac-

commodation unit may be renewed because another branch of the organisation has a need for temporary accommodation. What is the actual economic life of a temporary asset? Should it align with the original 'temporary' need?

4. Determining Age

It is generally accepted that the age of an asset is the age of the basic building structure, being the oldest components within the asset. However, we prefer to treat each of the major components as separate 'sub assets' and determine the age of each of these major components from the time they were installed.

When a building is extended by a complete new wing or section, it is preferable if the extension is treated as a separate asset. This is particularly useful, when the extension is constructed at least 10 years after the original building was erected or when most of the components within the extension are not integrated with the original components.

5. Modelling Renewal

Effective renewal modelling should include the renewal of all its major components. We prefer to use an asset register that identifies the major components within the asset. eg. Office building – structural core, fittings and finished, power/lighting, plumbing, rainwater discharges, lifts and HVAC.

In this way, we can immediately identify:

- the complexity of the asset, and,
- the age of each of the major components.

For planning purposes, the Asset Register can also be expanded to include:

- the estimated economic life of each of the components
- the estimated time for major refurbishment and/or replacement
- the renewal cost for each of the major components

The renewal model that we prefer to use is based on:

- the current condition determined from a condition appraisal
- the functional requirements for the asset and its components, based on the organisation's current business objectives, and
- the age of the component

We agree that condition assessments used to guide short term maintenance program are not sufficient for longer term forward asset planning. Modelling techniques to project both the life and the subsequent renewal costs are needed for this longer term planning.

The proposed Microsoft Excel program used in the Victorian Infrastructure study is a good start for broad picture study of asset renewal. This is particularly useful for:

general budget planning for 20 years and longer
estimating the time frame for asset disposal and acquisition of new ones

planning of the viability of current assets in supporting current and future organisational plans

The comparative analysis shown on the graphs are very useful in identifying the four major expenditure profiles:

- The required annual expenditures (for existing assets) to sustain the asset stock at existing levels of service
- The average required expenditure (existing assets) to sustain existing asset stock at existing level of service
- The actual expenditure on existing infrastructure
- The actual expenditure on new infrastructure

The above models and expenditure profiles help management adopt a more corporate approach to their asset management and to appreciate the direct linkage between their assets and the organisations business objectives and long term aspirations.

These broad plans should be subject to review every 3 to 5 years, to ensure that the assumptions are still valid. This is also an opportunity to review the status of the 'temporary assets' and make decisions on their relevance to the organisation's long term strategies.

A more detailed program should also be developed for the next three to five years covering the actual renewals and maintenance program to be undertaken.

6. Funding Renewal

All funding should be based on a clear understanding of

- the tasks involved
- the reasons the tasks
- the consequences of not carrying out the tasks

With this information the use of funds can be prioritised and optimised.

If the assets are being accounted for in an effective accrual manner within the accounts of the organisation there should be a strong link between the maintenance expenditure and the depreciation costs recognised each year. This relationship can be further strengthened by the systematic allocation of capital to renewal (and replacement) projects having regard for the funds generated by the annual depreciation allowance. If funds are set aside on a regular basis it should be possible to fund years of peak demand for renewals from the accumulated funds.

7. Default Assumptions

The modelling of future asset condition and consequent renewal/replacement costs reflect the current knowledge of

- present and future functional requirements
- long term business objectives
- the achievability of the projected economic life of components under the anticipated duty level and operating environment.

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I find her a source of practical and sensible advice and I am sure you will too.

And when you have your renewal forecast

- Don't follow it!

A renewal forecast is a tool, a piece of information for you to manage your assets by - *IT IS NOT A PRESCRIPTION!*

Too many managers lose the major part of the benefits of asset management by following their default forecasts slavishly, mindlessly—pausing only to argue the case for more funds.

Of course, the better the forecasting, the more relevant the information that you will obtain, but even so, you will need to examine the proposed program of works implied by the forecast to

- (a) See whether, given the costs involved, you are really getting value for money from this asset - remember that renewal time is an opportunity to reshape your asset portfolio. Reshaping is easier when you plan ahead which is why forecasting renewal some years ahead makes more opportunities possible for you.
- (b) Reconsider how you are using the asset, at renewal time you have the opportunity to recast in a different mould so now is the time to carefully examine not only technical options for renewal but also options for using the asset in a different way (or, even, not using it at all).
- (c) See whether, if renewal is justified, there is some alternative way of funding the asset renewal—e.g. Launceston City Council secured a special levy on city shop owners because they chose to improve at the same time as they renewed. But it may be that there is some group in the community who would choose to take over the asset and mould it to their own ends.
- (d) Prioritise according to real need.

Asset management is done a disservice, if its fine tools are used as bludgeons (to beat more money out of the budget!)