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For Practitioners, Policy Makers and Planners in Public Infrastructure



Over the past twenty years, asset management has become strongly associated with asset maintenance and renewal.

Asset condition studies, life cycle costing principles, valuation studies, have all been deployed to provide estimates of the need for asset renewal.

And that is fine. Or at least it is when our economies are reasonably stable.

But when we are facing large scale growth and rapid change, maintenance and renewal of the status quo has to give way to the support of those services that we will need in the future.

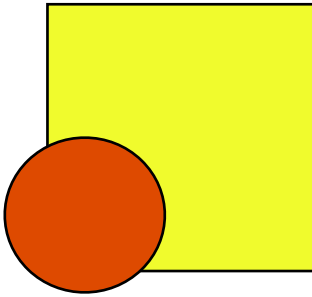
How well is Asset Management doing *this* job?

What does Asset Management have to offer decision makers in a time of growth and rapid change?

This is the issue that I believe will dominate 2008.

Are we still relevant?

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Editorial: Asset Renewal - so 1990s!

Asset Management as Asset Renewal

In Australia growth started to slow down in the second half of the 1980s for a number of reasons and by the 1990s, the construction boom of the early 1980s could be considered well and truly over. Moreover, the capital grants that had been coming like a flood out of the Federal Government in Canberra - much faster than the States could sensibly spend - started to dry up. So severe was the reduction in new construction that hourly rates for engineers and architects literally halved in just a few years and government departments everywhere started to shed engineers. I know, because it was part of my job to find new placements for them outside the government service.

When accrual accounting was introduced in the early 1990s, assets needed to be brought to book for the first time. At a minimum they had to be classified, recorded and valued. The release of a series of Parliamentary Reports in 1986/87 that measured the cost and timing of future renewal attested to the significance of infrastructure assets and Auditors-General became concerned at the paucity of information available on which to base management decisions.

The stage was thus set for the introduction of Asset Management. We had the resources in the engineers no longer needed for construction work, and we had a recognised demand from the top. So Asset Management was born *in the need to know more about our assets to deploy the most efficient maintenance regimes and so to manage the demands on future renewal.*

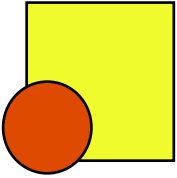
That has been the driving force behind Asset Management over the last twenty years - in Australia and overseas.

But the wheel is now turning.

Growth has returned. Engineers are in short supply just about everywhere (as are other experienced professionals)

And we can no longer reckon with a reasonably static future - which is the implicit assumption underlying asset renewal forecasts and projections. Change is all around us. Not small scale change, but potentially large discontinuities.

Jeff Roorda explains the nature of some of these discontinuities on the next page.



We are now facing major discontinuities.

The most critical issue we face is how to use AM to enable open and informed political decision making for future scenarios which include many uncertainties, indeed discontinuities. Examples include:

1. Economic Growth (or lack of it) due to chronic debt and short term growth based fiscal policy (eg US, Australia, or Political Change / fiscal policy / debt in China.
2. Demographic and population geographic changes - Ageing populations and shifts of populations from rural to concentrated urban and the uncertain future of "dormitory suburbs"
3. Energy and environmental (waste / resource extraction) pricing and political willingness to apply transparent energy pricing to transport and transport infrastructure
4. Global shortage of skilled and experienced AM professionals that can apply the sort of analysis we are discussing here - very much the case in UK and EU as well as Australia / NZ
5. Pricing and taxation policy for cultural preservation, indigenous cultures are but a starting point, albeit a critically important one.
6. Technology and communications infrastructure increasingly replacing transport infrastructure, especially when considered with point 3.
7. A growing dissatisfaction by voters with "economic conservatism" and growing demand to include environmental, social, cultural factors in decision making. The paradox is that this demands longer term vision, at the same time our "developed" culture is demanding more instant gratification driving short term decision making.

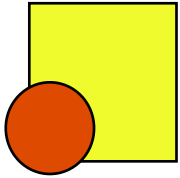
These 7 discontinuities combine to make future projections for renewal, based on continuation of the past, nonsense.

Almost all the underlying assumptions ignore these 7 discontinuity factors and will therefore be at best wrong, at worst highly misleading and deceive decision makers that they are being responsible asset managers.

AM will need to combine all these into a series of scenarios that, in addition to optimal maintenance and renewal of existing includes new investment to change old infrastructure based on the old pre discontinuity rules to new infrastructure. Maintaining and renewing obsolete infrastructure is not good AM.

