IMPLEMENTING STRATEGIC ASSET MANAGEMENT

by

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Abstract

Many professionals in asset management assume that the notion of life cycle cost is well understood by other professionals and by decision-makers. The author’s experience is that this is not the case and it needs to be addressed at three levels if implementation of strategic asset management is to be successful.

Keywords: strategic asset management; life cycle cost

1 Introduction

Experience in life cycle modelling and working with governments at all levels over the past 20 years has convinced me that the notion of an asset life cycle is not as obvious as we (who are in the business) may think. It needs to be far better understood.

- Elected members need to understand it in terms that they can relate to – current and future service delivery and risk
- Policy, planning and finance people need to understand it in terms of matching future revenues and expenditures
- Technical people need to understand it in terms of long term rather than short term optimisation of costs and benefits

Simple messages, but not easy! However, over the years I have made a series of discoveries that show that once these messages are heard and really understood, enthusiasm for asset management does not look back; attitudes change and abilities improve.

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So, if you would like more support for your asset management endeavours within your organisation, then this could be it.

2 Vision and Technology

My first discovery relates to what I might call Vision and Technology. In short, we need both! Peter Bernstein tells the story, in “Against the Gods”, of how in 1654 ‘the Chevalier de Mere, a French nobleman with a taste for both gambling and mathematics, challenged the famed French mathematician Blaise Pascal to solve a puzzle. The question was how to divide the stakes of an unfinished game of chance between two players when one of them is ahead. The puzzle had confounded mathematicians since it was posed some 200 years earlier… Pascal turned for help to Pierre de Fermat … and the outcome of their collaboration was the discovery of the theory of probability, the mathematical heart of the concept of risk’. This made possible risk management, future planning, the stock market, capitalism, in fact the world, as we know it today.

Why was it, Bernstein wondered, that the discovery of probability had to wait until 1654? After all, he mused, ‘Probability theory seems a subject made to order for the Greeks, given their zest for gambling, their skill as mathematicians, their mastery of logic, and their obsession with proof’. Moreover, ‘the Greeks had the only recorded civilisation up to that point untrammelled by a dominating priesthood that claimed a monopoly on the lines of communication with the powers of mystery’.

But the Greeks didn’t venture into the mathematics of managing the future for two reasons, both of which are instructive for us today in Asset Management:

- One, they didn’t see their future as manageable. (‘Order’ resided in the heavens whereas life on earth, they believed was chaotic and at the whim of the gods.)
- Two, they didn’t have the zero! The Hindu numbering system and the concept of zero was yet to be discovered.

One could say that they failed to apply their mathematical ability to managing the future because:

(1) they did not envision a manageable future and
(2) they lacked the tools to do the job.

In other words, they lacked the Vision and they lacked the Technology.

2.1 Both are necessary, Vision and Technology.

You can see this when you realise that the Arabs - who did have the concept of zero, and were equally good mathematicians and also keen gamblers – also failed to develop probability theory with which to manage their future. The principal reason why they didn’t – when they could have – is that they, too, did not see the future as predictable, or manageable. No Vision!

This is of immense importance for asset management. For if our decision-makers do not see their asset problems as manageable they won’t try to manage them! They need the
understanding that ageing assets, increasingly stringent environmental constraints, rising expectations and changing standards is, in fact, something that they can, and must, manage.

But as we look around what we see is an increasing number of agencies, recognising that they have a problem, they look for someone else to solve it! You have only to see the number of proposals put forward for funding from the national government for renewal of ageing water pipes and other assets to see that this is true.

For this we, the asset managers, have to accept some of the responsibility because, often, we have sold them on the idea that asset renewal, and asset management generally, is a problem that can only be solved by more money. And they react the way the Ancient Greeks and Arabs did, as if they were helpless victims of economic life – subject to the whim of the gods. And if the gods (a.k.a. a higher level of government, or head office) will give them no more money, then what are they to do?

When asset renewal is presented as a ‘more money’ problem, we are, in effect, telling our elected members and decision-makers, that there is only one solution – and that it is not a management solution. We are encouraging them to shirk their responsibilities, and in the process destroying their recognition of the need for the services that asset managers can provide. Doesn’t make much sense, does it? Yet, this is what is happening with the Infrastructure Scorecards. They cause a bit of a stir and a flurry, but nothing really happens – because they are demands for funding rather than suggestions for management.

We have to change this if we are to progress. What it takes is a framework to think within – and that, itself, is a technology.

