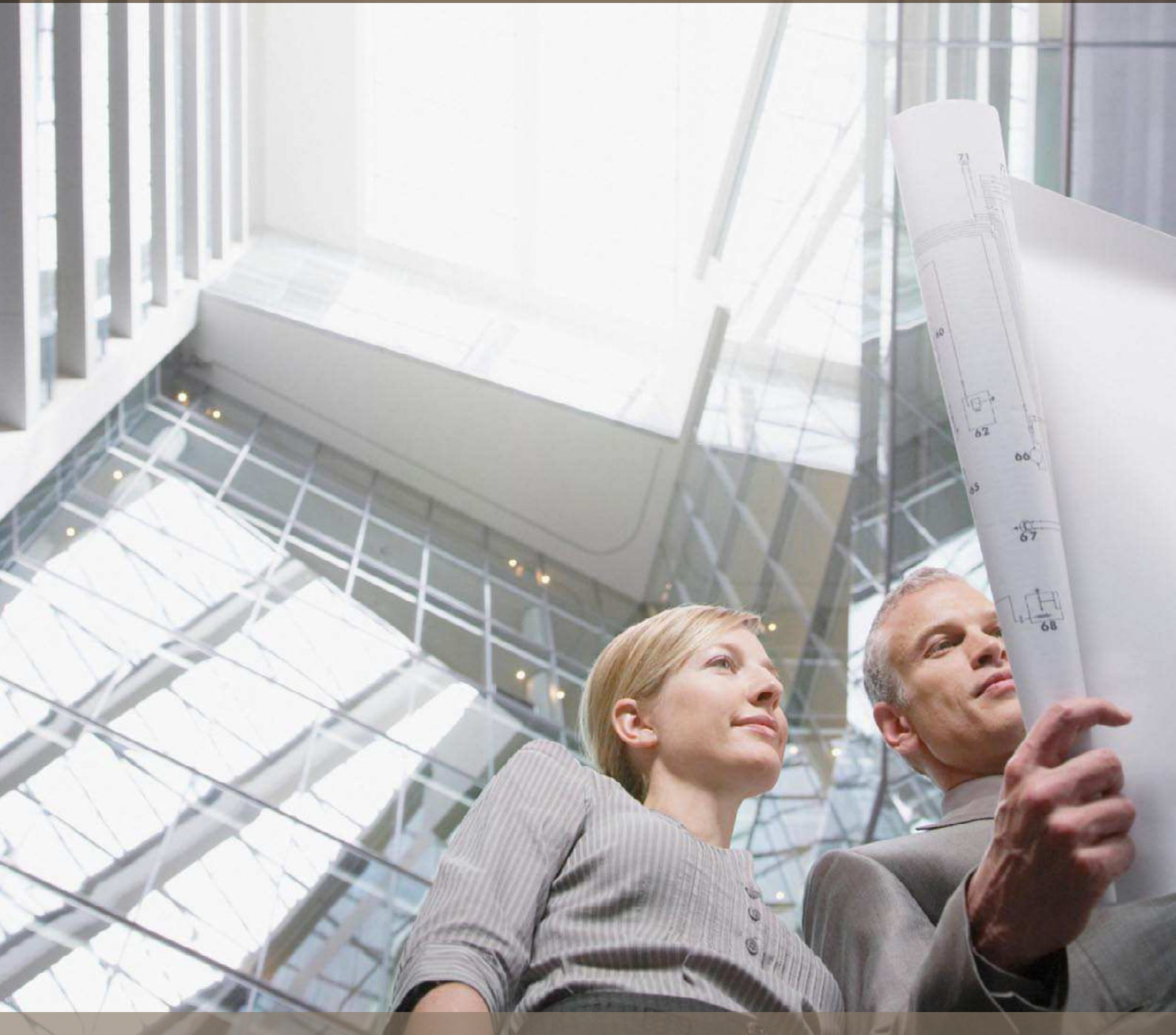


# THE ASSET JOURNAL

The Asset Journal | Issue 1 | Volume 5 | 2011



## ICOMS Asset Management Conference

### Inside Volume 5 ISSUE ONE:

- ◆ ICOMS Program and Abstracts
- ◆ Case Study: Improving Fleet Availability
- ◆ Asset Management Body of Knowledge
- ◆ Maximizing Crane Life



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In the service providing economy sector, particularly public transportation, where the product is the fulfilment of journeys, there has been a lot of work for the adaptation and the improvement of the concept of maintenance linked to the business. This situation depends on a break in paradigms and a change in culture. As an example, we will present the case of METRÔ-RIO (subway railway system in Rio de Janeiro), which in the past decade has experienced a process of this kind, transforming the vision of maintenance originally linked to the asset in Engineering's point of view, to an approach that privileges business and the end customer.

*Joubert Fortes Flores Filho*

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#### **Maximising the remaining life of cranes**

The 10-year design life of most crane hoists (and 25-year life of structures) presupposes a pattern of lifting that is specified at design time. When actual load conditions, such as the number and duration of lifts, differ from the original estimates, crane life can be reduced substantially, even when its rated capacity has not been exceeded.

*JZ Sikorska PJ Kelly & JR McGrath, CASWA Pty Ltd*

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# From the Chief Executive Officer



Sally Nugent  
CEO  
AM Council

2011 has so far been an exhilarating year for the Asset Management Council. Already we have witnessed our two newest Chapters build momentum and become more active by hosting local activities. We have expanded technical resources for our members by introducing new projects for the Accord, Standards and Glossary. We have boosted global support by signing industry leaders SAP and Transfield Services as Partnering Organisations for the next five years.

As we continue to expand regionally, globally and through the growing technical project teams, I would like to thank each and every Officer for their enduring commitment to the Asset Management Council. Each of you makes substantial contributions to continually improve the effectiveness of asset management and maintenance practice for Australian industry and the community.

## Our key regional leaders for 2011 are:



Adelaide  
Byron Martin



Brisbane  
Bradley Thompson



Darwin  
Sharon McAnelly



Gippsland  
Ray Beebe



Gladstone  
Gopinath Chattopadhyay



Hobart  
Rohan Koenig



Illawarra  
Andrew Spence



Melbourne  
Greg Williams



Newcastle  
Graham Webb



Overseas  
Danny Azavedo



Perth  
Andrew Morgan



Sydney  
Gary Seabury

# From my desk: Chairman's letter



Continuous development of the asset management discipline is imperative to enable organisations to achieve sustainable revenue generation and profitability within the ever-increasing global and competitive economic environment we find ourselves in.

**John Hardwick** With this in mind, we start 2011

by presenting our members and the wider asset management community with a 5 year Strategic Plan, new Partnering Organisation relationships and more technical publications. I believe these recent accomplishments will help our members continue to develop their organisations' economic growth and will help them to influence local and global economic development.

In line with our vision of 'enabling benefits for all from effective use of assets', our Strategic Plan for 2011-2015 comprises nine broad strategies, all of which are accompanied by actions identified by our members as key to the delivery of each strategy. Looking forward, our key strategies are:

#### Facilitate current practitioners

Enabling current practitioners to become more effective.

#### Educate the willing

Giving those that come to us what they need.

#### Communication

Understanding and growing the community of practice.

#### Support the able

Identifying the need to improve, and providing tools.

#### Breakdown the barriers

Creating a shared understanding of asset management. Recognising how we are different. Industry and international barriers.

#### Sharing knowledge

Recognising we will all benefit from sharing. By sharing our knowledge, others will benefit and we will in return.

#### Open access

As much as possible, create public domain information to be shared by all.

#### Promotion of values and services

Walking the talk. Displaying the behaviours. Consistently embedding culture.

#### Create awareness

Increasing awareness of the value of asset management.

Supporting us on the journey towards achieving our key strategies, this year we signed SAP and Transfield Services as Partnering Organisations for five years.

I believe these long-term working relationships are instrumental to focusing our developments of technical projects and expanding the Asset Management Body of Knowledge (AMBoK). We are deeply appreciative of their support.

One resource tool now available on our website for our members and the wider asset management community is an official publication of the Asset Management Council models and concepts. This open access publication links our two models together and discusses the fundamental processes that operate across the asset life cycle, and is part of an ongoing expansion.

Last year we became a member of the ISO PC251 Committee, whose role is to develop the proposed ISO Standard for Asset Management. With input at various stakeholder forums, we represent our members' needs and concerns as an international peak asset management organisation on this committee.

We also continued our support as a co-founding member of the Global Forum on Maintenance and Asset Management to provide global reach and support members with more technical resources such as the Accord, Asset Management Landscape and Certification.

Furthermore, we introduced a new training intensive covering Asset Management Plans in order to provide more opportunities to develop and refine individuals asset management knowledge and practices.

The Asset Management Council has accomplished a lot during the past year, all of which would not have been achieved without the dedication of members who volunteer their time and expertise through our working committees – thank you.

I would like to encourage our members to become active during these exciting times to make a difference. Please approach your local chapter chairs, technical development team members or board members to discuss the various ways on how you can become more involved.

As we enter into the second half of 2011, we continue to function as facilitator, educator and supporter for our members to be leaders in asset management. I believe that as our members continue on their asset management journeys, so do we, towards becoming a more influential and globally aligned independent asset management body for our members.

**John Hardwick.**

# Modern Maintenance in a Company Providing Public Services

Joubert Fortes Flores Filho <sup>a</sup>

<sup>a</sup> Concessão Metroviária do Rio de Janeiro S/A, Av. Pres. Vargas 2000, Centro, 22210-031, Rio de Janeiro-RJ, Brazil.

The industrial maintenance sector has strongly evolved in the last decades. The understanding of the maintenance area as a simple expense generator and causer of stops evolves to the recognition of a new role, which is to ensure availability with asset reliability, for generating revenues without wasting time and raw material.

In the service providing economy sector, particularly public transportation, where the product is the fulfilment of journeys, there has been a lot of work for the adaptation and the improvement of the concept of maintenance linked to the business.

This situation depends on a break in paradigms and a change in culture.

As an example, we will present the case of METRÔ-RIO (subway railway system in Rio de Janeiro), which in the past decade has experienced a process of this kind, transforming the vision of maintenance originally linked to the asset in Engineering's point of view, to an approach that privileges business and the end customer.

## 1 Introduction

The concept of maintenance for those not connected to this segment is immediately associated to repair activities.

That is usual because when one thinks about automobile maintenance or a domestic appliance, most people imagine there is a need to restore the original use and operation conditions of such assets.

We should consider the origin of the word maintenance.

Maintenance comes from the Latin word "MANUTENERE" which means to have at hand. Having something at hand means to have it available. Thus, the fundamental concept of maintenance is attached to availability and not to repairing.

Therefore, maintenance should be viewed as an instrument to guarantee availability.

## 2 Current Concept

In modern companies, globalization and factors such as competitiveness and quality are concepts pertaining to the daily routine.

Institutions are bound not to survive if they do not take into account such guidelines.

Competition, either in the manufacturing of goods or in rendering services, demands us to be better prepared each day.

In order to be competitive, we must have:

2.1 – Technical Competency, i.e.: Know How - Without knowledge we are not qualified to improve our processes, however, that knowledge alone makes us excellent specialists, but not necessarily the best professionals in a broader sense;

2.2 – Creativity, which allows us to innovate and not to believe that there is only one way of doing things;

2.3 – Flexibility: Nowadays companies rely on professionals with multiple specialties. The specialists, who have a focused action, are professionals with limited intervention, and they are usually hired to solve specific problems;

2.4 – Speed in Changes to enable us to get ready for adjusting to the dynamics of permanent changes in the needs in order to satisfy our customers;

2.5 – Culture of Change, which differs from change in culture. Change in culture is a single step and the culture of change is permanent, and envelops not being compliant even when everything is fine, we must still want to improve even further and therefore accept to disrupt paradigms;

2.6 – Team work: There is loss of synergy if we do not act in an integrated manner.

## 3 Strategic Maintenance

Both goods and services have the purpose, on a final analysis, of satisfying customers. Those, on a final analysis, upon acquiring any good or selecting any service, guarantee the survival of the company.

The goods or services that satisfy customers must have quality and they shall only achieve that if the processes producing them are also qualified.

In the past, maintenance was considered by the companies as something that generated costs, dissociated from the productive process, considering that it rivalled with production / operation for the assets in preventive or corrective maintenance, when production had already been forcibly interrupted.

Strategic maintenance is maintenance integrated to the productive process, in other words, it is connected to the business, because it is the area which guarantees availability with reliability regarding the goods, so that they can generate income. Its goal is to avoid break downs.

We must not forget that, if not maintained properly, even automated plants also shut down, or else, production is only automated if maintenance is also automated.

Hence, in order for the products to be efficient, maintenance processes must also be efficient.

## 4 Premises For Strategic Maintenance

Strategic maintenance depends on the commitment of managers and supervisors who are the ones leading this process.

They must emphasize predictive maintenance, maintenance engineering and the preparation and use of procedures.

The proper qualification of professionals and their multiple skills are indispensable characteristics in order to reach that goal.

We must prioritize the implementing of new technologies without giving up the experience of maintenance personnel, when developing new projects.

When hiring service providers, one must value the partnership that prizes availability and reliability.

The hiring of personnel must be based on results and must demand excellence in professional qualification of outsourcers.

## 5 Maintenance At Metrô Rio

Metrô Rio went through a concession process in 1998. Hence, the management of its operations and maintenance has been private for 12 years.

During that period, the average of passengers transported per business day has increased from 310,000 to 650,000 and the integration with other kinds of transportation, which represented less than 1% of passengers transported, is today 27%.

The chart below compares that evolution.

## Evolution

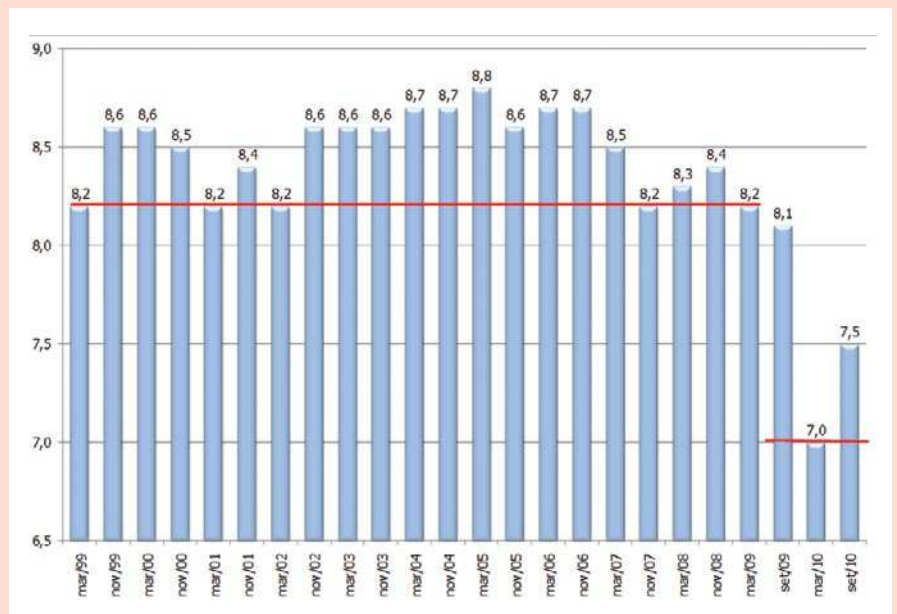
	Before Privatization	At present
<b>Number of Employees</b>	Adm. 3,500 Oper. 1,500	Adm. 213 Oper. 1,646
<b>KM</b>	25.3	36.9
<b>Stations</b>	24	33
<b>Trains</b>	21	33
<b>Passengers / Business Day</b>	308,000	650,000
<b>MKBF</b>	25,000	521,000
<b>% of the fleet in operation</b>	60.5	99
<b>% of the fleet out of service</b>	14	3,3
<b>Weekly operation hours</b>	102	130
<b>Annual Car Km</b>	9.7 MM	24.3 MM
<b>Annual deficit for the State</b>	US\$ 100 MM	0

## 6 Conclusion

As a company supplying services, of which survival waives any subsidies from the Government, the Company had the need to change its culture, demanding all its professionals to focus on the end customer.

The Concession contract demands 2 surveys to be conducted with customers per year, with a minimum rate of 8.2 where 17 aspects are going to be evaluated:

- 6.1 – Cleaning the Station
- 6.2 – Conservation of the Station
- 6.3 – Time Spent Waiting on the Platform
- 6.4 – Time Spent Purchasing Tickets
- 6.5 – Cleaning the Trains
- 6.6 – Conservation of the Trains
- 6.7 – Comfort
- 6.8 – Lighting of the Stations
- 6.9 – Visual Communication
- 6.10 – Employee Services
- 6.11 – Sound System on the Stations
- 6.12 – Sound system on the Trains
- 6.13 – System Security
- 6.14 – Time of Travel
- 6.15 – Escalators
- 6.16 – Information to Users
- 6.17 – Quality of the Service in General



Follow-up on SQR –Service Quality Rating – General

IQS Geral

Today compared to all subway services all over the world, we have the highest availability of the fleet in peak hours (98.4 %).

That was only possible due to the change in the view of maintenance, which started to be viewed as attached to the Company's business, which is only feasible upon achieving its customers' satisfaction.



The framework for the Asset Management Council Body of Knowledge (AMBoK) comprises three strategic components, namely:

**1. Definition of Asset Management:**

Defines the boundaries of Asset Management and differentiates it from other key management processes.

**2. Capability Concept Model:**

Presents the basis of successful asset management.

**3. Capability Delivery Model:**

Schematically presents processes, within a number of disciplines, that may be used in part or entirety, to deliver successful asset management.

The definition and the models serve two vital purposes for the Asset Management Council, namely to provide

- The Asset Management Council with a consistent framework for the development, provision maintenance and improvement of all services delivered; and
- The asset management community with a concise picture of the Principles, Concepts and Processes of physical Asset Management.

These two models together with the definition of Asset Management, the Asset Management Council vision, values and code of ethics provide the governance framework for the entire activities of the Asset Management Council.

