APV

Technical Paper

Accounting v Asset Management Terminology

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About APV

APV provides specialist valuation, asset management and asset accounting services for a wide range of organisations and sectors. While based in Australia, we enjoy close partnerships with our clients across the globe, including hundreds of local, state and national governments, their agencies, universities, manufacturing and transportation businesses and not-for-profit organisations.

Our services include:

- Financial reporting valuations delivered in accordance with the IFRS, IPSAS, FASB or jurisdictional standards (such as AASB / XRB) covering land, buildings, transport infrastructure, water and waste water infrastructure, energy infrastructure, plant and equipment, etc.
- Insurance valuations for public sector, not-for-profit sector and commercial assets.
- Asset accounting advice with respect to valuation and depreciation methodologies and compliance reviews
- Asset management advise and training with respect to asset management frameworks, plans and systems
- Customised training and professional development with a focus on asset accounting and asset management.

As leaders in our field, we are proud of our unblemished record of audit approval. APV is comprised of a mix of valuers, engineers, quantity surveyors, accountants and IT specialists. We tailor our services to meet client needs, helping them get the most from their assets and plan effectively for the future.

And while valuation and depreciation can be complex, we keep it simple. We're constantly evolving to offer customers more flexibility and control. We use leading methodologies and custom-built valuation tools that are compliant, comprehensive, logical and truly relevant.

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Introduction

While all public sector jurisdictions in Australia have adopted the revaluation model for accounting for major assets for the last 15 – 25 years, there has remained significant confusion and inconsistency regarding the application of the accounting concepts and the relationship between the accounting concepts and asset management terminology.

To some extent this confusion has evolved from attempts in the late 1990's to integrate asset accounting and asset management concepts by attempting to use the same terminology. It was hoped that providing an understanding of accounting terminology for engineers and using the same terms would provide the basis for better integration and mutual understanding.

Unfortunately, over the past 15 years some accounting terminology and definitions of concepts have changed. For example, AASB13 which was adopted in 2013 introduced a new definition and concept for Fair Value.

Additionally, while some other concepts remained the same, the understanding of the application of those accounting concepts has been refined. The net result is that there is now a quite significant disjoint between the terminology commonly used for asset management and the terminology and application of concepts used for asset accounting.

This paper has been prepared to help readers better understand the differences in the same terminology used for asset management and asset accounting, and, based on the December 2022 changes to AASB13, how to apply the accounting concepts to ensure integration between asset management and asset accounting.

Integration between Accounting and Asset Management

Asset management is defined according to AS ISO 55000 Asset Management as "The coordinated activity of an organisation to realise value from assets." It is the process of organising, planning, designing and controlling the acquisition, care, refurbishment and disposal of infrastructure and engineering assets to support the delivery of services. It is a systematic, structured process covering the whole life of physical assets.

The objective of asset management is to optimise the service delivery potential of assets, to minimise related risks and costs, and ensure positive enhancement of natural and social capital over an asset's life cycle. Good governance and the intelligent deployment of business systems, processes and human resources are key aspects of this endeavour.[1]

As such, the strategic asset management, especially for public and not-for-profit sectors, is to provide an appropriate level of service to the community in the long term in the most cost-effective manner.

Asset accounting on the other hand relates to the publication of financial reports which provide general purpose users of those reports with information that enables them to make informed decisions. Especially for public and not-for-profit sector entities that rely heavily on assets to deliver services, the key asset accounting figures contained within the annual financial statements are estimates for the values of the assets and the associated estimates for annual depreciation expense.

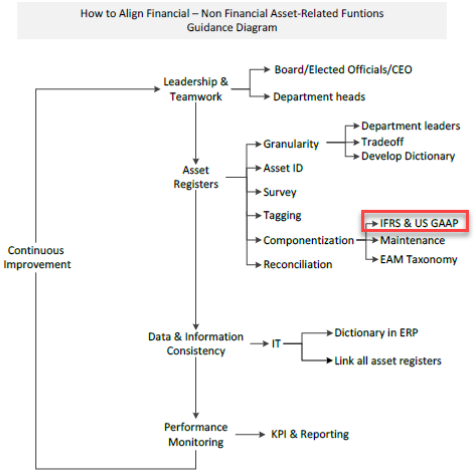
It should ne noted that the audited financial statements present a view of the current position of the entity and its activities over the preceding accounting period. The financial statements, as prepared under the international accounting standards, do not present a projected view of the future.

