Strategic Asset Management

Focus on Information Technology for Asset Management

Issue 14, July 16th 1999

Caution—IT Ahead 

The Future of Technology

Bob Bickford's presentation on "The Future of Technology" at Adelaide's inaugural "Festival of Ideas" was an excellent presentation, full of exciting promise of great things to come. I, along with the rest of the 'standing room only' audience, was rapt and, of course, raring to go. Articles and presentations on IT really get the adrenalin flowing!

Long on promises, short on performance?

With adrenalin, comes the "fight or flight" reaction and action takes over from calm, considered, reflective thought. Could this be why we are now spending tens of millions of dollars on IT – but so far have relatively little to show for it by way of actual cost savings or improved production or productivity?

If so, why? A clue: <u>It's not the fault of IT itself.</u>

Strategic Asset Managers have a responsibility to keep their feet firmly on the ground when it comes to analysing the benefits and costs of their fastest growing asset category, IT – because it is likely that others won't! They need to ensure that, with respect to their asset management outcomes, the new tools provide the benefits they promise. This issue of SAM looks at IT and its impact on strategic asset management, asking questions like:

- What is your KO/DI ratio? p.2
- What does upgrading COST you in terms of productivity? P.3
- What are the dangers of expert systems?
- What does the Strategic Asset Manager need to know about new technology?
- How do you reap the benefits of new technology?
- How is IT affecting the role of SAM?

Note: Sara Cullen's Series on Service Level Agreements will return next issue

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

AMQ Intenational
PO Box 75 Salisbury South Australia
Tel 618 8258 4342 Fax 618 8281 5795
Email: sam@amqi.com

Upgrading for Productivity? Think twice!

Weigh the costs against the benefits

Physician Heal Thyself

I recently upgraded my computer to Windows 98 and Office 2000. The result was utter chaos. Things which worked fine before suddenly stopped working. New problems arose every day. Many valuable days were lost in debugging, then more in learning how to do the things I knew perfectly well before the system changed everything!

Software is Capital Investment

The point is I had failed to follow basic rules. Computer hardware *and software* is a capital investment and the benefits need to be weighed against the costs and the risks involved. Did I need the new software? No! Did I want it? Now that is something different. Did I take the risk of system adjustment sufficiently into account (after all settling in problems are not entirely unexpected)? Again, obviously not. The entire decision making process was really rather lax.

Productivity Lost

Now take the effect on this one small office and multiply it many fold for large corporations and government departments. For decisions like mine are being made everyday by individuals often on no better justification.. And since no one, it seems, completely understands even a simple PC, it is no surprise that complex software often contain bugs that can cause a crash.

Informal 'Computer Gurus'

The productivity gains that computers promise are sometimes not delivered. Several studies in the UK have shown that this is largely because staff spend too much time trying to fix problems themselves, rather than bring in technicians. Worse, some employees become informal "computer gurus" who spend hours on PC problems rather than doing what they were paid to do. Sound familiar?

It is easy to see how this situation may arise. Calling in the experts takes time (neither in-house nor external experts respond quickly enough—like instantly!). Informal computer gurus thrive on the chaos caused by too regular upgrading. Don't feed them!

Minimise the opportunity for chaos.

In all likelihood the work to be done in your office is changing far less frequently than are computer software upgrades. If your current system does the job, consider leaving well enough alone!

Consider "Single Purpose" Computer Use

When computers were expensive it made sense that they be able to do 'everything'. But now they are cheap, in fact so cheap it is hard to get rid of them (see "Drowning in Computers" AMQ International, 1998, Issue 8, pp14-17)

Consider using older computers for single purpose functions that do not need constant change.

Restricting upgrading to those that really need it—and can demonstrate the extra benefits will outweigh the learning costs and debugging—will minimise computer upgrade disruption to your office.

What is your KO/DI ratio?

(knowledge out/data in)?

DI

is "data in" and it is measured by the time and effort (= $) you spend putting data into your system, checking it, validating it, producing 'reports' (ie massaged data)

KO

is "knowledge out" and it is measured by the improved quality of the decisions made as a result of the DI (itself measured by increased productivity and greater effectiveness) (= $).

If your DI is high and your KO is low, you are reaping lots of promise, but little real performance.