### **Asset Management Definition**

The Asset Management Council defines Asset Management as:

*“The life cycle management of physical assets to achieve the stated outputs of the enterprise”*



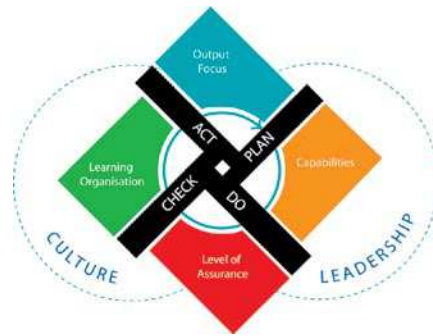
## Asset Capability Concept Model

The Asset Capability Concept Model presents the basis of successful asset management and seeks to document the fundamental basis of asset management. The model's intent is to serve as a conceptual framework from which the foundational elements of asset management can be identified and documented.

The Asset Capability Concept Model consists of three parts, namely:

1. A Plan Do Check Act (PDCA) process;
2. A set of underpinning key principles; and
3. An organisational environment supporting good asset management behaviours.

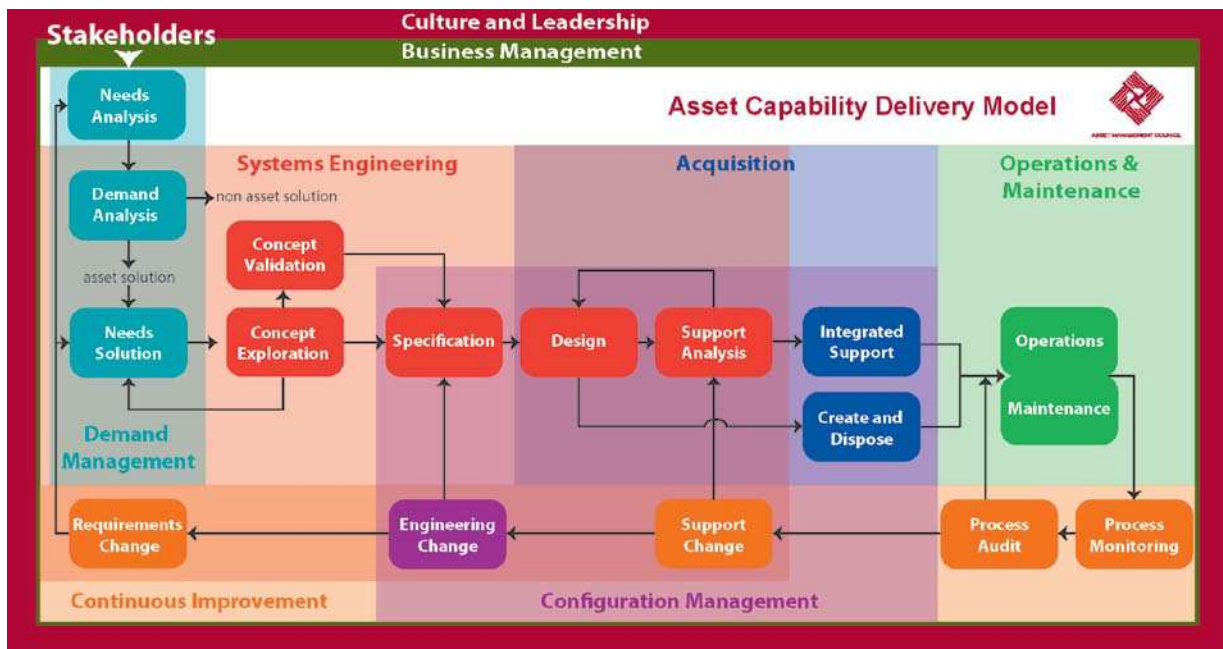
The Model acts to address the sequential thinking that pervades most technical competencies associated with engineered systems and recognise that asset management is a holistic discipline.



Asset Capability Concept Model

## Asset Capability Delivery Model

The Capability Delivery Model schematically presents processes that may be used in part or entirety, to deliver the stated outputs.



The processes are shown in six main disciplines:

1. Demand Management
2. Systems Engineering
3. Configuration Management
4. Acquisitions
5. Operations and Maintenance
6. Continuous Improvement

These disciplines are associated with a number of national and international Standards, such as ISO/IEC 15288 Systems Engineering.

Each of these disciplines have a number of enabling capability elements and sub elements, which in turn may have a number of competency sets and supporting units of competency. The disciplines and enabling capability elements are discussed in "Framework for Asset Management Council Body of Knowledge," ISBN 978-0-9870602-2-8.

# Maximising the Remaining Life of Cranes

*JZ Sikorska PJ Kelly & JR McGrath CASWA Pty Ltd*

The 10-year design life of most crane hoists (and 25-year life of structures) presupposes a pattern of lifting that is specified at design time. When actual load conditions, such as the number and duration of lifts, differ from the original estimates, crane life can be reduced substantially, even when its rated capacity has not been exceeded. Furthermore, the crane owner/maintainer may be unaware of this change. The only way to simultaneously minimise the risk of failure, whilst optimizing life cycle costs is to maintain cranes based on their usage rather than calendar time. Historically, a number of different standards and best practices have been used to specify how remaining design life should be calculated. This paper discusses the various approaches, including DRAS2550.1 (which has now been released as AS2550.1-2011), and explains how crane life can be maximised.



## Background:

In specifying the design of cranes, AS1418 uses two parameters to collectively describe expected working conditions of the crane and the stresses these will impose:

- a. The maximum number of operating cycles for structures (CD), or total operating time for mechanisms (TD), expected during the life of the crane (i.e. usage);
- b. A load spectrum factor,  $K_c$  (or  $K_m$  for mechanisms), which describes the number of times (or durations in the case of mechanisms) loads of particular magnitudes, with respect to the crane's capacity, are to be hoisted (i.e. intensity or how severe the usage). These are typically grouped into four categories and assigned nominal values of 0.125, 0.25, 0.5 or 1.0.

Expected usage and intensity are then combined to provide an overall classification for the crane or mechanism, which dictates the selection of components (e.g. bearings, gearboxes, structural members etc). These must accommodate not only the loads to be imposed, but also tolerate the wear or fatigue expected during the planned 10 or 25 year operating periods.

Once in service, cranes must undergo a major inspection whenever the design life is expended. These inspections tend to be reasonably expensive and remove the crane from service for duration of the inspection.

If cranes are used more than originally anticipated, maintaining them strictly in accordance with the 10 and 25 year guidelines could significantly increase the safety risks associated with premature failure. Conversely, in applications where cranes are used more lightly, it may be sensible to extend this inspection interval.

The only way to simultaneously minimise the risk of failure, whilst optimizing life cycle costs is to maintain cranes based on their usage rather than calendar time. This requires a mechanism for measuring usage and then calculating remaining design from the operating data. Historically, a number of different standards and best practices have been used to specify how remaining design life should be calculated. All reduce the available design life whenever there is any doubt about a crane's usage history. In the absence of data from automated loggers, available design life is automatically decreased by the application of safety factors to account for this lack of certainty.

Remaining design life is further affected by:

- a. Whether nominal or actual values of load spectrum are used in calculations;
- b. Actual usage compared to expected usage;
- c. Actual intensity compared to expected intensity;
- d. Poor operation.

This is illustrated in the example.

### How to maximise life:

The simplest and easiest method of increasing available design life is to maintain good records of loading history. The most basic method of doing this is by using logbooks, which will increase available life by 9%; adding hour meters (counters) to these logbook records will provide an increase of 19%, whilst automatically recording lift details will increase safe working periods by 33% at a minimum. Additional increases can then be obtained from analysing remaining life on a continual basis. The traditional approach of calculating remaining life based on lifting patterns over discrete intervals does not allow for increases in estimates if the crane is ever less heavily utilised than it has been in the past. Continuous logging and recalculation of remaining life is much more accommodating to changes in loading patterns. Finally, using actual load spectrum values rather than nominal levels will further increase available life, but again is only feasible when lifting details have been continuously recorded and thus known with certainty.

Standards state that crane structures are to be designed for a life of 25 years and mechanisms for a life of 10 years.

However, these fixed inspection periods rarely eventuate, as they assume loading patterns are known with certainty at design time. In fact, maintaining cranes based on calendar time increases either safety risks or crane lifecycle costs. The only way to minimise both, is to maintain cranes based on their usage. Although using paper-based records will provide some benefits, the greatest gains are obtained when loading history is recorded automatically. Fortunately, there are a number of options already available on the market and as legislative requirements become more stringent, it is likely that more products will be released.

The full paper<sup>1</sup> (a) demonstrates how remaining design life of cranes and hoists can be determined using AS1418 (and its referenced standards), (b) demonstrates the effect of load spectra on crane life, (c) discusses the benefits of logging crane utilisation in real time and review monitoring options currently available, (d) illustrates how this data can be used to maximise the safe life of the crane and finally (e) discusses how poor crane operation (jogging) can dramatically reduce available crane life.

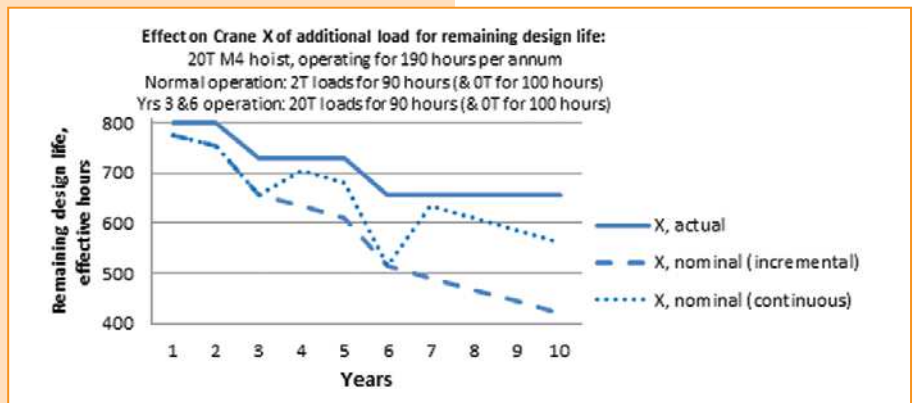
## Example: Effect of load spectrum on Calculation of Remaining Design Life

Load spectrum is proportional to the cube of the load. Therefore, heavier lifts or more time spent moving heavier loads affect the load spectrum factor (and therefore remaining life) much more than lighter lifts. This is also true for temporary increases in load.

For example, Crane X usually lifts a maximum of 2T. However during years 3 and 6 it is used at its maximum capacity. If the nominal load spectrum factor is being used, the step effect can be lessened by reassessing the entire history at the time of the change, rather than just the single inspection period. In this example, the nominal load spectrum factor increased from 0.125 ( $K_m, A=0.01$ ) during typical years to 0.5 in the third year ( $K_m, A=0.35$ ). When the first three years were analysed together, the state of loading also changed for

that year reducing the remaining design life estimate significantly; however, in the following year, the overall loading pattern of the four years collectively resulted in a lower load spectrum factor, so resulting in a higher estimate of remaining life. The same occurred in year 6.

This illustrates how by only assessing the remaining life in discrete intervals (as is most commonly the case), safe working periods of hoists can be severely underestimated (even before they are reduced further by any applicable safety factors).



*Effect of additional load on remaining design life and differences in load spectrum calculation methods*

*Article continued overleaf...*

### Update from the authors

In March 2011, the new version of AS2550.1-2011 was finally released and as per the draft DRAS2550.1, includes a new section describing the calculation of remaining design life. There are no significant differences between the draft and final versions that affect this conference paper. However, now that AS2550.-2011 has been released, it is likely to become the dominant approach used in Australia. Furthermore, the new standard also states that if remaining design life is not calculated in accordance with the newly included approach, then major inspection intervals should be reduced to two-thirds of design life or, if this is unknown, every 7 years. This was not originally stated in the draft standard, and consequently the full conference paper does not make mention of this.

*<sup>1</sup>Members of the Asset Management Council may view the full article on-line at [www.amcouncil.com.au](http://www.amcouncil.com.au)*

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## POST GRADUATE COURSES IN

### New South Wales

#### **Master of Commerce and Master of Facilities Management at the University of Sydney**

within the Faculties of Economics and Business and Architecture, Design and Planning. Key areas of the program offers **facilities managers** and risk management, The Master of Commerce and Master of Facilities Management award course is a groundbreaking initiative in cross-disciplinary postgraduate education between the Faculty of Economics and Business and the Faculty of Architecture, Design and Planning. Integrating specialised study in facilities management with carefully tailored study in key areas of contemporary business thought and practice, the program offers facilities managers, general business managers and entrepreneurs alike a specially crafted and cohesive program of study that draws together knowledge from the fields of strategic management, business decision-making, project management, organisational studies, risk management, human resource management, accounting principles and processes, business law and marketing, and facilities management. Although built around a core of essential knowledge, the program also allows scope for students to undertake advanced study in one or more areas of business practice.

#### **Master of Engineering (Maintenance Management) at the University of Wollongong**

within the Faculty of Engineering. The objective of the program is to ensure continuous improvement in the strategic and tactical response of organizations, and their managers, to the management of infrastructure assets. The program provides the knowledge to organize and manage engineered assets costs effectively. From a strategic framework, students progressively address problems in designing and managing assets. This is achieved through a balanced program of subjects in asset management science and engineering, business administration and management and industrial engineering with emphasis on practical applications. Students learn concepts and techniques by evaluating potential solutions to challenges faced by organizations.

### Queensland

#### **Master of Asset & Facilities Management at Bond University, Robina**

within the Faculty of Business, Technology and Sustainable Development (FTF)

The course provides you with an in-depth look into the asset and facilities management industry. It provides opportunities for students with a cognate bachelor degree to gain a specialist qualification in asset and facilities management. Students with non-cognate bachelor degrees are also eligible to apply given they have comparable industry experience.

The program comprises eight subjects, all offered in intensive mode only. This allows you to complete your studies with the option of continuous full-time work. The program covers a number of key areas associated with strategic property management, refurbishment, operational management, financial planning and dispute resolution related to facilities portfolios, and also enables participation in the cross-disciplinary Integrated Project.

## **Postgraduate Applied Asset Management & Reliability**

at the Central Queensland University (Distance Learning Mode) This course is specifically designed to provide students with a fundamental work-based knowledge and understanding of the elements of Reliability Centred Maintenance to achieve effective physical asset management.

**Master of Infrastructure Management** at the Queensland University of Technology within the Faculty of the Built Environment and Engineering (FTF)

Graduates may choose to become an **Asset Manager** With an increasing number of companies and institutions now leasing property rather than direct ownership, the management of these assets is becoming a crucial aspect of business practice. This unit will cover the physical and financial aspects of commercial, retail and industrial property management and the role of property as a strategic real estate asset. The area of Corporate Real estate and Asset management will also be covered in the unit.

## **South Australia**

### **Graduate Certificate in Facilities and Asset Management at the University of South Australia**

Division of Information Technology, Engineering and the Environment | School of Natural and Built Environments (FTF) advanced study for the efficient management of the **assets** including **facilities** such as engineering structures, complex buildings and other non-current assets.

To provide a program of advanced study for the efficient management of the assets including facilities such as engineering structures, complex buildings and other non-current assets.

## **Tasmania**

**Graduate Certificate in Infrastructure Asset Management at the University of Tasmania** within the Faculty of Science, Engineering and Technology. Supported by the Institute of Public Works Engineering Australia and the Centre for Pavement Engineering Education. Courses are designed to be consistent with the International Infrastructure Management Manual.

These courses has been developed to broaden the skills and knowledge gained in engineering and science undergraduate courses or other approved undergraduate courses, and provide specialist skills relevant to infrastructure asset management.

## **Victoria**

### **Vocational Graduate Certificate in Physical Asset Management from Chifley Business School and GHD.**

(Note: this is an innovative course that combines training in three short 2 day blocks plus organisational tasks carried out in the workplace, chosen by the organisation.)

Course development has been overseen by a steering committee of industry based asset managers, industry associations and professional trainers so participants can be assured that the course is relevant to their needs.

This course draws upon over 30 years experience of asset management application in hundreds of organisations

throughout the world. It will provide you with the skills and knowledge required to deliver successful and cost-effective asset management in your workplace.

This program is designed to provide participants with the skills and knowledge to deliver successful and cost effective asset management in their work environments. Course development has been overseen by a steering committee of industry based asset managers, industry associations and professional trainers so participants can be assured that the course is relevant to their needs.

GHD provides the program facilitators, training content and awards the Vocational Graduate Certificate in Physical Asset Management. Chifley provides the student administration services for this program in Australia and New Zealand.

### **Graduate Certificate in Maintenance Management** at Monash University within the Faculty of Engineering (DL)

The course is primarily aimed at applicants with a few years postgraduate experience who wish to have formal education in this field. Engineers working with public transport authorities, or in local government, and people with an interest in infrastructure planning or research will find the course beneficial.

This eight-unit course, offered via off-campus learning, aims to bring together technical and management techniques to enable practising engineers to play a more effective role within their organisations. It is designed for graduates in engineering, science, mathematics or other fields who wish to study maintenance and reliability engineering to a level equivalent to the Bachelor of Engineering (Honours). For areas of study offered, refer to the entry for the Master of Maintenance and Reliability Engineering. Students who complete this course to a satisfactory standard may apply to continue their studies to masters level. Exit points: In certain circumstances, students may be permitted to exit the postgraduate diploma and take out the Graduate Certificate in Maintenance Management.

## **Western Australia**

### **Graduate Diploma and Master in Engineering Asset Management at the University of Western Australia**

within the Faculty of Engineering, Computing and Mathematics, together with the Business School.

Engineering Asset Management (EAM) is an interdisciplinary field that combines technical, financial, risk and reliability skills to manage engineering and infrastructure assets.

Reliability Engineering develops a sound base knowledge of the mathematical concepts, models and tools in the reliability area.

Our professional development units are targeted at experienced engineers and managers. The unit outcomes deliver on specific competencies identified in the Asset Management Competency Framework developed by the Institute of Asset Management.

The assignments are designed to be integrated and aligned with current work projects thereby providing relevant context and immediate feedback for the student and value-add for the organisation.

