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WHAT DATA DO WE NEED FOR STRATEGIC ASSET MANAGEMENT?

Yes, data is important and a good asset information system is an asset in its own right, but we need to continually review what we are collecting, what we are collecting it FOR, and what we are doing with it.

Just because 'everybody agrees' that data is essential to good asset management,

doesn't mean that just any data qualifies, and

Just because we now have the computer technology to acquire, store and utilize vast amounts of data

doesn't mean we have to do it, and

Just because we have invested large sums in software and data collection,
doesn't mean that we are equipped to make sound strategic asset management decisions.

Consider what life cycle costing tells us about data requirements ([pp 282-283](#))

then read the article by Christian R. Luz and John Burgan on decision making to repair or replace a failing carpark ([pp 284-285](#))

and consider how many of the questions that you need to answer to tackle this strategic asset management question (and other similar questions) can be answered by reference to your AIS.

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

WHAT LIFE CYCLE COSTING TELLS US ABOUT DATA

Are we putting effort in where it really counts?

WHAT WE KNOW

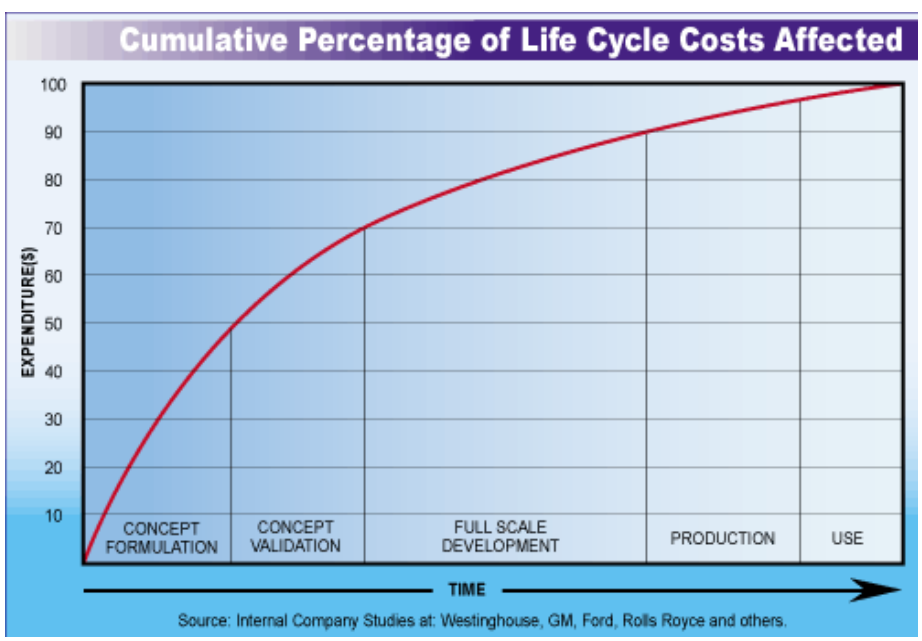
Decisions at the beginning of the life cycle (concept development and design) are more powerful in terms of their impact on life cycle costs than decisions at the end of the life cycle (operations and maintenance).

Decisions at concept stage typically determine the course of about 50% of the future life cycle costs; by design completion over 70% of future life cycle costs have been determined. By the time we get to operations and maintenance whilst the bulk of actual spending may still be in front of us, its course is largely determined and our scope for improvement is slight. That is basically what the typical life cycle cost curve shows. The diagram chosen is from manufacturing industry but the principles are common.

At the concept stage, decisions are mostly influenced by ideas, service delivery planning; anticipated demand; social, environmental and political issues; and by feasibility assessments that use only the broadest of cost planning data.

At the design stage, decisions are primarily determined by service requirements and aesthetics, and, hopefully, by life cycle costs. But not by the costs associated with the current asset portfolio rather the likely costs, reliability, life spans and attributes of the new assets, construction techniques and materials that are planned to be used.

Diagrams sourced by Mark Neasbey, Australian Centre of Value Management



At the construction stage, decisions may well influence future maintenance and operations costs, but are unlikely to be improved by information on existing assets that are maintained in asset registers. Construction specifications would be improved by building in requirements for maintainability but these are more likely to benefit from instructions, say, to provide maintenance access than by reference to the historic maintenance costs of existing assets.