The key difference between asset management and asset accounting therefore is that asset accounting is focused on the past and current whereas asset management is focussed on the future.

Both however need to be integrated to ensure that the financial statements present a true and fair view of the asset management reality and the associated asset registers used to prepare the valuations and depreciation expense estimates completely and accurately reflect those used for asset management planning purposes.

ISO:55000 also highlights the need for integration via the following diagram which shows how to align financial and non-financial functions of asset management. This specifically shows the need to 'componentise' assets so that they can be aligned to the international accounting standards.

[1] Strategic Asset Management Framework: Public Sector (2020)



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ISO:55000 does not define the term component but does provide guidance that –

> *Each department can break down the shared granularity and common nomenclature into components as necessary for each function. Have departments share componentization as much as needed.*
>
> *Componentization can be implemented easily in organizations with EAM; in any case, this item is of no significant cost because "common sense" componentization will apply only to a relatively small number of high-value assets.* [3]

Components are not defined or even referenced in accounting standards. Typically, they represent the different physical elements of the asset that are managed independently from the other components. For example, a building may be split into sub-structure, structure, roof, fit-out, floor coverings, etc and the treatments and associated strategy developed for the roof would normally be developed and modelled independently to the treatments and modelling of the floor coverings.

In contract, the accounting standards refer to 'parts' rather than 'components with 'parts' representing different non-physical elements that represent different costs that have a different useful life and as a result are required to be depreciated separately over their respective useful life. For example – a pipe may have two renewal/replacement strategies. If to replace the pipe by building a new pipe it most likely would have one part being equal to the cost of the replacement. Whereas, if the renewal was to reline the pipe, it would have two parts – a short-life part equal to the estimated cost of renewal and a long-life part equal to the difference between the replacement cost of the pipe in total and the estimated cost of renewal. These parts are not physically identifiable but represent different economic costs that have a different useful life.

[2] ISO:55000 TC251 WG5 How to align financial and non-financial related functions
[3] ISO:55000 TC251 WG5 How to align financial and non-financial related functions

Key Accounting Standards Requirements

There are over a dozen different accounting standards and pronouncements that relate specifically to the valuation and depreciation of different types of assets. For example, the accounting for a building will differ depending upon whether the asset is classified as an operational asset (AASB116), held for sale (AASB5), investment property (AASB140) or is a residential property and has been impaired by a flood (AASB136).

However, for the bulk of public and not-for-profit sector assets the asset valuation and depreciation requirements in Australia are effectively covered by –

- AASB13 Fair Valuer Measurement
- AASB116 Property Plant and Equipment
- AASB108 Accounting policies, changes accounting estimates and errors

AASB13 requires that Fair Value be calculated –

- Using either or a combination of the market, income or cost approach (cost is almost always used for infrastructure or specialised buildings)
- Be a 'market based' assessment and not be 'entity specific'
- Based on the key characteristics relevant to market participants. Apart from general obsolescence, these are listed as condition, location and restrictions on sale or use
- If using the cost approach, by determining the replacement cost (after allowing for the difference in utility between the existing and reference asset and any optimisation adjustments) and deduction an allowance for obsolescence noting that the adjustment for obsolescence is not the same as depreciation. This results in the calculation of the Current Replacement Cost which is conceptually different to Depreciated Replacement Cost.

AASB116 requires that –

- revaluations be undertaken with sufficient regularity so that the carrying amount is not significantly different to the fair value. In practice, this usually involves a comprehensive revaluation every three years with desktop updates undertaken in the intervening years.
- each 'part' of the asset that is of significant cost and has a different useful life be depreciated separately. In practice, this usually involves recording assets at the component level with weighted average depreciation assumptions applied based on detailed calculations undertaken at the part level.
- The depreciation method shall match the expected pattern of consumption of the assets future economic benefits

AASB108 via example 3 clarifies that when using the straight-line method to determine depreciation expense that the correct calculation is the (carrying amount less residual value) divided by the remaining useful life. This confirms that the term 'useful life' when used in accounting standards refers

to the remaining useful life (RUL) and is not the same as the useful life as used for asset management purposes.