# PRESS RELEASE

The Global Forum on Maintenance and Asset Management (GFMAM) is an association of professional maintenance and asset management societies formed for the purpose of knowledge creation and sharing and for information exchange among our member societies. To affiliate with GFMAM, a professional society must be a non-profit organization, controlled by the whole membership, legally formed within its region of operations, have significant membership representing a broad base from within the industries it represents, and be willing to actively participate in the GFMAM Council and other GFMAM activities.

**Vision:** To be a worldwide community of organizations providing leadership for maintenance and asset management communities.

## **Abraman, Brazil**

Founded on October 17th, 1984, in Rio de Janeiro, ABRAMAN-Brazilian Maintenance Association is a private technical scientific society, non-profitable, that aims at joining professionals, companies and institutions involved with Maintenance. Nowadays, ABRAMAN has more than 2.700 members among companies and professionals of this sector. Since its foundation, three important attributes have been ABRAMAN's goals: Support, Reliability and Quality.

## **AM Council, Australia**

The Asset Management Council Ltd is a non profit organisation committed to the promotion and education of optimal asset management practices in industrial, commercial, academic and government organisations. Our mission is to create a broad awareness of the value of asset management, nurture a common understanding of asset management, and provide a portal to asset management knowledge and resources. With a vision of 'enabling benefits for all from effective use of assets', the Asset Management Council provides Certification, Training, Conferences, a Body of Knowledge and the Global Forum of Maintenance and Asset Management to its members and the ever-increasing global asset management community.

## **EFNMS, Europe**

The EFNMS, the European Federation of National Maintenance Societies, was established in 1970. The EFNMS transformed to a formal non-profit organization ("Vereniging zonder Winstoogmerk") according to Belgian law created on January 18, 2003, in Amsterdam.

## **FIM, South America**

Created on August 21, 1990 - Belo Horizonte - Brazil, FIM's goals are to be ethically based, support common goals and encourage people. To reach these goals the FIM, coordinates the Maintenance related topics with the Latin Americans National Institutions of Maintenance.

## **GSMP, Arabian Gulf Region**

GSMP was founded January 2010. Its mission is to provide a platform for promoting world class maintenance by sharing knowledge and exchanging best practices among maintenance professionals.

## **IAM, UK**

The IAM is the professional body for those involved in acquisition, operation and care of physical assets – especially critical infrastructure. In particular, the Institute is for professionals worldwide who are dedicated to furthering their knowledge and understanding of Asset Management. We are a not-for-profit organisation and independent of commercial and trade associations. Our priorities are to promote and enable the generation and application of knowledge, training and good practice, and to help individuals become demonstrably competent.

## **SMRP, USA**

### **Who We Are**

SMRP is an independent, not-for-profit, professional society formed by practitioners, for practitioners. SMRP is dedicated to instilling excellence in M&R in all types of manufacturing and service organizations, and in promoting M&R excellence worldwide. We have over 3,700 international members. We hope you will join us and take advantage of the numerous benefits available to help you both professionally and personally. You may even consider adding, Our members are plant managers, engineers, technicians, planners, mechanics, electricians, operators, M&R consultants, professors and engineering students. Come learn and grow with the association built & sustained by people just like you!



# ICOMS Asset Management Conference

## GOLD COAST 2011

16-20 May 2011, Gold Coast Convention and Exhibition Centre

ICOMS Asset Management Conference is the Asset Management Council's annual technical symposium. It commenced in 1994 as a maintenance conference, but now encompasses all aspects of engineering asset management, such as AM principles, processes, configuration management, continuous improvement, demand management, integrated support, operations and maintenance and systems engineering. Both technical and managerial aspects of asset management are covered.

See following pages for more ICOMS11 information

### Partner Program

- Welcome Function: Monday evening
- Gala Dinner: Wednesday evening
- Tours: Tuesday, Wednesday & Thursday
- Farewell Cocktail Function: Thursday afternoon

### Tours

#### Tuesday May 17 | Tall Ship Cruise & Island Adventure

Your day will start with a calm cruise, admiring the view of the Gold Coast broadwater from the deck of on an old world sailing ship. Along the way you will enjoy morning tea. You will disembark at the MacLarens' Landing Island Homestead on South Stradbroke Island National Park where you will be treated to a sumptuous Tropical Island BBQ lunch. After lunch you will have the opportunity to feed kangaroos, giant lizards, kookaburras and other wildlife, take a bushwalk around the island, swim in the resort pool or play beach volleyball. On the leisurely return cruise back to Surfers Paradise you will feed the sea eagles from the deck of the Tallship and enjoy afternoon tea.

#### Wednesday May 18 | Mt Tamborine, Wineries, Art & Antique Shops

Mt Tamborine is a beautiful, tranquil rainforest environment made up of National Parks, boutique wineries, antique shops, and art and craft galleries. This trip starts with the opportunity to explore Gallery Walk, a cluster of galleries and craft shops providing a wealth of diverse art and craft including paintings, sculpture, ceramics, porcelain, glass, jewellery, woodwork, fabrics and much more. Following this there will be wine tasting at one of the local boutique wineries, followed by a gourmet lunch. After lunch you will enjoy a relaxing walk through the rainforest on raised boardwalks and bridges to the entrance of the amazing Glow Worm Caves. Go underground and see a cave filled with thousands of glowing worms. In the afternoon there will be more visits to wineries before returning to the Gold Coast.

#### Thursday May 19 | High Tea at Palazzo Versace & Shopping

This day will start with an enjoyable morning of shopping at the discount outlets at Harbour Town Shopping centre. For lunch you will be whisked off to enjoy a high tea at the luxurious Palazzo Versace. Soak in the elegant surroundings as you enjoy a traditional high tea of tiny sandwiches and delicious little cakes, almost too perfect to eat! After lunch, return to your hotel for a free afternoon of relaxation, head to the beach, or indulge in further shopping in nearby Surfer's Paradise, before returning to the Gold Coast Convention and Exhibition Centre for farewell drinks.

### Social Program

#### Monday 16 May 5.00pm

Exhibition Opening and Welcome Cocktail Reception.  
Exhibition Hall, Gold Coast Convention and Exhibition Centre  
*Sponsored by The Asset Partnership*

#### Tuesday 17 May 5.00pm

Student Network Evening  
Exhibition Hall, Gold Coast Convention and Exhibition Centre

#### Wednesday 18 May 6.30pm

Awards Ceremony and Annual Dinner  
Twin Towns, Tweed Heads

#### Thursday 19 May 5.00pm

Farewell drinks  
Exhibition Hall, Gold Coast Convention and Exhibition Centre

### Dress

Welcome Function: Neat casual attire is recommended.

#### Daytime

Delegates: Neat business attire.

Partners: Comfortable smart casual attire.

Annual Dinner: Smart business attire.

### Registration Desk Hours

Mon 16	Registration Opens	2.00pm
	Welcome Cocktails	5:00pm
Tues 17	Opening Session	9:00am
	Student Evening	5:00pm
Wed 18	Sessions start	9:00am
	Awards Dinner	6:30pm
Thu 19	Sessions start	9:15am
	Conference closes	5:00pm
Fri 20	Workshops	9:00am – 4.30pm

### ICOMS TECHNICAL TEAM



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#### 1. Joanna Sikorska, ICOMS Technical Chair

Joanna has a mechanical engineering degree and PhD from the University of WA. She has 15 years experience in asset management as a practitioner, consultant and lecturer. Jo currently works in an engineering R&D consultancy called CASWA, which develops novel software and hardware solutions for asset management applications. Her areas of expertise include asset health diagnostics and prognostics, acoustic emission monitoring of rotating machinery, data quality management and reliability engineering. Jo is a regular speaker at ICOMS and has also published widely in a number of international peer reviewed journals. She is also an Adjunct Senior Lecturer at UWA's School of Engineering.



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#### 2. Deryk Anderson

Deryk currently works as an operations consultant, trainer and mentor to Australian and overseas organisations. He has had over 24 years experience in the management of industrial assets as a practitioner, manager and consultant across a variety of industries including mining, manufacturing, food processing and utilities. Deryk has been an active member of the asset management and maintenance community holding positions as the Queensland Chapter Chair of MESA and an Executive Member of the Asset Management Council. He is a founding member of the committee to establish the Asset Management Body of Knowledge.



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#### 3. Glen Kerr

Glen is the Collins Class Submarine Integrated Logistic Support Manager at ASC Pty Ltd. Glen has a Masters Degree in Systems Engineering and over 30 years experience in the defence industry. Glen's background is in electrical and electronic engineering and he specialises in the analysis and development of whole of life support systems for new and existing defence capability assets in both the aeronautical and marine domains. Glen has a special interest in system modelling techniques and support system performance prediction.



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#### 4. Wil Carey

Wilbur (Wil) Carey has worked for many years as a professional in the Manufacturing, Engineering and Consulting Service sectors, supporting a number of major international organisations. Wil has developed business improvement strategies, strategic plans, project management and project delivery processes, maintenance & reliability improvement plans as well as employee development programs for a number of leading international companies including, Assetivity



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Consulting Australian Rail and Track, Caltex Oil, Cristal of Saudi Arabia, Eastman Kodak, GE Energy, Mobil Oil, New Zealand Oil, Origin Energy, Parsons Brinckerhoff, Queensland Nickel, Santos, Saudi Arabian Royal Commission, Transfield Services, United States Government, Worley Parsons Engineering and Xstrata Nickel. Wil is a member of SMRP, MESA, AMC and IAM and specialises in knowledge transfer, culture change and seeking excellence, where "making a difference" is more than a buzz phrase.

#### 5. Steve Berquist

Steve is a member of the Brisbane chapter of the AMC and has over 20 years experience in the field of physical asset management, maintenance management and asset performance improvement for heavy industrial plants through the application of best practices and technology. His specialty is the application of predictive maintenance and condition monitoring techniques to improve the reliability of plant and equipment. His experience includes the power generation, materials handling, mineral processing and mining industries. He is currently manager of Performance Technology for Fluor's Operations and Maintenance business based in Brisbane, Australia.



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#### 6. Terry Howard

Terry is the Manager Performance and Reliability for RailCorp in NSW and leads a team that analyses the current performance of the network and sets the strategic direction for improvement. He is a member of the Sydney Chapter Committee, and has an electrical engineering background with post graduate studies in Asset management and Systems Engineering. Terry has extensive Rail industry experience in practical application of asset management principles and is a lecturer for RailCorp's and AM Councils Asset Management courses.



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#### 7. Melinda Hodkiewicz

Melinda is an Associate Professor in the Engineering Faculty at the University of Western Australia, and leads the UWA Asset Management postgraduate program. She has a background in operations and maintenance primarily in the mining industry in the US and Australia and a PhD in condition and performance monitoring from UWA. Melinda was recently nominated by Standards Australia to lead the development of a project proposal on behalf of Australian asset management stakeholders for participation in the ISO committee for asset management.



## KEYNOTE SPEAKERS



### Telfer Turnaround Assisted by Asset Management Approach

#### **Glenn Ingram**

*Group Manager Asset Management,  
Newcrest Mining Limited, Australia*



### The Value of Asset Management – a CFO's Perspective

#### **Tiernan O'Rourke**

*Chief Financial Officer,  
Transfield Services, Australia*



### Engaging at the Board Level

#### **John Hardwick**

*Executive Manager Maintenance and  
Replacement Planning,  
Ausgrid, Australia*



### From Design/Support to Operate/Maintain

#### **Andrew Wheatley**

*Operations General Manager  
Brisbane Motorways, Australia*



### Asset Management, Risk Management and Improving Business Performance

#### **Stephen Ludlam**

*Managing Director and Chief Executive Officer,  
ASC, Australia*



### Using a Project to Drive AM Principles

#### **Martin Kerr**

*Manager Advance Design  
United Group Rail, Australia*



### Integrated Information System for Safety, Risk and Performance Management

#### **Achim Kruger**

*Vice President,  
EAM Solutions, SAP, Germany*



### Creating Value in Supply Chain Partnerships

#### **Timothy Goshert**

*Worldwide Reliability and Maintenance  
Manager, Cargill, USA*



### Leadership for Reliability

#### **João Ricardo Barusso Lafraia**

*General Manager,  
Duque de Caxias Refinery/Petrobras, Brazil*



### The ISO Asset Management Standard

#### **David McKeown**

*Chief Executive,  
Institute of Asset Management, UK*



### The Tailoring of Asset Management Systems for Differing Business Environments

#### **Peter Kohler**

*Principal Analyst – Asset Sustainability,  
ITSR, Australia*



### Safety Cases – A European Experience

#### **Hans Klemme-Wolff**

*Europe*



### SEQ Water Grid Operations: Challenges facing urban water management

#### **Dan Spiller**

*Director of Operations  
SEQ Water Grid, Australia*

# ICOMS Asset Management Conference

## GOLD COAST 2011

### Program

#### Monday 16th MAY 2011

2.00pm	<b>Registration Opens</b>
2.00pm	<b>Practitioner Forum: Certification for Asset Management and Maintenance</b>
5.00pm	<b>Welcome Function &amp; Exhibition Opening</b> Sponsored by The Asset Partnership

#### Tuesday 17th MAY 2011

9.00am	<b>Keynote Addresses</b> Chair: John Hardwick			
9.40am	<ul style="list-style-type: none"> <li><b>Telfer Turnaround Assisted by Asset Management Approach</b>, Glenn Ingram, Newcrest Mining (<a href="#">Paper 01</a>)</li> <li><b>The Value of Asset Management – a CFO's Perspective</b>, Tiernan O'Rourke, Transfield Services (<a href="#">Paper 02</a>)</li> </ul>			
10.20am	<b>MORNING TEA</b>			
10.50am	<b>Keynote Address</b> Chair: Joanna Sikorska			
11.30am	<ul style="list-style-type: none"> <li><b>Engaging at the Board Level</b> John Hardwick, Ausgrid NSW (<a href="#">Paper 03</a>)</li> <li><b>From Design/Support to Operate/Maintain</b> Andrew Wheatley, Brisbane Motorway Services QLD (<a href="#">Paper 04</a>)</li> </ul>			
12.10pm	<b>LUNCH</b>			
1.30pm	<b>Should Asset Management Ensure Sustainability</b>			
	Panelists include Chris Adam, AWA, Peter Way IPWEA, Richard Edwards, IAM, Tim Goshert, SMRP			
2.30pm	<b>AFTERNOON TEA</b>			
3.00pm	<b>Business Decision Making</b> Chair: Sharon McAnelly <small>STREAM A</small>	<b>AM Implementation</b> Chair: Greg Williams <small>STREAM B</small>	<b>Planning</b> Chair: Gary Winsor <small>STREAM C</small>	<b>Practitioner Forum: Implementing PAS55</b>
	<b>The Business Case Involving Intangibles</b> Peter Buckland, Physical Asset Management Pty Ltd NSW <a href="#">(Paper 016)</a>	<b>Key Success Factors for Implementation of Leading Practice in Asset Management</b> Raja Ratnam, Aurecon Australia Pty Ltd NSW <a href="#">(Paper 046)</a>	<b>Smart Planning Implements Efficiencies in Maintenance Management</b> Zahra Jabiri, Western Power WA <a href="#">(Paper 017)</a>	<ul style="list-style-type: none"> <li>Andrew Wheatley</li> <li>Richard Edwards</li> <li>Ben Hayden</li> </ul>
3.30pm	<b>Long and Medium-term Forecasting of Operation and Maintenance Costs in an Electrical Utility: Case Study Using Principle of Evidence Based Asset Management</b> Ali Zuashkiani, University of Toronto Canada <a href="#">(Paper 018)</a>	<b>Aligning Asset Management Policy, Strategies and Processes to Deliver Effective and Sustainable Results.</b> Ray Oweis, RailCorp NSW <a href="#">(Paper 019)</a>	<b>Fail to Plan then Plan to Fail – Aligning Asset Planning to Business Outcomes</b> Andrew McEwan, Aspire Management Consulting, QLD <a href="#">(Paper 047)</a>	
4.00pm	<b>Right Asset Strategy Strengthens Competitive Advantages for Maple Leaf Cement</b> Veera Anantaratikun, SKF Asia Pacific Singapore <a href="#">(Paper 020)</a>	<b>Effective Implementation of an Asset Management Improvement Program</b> Craig Teske, GHD QLD <a href="#">(Paper 021)</a>	<b>Planning and Scheduling Improvement Using Design Structure Matrix Methods</b> Indra Gunawan, Monash University VIC <a href="#">(Paper 023)</a>	
4.30pm	<b>Enterprise LOS Decision Making Using a Tactical Modeling Approach</b> Larissa James, QLD <a href="#">(Paper 022)</a>	<b>Influencing Asset Management Principles to Newcastle Port Corporation – A Pathway to Improvement</b> Scott Bacon, Newcastle Port Corporation NSW <a href="#">(Paper 048)</a>		
5.00pm	<b>STUDENT AND GRADUATE NETWORKING</b>			

#### Wednesday 18th MAY 2011

	<b>Keynote Addresses</b> Chair: TBA			
8.45am	<ul style="list-style-type: none"> <li><b>Asset Management, Risk Management and Improving Business Performance</b>, Stephan Ludlam, ASC (<a href="#">Paper 05</a>)</li> <li><b>Integrated Information System for Safety, Risk and Performance Management</b>, Achim Krueger, SAP Germany (<a href="#">Paper 06</a>)</li> </ul>			
9.25am				
10.05am	<b>MORNING TEA</b>			
	<b>Keynote Address</b> Chair: Richard Edwards			
10.35am	<ul style="list-style-type: none"> <li><b>Using a Project to Drive AM Principles</b>, Martin Kerr, UGL Rail NSW (<a href="#">Paper 07</a>)</li> <li><b>Creating Value in Supply Chain Partnerships</b>, Tim Goshert, Cargill USA (<a href="#">Paper 08</a>)</li> </ul>			
11.15am				
11.45pm	<b>LUNCH</b>			
1.10pm	<b>Global Forum on Maintenance and Asset Management</b> Chair: Bradley Thompson <small>STREAM A</small>	<b>Infrastructure</b> Chair: Danny Azavedo <small>STREAM B</small>	<b>Asset Strategies</b> Chair: Steve Berquist <small>STREAM C</small>	
	<b>Asset Management: How to Reduce Maintenance Costs Without Additional Risks</b> Celso de Azevedo, Assetsman France <a href="#">(Paper 024)</a>	<b>The State of Play in Asset Management – A Survey of Australian Infrastructure Agencies</b> Richard Benedict & Naomi Feigl, Parsons Brinckerhoff NSW <a href="#">(Paper 025)</a>	<b>Reliability Modeling in the Design and Operations Phases of Projects</b> Paul Websdane, K2 Technology Pty Ltd WA <a href="#">(Paper 051)</a>	

