AMQ International

Strategic Asset Management

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Weblink: A Depreciation Method that helps managers manage

Maintenance does Matter

Asset managers know that insufficient maintenance can drastically reduce the life of an asset and that, conversely, good maintenance can ensure that service life potential is extended as far as possible before renewal is needed. Yet maintenance is often the first item to be cut when budgets are stressed.

Why? Because a cut in maintenance shows up in the accounts as a "saving". But the corresponding "cost" of asset degradation is not reflected in reduced asset value, it is not reflected in "depreciation" because accounting depreciation is based on a standard formula which does not take year to year variations in maintenance into account.

For short lived ordinary assets, such as plant and machinery, vehicles or furniture and fittings, this may not be critical but it *is* critical for longer-lived infrastructure assets. Here, failure to account for the lost service potential of under maintaining an asset can cost agencies large amounts in unnecessarily early renewal.

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Condition Based Depreciation - A Management Tool!

There is now a method of depreciation for infrastructure assets that does take maintenance into account. It is called "Condition Based Depreciation (CBD)" or "renewals annuities" (RA) because the method of calculating depreciation is by taking an annuity over the renewal profile. New Zealanders refer to a closely similar method as "infrastructure accounting".

Not for all assets

Condition based depreciation (CBD/RA) is not suitable for all assets. It is applied only to *infrastructure assets*, i.e. those assets whose service delivery is continually renewed by the replacement or repair of worn out components, such as road networks or complex facilities such as university or hospital buildings.

What does depreciation mean?

The basic premise behind CBD/RA is that assets are a store of future service potential and the value of the asset is the value of that service potential. As the service potential is used up, the value falls. It is this fall in value that is depreciation and it is best measured by the cost of restoration. CBD/RA measures the annual cost of periodically replacing the loss of service potential of a network or facility by calculating an annuity over a forward renewal cash flow. It is based on the actual activity needed to renew the system (as justifiiable by an auditable *asset management plan*) and not on a percentage of asset value and is *thus independent of the method of valuation used.*

Not a formula method

The annuity method of calculating CBD should not be confused with the method of adjusting depreciation percentages for residual life, also sometimes called condition based depreciation. This residual life method is certainly more accurate than standard depreciation methods based on average lives, but it lacks the ability of CBD to provide *a forward management tool*, together with clear justification of need, in the form of the cash flow projection.

(see also glossary p.32)

Where is it being used?

The Road Traffic Authority, NSW

The RTA uses CBD for its roads. Because it carries out an asset condition analysis on an annual basis, it is able to directly measure the difference in portfolio condition between the beginning and end of the year. Any overall decline in condition is depreciation. If, on the other hand, increased maintenance has led to an increase in condition, the difference is appreciation. *Only the CBD approach is able to show the impact of improved maintenance in the balance sheet results.*

Victorian Irrigation Industry

CBD, based on asset management plans and renewals annuities, is used by the Victorian Irrigation Industry for management purposes and is now being considered by the Council of Australian Governments for use by all water authorities in Australia.

New Zealand Councils

In New Zealand, where both a renewals approach and a traditional formula approach are allowable, an increasing number of councils have been opting for renewals.

How long should the renewal planning period be?

New Zealand adopts a ten year planning and financial forecasting period. This is a good time frame for councils as it is long enough to avoid large year to year variation but short enough to use condition assessments and short term modelling rather than long term guess work.

The Victorian Irrigation Industry uses 30 years but they have more stable assets and a more stable demand.

The choice of forward period for renewals projections should be short enough to be reliable (and not pure guesswork) and long enough to even out fluctuations and provide sufficient planning time for renewal peaks. This will usually be between 10-30 years.

Why Infrastructure Asset Managers Need CBD

Engineers like this approach which provides useful management information. Many accountants also favour it. Auditors and regulators find that they can track whether agencies are doing what they said they were doing – and if not, why not. Customers like it because they can see that they are not being overcharged, and yet at the same time, care is being taken to ensure continuity of supply.

Depreciation is a cost of using assets.

It is a cost that asset managers should be managing. The argument above has been in terms of maintenance, which is a most significant factor in preventing asset degradation, but other factors, such as operator abuse, or poor design or modification, or changing use requirements, may all contribute to loss of service potential. These are all factors that the asset manager can manage. To do so, depreciation needs to reflect what asset managers are doing, it needs to reflect the changing condition of the asset, not some pre-determined and independent formula.

