ASSET MANAGEMENT

AMPEAK

PROMOTE EDUCATE ASSIST KNOWLEDGE

Asset Management Conference

Crown Convention Centre,
Perth, Australia,
2–5 June 2014

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Presented by

ASSET MANAGEMENT COUNCIL

Enabling benefits for all
from effective use of assets
Technical Society of Engineers Australia

Founding Member of

Global Forum On Maintenance & Asset Management

Technical Society of

ENGINEERS AUSTRALIA

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TRANSFIELD SERVICES

Program Overview

Monday 2 June

1.30pm	Registration and Exhibition Open Exhibition Hall
2.00pm	Practitioners Forum – *Certification and Certification for ISO Assessors* – Plenary Room/A
5.00pm	Welcome Cocktail Function *Sponsored by Institute of Quality Asset Management* Exhibition Hall

Tuesday 3 June

8.30am	Welcome and Opening Keynotes
10.15-10.45am	Morning Tea - Exhibition Hall
10.45am	Concurrent Streams Plenary Room/A, B & C - Astral Rooms
12.15-1.30pm	Lunch - Exhibition Hall *Sponsored by Asset Management College*
1.15pm	Coach Departure for YAMPs Session off site
1.30pm	Concurrent Streams Plenary Room/A, B & C - Astral Rooms
3.00-3.30pm	Afternoon Tea – Exhibition Hall *Sponsored by I&E Systems*
3.30pm-5.00pm	Concurrent Streams Plenary Room/A, B & C - Astral Rooms
5.00pm	YAMP Networking Evening Exhibition Hall

Wednesday 4 June

8.30am	Welcome and Keynotes – Plenary Room/A
10.00-10.30am	Morning Tea - Exhibition Hall *Sponsored by Teak Yew*
10.30am	Concurrent Streams Plenary Room/A, B & C - Astral Rooms
12.00-1.30pm	Lunch - Exhibition Hall
1.30pm	Concurrent Streams Plenary Room/A, B & C - Astral Rooms
3.00-3.30pm	Afternoon Tea served in the Exhibition Hall
3.30-5.00pm	Concurrent Streams Plenary Room/A, B & C - Astral Rooms
6.15pm	Annual Dinner and Awards Night, Fraser's, Kings Park

Thursday 5 June

9.00am	Concurrent Streams Plenary Room/A, B & C - Astral Rooms
10.00-10.30am	Morning Tea - Exhibition Hall
10.30am	Concurrent Streams Plenary Room/A, B & C - Astral Rooms
12.00-1.30pm	Lunch - Exhibition Hall
1.30pm	Concurrent Streams Plenary Room/A, B & C - Astral Rooms
2.30pm	Closing Keynotes in the Plenary Room
4.15-5.15pm	Farewell Drinks and Exhibition Close Exhibition Hall

Friday 6 June

8.30am- 4.30pm	Concurrent Workshops (Botanical Rooms) & Site Visits

KEYNOTE SPEAKERS

Talking to Boards

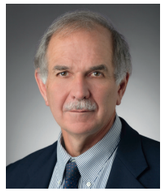
Danny Elia,
Investment Director,
IFM Investors.

Maintainers of the Future

Professor Melinda Hodkiewicz,
School of Mechanical and Chemical Engineering, University of Western Australia, WA

How IT/OT Integration and the Cyber-Physical World is Changing our Lives and the way we are Doing Business

Achim Krüger,
Vice President,
EAM Solutions, SAP, Germany



Changing Definitions of Asset Management

Thomas W. Smith MS,
Program Director in the Department of Engineering Professional Development, University of Wisconsin-Madison, USA.

Asset Management Effectiveness in the Mining and Resources Sector

Joe Sofra,
Chief Executive, Resources & Energy ANZ Transfield Services.

CONFERENCE PROGRAM
Monday 2 June

13:30	**Registration Opens**
14:00	**Practitioner Forum**
17:00	**Welcome Cocktail Function -** Sponsored by Institute of Quality Asset Management **and Exhibition Opening**

CONFERENCE CHAIR & TECHNICAL TEAM

Conference Chair

Greg Williams
Director, Risk and Capital Management,
PricewaterhouseCoopers

Technical Team

Terry Howard
Asset Management Council Lecturer

Glen Kerr
ILS Capability Manager, ASC Pty Ltd

Steve Berquist
Manager of Performance Technology, Fluor

John Sander
AM Council Chapter Chair, WA

Nikola Borovac
Senior Engineer, Electrical Design – Standards, Western Power

YOUNG ASSET MANAGEMENT PRACTITIONERS (YAMPS) SESSION (OFF-SITE)

The Asset Management Council is offering this event to address some pressing questions about Asset Management requirements, career possibilities and options, success factors and associated challenges to YAMPs.

The event will be featuring the Perth Zoo, a very uniquely positioned case study in Asset Management. A Professional in the recruitment business for Asset Management provide an overview of the demand and current Asset Management landscape, other experiences come from Public works. Of course the host, Blake Huntley, will share his long experience in Asset Management as an 'end to end' business process.

Providing an environment for creating and deepening awareness of what contemporary Asset Management intends to achieve, giving insight into specific experiences sharing and achievements together with Networking with presenters and other interested young engineer is the aim of the forum.

