Issue 10, May 21, 1999

Benchmarking

the Good, the Bad and the Ugly

The biggest danger facing many of us today is mindless conduct of our daily business. There are a number of reasons why this may be happening. With restructuring we don't know what job we may be doing tomorrow or whether we will have a job at all, so why put the effort in? Constant budget cuts make us feel that our expertise is of no value and not valued by higher level decision makers. So we 'go through the motions' and then go home, exhausted because we have had no challenge, no fun, no stimulation at work, and we snap at the kids and kick the dog and life goes down hill. Many people are doing benchmarking mindlessly.

These notes were prepared as "after lecture" notes for an in-house course in asset management for property managers in the University of Adelaide. They are designed to save the sanity of practitioners by challenging the status quo position of benchmarking, by challenging the rationale, the outcome, the 'way in which things are done'. Carried out with purpose, benchmarking/performance measurement brings the fun back into asset management.

Benchmarking Defined

Benchmarking is a comparison process. It involves comparing what you are doing and the outcome you are getting with what someone else is doing and the outcomes that they are getting.

The Arrival of Benchmarking

In the late 1970s, Xerox noted that the Japanese could sell competitive products into the American market at prices as low as Xerox's own manufacturing costs. It asked itself how this could be so since the Japanese had to cover transport costs and still make a profit. This led them to compare manufacturing costs – and processes – first with its Japanese affiliate, Fuji Xerox, and then with other

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competitors. Later it started comparing service levels and customer satisfaction. Xerox put what it learnt into practice and throughout the 1980s it continued to study and refine. This resulted in it recovering its markets and being number one or two in all the markets it contested. Such a recovery was much praised by the business industry and the business press and "benchmarking' as a successful management technique was born.

And its downfall!

But few people were prepared to work as hard as Xerox, and for as long. They wanted shortcuts. They noticed that, as part of its process/outcome comparisons, Xerox had measured many of the inputs used in the processes. And they began to consider whether a shortcut could be taken that would generate the same kind of success – perhaps they could just take measures, without the need to compare processes? That is when benchmarking started to go wrong. Some organisations started seeing a profit for themselves in collecting this data – and things went even more wrong. Why was this?

Three types of Benchmarking

1. *Process benchmarking* (what Xerox did) – analysing processes and outcomes - cause and effect.
2. *Sourced benchmarking metric* – where participants can be identified and the information sourced back to the agency so that follow up analysis is possible.
3. *Unsourced benchmarking metric*- where information is not sourced and follow up analysis is therefore not possible.

Process benchmarking can be understood and it provides an excellent guide to action, with a means of monitoring performance, and the outcomes that result from that perforamnce – but it is time consuming and choosing 'the right partner' is important (and difficult).

Process benchmarking is good benchmarking.

Sourced Benchmarking Metric (eg the work done by AAPPA, see SAM p.31) can be 'suggestive' and if comparisons look interesting, because the data is sourced, you can follow up with individual agencies. *This benchmarking is good if followed up, but it is bad* if no follow up takes place.

Where there is no understanding all benchmarking is bad.

Unsourced Benchmarking Metric. It is hard to find a charitable word to say about this type of benchmarking. This is unfortunate as it is the type of benchmarking that is being strongly marketed .

Unsourced Benchmarking Metric is downright and dangerously ugly.

Why? Lack of Interpretation **-** Benchmarking Metric collects data on input ratios (cleaning dollars per square metre, car parking spaces per employee, etc). *It says nothing about the quality of the outcomes achieved!*

It is thus impossible to tell the difference between the agency that, through good practice has maintained quality at a reduced cost, and those that have simply reduced cost – and allowed quality to fall away. All you know is cost is reduced.

This may give rise to the question "Hey, others are getting very different cost ratios, I wonder how they are doing it, and with what results?". With *Sourced Benchmarking Metric* we can ring up the agencies with the reduced costs and ask them how they did it. But with *Unsourced Benchmarking Metric*, this is not possible because we do not know who they are.

*Unsourced Benchmarking Metric is Uninterpretable.**

(*It could be rescued by the data gatherers conducting and publishing analysis, but is usually not done.)

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Benchmarking, the good, the bad and

Asset Management Plans: Pt 4

"Optimising Maintenance/Renewal Trade-Offs"

These notes have been prepared by Ross Waugh (Waugh Consultants Limited), reviewed and advised by Brian Smith, Audit NZ. Comments are based on the review of plans from 18 separate utilities, (predominantly water, wastewater and stormwater).