2.2 Messages to Policy Planners and Finance People

The messages being sent to our policy planners and finance people are no better. For them the problem is how to cope with expenditure needs that rise and fall with the asset life cycle whilst their revenues come in a relatively constant stream. How do they go about matching relatively constant revenues on the one hand with the need for fluctuating expenditures on the other? First they need to realise it can be done – the vision. Then we need mechanisms to make it happen – the technology.

For many, this is seen as too difficult and it is easier to assume the fluctuations caused by asset life cycles do not exist. In practical terms it is easier to simply adjust all sections’ budgets by the same amount rather than matching budgets to renewal needs. If this is the reaction – then life cycle information and the asset managers who provide the information are ignored.

In this presentation I concentrate on how we convince the policy planners and finance people that the problem really is a manageable one. Once this is realised, then there are techniques that can be employed, especially with GASB 34. Interested readers can contact me at the email address on the front cover if they would like to follow up on any of these techniques.
2.3 Messages to the Technical People

Finally, there are our technical people: us! - asset managers, modellers, number-crunchers. You might think that for us technology should dominate vision, but it is not so. We need to see before we can do.

There is a lot of good guidance in the market. One dear to my heart is the International Infrastructure Management Manual produced by the IPWEA (2000). Despite this, a lot of our technology has been letting us down. We have found ourselves focussed on measuring current condition – rather than managing future condition; on collecting data that helps us tackle problems rather than data that would help us avoid problems; and in general we have focussed on what we do – rather than on the outcomes for the end user. The techniques that we have thus developed cause us to look at the world in a particular light – and in that light, we fail to see the errors and the problems being caused.

I am a firm believer that if you get the vision right, the technology will follow. And here in the USA, how could I believe anything else? After all, this is the country that put a man on the moon, simply because it believed it could!

So what I want you to believe is that implementing strategic asset management is possible -- because it is, and that is what I want to show you today.

2.4 Persuading the Elected Member/ Key Decision Maker

My second discovery is that the reason that we have not been doing too well in convincing the elected member or key decision maker of the importance of asset management is that we tend to get so enthusiastic about what we are doing that we fail to sell the benefits of what it achieves!

In some cases we ourselves can become completely blind to what it achieves, as in the following real example. The council had just spent $60,000 resurfacing the local airstrip and questions were raised at the following council meeting. It went something like this:

Q: “How many airplanes use that airstrip?”
A: “Well, none actually, they prefer to go to the next town where the airfield is bigger, staffed and more convenient.”
Q: “You mean no one uses the airstrip?”
A: “Not exactly, gliders use it.”
Q: “But gliders don’t like to land on hard surfaces, they use the unsurfaced edges, don’t they?”
A: “Well, yes”
Q: (in exasperated tones) “Then why on earth did you resurface the airstrip?”
A: (indignantly) “To preserve the asset, of course!”
In this case, full marks to the Councillor – if only he had asked the question *before* the work was carried out!

We often say that assets (and therefore asset management) is not an end in itself, but a ‘means to an end’ and this is true – but *whose* ends? When you think about the means-ends question, the only rational answer is that it must be the ends desired by the key decision-makers. We must first be clear of this in our own minds before we can get the asset management message through to elected members/ key decision makers. This is my third discovery – that selling the asset management message is not a case of a ‘once-off’ presentation, but rather continual reinforcement of the value of asset management to the ends that the decision makers themselves wish to achieve.

Like many good discoveries, my three came by accident. I had just finished doing a major two year study of the costs and timing of renewing all of the major infrastructure (roads, electricity, water) and facility (hospitals, housing, schools, colleges) and public transport assets for the State of South Australia and was looking for a way to bring all of the major data collection together in a few telling observations. What I said was that if they did not get on top of the asset management issue, within the next 15 to 20 years it would take all of their capital budgets (in real terms) just to cover the asset renewal falling due at that time – and there would be nothing left over for new works! Now the agency decision-makers and politicians were not really interested in asset management, but they were *very* interested in new works. That was in 1985 and by reinforcing this message over the last 18 years we have managed to avert some of the worst of the problems.

Recently we decided to take this approach of addressing what the decision-makers were really keen about and linking it to asset management in a two-year mentoring exercise with six pilot councils. It is this project that I want to introduce to you because, although only in its early days, the project has already generated really strong interest in elected members and senior decision-makers. So much so, that already there is pressure for us to expand our six councils in South Australia to 23 or more and, in addition, New South Wales and Tasmania now wish us to do the same for them!

