

Special Guest Issue : Cardno MBK  
Issue 45, September 22, 2000

Special  
Guest Issues

Announcement

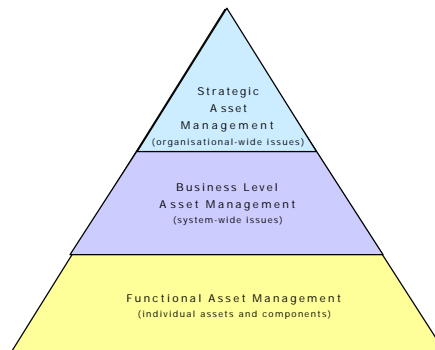
Two weeks ago, Dr Penny Burns underwent open heart surgery. The operation was a great success and she is recovering well. Full recuperation will, however, take some time.

A showcase of  
Australian and New  
Zealand Asset Man-  
agement Talent.

For the next several issues while Penny recovers we will be taking the opportunity to showcase the great talents of a range of individuals, organisations and companies in Asset Management.

Our first Guest Issue has been prepared by **Cardno MBK**. Full details of this organisation and how to contact them may be found on the back page.

*The Key to Success in a  
Commercial world*



Asset management is not an independent field of study, but rather an **integrative function** that encompasses all activities within an organisation. Traditionally, asset management may have been seen as related to maintenance activities but development of the field has seen increasing recognition of the importance of Asset Management to the organisation as a whole. In today's more commercial world the focus on managing the supply of services has to be matched with a joint focus on managing the demand for services. No company ever wanted for customers by supplying what the market wanted, but many have fallen by the wayside whilst making an "excellent product".

The key to success in an increasingly commercial world is in knowing how to marry both the demand and supply aspects of the organisation's business. And one way to do this is to incorporate some extra tools in your asset manager's toolbox – the tools of business. Whether 'commercialised' or not, all asset managers benefit from taking this dual approach to asset management.

In this special Guest Issue, Cardno-MBK illustrate the importance of the dual approach to asset management and the incorporation of business assessment tools in the following articles:

- From Cost Centre to Profit Centre, p. 146
- Better Roads, Reduced Cost p. 147
- TMP—Total Management Plan, p 149
- Keeping economics in perspective, p. 150

General Editor: 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

# From Cost Centre to Profit Centre

Chris Adam and Kerry Jones – Cardno MBK



## Reform Agenda

Following development of the competition reform agenda in 1994, a Federal Government Industry Commission Review was held to quantify the cost savings that may result from implementation of a comprehensive competition reform agenda. The conclusion drawn from this review was that implementation of the reform agenda would create a net benefit of \$23 billion per year in increased GDP. Based on this assessment, the national competition reform agenda was developed and put into force.

## So, what did this change have to do with asset management?

Comprehensive and successful reform of an asset intensive industry requires the coordination of a range of activities and interests. Understanding the complexities in introducing such change is the domain of the strategic asset manager.

**Cardno-MBK** has been heavily involved in implementing the reform agenda within the Queensland Water Industry. Queensland local governments provide water supply and sewerage services which have accounted for some 25 - 30% of local government's revenue. The implementation of NCP reforms has resulted in these government owned/operated enterprises being transformed into independently successful businesses.

Successful implementation of the institutional and policy changes associated with NCP reforms has required development of a complexity of stakeholder agreements, integrating both supply and demand issues.

It has been necessary to:

- overcome the difficulties of multiple accountabilities to customers and shareholders;
- address the requirements or otherwise for corporate consistency;
- establish "commercial" purchasing arrangements, especially for services provided from typical corporate service areas of local government; and
- position the business and its services for "contestability".

The outcome has been that some Queensland Local Governments are now owners of viable business undertakings, generating significant dividends and tax equivalent returns.