Data +Training in Use

It is not enough to collect more data on your assets. That data has to be used. It has to be used by real managers making real asset decisions. Just producing "reports" from your AIS will not make this happen. Managers need to be taught how to use the data in a meaningful way. – and their performance targets need to be set on the basis of sound use of the data. This does not happen by chance.

If you do not have processes in place to teach managers how to use the outputs of your IT instruments and if you do not rescale performance expectations when IT is introduced, your KO/DI ratio is probably quite low. The upside is that you have scope to greatly increase performance.

As a strategic asset manager you *need* KO, meaningful information in context (ie knowledge). As an asset management unit, you need to *provide* this information. Agency needs change. You should be continuously searching for new meaningful relationships that turn **data** into **implications for action**.

From DI to KO

DI → DO (Data in = Data out)

record the assets, provide a list of the assets, eg simple inventories, 'stock take records' etc

(ok, nice to have, maybe satisfies the auditors, but is not management-useful)

DI + Ordering → IO (Data in + ordering the data = Information out)

Record the assets, putting them into meaningful order such as grouping them into meaningful categories or , report by some characteristic, eg value, condition, performance, etc.

(a bit better, maybe satisfies the accountants, but is still not management-useful)

DI + Ordering + Analysis → KO (Data in + ordering the data + developing implications from different relationships = Knowledge out)

Record the assets, group them into meaningful categories, measure some characteristic and relate this characteristic to another characteristic or to time, eg analyse the breakdown maintenance required by an asset type when different levels of routine maintenance are applied, or analyse the improvement in market value of an asset type when different types or levels of upgrading or renovation are applied. In other words, convert information into knowledge—into implications for action.

(**Yes!!** This is information managers can use in decision-making.)

Improving Decision Making with IT

-by making more effective use of humans

More human participation in IT

If Knowledge Management involves rather more human participation than we have given it over the past 40 years (see p.110) this does not necessarily mean increasing overall management resources (although some shifting around may be necessary). **There are ways of using human experts more effectively**.

Expert Systems

A few years ago, the development of 'expert systems' was very popular. The idea is that systems are built to mimic the decisions that 'experts' would make (even if the experts themselves may have difficulty in explaining exactly why they would come to that decision.) This draws heavily on the mathematical field of 'fuzzy logic'.

ES in Asset Management?

Considerable use is now being made of expert systems in the medical diagnostics area but little in asset management. Why? For a very simple reason: to have an expert system we have to have recognised 'experts'. Moreover the field of expertise must not be subject to rapid change or the effort in developing the system receives little payback before it has to be redone.

The danger in expert systems is that if we are not careful, we do not get 'expert' opinions, just 'current' opinions – cemented in for all time! In the event, expert systems for asset management have proved rather too difficult to construct.

Quality Processes

The development of quality processes is much like the development of expert systems. We take a set of processes that we believe will provide a good result, prescribe the processes, and expect the good results to follow. Many times they do not. A speaker from the embattled South Australian Submarine Corps, at a Facility Management luncheon, said that, in hindsight they had relied too much on their quality processes. If he had his chance again, he said, he would have had more inspectors on the job. [Thus verifying the truth of the civil war credo "Trust in God, but keep your powder dry"?]

We have tended to assume that quality control processes will ensure quality—but they only do so if the processes are correct, and we only know that by constant checking.

Mental Division of Labour

The first step in the mental division of labour is to create a standard approach to the relatively routine 20% of situations that represent 80% of the expert staff's workload. By providing information and tools that use the standard approach to line workers or customers who are not expert in the function, the numbers of expert staff can be reduced. This approach is reported in Issue 15 of *Breakthrough Thoughts* by Charles Lucier and Janet Torsilieri who give a number of examples from maths to law where this has worked and worked well.

Perhaps it is time to apply this "divide and conquer" thinking to strategic asset management and free up management from routine decisions to spend on more significant ones? This may well be the result of the "Strategic Asset Management Model" now being developed in Queensland. See "Templates" on p. 112.

IT Tools and Applications

For Asset Management

What is The Biggest IT Mistake that AM Units Make?

A: Seeing themselves as *data collectors and data managers,* rather than as *knowledge providers, or users/analysts of asset information*.

The Role of the Asset Manager in IT

It may be the role of the IT specialist in your organization to advise management on how IT can shape and assist its business strategy, but it is the asset manager's role to advise management when it comes to IT tools designed for asset data capture and analysis. But that advice needs to be presented from the perspective of someone using the data to make asset decisions.