**Wednesday 18th MAY 2011 continued**

	<b>Global Forum on Maintenance and Asset Management</b> Chair: Bradley Thompson <span style="float: right;">STREAM A</span>	<b>Infrastructure</b> Chair: Danny Azavedo <span style="float: right;">STREAM B</span>	<b>Asset Strategies</b> Chair: Steve Berquist <span style="float: right;">STREAM C</span>
1.40pm	<b>Major Maintenance in Live Plants</b> Hussain Ali Mattar, Bahrain <i>(Paper 027)</i>	<b>Broader Aspects for Consideration in Managing Assets</b> John Doran, AECOM WA <i>(Paper 028)</i>	<b>RCM: Making the Process More Cost Effective - 10 Years Later</b> Gary Winsor, Ausgrid NSW <i>(Paper 026)</i>
2.10pm	<b>Maintenance Overview in Brazil</b> Brazilian Maintenance Society – ABRAMAN Brasil <i>(Paper 030)</i>	<b>Deterioration Prediction of Community Buildings in Australia</b> Hessam Mohseni, RMIT University VIC <i>(Paper 031)</i>	<b>Reliability or Maintainability, Competing Alternatives</b> Nicholas Phillips, MACE Consulting (Aust) Pty Ltd VIC <i>(Paper 029)</i>
2.40pm	<b>Managing Assets in Financial Crises</b> Richard Edwards, AMCL United Kingdom <i>(Paper 033)</i>	<b>Sustainable Infrastructure Management Program Learning Environment</b> Andrew Sneesby, GHD Pty Ltd 7250 <i>(Paper 034)</i>	<b>Asset Strategy Development Using Defect Elimination Methodology</b> Nik Nikolovski & Franc Spinelli HATCH NSW <i>(Paper 035)</i>
3.10pm	<b>AFTERNOON TEA</b>		
	<b>Information Management</b> Chair: Robert Sloan <span style="float: right;">STREAM A</span>	<b>Infrastructure</b> Chair: Andrew Sneesby <span style="float: right;">STREAM B</span>	<b>Condition Monitoring</b> Chair: Byron Martin <span style="float: right;">STREAM C</span>
3.40pm	<b>Asset Management Standards and Information System Architecture to Support them</b> Hemant Rathod, SAP Australia <i>(Paper 036)</i>	<b>Simplified Condition Rating is Key for the Cost-Effective and Efficient Asset Management System</b> Dhirendra Kumar, Moreland City Council <i>(Paper 037)</i>	<b>Simplifying Predictive Maintenance</b> Stephen Young, The Asset Partnership NSW <i>(Paper 049)</i>
4.10pm	<b>How Crucial is Accurate Asset Data?</b> Chris Goedhart, K2 Technology QLD <i>(Paper 050)</i>	<b>A Review of Major Centrifugal Pump Failure Modes With Application for the Water Supply</b> Kristoffer Koh McKee, Curtin University WA <i>(Paper 032)</i>	<b>Development of a Diagnostic Tool for Condition Monitoring of Rotating Machinery</b> Tian Ran Lin, Queensland University of Technology, QLD <i>(Paper 039)</i>
4.40pm	<b>Asset Management Body of Knowledge and Glossary</b>	<b>Using the Principles of Asset Management to Improve Highway Safety</b> Mike Manion, Transfield Services Ltd New Zealand <i>(Paper 038)</i>	<b>The Implementation of Certification for Condition Monitoring Personnel in Australia and New Zealand</b> Peter Todd, SIRF Rt NSW <i>(Paper 043)</i>
7.00pm	<b>ANNUAL DINNER AND AWARDS</b>		

**Thursday 19th MAY 2011**

9.00am	<b>Keynote Address</b> Chair: James Kennedy		
9.40am	<ul style="list-style-type: none"> <li>• <b>Leadership for Reliability</b>, João Ricardo Barusso Lafraia, Duque de Caxias Refinery/Petrobras <i>(Paper 09)</i></li> <li>• <b>The ISO Asset Management Standard</b>, David McKeown, Institute of Asset Management Bristol <i>(Paper 010)</i></li> </ul>		
10.20am	<b>MORNING TEA</b>		
	<b>Keynote Address</b> Chair: TBA		
10.50am	<ul style="list-style-type: none"> <li>• <b>The Tailoring of Asset Management Systems for Differing Business Environments</b> Peter Kohler, ITSR NSW <i>(Paper 011)</i></li> <li>• <b>Panel Discussion: The ISO Asset Management Standard</b></li> </ul>		
11.30am			
12.30pm	<b>LUNCH</b>		
	<b>Certification</b> Chair: Andrew Morgan <span style="float: right;">STREAM A</span>	<b>AM Contracting</b> Chair: Gary Seabury <span style="float: right;">STREAM B</span>	<b>Reliability Modeling</b> Chair: Glen Kerr <span style="float: right;">STREAM C</span>
1.45pm	<b>ISO soup: Accreditation, Certification, Declaration – A Combined Praise and Buyer-Beware of the Advantages and Limitations of the ISO Personnel Assessment Standards</b> Suzy Jamieson, International Council for Machinery Lubrication, QLD <i>(Paper 40)</i>	<b>Growing Asset Management Capability in a Diversified, Global Services Company</b> Paul Agar, Transfield Services Ltd NSW <i>(Paper 041)</i>	<b>Reliability Block Diagram Modeling - Comparisons of Results Based on Site Knowledge Vs Historical Data</b> Seyed Safi, Covaris Pty Ltd NSW <i>(Paper 042)</i>
2.15pm	<b>Embedding Cognitive Reliability within an Asset Management Program</b> Leith Hitchcock, GP Allied, QLD <i>(Paper 54)</i>	<b>The Evolution of Maintenance Contract Models – a Review</b> Deb Sinclair & Richard Benedict, Parsons Brinckerhoff NSW <i>(Paper 044)</i>	<b>Advantages of Dynamic Monte Carlo Simulation for Reliability Modeling</b> Neale Sutton, Fluor Australia QLD <i>(Paper 052)</i>
2.45pm	<b>Certification Alignment Update</b>	<b>Outsourcing Maintenance – The Good, the Bad and the Ugly</b> Gerard Gan, Mulgrave Engineers VIC <i>(Paper 045)</i>	<b>Best Student Paper</b>
3.15pm	<b>AFTERNOON TEA</b>		
	<b>Closing Addresses</b> Chair: Peter Kohler		
3.45pm	<ul style="list-style-type: none"> <li>• <b>GFAM's Road to Successful Global Collaboration, Status and Vision</b>, Hans Klemme-Wolff, EFNMS Germany</li> <li>• <b>SEQ Water Grid Operations: Challenges Facing Urban Water Management</b>, Dan Spiller, SEQWATER</li> </ul>		
4.25pm			
5.15pm	<b>FAREWELL FUNCTION</b>		

**Friday 20th MAY 2011**

9.00am	<b>Workshops from 9.00am - 4.00pm</b>
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### The Business Case Involving Intangibles

*P Buckland, Paper 16*

The world is familiar with the preparation of business cases for investment where net return is directly measurable in monetary terms. The fundamental requirement for justification to commit funds has been that the benefits so derived are at least equal to, and preferably exceed in real terms, the cost over the life of the project or process. Tools like the benefit/cost and net present value analysis etc are well known and serve us well for situations where benefits and costs are measured in monetary terms. Most of the world, however, struggles if all or part of the benefit, or the cost for that matter, is not directly measurable in monetary terms. These non-monetary considerations are known as intangibles, items with no established market value, such as increased social amenity, decreased inconvenience, reduced outage in failure events, etc. Such intangibles are no less important than are real costs and benefits, yet there are few tools for effectively accommodating them in the business case. The net result is that they are often left out of the formal analysis, only to be considered as an adjunct in qualitative terms, if at all. We have invented a raft of approaches to try and solve the problem; approaches like rank ordering, qualitative measures, semi-quantitative measures, weighting and so on, all of which, although going part of the way to providing a solution, are ultimately subjective and fail to answer the question – will the returns exceed the investment? To answer this question it is necessary to express all benefits and costs in monetary terms, including any intangibles. To do otherwise introduces inconsistency of units in the inequality Benefits > Costs and renders it meaningless. This paper explores methods available for monetisation of intangibles with a brief outline of such techniques as Willingness to Pay, Expert Judgement and Choice Modelling, along with a “fast track” technique developed by the author based on the British Common Law concept of “The Reasonable Man”, which has proven useful in the US, Canada and Australia for assigning approximate equivalent monetary values to intangibles. Examples of application of this latter methodology in developing economically justifiable maintenance and pipeline management programs are included in the paper. Unlike decisions made using the various “qualitative” approaches outlined above, the business case for investment including the monetisation of intangibles is economically defensible, subject only to the degree of confidence in the monetisation, not the integrity of the process.

### Smart Planning Implements Efficiencies in Maintenance Management

*Z Jabiri D Sharafi & M Toufan, Paper 17*

For many years maintenance activities had been performed on individual Western Power’s transmission networks assets based on time, condition, performance and criticality. However, this approach had limited consideration to the type and geographical location of the assets, as well as the administration overhead for works management, leading to an increase in the unit cost of maintenance tasks, and inefficient resource utilisation. The need for implementing an efficient maintenance strategy and reduce unit costs, expected in a regulated environment, as well as better utilisation of outage windows available to circuits created a paradigm shift in our maintenance delivery management. The stakeholder’s concern with maintenance and asset replacement of an ever-growing network, management of high number of outage requests, and its impact on their Key Performance Indicators led to initiating an operational improvement project, named Smart Planning. The project aimed to reduce duplication, redundancy and inefficiency in transmission work, including planning, procurement, design, project management, construction, commissioning, outage management and maintenance. Western Power embarked on a journey of Maintenance Process Reengineering in an effort to optimise resources and outage utilisation in time-based maintenance using Lean 6-Sigma methodology, aimed at reducing non-value added activities. The initiative which became known as Combined Maintenance started in 2008 with conceptualising, implementing and assessment of the new practice in three Western Power transmission substations as pilot sites. This practice, however introduced a complete change in the maintenance regime, contradicting existing asset maintenance policies and presenting a risk, which had to be quantified and assessed against the benefits. The analysis undertaken in 2010 focusing on the outcomes of this practice showed a significant reduction in system outage and maintenance cost compared with the conventional maintenance. Outage reduction in the substations involved ranged from 33% to 84%, while cost reduction was from 1% to 21%. This paper presents the practice of Combined Maintenance, explains its benefits and features, the methodology for full implementation, the outcomes, challenges along the way and the method of risk management applied in prolonging asset maintenance frequencies.

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## Long and Medium-term Forecasting of Operation and Maintenance Costs in an Electrical Utility: Case Study Using Principle of Evidence Based Asset Management

*A Zuashkiani N Safaee & A K S Jardine , Paper 18*

Canadian utilities are facing challenges when setting their service rates. To set rates appropriately, they needed to forecast their operation and maintenance (O&M) costs for a period of two years. However, in 2008, regulators developed Incentive Based Rate Methodologies to set rates for a longer period, about 5 years. As a result, utilities have to ensure rates are adequate to recover expected future costs and leverage the opportunity for improving utility earning potential within the new rate period. This has created the need for Canadian utilities to improve their planning of utility based operational work and staffing needs in the mid to long-term period. However, the demography of assets in most utilities is far from uniform. Asset acquisitions and installations occur much faster during some periods and are slower in others, creating a challenge in estimating future life cycle costs (LCCs). A methodology was developed which uses historical data combined with experts' knowledge using Bayesian Statistics to develop profile of O&M costs during life of each asset. Then using Monte Carlo simulation, it estimates future O&M costs with some confidence intervals. The model was applied successfully to a major utility in Canada.

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## Aligning Asset Management Policy, Strategies and Processes to Deliver Effective and Sustainable Results.

*R Oweis, Paper 19*

Aligning asset management policy, organizational strategies and processes is a significant challenge for management especially in large and complex organizations with multiple stakeholders and, at times, conflicting requirements. The RailCorp Total Asset Management (RTAM) methodology was developed to provide a framework for operational strategies and processes that align to asset and business policy requirements. This was done using a combination of various alignment and process models wherein asset management requirements are also cascaded through asset strategies and asset management plans. The RTAM methodology incorporates and integrates systems life-cycle engineering and system assurance requirements as one seamless asset management system to improve and sustain asset performance. Some of the benefits of this alignment include; One consistent and simple framework for a complex rail system; A holistic value-adding alignment of the business intents at various levels of the organisation; and Multiple business rules and standards integrated into one system. This paper discusses; Organizational asset management policy, strategy and process alignment principles; RailCorp's RTAM system, providing a case study of the roadmap from policy, strategy and process alignment; and The challenges ahead for RailCorp adopting system life cycle concepts to manage assets.

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## Right Asset Strategy Strengthens Competitive Advantages for Maple Leaf Cement

*V Anantaratikun, Paper 20*

The concept of Asset Management emerged in recent years as the total organization of a physical asset's life cycle to achieve the lowest cost with maximum return. As such, it spans an entire organization, beyond maintenance or operations functions. Asset management demands continuous, prioritized improvement through design and procedural change. Success is measured by the contribution to a company's results and shareholder value. This article reviews the plant reliability optimization program undertaken at a cement production company. Maple Leaf is a major cement manufacturer in Pakistan. In late 2008, the company decided to develop asset strategy applying reliability centered maintenance for its new 7,500 ton per day cement production line. This article describes in detail the processes applied, the experiences gained, and the results achieved.

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## Effective Implementation of an Asset Management Improvement Program

*C Teske, Paper 21*

The key objective in implementing any asset management program is that the program must be implemented effectively. Therefore, this paper presents and focuses on two key topics which support cost effective implementation of improved asset management systems, processes and practices: - a) an approach to implementing asset management improvements which can be adapted and tailored to particular business requirements, and b) how asset data capture processes can be prioritised to optimise available budgets, business resources and time in implementing asset management improvement programs.

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### Enterprise LOS Decision Making Using a Tactical Modelling Approach

*L James T Vitagliano M Muftugil & G Muckleroy, Paper 22*

Washington Suburban Sanitary Commission (WSSC) is the 8th largest water utility in the US, servicing a population of 1.8 million in the Washington DC area. WSSC is four (4) years into a multi-phase program to implement an Asset Management Framework and develop Asset Management Plans at the enterprise, facility, and sub-system level for all infrastructure involved in the production, collection and treatment of water and wastewater. WSSC has a staff of around 1500 managing an asset base of over \$12 Billion USD. The organisation is proactively addressing the timely need for change in the way that the strategic planning function is performed throughout the organisation. The next several decades will pose challenges in managing both the funding and delivery of service levels while managing significantly increased renewal and replacement programs of work. As part of the implementation of an Asset Management Framework, an Enterprise Levels of Service Statement was developed which identifies Levels of Service performance measures to be managed in order to achieve the organisation's core strategies and corresponding customer level of service value statements. The performance standards that are required at the asset level in order to manage and meet the Enterprise Levels of Service targets were then defined. This paper describes a simple integrated modeling approach used to measure the impact of different maintenance, operations, and capital investments on modelled levels of service outcomes. An example will be demonstrated for a 30MGD Wastewater Treatment Facility, operating within a system of 7 Wastewater Treatment Plants and 45 Sewage Pump Stations.

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### Planning and Scheduling Improvement Using Design Structure Matrix Methods

*I Gunawan, Paper 23*

In this paper, Design Structure Matrix (DSM) approach is presented to improve planning and scheduling in asset management. The main advantage of the DSM over traditional project management tools such as Critical Path Method (CPM) or Gantt chart is in compactness and ability to present an organized and efficient mapping among tasks that is clear and easy to read regardless of size. Three DSM methods: Path Searching, Powers of the Adjacency Matrix, and Reachability Matrix methods are discussed. As a case study, DSM methods are implemented to reduce design iteration or rework in an engineering project. New project duration is optimised compare to initial project duration.

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### Asset Management: How to Reduce Maintenance Costs Without Additional Risks

*C de Azevedo, Paper 24*

What is the most important priority that has been given to cost reduction in the last decades in the global industrial maintenance? Isn't there any other? Anyway, even when other actions were prioritized, those ones concealed little desire of industrial directions to restrain in some way the expenses in maintenance of industrial assets. All maintenance professionals have already known or arduously experienced relevant consequences resulting from decisions which were supposed to reduce costs without an accurate evaluation of the risks that those decisions could lead to. So, the important question to be answered is "how much, in medium time, does it take for companies to reduce maintenance costs?" This paper will examine some of the processes of economic-financial measures of the risks to which industrialists can be exposed to, regarding policies of maintenance cost reductions. These processes are being used successfully by an increasing number of industrialists and, particularly, by those who randomly experienced difficult reverses as a consequence of the policies of cost reduction taken without any preliminary evaluation of the real vulnerability to which they were exposed to.

