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**INDUSTRY-WIDE
ASSET RENEWAL COST GUIDELINES
- why they are needed**

As asset managers, we have supported our organisations in the development of asset valuations needed for accounting, financial and regulatory purposes. This is necessary, but not sufficient. **Asset managers have much more to bring to the table.**

Consider the principle characteristics of sound asset management, namely a focus on life cycle costing and evidence based decision making and it will be seen that it is good COST data (rather than valuation data) that is the critical contribution of asset management. It is sound cost data that is needed to underpin any proposed asset action, from determining the optimum intervention time and technique to advising on the likely future costs of any new addition or modification. COSTS, not values, are the stock in trade of the asset manager.

Valuers frequently use cost data in the determination of asset valuations and, for want of better, asset managers have tried to use such cost based valuations for asset management purposes and, as we shall see, this has been the source of much frustration and poor data.

Asset cost data is complex. If we had solid, industry accepted guides that captured the latest technology, knowledge and practice, asset managers would be able to speak with confidence. Moreover they would have the credibility necessary for them to participate on equal terms with finance and regulatory bodies.

So, this week, please consider and enjoy - and then take action!
Penny

Dr Penny Burns, Editor, AMQ International
08 8359 0559 www.amqi.com



Abstract

This article is an argument for establishing Guidelines for the Measurement of Asset Renewal Costs equivalent to the established guidelines that we have for the measurement of asset valuations, reasoning that if we had industry wide agreement on how we cost our renewal, we would be on stronger grounds when facing regulators, auditors, and others.

Good Asset Renewal Cost Procedures are not a substitute for Valuation - we still need to understand and assist our agencies to prepare valuations - but VALUE and COST are two sides in a decision equation, both are needed.

An argument for Industry Guidelines for Asset Renewal Cost

Summary of argument

1. Value and Cost are different and both are essential for sound decision making
2. To establish Valuations we call in the Professionals and apply generally accepted guidelines (e.g. 'fair value', 'deprival value', GASB 34)
3. To establish Asset Renewal Costs we also call in the Professionals but there are no established, acceptable, industry wide Asset Renewal Cost Guidelines
4. Without guidelines to determine what is acceptable data, there is a tendency in organisations to try to use existing cost data collected for valuation purposes. This is a source of major frustration for asset managers.
5. The Benefits of Asset Renewal Cost Guidelines
6. What the Guidelines would ideally cover
7. Each industry has distinct issues, and Guidelines should therefore be designed on an industry basis.

An argument for **RENEWAL COST GUIDELINES**

1. VALUE AND COST ARE BOTH ESSENTIAL TO SOUND DECISION MAKING



Value and Cost are twin pieces of data. We need both to make any decision, from buying a cup of coffee to renewing a sewer system. If the barista asks \$10 for a coffee, we have to decide whether it is worth it. We do this by asking ourselves whether the ‘value’ we will be getting is equal to or exceeds the ‘cost’. Judging how much something is worth *to ourselves* is relatively easy, but when we are required to make this decision on behalf of many others whom we do not know, say for the sewer system, the task is altogether of a different order.

2. TO ESTABLISH VALUATIONS WE CALL IN THE PROFESSIONALS

Valuations depend on the valuation method chosen

When the problem of determining value (or worth) to others arises we turn to the valuation profession. Valuers have developed many different tools to deal with problems they face in determining worth. For a start, they need to decide whether they wish to determine worth to the owner, e.g. deprival value (or ‘value-in-use’) or the worth to a purchaser, e.g. market value, (or ‘value-in-exchange’).

Valuers use certain guidance principles, for example, market value is to be that value that would be determined in a free and unconstrained exchange (no ‘fire sales’) between equally informed participants. Where there is no ready market to determine market value, valuers may try to estimate the net present value of likely future income flows or, more likely, they will fall back on using cost as a proxy and here there are many variants that may be adopted.

In practice, the value attributed to a property or asset can depend a great deal on which method the valuer is using to make the judgement as is illustrated in the following example provided by the Australian Valuation Office



Montague Island Lighthouse

Reproduction	11,500,000
Indemnity	3,000,000
Depreciated replacement	2,750,000
Market - alternative use	2,500,000
Existing use	1,000,000
Restricted	1,500,000
Forced sale	400,000
Mortgage	750,000
Replacement (modern equiv)	55,000
Deprival	17,500
<i>Net Present Value</i>	<i>NIL</i>
<i>Historical Cost</i>	<i>Eleven Hundred Guineas</i>

Which is the ‘true value’? There isn’t one! **There are only valuations which are more useful or less useful for particular tasks.**

Valuations also depend on the individual valuer

Valuers call on their experience, their knowledge of the market, and their interpretation of the asset that they are valuing. These factors differ between valuers. This is well recognised in the valuation profession. For example, while trying to understand when schools had undergone major refurbishment from a database that did not contain this information I asked the Valuer General whether I would be correct in assuming that when the written-down value of any school building showed an increase, rather than the expected decrease, I could assume that this came about from renovation. ‘Not really’, was the reply, ‘it could just as easily be the result of a different valuer on the job’.