Evaluation is ongoing

Asset Managers need to know what tools are available –the range is increasing and tools are improving rapidly; they need to evaluate these new and improved tools in the light of their own needs –which are also changing rapidly. So the need is to be continuously learning what is available and matching it against changing requirements.

Evaluation criteria is unique to an organization, it depends on where you are and where you want to go. So you cannot rely on 'off the shelf' evaluations by others (although these are certainly worth examining).

The skill of the asset manager rests in knowing the company's strategic directions, evaluating the capabilities of the IT tools available and matching one with the other.

What New IT Tools and Applications are Available?

Two publications of interest to Asset Managers who need to keep up to date with the latest developments in IT as it relates to asset management are *GIS User*, published six times a year, *Spatial Business*, a fortnightly newsletter.. A free trial of *Spatial Business* is now available on the web www.gisuser.com.au

Whilst *Spatial Business* is mostly aimed at suppliers of spatial information systems, *GIS User* contains lots of information on GIS applications helpful to non-IT asset managers who want to know what is available to help them. Consider the following examples of useful applications, all of which were found in the June-July 1999 issue. A plus is that all articles have follow up references, websites, or email contacts for the authors.

1. Visualisation of GIS - Help decision makers 'see' the results of a proposal.

"Photo-realistic visualisation is the computerised creation of realistic images. It is well suited to showing the results of future projects, particularly where there will be an impact on the natural environment. Whether it is a civil infrastructure, a mine development or an urban planning project, the use of photo-realistic images provides a way to visualise the impact on the surrounding terrain and ecosystems before work begins". pp.17-20

2. Two Screen Technology – Helping Dispatch and Tracking

"The Northern Territory Police, Fire Service and St John Ambulance are setting up a multi-agency Computer-Aided Dispatching System (CAD). The system is based on software simi-

lar to that used by the Australian Federal Police in Canberra, BEST in Victoria and Police and Fire in New Zealand… Each workstation has two screens, one displaying textual information, the other displaying spatial information. As incidents are received they are logged, and available resources are dispatched." pp.25-28

3. Remote Sensing – for large area coverage

"The use of remote sensing – photographs of the Earth's surface from aircraft or satellites – has grown at an increasing rate over the past several years in fields ranging from archaeology to politics.

GIS has also been evolving over the past 15 years. Originally it was used in resource monitoring and mapping for the manipulation of large amounts of data. But GIS is now often found in organizations that do municipal engineering or local planning. Now government agencies and private companies are integrating these two technologies to produce new systems that can be used in planning……" pp.40-41

4. Knowledge Management (see box below)

These are issues that all strategic asset managers should know about.

If you would like to add *GIS User* to your asset management library, you can subscribe for $48 for six issues (one year) or $90 for 12 issues (2 years.) Email: info@gisuser.com.au or Fax +61 2 9550-2142

4. "Knowledge Management – the Next Wave"

Davenport, de Long and Beers, American experts on Knowledge Management define knowledge as **"information combined with experience, context, interpretation and reflection."**

"While knowledge and information may be difficult to distinguish at times, both are more valuable and involve more human participation than the raw data on which we have lavished computerisation during the past 40 years. Given the importance of such an asset, it is not surprising that organizations everywhere are paying attention to knowledge – exploring what it is and how to create, transfer, and use it more effectively."

Knowledge on the Balance Sheet?

"Wagdy Samir, a Sydney-based business strategist with IBM Global Services, says Knowledge Management, is still at the stage where 'it's a bit fuzzy' and not yet well understood. 'Very few firms have enough senior executives to actually think about it [knowledge] as a strategic weapon so it means different things to different people', he says. **'Put data in context, you get information. Put information in context and you get knowledge'**. Knowledge can be embedded in processes, in customers, in products and services. Put it in value and then you get value for your customers.' ... Swedish world guru, Dr Karl-Erik Sveiby, .. [is demonstrating that knowledge is an] invisible asset that can add millions to an organisation's paper worth, not to mention its profitability. … 'Sveiby has built a methodology around an intangible assets register which can become part of the balance sheet and annual report to shareholders. It means that you no longer measure your business only on financial indicators which are somewhat limited, as they are indicators of past performance. Instead, by identifying and managing more tacit indicators as well, these become indicators of future profitability.' *Want to know more?* see pp.42-45 GIS User Issue 34 June-July 1999

Ambitious! New! State-Of-The-Art!