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### The State of Play in Asset Management - A Survey of Australian Infrastructure Agencies

*R Benedict & N Feigl, Paper 25*

Prompted by the Global Financial Crisis (GFC), the last eighteen months have brought a heightened political and public spotlight on the ability of Australian businesses to manage their assets effectively. This is evidenced by changing priorities (e.g. federal government's economic stimulus package), Australia's rising population, the availability of a Publicly Available Specification (PAS) for asset management and demands on Australian industries to increase employment and improve productivity. In a predominantly qualitative survey of 19 Australian infrastructure firms representing major infrastructure sectors and most Australian geographies, Parsons Brinckerhoff (PB) sought to understand the critical drivers and challenges influencing infrastructure organisations' asset portfolios and these firms' capacity to address these challenges with existing tools and systems. Despite differences in sector and regional focus, the responses from this snapshot survey suggest an increasingly complex and uncertain operating environment, where decisions about asset life and performance compete with decisions for funding, customers and safety. Few of the organisations interviewed were accredited to PAS55: insights from this 'point in time' survey suggest that short term challenges of ageing assets and risk management are complicated by the long term uncertainty of climate change, economy and changing customer demands. Driven by customer demands, safety imperatives, funding efficiencies and compliance, respondents identified an increasing reliance on the effective use of data and mapping systems to support decisions. Results from this 'snapshot' survey suggest that infrastructure organisations may have the data they need for these decisions at an operational level; however, are unsure how to use it in their decision making at a strategic and tactical level. The implication is that infrastructure organisations will increasingly need to consider the effective use (and integration) of strategic, tactical and operational tools and systems to make timely, informed decisions that optimise asset performance.

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### RCM: Making the Process More Cost Effective - 10 Years Later

*G Winsor, Paper 26*

At ICOMS 2001 and 2002 two papers were presented which looked at the implementation of an RCM based maintenance programme in Energy Australia (now Ausgrid). Now 10 years after the initial programme of work commenced this paper examines the initial analysis performed and the associated decisions with respect to the outcomes achieved. In particular how the assets have performed over the intervening period, did we get the maintenance tasks and frequencies right, and what has changed? This paper will also look at how the original analysis information has been integrated into a framework allowing the data capture of future asset conditional and functional failures to be captured and how this has been used in undertaking a full review of the current maintenance standards.

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### Major Maintenance in Live Plants

*H Ali Mattar, Paper 27*

Major maintenance activities in live plants is always having unique challenges, but invading live aluminium smelters' restrictions happens once in a lifetime. Crane rails and power conductors' installations are well known to many industries but in many cases in Greenfield or in plants that have irregular shift schedule. In case of live Reduction Lines the first issue of concern is safe accesses, then pot access limitation by operation. But the worst of all is handling long metal bars (crane rails or power conductors) in high magnetic field (200 gauss) with the increasing the possibility of bridging live potential to earth. In a rare major maintenance activity, Alba maintenance and Engineering team have managed to overcome various risks by using unique and safe method to replace approximately nine kilometres in of complete crane rail and power conductor systems.

## Broader Aspects for Consideration in Managing Assets

*J Doran, Paper 28*

Managing public sector assets has traditionally been well covered through the IIMM and PAS 55. Assets in other business sectors may be more process focused and considering how different assets can be managed to best effect there may be merit in considering the implications. The enterprise Executive Team directs policy, strategy, tactical execution and operational implementation in asset management and their commitment is key to optimising the beneficial life performance of assets. Equally key is an understanding of asset differences, lifecycle phases, interfaces between phases and the concept of 'embedded' or 'locked-in' cost and how this may impact efficacy of asset performance once they go into service: Infrastructure Asset Categories; Embracing differences in service life, lifecycle cost distribution, risk, physical and functional characteristics facilitates tailoring the asset management approach; Lifecycle Synergies; Design, engineering, procurement and construction of assets built to deliver goods or services can cost millions of dollars over several years. The beneficial life phase could cost billions in production, operations, maintenance and renewals costs spanning decades. Being mindful of business imperatives, achieving synergy through asset lifecycles promotes seamless transition across phases. This involves optimal leadership direction and commitment through each phase covering overall service delivery, safety, risk, value-add, quality, sustainability, longevity, and cost performance.

## Reliability or Maintainability, Competing Alternatives

*N Phillips, Paper 29*

Maximising plant availability, performance and condition for minimum maintenance costs, can be achieved through the application of Reliability and Maintainability Analysis (RMA) engineering. These interdependent engineering disciplines are applicable over the entire life cycle of systems/equipment from initial definition and specification through design, development, construction and in-service phases of equipment life. The purpose of RMA engineering is to provide an intentional and optimal balance between in-service availability, performance, safety and durability for a given cost. This paper discusses how a modified approach to a formal Reliability Block Diagram (RBD) provided the framework to model both reliability and maintainability for availability and operational performance objectives.

## Maintenance Overview in Brazil

*ABRAMAN, Paper 30*

The results of a survey among Brazilian companies from the 35 different sectors of our economy will be outlined.

## Deterioration Prediction of Community Buildings in Australia

*H Mohseni S Setunge G Zhang R Wakefield & P Kalutara, Paper 31*

For maximizing longevity and performance of infrastructure assets integrating the requirements of triple bottom line of sustainability, including environment, economic and social/functional constraints, a well-developed and validated asset management (AM) process is essential. A proper AM model requires the ability to predict the future condition states of the assets in order to plan ahead for decisions on maintenance and refurbishment activities needed. A current research project conducted at RMIT University in collaboration with six local councils and the municipal association of Victoria is aimed at developing an integrated reliability-based model for management of community building assets. The paper presents a comprehensive review of the current building management practices of six local councils in Australia; and captures the gaps in knowledge, which hinders an efficient AM process. An integrated asset management framework developed with consultation of stakeholders is presented. A three-level building component hierarchy developed to manage the complexity of building assets in an organized manner is demonstrated. Data collected by the councils have been analysed to understand the challenges in forecasting building deterioration using discrete condition data. Derivation of a Markov process based model using discrete condition data for deterioration prediction of community buildings is presented. The conceptual framework for integration of the deterioration model with triple bottom line indicators is proposed.

## A Review of Major Centrifugal Pump Failure Modes With Application for the Water Supply

*K K McKee G Forbes I Mazhar R Entwistle & I Howard, Paper 32*

Centrifugal pumps are one of the world's most widely used type of pump, having an extensive range of applications, from food processing to water or sewage transportation. Problems that arise within these machines decrease the flow of the fluid within the pipelines, thus interrupting the production and transport of the fluid to its destination within the process. This may lead to other parts of the process system slowing down or behaving undesirably. As a result, it is imperative that these pumps be correctly monitored, diagnosed, maintained or replaced prior to the pump failing catastrophically to reduce time, money, and labour costs. This paper reviews the major fault modes that are found in centrifugal pumps, especially those in the water and sewage industry. Attention is given to the nature of the faults, symptoms shown within the pump that could be utilised for specific fault detection and diagnosis, and any mechanical corrective procedures that exist to help alleviate the problem. In addition, this paper contains a comparison and critique of previously published work that has attempted to diagnose the fault modes of centrifugal pumps.



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## Sustainable Infrastructure Management Program Learning

*A Sneesby D Rose R Byrne & M Hodgins, Paper 34*

SIMPLE is a web based asset management knowledge tool set hosted by the Water Environment Research Foundation (WERF). It is an intuitive and user-friendly set of on-line process and practice guidelines, templates and decision support tools designed for asset management practitioners, SIMPLE can: 1. Simplify and guide the development of effective Enterprisewide Asset Management Plans, and 2. Provide practical implementation guidelines for agencies to assess and drive meaningful improvements in asset management for Water and Wastewater Infrastructure. As a knowledge management system, it also makes asset management principles and practices comprehensible and promotes information exchange among practitioners with various needs and experience levels (through chat rooms, technical forums etc.). The SIMPLE on line knowledge base has undergone a favourable peer-review and validation process through a beta testing program involving utility agencies from around the world. WERF and the Water Research Foundation (WRF) have also partnered to create an Asset Management Self Assessment Tool (SAM-GAP) tailored to the North American water utility industry. Through the Global Water Research Coalition (GWRC), WERF and the Water Research Foundation have partnered with other international research organisations (UKWIR and WSAA) to create a Benefit-Cost Tool and a Risk Management Tool now incorporated into SIMPLE. Life Cycle Costing, Capital Investment Planning, Asset Registers and Hierarchies, Condition Assessment, Valuation and Failure Mode Analysis are also in development for the future.

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## Asset Strategy Development Using Defect Elimination Methodology

*N Nikolovski & F Spinelli, Paper 35*

All equipment has an inherent reliability code. This code is predetermined at the design and build stage, but can become corrupted at any time within the equipment lifecycle, through one of four ways (gates) we interact with the equipment: Operating, Maintaining, Environmental and External. Asset Strategy development using holistic defect elimination principles (Hatch eGateway™ process) ensures that the equipment reliability code is protected and for its entire lifecycle. This paper discusses the Hatch eGateway™ methodology and its approach for developing a holistic asset strategy, which increases overall asset performance and reduce operating costs while maintaining high safety standards.

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## Asset Management Standards and Information System Architecture to Support them

*H Rathod, Paper 36*

As organizations are reaching higher maturity in managing assets, they are looking for better and standardized ways to manage these assets. Following standardized processes reduces efforts in evolving procedures to manage assets and provide better visibility to various aspects of asset performance. Though standards can provide good guidelines for improved operational procedures, it needs to be supplemented with robust information system that can give consistent and single point of truth about how assets are managed. Information system can not only help in performing some of the day to day tasks more efficiently but also help to benchmark and audit how these processes are executed and where these operational processes can be further improved. In this session we will review important building blocks of an integrated information system and how they can be practically used.

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## Simplified Condition Rating is Key for the Cost-effective and Efficient Asset Management System

*D Kumar & I Patnaikuni, Paper 37*

Most of commercial Pavement Management Systems (PMS) use various variables to do the required forecasting. To input the values of these variables, it requires comprehensive and expensive condition surveys. These surveys are usually done by the people having very little knowledge about these assets. The probability of getting these variables right is very slim and it results in an inaccurate prediction. In Victoria, all the Councils have to follow Road Management Act 2004. In compliance each council has its own inspection team who carryout ongoing inspections and records the various defects. We can use this inspection team to record the condition rating of each section of road if we can simplify the condition rating system. The objective of this paper is to formulate a simple condition rating system and use simple modelling technique for prediction which can be easily calibrated. This will also avoid expensive verification of the results received from a commercial PMS. Final treatments can be decided after considering the financial and other constraints.

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### Using the Principles of Asset Management to Improve Highway Safety

*M Manion & F Jooste, Paper 38*

This paper describes how the principles of asset management are being applied to the management of highways to improve road safety outcomes. The paper describes how maintenance management practices which have been developed and refined in long term performance based maintenance contracts have been enhanced to assess the performance of the assets not just their condition. These contracts transfer significant life-cycle responsibility to the maintenance contractor, to plan and deliver maintenance activities so that highway assets remain at specified levels. This approach has been extended in the referenced New Zealand highway contracts so that the primary objective of the contract has moved beyond the goal maintaining asset condition within an optimised life-cycle cost framework to the advanced position of delivering the asset outcomes, being safe and efficient highways. This has created a significant shift in the asset management approach, having to match asset configuration with asset condition and safety outcomes. The asset management team involved has developed an innovative analysis tool to assist in the decision making process. This assists in the targeting of asset improvements to areas where they will most likely achieve the maximum benefit.

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### Development of a Diagnostic Tool for Condition Monitoring of Rotating Machinery

*T R Lin A C C Tan I Howard J Pan P Crosby & J Mathew, Paper 39*

This paper presents an overview of the CRC for Infrastructure and Engineering Asset Management (CIEAM)'s rotating machine health monitoring project and the status of the research progress. The project focuses on the development of a comprehensive diagnostic tool for condition monitoring and systematic analysis of rotating machinery. Particularly attention focuses on the machine health monitoring of diesel engines, compressors and pumps by using acoustic emission and vibration-based monitoring techniques. The paper also provides a brief summary of the work done by the three main research collaborating partners in the project, namely, Queensland University of Technology (QUT), Curtin University of Technology (CUT) and the University of Western Australia (UWA). Preliminary test and analysis results from this work are also reported in the paper.

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### ISO soup: Accreditation, Certification, Declaration – A Combined Praise and Buyer-Beware of the Advantages and Limitations of the ISO Personnel Assessment Standards

*S Jamieson, Paper 40*

The recently developed ISO 18436 series on qualification and (skill) assessment of condition monitoring personnel has several of its standard parts already published or nearing completion. This paper explains to industry practitioners why and how the series was developed, discussing intent and results. It explains some aspects of ISO 17024 and specific ISO usage of (otherwise) commonly understood terms and the resulting precautionary measures industry must take in order to take full advantage of the potential benefits of this effort. The paper also addresses the expected impacts in industry as this series is adopted, as it relates to condition monitoring personnel, from skill-based career paths to equipment warranty, insurance claims and corporate liability. It teaches the "buyer-beware" aspect of ISO standards and the importance of end-user knowledge of the intent and content of the standards prior to adoption by their corporations.

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### Growing Asset Management Capability in a Diversified, Global Services Company

*P Agar, Paper 41*

Transfield Services is a global provider of asset management 'LifeCycle Solutions' to blue chip clients in the resources, energy, infrastructure and facilities maintenance industries. We employ over 28,000 people providing essential asset management services to private and government clients in Australia, New Zealand, Asia/Pacific, the Middle East, India, and North and South America. We also own, develop, operate and maintain power generation assets through our equity holding in the Transfield Services Infrastructure Fund. These assets include wind farms, gas and coal fired power generation units. In our markets we are witnessing a significant expansion in the need for quality asset management services. This is being driven by a major oil, gas, processing, infrastructure and facilities development boom in Middle Eastern countries. Elsewhere in Canada we are seeing rapid growth of the oil sands hydrocarbon industry and the USA is facing a massive infrastructure backlog. In Australia we are witnessing significant developments in LNG, coal seam gas, mining and a significant renewal and upgrade of our infrastructure assets.

### Reliability Block Diagram Modelling - Comparisons of Results Based on Site Knowledge Vs Historical Data

*Y S Soon & S A Safi, Paper 42*

Commercially available software for developing and analysing reliability block diagrams (RBD) has been utilized in a wide variety of different industries. The common practice in RBD modelling includes developing a model based on the site visits and P&IDs (Process and Instrumentation Diagrams). After the model has been reviewed against the process flow for accuracy, available redundancies, buffers and interdependencies, the software used for the analysis calculates the availability and performance of the system. The results produced by the analysis are highly dependent on the probability density functions (PDF) used for the analysis. The selection of the source of data into the underlying PDF of equipment loaded into the RBD allows insights and support decision making for a range of issues. This paper presents the application of RBD modelling for three sites. The objective is to provide a comparison of the results of two sets of PDFs for each site. In the first method a library of equipment types have been developed for the three sites. Exponential PDFs have been defined for each equipment type in consultation with the operators / maintenance crew. The second method makes use of information which has been collected for the equipment in the computerised maintenance management system (CMMS). The paper contributes ideas on how to analyse large data sets from CMMS to make useful equipment PDF determinations based on the understanding of work order history. The results for the two methods have been presented and compared in this paper.

### The Implement of Certification for Condition Monitoring Personnel in Australia and New Zealand

*P Todd, Paper 43*

Better management of equipment and physical asset condition is an opportunity that is worth \$Billions to business. A core technology for managing equipment condition is Condition Monitoring. For over 10 years there has been a major international effort to help define best practice for Condition Monitoring with ISO18436 standards as a key output. A part of the infrastructure to implement ISO18436 is the requirement for an Independent Certification Board. With the support of AINDT a group of prominent Australian and New Zealand condition monitoring people from business, suppliers and service providers have been brought together to form a Condition Monitoring Certification Board (CMCB) for Australasia. The initial focus of the CMCB has been the creation of certification exams for Vibration Analysis personnel with the first pilot web based exams being held in October 2010. The CMCB will be also putting plans in place to hold certification exams for site Field Lubricant Analysis and Thermal Imaging condition monitoring. This paper will cover details of the quality systems put in place to gain JAS-ANZ approval for 3rd party certification. It will also cover the CMCB's approach for web exam implementation and invigilator training to allow remote implementation of exams.

### The Evolution of Maintenance Contract Models – a Review

*D Sinclair & R Benedict, Paper 44*

Across Australian jurisdictions, owners of infrastructure are facing similar issues and challenges; managing an increasing backlog of deferred maintenance arising from ageing stock and funding limitations. A review of public housing maintenance contract models across Australia and New Zealand revealed strengths, weaknesses and lessons learned. The insights from Housing Agencies are applicable to other asset owners seeking to outsource maintenance as well as to the businesses providing these maintenance services. Overall, the general trend across Housing Agencies is to move to a more planned rather than reactive maintenance approach to achieve efficiencies in service delivery, optimise value for money and attain better outcomes. To achieve this, there has been an evolution in maintenance contract delivery models: Single-trade – schedule of rate to deliver individual work orders (outputs); Multi-trade – coordination of trades to deliver outputs, schedule of rate with management fee; Head Contractor – lump sum to deliver targeted outcomes and a planned approach; Facilities Management – lump sum to deliver and sustain asset performance standard. For the asset owner, the transition to a 'planned maintenance' approach requires a significant change in roles from directly managing outputs to managing delivery based on outcomes, quality and performance. Similarly, significant changes by industry are required to increase logistical capability to deliver outcomes as opposed to a 'post-box' mentality. All Housing Agencies operating under a Head Contractor Model found that it took considerable time, focus and resources to support a transition to a Head Contractor Model. Typically, the transition was two to three years – more than expected. The evolution to a Head Contractor Model requires changes to virtually all areas of operations and management for both Housing Agencies and industry. Experience and lessons learned shows the need for a staged collaborative approach to embed these changes and successfully achieve the benefits from a Head Contractor Model.

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### Outsourcing Maintenance –The Good, the Bad and the Ugly

*G Gan, Paper 45*

The past two decades have seen great increases in the mass outsourcing of maintenance activities to contracting companies. In Australia, refineries, mines, building services and facilities and manufacturing plants have made the maintenance contracting business into this rapidly expanding multi-billion dollar industry. However, not all organisations who outsource maintenance truly grasp the benefits of the exercise, thus causing a sinking effect resulting in larger outlays than if services were sourced in-house. The purpose of this paper is to discuss not merely the benefits of outsourcing, but also the difficulties surrounding maintenance contract governance. Finally, lessons learnt from contracting activities covering productivity measurements, industrial relations and safety aspects are also discussed.