Renewal—A time of Discontinuity

The repair/replace decision is a discontinuity on the life cycle cost curve. Depending on the nature of the asset, anywhere from 30% to 100% of the life cycle cost profile may be subject to change.

This is a chance to think again.

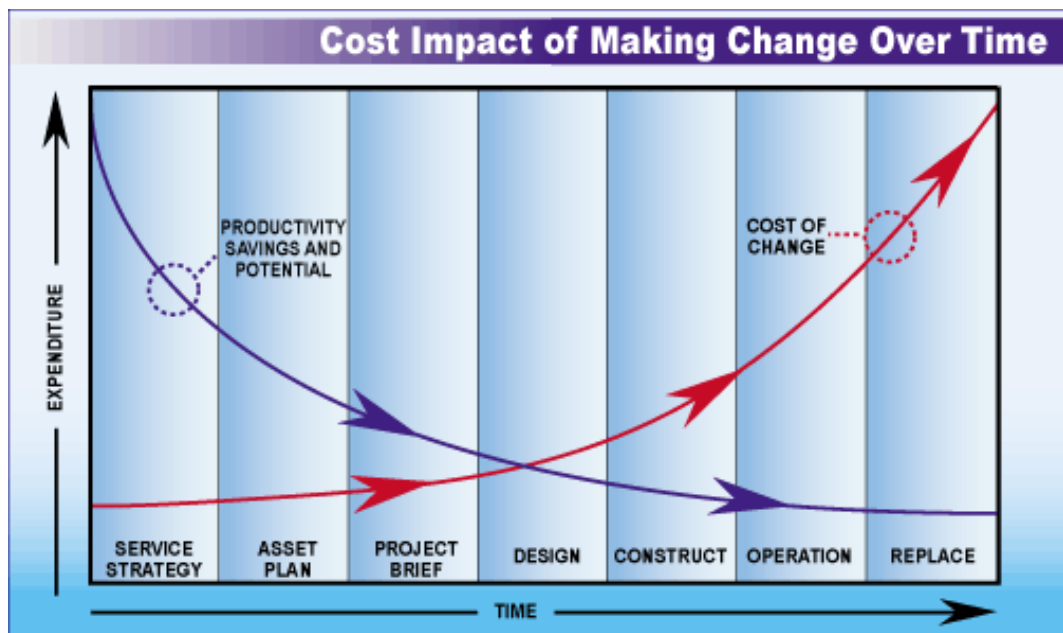
Only at the operations and maintenance stage do our asset information systems really come into their own – but by this stage, as the life cycle cost curve shows, there is little scope for real cost improvement. And the cost impact of changes is greater! (see diagram below)

WHAT ELSE DO WE KNOW?

At the concept and design stage, the data needed is
Broadscale with respect to cost and technical issues
 Related to likely and anticipated **demand issues**
 Focussed on the **future**

At the operations and maintenance stage, the data we have is
Detailed with respect to cost and technical issues
 Related to likely and anticipated **supply issues**
 Records the **past**

Is it any wonder that agencies, after spending millions of dollars on complex and extensive AIS, still feel frustrated in their abilities to really manage their assets?



What is the role of the AIS in strategic decisions – decisions to repair or replace; decisions to acquire or not acquire, to re-locate, to upgrade or to demolish?

An exercise: Study this article to see how data in your AIS would assist in the repair/replace decision discussed.

EVALUATING YOUR PARKING STRUCTURE - REPAIR OR REPLACE?

Christian R. Luz and John Burgan
(From Presentation to 2001? APWA Conference)

Introduction

Many owners of 20+ year old parking structures have a common problem - a rapidly deteriorating facility. Slabs have potholes; concrete is falling; water drips everywhere. Faced with this problem, owners often undertake large expensive repair programs without first considering if the investment will result in significant returns. What other options exist? Demolition, repair, a new garage or doing nothing?