I would like to describe what we are doing, and if you would like to try something similar, I would be delighted to help you where I can. All of our work with the six pilot councils is being fully documented and you will be able to find each of the six case studies, which are updated quarterly, at ‘SAM online’ at [www.amqi.com](http://www.amqi.com)

### 3 The Step-By-Step Program

Firstly, this is a two-year project during which we work with the political decision-makers explaining the life cycle facts of life and then integrating renewal solutions with their service delivery strategy.

The program starts with a two-day intensive on-site visit with the staff as background for our meeting; exploring the organization’s aspirations and problems, their data holdings and the
asset practices. We meet with the councillors on the evening of the first day. It is at this time that we then run out a presentation that I shall demonstrate to you in a moment (having already had a ‘trial run’ with the staff in the afternoon). After the council meeting – which in most cases has extended to dinner and drinks until about 11pm such was the level of interest raised – we assembled the information in the form of a draft strategy representing the desired directions of the council. The following morning, with the staff, we explore what the asset implications are and what asset and other knowledge will be needed, develop with them an action plan, answer their immediate questions – and leave them to it, for this is a ‘mentoring’ program.

The intention is that we do not ‘do’ anything, but rather guide, question, and help out with suggestions. Staff chooses their own priorities for action. This is their show. The arrangements are that we visit every quarter, hold a conference call in between visits, and provide a ‘hot-line’ email service for problems en route. We also provide a private ‘user group’ discussion forum where the six councils can swap information between themselves. Incidentally, a condition of acceptance into the pilot program is that the councils permit full reporting ‘warts’n’all’ so that others may learn from the problems they encounter – and overcome. That is why you will find the case studies on www.amqi.com so useful. We are developing checklists and procedural guides as we go so that others may be able to do what we are currently doing, because clearly the demand is such that we can’t manage it all ourselves.

So much for the process, who are ‘we’? Asset management today, and especially, strategic asset management – those asset decisions that influence the directions of the organisation – is very much a multi-disciplinary field. The team I lead is just such a multi-disciplinary team – an engineer, a finance specialist – and me, an economist and asset management strategist. The enthusiasm we have engendered has been made possible by what we know – over the last 5 years we have conducted two major studies, one examining assets and asset practices in 78 Victorian Councils (Burns et al, 1997) and the other doing the same for 68 South Australian Councils (Burns et al, 200). Full reports of these studies, showing what we discovered and our recommendations for action by councils and local government as a whole are available at “Case Studies” on www.amqi.com Both studies involved devising updateable models for council use. For South Australia, the model is web enabled and you can access this, too, from the “Case Studies” site. It was the findings of these two major studies that created initial interest in asset management and encouraged councils to go further. For example, the finding from the South Australian Study (Burns et al 200) indicated that the current level of renewal would need to increase threefold within the five or so years.
3.1 Where Do We Start?

First, our councils need to understand why what they are currently doing by way of data collection isn’t working. We explain that most of our data collection starts from a need for compliance – the regulator, or the auditor, or some other requirement of government requires it.

Taking this data and adding purpose to it (corporate asset management strategy and plans) converts the data into asset information. This is the task of the asset information systems.

But we all know that our asset information or maintenance management systems always yield outcomes far beyond our capacity to pay, and so we have to apply some judgement. This is what we call asset knowledge and it is what we do when we put together the annual budget proposals.

And then the budget proposals go before the key decision makers/ elected members/ politicians – and what happens? Often the entire proposal gets completely turned around because the decision makers want to do something else. Right? Often when we present this chart to the staff, they laugh to see that we call this stage Asset Wisdom, but that is what it is. The decision makers bring extra information to the equation; they consider community, social and environmental aspects that are too hard to put into figures. They use their knowledge of the community and their sense of history.
Often Data does not progress to ‘Wisdom’. What often happens in practice is that data actually moves in a loop from compliance to asset information and back. It is not influenced by asset knowledge and still less by asset wisdom. This is illustrated in Chart 2 below.

**Asset Management Cycle or Progression**

![Diagram showing the cycle of asset management from compliance to asset knowledge to asset wisdom to compliance again.](image)

**Figure 2. From Compliance to Wisdom or from Wisdom to Compliance?**

### 3.2 Moving from ‘Wisdom’ to Data

We argue that it makes more sense to start from ‘Wisdom’ - the strategic objectives of the decision makers, and see what knowledge we need in order to track whether the objectives are being fulfilled, this tells us what data we need to collect. And, of course, we cannot forget compliance. We need to comply, but it should not drive our actions.