Typically, in the past major wars have been the discontinuity providing the catalysts for these shifts. I think and believe that asset management can provide a more positive catalyst. For this to happen, asset managers need to be social, cultural and environmental leaders as well as the engineers, economists and accountants.

by Jeff Roorda, JRA Associates.



Leadership

Let us pursue Jeff's idea of "Leaders in Asset Management" for a moment. Leadership is more than just doing. It is about setting direction. What are we doing to set direction in a time of change?

WARNING: What I am about to say may be offensive to some readers. Proceed with caution.

Asset Maintenance is *not* Asset Management

Asset maintenance is a critically important area; it is essential. But it is *not* asset management. And it is dangerous to confuse the two, since if we do one or the other will fail to be done properly.

About ten years ago a maintenance society announced on the front page of its newsletter "Maintenance is dead. Long live asset management!". However, as you read the article you realised that the only thing being changed was the title. Maintenance was not attracting the desired funding, so a name change was considered to be in order.

Asset maintenance operates at the asset level.

Maintenance is only a part - a very important part, but still just a part - of the whole field that represents Asset Management. The role of maintenance - and asset renewal is simply an extension of maintenance, since its purpose is to maintain the asset when elements can no longer be repaired - operates at the asset level.

However, Asset management proper operates at the service level.

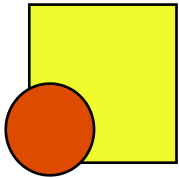
And this is not the service provided by an individual asset but rather the service provided by the *entire asset portfolio*. This is so important that last year we devoted several issues of SAM to examining the service level approach (SAM Issues 215 and 216)

There are many definitions of asset management. Here are just a couple.

"Focus on minimizing the total cost of acquiring, operating, maintaining, and replacing capital assets over their life cycle and doing so in a way that achieves the level of a service that customers desire"

"Process of guiding the planning, acquisition, use, maintenance of assets and optimizing the potential of service delivery and managing related risks and costs over the full life cycle of the assets"

In these definitions, I have italicised the service delivery element.



Service levels are the key

Are you *maintaining* or *managing*?

If, in your work, it is assumed that the “desired level of service” or “required potential of service delivery” *will be supplied to you and that it is not part of your work to discover this*, then you are ‘asset maintaining’ NOT ‘asset managing’.

Asset management requires an active hand in determining desired *and affordable* service levels - this is an interactive activity and involves engineering, business and planning and, of course, the community.

Consider this chart of the technical competencies required for the new University of Western Australia course in Engineering Asset Management.

Note the complete absence of any reference to service levels.

Note the complete absence of technical competencies in the tools most related to ensuring that assets meet required service levels - e.g. Post Implementation Review (looking back) and Value Management (looking forward).

This is, effectively, a course in asset maintenance, not asset management.

A few weeks ago, a colleague mentioned that the head of her asset management branch had been referred to, dismissively, by officers in the planning section as “just a maintainer”.

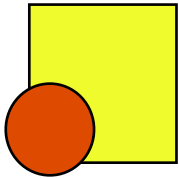
There is absolutely nothing wrong with being a maintainer - UNLESS you hold the responsibility for asset management!

Technical competencies
Risk management including quantitative and qualitative risk assessment tools
Collecting, managing and analysing equipment information and data from industrial processes. Statistical process control tools.
Condition and performance assessment, and inspection interval determination
Reliability statistics, probability plotting.
Component and capital equipment replacement decisions
Reliability testing and design of experiments
Team based processes (including TPM, RCM, PMO, RCFA, QC Circles)
Reliability-based-inspection (RBI) procedures and standards, materials and corrosion
Failure analysis and failure investigations
Design for maintainability and reliability, both for Greenfield projects and routine capital projects
Systems reliability models, resource and spare parts modelling, availability modelling and simulation
Systems engineering concepts
Software reliability

Asset Management goes beyond Asset Maintenance and Renewal

When you find a problem with an asset and fix it, that is asset maintenance. When the element or asset is not fixable and is replaced by another, that is renewal. Renewal and asset maintenance *maintain the current level of service*.

But what do we do when the current levels of service are in a state of flux, when they are all up for grabs, as we come to terms with what we need in a most uncertain future? This goes beyond asset maintenance.



Are you ready to face the challenge of growth, change and discontinuity?

Ask yourself these questions:

Is your asset management section influential in the analysis, planning and advice for new assets?

Or is it, like too many asset management units, simply occupied with the maintenance and renewal of the existing asset stock - a status quo occupation - *whilst planning for, and decisions on, new assets (and new services!) are carried out elsewhere?*

Is life cycle costing in your organisation used to inform decision makers of the likely future costs of current and potential asset decisions?