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### Key Success Factors for Implementation of Leading Practice in Asset Management

*R Ratnam, Paper 46*

Experienced asset management practitioners know that there are many non-technical issues to address to ensure that an asset management framework and associated leading practices are embraced by all levels of people within an organisation. They recognise that a consultative process, involving operations personnel and management seeking an understanding of the business objectives and constraints, is a vital step towards the creation of an effective asset management framework. Organisational commitment with appropriate funding and resourcing is more likely to result in engagement at the operational levels. The effectiveness of the change management process is a key factor for a sustainable implementation. This paper discusses recent consultancy engagements with global clients illustrating the importance of the people factor in achieving effectiveness and sustainability.

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### Fail to Plan then Plan to Fail – Aligning Asset Planning to Business Outcomes

*A McEwan, Paper 47*

While the concept of asset strategic planning has been with us for many years, it has arguably not been effectively implemented or evaluated. The increased investment in infrastructure and public assets in particular requires risks associated with their planning, design, operations, maintenance, upgrades and renewals to be carefully considered and managed on a life cycle basis. Increasing focus on improved management of operational costs associated with energy consumption has provided the catalyst for improving the integration of asset management elements. Together with questions regarding funding of infrastructure assets for local and state governments, there is a growing need to better consider service and design standards for asset portfolios. This paper will outline some of the existing constraints to effective asset strategic planning and provide a view on how to better align asset and business planning; delivering improved business performance outcomes.

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### Influencing Asset Management Principles to Newcastle Port Corporation – A Pathway to Improvement

*S Bacon, Paper 48*

Newcastle Port Corporation is experiencing unprecedented growth with huge trade throughput increases in coal and non coal trade exports. With an aging infrastructure portfolio the presenter Scott Bacon – Maintenance Contracts Manager provides an insight to the Corporation's approach to; Change management – establishment of a new section (Asset Maintenance) through restructure; Condition assessments for critical marine infrastructure; Establishment of service level agreements; Mitigation strategies against corrosion; Short, medium and long term budget forecasting; Ratio's for repairs and maintenance v's capital replacement (maintenance trend analysis); Their experience of networking with other ports and industry bodies; Challenges ahead.

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## Simplifying Predictive Maintenance

*S Young, Paper 49*

Condition based maintenance enables a more proactive approach to the management of assets. Despite the widespread application of condition monitoring techniques, it has been estimated that less than one percent of the benefits of advanced failure warning delivers the expected benefit, savings and risk reduction. The reasons are many and include existing condition monitoring systems are simply too complex and expensive for many applications, are applied to the wrong equipment or at the wrong assessment intervals and require the development and maintenance of specialist skills and technicians. This paper details emerging technology that makes it cost effective to obtain the benefits of predictive maintenance across a much wider range of plant. Using a model-based approach to detect and diagnose electrical and mechanical problems, the model works only on measurements of current and voltage taken from the supply cables. The technology is applicable to the full range of machinery driven by three phase electric motors, as well as turbine driven generators and alternators. The model is able to provide concise information about developing faults, recommended actions, and the probable time to failure of not just the motors powering the equipment, but of the equipment driven by the motors.

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## How Crucial is Accurate Asset Data?

*C Goedhart, Paper 50*

Having the correct asset data in the correct format and readily available is a requirement and should not be considered a luxury. As has been proven many times in the past, poor information in equals poor information out! In many cases asset data is stored on separate servers (in the case of standalone PCs) in different geographic locations and due to this many computerised maintenance management systems (CMMS) are populated with insufficient and inaccurate asset data. The purpose of this paper is focussed on 'reiteration of the basics' of equipment data requirements.

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## Reliability Modeling in the Design and Operations Phases of Projects

*P Websdane, Paper 51*

This paper will review Reliability Availability & Maintainability (RAM) modelling in the design phase of a project and highlight some of the benefits found. It will also explore the opportunities and practicalities of rolling the model into the operational phase. As maintenance strategies, sparing philosophies and shutdown plans are implemented and optimised in the operations phase, an updated RAM model can provide valuable data for Reliability Engineers to use in improving Asset performance. The potential business benefits and barriers to practical application of using RAM models in the Operations phase are raised for discussion.

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## Advantages of Dynamic Monte Carlo Simulation for Reliability Modeling

*N Sutton, Paper 52*

Most reliability approaches utilise static block diagram models to predict the reliability of a production system. This becomes difficult on complex dynamic systems that are influenced by randomness, uncertainty, and impacts from external sources. A reliable plant is not necessarily an available plant. This paper demonstrates the advantages of using dynamic Monte Carlo simulation for identifying "bad actors" and bottlenecks in complex production systems that lead to poor plant availability and low production output.

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## Embedding Cognitive Reliability within an Asset Management Program

*L Hitchcock, Paper 54*

In the 70's and 80's the maintenance industry and its development of maintenance strategies became largely defined by the introduction of RCM. There have been many attempts to repeat the concepts outlined within RCM for the reliability engineering discipline which has been evolving since then. The Cognitive Reliability Model graphically outlines the scope of a reliability program, defines role responsibilities, and provides a basis for reliability prioritization and strategy development. The model also provides a framework of 72 challenge concepts that can be used to design reliability management systems and auditing platforms accompanied by a framework for tool and methodology section.

## Transfield Services



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### USB Proceedings Sponsor and Internet Station Sponsor

K2 Technology is an Engineering Consultancy which has been operating for more than 10 years and specialises in Asset Management Services, Engineering, and Technical Support for industry. K2 provides experienced, professional staff and integrated multi-discipline teams capable of delivering engineering and technical solutions to our clients at all phases of asset life from concept through to abandonment. We have capabilities to assist our clients in all areas of Asset Management and Support Services including development, implementation and life-cycle management of all Operations and Maintenance processes. Between our Perth and Brisbane offices K2 has a large team of technical personnel covering, engineering, reliability, maintenance, supply chain, operations, integrity management and all supporting areas. Included within our technical personnel is our Advanced Database Systems group which is made up of 5 personnel who specialise in the development and implementation of bespoke database systems for our clients. This group is also responsible for the development, management and implementation of our proprietary ADAM system which is a web based system we use to build, review and analyse maintenance system data. All K2 services are structured, resourced and managed to ensure we deliver "fit for purpose" on time, on cost solutions in accordance with our client's requirements.

Contact: Amanda Barwell [amanda.barwell@k2techno.com.au](mailto:amanda.barwell@k2techno.com.au)

## CIEAM



Cooperative Research Centre for  
Infrastructure and Engineering Asset Management

### Satchel Sponsor

CIEAM is a Cooperative Research Centre (CRC) dedicated to improving the efficiency and sustainability of infrastructure and engineering asset management. We work closely with industry partners to develop innovations that meet their needs, and as a result, contribute to improving the engineering asset management industry sector. We focus on real-life asset management problems faced by industry today, such as: Ageing national engineering infrastructure; Under-investment in asset maintenance; Optimising the cost of maintenance and the total cost of engineering asset ownership; An innovative integrated asset management regime across all industry sectors; and Addressing climate and sustainability issues. Benefits enjoyed by CIEAM industry partners include: Extension of asset life - process and technology innovations that increase the longevity of major assets and defer replacement translate to delayed capital expenditure investments and large bottom line gains. Reduction in maintenance cost - asset health monitoring that provides operators, maintainers and suppliers the ability to predict maintenance requirements and schedule downtime effectively, reducing operating costs. Improved asset availability - predictive tools that give asset operators the ability to optimise operational capability, meeting demand without further asset investment. Reduced likelihood of catastrophic failure - analysis of early warning signals combined with effective contingency plans ensure that catastrophic failures leading to huge direct and contingent costs are identified and corrected early. Improved environmental sustainability - socially and environmentally responsible performance measures and assessment that deliver increased energy efficiency, reduced carbon production, and reductions in consumables and waste disposal costs.

Contact: Susan Lambe [susan.lambe@cieam.com](mailto:susan.lambe@cieam.com)

## The Asset Partnership



### Welcome Function Sponsor

The Asset Partnership delivers value driven outcomes for the management of physical assets. We focus on three key outcomes: Throughput improvement from existing assets by optimising equipment reliability, availability and operational use of the assets; Reduction in the cost and risk (safety, environmental, operational) of asset ownership; Optimisation of capital outlay on assets. The Asset Partnership enjoys an enviable reputation for delivering 'bottom line' impact solutions through our partnership-style working relationship. Our people have hands-on experience in a wide range of industries, particularly those that depend on the efficient and effective deployment of physical assets.

Contact: Stephen Young  
[Stephen.young@assetpartnership.com](mailto:Stephen.young@assetpartnership.com)

## ICOMS11 Sponsors

### Sherwood Utilities Pty Ltd



#### Water bottle sponsor

Sherwood Utilities Pty Ltd (SUPL) is a Reliability and Maintenance Engineering Consultancy firm, providing a range of services to clients in the Petrochemical, Oil & Gas, Mining and Minerals Processing sectors. Established by a sole Consultant in 1999, SUPL has grown to a team of Consultants and Specialists that is recognised as a leader in the provision of Asset Management services for brownfield operations, as well as developing and implementing new Asset Management systems for greenfield operations. SUPL provides a diverse range of services which fall within the following broad areas: Maintenance System Development - the preparation of work instructions to provide comprehensive maintenance actions for

a facility or system. Optimisation - the fine tuning of systems, procedures and processes to cost effectively provide the highest availability and reliability for an operational site. Materials Management and Optimisation - encompasses all aspects of identifying, categorising and organising equipment in a facility or system. Operational Readiness - the provision of services which will assist clients who have projects underway. Planning - the detailed processes and practices that form the maintenance planning cycle. CMMS Development - Enhancement and implementation of Computerised Maintenance Management Systems such as SAP, Ellipse and JD Edwards. To find out how SUPL can assist your organisation, contact our Brisbane Office on 07 3244 7786, our Perth Office on 08 9429 6250, email [contact@supl.com.au](mailto:contact@supl.com.au) or visit our website [www.supl.com.au](http://www.supl.com.au)

Contact: Ian Thompson [ian.thompson@supl.com.au](mailto:ian.thompson@supl.com.au)

## ICOMS11 Exhibitors

### Asset Management Council1

The Asset Management Council Ltd is a non profit organisation committed to the promotion and education of optimal asset management practices in industrial, commercial, academic and government organisations. Our mission is to create a broad awareness of the value of asset management, nurture a common understanding of asset management, and provide a portal to asset management knowledge and resources. With a vision of 'enabling benefits for all from effective use of assets', the Asset Management Council provides Certification, Training, Conferences, a Body of Knowledge and the Global Forum of Maintenance and Asset Management to its members and the ever-increasing global asset management community.

Contact: Sally Nugent [info@amcouncil.com.au](mailto:info@amcouncil.com.au)



international bodies. Bureau Veritas serves 370,000 customers throughout the world. It is present in 140 countries with more than 1000 offices and laboratories, Bureau Veritas revenue is the equivalent of 5 billion Australian dollars. Bureau Veritas employs more than 48,000 staff.

Contact: Kiron Soares [kiron.suares@au.bureauveritas.com](mailto:kiron.suares@au.bureauveritas.com)

### Bureau Veritas Australia

Bureau Veritas is one of Australia's foremost suppliers of reliability management services to the mining and materials handling industries. We provide a suite of core decision support technologies, such as condition monitoring, non-destructive testing, structural integrity, metallurgical investigation services, and root cause analysis. Coupled to these services are three core reliability services: data management and reporting, reliability engineering services, and embedded site representation. The reliability services are the enablers for Bureau Veritas to assist its customers achieve optimised maintenance actions. Bureau Veritas Australia is part of the Bureau Veritas Group, an international group of companies with a core business of conformity assessment, applied in the areas of quality, health, safety, environment and social responsibility. In addition to Asset Integrity and Reliability Services, Bureau Veritas are also experts in Minerals Services, Health Safety and Environmental Services, Management System Certification and Food and Laboratory Testing. Bureau Veritas is recognised and accredited by the largest national and



### International Council for Machinery Lubrication

ICML is dedicated to the betterment and development of the machinery lubrication industry. It helps lubrication practitioners succeed in their professional careers through its certification program. ICML offers multilevel skill-based certification testing in the areas of machinery lubrication and oil analysis. All ICML testing is application-oriented and designed to test skills needed to properly perform daily tasks of machinery lubrication and lube oil analysis, as it is applied to machinery condition monitoring and maintenance. ICML has certified over 6,000 professionals to date, in 74 different countries, with exams in 8 different languages so far (English, Spanish, Portuguese, French, Italian, Korean, Japanese and Chinese), with languages being added on a need basis. ICML advocates the needs of practitioners for additional lubrication-related standards and plays an important role in supporting the development of such standards by working in conjunction with the American National Standards Institute (ANSI) and the International Organization for Standardization (ISO) in lubrication related working groups. ICML has directly contributed to and had its certification program inspire the first ever international standard on qualification and assessment of field lubricant analysis personnel. Through its awards programs (Augustus H. Gill and the John R. Battle Awards), ICML recognizes excellence in use of oil analysis and machinery lubrication for plant maintenance and machine condition monitoring and raises the bar, by recognizing role models for benchmarking and setting performance standards by the oil analysis and lubrication community. The awards are open to end user companies worldwide, are free of charge to applicants and submissions have to come from plant personnel.

Contact: Suzy Jamieson [suzyj@lubecouncil.org](mailto:suzyj@lubecouncil.org)

**K2 Technology**

K2 Technology is an Engineering Consultancy which has been operating for more than 10 years and specialises in Asset Management Services, Engineering, and Technical Support for industry. K2 provides experienced, professional staff and integrated multi-discipline teams capable of delivering engineering and technical solutions to our clients at all phases of asset life from concept through to abandonment. We have capabilities to assist our clients in all areas of Asset Management and Support Services including development, implementation and life-cycle management of all Operations and Maintenance processes. Between our Perth and Brisbane offices K2 has a large team of technical personnel covering, engineering, reliability, maintenance, supply chain, operations, integrity management and all supporting areas. Included within our technical personnel is our Advanced Database Systems group which is made up of 5 personnel who specialise in the development and implementation of bespoke database systems for our clients. This group is also responsible for the development, management and implementation of our proprietary ADAM system which is a web based system we use to build, review and analyse maintenance system data. All K2 services are structured, resourced and managed to ensure we deliver 'fit for purpose' on time, on cost solutions in accordance with our client's requirements.



Contact: Amanda Barwell [amanda.barwell@k2techno.com.au](mailto:amanda.barwell@k2techno.com.au)

**National Concrete Solutions Australia**

National Concrete Solutions (NCS) is a specialist concrete remediation company providing quality solutions for the commercial, industrial, civil and infrastructure sectors. NCS has offices in Queensland, New South Wales and Victoria and is capable of servicing interstate and regional locations where opportunities exist to provide unique solutions, be that on a project-by-project basis or a more permanent arrangement. The capabilities of NCS include solutions for concrete repairs, concrete waterproofing, structural strengthening and concrete durability enhancement. In addition, NCS specialise in crack injection and coatings and are capable of performing surface repairs including coatings and repairs caused by corrosion. NCS also specialise in the installation of waterstop applications, Geo-Synthetic Clay Liners (GCL) and roll on or liquid applied membrane systems. NCS are 'Code Compliant' with the Department of Employment and Workplace Relations' National Code of Practice for the Construction Industry. Our personnel have a broad range of training, qualifications and experience. The training of personnel is ongoing and continues to satisfy the ever changing demands of the industry. NCS operates a comprehensive and responsive Occupational Health and Safety policy, an Environmental policy and staff maintain numerous industry-required licences, certificates and accreditations.



Contact: Kelly Reaburn [kellyr@xypex.com.au](mailto:kellyr@xypex.com.au)

**Parsons Brinckerhoff**

PB is one of the world's leading planning, environment and infrastructure firms. Our comprehensive services include strategic consulting, environmental studies, design, construction management, and project and program management. Our work spans transport, energy, mining, industry, water, urban development and defence projects. Worldwide, PB's 14,000 employees work with clients and communities in the Australia-Pacific region, the Americas, Europe, Africa and the Middle East. In Australia and New Zealand, our 2000-strong team offers technical expertise and local knowledge, supported by PB's international resources. Sustainability is a focus in everything we do at PB, for clients, communities and the environment. We seek the most sustainable solutions for every project, and are helping clients to develop new responses to global problems such as climate change. PB is also an innovator in project delivery. We now have a decade's experience in delivery methods such as alliances, public-private partnerships and design-build-finance contracts, delivering better results for everyone involved. We are proud to be a trusted adviser to private and public organisations of all sizes, often over many years. Most of our work comes from repeat contracts, and our clients consistently rate us 'best practice' for technical delivery and client service. As of November 2009, PB is a wholly owned subsidiary of Balfour Beatty plc, based in London. Balfour Beatty is a world class engineering, construction, services and investment business with a resource pool of 55,000 employees worldwide.



Contact: Catherine Pooley [cpooley@pb.com.au](mailto:cpooley@pb.com.au)

**OMCS International**

The core business of OMCS International is consulting, training and implementation of reliability improvement methods which, are based on RCM principles but build on what you already have rather than start from scratch. The core of our business is known as Planned Maintenance Optimisation (PMO2000®). Over the past fifteen years OMCS International and its licensees have guided implementation of reliability assurance using PMO2000® on over 200 client sites in many companies, industries and countries. Our training programs have been delivered to thousands of operations and technical people. We currently have a network of over a dozen licensee companies all over the world to which we license the right to distribute, implement and train in our methods. If you would like to know more please visit our stand at the ICOMS conference.



Contact: Rob van Dullemen [rob@omcsinternational.com](mailto:rob@omcsinternational.com)

**Relegen Pty Ltd**

Relegen is a pioneer and leader in the development and delivery of innovative enterprise asset management [EAM] systems. Building on 10+ years' experience as a major solution provider to the Australian Defence Force, Relegen's deep expertise helps organisations improve the performance of all their mission-critical assets to drive better business results. Today, Relegen serves a global customer base spanning all industry sectors ranging from blue-chip multinationals and SME's to local and federal government agencies. Relegen has developed the next-generation baseLINE software





and the intelligent multi-layer assetDNA tagging system - giving companies the most advanced, flexible, and cost-effective EAM solution on the market today. Combined, they deliver an unmatched ability to assign globally unique identifiers to any type of asset and lock this with all the available data about them - lifecycles, workflows, maintenance, environment, financial, people and more - to create the ultimate single source of truth. Relegen's state-of-the-art technology is designed for deployment as a complete end-to-end EAM solution. It is also easily integrated with legacy or existing enterprise applications to further extend their return on investment. Download a free trial at [www.baselineassetmanagement.com](http://www.baselineassetmanagement.com) for a baseLINE experience today.