CONFERENCE PROGRAM
Tuesday 3 June

ASSET MANAGEMENT AMPEAK
PROMOTE EDUCATE ASSIST KNOWLEDGE

8:30	**Welcome** Greg Williams, *AMPEAK Conference Chair, Asset Management Council*• Ian Maxted, *Chief Development Officer, Transfield Services*		
9:00	**Talking to Boards** Danny Elia, *Investment Director, Industry Funds Management, VIC*		
9:30	**Asset Management Effectiveness in the Mining and Resources Sector** Joe Sofra, *Chief Executive, Resources & Energy ANZ Transfield Services.*		
10:15	**Morning Tea**		
Streams	**A: RAMS** Chair: Michael Killeen	**B: Business Management** Chair: Brett Billett	**C: Whole Life Planning and Costing** Chair: Joanna Sikorska
10:45	Integration of RCA and RCM Techniques to Develop Maintenance Strategies Chris Traianou, *Water Corporation WA (AMBoK ID: 1815)*	A Tool to Investigate the Status of Engineering Asset Management in Organizations Khaled El-Akruti, *University of Wollongong NSW (AMBoK ID: 1865)*	Asset Integrity Management – A Structured Approach Mr Martin Brown, *Frazer-Nash Consultancy Limited SA (AMBoK ID: 1822)*
11:15	Improving Points Reliability on Perth's Metropolitan Rail Network – A Case Study Rebecca Taylor, Simon Ayers, *Public Transport Authority of WA, WA (AMBoK ID: 1854)*	Case Study – Balancing Capital Efficiency with Optimising Operational Performance John Doran, *Go4Gr8 Asset Optimisation Services WA (AMBoK ID: 1840)*	Establishing Optimal Long Term Funding Allocation Systematic Approach Based on Network Needs & Availability of Funds Alan Roland, *Department of Transport - Abu Dhabi AD United Arab Emiratis (AMBoK ID: 1853)*
11:45	Production Reliability Analysis to Improve Asset Management Weylon Malek, *ARMS Reliability Engineers WA (AMBoK ID: 1832)*	Flexible Development of Asset Category Specific AM Plans Matt Henson, *Sydney Catchment Authority NSW (AMBoK ID: 1821)*	Asset Management in Design – What is Needed? Anselm Boehl, *BHPBilliton Iron Ore WA (AMBoK ID: 1811)*
12:15	**Lunch – Sponsored by Asset Management College**		
Streams	**A: RAMS** Chair: Gary Winsor	**B: Business Management** Chair: Brett Billett	**C: Whole Life Planning and Costing** Chair: Monique Beedles
13:30	Synergy Between Methodology and Technology to Improve System Reliability Sridhar Ramakrishnan, *PEMAC, Canada (AMBoK ID: 1885)*	The Role of Asset Maintenance Organisations in Improving Return on Assets Ankur Barua, *Orontide WA (AMBoK ID: 1843)*	Maintenance Evaluation Case Study Geoffrey Fox, *WA (AMBoK ID: 1871)*
14:00	Are Your Decisions Truly Optimal? Boudewijn Neijen, *Copperleaf BC Canada (AMBoK ID: 1847)*	Promoting AM Accountability via Bipartisan Governance Arrangements Matt Henson, *Sydney Catchment Authority NSW (AMBoK ID: 1820)*	Risk Based Zonal Planning Approach for Distribution Overhead Assets Victoria Hogg, *Western Power WA (AMBoK ID: 1813)*
14:30	The Uncertain Future: Planning for Alternate Realities Anna Robak, *Opus International Consultants Auckland New Zealand (AMBoK ID: 1852)*	Integrating Asset Management Across Fremantle Ports Alessandra Mendes, *Fremantle Ports WA (AMBoK ID: 1864)*	Asset Health Management – A Strategic Perspective Dr Yvonne Power,*IMPower Technologies WA (AMBoK ID: 1868)*
15:00	**Afternoon Tea – Sponsored by I&E Systems**		
Streams	**A: Risk Management** Chair: Glen Kerr	**B: Asset Management Maturity** Chair: Richard Edwards	**C: Tutorial** Chair: Gopi Chattopadhyay
15:30	A Two-Phased Approach for Risk-Based Inspection (RBI) Programme Implementation Steve Matthews, *Plant Asset Management, Petrofac Leics United Kingdom (AMBoK ID: 1809)*	Increasing Asset Management Maturity at SITA Australia David Wiley, *PWC The Asset Partnership NSW (AMBoK ID: 1812)*	Strategic Asset Management Plans Nick Hastings, *Principal Consultant, Albany Interactive VIC* The tutorial will cover: • The business operational plan and level of service • Knowledge of existing assets • Analysis of activities, resources and timescales for assets required to meet the business plan • New asset acquisitions • Asset fleet maintenance and renewal plan • The financial plan, CAPEX and OPEX • Closing the loop with the Strategic Asset Management Plan *(Places are limited, for registration: Please contact Mo on mo.barghash@amcouncil.com.au)*
16:00	Can Shared Coal Industry Knowledge be Adapted to Improve Risk Management Outcomes in Other High-Risk Domains? Meng Shi, *The University of Queensland, QLD (AMBoK ID: 1807)*	GFMAM Project - How would you describe a mature organization? What is the value of knowing your maturity level? • As a stakeholder I would like to know how mature is the organization in which I'm investing. • Auditing is against REQUIREMENTS gives you a "YES" or "NO"; Assessing is against MATURITY, a developmental process. • You can continue to improve beyond a "YES" outcome of an audit.	
16:30	Exploring the Effect of Political Risks in Large Infrastructure Projects in Politically Unstable Countries Saad Khan, *Downer EDI Rail NSW (AMBoK ID: 1877)*		
5:00	End of the Day **YAMP Networking Evening**		