The net impact of these requirements for valuation are that –

- Each asset needs to be disaggregated down to its different parts
- A fair value determined for each part based on the key characteristics relevant to market participants (not based on depreciation)
- Depreciation expense estimated for each part based on its estimated remaining useful life.

The Asset Register should be designed to ensure the calculation of depreciation expense is materially correct as well as enabling alignment to the financial and non-financial related functions of asset management. In practice this is typically achieved by one of the following approaches -

- Recording the line items in the asset register at 'component' level and applying a weighted average RUL. This method is especially useful when the market evidence to support the replacement cost is available at the component level;
- Recording separate line items for each part; or
- Recording separate line items for each part that has the same RUL. This is usually only practical for low value 'grouped assets' which are depreciated down to nil over a specified short useful life.

Key Differences in Terminology

Some terms are used in both Asset Accounting and Asset Management but effectively mean different things.

The risk, of course, is that different people may refer to the same term or figures in reports and make a false assumption about what it represents. If those figures are incorrectly used to drive strategic decisions or budgets, there is significant risk of poor outcomes.

Replacement Cost

Asset Management

In asset management the 'replacement cost' can represent different things. It might be the estimated cost of what it would cost the construct the same asset in the same location or potentially on a different location. However, depending upon whether you assume a 'greenfield' or 'brownfield' assumption the costs may be very different.

The replacement cost may also vary depending upon whether you are assuming construction of a new asset based on existing design or a modern equivalent. There may be even further variation depending

on whether the estimation allows for difference in utility or optimisation between the existing asset and the reference asset.

To add further confusion, in some situations, the replacement cost is used as an estimate of the future renewal funding requirement. If the cost of renewal is less than the cost of full construction, the renewal replacement cost will be very different to the total replacement cost.

If replacement cost is being used as a basis to determine the average annual cost of the asset for cost recovery purposes, it is critical that the correct base be used. This figure will be very different to the replacement cost required for renewal cost budgeting.

Accounting

Replacement cost is not defined *per se* in the accounting standards. However, under AASB13 when the cost approach is used, the Current Replacement Cost is calculated by deducting from the replacement cost an allowance for obsolescence.

AAS116 defines what costs should be capitlised. These include –

> *16 The cost of an item of property, plant and equipment comprises:*
> *(a) its purchase price, including import duties and non-refundable purchase taxes, after deducting trade discounts and rebates.*
> *(b) any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management.*
> *(c) the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located, the obligation for which an entity incurs either when the item is acquired or as a consequence of having used the item during a particular period for purposes other than to produce inventories during that period.*
>
> *17 Examples of directly attributable costs are:*
> *(a) costs of employee benefits (as defined in AASB 119 Employee Benefits) arising directly from the construction or acquisition of the item of property, plant and equipment;*
> *(b) costs of site preparation;*
> *(c) initial delivery and handling costs;*
> *(d) installation and assembly costs;*
> *(e) costs of testing whether the asset is functioning properly, after deducting the net proceeds from selling any items produced while bringing the asset to that location and condition (such as samples produced when testing equipment); and*
> *(f) professional fees.*

The December 2022 changes to AASB13 further clarifies that when determining the replacement cost required for a market participant and entity –

- adjusting that estimate for any differences between the current service capacity of the reference asset and the subject asset
- assumes the reference asset will be acquired or constructed at the subject asset's existing location
- where based on unobservable inputs, shall use its own assumptions as a starting point in measuring the costs currently required to acquire or construct a reference asset and adjust those assumptions to the extent that reasonably available information indicates that other market participants would use different data.
- include the following costs (among other costs) in the reference asset's replacement cost if they would need to be incurred upon the hypothetical acquisition or construction of a reference asset with the same service capacity (including condition) as the subject asset at the measurement date:

    (a) costs required to restore another entity's asset, if the asset that would need restoration existed at the measurement date and would be disturbed in a hypothetical acquisition or construction of the reference asset. However, such costs are excluded if they relate to restoration of an asset of another entity included in the consolidated group (if any) to which the entity belongs;

    (b) other disruption costs that would hypothetically be incurred when acquiring or constructing the reference asset at the measurement date (eg costs of redirecting traffic when replacement of the asset, such as a drainage pipe, disrupts the operation of a road); and

    (c) if the subject asset is fixed to a parcel of land, site preparation costs or the reference parcel of land on which the reference asset would hypothetically be constructed, unless those site preparation costs are reflected (explicitly or implicitly) in the fair value measurement of the subject parcel of land.