A Performance Indicator

The asset management plans which provide the (cost-justified and technically auditable) forward renewal profiles provide both a plan of work *and a method of demonstrating asset management performance* – since improvements in asset management will show up as improvements in the cost of using assets, the level of depreciation.

weblink: FIND OUT MORE ABOUT CBD,

Contribute your own experiences, ask your questions in the CBD Weblink Discussion. The panel who will guide the discussion and keep it on track are:

- **Graham Carpenter,** formerly Deputy Treasurer, Queensland Treasury and now a partner in Greenwood Kendalls.
- **David Hope,** Deputy Chairman of the ASCPA's Centre of Excellence in Public Sector Accounting
- **John Sing,** Finance Officer, Noosa Council (previously with Gold Coast Water).

The CBD Panel Discussion will commence Monday March 29th

www.amqi.com

Interview with Norm Easson, President, British Institute of Asset Management.

SAM: *Norm, how did you come to be interested in Asset Management?*

NE: I was involved in maintenance and developed an interest in computer technology. In the 1970s I was approached to see IF the new computer technology could be applied to maintenance. It seems strange to say this now, but this was over 25 years ago. I developed computer aided maintenance management packages, one of them, Rapier, won a major European award.

SAM: *You are currently President of the British Institute of Asset Management with over 300 members drawn from manufacturing, process industries and utilities. I believe that you were responsible for inaugurating this Institute? How did this come about?*

NE: Companies were buying computer maintenance packages without a maintenance strategy and without linking their information requirements to the business. It seemed about time we addressed this issue and, incidentally, raised the profile of maintenance and asset management generally. I lobbied for it from 1992 and it was established in March 1995.

SAM: *What were the objectives of your Institute when you started?*

NE: We had three: (1) Improved professionalism of Asset Management (2) Improved awareness of Asset Management and (3) Improved status for our members.

SAM: *In the past 4 years has the focus changed at all?*

NE: Not really, if anything we have been strengthened in our resolve and would like to expand.

SAM: *What have been the major achievements of the Institute to date?*

NE: I would say that we have elevated asset management from a trade to a profession. For example, we were instrumental in getting the MSc course in Maintenance at the Robert Gordon University.

SAM: *Robert Gordon has a speciality in off-shore installations, doesn't it?*

NE: Yes, and this came about as a direct result of our lobbying. Manchester University now also runs maintenance courses, conducted by a member of the Institute's Council.

SAM: *Where would you like the Institute go in the future, what would you like it to do?*

NE: I think that we need to define databases for maintenance. Focus on who owns what, data transition problems, needs for standardisation, etc. but also ensure that maintenance is much more related to the business and seen to be so, promoting the use of assets as a business resource.

SAM: *A lot of these problems are also common to Australia. I notice that most of your members are from the private sector whereas in Australia, and also in New Zealand, interest in asset management has been taken up in the public sector and by a wide cross section of practioners from finance to management to technical.*

NE: Yes, that is of interest to us. We would like to widen and expand our membership base. We would also like to link with your organisation and asset management in Australia and New Zealand. In many ways it seems that you are ahead of us. We would welcome Australian members.

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AIS – What to do before you choose

Unless it is *usable* and *used*, the data in your Asset Information System are just so many black marks on white paper – or their electronic equivalent. It may have been expensively gained but it is *not information*. In this five part series we look at mistakes that have been made – and how you can avoid them in setting up your own database.

Part 4:

TO INTEGRATE OR NOT TO INTEGRATE? -

Does all of your Asset Information have to be in the AIS?

Why Integrate?

That is indeed the question! Some years ago when integration was all the rage, an auditor took an asset manager to task for not having an integrated asset information system. The very detailed property register (for assets worth in excess of 2 billion dollars) and the separate equally, but differently, detailed, fleet management system (for motor vehicles worth less than 20 million) were not integrated. Nor should they have been! What service delivery benefit would have been served - and at what cost?

What Service Delivery Objective is Served?

Ask 'what SERVICE DELIVERY purpose is going to be served?' whenever thinking of integrating existing databases. If you find yourself answering this question with weasle words like 'consistency' or 'common standards' stop and think again! This is no better than an odd librarian I once knew who filed all the books in the library by size and colour! Consistent, yes, but not very useful.