Stream D: YAMPs Session

CONFERENCE PROGRAM
Wednesday 4 June

ASSET MANAGEMENT COUNCIL

8:30	**Stream A: Keynote Session:** Chair: Andrew Morgan **Changing Definitions of Asset Management:** Thomas W. Smith MS, *University of Wisconsin-Madison, USA (AMBoK ID: 1841)*		
9:15	**How IT/OT Integration and the Cyber-Physical World is Changing our Lives and the Way We Are Doing Business** Achim Krüger, *Vice President, EAM Solutions, SAP, Germany*		
10.00	**Experience leading a Brazilian company certified by PAS 55:** Italo Freitas, *AES TIETE, Brasil*		
10:30	**Morning Tea – Sponsored by Teak Yew**		
Streams	**A: Risk Management** Chair: Thomas Birdseye	**B: Continuous Improvement** Chair: Sandy Dunn	**C: Forum on Asset Management System Model**
11:00	Risk – The Common Language of Asset Management Decision Optimisation Paul Blackmore, *EA Technology Australia New Zealand New Zealand (AMBoK ID: 1805)*	Extent of Use of Continuous Improvement Process in Engineering Asset Management Practices in Oil and Gas Service Industry in Nigeria Olatunji Ilor, *Japaul Mines and Products Limited, Phillipines (AMBoK ID:1860)*	Discussions around the Asset Management System Model and Organisational Systems Model Peter Kohler, Michael Killen, Gary Winsor *(Places are limited, for registration please contact Mo on mo.barghash@amcouncil.com.au)*
11:30	Improving Woodside's Asset Management Capability Using an Integrated Risk Based Inspection System Matthew Turnbull, *Woodside Energy Ltd Perth WA (AMBoK ID: 1876)*	Train Unloading Facility Defect Elimination Program Indra Gunawan, *Monash University VIC (AMBoK ID: 1839)*	
12:00	**Lunch**		
Streams	**A: Risk Management** Chair: Andrew Sneesby	**B: Benchmarking and Monitoring** Chair: Peter Todd	**C: AMPEAK Roundtable Discussion: Performance vs Value** Chair: Melinda Hodkiewicz
13:30	Evaluation of Risks for Asset Management and Support Services Improvement Projects John P.T. Mo, *RMIT University VIC (AMBoK ID: 1838)*	Asset Management Today, the Continuous Journey Alan Roland, *Department of Tranport - Abu Dhabi AD United Arab Emirates (AMBoK ID: 1830)*	Presented by Tom Smith, University of Wisconsin-Madison, USA Over the past several decades, the definition of asset management has moved to a focus on deriving value from assets. But what does that really mean? How do we define and measure value? And how do we relate value to performance? Participants in the roundtable will be challenged to address a series of statements, which express questions, conflicts, challenges and opportunities around value and performance. This is an evolving exercise, first delivered in the U.S. in July 2013. Participants will have an opportunity to take the supporting materials home and use them to further their own discussions. *(Places are limited, for registration please contact Mo on mo.barghash@amcouncil.com.au)*
14:00	Development of a Bridge Deterioration Model Using Nonlinear Analysis for Underbridges in Sydney Trains Azam Khan, *Sydney Trains NSW (AMBoK ID: 1828)*	Delivering Reliable Customer Outcome Through Performance Based Maintenance Service Alan Roland, *Department of Tranport - Abu Dhabi AD United Arab Emirates (AMBoK ID: 1844)*	
14:30	Robust Risk Management is Essential in Asset Management: Why a Spreadsheet will Not Cut it! Andrew Ferguson, *AJF Professional Services SA (AMBoK ID: 1819)*	The Role of Condition Benchmarking in Asset Management, Case Study for Pavement Asset in Abu Dhabi – UAE Alan Roland, *Department of Transport - Abu Dhabi UAE(AMBoK ID: 1843)*	
15:00	**Afternoon Tea**		
Streams	**A: Tutorial** Chair: Dave Daines	**B: Business Performance** Chair: Nikola Borovac	**C: ISO 5500X** Chair: Robert Sloan
15:30	Measuring Reliability; Tips and Tricks for a Reliability Practitioner Mark Mackenzie, Noel Bonnick, *K2 Technology WA* The Tutorial will cover: • Why measure reliability and what are the benefits • How should reliability be demonstrated/tested • How to specify reliability requirements • How to use reliability to focus effort	Asset Management Stewardship and Best Practice in Toll Road O&M George Vasiliadis, Heinz Volma, Les Hill, Mike Mundy, *Transfield Services Pty Ltd SA SA (AMBoK ID 1896)*	Improving Project Delivery – Will the New Asset Management System Standards Series ISO 55000 Make a Difference? Ernst Krauss, *Evans & Peck WA (AMBoK ID: 1836)*
16:00		Build Level of Services and Customer Value into the Decision Making - Sydney Water's Water Main Asset Management Strategy David Zhang, *Sydney Water Corporation NSW (AMBoK ID: 1833)*	Preparing for ISO 55000 – Developing a Global Facility Asset Management Framework – Including a Case Study at Olympic Dam Ken Robertson, *Sodexo Australia VIC (AMBoK ID: 1823)*
16:30	*(Places are limited, for registration please contact Mo on mo.barghash@amcouncil.com.au)*	Network Rebuild Investment Optimisation Victoria Hogg, *Western Power WA (AMBoK ID: 1814)*	
18:15	Annual Dinner and Awards Night, Fraser's, Kings Park		