Or is it, like too many asset management units, simply using life cycle costing principles to forecast the cost and timing of renewing the current asset stock, supplying the current services? Is it, in other words, used to bludgeon the Executive in providing more resources for the status quo, or is it used to inform change?

(Whether you think you are doing this or not, your Executive may well perceive this to be the case. I have lost count of the number of council CEOs who have told me, in effect, that 'asset management gets in the way of what we need to do for the community'. When they say this, you can be pretty sure that their interpretation of asset management is that it is a demand for more money for the status quo - whilst *they* are in the business of change.)

Does your organisation build into its future forecasts, scenarios that take into account the "7 discontinuities"?

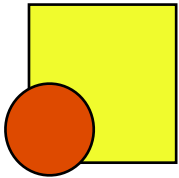
If your state or province is currently experiencing strong growth, are you factoring into your renewal forecasts the fact that your community service needs are almost certainly changing?

Anecdotal evidence suggests that in a boom time, asset management principles are abandoned. In a boom, it may be considered more important to get something up and running quickly than to consider how it will best serve the needs of the organisation into the future, and how efficiently and effectively it will continue to operate.

Why? Is it because, as asset managers, we take too long to prepare and argue the case for good longer term decisions?

And if so, is it because

- we are under-prepared? with no or little information about possible future scenarios?
- we have failed to educate decision makers?



Setting Direction

Sure, we can blame others, or the environment, or government, or finance. But blaming others won't get the situation changed. Only if we take responsibility for what we are doing - and what we are not doing, will things change. So what can you do?

Are your 10 year projections really 2-3 year projections extrapolated forwards?

Usually we can't see more than about 2-3 years out, so that when we need to do ten year projections the last 7-8 years are pretty vague.

(This may also account for the popularity of J-curves, where the projection says that things will get worse initially but then make a change for the better. This could be because we can see things getting worse - but hope that the bit we can't see will improve matters!)

If this is the case for you, you may like to try a technique promoted by Global Foresight (www.globalforesight.net). It is called

Strategic Foresight: Standing in the Future

Rather than looking out 10 years, the authors of the 'Standing in the Future' model suggest that you do just this. Start from a vision of what you want to see in 10 years time - and then work backwards.

(You might have had some experience of doing this by imagining an end goal and then asking yourself what would the penultimate step before reaching the goal, and then the step before that - until you have worked your way back to the present.)

However when, as now, we are facing considerable uncertainty with our "7 discontinuities", we need to be able to (a) identify and (b) track the development of those aspects that most impact on our ability to provide the services we wish to provide in ten years time.

Here is a technique from the website authors:

Go Visual Convergence Circles

"One very powerful focusing technique for 'picking up' on those weak signals of potentially significant change we call "Go Visual Convergence Circles". It works on the principle that disruption or opportunity within any industry will most often become first visible at the edge or boundary of that industry.

The technique goes like this:

* Draw a circle on the centre of a page, and then a series of circles (start with four or five circles) that overlap slightly at the edge of the first circle. Put the name of your industry in the centre circle. For example, say you are a high street travel agent, you might write “Travel & Tourism Agents” to describe your industry.

* Now think of those industries which are integral to delivering your total product, service or experience offering to your customers. For example, global booking systems, airlines, hotels, rental cars. Write each of these industry names in the surrounding circles.

* Are there any other industries which are significant contributors to enabling the delivery of your total offering? For example banks for financial transactions. Write any of these in the remaining circles.

* You now have a simple map of your industry eco-system. The ‘trick’ of the technique is to now focus on where your industry intersects with each of the other industries. Are there any trends, disruptions or important issues that are already occurring at this industry boundary overlap? Very often these changes are driven by technology advances or lifestyle trends. For instance how might technology such as the Internet or mobile phones change the way travel agents and hotels currently provide booking services and offers to customers? How might increasing numbers of overseas students change the way travel agents and airlines work together?

* Now complete this process for each of the industry overlaps.

In a very short time, you will have developed a focussed list of “heads up” tracking themes important to the unfolding future of your industry and business.

If you and your team revisit the changes to this map, say monthly, you will considerably improve the probability of your organisation’s success in an increasingly uncertain and turbulent world.”

(My thanks to Bob Richie, for drawing this to my attention)

2008 Agenda

In 2008 we will be looking at ways in which Asset Management Principles can be used to help set directions that will serve you well in the future.