Clearly, the replacement cost as used for asset management can represent a multitude of different things, and, only in rare circumstances would align to the accounting concept.

This alignment would only occur when the overall accounting replacement cost has been determined for the asset/component and then further split between short-life part and long-life part with short-life representing the estimated cost of renewal. As a result, the replacement cost of the short-life part equals the asset management future renewal replacement cost and can be used directly to model future renewal projections.

Useful Life

Asset Management

For asset management purposes (including modelling), the useful life of an asset usually refers to the period of initial acquisition or construction through to eventual decommissioning or renewal. In simple terms, the useful life is defined as the age-to-date + the RUL. However, if the asset/component is subject to part renewal, the useful life is sometimes calculated as the age-to-date plus time to renewal.

While this approach is simple in theory, often it is not possible to determine with an accuracy the actual date of acquisition. This is even more difficult for assets which have already been subjected to multiple renewals or upgrades. For example, how do you determine the age-to-date of a building which was original built in 1900 but in 1960 had a major upgrade and extension and then in 2010 had another new wing built under the same roof line?

Many asset management practitioners also argue that the age-to-date is of little value and that what really matters is the estimated RUL based on a combination of condition and obsolescence.

Accounting

AASB108 clarifies very clearly that 'useful life' really means the RUL. AASB116 requires an annual reassessment of useful life (read RUL) and for the carrying amount of the asset to be depreciated down to its residual value over the RUL.

This difference in concept for useful life between accounting and asset management has resulted in the incorrect use of the Depreciated Replacement Cost (DRC) approach to valuation rather than the required Current Replacement Cost (CRC) approach.

The DRC uses the asset management definition of useful life to determine an estimated annual depreciation expense. The annual amount is then multiplied by the estimated RUL to calculate the Depreciated Replacement Cost. In some cases the RUL is based on a condition assessment and in other cases it is based on the Useful Life – Age-to-Date. This approached is based on useful life and depreciation concepts rather than the key characteristics relevant to market participants as required by AASB13.

Under the accounting standards, the user must first determine the fair value. This may be based on either or a combination of the market, income or cost approaches taking into account the key characteristics relevant to market participants. AASB13 specifically notes that if using the cost approach, the adjustment from replacement cost down to CRC is an adjustment for obsolescence and not depreciation.

If the market, income or combination of approaches or the net disclosure method is used, the gross value is shown as the same as the fair value at the time of valuation. In the following the year the accumulated depreciation column will show one year's depreciation.

Only if the cost approach and the gross disclosure method is used, the financial statements will show the gross replacement cost in the gross column and accumulated depreciation will be shown as the difference between the gross replacement cost and the fair value.

This further highlights that the calculation of depreciation expense is only done after first determining the fair value and then depreciating the carrying amount down to its residual value over the RUL.

As noted earlier, the fair value and associated depreciation estimates are required to be calculated separately for each part of the asset that has a significant cost and different RUL. In practice, an in order to align with asset management needs, the level of disaggregation may result in some parts having a non-significant value.

Pattern of Consumption

Asset Management

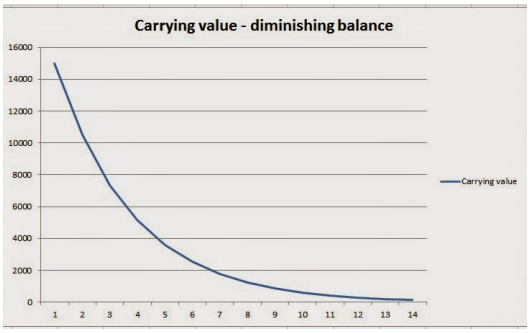
In asset management, the pattern of consumption is often defined in terms of whether the quantity or capacity of the service being delivered. For example, a concrete bridge when new, provides the same level of service (assuming it is maintained in good condition) as it will do in another 80 years. Ie. It allows for the same level of traffic flow and weight.

Similarly for roads, the traffic capacity and speed limits may stay the same over the entire life of the road. Even though the equivalent standard axels (ESA) typically increase over time, it is commonly argued that the same level of service is provided and therefore the pattern of consumption is constant.