Valuations are judgements.

For Consistency, Governments promulgate Valuation Guidelines

Recognising this, and to establish consistency (and necessary credibility) governments everywhere have established valuation guidelines that apply to public sector or regulated assets, such as the rules for ‘deprival value’, ‘fair value’, ‘GASB 34’, etc.

3. ESTABLISHING COST

At first sight, It might seem as if determining cost is a much simpler exercise than determining value. When asked: ‘what is the cost of a cup of coffee?’ we might come up with just a few variants, determined by the type of coffee, the size of the cup, and the location of the coffee shop. The answer would be more complicated if one were in Starbucks, but even so the difficulty of the task pales into insignificance compared with estimating the renewal cost of a sewer system.

Why Determining Renewal Cost is both Complex and Difficult

1. Renewal Cost is not a ‘one off’ transaction

Determining the cost of a cup of coffee is a simple exchange transaction that takes place at one point of time - now. The cost of renewing the sewer system, however, is a series of many actions that will take place in the future, distributed over time, indeed over the full life cycle of the system.

The Renewal Cost is not only determined by the various renewal actions that will take place, but also WHEN they take place.

The task of the asset manager is to keep the system running at the lowest cost *over the full asset life cycle*, and at acceptable levels of risk, by intervening at the optimum time to replace, modify or extend the life of each element that makes up the whole system.

The timing and the cost of each element of renewal both determine the overall renewal cost. To determine the renewal cost one needs to know the whole life cycle cost.

2. The Unknowns

Further complicating this calculation is that the ultimate length of the life cycle is an unknown - and the nature (and thus the cost) of the optimum interventions are also unknown, they will change over time as more is known about the individual asset’s performance, the available technologies, and our knowledge of how these technologies work out in practice. We have to live with, and work with, these unknowns.

3. The Professionals

When it comes to complex cost questions like these we call on professionals, and they may be a great number of them, for example, cost estimators, consultant engineers and quantity surveyors.

Again, the costs are likely to vary with the individual cost estimator, engineer or surveyor and with the methods they use, the objectives they have in mind, and the assumptions they observe.

However, unlike Valuation,

***There are no industry wide guidelines on
how and when to use any particular method.***

4. VALUATION DATA IS NOT APPROPRIATE FOR USE AS COST DATA

Valuation data is the most readily available data, but...

Since valuations are mandatory and many use a form of cost data, this is the most readily available data in most organisations. Without clear guidelines on when and where to use certain data and techniques, it is difficult to argue against using the existing cost data that has been collected for valuation purposes. As a result, many asset managers struggle with cost data that is inappropriate for their needs. What is right for a valuation is not necessarily right for planning and deciding asset interventions.

Here are some of the reasons why not.

Full Replacement v. Written down Costs

Valuers are interested in the value left in the asset. For them, the important figure is the 'written-down' valuation. When using replacement costs as a guide to valuation, they may also record the full replacement cost, but it is not needed for their purposes and so they may not. When using market values as the method of valuation, the market value automatically allows for the loss of value due to ageing, wear and tear, that is 'market values' are automatically 'written-down' valuations. Buildings are often valued 'at market', with no assessment of replacement cost.

Optimised versus Actual

Valuers, and especially regulators, are interested in the 'optimised' cost, in other words the cost that would be incurred if we were to replace the element or asset with the most efficient alternative. In the case of an oversized dam, for example, the optimised cost would be the cost of a new appropriately sized dam.

DORC (or ODRC), the depreciated optimised replacement cost, is the method by which regulators tend to value assets for the purpose of revenue setting (railways and water assets) as they represent the hypothetical efficient cost of renewal of essential service levels, not renewal of a specific asset per se. ie DORC (or ODRC) is inherently designed to encourage the reduction of over capacity and to avoid investment in the stranded assets of the future!

In practice, however, the costs of dismantling the existing dam and replacing it with a new one, can be so prohibitive that (barring a catastrophic loss) this is an academic exercise only. The task of the asset manager is, by default, to continue to maintain the oversized dam. The data he needs for this task is the actual renewal element costs not the hypothetical 'optimised' valuation.

As we pointed out at the beginning of this exercise, decisions require both 'value' and 'cost' information. The owners of 'stranded assets' - those assets that are not at the optimal level - need to be constantly evaluating asset interventions bearing in mind BOTH the value (on which their revenues are based) and the actual COSTS. Both are needed. We cannot substitute one for the other.

The Whole and the Parts

In the dam example above, even if no optimisation is involved and the dam is considered to be appropriately sized for the task, the 'values' assigned may not represent the true 'cost' of the asset renewal intervention.

The 'value' of the flood gates may be, say, \$10m, but this is a 'value' based on an assumed replacement of the asset as a whole. When only the flood gates need to be renewed (the normal case) the cost of replacement could be very different - usually much higher. Economic regulators often think that if an asset component is valued at \$10M, its replacement cannot cost more than that, however it frequently does. This confusion is related to the associated problem of understanding Op X and Cap X which, in turn, would be greatly helped if a clear distinction were made between value and costs.