CONFERENCE PROGRAM
Thursday 5 June

ASSET MANAGEMENT AMPEAK
PROMOTE EDUCATE ASSIST KNOWLEDGE

Streams	**A: Maintenance Planning and Strategy** Chair: Mark Jordan	**B: Leadership and Culture** Chair: Arthur Lazarou	**C: Condition Monitoring** Chair: John Sander
9:00	Designing Modern Maintenance Programs for Heritage Rail Vehicles using Heritage Maintenance Analysis Methods James Kennedy, *Interlogis Consulting NSW (AMBoK ID: 1867)*	Enlightened Leadership in Asset Management - Managing Complexity and Growth - Where There's a Will... Graham Constable, *Aquenta Consulting Pty Ltd NSW Australia,* Brian Munro, *University of New England (AMBoK ID: 1804)*	A Review of Data Visualisation for Asset Management Key Process Indicators and its Potential Impact on Quantitative Information Communication David Caro, *Lycopodium Asset Management WA (AMBoK ID: 1831)*
9:30	Maintenance of Fixed Assets: Are You Using Your Instinct More Often Than Your Intellect? Dr Carla Boehl, *Western Australian School of Mines, Curtin University WA (AMBoK ID:1817)*	Using Physical Asset Management as a Strategy for the Cultural Transformation of the Department of Public Works and Highways, Through the Bureau of Equipment Toribio Noel Ilao, *Department of Public Works and Highways Philippines (AMBoK ID:1866)*	Condition Monitoring Programs Defined as a Process with Performance Measures at Each Step. Leads to Precision Maintenance Initiatives which Eliminate Systemic Problems. Chris Purkiss, Dr Michael Dickinson, *NSW (AMBoK ID: 1851)*
10:00	**Morning Tea**		
Streams	**A: Maintenance Planning and Strategy**	**B: Leadership and Culture**	**C: Asset Data** Chair: John Sander
10:30	Effectiveness of the Performance and Reliability Optimisation Model in Electricity Generation Krige Visser, *University of Pretoria South Africa (AMBoK ID: 1834)*	Defining Organisational Performance: An Asset Management Perspective Monique Beedles, *Teak Yew QLD (AMBoK ID: 1818)*	Effective Asset Management Programs through Open Data Systems and Mobility - Global Best Practice Case Studies Karina Ho, *Hardcat Pty Ltd VIC (AMBoK ID: 1849)*
11:00	MTMs 'Fast Track' to Asset Management Improvement and PAS 55 Certification Benjamin Staples, *Metro Trains Melbourne (MTM) VIC (AMBoK ID: 1829)*	Financial Return of the Performance Culture Adam Artruc, *SAMI Connecticut United States (AMBoK ID: 1859)*	Gaining Productivity and Cost Effectiveness Through Better Processing and Understanding of Asset Data Edwin Karema, *LogicThinker Group WA (AMBoK ID: 1858)*
11:30	Managing Maintenance Resources for Efficient Asset Utilization Winda Cahyo, *University of Wollongong NSW (AMBoK ID: 1850)*	Management Commitment to the Success of the PAS 55 Certification Journey Paul Catton, *Pricewaterhouse Coopers Australia NSW (AMBoK ID: 1810)*	6 Critical Steps for Facilitating a Successful Root Cause Analysis Jack Jager, *ARMS Reliability VIC (AMBoK ID: 1778)*
12:00	**Lunch - 13:00 Annual General Meeting**		
Streams	**A: Maintenance Planning and Strategy** Chair: Tom Carpenter	**B: Configuration Management** Chair: Monique Beedles	**C: : ISO55001 Implementation**
13:30	Transitioning Rollingstock Maintenance Contracts – Problems & Pitfalls Brett Wilson, *Bombardier Vic (AMBoK ID: 1825)*	Development and Implementation of an Asset Configuration Management System Vera Rajanovic, *Leighton Contractors Pty Ltd NSW (AMBoK ID: 1837)*	Using the ISO 55001 Companion Guide Peter Kohler, Michael Killeen, Ralph Godau, Steve Turner *(Places are limited, for registration please contact Mo on mo.barghash@amcouncil.com.au)*
14:00	Round Table discussion on the Global Forum on Maintenance and Asset Management Maintenance Management Framework Presenter: Peter Kohler, AMBoK Commissioner		
14:30	**Stream A Keynote** **Maintainers of the Future** Professor Melinda Hodkiewicz, *University of Western Australia WA (AMBoK ID: 1869)*		
15:15	**Closing Address** **Leadership, SAMPS, AMPS, and Growing your Business** John Hardwick, Network NSW and Co-Author of Living Asset Management, Sydney		
16:15	**Farewell Drinks Function and Exhibition Close**		

Friday 6 June

8:30 - 16:30

Workshops & Site Visit

W1 W2 W3 SV

6 Critical Steps for Facilitating a Successful Root Cause Analysis

Jack Jager, AMBoK Id 1778, Full Paper.

You have been thrown into the breach. You have been allocated the task of facilitating an investigation. So what are the critical things that you can do to ensure that a successful outcome can be achieved? Step 1, Decide who will participate; Step 2, Preparation; Step 3, Conduct the RCA; Step 4, Second Look; Step 5, Reporting; Step 6, Success. The only reason to investigate a problem is that it is significant enough to need to be resolved. If this statement is true, then the outcome must also be beneficial and provide a payback on the effort spent investigating. It is therefore important that the facilitator delivers the goods. There are many aspects that go into a successful facilitation.This presentation explores those critical elements that are common to those that facilitate successfully.

Enlightened Leadership in Asset Management – Managing Complexity and Growth – where there's a will...

Graham Constable, Brian Munro,

AMBoK Id 1804, Extended Abstract

Private and public sector organisations increasingly require high degrees of business flexibility and scalability to survive and have to embrace advances in IT to improve their ability to satisfy and manage complex networks of customers, suppliers and stakeholders. These same organisations also realise how important the sustainable management of infrastructure is to supporting their core work. No more important are these three areas of integration than in the tertiary education sector where institutions face budgetary and operational pressures whilst seeking to attract students and staff. Competing demands for space, resources and money add to their challenges. At the University of New England (UNE), there is a refreshing level of innovative thinking that frames high levels of collaboration between operational, financial and academic staff; the integration and aligning of corporate vision and faculty strategic plans with the myriad components of strategic asset management is palpable. UNE is demonstrating leadership in the implementation of its change management plan, incorporating the cultural and people side of introducing a strategic asset-based approach to realising its strategic goals. Guiding its growing maturity is PAS 55. The paper will highlight UNE's comprehensive approach and corresponding widespread benefits.

