Happy New Year!

I believe in Asset Management. I guess I would have had to, to devote 30+ years of my life to it. But if there is one thing that those years have taught me it is that belief is not enough. There are no easy answers.

So before we start a whole new year of exploration - here is a quick recap of the themes addressed in 2013.

In my early years I was announced at a conference as an 'evangelist'. The Chairman explained this meant I was passionate about my subject and had credibility. At the time I thought, 'OK, I can live with that!' Today there are many AM evangelists but I no longer believe I am one. I explain why in our feature article **"A matter of faith?"** p. 2

Anybody who has been in AM for a few years or more knows that its scope is continually, and rapidly expanding. In **"What's New"** p.5 I look back on some of the new trends and terms that have entered the field.

Every good asset manager has a tool box, and in theirs, 'Strategic' asset managers have a range of analytical techniques that they can call on. The techniques that we looked at in 2013 are reviewed in **"Analytical Techniques"** on p.7

New ideas take some time to get our heads around, but a far more difficult task - and a more dangerous one - is disabusing ourselves of what we believe to be true, but isn't. In **"*Assume* makes an ass of U and me"** on p. 9 I review some of these 'false assumptions'.

We also looked at a range of six possible future directions that Asset Management could take, and described a visit to the Paris Sewers (a fantastic asset!).

Review, remember - and enjoy!

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A matter of faith?

Is faith in asset management sufficient or do we need to prove our case?

In Issue 376, I looked at a very useful format, developed by Jan Schippa of UMS, to make the business case for asset management. That article was particularly interesting for me because it showed that when organisations consider all the possible things that they could do under the umbrella of asset management, some things (while 'good' in themselves) did not yield enough benefits to justify the costs of their implementation.

This is important. There are still many asset managers today who believe that asset management is self-evidently 'a good thing' and that it does not have to be argued, nor a case proved, that it is simply 'good management'. (Issue 378) Well, and so it may be, but as we have often noted, it is entirely possible to have 'too much of a good thing'.

Why I no longer accept the 'evangelist' tag

I changed my mind on whether I was OK with the tag 'asset management evangelist' when I heard Professor John Gray, recently, talking about human rights. He said: 'Religious evangelists believe that all that is necessary for people to see the light is that it be shown to them. Once they have seen the true faith everyone will embrace it. If there are some who do not accept the saving gospel as will surely be the case then the mission must continue until they do.' Believers in human rights, he says, believe the same. He could equally reference some believers in the virtues of asset management. However, he warns, 'Both are engaged in an unending project of conversion'.

For the sake of our own sanity, it is important to recognise that some will never accept the asset management 'story'. It might be that they are not attuned to the asset management objectives of 'lowest life cycle costs' and 'long term sustainability' . Whether this is because of short term and personal incentives to maximise current returns at the expense of the future, or because there is simply no resources available

to commit to asset management, may make a difference to how we view them, but it doesn't make any difference to their uptake of asset management.

Some will never 'see the light'

For example, take the problem dealt with in Issue 370 where we looked at Infrastructure Maintenance in the Pacific. Politicians (and some public servants) tend to glibly assume that Infrastructure will pay for itself through increased productivity but even in developed countries this is only true of economic infrastructure and even then only when the problem is one of capacity bottlenecks preventing the satisfaction of demand. This is why so much economic infrastructure spending in developed countries is mis-directed. In the Pacific Islands, it is worse.

The economies are too small to benefit from economies of scale and the greatest need - and most of the expenditure - is on social infrastructure which improves lifestyles but does not create the income needed for its sustenance. This social infrastructure is almost entirely provided by external grants and these communities follow a build-neglect- rebuild structure. However to accuse them of poor asset management is surely to miss the point. Actually the Build-Neglect-Rebuild option is their best strategic asset management option!

The 'best' Strategic AM option is not cut and dried and depends on context

With insufficient funds to provide for their own maintenance they have little option. But consider this parallel case - your employer provides you with a new company car every two years as part of your remuneration package. At the end of the two years, they take back the old car and give you a new one. The cost of maintenance of the car is, however, not included in the package and any maintenance that you have done comes out of your own pocket. What do you do? Do you maintain that car to optimise its life cycle cost over the entire life of the asset - or just over the two years that you have responsibility for it. The answer is not a difficult one, is it?

