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Strategic Asset Management

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ASSET MANAGEMENT STRATEGY MADE SIMPLE

Agencies and asset managers often struggle with the concept of an asset management strategy. For simplicity, I have reduced it to

One principle
Two types of question
Three asset measures

which are described and illustrated over the page.

What is an Asset Management Strategy?

The Asset Management Strategy presents the agency's rationale for holding assets at all as well as for the type of assets, the quantum and the standard of assets. This rationale is driven by the agency's corporate intent.

The Asset Management Strategy is thus the link between the Strategic or Corporate Plan (which sets out the agency's intentions for its *business* directions) and the Asset Management Plan (which specifies a particular asset solution).

Researched and written by Dr Penny Burns, AMQ International.
Published fortnightly. Subscription, Comment, or Inquiries to

AMQ Intenational
PO Box 75 Salisbury South Australia
Tel 618 8258 4342 Fax 618 8281 5795
Email: sam@amqi.com

ASSET MANAGEMENT STRATEGY

1. ONE Principle

All strategic questions are portfolio questions.

2. TWO types of Question

1. **Direction Questions**. Those that help the agency see its current position and the direction it is moving in, and the direction it wishes to move in
2. **Decision Questions**. Those that evaluate a particular capital proposal - but always in the light of the total portfolio

3. THREE asset measures

1. **Capacity** – answering the question "how much?"
2. **Condition** – answering the question "what state is it in?"
3. **Suitability** – answering the question "how fit for purpose?" or "how effective?"

THE PRINCIPLE
ALL STRATEGIC QUESTIONS ARE PORTFOLIO QUESTIONS

Failure to observe the portfolio principle in making asset decisions leads to asset ineffectiveness and may completely negate the policy intent of the agency as shown in example 3 below:

1. a road widening is argued for a highly trafficked road – it speeds up traffic flows over the widened road section but causes serious congestion where it joins a narrower road section

2. a new Catscan is bought for a hospital at a cost of over $1 million. Because of its cost, the government insists that a maintenance contract cover it. However, no extra maintenance funding is provided and as a result maintenance is skimped on other equipment leading to early failure

3. the Federal Government announces new child care centres as part of its election campaign. A new centre is established that attracts custom from three surrounding child care centres. The centres that lose custom become non-viable and close. More child care places are lost than were created.

These examples are drawn from my own experience, no doubt you can add to the list. The point is that they are all example of strategic asset failure – they failed to adequately factor in the impacts on the total portfolio.

Strategic questions are those that relate to where the agency is going or how it is changing or performing.

THE QUESTIONS

1. Direction

At the strategic level the questions that need to be answered are ones that help the department to see the current position and the direction that the department is moving in, and wants to move in.

Examples of
Direction Questions
(illustrated by reference to a schools portfolio)

- How does the overall condition of schools relate to the desired benchmark ?
- Is the overall condition of schools improving, declining, staying the same?
- What are the key exceptions, if any?
  - How is service affected?

- Is the overall capacity of schools deficient, in excess, or just right for the educational needs of the State?
- What are the trends in school capacity?
- What are the key exceptions, if any?
  - How is service affected?

- Are school facilities suitable for the educational needs of the State?
- What are the trends in suitability affecting the school portfolio?
- What are the key exceptions, if any?
  - How is service affected?

Funding is important to Direction

- What will be the expected trends in condition, capacity and suitability if the current funding levels are maintained?

- For a given increase in funding of $xm what improvements could be made?
  - in the general portfolio
  - in specific trouble spots

- If funding were to decrease by $xm, what would be the likely impact on condition, capacity and suitability?

2. Decision

Decision questions relate to specific ways of addressing the issues raised by the direction questions.

All individual project decisions should be able to show a clear link to the issues that the Direction questions raised. If the major problem identified in directions is the need to do A and B, individual project decisions focussing on C and D are rather missing the mark.

Decision Questions

The basic question is not

'how will this asset proposal provide service?'

but rather

'how will this asset proposal improve the portfolio's ability to provide service'?

For example, a new, high-speed photocopier may be justified by the amount of use that it will get – but is this at the expense of other, perfectly adequate, copiers that are not under-utilised? How much has the overall performance increased – and does it justify the cost?

All individual asset decision questions must have regard to the agency's "policy settings".

Examples of policy settings are:

- No child should be more than 5 miles from a school
- Footpaths to be installed on only one side of the road
- Reliability of supply (of electricity, say, or water) to be no less than x

Having regard to policy settings means knowing whether there are other assets already available that will do the job – hence a portfolio issue.

THE MEASURES

Traditionally we have focussed attention on measuring capacity and condition for which there are reasonably well-developed measurement techniques. Life cycle costing, for example, is based on maintaining a given level of physical condition. Optimised replacement valuation focus on valuations that remove the element of surplus capacity (on paper, if not in reality).

Importance of Suitability
But the really critical measure for the Asset Management Strategy is the third – measures of effective performance, or suitability.