\Risk – The Common Language of Asset Management Decision Optimisation

Paul Blackmore, AMBoK Id 1805, Extended Abstract

Optimisation of asset related decisions in each stage of the asset lifecycle requires a mature understanding of costs and consequences. Consequences may be positive, negative, tangible or intangible. In this paper we discuss how quantitative risk analysis can assist with translating the many disparate variables associated with asset related decisions into a common language facilitating comparison of options and enabling optimisation. We discuss the benefits of quantitative techniques over qualitative approaches typified by risk matrices including a discussion of some of the sources of bias and inaccuracy in risk matrices. We discuss how the additional effort to perform quantitative risk analysis can be cost justified in terms of improved decision certainty and offer suggestions for approaches to overcome the typical problem of missing information. We conclude by providing examples of quantitative risk based decision optimisation in practice using Monte Carlo risk simulations and EA Technology's Condition Based Risk Management Methodology and provide a preview of how the approach can be extended to a range of asset related decisions.

Can Shared Coal Industry Knowledge be Adapted to Improve Risk Management Outcomes in Other High-Risk Domains?

Philipp Kirsch, Darren Sprott, Meng Shi,
AMBoK Id 1807, Extended Abstract

Coal mining is recognised globally as a hazardous activity, and therefore operates under high levels of regulatory and public scrutiny. Other high-risk industries, often associated with the coal supply or energy chains, including power generation and transmission, construction, railways and road transportation, ports and marine shipping all need to manage a workforce operating in a high-risk environment. Further, other energy sectors such as oil and gas also need to manage a workforce in a complex high-risk environment. ACARP has recently funded RISKGATE, an interactive online risk management system developed to assist the Australian coal mining industry in the management of potential major incidents. From a broad industry perspective the RISKGATE platform provides an environment for knowledge capture and knowledge exchange regarding current practise and facilitates a cumulative corporate memory available to all coal practitioners. This paper uses the RISKGATE framework to classify incident/accident data from other high-risk industries such as construction, road transportation, tunnelling and oil and gas to identify opportunities for application/adaptation of RISKGATE knowledge. High-risk industries, such as power generation, construction, railways and road transportation, ports and marine shipping, are encouraged to engage with the RISKGATE process to improve risk management outcomes across national supply and energy chains.

A Two-Phased Approach for Risk-Based Inspection (RBI) Programme Implementation

Steve Matthews, AMBoK Id 1809, Extended Abstract

Risk-Based Inspection (RBI) is gaining increasing acceptance worldwide as the 'industry standard' methodology for developing integrity management strategies for pressure equipment. The main objective of RBI is to identify and evaluate degradation and damage mechanisms that could affect pressure equipment integrity, identify inspection techniques and prioritise inspection plans based on the level of risk associated with these mechanisms, aligned with local legislation and regulations. A two-phased approach has been developed with the objective of improving both the focus and cost-effectiveness of RBI programme implementations. The first phase involves a 'system-level' qualitative risk screening process to identify those systems which present low or acceptable 'loss of containment' risk to the owner/operator. Pressure equipment within these systems may be excluded from more detailed risk assessment and subject to targeted generic inspections and operator watch-keeping, consistent with regulatory requirements. The second phase involves semi-quantitative risk assessments and integrity management planning carried out at the equipment or individual component level, as applicable to all credible integrity threats. The two-phased RBI approach has been successfully applied to both mature upstream oil and gas assets and as part of operations readiness initiatives during the engineering, procurement and construction (EPC) stage of oil and gas field developments.

Management Commitment to the Success of the PAS 55 Certification Journey

Paul Catton, AMBoK Id 1810, Extended Abstract

A leading vertically integrated power utility company in Asia with A$23 billion in assets and more than 31,000 employees knew that to sustain their performance and confirm their position as a leader in the power industry the organisation required well developed asset management systems to be imbedded across the organisation. To this end the organisation saw PAS 55 as a framework for assessing and improving their asset management maturity and therefore the Company President provided a directive that all divisions of the organisation were to be certified against PAS 55. This paper explores the approach used to obtain certification of their Generation division. The approach started with providing a detailed understanding of what PAS 55 is followed by ongoing guidance through the changes required in moving to full certification. However this journey would not have been successful without the commitment demonstrated by senior management. This commitment started with a clear direction outlined by the Company President but also come in the form of sufficient resources, recognition of effort and celebration of success.

Asset Management in Design – what is needed?

Anselm Boehl, AMBoK Id 1811,Extended Abstract

Asset management has been widely accepted across infrastructure heavy industries with a focus on maintenance and reliability. Increasingly this focus is shifting towards whole of life aspects of an asset. As part of this process it becomes obvious that the biggest influence on life cycle cost on an asset level is in the design stages of a project. Traditionally, designers have focused on the best technical solution and more recently been exposed to the concept of "Safety in Design". This paper intends to broaden this concept into "Asset Management in Design" and what is required to achieve this. Areas covered by way of explanation and examples are: What is the end game for an asset in its service delivery? The role and importance of user requirements and functional specification, and with that the role of management; Designing for maintenance, repair, renewal, upgrade, disposal and beyond; The role of the operator in the design process; HAZID and HAZOP and the need to broaden; Asset management education for designers; The missing feedback loop from asset operation to design.

Increasing Asset Management Maturity at SITA Australia

David Wiley, AMBoK Id 1812, Full Paper, Extended Abstract

A leading resource recovery management organisation with revenue reaching $1 billion, was previously a waste collection business only. This required the management of mobile assets at which they had many years to perfect and deliver sustainable results. However, in recent years this organisation expanded to waste recovery which required a re-focus on fixed asset management as opposed to the management of mobile assets. Without deep experience with managing fixed assets, several waste recovery plants suffered from significant unscheduled plant stoppages linked to unsatisfactory maintenance and failure of equipment which, in turn, resulted in a poor level of customer service. Better asset management became a key strategy for the organisation to manage this risk and satisfy customer expectations. This paper explores the approach used to increase the asset management maturity across the organisation using PAS 55 as the framework, and outlines the key challenges faced along the journey. This improvement effort provided the organisation with a significantly improved system to optimally manage its infrastructure assets which will enable them to minimise the significant asset failures experienced as a result of previously ad hoc management practices.

