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THE WAY WE WERE

The last 15 years have seen the birth of a new management science – asset management.

With a now impressive range of tools, processes and techniques, asset management is changing the way we do business, particularly with infrastructure and long lasting assets, and the way in which we organise ourselves.

What used to be the preserve of engineers, as a maintenance function, has widened and become a genuine management approach, involving strategy, planning, budgeting, and operations – with the co-operation of others from finance, planning, design and other specialities, in what is now a truly multi-disciplinary approach.

All of this has happened in a very short time. Because of a fortunate coincidence of necessary conditions in their countries, Australia and New Zealand led the change, but the UK is now developing rapidly, with Canada and the USA ready to follow, and some innovative and holistic work on the drawing boards for Asia. The next ten years should be an exciting time for asset managers.

So here, for the record, is the way we used to be.



Asset Management has moved away from its original maintenance function to a broader, all encompassing planning and strategic role.

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“No science to it”

Fifteen years ago there was no recognised field of activity known as “asset management”. Assets were acquired and constructed, were utilised, maintained and, eventually, disposed of. But there was no *science* to it. There was no holistic thinking that linked the construction decision to utilisation, to maintenance and disposal.

Builders began to complain about the lack of “buildability”, because architects did not design with the builder in mind. Similarly, maintenance crews complained about “maintainability” because the builder was not thinking about the future maintenance needs of the asset when he built. Users complained of assets that did not work as they were intended, or needed, to work.

Some communities discovered, too late, the damages caused by thoughtless asset provision – damages that went further than economic waste, and extended to include damage to the social and environmental fabric through run-down, decaying, infrastructure. Buildings, neglected and abandoned; rutted, pot-holed roads adding to traffic congestion and traffic frustration; rusting pipes; sagging, badly maintained overhead power lines; unsafe bridges, the list goes on.

‘Buildability’ and ‘maintainability’ were identified as problems because they affected defined user groups that were able to vocalise their concerns (although not in a position to change matters). But there were more problems on other fronts: we were not choosing assets wisely to ensure that benefits exceeded costs, or managing demand to avoid wastage, or designing assets to avoid environmental damage, and we were not prioritising asset choices to maximise social benefit. There have been no simple words coined for these problems, because they do not affect any one single lobby group. They affect soci-

ety as a whole, and the effects are not necessarily felt immediately but are dispersed over time, so that it is difficult to clearly determine cause and effect.

The First Signs

When the first instances came to light – as in the much-publicized problems of New York City – there was a tendency to look for individual answers. Who or what had gone wrong? Later, as the problems became more widespread, the focus changed to ‘fixing the problems’ and the universal fix was to demand more money.

In the United States in the 1980s, much effort was applied to calculating the cost of overdue repairs and maintenance. This was led by the work of facility managers in America’s higher education institutions and culminated some years later in the USA general study “Fragile Foundations”. This study, quantifying the cost not only of restoring but also improving infrastructure across a broad sweep, brought the problem of ageing infrastructure to public attention in the late 1980s. But the focus was on *funding*, not on management. For a while it was a talking point, but the truth of the matter was that public policy makers were not prepared to make available the huge amounts of funds demanded as the solution, and since no other solution was provided, the study has quietly faded into the background. The problems, however, continue.

Engineers, grappling with the growing repair and replacement problems in Australia and New Zealand quickly recognized that the problems afflicting New York City would strike at home as well but local politicians and policy makers were no more inclined to spend huge sums of money on renewal than their American counterparts.