## New Goals Require New Techniques

To make this outcome possible has required ways to successfully implement the four key principles of commercialisation (ie, clarity of objectives, management autonomy and authority, accountability for performance and competitive neutrality). Numerous pitfalls have been identified and solutions have been found. Particular attention has been paid to implementation of management autonomy, internal inertia and hurdles to be overcome in establishing full commercialisation.

The business reform process has also been facilitated by the development and use of a number of change management tools including:

- detailed total management planning;
- long term financial modelling;
- strategic business planning;
- staff awareness and training packages;
- customer charters;
- project evaluation and investment decision tools;
- pricing models and two part tariff analysis;
- business and workplace reviews; and
- change management project plans linked to Total Management Plans.

The change management tools have been developed specifically to suit the size and budget affordability of typical local government agencies.

The result of implementation of these reforms have been the development of strong water services businesses focussed on management of their asset base in a manner which delivers appropriate commercial objectives.

There is now a proven track record and methodology for development of successful "commercialised" business activities for those local governments who want to own a viable and competitive water business – without the trauma of privatisation or compulsory tendering or outsourcing.

## Better Roads, Reduced Costs

through better 'decision-worthy' information

Kevin Barry – Cardno MBK



### *Don't waste your valuation data.*

A once-in-five-year road valuation exercise has limited benefit if just undertaken to meet regulatory requirements. But with appropriate preparation and training, even small councils, unable to afford purpose built pavement management systems or to engage external personnel to collect data, can acquire the decision-making information that they need (and meet their valuation obligations at the same time). With appropriate training, a suitable storage facility (developed using Microsoft ACCESS database) can allow the asset manager to interrogate the data within the system to provide the following management outputs:

- Condition assessment;
- Cost estimation;
- Bench marking information and
- Project priority ranking.

### A step-by-step approach to do-it-yourself road data collection, analysis and management

#### 1. Training

Training of in-house personnel in network definition and ensure data collection is recommended to ensure that the expertise stays within the organisation and future surveys can be undertaken on a regular basis. An important part of the training process is to include the explanation to Council officers of the reasons and benefits of operating and maintaining a database. It is essential that they see the process as being useful to ensure commitment to the initial project and future data collection.

#### 2. Network definition

The first step in setting up the database is to define the road network to be documented. If necessary, training can be obtained in road and road segment definition so each individual road is provided with a unique identifier. Further segmentation of each road in the network is undertaken where they are broken up into smaller lengths that represent portions of road

with similar construction, age and condition. It is important that a proactive approach is taken at this stage, as over zealous road blocking can become a problem.

#### 3. Data Collection

Data needs to be collected in a format that is suitable for use in many of the pavement management systems currently on the market.

Any condition and performance evaluation process should possess the following characteristics:

- *Repeatability* – the same condition rating can be determined by different raters;
- *Objectivity* – the rating can be measured based on the same physical characteristics such as cracking;
- *Simplicity* – simple systems are easier to use and generally lead to more consistent results.

For that reason the condition data is collected using the extent and severity method as documented in ROCOND 90 and URCOND 90 (published by RTA).

#### 4. Data Analysis

Following completion of the data collection exercise each road segment or block can be analysed and assessed within the database. The condition data collected is used to calculate pavement and seal indices. The procedure is carried out in the Microsoft Access database and is summarised as follows:

- Calculate an index for each defect type ranging from 0.0 (worst) to 1.0 (best) with each extent and severity combination being assigned a value;
- Multiply each index by an appropriate weighting factor. (The weighting factors are set as a result of discussions with Council officers, so that the weightings reflect the conditions relevant to their situation). Divide the total by the sum of awaiting factors to produce an index ranging from 0.0 to 1.0; and
- Multiply by ten to produce an index ranging from 0 to 10.

In its simplest form the database analyses the condition data for each segment and ranks each segment in

order of condition. This allows the user to see at a glance the overall condition or the road network. Accordingly, suitable capital works or recurrent maintenance can be programmed.

Typical results of the analysis can be shown in a graphical form, from which it is possible to prepare a capital works program that reflects the current condition of the network.