Symptoms of the Problem

Seeing deteriorated concrete is only part of the problem. When users experience fallen concrete and water dripping on their car, or trip on broken concrete, they become concerned with safety. Claims for damage increase. Revenue may decline if they seek safer parking. As the situation progressively worsens, the owner often turns to a major, costly repair. The question seldom asked, "Given the current and future demand for parking, is a costly repair the right solution?"

Options

- Do nothing - let the structure continue to deteriorate. This solution is appropriate if the structure will be demolished in a short period of time, regardless of its condition. For example, if the structure will be torn down to allow for a new development.
- Demolish the structure. If use is declining and the revenues can't cover costs, demolition may be a viable alternative.
- Demolish and replace the structure. When long-term use is strong and repair costs are high, a new structure may be the right answer.
- Repair the structure. This solution is appropriate if costs are significantly less than a new structure, or if the structure cannot be taken out of service while a new facility is constructed.

The Evaluation Process

Developing options has several steps:

- Preliminary Evaluation and Selection of Options
- Determining Revenue and Expense Streams
- Comparison and Selection of an Option

At the end of this process, the owners will feel they have selected the best possible future for their structure.

Preliminary Evaluation and Selection of Options

Interview Stakeholders – a stakeholder is an individual who has a vested interest in the future of a facility. In the case of a municipal facility, stakeholders can include City staff, elected officials, planning departments and influential business owners. Find out

- whether you have previous agreements for providing parking
- What is the likely future of the surrounding area? Will parking be needed?
- whether providing parking is a long-term goal?
- Does the site have a better use?
- Can a new structure be built in another location?
- Does the structure need to remain open during construction?
- Can fees be raised to cover costs?
- What funding is available?

Walk Through – a walk through of the structure allows the project team to develop first impressions of its condition. Types and quantities of damage are noted, along with opportunities for improving non-structural deterioration. Use can be observed, especially if evaluated in several short visits. After interviews and site visits, two or three significant different options should be developed for further evaluation. For example, the study may include demolition, repair and a new structure. It is important not to prematurely conclude repair as the only viable option.

Determine Revenue and Expense Streams

After options have been selected long and short-term revenue and expenses need to be determined.

Estimating revenue stream is critical, and it is important to acknowledge that revenue will not remain constant. It is affected by:

- Increase or decrease in demand independent of the structure's condition
- Temporary loss of revenue during construction
- Permanent loss of revenue due to users permanently relocating as a result of construction
- Declining revenue due to user's concern with deteriorating conditions
- Market value of the site
- Other future uses for the site

Construction costs will vary significantly between options. Repair costs encompass structural repair and desired upgrades of finishes, signage, revenue control and lighting. Costs of a new structure must include demolition. Maintenance costs need to be calculated for each option, as well as the potential need for on-going structural repairs. Revenue and expenses need to be projected for the lifetime of the option. Using assumed interest rates; both are converted to present values, allowing for an equivalent comparison of options.

Case Study See this analysis applied to an eight-level, 500-space structure, built in 1961, in downtown Milwaukee that is deteriorating and needs repair. You will find it in the APWA Innovations in Urban Infrastructure Series edited by Dana Vanier .

Find this and a link to other APWA Innovations papers at www.amqi.com/library.htm

Or go to <http://www.nrc.ca/irc/uir/apwa/apwa97/index.html>.

Comparison and Selection of Options

After revenues and expenses are calculated, each option must to be evaluated against the criteria:

- **First cost:** Which option has the lowest first cost? Which options fit within allowable funding?
- **Life Cycle Cost:** Which option has the lowest life cycle cost? How sensitive is the analysis to changes in the assumptions?
- **Present Value of Revenue minus Expenses:** Do any options have revenue exceeding expense? Which option maximizes this difference?
- **Repair Lifetime:** What is the expected lifetime of each option? What is the certainty of the repair matching expectations?
- **Impact on Operations:** How will the construction impact operations? How will the users react?

These questions can be difficult to answer. Two options can be very desirable, or all can be undesirable. Often, a combination of options is selected. The team needs to understand the difficulty of making this decision and allow the time to prepare for the effort.



So how did you fare with the exercise?

Recognising the discontinuities

The real value of AIS can be in recognising the time at which intervention can change your cost profiles, where you have the chance to think again.