Risk Based Zonal Planning Approach for Distribution Overhead Assets

Victoria Hogg, AMBoK Id 1813, Full Paper

In recent years, Western Power has developed a number of new tools and techniques to support the management of its in-service Distribution Overhead assets (including conductors, poles and plant). These include: A quantitative Network Risk Management Tool (NRMT); A suite of Unit Rate models; A new 'Zone Based' delivery approach. In 2013, these initiatives were brought together in a prototype risk-based zonal planning approach. The purpose of this new approach is to identify an optimised 3-year works plan that takes account of a range of competing objectives and constraints in a transparent, repeatable and auditable way. The main focus of the new approach is a quantitative tool that can be used to analyse different funding scenarios, asset management strategies and approaches to risk reduction, in terms of their risk/cost/volumes balance. The tool is built on an asset-level view of the network and takes account of potential cost efficiencies of bundling work together in a 'zonal' approach, as opposed to treating assets discretely in a so-called 'sniper' approach. The paper will present details of the quantitative tool and how the outputs are used to support the decision making process towards an optimised 3 year works plan.

Network Rebuild Investment Optimisation

Victoria Hogg, AMBoK Id 1814, Full Paper

The Western Power distribution network underwent a major expansion in the 1960/70s - with an expected life of 50 years, many of these assets are approaching end-of-life. While it is recognised that rebuilding sections of network can be more cost effective than discrete asset replacement, the heterogeneous nature of the network (due to incremental growth, discrete asset renewal and maintenance) makes the determination of the optimal timing for rebuild a challenge. A method for optimizing network investment over a 50 year period was developed and tested using a modelling tool and real network data. The modelling tool applied: A set of business rules for asset replacement; A capital expenditure model – driven by the business rules; An operating expenditure model – driven by the network state, and; A network optimisation algorithm. The network optimisation algorithm calculated the NPV of a network rebuild for each year over a 50 year period. The lowest NPV option was identified and compared against the baseline cost of carrying out continual asset replacement for a 50 year period. This demonstrated that unconstrained lifecycle cost efficiencies in the order of 20% could be achieved through optimal timing of network rebuild and discrete asset replacement.

Integration of RCA and RCM Techniques to Develop Maintenance Strategies

Chris Traianou, AMBoK Id 1815, Full Paper

This paper presents author's experience in integrating the RCA and RCM processes for the development of maintenance strategies. The author would like to share his experience in developing and implementing the outcomes of the two processes and data influences on assessment Organizations face a reasonably difficult challenge to develop viable maintenance strategies for assets. This challenge becomes exponentially more difficult when developing maintenance strategies for assets which have no access and are 600metres below ground. Whether an RCA is performed before an RCM or vice versa does not matter. Both processes complement each other. This paper explains how the RCA was performed first due to number of failures. Followed by RCM to establish the mitigation strategies for those failures. Most of the strategies were based on condition monitoring and what to measure, how to measure it and who would perform the different measurements presented a challenge to the stakeholder group. The culmination of the two processes was a maintenance strategy which in some cases highlighted that using condition monitoring imminent failure was evident rather than preventing the failure occurrence. This would however prevent a catastrophic failure occurring and the ability to plan and manage its repairs, an integrated information management system which includes asset information, accurate fault reporting and financial information is imperative to enable development of a suitable maintenance strategy.

Maintenance of Fixed Assets: Are You Using Your Instinct More Often Than Your Intellect?

Dr Carla Boehl, AMBoK Id 1817,Full Paper

To be successful in asset management, managers, engineers and maintainers need greater focus: on value, on relationships and on doing the right thing. Strategic theories are powerful however a suite of practical tactics closer to the maintainers' mind can differentiate on how maintenance is provided. Planning maintenance of water and hydrocarbons assets can be a long painful process. In this paper you will better understand how to get to know your ongoing strategy for maintenance, how to focus more attention on the strength and breath of relationships and that value is about much more than price.

Defining Organisational Performance: An asset management Perspective

Dr Monique Beedles, AMBoK Id 1818, Extended Abstract

One of the key principles of Asset Management, as defined in the ISO 55000 standards, is to generate value for the organisation and its stakeholders. However, most Asset Management metrics focus on the performance of a specific asset or group of assets. By contrast, this paper considers performance metrics in terms of the organisation as a whole, rather than in terms of individual assets. This work aims to determine which companies perform best from an asset management perspective. Lessons learned from the companies identified can then be used to advance Asset Management practice. Metrics that describe the performance of organisations include broad measures such as sales, revenue and market capitalisation. However, to connect operational practices to organisational outcomes, an ideal metric must take account of the costs of generating revenue and also account for variability in company size. Performance ratios provide a useful basis for these comparisons. This paper analyses the performance of a selection of publicly listed Australian companies and provides a ranking of their relative performance. This comparison forms the basis for future examination of leading Asset Management practices.

Robust Risk Management is Essential in Asset Management: Why a Spreadsheet will Not Cut it!

Andrew Ferguson, Wayne Rudland,

AMBoK Id 1819, Extended Abstract

This paper will discuss the need for a robust risk management process in both the creation of long standing capital assets including software systems, defence systems, and commercial assets including water treatment infrastructure, mining assets and utilities (including power distribution, telecommunications and power generation). Short case studies of selected projects and asset management programs that both had and did not have robust risk management processes and practices will be presented and discussed. Finally a short review of the key aspects of a robust risk management system will be presented. This will include: establishing a risk hierarchy and structure to record risks and opportunities; establishing and maintaining a flexible and adaptable risk management process that everybody understands; encouraging all management staff to propose risks; a system of approving risks; managing and tracking mitigation or avoidance actions for each risk; applying some mathematics and statistics to risk management processes; Risk reporting: making risks and their management visible across the organisation or enterprise. Paper will conclude on why a spread sheet will not generally do the job in the long term and how ERM (ISO 31000) and AM (ISO 55000) are complementary.