Increasingly forecasts of asset renewal are using estimates of economic life that are dominated not by condition decay but by obsolescence (changing technology and changing demands). And measures of valuation are moving away from measuring 'cost' of replacement to measuring 'value' of asset, which very much reflects the relevance of the asset in today's world.

SAM Issue 58 presented the ST&M tools that address the performance question.

Performance measures

If you know
of other tools that can measure performance effectiveness from a user perspective,
I would be very interested to see them—
Please send them in.

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SELECTING THE RIGHT TOOL FOR THE JOB:

ASSET LIVES
AND HOW TO CALCULATE THEM

All asset lives are guesses.
There are no definitive answers.

So you want to know your Asset Lives?

The first thing that most people do in this situation is to find out what asset lives others are achieving.

This may be useful to get you started, but the lives that others actually get will depend on the way *their* assets were constructed and are used and maintained and what standards they want, which may all be very different from yours.

In any case, there is a good chance that they got their asset lives the same way—by asking someone else, so that the lives they are using may not even reflect their circumstances at all.

Some other ways that asset lives are derived are:

using tax lives (this has no bearing on either the physical life of the element or the desired standard—in fact it is not a 'depreciation life' at all, really. Instead it is the period of time that the Tax Office will allow you to claim amortisation. When the Government is encouraging spending, the lives will be much shorter than most realistic economic lives. At other times they may be longer (e.g. computers and IT equipment) or shorter. ***Not to be recommended***

ASSET LIVES (CONT)

Warrantee lives These will be shorter than the average live that can be obtained from the item. (If they were not the company giving the warrantee would have to pay out to replace or repair half of the stock sold!) Warrantee lives are really minimum lives not average lives. If an asset is expected to fail somewhere between 7 and 9 years, the warrantee would usually be set at about 6 years- but the average life would be 8 years! Unless legal liability dictates otherwise, these lives will lead to serious wastage. ***They are not to be recommended***.

If not these, then what? Do it yourself?

OK—But how?

Over the page is an example of how asset lives were developed through talking to maintenance supervisors, examining the detail of past budgets, learning about the history and nature of the stock—and where this was not sufficient, using generic measures from research institutions such as the CSIRO. We will also show you a shortcut.

But don't do more than you have to, and make sure that you are asking the right questions of your source data. You do this by being clear about two things:

(1) what do you want the asset lives for?
- depreciation, or
- renewal forecasting

(2) if you want to forecast renewal, do you want to forecast the situation and standards that are currently in place, the 'as is' situation, or do you wish to forecast the costs of changing to a new, preferred, standards, the 'as desired' situation.

And finally,

3. If you want to use the lives for renewal forecasting, are the forecasts to be used for broad strategic and financial planning, or for operational control?

The answers to these questions will tell you

- Whether you can live with broad categories and averages (depreciation)
- Whether you can live with broad categories but need to allow for subsets with decidedly different lives (strategic or financial planning)
- Whether you need more specific and narrower categories to pinpoint areas of need (operational planning).

Averages?

If a category, say footpaths, can be divided into two sub-categories, footpaths with trees (with a life of, say, 20 years) and footpaths without trees (with a life of, say, 40 years). If the proportions of each are known, an average life can be calculated for the entire category, say, 30 years. This is fine for purposes of depreciation but no good at all for forecasting renewal timing.

Case Study Examples

On pages 70 to 71 of this issue, you will find a worked example of how to use the knowledge of your maintenance staff, historic budget trends and professional guidelines to develop a set of economic lives that reflect the sustainment of the current asset standards.

Physical or Functional Unit Breakdowns?

The example uses a physical component breakdown. An alternative, using a functional breakdown is perhaps more relevant for 'as desired' forecasting and will be considered in SAM 62 when we look at understanding the drivers behind 'as desired' economic lives (which reflect the issue of suitability and performance effectiveness raised in the article on Asset Management Strategies in this issue.)

Example:
ASSET LIVES
Physical Components
Standard: "As Is"

On the opposite page is the first asset renewal life cycle model I developed. Don't use the figures. It is some 16 years now since I did this model and much has changed in the way that public housing is run and what standards are maintained. Asset lives (here referred to as 'economic' lives) are closely related to standards so that if government policy concerning housing standards should change then asser lives will change too.

Choosing the categories
The first thing to decide is what categories to use. Here physical component categories were chosen. (In the next issue, we will look at functional categories.) Proportions for each category were determined by (a) using the construction payment schedules (i.e. the builder gets paid so much when the building reaches footings stage, so much when the walls are up, etc.) and (b) validating these proportions and the total replacement cost of the house against current budget estimates for renewing or replacing. Whatever source you use for determining proportions, it pays to verify, wherever possible, with another.

Principles I used for the categories.
- If elements tended to be renewed in groups, or if their economic lives were otherwise similar, they were grouped together. The aim was fewer categories rather than more.
- If there were sizeable exceptions to the general category life, subsets were used – materiality was the key here.