Contact: *Elisa Davies* [elisa.davies@relegen.com](mailto:elisa.davies@relegen.com)

### SAP Australia

As market leader in enterprise application software, SAP (NYSE: SAP) helps companies of all sizes and industries run better. Founded in 1972, SAP (which stands for "Systems, Applications, and Products in Data Processing") has a rich history of innovation and growth as a true industry leader. Today, SAP has sales and development locations in more than 50 countries worldwide. SAP applications and services enable more than 109,000 customers worldwide to operate profitably, adapt continuously, and grow sustainably. From back office to boardroom, warehouse to storefront, desktop to mobile device, SAP empowers people and organizations to work together more efficiently and use business insight more effectively to stay ahead of the competition. We do this by extending the availability of software across on-premise installations, on-demand deployments and mobile devices. We believe that the power of our people, products, and partners unleashes growth and creates significant new value for our customers, SAP, and ultimately, entire industries and the economy at large. Our mission is to help companies of all sizes and industries to run better. Our vision is to help the world run better.



### The Asset Partnership

The Asset Partnership delivers value driven outcomes for the management of physical assets. We focus on three key outcomes: Throughput improvement from existing assets by optimising equipment reliability, availability and operational use of the assets Reduction in the cost and risk (safety, environmental, operational) of asset ownership Optimisation of capital outlay on assets The Asset Partnership enjoys an enviable reputation for delivering 'bottom line' impact solutions through our partnership-style working relationship. Our people have hands-on experience in a wide range of industries, particularly those that depend on the efficient and effective deployment of physical assets.



Contact: *Stephen Young*  
[stephen.young@assetpartnership.com](mailto:stephen.young@assetpartnership.com)

### The Online Workshop Pty Ltd



The Online Workshop Pty Ltd is a new company that has been specifically created to be the vehicle for the development of a new generation Enterprise Asset Management software product called SmartAsset. While this company and product are new, they respectively have a bloodline that breeds success. KDR Creative Software Pty Ltd is the original author and owner of a highly successful computerized maintenance management software application called Facilities Maintenance Management System (FMMS). SmartAsset is a new generation, comprehensive enterprise asset management application that enables asset owners to better manage and maintain their plant, facilities and equipment. Utilising .NET SmartAsset not only provides rich functionality, it extends the user interface to allow deployment options including both the traditional graphical user interface (GUI) and browser style interfaces that allows internet/intranet/wireless deployment including an application service provider option for those customers wishing to minimise their IT investment. SmartAsset provides four deployment options. Office Deployment Capability (ODC) offers an extension to MS Office products, whereby Asset Management functionality is embedded within them. This deployment option leverages existing user familiarity and deploys functionality from within Excel, Outlook, Word and Projects offering significant advantages and savings in relation to user acceptance, training and deployment. SmartClient Deployment Capability (SDC), provides the rich GUI interface we are used to seeing in previous products Browser Deployment Capability (BDC) offers access from any browser connected to the internet Mobile Deployment Capability (MDC) The underlying asset data can be sourced from a self-contained SmartAsset SQL Server database or from the asset management modules of other products, including ERPs.

Contact: *Shane Burquest* [sburquest@theonlineworkshop.com](mailto:sburquest@theonlineworkshop.com)

### Transfield Services



Transfield Services is a multinational company that is dedicated to delivering essential services to key industries in the resources and industrial, property and infrastructure sectors. It is a world class service provider of asset management, operations, maintenance and project management services. With the growing trend of public and private sectors outsourcing their non-core activities, the demand for essential services from a respected and well-known provider has rocketed. To this end, Transfield Services has grown to meet the demand for quality service providing and today employs more than 29,000 employees worldwide. It currently conducts regional operations in Australia, Canada, Chile, Dubai, India, Malaysia, New Zealand, Qatar and the United States. Although it has a global presence, Transfield Services' is primarily focused on providing tailored solutions to each of its clients. In outsourcing non-essential activities to Transfield Services, clients are able to devote more focus to meeting higher productivity, efficiency and financial targets. Transfield Services can attribute its success to the positive relationships it has with its clients. These relationships are based on mutual respect, trust, integrity and continued communication. In Australia, Transfield Services is publicly listed and in the last financial year it had a global annual revenue of A\$4.1 billion.

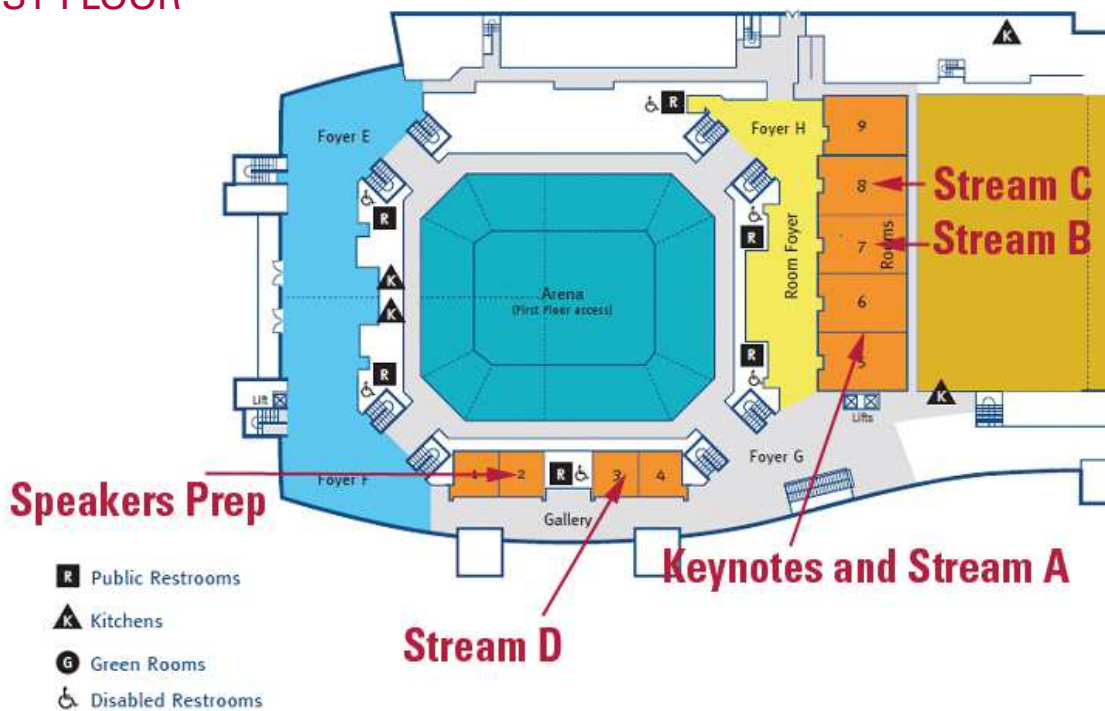
Contact: *Paul Agar* [agarp@transfieldservices.com](mailto:agarp@transfieldservices.com)

GROUND FLOOR

Exhibition and Catering



FIRST FLOOR



# Competition

## How Many Capabilities Does a Pencil Have?

Pencilled by Mr Peter Kohler



**A capability is the inherent function of a physical asset or organisation. To enable a consistent approach, Capabilities are usually described as Verb Noun set. In that way also, Capabilities can be readily associated with the required Output (the second Key Principle of asset management) and the Level of Assurance (the third Key Principle).**

### **So how many capabilities or functions does the pencil photographed have?**

As a start, consider that the pencil, its functions/output and Level of Assurance can be described in the following way, namely:

- As kindling for fire – thus the function is “supply heat” with an associated performance of “150 BTUs” with a confidence of 95% probability that the output will be delivered, when required.
- As an implement to write – thus the function is “provide a legible mark” with an associated performance of “0.2mm in width and 4km length” with a confidence of 95% probability that the output will be delivered, when required.

Other functions for our Pencil might also include:

- As an implement for use by artists – thus the function is “create coloured mark” with the performance of ...
- As an instrument to gauge the depth of a hole – thus the function is “indicate depth” – with the performance of ...
- As an instrument to push a switch – thus the function is to “provide a force” – with the performance of ...
- As an instrument to eat with – thus the function is to “relocate food from plate to mouth” – with the performance of ...
- As a mechanism to re-gain the attention of a sleepy course member – thus the function is “rapcourse participant (Not a recommended function!)” – with the performance of ...
- As a mechanism to kill a fly – thus the function is “hit fly” – with the performance of ...
- As an instrument to reduce the friction in the internal mechanisms of locks – thus the function is “provide lubrication” – with the performance of ...
- As an instrument to stop the leaks in a container of water – thus the function is “stop leaks” – with the performance of ...

**The winner of the competition will be announced at this year’s conference.**

# 2011

# Asset Management Awards



THE ASSET MANAGEMENT AWARDS RECOGNISE THE JOURNEY OF CONTINUOUS IMPROVEMENT IN THE APPLICATION OF ASSET MANAGEMENT IN SMALL TO LARGE SCALE ORGANISATIONS OPERATING AT LOCAL, NATIONAL AND INTERNATIONAL LEVELS. IN 2011 WE HAVE FOUR ORGANISATIONS APPLYING TO THE ASSET MANAGEMENT AWARDS:



## BHP Billiton Iron Ore

### Division Unit - ADP Asset Management

BHP Billiton Iron Ore is the world's third largest seaborne iron ore producer with operations in Australia and Brazil.

The company's principal iron ore operations are based in the Pilbara region of north-west Australia and comprise of a complex integrated system of seven inland mines, more than 1,000km of rail, stock yards and two separate port facilities located in Port Hedland.

BHP Billiton Iron Ore is a 50:50 joint venture partner with Vale at the Samarco operations in Brazil. Samarco's operations include open pit mines, a concentration plant, three pellet plants, port facilities and a 396 kilometre concentrate slurry pipeline between the mine and the pellet plants.

### About 2011 Asset Management Awards project

The BHP Billiton Iron Ore rail line is now over 40 years old. During this period, it has been extended and upgraded many times as we've grown our business. However, the management of the railroad has changed little over the 40 years. During Rapid Growth Project 5 (RGP5) sections of the mainline track were duplicated, providing an opportunity to review the existing asset management practice and organisational structure to assess how our railroad should be managed into the future to ensure optimum performance.





## Electricity Networks Corporation, T/A Western Power

### Division Unit - Transmission Division

Western Power owns, operates and maintains the electricity grid known as the South West Interconnected System (SWIS) in Western Australia. It is responsible for connecting over 1.5 million people with safe, reliable and efficient electricity, and is constantly planning to ensure the network meets the energy needs of our customers today and into the future in sustainable ways.

### About 2011 Asset Management Awards project

Western Power's Transmission Division 'Combined Maintenance Project' has applied smart planning lean six-sigma methodologies to improve customer service and achieve increased efficiencies and commerciality in a newly regulated environment. The Combined Maintenance approach optimises resources through grouping assets based on network location, with maintenance schedules driven by the availability and accessibility of network circuits leveraged by planned outage windows.



## RailCorp

### Division Unit - Asset Planning and Performance (AP&P) Division

RailCorp is Australia's most experienced rail infrastructure business. Its proven asset management systems are the product of more than 150 years of experience building and running Australia's most complex metropolitan railway. Today, those systems are recognised by industry as leading-edge; they are accurate, comprehensive and highly effective.

### About 2011 Asset Management Awards project

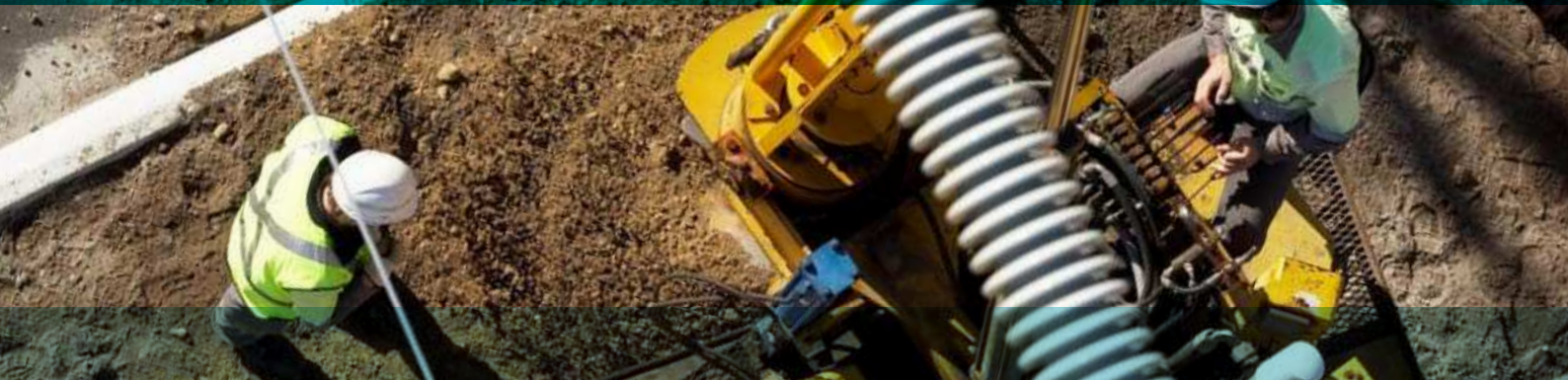
"Planning and delivery of capital and maintenance projects has been a thorn in RailCorps side for many years. We are always looking for better ways to utilise treasury funding and reduce delivery risk" said GM, Asset Planning and Performance, Dave Spiteri.

Examples of successfully identifying and deploying strategic projects that have either improved an AM process or Project Performance include:

- Improvement in the communication of the Master Schedule using Six Sigma;
- Replacement of a rail bridge over the Olympic Drive at Lidcombe - in just 60 hours;
- Use of the TRAIL application, Asset Performance and Reliability Unit of AP&P, to simulate parameter alterations and provide an insight into the potential impacts of changes in existing assets and new technologies, both in terms of individual aspects and overall network performance.

# 2011

# Asset Management Awards



## Transfield Services jointly with the NZ Transport Agency

### Division Unit - Roads

Transfield Services is a leading global provider of engineering, shutdowns, operations and maintenance, asset management, project and program management in the Resources and Industrial, Infrastructure, Property and Facilities Management sectors in Australia, New Zealand, North America and the Middle East, Transfield Services Limited is an ASX 100 listed company with 28,000 employees.

The New Zealand Transport Agency is a government entity whose primary purpose is to develop and maintain an affordable, integrated, safe, responsive, and sustainable land transport system. The NZTA Board is responsible for allocating funds from the National Land Transport Fund to land transport activities; including planning and delivering national transport networks, local road and state highway improvement, maintenance and renewal, improving the effectiveness of passenger transport and freight networks, and improving road safety.

### About 2011 Asset Management Awards project

The New Zealand Transport Agency and Transfield Services have worked collaboratively for 12 years to improve the condition and performance of the 346 kilometre road network in the Waikato Region of New Zealand improving road condition and highway safety while providing specified levels of service within a lump-sum contract.

For information on the 2012 Asset Management Awards

#### Contact

Kate Robertson, Awards and Communications Coordinator at [kate.robertson@amcouncil.com.au](mailto:kate.robertson@amcouncil.com.au) or (03) 9819 2515.



# Society Chapter News



*(l-r) Glyn Davis (IPWEA Chapter Chair), Andrew Morgan (Perth Chapter Chair), Melinda Hodkiewicz (Perth Chapter Committee).*

The Asset Management Council provides local support for members and industry through its 12 Chapters located across Australia and 1 Chapter representing overseas.

Within each Chapter, technical events and seminars regularly occur in order to bring together local asset management practitioners for education purposes and networking opportunities.

Perth Chapter holds quarterly seminars which are well attended by Western Australian professionals. In October 2010, Perth hosted 'The Future of Asset Management Information Systems Seminar' with over 40 professionals attending the event. More recently, Andrew Morgan, Perth Chapter Chair together with Melinda Hodkiewicz presented to IPWEA on the international project aiming to develop an international ISO Standards for Asset Management, and the trends and challenges in asset management facing the mining industry.

Brisbane Chapter held its first technical session in April with over 20 professionals attending to hear Professor Joe Mathew, CEO for CIEAM discuss new paradigms in infrastructure asset management and provide an overview of the research program being undertaken by CIEAM.

Sydney Chapter hosts monthly technical meetings for its local members. The most recent presentation discussed the latest developments on an ISO standard for asset management, presented by John Hardwick, National Chairman and Peter Kohler, Technical Development Team Chairman for the Asset Management Council.

Melbourne Chapter also hosts monthly technical meetings for its local members. The latest presentation was titled 'Spares Parts Management Best Practice', led by Phillip Slater, leading authority on materials and spares parts management.

In February, Sydney Chapter held its Annual General Meeting (AGM) and announced Gary Seabury, National Business Development Manager Rail for John Holland as the new Sydney Chapter Chair. Gary Winsor and David Spiteri were elected to the Sydney Committee; whilst Danny Azavedo and Robert Sloan remain for a further 12 months in their positions as Treasurer and Secretary, respectively.

In March, Melbourne Chapter Chair held its AGM and announced Greg Williams as the new Melbourne Chapter Chair.



ASSET MANAGEMENT COUNCIL

# 2010 Financial Statements

The Board and Audit Committee declare that:

- the financial statements and notes, as set out here :
  - comply with Accounting Standards 2001; and
  - give a true and fair view of the company's financial position as at 31st December, 2010 and of its performance for the year ended on that date.
- In the director's opinion there are reasonable grounds to believe that the company will be able to pay its debts as and when they become due and payable.

Please note that the 2009 figures are for Maintenance Engineering Society of Australia Incorporated (MESA). MESA was wound up at the end of 2010 and all its income and liabilities were transferred to the new not for-profit Asset Management Council Ltd.