If you consider that the objective of the governments in these tiny Pacific Islands is to maximise the total range of services provided to their citizens, as long as grant funders are prepared to provide only capital funds and not maintenance funds, their optimum 'asset management strategy' is exactly to 'build-neglect-rebuild'. It is not an absence of asset management on the part of the islanders - the problem lies with the lack of asset management thinking (and action) on the part of the grant donors!

What would be the optimum asset management strategy for you and your company car if you were allowed to retain the older vehicle and dispose of it at the end of the two years, would be very different to the optimum strategy in circumstances when you have to give it back. Similarly the optimum AM strategy for the islanders would be very different if the donor funds were to include maintenance funds and that renewal of the asset was dependent on good maintenance practice.

What is good AM strategy therefore depends on context. For more information on what is needed for good asset management refer to this issue, number 370 and for information on what to measure look at number 368.

'Trust in God but keep your powder dry!'

Faith in asset management is OK, but you must be prepared to substantiate its benefits.

In 1996, concerned that if we did not document our practices, and particularly our successes, asset management could be considered as a fad, I worked to encourage such documentation by the establishment of the International Asset Management Competitions (1996-2000). But still we struggle to provide evidence for asset management success. The following conversation is unfortunately not uncommon:

> "We want to persuade our Exec to take asset management on board, can you tell us what the likely range of benefit would be?"
> To which I respond (accurately, if not very helpfully) "It rather depends on where you are at the moment and what exactly you are planning to do".
> (with desperation in the voice) "Well, yes, I guess, but we need a figure to throw at them now"

Waiting until the last moment and then expecting a magic figure to appear is like a belief in Santa Claus. A sounder strategy is to work out where in your organisation you can look to develop the data you need. This is what we did in Issue 368 where we looked at financial and strategic benefits as well as operational benefits. Check it out!

It is unsafe to be like those religious fundamentalists who think that all they need to do is to expose their listeners to the true faith for acceptance to be at hand. Perhaps the major reason that asset management is such a lively topic today, some thirty years after we first started talking about it, is that it is so multi-faceted. You cannot assume that your desire for a well maintained asset that maximises its life potential at lowest long term cost, is actually the goal of your management.

Corporate management also has to consider issues such as

- Intergenerational Equity **(Issue 362)**
- Financial Sustainability (**Issue 373**)
- and Performance Measurement (**Issue 374**)

To see what effect these may have on AM decisions refer to the issues listed above.

What's New?

As well as different shades of meaning being assigned to existing terms such as 'service' which we will have occasion to look at more seriously later in the year, we also discussed concepts such as mental models and mindsets. New topics now starting to enter the field are resilience, culture and 'the third sector'.

Concept and Program

It is useful to note the difference between a concept and a program. A program can be written down, codified, checked off, and updated. A concept cannot. A program, once it is written down, can be followed by others - and they do not necessarily even need to understand it to do it. A concept cannot. For a concept to be used it needs to be thought about and interpreted. It then needs to be translated into action. Concepts and their application are thus as individual as the practitioners applying them.

Service is a concept.

To a valuer, service 'potential' is a technical term related to asset value. To a thoughtful asset management practitioner, it poses questions of what unit of measure we would use to define the service being received by the customer. Service 'levels' will be interpreted differently by someone thinking in terms of the customer and someone thinking in terms of a technical standard, and so on.

Confusion between concepts and programs

I suspect that a lot of what passes today for 'political correctness gone mad' is a premature attempt to codify actions from only partially understood concepts. Much the same could be said for many of the silo-based KPIs we suffer under. For example, the mistaken notion (and associated KPIs) that sustaining assets means replacing the consumption of assets on an annual basis!

Resilience

Resilience is a concept. Resilience is often described as the ability to 'bounce back', to recover and even to surpass the previous state. It is much admired in individuals, and essential for critical infrastructure. Large scale environmental disasters (e.g. the Queensland floods, the Christchurch earthquakes and Hurricane Sandy) seem to be happening with greater frequency than we had previously estimated ('guessed' would be a better word). We are no longer confident that a '1 in 30 years' event' or a '1 in a 100 years' event' really has any validity. We simply do not know how to put probabilities on these events. As we explained in an earlier SAM on 'Risk AND Uncertainty', risk management is about using probabilities. When we do not know, and cannot work out, the probabilities, we are not dealing with risk any more, we are dealing with uncertainty, which is much harder. **Resilience is about living with uncertainty.** That is why it now seems so relevant to the world in which we are living.