Optimisation in 'Advanced' asset management plans.

Asset Management Plans currently being prepared are 'Basic' plans in terms of the definitions in the New Zealand Infrastructure Asset Management Manual. 'Basic' Asset Management Plans do not require expenditure optimisation. It is expected that this level of analysis will be completed as authorities transition to 'Advanced' Asset Management Plans, which will include:

- Well-defined and agreed levels of service for the activity.
- Accurate and detailed asset data.
- An advanced asset management system which includes predictive modelling, risk assessment and optimised renewal decision making capability.
- Minimum assumptions relating to data, and the impacts of the other tactical plans on the Asset Management Plan.

It is during the preparation of 'Advanced' Asset Management Plans that New Zealand Local Authorities will need to consider and develop optimal maintenance programmes for the lifecycle of the asset, and demonstrate that the trade offs between maintenance and renewals have been optimised.

Current focus on funding renewal.

New Zealand Local Authority Asset Management Plans sighted have had a focus on establishing loss of service potential and subsequent funding requirements. Dependent on the authority, some plans also concentrate on CAPEX. This Asset Management Plan focus observed is natural given the legislative drivers*.

Maintenance typically between 30-50% of projected expenditures

However, an examination of total expenditure requirements outlined in asset management plans demonstrates that maintenance expenditure predictions are typically between 30 – 50% of total projected expenditure. Asset Management Plans reviewed to date, with a few exceptions, have yet to fully develop maintenance expenditure justification and optimisation. There is thus potential for a significant proportion of system expenditure to be further examined and for optimisation of this expenditure to occur.

Optimisation of Maintenance and Renewal Expenditures

In determining and demonstrating the optimisation of maintenance expenditure and that trade offs between maintenance and renewals have been optimised a number of steps are required.

*The development of Territorial Local Authority Asset Management Plans in New Zealand has been driven by the requirements of the Local Government Amendment Act (No 3) 1996. This Act requires that local authorities prepare and adopt a long term (10 year plus) financial strategy, taking account of asset creation / realisation and loss of service potential, and having regard for the benefits and costs of different options. Loss of service potential is to be funded, or otherwise provided for, by all authorities, from July 1999. Asset Management Plans are required to support the long-term financial strategy (LTFS).

Six Steps in Optimising Maintenance and Renewal

1. Establish Agreed Service Levels

The establishment of agreed service levels with the customer / community is an essential first step in the optimisation of expenditure. Without agreed service levels what will the expenditure be optimised against?

2. Record Asset Maintenance and Renewal Expenditure Against Asset Components

Recording asset maintenance and renewal expenditure against asset components (or like groups of components) permits trends to be observed and reported, and optimisation decisions to be made.

Agencies recording data only by financial cost centres will need to dissagregate to enable maintenance/renewal trade-off optimisation. The rule of thumb is 'if you don't know what is happening it is going to be difficult to manage any optimisation'.

Impact of outsourcing on recording
In New Zealand, prior to the contracting out of service delivery, this level of recording was less of a concern due the good lines of communication between the Councils maintenance overseers and asset engineers. Optimisation was often carried out at a field level following discussion of problems between the Overseer and Engineer. These lines of communication are often much weaker with service delivery contracts, necessitating additional mechanisms (including data collection) to aid decision making.

3. Determine Optimisation Triggers

'Triggers' allow objective assessment of maintenance / renewal optimisation. Examples that can be used are:

- Risk assessments including consequence of failure
- Service Level targets, indicators
- Performance Indicators
- Operating agreement conditions
- Numbers of incidence of failure per asset
- Economic justification i.e. can the maintenance expenditure be justified economically as an alternative to a renewal treatment?

4. Determine Decision Matrix

Making use of the agreed service levels, appropriate expenditure recording by asset and using optimisation triggers, a decision matrix can be determined for both maintenance optimisation and the optimisation of maintenance / renewal trade offs.

5. Develop Maintenance and Renewal Plans

Maintenance and Renewal Plans provide the detail that supports the Asset Management Plan, demonstrating effective optimisation. They can be improved or extended as necessary by using the data, analysis and reporting developed for the optimised decision making.