A focus on construction

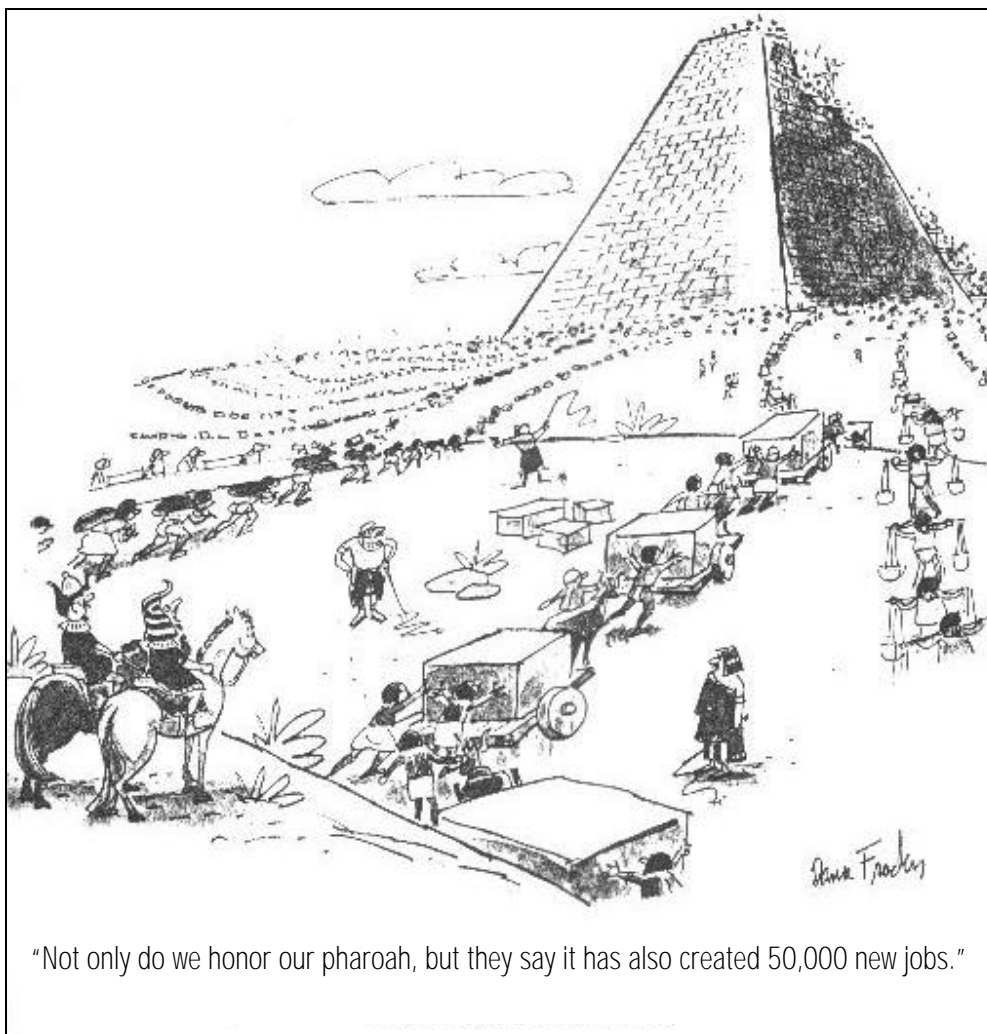
The focus in the 1980s was still on new construction. This had been appropriate in earlier, growth, years. During the first half of the 1950s, Australia's population grew at an average annual rate of 2.5% and it stayed over 2% until the mid 1960s. In the space of about 15 years the population grew by almost 40% - but its infrastructure more than doubled!

Obviously this rate of growth could not continue but as it began to slow down those who had profited from it - the builders, road constructors, etc - agitated for the declines to be reversed. Articles began to appear pointing out that the percentage of GDP applied to public investment was falling - and holding the government culpable for the fall. What the articles failed to recognize that a fall off

was necessary and appropriate. To have continued with the same level of asset acquisition would have seen the entire countryside covered in 4 lane highways and multi-storied buildings! The National Infrastructure Forums were created in Australia by the then Australian Federation of Construction Contractors. They became biennial talkfests "proving" the case for more infrastructure.

To support their arguments, it was common for protagonists to fall back on the old furphy of job-creation. Some still believed. Others had come to recognise that there were better job creation opportunities from public spending in other areas, such as maintenance.

As the Harvard Business Review cartoon below (1989) shows, by now the old employment generating ideas were becoming a bit of a joke!



In November 1987, the Commonwealth Government produced “Constructing and Reconstructing Australia’s Public Infrastructure” (known as the Langmore Report, after its chairman). Despite the title no meaningful distinction was made between the need for construction and the need for reconstruction.

It was contended that “a higher level of investment in Australia would lead to a higher level of economic growth” – but no evidence was provided in the report to support this contention.

As in America, the solution was seen in terms of more spending, and arguments were made for having the Federal Loans Council determine

where and how much should be spent on infrastructure in each state! As with the US “Fragile Foundations”, this report had its 15 minutes of fame and then departed center stage.

[Economists in both Australia and the USA tried to prove the connection between investment spending and growth, but the econometric studies were less than convincing and for everyone which pointed in one direction a counter study could be found. Basically the problem was determining (a) a correlation and (b) the direction of causality. Does economic growth generate the demand for infrastructure? Certainly. But does the supply of infrastructure generate economic growth? Answer undecided]

Management to the Fore!

The breakthrough came with the publication of eight reports by the South Australian Parliament. These reports looked at the cost and timing of asset renewal for the major state owned infrastructure agencies. They differed from the previous reports (“Fragile Foundations” in the USA, the Langmore Report in Australia) in three very significant ways:

- (1) They confined the examination to the renewal of existing infrastructure only, avoiding the confusion of “wish lists” of extra infrastructure.
- (2) They carefully detailed the pattern of renewal for each asset class, based on engineering estimates, rather than broad brush funding requests. All assumptions were documented, cost estimates were conservative, and sensitivity analysis applied.
- (3) **Solutions were presented in terms of asset management:** - asset rationalisation, re-examination of appropriateness of standards, better maintenance, extension of asset lives, etc.