**Andrew Sarah**  
Chair, Audit Committee

## BALANCE SHEET FOR THE YEAR ENDED 31 DECEMBER 2010

	Jan - Dec 2010	Jan - Dec 2009
<b>ASSETS</b>		
<b>Current Assets</b>		
<b>Current/Savings</b>		
Bendigo account	0.00	25,176.85
Bendigo AMC	21,227.95	0.00
BW Account	0.00	1,605.21
CBA Cheque Account	0.00	1,406.04
<b>Investments</b>		
Business Cash Manager	0.00	67,856.89
<b>Total Investments</b>	<b>0.00</b>	<b>67,856.89</b>
Petty Cash	121.85	201.57
<b>Total Current/Savings</b>	<b>21,349.80</b>	<b>96,246.56</b>
<b>Accounts Receivable</b>		
Accounts Receivable	79,962.82	60,871.00
<b>Total Accounts Receivable</b>	<b>79,962.82</b>	<b>60,871.00</b>
<b>Other Current Assets</b>		
Pre Paid Expense Account	18,612.20	0.00
Undeposited Funds	0.00	2,745.00
<b>Total Other Current Assets</b>	<b>18,612.20</b>	<b>2,745.00</b>
<b>Total Current Assets</b>	<b>119,924.82</b>	<b>159,862.56</b>
<b>Fixed Assets</b>		
<b>Capital Items</b>		
<b>Computers &amp; Equipment</b>		
Depreciation Equipment	-9,233.26	-9,497.63
Computers & Equipment - Other	14,536.27	10,235.00
<b>Total Computers &amp; Equipment</b>	<b>5,303.01</b>	<b>737.37</b>
<b>Furniture &amp; Fittings</b>		
Depreciation Fittings	-1,778.04	-1,044.65
Furniture & Fittings - Other	4,308.50	2,190.91
<b>Total Furniture &amp; Fittings</b>	<b>2,530.46</b>	<b>1,146.26</b>
<b>Capital Items - Other</b>	<b>0.00</b>	<b>3,168.50</b>
<b>Total Capital Items</b>	<b>7,833.47</b>	<b>5,052.13</b>
<b>Total Fixed Assets</b>	<b>7,833.47</b>	<b>5,052.13</b>
<b>Other Assets</b>		
<b>3001 Certification Scheme</b>		
Depreciation of Certification	-34,000.00	0.00
3001 Certification Scheme - Other	170,000.00	170,000.00
<b>Total 3001 Certification Scheme</b>	<b>136,000.00</b>	<b>170,000.00</b>
<b>Chapter Funds</b>	<b>67,899.29</b>	<b>69,953.71</b>
<b>Training Courses</b>		
Depreciation Courses	-7,576.32	-6,902.40
Training Courses - Other	12,000.00	12,000.00
<b>Total Training Courses</b>	<b>4,423.68</b>	<b>5,097.60</b>
<b>Total Other Assets</b>	<b>208,322.97</b>	<b>245,051.31</b>
<b>TOTAL ASSETS</b>	<b>336,081.26</b>	<b>409,966.00</b>

	Jan - Dec 2010	Jan - Dec 2009
<b>LIABILITIES</b>		
<b>Current Liabilities</b>		
<b>Accounts Payable</b>		
Accounts Payable	27,419.31	12,493.68
<b>Total Accounts Payable</b>	<b>27,419.31</b>	<b>12,493.68</b>
<b>Credit Cards</b>		
Mastercard	0.00	1,145.82
<b>Total Credit Cards</b>	<b>0.00</b>	<b>1,145.82</b>
<b>Other Current Liabilities</b>		
Due to Chapters	0.00	750.00
<b>Payroll Liabilities</b>		
Annual and Long Leave	5,380.00	0.00
Payroll Liabilities - Other	6,229.66	8,812.92
<b>Total Payroll Liabilities</b>	<b>11,609.66</b>	<b>8,812.92</b>
Pre Paid Income Account	4,950.00	4,950.00
Tax Payable	-9,553.45	-891.43
Unclaimed Creditors	13,303.00	5,717.31
<b>Total Other Current Liabilities</b>	<b>20,309.21</b>	<b>19,338.80</b>
<b>Total Current Liabilities</b>	<b>47,728.52</b>	<b>32,978.30</b>
<b>Long Term Liabilities</b>		
Certification Discounts	207,896.00	207,896.00
<b>Total Long Term Liabilities</b>	<b>207,896.00</b>	<b>207,896.00</b>
<b>TOTAL LIABILITIES</b>	<b>255,624.52</b>	<b>240,874.30</b>
<b>NET ASSETS</b>	<b>80,456.74</b>	<b>169,091.70</b>
<b>EQUITY</b>		
Opening Bal Equity	156,127.66	156,127.66
Retained Earnings	12,964.04	-22,104.48
Net Income	-88,634.96	35,068.52
<b>TOTAL EQUITY</b>	<b>80,456.74</b>	<b>169,091.70</b>



**PROFIT AND LOSS STATEMENT  
FOR THE YEAR ENDED 31 DECEMBER 2010**

	Jan - Dec 2010	Jan - Dec 2009		Jan - Dec 2010	Jan - Dec 2009
<b>ORDINARY INCOME/EXPENSE</b>					
<b>Income</b>					
Accommodation Deposits	310.00	0.00			
Certification Fees	3,863.61	3,163.61			
Donation Received	11,300.00	0.00			
Fees	586,045.99	497,131.02			
General	178.85	457.07			
Reimbursed Expenses	7,136.06	10,216.45			
Sponsorship & Exhibition	43,009.10	42,809.08			
Stock Sales	474.54	1,500.53			
<b>TOTAL INCOME</b>	<b>652,318.15</b>	<b>555,277.76</b>			
<b>GROSS PROFIT</b>	<b>652,318.15</b>	<b>555,277.76</b>			
<b>Expense</b>					
Advertising	1,153.91	2,706.00			
<b>Audiovisual</b>					
Video Production	0.00	20,562.27			
Audiovisual - Other	21,351.69	29,663.63			
<b>Total Audiovisual</b>	<b>21,351.69</b>	<b>50,225.90</b>			
Award Supply	68.18	348.28			
Bad Debts Expense	395.10	1,705.00			
<b>Bank Service Charges</b>					
Cheque Account Fees	7.90	0.00			
Merchant Fees	4,055.41	2,918.85			
Paymate Fees	3.80	0.00			
Bank Service Charges - Other	1,506.01	973.63			
<b>Total Bank Service Charges</b>	<b>5,573.12</b>	<b>3,892.48</b>			
Books and Publications	0.00	1,667.30			
Catering	54,580.71	53,213.47			
Delegate Accessories	4,695.00	685.42			
Depreciation Expense	37,898.00	3,549.18			
Dues and Subscriptions	3,900.00	3,700.00			
Equipment Rental	7,738.59	7,789.59			
Exam Marking	1,733.66	1,040.14			
Exhibition Hire	2,596.82	327.27			
<b>Insurance</b>					
Business Insurance	1,475.36	2,890.91			
Sickness and accident Insurance	-193.23	0.00			
Insurance - Other	1,458.13	1,480.18			
<b>Total Insurance</b>	<b>2,740.26</b>	<b>4,371.09</b>			
Interest Expense	64.44	76.69			
Internet	3,881.96	1,242.82			
Judges Fees	9,395.45	800.00			
Lecturer Fees	25,299.96	11,999.28			
Meeting Expenses	8,455.42	15,224.90			
Miscellaneous	-1,941.01	11,689.05			
Office Supplies	903.61	660.60			
Payroll Expenses	73,043.85	97,963.94			
Postage and Delivery	16,279.36	18,060.36			
Printing and Reproduction	44,043.86	37,918.02			
Prizes Expenses	1,525.45	1,000.00			
<b>Professional Fees</b>					
Administrator	23,576.80	0.00			
Audit	5,650.00	2,920.00			
Contract Labour	32,674.38	811.39			
IT Support	52,488.70	41,489.92			
Legal Fees	1,907.60	6,835.80			
Management Fees	161,693.74	-17,583.65			
Marketing	0.00	1,034.91			
Professional Fees - Other	4,914.43	1,500.00			
<b>Total Professional Fees</b>	<b>282,905.65</b>	<b>37,008.37</b>			
Recruiting	310.00	0.00			
Refunds	0.00	300.00			
Rent	16,464.20	8,208.00			
<b>Repairs</b>					
Cleaning	213.64	264.45			
Repairs - Other	2,687.70	446.51			
<b>Total Repairs</b>	<b>2,901.34</b>	<b>710.96</b>			
Software Expense	0.00	45.41			
Speaker Expenses	4,189.77	5,365.10			
Stationery	4,033.30	7,018.93			
Subscriptions	2,715.14	0.00			
Telephone	12,408.18	15,108.99			
Training	0.00	500.00			
<b>Travel &amp; Ent</b>					
Accommodation Expense	32,748.25	10,144.21			
Car Expenses	13.64	556.89			
Entertainment	0.00	2,071.32			
Meals	6,518.54	2,484.78			
Travel	53,709.01	36,922.63			
Travel & Ent - Other	2,502.98	14,420.28			
<b>Total Travel &amp; Ent</b>	<b>95,492.42</b>	<b>66,600.11</b>			
<b>Utilities</b>					
Gas and Electric	872.07	474.61			
Water	242.39	313.51			
Utilities - Other	340.90	212.86			
<b>Total Utilities</b>	<b>1,455.36</b>	<b>1,000.98</b>			
Venue	26,321.64	34,635.91			
<b>TOTAL EXPENSE</b>	<b>774,574.39</b>	<b>508,359.54</b>			
<b>Net Ordinary Income</b>	<b>-122,256.24</b>	<b>46,918.22</b>			
<b>Other Income/Expense</b>					
<b>Other Income</b>					
Chapter Income	14,207.52	0.00			
Conference Income in Advance	0.00	0.00			
Interest Income	2,208.02	2,660.41			
Management Fees MESA	33,351.19	0.00			
<b>Total Other Income</b>	<b>49,766.73</b>	<b>2,660.41</b>			
<b>Other Expense</b>					
Conference Expenses in Advance	-17,205.74	14,510.11			
Management Fees Paid to MESA	33,351.19	0.00			
<b>Total Other Expense</b>	<b>16,145.45</b>	<b>14,510.11</b>			
<b>Net Other Income</b>	<b>33,621.28</b>	<b>-11,849.70</b>			
<b>NET INCOME</b>	<b>-88,634.96</b>	<b>35,068.52</b>			

# Demand Management

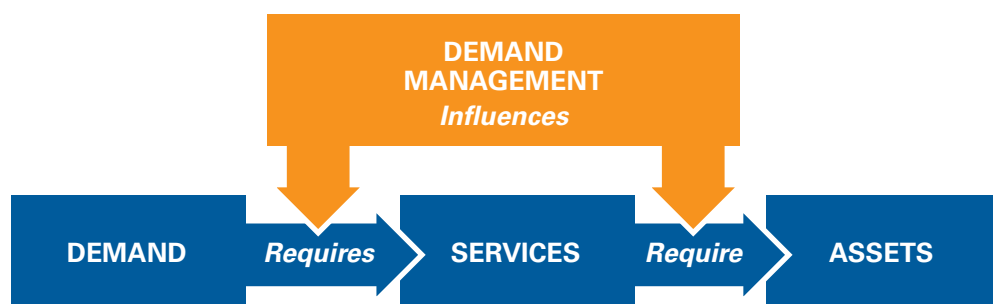
Arguably, the most critical aspect of asset management is the establishment of agreements with our stakeholders necessary to satisfy needs/demands. These agreements are for either the supply of outcomes or the acquisition of resources necessary to achieve supply. The demand management function is generally a key plank in the management of:

- critical utilities assets such as energy, water, and transport where demands peak and must be damped and
- social agency assets such as health, education, law, etc where demand for services are not bounded by financial market forces.

For example, if a service is sold at far less than the cost to produce (sometimes no cost at all) in an environment of unconstrained rising expectations, demand will readily outstrip supply. Alternatively, if the cost of sustaining a critical service is inefficient due to the cost of partially used infrastructure designed for peak loads then the organisational entity becomes less globally competitive.

A proposed model of how demand management might work is shown below. The model indicates the role of the “demand management” function in influencing the balancing of assessed demand with provided services matched to optimal asset configurations. Demand management does not need to be a demand reducing function. Encouraging an increasing demand for certain services or products that are financially profitable is the other side of the coin. The role of market forces in balancing our demand/asset configuration will be discussed later under key roles in asset management.

An example of funding an unprofitable area versus a profitable one is demonstrated in the large state transport portfolios. Here rail is funded by the government to reduce peak loads on roads where current operations show a healthy profit due to taxing options. This is possible because road vehicles have a position in the community as the “transport mode of choice.” The relationship between demand, services (output) and assets is shown and described below.



The first step in demand management is identifying the potential demand from our stakeholders and establishing effective working relationships with those stakeholders. These relationships, often built on trust, are essential to the future negotiation of agreements for what services (or asset performance capabilities) are to be delivered and what consideration received. For example, what level of service reliability is acceptable (to users and often Regulator stakeholders) at what cost (users and often a different Regulator and a Treasury stakeholders).

It could be argued that managing demand requires clarity about the type and quantification of needs that are being managed. A comprehensive list of stakeholders and their needs is likely to be essential to this task. This process is similar to that of requirements analysis and traceability required of good systems engineering practice. These requirements, defined in a specification, are usually mapped against the method of measuring success often referred to as a Requirements Allocation and Traceability Matrix.

An example of successful demand management in the public sector provided in the NSW TAM manual is that of Hunter Water who achieved a 30% reduction in demand and hence significant life extension of existing distribution assets and reduced water collection and storage assets. The approach applied a multi-pronged effort involving education, communication and risk based approaches to asset maintenance and enhancement.

Other published efforts involved the Roads and Traffic Authority of New South Wales being commended for programs that encourage people on the central NSW coast to telecommute and reduce traffic in the congested Northern Sydney access corridor.

### Activity 2.1 Organisational Fit

Refer to the PDCA and the example business model – comment on your organisation with respect to the following questions:

Do you have an asset management policy and strategy?

---

Where does asset management fit structurally?

---

What is its profile and leadership?

---

Is there a dedicated manager?

---

How are business and performance goals linked?

---

How is AM communicated across the organisation?

---

Do you have the necessary capabilities to do quality asset management?

---

**Next Issue:** Asset Delivery Model

# Some Answers for

# Competition – How Many Capabilities Does a Pencil Have?

(see page 33 for details of the competition)



**Some of the entries for the Competition on “How Many Capabilities Does a Pencil Have?” are given below.**

- Electrical Conduit, Low resistance connection, initial length is 3-5mm can be extended to 150mm, ‘perfect for shorting the CMOS jumper’
- Use to make carbon paper to copy (small) sections of script
- Stress Reliever (by chewing end, throwing it)
- As an instrument to push a broken cork into a wine bottle and thus provide access to the contents – thus the function is to be a “wine liberator.”

As the answers demonstrate, while most of us view a pencil as a writing implement, it has many more potential capabilities.

If you would like to view the detailed list of answers, visit the **AMBoK** section of the blog on the [amcouncil.com.au](http://amcouncil.com.au).

**The winner of the competition will be announced at this year’s conference.**

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Thank you for joining the Asset Management Council. Please complete all sections. Phone or email with any queries.

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Family Name Given Names (in full)

Date of Birth Engineers Australia Membership No

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Organisation

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City State

Country Postcode

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Mobile

E-mail

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- Reliability
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- Maintainability
- Performance
- Spares Planning
- Maintenance Planning and Scheduling
- Maintenance Plan development and implementation
- Maintenance Policy/Strategy development
- Logistics
- Shutdown planning and the maintenance interface
- Asset Management
- Other: \_\_\_\_\_

#### Issues

- Skills development
- Training
- Other: \_\_\_\_\_

#### Industries

- Facility Management
- Consulting
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- Defence
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- Mining and Industry
- Water and Utilities
- Infrastructure
- Other: \_\_\_\_\_



Return completed Membership Application with payment to:  
 Asset Management Council  
 PO Box 2249, Hawthorn VIC 3122 Australia

**CHAPTER AFFILIATION (Please tick one)**

- |                                    |                                   |                                    |                                    |                                 |
|------------------------------------|-----------------------------------|------------------------------------|------------------------------------|---------------------------------|
| <input type="checkbox"/> Newcastle | <input type="checkbox"/> Canberra | <input type="checkbox"/> Sydney    | <input type="checkbox"/> Illawarra | <input type="checkbox"/> Mackay |
| <input type="checkbox"/> Melbourne | <input type="checkbox"/> Adelaide | <input type="checkbox"/> Brisbane  | <input type="checkbox"/> Hobart    |                                 |
| <input type="checkbox"/> Darwin    | <input type="checkbox"/> Overseas | <input type="checkbox"/> Gippsland | <input type="checkbox"/> Perth     |                                 |

**MEMBERSHIP FEES Effective 1 July 2010 (Please tick one membership type only)**

**Individual Annual Fee (including GST)**

- Member** \$132.00  
 **Student** \$27.50

**Corporate Annual Fee (including GST)**

- Platinum** \$8,690.00       **Gold** \$3,300.00  
 **Silver** \$1,650.00       **Bronze** \$825.00

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 GST (10%) does not apply to overseas memberships.

**CORPORATE MEMBER NOMINEES**

**Platinum** – 30 nominees, **Gold** – 10 nominees, **Silver** – 10 nominees, **Bronze** – 5 nominees

Name	Email	Date of Birth (Mandatory)	AM Council Chapter
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Contact AM Council Secretariat to provide more corporate nominee details.

**PAYMENT**

**Method of Payment** (please tick one and enclose payment)

- Cash  
 Money Order or Cheque (drawn in AUD on an Australian bank payable to **Engineers Australia**)  
 International Money Order  
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**Credit Card Details** Please charge my card (tick one card type)

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Card no \_\_\_\_\_

Expiry \_\_\_\_\_ Amount \$ \_\_\_\_\_

Name on card \_\_\_\_\_

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Water Corporation

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**Paul Agar**

Group General Manager Asset Management & Implementation

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