Promoting AM Accountability via Bipartisan Governance Arrangements

Matt Henson, AMBoK Id 1820, Extended Abstract

The Sydney Catchment Authority (SCA) utilises a bipartisan asset management governance model that identifies and documents separate responsibilities for both the strategic and tactical roles in asset management, ensuring clarity for asset management accountability, which is acknowledged throughout all phases of the asset lifecycle. Definition of the accountabilities as Asset Stewards (strategic) and Asset Controllers (tactical) promote task custodianship and therefore buy-in of the process throughout the organisation. By ensuring assets are managed consistently with a common language supported by standardised processes, procedures and tools within the Asset Management System (AMS), organisational unity is promoted by embracing a key management system of the integrated Business Management System (iBMS). The iBMS consists of numerous ISO management systems, common elements of which are managed collectively to ensure consistency of administration. Utilisation of standardised practices throughout the AMS and iBMS are particularly important when embedding the accountability that defines input to other elements within the asset management lifecycle phases, otherwise preventing isolated work practices that don't contribute to continual improvement.

Flexible Development of Asset Category Specific AM Plans

Matt Henson, AMBoK Id 1821, Extended Abstract

The Sydney Catchment Authority (SCA) is developing a suite of asset category specific Asset Management Plans (AM Plans) that facilitate optimal decision making processes by identifying and assessing the performance requirements and risks of each asset. The AM Plans are intended to be the vehicle which provides the information and analysis to allow the SCA to optimise asset lifecycle costs, meet specified service level requirements and mitigate risks to a level that is reasonably practicable and acceptable. Development of the AM Plans is being undertaken across the organisation by various teams, as per governance arrangements. In acknowledging that differences between each asset category precludes use of a standardised template, development of the AM Plans has rather adopted a flexible approach requiring responses to seven core asset management prompters. These high level prompters consider the following themes for each asset category – overview, objectives, performance, decision making, investment. Such flexibility ensures document custodians maintain 'ownership' of their document, thus ensuring buy-in and their integration within the business planning cycle.

Asset Integrity Management – A Structured Approach

Martin Brown, Alexandra Knight, Dr Steven Wagstaff,

AMBoK Id 1822, Extended Abstract

Managing any high value and critically important asset throughout its lifecycle is a balance of risk, cost and performance. A targeted Asset Integrity Management (AIM) strategy should be considered whenever the structural integrity of such an asset could have an effect on its through-life cost, safety or availability. Typically, the factors which may compromise the structural integrity of most assets are ageing, usage, damage, environmental effects, repair, rework or combinations of these. In essence, AIM is a multi-stage approach to managing the structural integrity of an asset throughout its entire lifecycle – starting from its design inception and ending at the point of disposal. AIM takes the core integrity of an asset as its starting point, and uses a full appreciation of the integrity to generate a rigorous yet cost-effective inspection and maintenance regime. An AIM strategy is typically implemented within the overarching Asset Management programme. Asset Management in itself is not new – but the practice of taking the core integrity of an asset as a starting point and then developing an inspection and maintenance through-life management plan around it is something which could offer significant benefits to any organisation that owns high value and critically important assets.

Preparing for ISO 55000 – Developing a Global Facility Asset Management Framework – Including a Case Study at Olympic Dam

Ken Robertson, AMBoK Id 1823, Extended Abstract

Sodexo employs over 430,000 people and provides service delivery to clients in over 80 countries. Sodexo embarked on a major project to develop a Global Asset Management Framework to drive standardisation, consistency and share best practices across the organisation. The British Standard Institute's asset management specification, PAS 55, was identified as the most appropriate framework to meet Sodexo's global facility management requirements. This decision also prepared the ground for the future expectations of the ISO 55000 suite of asset management standards. A core team of specialists representing each global region was formed to manage the AMF project. The framework was developed in four levels of hierarchy including, asset management policy, AMF core processes, local operating procedures and technical standards. The paper will explain the process that was implemented to deliver a successful project including, global team structure, preparation of the framework design, and development of each specific framework element. The paper and presentation will then go on to explain the actual deployment of the AMF to deliver the facility management at selected global facility management contracts, and specifically refer to delivery of facility management services to BHP Billiton at the Olympic Dam mine site villages and Roxby Downs Township in South Australia.

Transitioning Rollingstock Maintenance Contracts – Problems & Pitfalls

Brett Wilson, AMBoK Id 1825, Extended Abstract

In recent years it has become increasingly common to privatise public services, power, transport, etc. With public transportation, in particular trains and trams, this move has been either a complete change of provider or more commonly, the privatisation of just the maintenance aspect of the operations. Over the last ten years, Bombardier Transportation Australia, has mobilised eight rail maintenance projects with five different customers. These projects have involved a combination of Bombardier manufactured units as well as Rollingstock manufactured by other companies. When transitioning a maintenance business, each stakeholder, from the customer to the travelling public and even various functions your own organisation, all have a different opinion about what they believe they are getting. The key to a smooth transition is in the preparation of a plan. A successful plan is one that has the ability to adapt to any changes throughout the transition period. For instance, ensuring that a "Plan B" is in place for critical areas, i.e. Day One operations, IT, etc. The plan to introduce a new product will always differ slightly to the transition of an existing, how-ever, the core rules remain the same, deploy from a defined plan and communicate effectively with all stakeholders.

Development of a Bridge Deterioration Model Using Nonlinear Analysis for Underbridges in Sydney Trains

Azam Khan & Ehsan Khan, AMBoK Id 1828, Full Paper

Reliable under-bridges are an essential and integral component of a safe Railway system. However, as our Railway system ages, many bridges are becoming obsolete. This obsolescence is a result of natural deterioration, of the materials used in construction, and of earlier design standards that no longer accommodate the speed, dimensions, loads, and volume of modern traffic demands. The Sydney Trains maintains an inventory of over 423 under-bridges, 908 overbridges and 288 foot bridges across its whole network. The current inspection regimes for under-bridges are a detailed inspection every two years and a mid-cycle inspection biennially in between detailed inspections. Bridge inspectors are required to assign a subjective condition rating for five exceedance categories from immediately stopping the trains to report in the bridge examination report. The development of Sydney Trains bridge deterioration model is principally similar in the approach of the Markov chain models and it assumes that an under-bridge can either remain in the current state or deteriorated to next state. This information is extremely valuable for making bridge management decisions and development of Technical Maintenance Plans. Based on the Weibull analysis, the deterioration rates for typical concrete & steel bridge elements in Sydney Trains have been presented in this paper.