Integration costs

Also ask 'what is lost by linking the databases?' When you link databases designed for different purposes, there is always *compromise*. Do the benefits outweigh the costs?

'Surely you don't want everybody keeping his own records in a shoebox in his own filing cabinet?"

If it works, why not? But such systems are at risk of not being transferable or even understood should the officer resign or move to another task. Data collected by the user is, however, less liable to corruption. So, if the *individual's* system copes with ***an individual*** problem give him a PC - and *require him to write down his system so that others can understand it*.

Individual or Common Problems?

But if the shoebox is *an individual* approach to ***a common*** problem, choose a system-wide approach. Otis Elevators gained advantage over their competition by developing a standard diagnostic tool which they build into all of their elevators. This enabled them to analyse a wide range of commonly presented data to predict and prevent outages. That was a very clear SERVICE DELIVERY benefit from their integrated system.

While you are collecting data – will you just….?

The killer! Everyone operates on the assumption that data on their hobby horse can be

collected at only '*marginal extra'* cost. 'Add-ons', however, can rapidly cause costs to escalate and the entire system to collapse.

Coping with 'Special Requests'

If the request comes from a senior officer it can be difficult to resist. The answer is to plan for a two-level system. One for routine information for routine decision making, information which regularly collected, updated, and is stored in the AIS. The other for special information for special purposes, which is collected 'as and when needed' *and NOT stored in the AIS*. Analyse the 'add-on' requests to see which category they fall into.

Special Data Collections for Special Purposes

Want to know what your backlog maintenance is for a special 'catch-up' program? Looking at current utilisation to determine property sale possibilities? These are examples of information that should be collected as 'special data' and *kept out of the central AIS*.

Only data needed on an ongoing decision-making basis, or physical data such as building location that needs little updating should be considered for the AIS. Don't overdo the detail just because the computer can cope.

Unless you can afford to continuously update this detail **it will become corrupt and throw doubt on the accuracy and usefulness of entire system.**

Example of Special Data Collection: Deaths in Custody

Some years ago the Muirhead Royal Commission in Australia was investigating the deaths of aboriginals in custody. The agency responsible for prisons needed to consider how cells could be made safer.

Several options were available, from strong steel mesh at the windows with apertures too small to thread ropes or clothing through (c.f. the existing prison bars from which prisoners were hanging themselves) to the use of high quality steel reinforced armour glass. How much would these options cost? Clearly the agency needed to know the size of windows in each cell. This information was not in the asset register. *Neither should it have been!*

- **Quick, accurate data collection**

It needed to be specially gathered. How long did it take? A fax to every prison and police station in the state provided up-to-the-minute information in just one weekend! Information was accurate *because respondents could see why the information was needed*.

- **Cost-effective**

Compare this with the cost (and accuracy) of routine data collection - which, incidentally would not have been up-to-date.

The morale?

Information does not need to be routinely collected and in the AIS to be useful. Once-off needs are more effectively dealt with outside the AIS.

If you can't think of a reason for collecting it, but 'it might come in handy later on' or you keep it 'because someone might ask for it - don't do it!!! Do it only when they ask.

P.S.

Protect yourself if you must by listing it for consideration as a future 'special purpose collection – but ensure that it passes the Service Delivery test before it is acted upon!

Next issue: (our last in this series): "Clean Up Your Act! - keeping your database free from corruption."

Is an invisible website an 'intangible asset"?

Sorry folks, the misery continues. But hopefully we are closer to the end. In the meantime,
email me at <pburns@adam.com.au>
and I will notify you as soon as the website is open for business.

Example of Good Benchmarking Metric

AAPPA (The Australasian Association of Higher Education Facilities Officers) brought out their 1998 Benchmarking Survey of University and Higher Education facilities in August 1998. There are a number of good points about this study that mark it out as an exemplar for benchmarking metric users.

- ***Respondents Identifiable***

Although not notified in the Report itself, identification of all 63 respondents is made available to the participants so that they can (a) understand and interpret the results from their knowledge of the situation of individual facilities, (b) and/or they can follow up with the facilities concerned.

- ***Comparison across data sets***

In the report, information is presented by institution or facility so that it is possible to compare across data sets. Thus maintenance costs can be compared, say, with refurbishment costs and cleaning costs for each responding institution and all data can be interpreted in the light of the general statistics presented.