Accounting

The concept for the 'pattern of consumption' accounting however is different. It is not linked to what service is delivered and how it is delivered but rather to the pattern in which the economic benefit retained in the asset is consumed. Ie. It is linked to perceived loss in relative value based on the key characteristics relevant to market participant. It takes-into-account the impact of general obsolescence as well as condition, location and restriction on sale or use.

As an example, a common used method to depreciate motor vehicles is to adopt the reducing (diminishing) balance method. This reflects that as a new car leaves the show room floor and is driven on the road, the market value drops significantly in the first year. As the vehicle ages and drives more distance the loss in value reduces incrementally until it starts to plateau.



Using the bridge as an example and assuming we have two bridges constructed in exactly the same way with the same date of acquisition and at the same cost –

- if one bridge was in poor condition and the other a good condition, market participants would place a higher value on the bridge in the better condition. This is because the poorer condition bridge will require renewal or replacement earlier than the other bridge. Additionally, it will require increased maintenance costs as maintenance costs generally increase incrementally as an asset degrades. As a result, the bridge in poor condition provides a lower value proposition to the market participant and would attract a lower value.
- If one bridge was in a location that either had increased traffic flows or due to some other environmental or political reason, was identified for full replacement with a bigger and better bridge, the market participants would assign a lower value to that bridge. This is because of the impact of obsolescence rather than age or condition.
- If one bridge serviced a road that, due to a new bypass being constructed, was going to be closed or only used for fishing, market participants would consider the value of the bridge to be much lower than the other bridge.
- One bridge is on a low use road and the other on a high use road. If both bridges were constructed in timber but new standards and requirements have driven a bridge replacement program to replace all bridges on medium and high use roads with concrete within the next 10 years and those on low use roads within 30 years, then the market participants would consider the bridge on the high use road to have a lower value due to the impact of obsolescence.

As very long-lived assets age, the impact of general obsolescence typically becomes greater. Likewise, the impact of condition on the cost to renew is usually non-linear.

The perceived impact of these factors and where each asset is its lifecycle will drive the valuers assessment of value. If the perceived pattern is non-linear, the same profile used to drive the valuation should be used to calculate depreciation expense. It should be noted that the use of straight-line as a default method was removed from the then AAS4 Depreciation in 1997 (25 years ago).

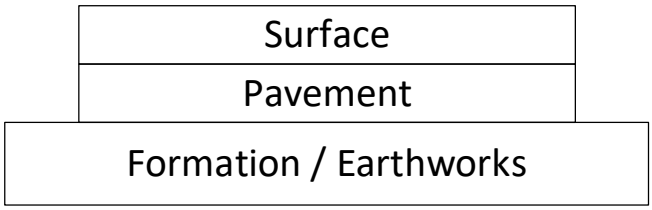
Applying inconsistent patterns of consumption for valuation and depreciation is contrary to the accounting standards and will either –

- Result in misstatement of the fair value
- Result in misstatement of depreciation expense

Case Study Example

The following case study provides detailed information and calculations to further highlight the differences in key concepts between asset accounting and asset management.

The example is based on a road pavement where the typical asset management treatment is to renew the pavement after approximately 80 years using chemical stabilisation. The road pavement represents one component of the road with the others being the surface and formation.



The accounting replacement cost of the road pavement is based on available market evidence for the specific council. Based on some recent new construction projects the replacement cost is determined to be $300 per square metre.

Also based on recent renewal projects, the estimated replacement cost of the chemical stabilisation treatment is $180.