But not all AIS can do this!
See next issue.

Probably you would have market value (although you may wish to test the current market value if it is some years since your last valuation). Where your AIS can be really useful is in assisting with life cycle costs and renewal lives—but only if age and renewal data are recorded and maintenance histories are retained.

This is NOT to argue that asset information systems are not valuable—but rather to suggest that strategic asset decisions—those decisions that are concerned with adding to, subtracting from, or modifying the portfolio in some way require specific information.

The critical 'when to intervene to minimise life cycle cost' question is still a job for the AIS—and next week we will see what it takes to do this job well.

Asset Management Templates

There has been some interest in gaining the asset management templates referred to in Issue 86. They are available at www.amqi.com/library.htm or go to <http://www.ingenium.org.nz/whatsnew/184136v1-SelfReviewCheckListforAMPs.doc>. Also see extra help with these templates on the back page.

IPWEA Asset Management Workshops are run by Jeff Roorda and Tony Urquhart . They are limited to 35 a workshop and have been extremely popular.

THE "HOW TO" OF ASSET MANAGEMENT PLANNING

Dates are now available for these 2-day workshops which will have a particular focus on "how do I prepare an asset management plan for my organisation". Workshops available in Victoria, Queensland, NSW and later in other States.

The How To of Asset Management Planning

The **IPWEA National Office** has developed a series of two-day workshops that will help you develop better asset management practices in your business or for your community.

One of the most significant challenges to the future viability of Councils relates to the cost of infrastructure and bringing assets up to satisfactory service levels. There is a need to use our resources more efficiently than ever before. It is therefore timely to revisit how we plan the management of our assets.

Objectives of the workshop program include:

- * reinforce and expand understanding and usage of asset management techniques;
- * introduce and explain concepts in IPWEA's International Infrastructure Management Manual;
- * enable participants to prepare an asset management plan for their business or organisation;
- * demonstrate concepts through use of case studies;
- * allow participants to prepare AM improvement targets for their business.

Dates are now available for these 2-day workshops which will have a particular focus on "how do I prepare an asset management plan for my organisation". The gap between your current AM practice and best appropriate practice for your organisation can be identified.

The How To of Asset Management Planning Sustainable Services for the Future

Brisbane, Qld. 18-19 June
 Cairns, Qld... 20-21 June
 Rockhampton, Qld 22-23 July
 Sydney, NSW... 25-26 July
 Tamworth, NSW. 1-2 August
 Wagga, NSW.... 5-6 August

The cost is \$720 (plus GST) for IPWEA members and \$790 (plus GST) for non-members

For further information and bookings, contact your local IPWEA office

NSW: Caitlin Williams cwilliams@ipwea.org.au

Qld: Suzanna Barnes-Gillard suzannabg@ipwea.asn.au

Vic: John de la Rue johnd@lgpro.com

Further details and registration brochure:

<http://www.ipwea.org.au/members/iimm.html>

Enquiries welcome from other States with a view to conducting further workshops.

**SOME HELP WITH USING
THE SELF REVIEW ASSET MANAGEMENT PLAN CHECKLIST**

When carrying out your self review as per the checklist as presented in SAM Issue # 86, it is useful to have a standard means of assessing your standing on each issue.

Since the idea is to find out which are the key areas in which to focus attention it is not necessary to have some agreed standard with the outside world, just apply the ratings consistently.

Content Rating

- 1 Full Compliance
- 2 Compliance except for some easy to resolve minor issues,
- 3 Does Not Comply
- 4 Does Not Comply and there are significant problems that will require major work to resolve

Criticality Rating

- 1 Not Critical
- 2 Average
- 3 Critical

Note

**Score = Content Rating * Criticality Rating
A score of 6 or greater indicates priority for improvement**

It often helps to get some objective outside assistance in filling in the self-review checklist with respect to content ratings for you can often be harder on yourselves than is warranted—more pessimistic. But for sound ownership of the process and to ensure implementation of the findings, it is best to determine the criticality ratings as a group.

This approach has been used with very good results by **Ross Waugh**, Waugh Consultants, New Zealand, a member of SAM's Advisory Panel.

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