Timing

As in so many things, timing is everything! The release of the South Australian studies coincided with, and accelerated, the thrust towards accrual accounting in the public sector and a major shift of thinking in the public sector away from mere administration to more active and responsible management. The Langmore Report, which was released just after these studies, also served to create greater interest in them. Declining budgets have given a fillip to demand management. Commercialisation and privatisation have been spurred on by growing debt levels and the recognition that continuing reliance on government provided capital will fail to provide the service levels that the community has grown to expect.

Across the Water in New Zealand

At the same time as the release of the SA Studies (1986-87) New Zealand was commencing very far-reaching reforms in what was to become known as the “New Zealand Experiment”.

Footnote: In the last issue of SAM, some examples were given of what asset management was like – or rather wasn’t – at the time of this major change.

Government-owned trading enterprises involving energy, transport, banking, insurance, forestry, construction, air traffic control, property, communications and broadcasting, were restructured to emphasise managerial accountability for profitable operations. State owned enterprises and assets for which government ownership was considered to serve no specific social or economic purpose, were sold.

There was systematic re-organisation of central and local government through a series of financial management reforms aimed at increasing the efficiency and accountability of public sector managers and the transparency of government decision-making with the introduction of full accrual accounting.

(Footnote: In 1986-87 nearly all infrastructure in Australia and New Zealand was in the hands of the public sector – electricity, water, transport, health, education, public housing, aviation and communications. Only gas was partially in private hands. Infrastructure asset management was therefore a public sector issue)

Australian Reforms

Australian reforms were not as radical, nor as swift, as in New Zealand. However, in 1988, a Harvard trained MBA was appointed Premier in New South Wales, Australia's largest state in terms of population. Nick Greiner made his Ministers responsible to him for the conduct of their agencies through written agreements. The agreements included the performance of agency assets. This provided the stimulus needed for the development of asset management guidelines and the first "Total Asset Management Manual" (the model for all States to follow in the next seven years) was produced for the NSW Government by the Treasury and Public Works Departments in 1989-1990.

Innovations in Asset Management began to appear



The Audit Commissions

Nick Greiner also instituted the first of the Audit Commissions. These Commissions were teams of business leaders asked to advise the Government on the state of play of the economy and the directions it should take while in office. Over the next six-seven years as each of the States moved from a labor (socially-oriented) administration to a liberal (business-oriented) administration, they followed the lead set by NSW.

It is a sign of how new asset management was that the term actually does not appear in the NSW Audit Commission Report, however many of the recommendations do refer to asset management.

The next State to produce an Audit Commission Report was Victoria in 1993 and by this time things were very different. An entire chapter of this report was devoted to asset management. This was the pattern that was followed by the other states. Victoria has subsequently put in place almost all of the following key recommendations:

**Key Recommendations
on Asset Management
from the
Victorian Audit Commission, 1993**

- (1) Government should adopt a set of integrated total asset management policies which include rigorous economic evaluation and assessment, performance measurement, decentralised accountability, contemporary asset management techniques and best practice guidelines.
- (2) Government should clearly assign the control of, and responsibility for, all major public assets to the relevant operating agencies.
- (3) A capital charge, based on the Government's cost of capital, should be levied on all existing capital assets to allocate the cost of using capital to operating agencies. At the same time, operating agencies must be given the discretion to sell or find alternative uses for the capital assets controlled by them.
- (4) A user charge should be levied on all capital assets used, but not controlled, by operating agencies. Operating agencies should be given the discretion to obtain these asset services from any public or private supplier.
- (5) Operating agencies should be permitted to retain the revenue from the use and/or sale of their assets.
- (6) Full reporting of all costs associated with asset holding, including depreciation, should be implemented as a matter of priority.
- (7) Asset maintenance strategies with condition-based performance indicators should be established and adhered to, and expenditure on maintenance should be a protected line item within agency budgets.
- (8) All asset management services (including construction, procurement, management, maintenance and sales) should be purchased by operating agencies and subject to open public and private competition.

Asset management fuelled by recognition of increasing debt levels.



The general argument for asset management has now been won. Looking back on the "fights" that took place at the time one has a sense of wonder that they ever took place at all. The fight, for example, to retain historic costs for infrastructure assets (in prices sometimes 80 or more years out of date!); the 'argument' (by some academics) that accrual accounting had no place in government 'because government had no substantial assets'(!); the endless valuation debates.