Strategic Asset Management System For Queensland

All on the net

Government agencies in Queensland are moving to get asset management policy, practice and data systems integrated and on the net!

Many governments have an internet version of their strategic asset management policies and procedures, but Queensland is going further.

Brisbane City Council led the way

Brisbane City Council led the way with a completely electronic version of their Total Asset Management System as was reported in SAM (see p.23). This was not simply an internet version of a hardcopy manual but a fully integrated policy, practice and database management tool accessible to all managers within the council.

GAMS

Over the next few years, the Government Asset Management Framework (GAMS) will bring together all 'best practice' strategic asset management policies, processes and executive and operational tools for use by all levels of government. These will interact with the State Government Land Register (GLR) and existing data bases.

GAMS will be an Internet based, active reference system.

The task will involve identifying the many existing documents within Queensland Government, developing consistency between them, and preparing them for on-line access.

Why?

GAMS is necessary to support the new strategic direction of the Queensland Government in "Managing for Outcomes".

Managing for Outcomes

Many governments, having made the first step of moving from cash based accounting to accrual based accounting, are planning to take the next step of moving from cash based budgeting to accrual budgeting.

This involves

- Funding agencies for outputs (services and products) rather than inputs (resources consumed in their production).
- Improving the government's management of its funding services (purchaser interest) and its resource base (ownership interest).
- Improving the quality and availability of performance information to government and agency managers for strategic planning, resource allocation and operational control.

"Managing for Outcomes Puts the Onus on Agencies to Manage their Capital"

Funding agencies for outputs rather than inputs means paying the full costs of services not as the cash payments are made but as the costs are incurred. This allows better matching of costs and benefits.

Funding depreciation will put the onus on agencies to manage their assets. They will need to provide for those assets they wish to retain and upgrade and plan for those they

wish to dispose of. It is intended that agencies should not claim on the general funds for replacement and upgrades but manage within their total capital budget. This means that agencies will need to know and manage the condition of their assets, be able to forecast renewal costs and timing and evaluate the benefit (in terms of extra volume or quality of output) of any new capital or capital upgrades.

Strategic Asset Planning

Strategic asset planning (informed by performance measurement) is thus fundamental to accrual output budgeting, and the "Managing for Outcomes" initiative.

The Government will determine which outcomes are desired. Agencies participate in the process by providing policy advice on how best to achieve these outcomes to meet the needs of the community. Ideally there would be outcome measures. However, outcomes are complex and may be the result of outputs from several agencies. For example, crime reduction may be the result of outputs from education, social justice, law and order, and correctional institutions amongst others. So in practice, agencies must report against outputs. Outputs need to be measured – and costed. ***GAMS is designed to assist the costing process as well as overall management of assets.***

The GAMS project is being sponsored by the Project Management Committee which is accountable to the Cabinet Budget Review Committee. It is being project managed by the Department of Natural Resources.

Several modules have already been well developed, for example the Government Property Disposal Process. Over the next year or so, other modules will be developed and integrated, and policy gaps will be identified and filled. This is to be followed by database/application development and enhancement for asset performance requirements and asset register requirements.

Anticipated GAMS benefits are expected to include (conservatively)

- Reduction of the State's asset base by at least 1% (ie around $600m)
- Optimisation of the remainder
- Minimisation of operating costs throughout the life cycle
- Increase in the management control of the asset base
- Provision of valuable decision tools at both the agency and whole-of-government level
- Assistance to government to continuously improve asset management practices.

The base requirements of the brief are to be let under a "chinese contract" (ie where the price is stated and tenderers bid quality rather than price). The starting price is $500,000 but tenderers may include other value adding elements which will be considered by the Selection Committee.

Templates

Amongst the desirable extras the Selection Committee is hoping to see are "Agency-specific best practice process driven Templates to reflect Agency policy, directives, guidelines and the environment in which they operate, to deliver program outcomes purchased by Government. Templates would ideally be of a step-by-step outline, and address the methodology adopted by the Agency for strategic asset planning at both the Portfolio and Asset management levels"

While other Government IT projects have been many times more expensive than this, the Queensland Government's GAMS project may be the most ambitious in terms of scope.