6. Model Financial Implications of Trade Offs

An effective mechanism to demonstrate that the optimisation of maintenance / renewal trade offs has been incorporated into the asset management planning process is to model the results of the optimisation and provide the results of predictive models of future expenditure.

The predictive models would typically demonstrate changes in maintenance and renewal expenditure over the period being considered and also track changes in asset deterioration as a result of the model. The examination and reporting of several different scenarios may be appropriate.

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Case Study. Lessons from the
Epsom Road Main Sewer Collapse.

John Sing, Noosa Council, recently asked website viewers whether anyone had any good examples he could use to illustrate the need for holistic asset management. Here is one. If you have others, please share them.

In November 1992 a major sewer in Melbourne's inner suburb of Kensington collapsed. The Epsom Road Main Sewer was 95 years old, 1.2 metres high and served approximately 35,000 properties along the Maribynong River Valley.

The sewer collapse initially resulted in a complete closure of the sewer and forced a total overflow. A temporary pumping station was later built to bring relief to the situation. Newspapers at the time reported that millions of litres of sewerage was being sent along stormwater drains into the Maribynong River. Four days after the collapse a surge in E. coli readings closed the inner city beaches. An acceptable level of E. coli is normally around 200 E. coli per 100 millilitres. Shortly after the collapse, Middle Park beach recorded a reading of 12,000 E. coli.

The collapse also impacted strongly on the local community. Macaulay Road is a fairly heavily trafficked secondary arterial road that contains an attractive local shopping centre. The resulting road closure caused extreme concern amongst local traders who were angered at the detrimental effect it was likely to have on their business, particularly coming up to the Christmas period. In December 1992, with the sewer stabilised the road was reopened until works resumed in early January when the westbound lane remained closed until works were completed in June 1993.

In acknowledgement of the inconvenience and discomfort caused to both local traders, Melbourne Water in March expressed its desire to make a financial contribution to the local community. The gesture was offered on the proviso that the project be completed in the short term. The Council conducted a survey of traders and shoppers/residents. The survey attempted to assess the impact on trade and inconvenience to shoppers. 9!% of trader respondents felt that there was a decline in trade and most of these felt disadvantaged by this. Shoppers and residents were less concerned.

There was a flurry of activity as the community tried to decide what project it wanted. By 17th August Melbourne Water confirmed that the extent of the funding was expected to be in the order of $5,000 to $7,500 and that all works must be completed by 30th September. The community was disappointed at the amount offered and at the short period in which to plan and conduct the project.

The story has a twist to its ending. On the eve of final agreements being put in place, the area was affected by new boundaries which involved the standing down of councillors and their replacement in the interim by appointed commissioners. The restructuring of the City of Melbourne and the resulting boundary changes effectively ended the saga of the Epsom Road sewer collapse.

Issues arising:

- Aging infrastructure will result in more incidents like this in the future. Wholesale replacement of aging assets is neither feasible nor economical. The risk of collapse is increased and it is this risk that needs to be managed.
- The goodwill gesture by Melbourne Water raised expectations that were not met. In 1992, compensation to the community was

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the Ugly, continued from p. 74.

What does it mean?. So you are in the 'top 10%' (or bottom 25%, or in the "middle") – so what! What does it mean? Should you be there? Is this good , *why*? Should you try to move to some other position, why? Quite frankly with Unsourced Benchmarking Metric, you will never know! The information provides no guide to action – so

it is a waste of resources to engage in Unsourced Benchmarking Metric

Why are you Benchmarking? What you really want to know is "Out of all of those universities which are like ours, which are the successful ones and what are they doing".

Benchmarking Metric alone ***will not tell you***. Some of the most successful agencies may be those with higher costs – but with better outcomes or higher valued added as well!

Since we are generally fixated on lower costs, we may fail to connect with the right people even where we know the players – if we don't know what outcomes they are getting. This is because the

input ratios cannot be understood unless matched with outcomes.

Benchmarking Metric encourages complacency. We say we are 'doing ok'. We cite the position we get in the ranks as evidence of this. And by doing so we have turned benchmarking on its head! No longer are we striving to improve!

Finally, analysing one benchmark by itself, without taking into consideration all of the other factors is a recipe for disaster but again, with Unsourced Benchmarking Metric there is *no way to compare groups of factors* (Sourced Benchmarking does permit this - and some presentation styles make it easy, cf AAPPA benchmarking.)