When we speak of asset wisdom to staff they sometimes look a bit sceptical and wonder how they are going to get the direction they need from their elected members. They are often entirely amazed at how a quarrelsome, ‘non-strategic’, set of elected members can become quite focussed when they find that they are driving asset management rather than being driven! They have so long
been the recipients of technical presentations that they are really rather delighted when they discover that asset management is not about technical excellence but about achieving outcomes.

3.3. The Objective of Asset Management

- To spend as little as possible to provide a service at agreed quality and time,
- By using the optimal asset stock needed to deliver your corporate objectives,
- Whilst controlling exposure to risk and loss.

And, moreover, that the objectives we speak of are THEIR objectives, not ours! Mind you, it would be dangerous to encourage asset management in support of objectives, if those objectives were not informed by the ‘life cycle’ facts of life!

3.4 The “Life Cycle” Facts of Life

The most important rule here, we discovered, is not to make the elected members feel inadequate by making this too much of a technical production. The important thing is that they understand the “Big Picture”. Ultimately it is in your interests as technicians that they do, for when they do, they will support your requests.

3.5 Six key questions:

- What assets are we talking about and when were they acquired?
- How long do infrastructure assets last?
- How much have we renewed and what is left to do?
- What do audited financial reports suggest?
- How do future cash flows compare with past expenditure?
- What are the trends for future services?

We try to get an idea of the size of each of the asset portfolios. Most times the figures will be on the balance sheets, although we cannot be sure that these figures are accurate – we do some checking but applying unit rates to the quantum of assets to see if the figures are reasonable. Where they are not reasonable, we leave the refining of the data to the council but proceed on the best figures we have.

3.5.1 When were these assets acquired?

This is an exercise that the elected members, with their greater age and perspective on the council area, can often do better than the staff. They know when certain developments occurred, when road grants were being generously provided and when they weren’t, when certain assets were constructed – simply because they remember. There often aren’t good records on age. But that is fine, what we want them to see is that, typically, the great bulk of the assets were acquired within a period of about 20-30 years.
3.5.2 How long do they last?

When this question is asked, the initial answer is inevitably “Well, it all depends”, and, of course, it does. But we are able to find for each asset group a range of lives that the council believe cover that asset. When we run this out with the staff in the afternoon we often show them the range of asset lives used by other councils that we have developed in our previous studies. This is useful if it seems that the council have chosen particularly short or long lives and we would like to give them pause to reflect – or to justify.

3.5.3 How much have we renewed and how much is left to do?

The final step is to ask, “How much renewal have you done so far? For example, how many of your roads have been re-sealed at least once?” While the proportions vary from asset to asset, this usually shows that very little of the asset stock has yet been renewed – and therefore it is still out there ahead of us! But given the age graph we have constructed, not so far out that we don’t have to consider the future very carefully.

3.5.4 What do audited financial reports suggest?

Councils in Australia have had accrual accounting with balance sheets for quite some years but still it is common to find CEOs and Works Managers dismissing the depreciation figure as a ‘fiction’. “It’s not cash!” they say as if that were an end to the matter. We compare the average annual asset consumption (the value of each asset group divided by the average life provided by the group) with the depreciation figure. They are generally not too far out. We explain that this is an estimate of the average life cycle cost.

3.5.5 How do future cash flows compare with past expenditure?

All councillors and all staff, even those who have dismissed the depreciation figure as fiction, will recognise that if the assets are ageing and little renewal has been done to date, the future expenditures must be greater than the past. Some will also recognise that if renewal is currently below the average then at some stage the renewal figures will top the average – unless corrective action is taken.

None of this exposition requires great data input. It is a logical development from certain premises, i.e. that assets were often acquired in ‘lumps’; that their renewal will thus also be somewhat lumpy (although not as much as initially); that the shape of the asset distribution is not flat; that generally little renewal has so far taken place; and hence, there is still much renewal to do, it is ‘out there’ and it is lumpy.

However, this is not the end of the story, for no council should be like the council that renewed the surface of its airfield just because it was ‘due’. So the final, but very important question is…
3.5.6 What are the trends for future services?

We pin a map of the region on the wall and let the councillors tell us what is happening – farm amalgamations here (with greater production and bigger trucks to carry the produce – what does this imply for roads?); ageing population here (less need for children’s playgrounds, more need for what?); new forest plantations will need access for timber trucks; etc, etc.

By this time, the councillors are getting very excited. They start to see the future in relation to the past; their future need for assets in relation to their current existing assets; they are more willing to consider disposal as a way of managing and funding the future; they talk about priorities - and we are well on the way to developing an asset management strategy that is based on desired outcomes and an understanding of asset life cycles.

4. References