- ***Interpretation of data***

Guidelines for completing the data submissions are also included in the report. This aids interpretation of the information provided.

- ***Analysis possible***

Working from hard copy only requires readers to estimate the range and the mean values by 'eye-balling' only. However an electronic copy is made available to participants who are then able to test their own assumptions about relationships by means of electronic analysis.

- ***Increased Coverage***

Twenty four new institutions submitted data for the first time in 1998, showing strong growth and interest in the study and its benefits. Respondents cover both private and public educational institutions, and come from the University, and TAFE institutions . While mainly Australian, the data set now includes New Zealand and Hong Kong.

Contact: Brian Fenn, President APPA in 1998 at <b.fenn@qut.edu.au>

Binders and Back Issues

By now, you should all have received the 1999 binders and any back issues and binders ordered. So if you haven't - please contact me asap and we will rectify the matter.
(Some of your requests may have crossed with our postage, so email me at pburns@adam.com.au and we will sort it out.)

GLOSSARY

Condition Based Depreciation (Renewals Annuity)

is a form of depreciation that directly assesses and measures the run down in service potential of an asset. It is based on an auditable and cost-justified asset renewal plan. The cost of replacing lost service potential over the next 10-30 years (the exact period depends on the agency and the nature of the assets involved) is expressed as an annuity over the period. That annuity is the depreciation estimate. CBD is re-estimated on a continuous basis, based on a rolling future period. It is only used for assets which are essentially renewable rather than replaceable, i.e. infrastructure assets.

Discussion

CBD is a systematic way of taking into account the decline in value of an asset by the wearing out of individual components and *the increase in written-down value of the asset whenever any of those components are replaced*

CBD does, systematically and transparently, what valuers do intuitively.

A pilot study on CBD in the ACT administration noted this. Their valuers were asked to produce both an 'as-new current replacement cost' and a 'written down replacement cost'. The 'written down value' produced by the valuer was, in every case, far higher than the corresponding 'depreciated values' calculated by means of straight line depreciation on the current replacement cost. Moreover, the older the asset, the greater the discrepancy between the 'true' value as estimated by the valuers, based on market assessments, and the value as calculated by writing down the current value by the estimated straight line depreciation allowance.

For infrastructure assets which are periodically renewed through component replacement, the actual pattern of written down valuations is a saw tooth of ups and downs, and not a continuous decline to a zero or residual value. Ordinary formula depreciation overstates infrastructure depreciation, under-values the assets and overstates the future renewal liability. CBD, by focussing on the cost of replacing the lost service potential, is a method of depreciation that avoids overstatement and undervaluation.

CBD is also the only method of depreciation that takes into account the actual use and maintenance of the asset, and its impact on asset condition and value.

CBD differs from ordinary depreciation formulas in that (a) it is not a formula;

(b) it is based directly on the change in service potential and the cost of rectifying degradation and is independent of the valuation method used;

(c) it does not require the age or a definite economic life to be known.

References:

- "Condition Based Depreciation for Infrastructure Assets". Dr Penny Burns. *Readings in Accounting Developments in the Public Sector 1992-1993.* ASCPA Centre of Excellence in Public Sector Accounting, Canberra, 1993.

The following papers were presented at a seminar organised by Dr Penny Burns for the NCRB Building Asset Management Conference 1995, University of Melbourne, 6 June 1995. (copies of the papers may still be available from Dr Selwyn Tucker, CSIRO, Tel: Selwyn Tucker : (03) 9252-6184

- "Condition Based Depreciation in Practice – The RTA in NSW" Russell Balding, Director Fi nance, Roads and Traffic Authority, NSW.
- "Condition Based Depreciation – A Technician's Viewpoint" Roger Byrne, Gutteridge Haskins and Davey.
- "Condition Based Depreciation for Infrastructure Assets – An accounting and auditing perspective" David Hope, Skilmar Systems
- "Condition Based Depreciation for Buildings – A Pilot Application" Helen Marsden, Strategy, Policy and Programming Branch, Public Works and Services, ACT Department of Urban Services.
- "Condition Based Depreciation in Practice – Rural Water Industry,Victoria" David J Watson, Manager, Assets Assessment, Office of Water Reform, Department of Conservation and Natural Resources, Victoria