Measurement problems apply to all types of benchmarking – definition, consistency, costing codes, asset categorisation all present problems. But trying to refine these aspects for Unsourced Metric is a waste of effort. Even if all figures were absolutely consistent, the end results would still be uninterpretable, provide no guide to action – and be a complete and utter waste of resources.

What's the answer? See Next Issue: Using Performance Measures.

AMP Pt 4: Maintenance/Renewal Trade-Off cont from page 75

Service Level Linkages

In the final analysis the purpose of the asset is to provide an agreed level of service.

Consequently, linkages between maintenance and renewal expenditure and the levels of service must be provided. The establishment of effective linkages to levels of service will allow for focused expenditure optimisation. The inclusion of these linkages in the Asset Management Plan will assist in demonstrating expenditure optimisation has occurred.

Next Issue: AMP Pt 5, the final in this se-

Case Study: Epsom Road Sewer Collapse. Continued from Page 77

considered voluntary on the part of Melbourne Water. This is unlikely to remain so in the future.

The problem involved stakeholders at community, local government and state government levels and their agencies and required co-ordination– residents turned to their Council for solution, but the Council was relatively powerless as the infrastructure was controlled by a State Government agency. ■ *This was presented to a "Infrastructure Replacement in Established Urban Areas"Seminar, Melbourne, August 1995, by Sally Vivian, City of Melbourne.*

What's the **scariest** thing about asset management?

Most agencies now have asset management units and asset management guidelines, yet good practice in asset management often still seems very slow in coming, why?

I would suggest that we have been focussing too much on information systems and processes, and too little on people. If your people still *think* they way they did before the information systems were introduced or before the asset management manuals were produced, you will probably see little real change in outcomes.

I was speaking of the need for change management in asset management units to Peter Tannenbaum of the Adelaide City Council. ACC is introducing some creative new systems and techniques with the full support of its CEO. Peter said his method of implementing change was to "find out the scariest things about asset management for council staff - and deal with them". Possibly the best short definition of change management that I have heard.

It puts the focus on "two way" communication. Not the teaching, training, "tell the troops what is in the manual" approach to asset management, but a genuine and sympathetic look at the issues - from the other side!

Change Management The Discussion Forum

Those of you experienced in change management and those who are just finding your way will find the change management "users group" just starting now on

www. amqi.com

to be very interesting indeed. Try it!

Four-step process of change management

Michael Loh in "Re-Engineering at Work" (Gower, 2nd ed, 1997, pp 169) describes a "four-step process of change management":

1. "Mechanical compliance - the process has been redesigned, but at this stage it is normal for compliance to be somewhat mechanical. This stage is sometimes referred to as the "valley of despair".
2. Comprehension and identification - after about 21 days of mechanical compliance, true understanding usually sets in, the process users 'see the light' and fully understands the need for change in the first place. They climb out of the 'valley' and begin to perform at an acceptable level.
3. Refinement and internalisation - now the process users are able to refine and continuously improve the changed process to enhance its effectiveness.
4. Perpetuation - the results are maintained for good"

For engineering systems where performance can be measured and where feedback is swift, the four-step process may work.

For asset management where performance measurement is difficult and where feedback is slow (if at all!) the four-step process probably doesn't work. - We may find that people get trapped at Step 1.

What do you think?

How can this process be made to work for asset management? Can it?

Your Own Focus Group

How often ?

have you wished you could round up some experienced and/or

interested people to help you think through

a particular issue?

- ❑ maybe just to get you started, or
- ❑ to suggest ways of tackling a problem, or
- ❑ to point you in the right direction, or
- ❑ to share their experiences.

Maybe you would like to share your experiences with others?

Now you can!

Three (3) Focus Group Times (multiple sessions) have been made available at the Competition Finals for small group information exchange.

Justify your two days away from the office in just one session - by getting the answers to a problem facing your office, anything from performance based contracting to the latest forms of procurement, to .. well, whatever YOU want.

Think now. I will list the topics you choose in coming issues of the newsletter to give people a chance to think about them and gather any documentation that they may care to share on the occasion.

Email: focus@amqi.com
Tell me your topic and describe what you would like to achieve from the discussion

Or fax to AMQ International 08 8281 5795 (International 618 8281 5795)

Topic .....
Desired Outcome .....
Name .....
Email address or Fax # .....