It is possible to further interrogate the data by:

- Selecting individual road segments;
- Ordering road segments by condition state;
- View road segments by defect type; and
- View road segments by combinations of defect types.

With the aid of this information it then becomes possible to prepare a recurrent maintenance program and provide budgetary refinements to the capital works program.

Displaying the results of condition surveys from many local government areas in this graphical format provides visual access to condition trends and comparisons between each local government area allowing the benchmarking of road conditions between each of the local government areas.

When sufficient historical data becomes available it may then be possible to produce pavement deterioration curves as illustrated in Figure 1. These curves can then be applied to provide a measure of predictive capability to the data being produced.

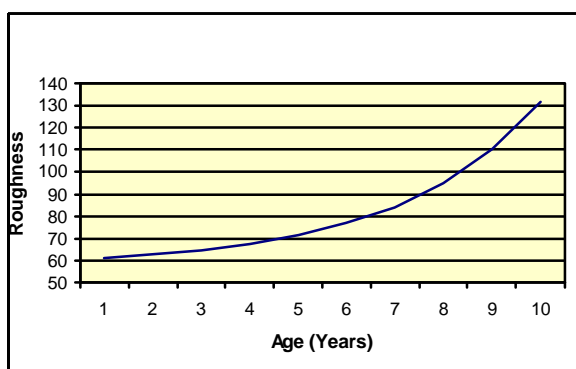


Figure 1 : Pavement Deterioration

## GIS and Photographic Interface

During data collection, geographic information can be collected using GPS equipment. Where GPS information is collected this can be integrated with the road blocking information and displayed in a GIS package using ODBC links with the Microsoft ACCESS database.

By using the Microsoft ACCESS database it is also possible to link photographs or defects or assets to individual road segments with these photographs being accessible from the GIS interface.

## Benefits to Councils

The benefits to Council of a simple approach to road management are:

- Low cost outlay;
- The use of real data to assist in decision making;
- The ability to apply appropriate maintenance where required;
- Benchmarking between Local Governments;
- Ownership by Council and Council Officers;
- Storage of road condition data in a format that is useable in many of the major pavement management systems;
- Use of the information collected as the basis of supporting any lobbying to the State and Commonwealth Governments.

Our observation is that many local governments do not have sufficient funds to sustain their road infrastructure. This observation has been supported by a number of studies, including a recent study by the Municipal Association of Victoria.

## Conclusion

Over the next few years state and local governments will continue to invest in asset management systems to assist them effectively manage their road network. Smaller rural local governments in developing an appropriate asset management system should start simple and develop a more sophisticated system as management needs dictate. Simple and economical database and GIS tools are available to help asset managers maintain their road infrastructure at optimal levels.

**TMP—Total Management Plan****Aneurin Hughes—Cardno MBK**

Total Management Planning for water services has been promoted by the Queensland State Government since the early 1990s. Total Management Planning as applied to water services is the integrated application of strategic planning for the maintenance improvement of water services, culminating in the preparation of a Total Management Plan (TMP). Many of the concepts can be applied to other infrastructure.

A Total Management Plan is the integrated planning framework adopted by a Water Services Provider (WSP) for maintaining or improving the quality and cost effectiveness of its services.

**What does a TMP do?**

A TMP is intended to:

- provide a comprehensive picture of:
  - what the WSP is aiming to achieve;
  - the WSP's policies in delivering services;
  - how the WSP plans and manages its services;
  - the major management issues faced by the WSP;
  - the WSP's management strategies for maintaining or improving services and the cost-effectiveness of these services;
  - complement the WSP's (or its parent organisation's) corporate plan; and
  - satisfy Government requirements for TMPs.

**A TMP adds value by:**

- defining management policies;
- establishing action plans for management to achieve defined targets;
- demonstrating the WSP's commitment to service delivery and improvement, and how it proposes to meet targets; and
- providing a defensible basis for State investment in water-related infrastructure.