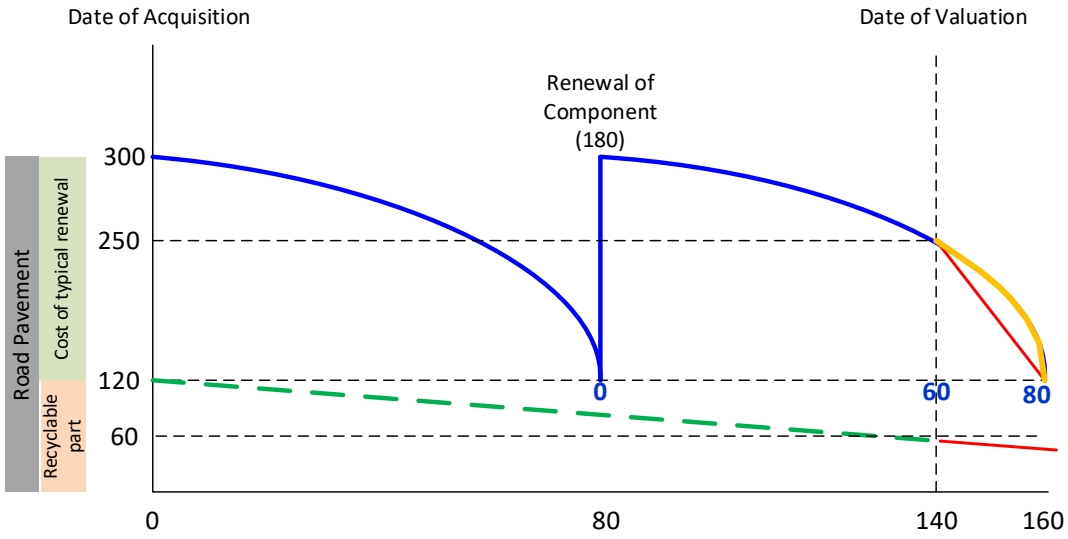
A revaluation is undertaken and based on the assessment of both general obsolescence and condition it is estimated that the chemical stabilisation treatment will be undertaken in 20 years.

The road segment is 1,000 square metres. Therefore, the gross replacement cost is 1,000 @ $300 per square metre = $300,000.

While it is impossible to accurately estimate the total useful life of the pavement, in accordance with Australian Interpretation 1055 an indefinite life cannot be applied. The entity believes the pavement will always be needed while roads are required and, apart from isolated damage to the pavement, will never require renewal other than chemical stabilisation. Based on this a conservative estimate of asset management useful life of 300 years has been adopted. As a consequence, the impact on depreciation expense will be immaterial.

The lifecycle of the asset and associated economic costs can be represented in the following diagram.

Accounting v Asset Management Terminology



Based on the above information the various calculations for asset management and asset accounting purposes are detailed below. The figures are shown in thousands. Ie 300 = $300,000.

Note that the valuation is not based on an assumed constant pattern of consumption. This is partly to highlight that depreciation is based on the carrying amount, but also because as assets age and degrade the estimated cost of renewal increases incrementally. Additionally, as very long-lived assets age, the impact of general obsolescence also tends to impact the value of the asset incrementally. As such, market participants would not consider the pattern of consumption to be constant.

For Asset Management Purposes

Replacement Cost = 300
Estimated renewal = 180
Useful life = 80

Projected asset management funding needs
When = 20 years from now
Amount required = 180

Total acquisition and renewal cost over 300 years =

Acquisition * 1	300
Renewals * 4	720
Total	1,020
AAAC	3.4

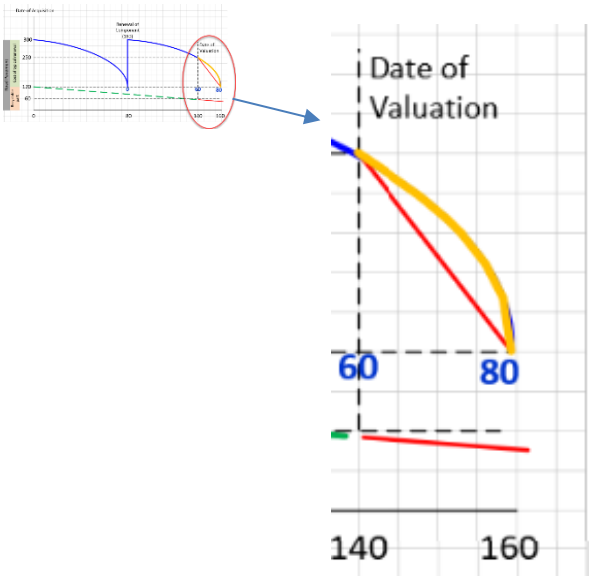
If only funding renewal = (180/80) = 2.25