Asset management has moved very far from the original engineering maintenance focus. And this has been its saving grace – and, incidentally, a saviour for engineers as well. Asset management is now a multi-disciplinary field. Its practitioners are still engineers, but also valuers, accountants, planners, marketers, strategists, architects and designers, change managers, information technologists, systems designers... and other specialities, some of which have still to be invented.

Here, in summary form, are the major stages of asset management, as they have developed so far.

The Five Stages of Asset Management

Stage 1 - “Construction” - there is an emphasis on the construction of new assets with the management of existing assets being a low priority if thought of at all. This stage is dominated by the suppliers to the construction industry.

Stage 2 - “Maintenance” - generally begins when capital ceases to be easily available. Driving the change are the former suppliers to the construction industry looking for alternative work. Demands for maintenance and renewal dominate. This stage is dominated by technicians and suppliers to the maintenance industry.

Stage 3 - “Information” - begins when, with tightening budgets and increasing demands, agencies start to demand cost justification before allocating money to maintenance. This generates the need for asset registers, valuation, information collection and data systems. This stage is dominated by suppliers to the information industry. In Australia and New Zealand, this stage was fuelled by demands from the accounting profession for more information for accountability and the introduction of accrual accounting. (The implementation of accrual accounting, however, – which had been debated in accounting circles for 15 years or more – was, itself, spurred on by the need to recognise assets for better management.)

Stage 4 - “Procedures” - begins with the recognition that information by itself is not sufficient. There needs to be sensible processes in place that allow agencies to make business decisions based on the information available, be it good or poor. This stage is dominated by the policy makers, central agencies, and consulting firms producing manuals and guidelines.

Stage 5 - “Outcomes” - is the most recent stage. It begins when agencies start to focus on the purpose for the asset information and management procedures. In this stage the emphasis changes to service delivery outcomes and agencies start to question why they should own assets and to rethink what is core. Key issues are the determination of appropriate service levels (and their costs) and the ‘facilitation’ rather than the provision of services. Asset management becomes more holistic. In this stage, asset managers play a key role in corporate decision making and CEO’s take an active and leading role.

Stages can, and do, overlap. Countries can be characterised by where the majority of agencies are, and where the leading edge is. In general, Asia and the developing countries are in Stage 1 (there was a brief flirtation with Stage 2 during the peak of the Asian currency crisis but it was not lasting). Europe is mostly Stage 2. North America and the United Kingdom are mostly Stage 2 moving into Stage 3. Australia and New Zealand are generally Stage 3/4 but some leading agencies are moving into Stage 5.

And Stage 6? What shape will it take? One thing we can be sure of is that asset management will continue to evolve. As more and more countries recognise and try to achieve the benefits that Australia and New Zealand have, they will develop their own improvements and enhancements.

1999 International Asset Manager of the Year: Hydro Electricity Corporation

The Hydro Electricity Corporation has been selected as the unanimous choice of the International Judging Panel as the 1999 International Asset Manager of the Year.

The instructions to the judges were to select their top 4-5 entries and we would choose from them. If I had any hopes that this would simplify the judging - and I had - then my hopes were dashed. Almost every entry featured in one or other of the judges top 4-5!

This says a lot for the high quality of all entries. It also says a lot about our judges who, as a team, represented a wide range of talents and approaches.

However, on discussion, the HEC emerged as a very clear winner. It was considered an excellent example of the way that asset management plans should be prepared:

- It was related to the business goals
- It achieved its desired outcomes
- It reduced business risk and
- Delivered a benefit: cost ratio of 40:1

Furthermore

- The development of the transformer condition assessment and rating methods and the Transformer Condition Based Management Plan is excellent.
- The plan has been implemented with the support of field staff

And the entry by Ken Gray and Robert Houbaer was so well written, with just the right amount of explanation and illustration that it could serve as a model of how to prepare an asset management plan for all asset managers. The full entry may now be viewed on the www.amqi.com website.



The prize for the HEC is an overseas study tour for one of the authors. However, the Hydro's CEO, Geoff Willis, has generously decided to supplement the **AMQ International's** prize to make it possible for both authors, Robert Houbaer (left) and Ken Gray (right) to have the benefit of meeting with asset managers overseas.

Now the only problem left is to decide where to go. And even that may be made easier for the pair as they have been invited to present their winning entry at the American Public Works Association Conference in September 2000.

Congratulations to Ken and Robert, and our thanks to the International Judging Panel:

John Howard, General Manager, Operations, Cairns City Council. John, the first Chairman of the IMEA (now IPWE) National Asset Management Steering Committee, has been a judge in the Asset Management Competitions since 1966.

Danny Then, Professor of Strategic Asset Management, Queensland University of Technology, Brisbane.

Dana Vanier, Senior Research Officer, Institute for Research in Construction, National Research Council of Canada. Ottawa.