Understanding the asset stock
I spent several afternoons with the chief maintenance supervisor while he described the historical development of the housing portfolio, the particular architectural styles that were in use at different times and any problems that particular styles posed. For example, he knew that before WW2 all houses had terracotta roofs, but styles changed after the war to a mix of terracotta (with long lives) and galvanised iron and asbestos (with shorter lives). We factored this in to the analysis.

Model Variations
He described the problems faced by salt damp that affected particular areas of the State. By calculating what proportion of houses were in these areas and the probability of them having salt damp problems, allowance was made in the model. Because a number of elements varied significantly in the construction type before and after WW2, we chose to use a basic model with a pre-WW2 variation.

Treatment of "One-off's"
War time exigencies affected a number of elements – green timbers were used when the agency ran out of seasoned timbers; sisal fibres used in ceilings were now flaking and creating a fire hazard. Correcting for these deficiencies was a 'one off' exercise so it was important not to factor in repeated renewal.

Asset Live as 'the period between one renewal and the next'
At the time of this study, most of the stock was still 'as constructed' for very little renewal had actually taken place. For 'as is' asset lives, where the current life is accepted and to be measured, it doesn't matter whether the supervisor thinks that the work should have been done before, it is a question rather of when it was done.

A Shortcut

When the agency management first saw the asset lives that had been derived from the research they considered them far too short. As a check, 6 maintenance supervisors were asked to write down their estimates and the average response against each line item was calculated. The research estimates were within 6 months of the average in every case! This may suggest that the research can be 'short-circuited' by simply using the averages in the first place. This would work if there were experienced maintenance personnel with a long history of the agency. However, the figures would be just figures, with little understanding for others on how the figures were derived. The advantage of the research is the greater understanding generated, possibly leading to corrective actions.

Housing Portfolio Asset Renewal Model 1986

In the model below, LoA stands for "life of asset". Certain elements, such as foundations, structural walls, roofing timbers, are rarely replaced if the asset remains on the same site. We assumed that only if the asset were to be relocated would these costs be incurred.

Document Your Assumptions

The actual notation of assumptions for this model ran into four closely typed fine print pages with 27 items. These details and the results of the modellings are in a parliamentary report "The 44th Report of the Public Accounts Committee on Housing Asset Replacement, 14th August 1986" presented to the South Australian Parliament, and available through State libraries.

TABLE 1:

BASIC LIFE CYCLE MODEL

	Component %	Sub-component %	Exp. Eco Life (Yrs)
Substructure	16	95	L.o.A.#
		5	35
Superstructure A	32	85	L.o.A.
		5	30
		10	35
Superstructure B	9	80	L.o.A.
		20	35
Roofs	7	50	65
		50	35
Carpentry	10	75	L.o.A.
		25	30
Plumbing & Fittings	7	90	75
		10	15
Sewer	1	95	75
		5	15
Electric/Gas Service	2	90	50
		10	25
Electrical Appliances	3	100	15
Floor Coverings	2	100	20
Fences	4	100	35
External Pavings & Siteworks	7	40	L.o.A.
		50	60
		10	30
General Upgrading (representing refurbishment of some of the components which nominally last 'the life of the asset'.)	25	100	45
	5	100	30
Once-off cost—Salt damp repairs	32	5	20

#L.o.A. = Life of Asset

VARIATIONS TO BASIC MODEL

	Component %	Sub-Component %	Exp.Eco Life (Yrs)
Variation A			
Roofs	7	100	65
Variation B			
Upgrading	100	12.5	40
		12.5	45
		12.5	50
		12.5	55
Upgrading	25	50	45
Upgrading	5	100	30

Angry? Cheesed Off?

What really annoys you about Asset Management ?

For the next few issues, I am asking practitioners what really irks them about asset management and the way it is currently applied. Generally, we get annoyed by what we feel unable to change. Maybe some of the issues we raise will have answers, maybe they won't and we will have to learn to live with them, or work around them.

Organisations Too Parochial

Roger Byrne of GHD leads off:
"My gripe is 'the parochialness' of Australian organisations, professional bodies and state governments. To think that we have been unable to get a truly 'national 'approach to managing our valuable community infrastructure is of great dismay to me.

We don't have a National Infrastructure Council or focus group and can't even provide a national reporting mechanism that aggregates data on a national basis for all key asset and service programs . Sometimes we even here the argument that " we don't want others to understand the real condition of our infrastructure" So much for transparency!

We need to set an appropriate reporting standard for all infrastructure owners, public and private."

Two Questions for You

1. What are your reactions to Roger? Can a common standard be developed? Should a common standard be developed?
2. What is your gripe?

(As a contrary view, consider the Japanese approach. No-one is affected by the "not invented here' syndrome. Instead they take a good model—from anywhere, ADAPT it and use it. Someone else then takes the new model and ADAPTS it, and so on. This doesn't give rise to a common standard, but it does give rise to continuous improvement.)

Over to you.

Say something so I know you are out there!

Email <penny@amqi.com>

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