**What Does a TMP Look Like?**

A TMP is essentially a hierarchy of planning documents in which each successively lower tier is progres-

sively more detailed and focused and generally targets a different readership. The basic TMP structure is shown in Figure 1.

**Asset Management and Financial Planning**

One of the strongest links in the TMP is with the Financial Sustainability key result area.

The Financial Model is at the heart of the financial planning strategy. The Financial Model will quantify the impact of the organisation's financial strategies and demonstrate (in dollar terms) the performance of the organisation over time. In a sense, the Financial Model acts as a 'long range radar' by identifying future capital works (new, replacement and rehabilitation) and funding requirements and highlighting the longer term impact of current revenue and funding strategies.

**The model includes:**

- a long term cash flow forecast which indicates that the business will be able pay its bills as and when they fall due;
- a long term operating statement which indicates the relative profitability of the organisation;
- a balance sheet which illustrates the changes in the value of the businesses assets over time; and
- a listing of key performance indicators which will provide quantitative benchmarks for comparison of performance both within the organisation (ie improvements over time) and between organisations (ie how does the business compare with its peers).

**Success to Date**

The success of Total Management Planning for organisations is variable. As with asset management in general, the level of success is directly proportional to the commitment and enthusiasm of the key players within an organisation. Where Total Management Planning is undertaken to meet State Government financial assistance criteria only, then the benefits are negligible. Where a WSP wants to be a successful, efficient

service to customers, while meeting environmental and social objectives, the benefits can be enormous.

**FIGURE 1 : Basic TMP Structure**

Level	Element	Main Target Readership
1	Business Management Plan (Overview)	Elected representatives; executive management; regulators
2	Operational sub-plans, including action plans	Operational management; regulators
3	Supporting documentation, including procedure manuals, reports, etc	Operational supervisors; technical staff

## Keeping Economics in Perspective

Chris Adam – Cardno MBK



### Contemporary Logic

The reform agenda of the past 5 years has been driven by theories of economic efficiency. These include:

- **Allocative efficiency** – the assumption that there is a finite pool of resources (labour, capital and raw materials) and that these need to go to their most efficient use;
- **Economic efficiency** – including the need for least-cost inputs (eg, for Australian industries to be competitive on the world stage, the major inputs into those industries (eg, electricity, transportation, water services, etc) need to be competitively priced); and
- **Technical efficiency** – that is, creation of an environment which encourages innovation.

The objective of economic reform is to improve Australia's overall economic position.

Implementation of these trends is witnessed by development of policies concerned with:

- commercialisation of traditional statutory instrumentalities;
- development/expansion of Total Management Planning;
- application of full cost pricing and competitive neutrality;

- increased use of private sector resources; and
- establishment of industry regulations.

Arguably, this trend toward a more "efficient" business operation has assisted in lifting the profile of the asset manager to greater prominence. In addition, financial and economic analysis has taken on increasing importance in the asset manager's "tools of trade". Discounted cash flow analysis (including NPV, IRR, payback period), and advanced financial modelling (ie, analysis of cash-flow, profitability and equity) have gained increasing prominence in the management of utility businesses.

Economic theorists would argue that such emphasis on the commercial objectives of an organisation is fundamental to sound management of any industry or business. Indeed, the widespread economic benefit which has developed from reform of the electricity industry (and subsequent reduction in electricity pricing) is surely evidence of such logic.

However, whilst accepting of the ideology that economic objectives are indeed important in management of assets, increasing numbers are asking the question:

"Is cost the single or even best measure of performance?"

## Alternative View

### Infrastructure Industries have broader goals

The alternative view is that the essential nature of various industries (particularly water services, electricity and transportation) is the attainment of broader social and environmental policy objectives.

This may mean that measurement of cost may not be the single or even best measure of "efficiency". Indeed, increasing the economic efficiencies, of markets is only one of the three stated objectives of National Competition Policy. The policy also includes provision and maintenance of community welfare and other social goals.