Writers on Resilience have recognised 4 elements:

Resistance is the traditional "Prevent" mode - building resistance to a hazard or its primary impact. (this will be limited by the nature of the threats we envisage and plan for and by our historical measures - which are not proving very reliable just now)

Reliability is about ensuring infrastructure components will operate under a range of conditions. This is a feature that must be designed into infrastructure components.

Redundancy applies to the network/system level. The previous component was defined at the component level. Again it must be a design factor. The UK report makes a very important point "The resilience of networks reduces when running at or near capacity." [p16]

> Note: Historically, we used to build more redundancy into networks and systems as a matter of course. This enabled our systems to continue to operate effectively when maintenance and renewal was severely cut back and when extra demands where put on the systems. Redundancy is not now designed into systems, under the notion of achieving greater productivity. The limits may now have been reached and we need to rethink.

Response and Recovery is considered to be the "ability, capacity and capability to respond and recover". Business Continuity is considered a key discipline in this component.

For more on this subject see Issue 367

Leadership and Culture are also concepts and we will be hearing much more about these in 2014.

Analytical Techniques

The Operational asset manager needs his toolbox. So does the Strategic asset manager and the tools in his tool box are analytical techniques. In 2013 we looked at a number of these techniques:

Willingness to Pay

Anna Robak wrote on “Willingness to Pay” showing how to measure it - and how to interpret the measures. The most interesting result from her study was that when willingness to pay studies show that customers are willing to pay more to get a certain service level it doesn’t necessarily mean that they are willing to pay a service provider. it will depend on the amount of trust they have in the supplier and whether they believe that they can provide their own uniquely desired service level more cheaply than a general purpose supplier. Anna’s work has been extremely well received in Treasury and Academic circles and is well worth reading if you missed it the first time around. Look up Issue 364 which also contains Peter Buckland’s “Risk Management is not a cost, it is an investment’ and Ype Wijinia’s and Joost Warner’s “Risk, Priority and Portfolio Planning”.

Optimism Bias

Why do your cost estimates inevitably understate the real costs, and your demand estimates inevitably overstate the real demand - and what can you do about it? As a species, humans have a tendency to be optimistic, we overestimate good things in our life, and underestimate bad things. For example, we overestimate our longevity or career prospects and underestimate our likelihood of being in a car accident or getting cancer. We are more optimistic than realistic and even when we know the general statistics on car accidents or cancer, we do not materially change our own assessments, according to studies by neuroscientist Tali Sharot (The Optimism Bias). This optimism bias is generally good for us. It makes us more resilient as well as happier, healthier and more successful.

Unfortunately, when it comes to social and public infrastructure decision making, or really any complex decision making, optimism bias also leads us to underestimate the

project costs and completion dates, and to overestimate potential demand and benefits. If the bias was trivial we could afford to ignore it, but it is not. Issue 360 looks at why this happens and what you can do to mitigate the effects.

Scenario Thinking as a Counter to Uncertainty

Risk and Uncertainty are often considered to be the same thing - but they are not! They are two different types of unknown - and need different techniques to manage them. Risk applies to those unknowns where we know enough about the determinants to put probabilities around outcomes - the throw of a dice, for example. In asset management, risk applies to the life of an asset, or the timing of a maintenance intervention, where through observation, data analysis and testing, we understand the underlying drivers of asset wear and tear and deterioration - age, use, conditions of use (or abuse) - and are thus enabled to calculate the probability of outcomes from given actions.

Uncertainty refers to those unknowns, for example the nature and timing of technological innovation, climate change, social or structural change, where we do not know enough to be able to assign probabilities. (Any 'probability' not assigned on hard evidence and sound judgement, is a 'guess' and not a probability.) Risk management techniques, based on probabilities, are not appropriate means of dealing with true uncertainty. However, because they have served us so well in other areas, and because we know them, there is a tendency to want to use them for all cases of the unknown, perhaps on the 'if the only tool you have is a hammer ...' principle.