For Asset Accounting Purposes (IFRS & IPSAS)
(assumes Residual Value = 0)
Gross Figures
Gross Replacement Cost = 300
Gross Short-life (renewal part) = 180
Gross Short-life Useful life = 80
Gross Long-life (recyclable) part = (300 – 180) = 120
Gross Long-life Useful Life > 80. Assume = 300

Valuation and Depreciation
Short-Life Fair Value = (250 – 120) - 130
Short-life Depreciable Amount = 130
Short-life RUL (based on condition) = 20
Short-life Depreciation = 130/20 = 6.50
Long-Life Fair Value = 60
Long-life Depreciable Amount = (60 - 0) = 60
Long-life RUL = (300 – 140) = 160
Long-life Depreciation = 60/160 = 0.375
Component Fair Value = 80 + 60 = 140
Component Depreciation = (6.50 + 0.375) = 6.5375

Depreciation expense

As noted in the diagram below, the depreciable amount used to calculate depreciation expense is based on the carrying amount rather than the replacement cost.



Short-Life Fair Value = (250 – 120) - 130
Short-life Depreciable Amount = 130
Short-life RUL (based on condition) = 20
Short-life Depreciation = 130/20 = 6.50

Note, that for simplicity purposes, the calculation of depreciation expense has been based on a straight-line approach. Technically this is incorrect as AASB116 requires the depreciation method to

mirror the same pattern used to determine the current replacement cost (ie. Match the pattern of consumption which is shown as amber in the diagram).

If we assumed that in three years, the relative remaining level of service potential of the short-life part is estimated to be 65% (currently 130/180 = 72.2%) then the depreciation expense would be (72.22% – 65%) / 3 * $180,000 = $4,331. This compares to $6,500 based on the straight-line method and highlights the risk of over-simplification of accounting assumptions.

Summary

The reality is that some terms have significantly different meanings depending upon the context in which they are used. This is especially so for asset management purposes.

In the case of asset accounting, the terms 'replacement cost' and 'useful life' have very specific meanings which are considerably different than often used in asset management contexts.

The application of replacement cost and useful life based on asset management concepts for accounting purposes carries with it significant risk and will more than likely result in materially misstated estimates of both fair value and depreciation expense.

It is critical that valuations and depreciation estimates be calculated in full accordance with the accounting standards. Specifically –

- For every part of the asset that has a different useful life (RUL), the user must first determine the fair value based on either or a combination of the market, income or cost approaches taking into account the key characteristics relevant to market participants.

- If using the cost approach, the replacement cost must be consistent with AASB13 and AASB116 and the adjustment to replacement cost must be for obsolescence and not depreciation. i.e. Based on the key characteristics relevant to market participants and not depreciation concepts.

- Depreciation expense to be based on the carrying amount of each part so that its carrying amount is depreciated down to the residual value over the RUL.

While this approach appears complex, in reality, it is quite simple to apply either via or specialised financial reporting valuation software such as Asset Valuer Pro (www.assetvaluer.net) or spreadsheets. Especially using Asset Valuer Pro, the process to convert non-compliant DRC valuations to fully compliant CRC valuations is very quick and easy to achieve.

About the Author

David Edgerton FCPA
E: David@apv.net

David is an accountant (Fellow CPA Australia) with a valuation, audit and asset management background. He is internationally recognised as a leading expert in the valuation and depreciation of public sector assets. He is a regular presenter at national and international conferences and is a Director of APV Valuers and Asset Management.

He has been actively involved with both the asset accounting and asset management of public sector assets over the past 30 years. This has included –

- Author of CPA Australia's guides to the valuation and depreciation of public and NFP sector assets under the international (IFRS and IPSAS -2013) and Australian (2016) accounting standards.
- Member of the Australian Accounting Standards Board special project team for 'Fair Value in the Public Sector' (2017–22)
- Chair of the Public Sector Assets Collaborative Group which is a special interest committee of 'the Asset Institute'. The group is comprised of representatives of the peak bodies with an interest in the asset management of public sector assets.
- Member of 10 person international review panel for the IPWEA International Infrastructure Financial Management Manual (IIFMM) (2023)

Prior to joining APV in 2006 he spent over 20 years with the Queensland Audit Office where he –

- Held responsibility for the audit of Queensland's local government sector and water sectors
- Managed the audit office's 'Contract Auditors Section'
- Chaired the 'Asset Valuation and Audit Advisory Group'