### So far, no analysis of these broader goals

The 1997 inquiry into aspects of the NCP reform package concluded that "there has been no major analysis of the broader socio-economic costs of the reforms particularly its impact on unemployment, changed working conditions, social welfare, equity, social dislocation, environmental impacts as well as the spatial variation of these".

### Is the public sector inherently inferior to private sector?

Much of the economic theory supporting competition policy is based on the assumption that government businesses that are not subject to market forces are inherently less efficient than private firms. Whilst there is argument as to the relative efficiency of private firms, any imbalance may result from differences in the objectives of the two groups. Whilst the public sector "has the statutory obligation to balance the equal objectives of being a good business, protecting the environment and protecting public health", the private sector is focussed on profit maximisation.

### Triple Bottom Line may change private focus

Recent growth in the popularity of broader economic evaluation tools which attempt to assess the social and economic as well as commercial value of a proposal (triple bottom line analysis) may be recognition of the need for a broader frame of reference in analysing the infrastructure industry.

## Governance

Greater emphasis on commercial efficiencies may also impact on industry governance mechanisms. To achieve the goals of economic efficiency, firms may

structure employee's incentive packages to encourage attainment of these goals. *Whilst such a change may achieve the commercial objectives of the firm, broader objectives which may presently be a feature of the industry (eg, social and environmental objectives) may receive less attention.* In addition, private (profit maximising) firms operating within an industry are unlikely to show the same degree of commitment to the broader social objectives than those (public) bodies who currently develop and implement the policies.

### Is the market structure right?

Finally, some have argued that, on balance, privatisation or similar restructuring of the infrastructure industry would introduce a structure inappropriate to the monopoly status of these industries. In order to achieve its commercial goals, commercial firms will attempt to develop and exploit their market power. In a monopoly/oligopoly environment, it may be up to the industry regulator to balance the commercial objectives of the organisation against broader social and economic objectives.

### From the Regulators Viewpoint

The regulator in any of the utility industries must develop means of balancing the multiple and often conflicting intentions of the various industry stakeholders. This is a very complex balancing act. When asked to make a decision, the industry stakeholders often have more detailed information than that available to the regulator. Whilst the regulator has the power to request such information, the stakeholders are likely to present the data in the manner that supports their position. In addition, the cost of compliance with a regulator's request introduces an element of inefficiency back into the market.

So, the problem from the regulator's perspective is how to make decisions which benefit the broadest possible audience whilst not having complete information.

## Conclusion

Economics has proved a useful addition to the asset manager's toolbox but it would be wrong to say that all problems have been solved. Whilst the ideals of economic efficiency are important, there are a range of variables which need to be taken into consideration in the future development of the infrastructure industry. Perhaps one answer to this conundrum is the need for development of a uniform measure of economic value which incorporates social and environmental benefits/effects of industry proposals.

## Cardno MBK

Cardno MBK was formed in July 1999 through the merger of Cardno and Davies Pty Ltd and Mc Millan Britton and Kell Pty Ltd (MBK).

Cardno MBK has for some years been a leader in the field of local government infrastructure asset management in Queensland.

Recognising the growing importance of asset management in ensuring ongoing service delivery, the company has a well established Asset Management Business Unit, the members of which have wide experience and substantial expertise in such fields as:

- managing organisational change
- business planning
- strategic/total asset management planning
- commercialising water services (State and Local)
- financial modelling
- asset management strategy and policy formulation
- asset lifecycle modelling and optimisation
- asset condition assessment and valuation
- national competition policy and water resource policy and
- information technology (IT) applications in asset management.

The group has now grown to be the largest consulting asset management group in Queensland. Key members of the Cardno MBK team are:

Aneurin Hughes – Manager,  
Asset Management Business  
Unit <ahughes@cardno.com.au>



Chris Adam – Asset Manager  
and Financial Analyst  
<cadam@cardno.com.au>

Kerry Jones – Strategic  
Business Adviser  
<kjones@cardno.com.au>



And  
<kbarry@cardno.com.au>

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