So Issue 378 looks at ways of dealing with Uncertainty - structural frameworks that reduce the chance that something will go wrong (pp 3-4); and scenario thinking which helps to ensure that the system you adopt is robust or resilient enough to cope with all (or at least most) contingencies.

Heaton's Four Factors of Productivity for improving performance in anything.

I knew that I would find Heaton's approach useful when I read his comment that

> "estimating can often be better than precisely measuring,
> because making estimates requires thinking"

Here, in brief, is Heaton's Four Factors and how to do the Calculations.

The four factors to be used in calculating nonprofit productivity are

(1) Input,
(2) Processing,
(3) Output,
(4) Follow-up.

The formula is to multiply the factors together in sequence:
Input x Processing x Output x Follow-up = Productivity.

If each of these factors is graded at 70%, productivity is 24%. If one of the factors is zero, productivity of the organisation is zero. Shocking as it may seem, low results are typical.

A Practical Example of a Hospital Emergency Room

The productivity of a hospital emergency room is calculated as follows:

If 40% of the patients admitted have non-emergency medical conditions, the input factor is 60%. If only 70% of the admitted patients receive timely, optimum care, partly as a consequence of overcrowding, the Processing factor is 70%.

At this point, out of 100 patients admitted, 60 required emergency care and 42 of them suitably received it. (Modify this somewhat for prioritising by triage.) If, on discharge, only 80% receive and understand instructions about medications to be taken and symptoms to be alert for, only 34 patients will retain full benefits of the care provided.

If inadequate follow-up is arranged for such things as additional tests, perhaps the follow-up factor could be rated at 80%. Then of the 34 patients who retained full benefits when leaving the emergency room, 7 will lose them.

Productivity of the emergency room is then calculated as follows: 60% x 70% x 80% x 80% **= 27%.**

Denial

Denial is a common first reaction to a productivity figure like 27%. But if you can get past this first reaction, application of Herbert Heaton's Four Factors can greatly improve your performance - on practically anything. Moreover it is the third and fourth factor, especially the fourth, that can make so much difference. See Issues 378 and 379.

I applied this technique to my own expected future performance and the results were predictably dismal. The benefit of this approach is that it forces you to look very carefully at what you are doing.

Whilst the percentages that you come up with cannot be verified in any independent sense, it doesn't really matter. The idea is to think of ways in which any starting value can be improved. Actually it can be a lot of fun!

Finally, two sections that I greatly enjoyed writing - and I hope that you had enjoyment in reading them.

"Assume makes an ass of U and me"

Of all the issues i wrote this year, Issue 371 "Myths we mis-manage by" was the most fun. In it I looked at whether it is true to say that 'you can't manage what you can't measure' - and the dangers of thinking that this is, indeed, true. Another common fiction is that 'Maintenance should be at least 2% of Current Replacement Value' and do read the weirdly wonderful "Law of Fives".

I know many of you would not think that maintenance backlogs are a myth. But just because something was once on a 'to do' list and didn't get done, is no good reason to give it priority for funding. Each year is a separate miracle and items have to be judged in the light of their costs and expected benefits - and weighed against every other contender for the budget. John Howard, a very practical engineer, tackles this issue in SAM 373.

On another level, it may well be assumed that to remove all traffic signage would lead to more chaos, not less. So that it is interesting that when we stopped assuming that this would be the case and put it to the test, the results showed an increased safety record. As we discovered in SAM 377, 'when you are not TOLD what to do, you begin to THINK for yourself.

AM for Fun and Profit

We started off the year by looking at six different scenarios for how AM might develop in the future. There is also a template by which you can 'invent' your own scenarios if you have a mind to.

In Paris I had the great fun of going down the Paris Sewer, something that has been on my bucket list for a very long time. It is good to see an important infrastructure asset, and its ongoing management, be an object of interest to the general public.

I also came across the idea of Repair Cafes. This might seem to be way 'off topic' for asset managers, but these cafes run by local councils or local groups act to counter the idea that everything is disposable. If we encourage the idea of repair of ordinary everyday items, can the idea of ongoing repair of infrastructure be long behind?