Greenfields/Brownfields

Other problems faced in using values instead of asset costs include valuing assets based on 'greenfields' costs, that is the cost of construction in a clear felled site, as against 'brownfields' costs, that is the cost of removing the existing asset or element and replacing it with a new one in a constrained site and under conditions where the service must be continued or bypassed - which may be a much higher cost!

The actual costs of 'brownfields' renewal have inspired a range of 'no-dig' solutions for water and sewer renewal and today it may be possible that in the future renewal costs will be lower than first up costs.

In either case, we need to recognise the difference between a 'greenfields' valuation (and most valuations are required to be based on a greenfields assumption) and a 'brownfields' renewal cost. Fortunately, this is one area where the regulators are recognising the need for actual, as against hypothetical, costs.

5. THE BENEFITS OF ASSET RENEWAL COST GUIDELINES

Such Guidelines would recognise that cost data and value data are two separate - *and equally important* - aspects of decision making, and that each needs to have a set of guidelines constructed that suits the needs of the user.

The needs of the accountant, the regulator and the asset manager are different and different methods are required to deal with these needs. Regulators need to provide efficiency incentives, they need to **control**; Accountants need to account for what **has happened**; asset managers need to be able to plan **for will happen next**. To date the needs of the accountant and the regulator have predominated to the exclusion of the needs of the asset manager.

The renewal cost guidelines need to be written with the needs of the asset manager in mind.

Importantly, recognition that Renewal Cost Data is not a substitute for Valuation Data, but is an additional and essential data set, would enable the Asset Manager to speak from a position of strength.

While it is important that asset managers understand the nature of asset valuations (on which prices are based) so that they can converse seriously with the economic regulator. However, they must also understand and be able to communicate their own cost data if they are to bring something of use to the discussion. When regulators make suggestions for change, the asset manager must be able to confidently and convincingly present the costs that the change will incur. This is not possible at the moment. With industry accepted guidelines, this could change.

6. WHAT THE GUIDELINES WOULD INCLUDE

Guidance on selecting the components to be costed. This would cover the appropriate level of aggregation for the purposes of intervening to minimise the life cycle costs as well as understanding the cost drivers.

Provide guidance in determining residual lives which affects timing and thus the NPV of the cost of interventions.

Regular updating of the guidelines would recognise new and better practices and would enable asset managers more easily to avoid default 'like for like' replacement. As different industries would have different needs, techniques and best practices, industry wide guidelines would provide the strongest guidance.

Provide indications of what method to use and when. This would include recognition of the need for total replacement cost rather than depreciated replacement cost, avoidance of optimised renewal where the costs of such renewal are prohibitive and therefore academic, and guidance on the choice of brownfields or greenfields assumptions, *as well as on new and improved methods of renewal*. The Asset Manager is interested in the actual costs that will have to be incurred to preserve (or change) the asset, *not in hypothetical costs*. The asset manager needs to be able to estimate the costs of renewal actions over the entire life cycle. A large part of the work of an asset manager is to advise on these costs, and how they may change as the result of any given asset action (e.g. addition of a new asset, modification to an asset, deferral of maintenance on an asset).

The Guidelines would **recognise that, for asset management purposes, calculation of depreciation is not a requirement**. Depreciation is an accounting construct. Asset managers need to know condition, but only as an indication of the desired timing of future intervention.

Asset managers need to be in a position where they can challenge the current trend of regulators who assume that, in a perfect world, annual renewals would equal annual depreciation - and who argue therefore that any organisation not spending at this level is under-performing. This is a dangerous and costly idea that can only be refuted through better cost data using methods that have industry wide support.

7. INDUSTRY BY INDUSTRY

It is not intended that cost estimates replace asset valuations since both are necessary, so there is nothing to prevent each industry - e.g. roads, rail, electricity, water, local government - from adopting asset management cost guidelines that have the aim of enabling optimal life cycle costs. Each industry would include the best practices known for renewal - and debate on these practices would be encouraged.

When an asset manager is supported in his analysis and recommendations by his entire industry body, his position is that much stronger!

Acknowledgements: I have benefitted from insightful comments on an earlier draft of this argument from Chris Adam and Darron Cook. I am hopeful that this version covers the issues that they raised with me, but in any case, neither should be held responsible! Errors and omissions are all mine - so write and tell me what you think.

In the Next Issue:

“Line of Sight”

In the next issue, Ruth Wallsgrove will explain the concept, ‘line of sight’, which is a term from PAS55, the British Standard on Asset Management that considers how asset managers align asset actions in the field with their organisation’s corporate objectives.

Ruth has been travelling all over the world, teaching these techniques to water bodies, and while it is true to say that it is easier to do this alignment the clearer are your corporate objectives, there is still much to be learned by those whose corporate objectives are still rather fuzzy.

What will become clear is that, in considering, analysing, and recommending actions to achieve the corporate objectives in the lowest cost manner, the key thing that the Asset Manager needs to have is sound COST DATA.