MTMs 'Fast Track' to Asset Management Improvement and PAS 55 Certification

Benjamin Staples, Ralph Godau, AMBoK Id 1829, Full Paper

Metro Trains Melbourne (MTM) has within a twelve month period transformed its previous disjointed asset management practices into a coherent asset management system certified to PAS 55. Since winning the Melbourne Metropolitan Train franchise in late 2009, MTM has undertaken significant organisational and management change that has resulted in reduced train cancellations and increased train punctuality. To affect further gains in performance, it was recognised that this will need to be driven by improving the way MTM performs asset management. MTM engaged AMCL Pty Ltd at the beginning of 2013 to undertake: an assessment of Metro's asset management maturity and identify the gaps to reach PAS 55 certification; assist in the preparation of an improvement program and change management plan; provide check point assessments; and deliver an independent certification audit to PAS 55 at the end of 2013. This paper aims to detail MTM's asset management journey so far and provide insight into the process of gaining PAS 55 certification, key asset management principles adopted by Metro, benefits of improving asset management practices, and the change management process and continuous improvement actions that lead to a best practice asset management organisation.

Asset Management Today, the Continuous Journey

Alan Roland, Prof. John Yeaman,

AMBoK Id 1830, Extended Abstract

Managing of road assets in an objective, consistent, and cost efficient manner is a challenge and an international concern that requires a combined worldwide effort to implement affordable, safer, and environmentally friendly infrastructure management practices. This session will discuss best practices and critical success factors, the session will commence with 3- 4 short presentations each one for 10 -15 then followed by an open discussion (further details on proposed presentations will be submitted should this paper (session) approved. Prof John Yeaman will from the University of the Sunshine Coast University will take the lead and will be bringing academic and practical achievements. We will be selecting the input and contribution from various agencies around the world and within Australia. This is a great exposure opportunity to exchange knowledge and experience between the practitioners and service providers including contactors/consultants, students/new graduates. The key objective of this session to is to understand asset management achievements and issues from different perspectives.

A Review of Data Visualisation for Asset Management Key Process Indicators and its Potential Impact on Quantitative Information Communication

David Caro, AMBoK Id 1831, Extended Abstract

Visualisation of Key Process Indicators KPI is a challenge to asset management professionals, the use of tables, graphs and charts has been commonly used to communicate quantitative information in several organisations, nevertheless relevant information remains concealed because of the lack of proper communication design practices, rendering many communication efforts, ineffective. Proper data visualization and analysis can significantly improve decisions made at multiple asset management stages and instances. Lycopodium Asset Management has begun exploring different models and concepts to improve communication design practices making communication efforts more efficient and effective. The purpose of this extended abstract is to share the initial results of the assessed conceptual models and will include: A brief description of each model and concept; An explanation of the implementation requirements; Potential advantages and disadvantages; and Visualisations and analysis samples. Some of the models discussed in the extended abstract will be: Dynamic charts: Time based interactive visualisation and exploration charts (Radar, Bubble, etc.); Sparklines: Small line charts without axes or coordinates that represents trends; Box plots: Charts that represent groups and their respective quartiles; Trellis plots: Layout of smaller charts that represent parts of a conceptual whole.

Production Reliability Analysis to Improve Asset Management

Weylon Malek, AMBoK Id 1832, Extended Abstract

This paper will demonstrate the benefits of utilising Weibull Process Plots to analyse daily production data to identify improvements in asset management. The use of Weibull Process Plots provides a ready means to identify "hidden losses" in a plant due to either chronic and/or Reliability issues. The benefit of discovering the gap between nameplate production and actual production provides a ready means to target improvements. These improvements can be quantified using "what if" simulations in a System Availability model. Thus, improvement activities can be justified prior to expending any capital or expense monies. Other uses of Weibull Process plots are to confirm the sustainable production capacity against nameplate capacity, track production reliability, compare different sites and benchmark against an ideal "best case". A discussion of how these losses and trends when analysed using this methodology will result in an increase in process stability, profitable growth and smart usage of valuable resources in reducing unreliability.

Build Level of Services and Customer Value into the Decision Making – Sydney Water's Water Main Asset Management Strategy

David Zhang, AMBoK Id 1833, Full Paper

Sydney Water's water network consists of about 21,000 km of water mains. Sydney Water is a statutory state owned corporation, with the Independent Pricing and Regulatory Tribunal (IPART) as the economic regulator. Sydney Water has developed a comprehensive set of decision frameworks and business processes to manage the life cycle of water main assets to achieve a desired level of service and financial return within an acceptable risk. With the current constrained financial and economic environment, affordability is the most imminent issues before water industry as customers is seeking value for money. It is required us to reduce capital investment programs and deliver more with less while maintaining or improving customer expectations. This paper presents the analysis the asset performances and customer expectations against the level of services and explains in details how Sydney Water explores the opportunities to build the level of services and customer value into the asset management strategy and decision framework to optimise the capital investment programs.

Effectiveness of the Performance and Reliability Optimisation Model in Electricity Generation

Krige Visser, Wilson Kudiwa, AMBoK Id 1834, Full Paper

Since 2008 the electricity supply in South Africa has at times been unable to fulfil in the growing demand for electricity. Various initiatives were launched to alleviate this situation by increasing the capacity or reducing the demand. One of these initiatives was the introduction of a performance and reliability optimisation (PRO) model at 13 power stations in South Africa. A research project was conducted to determine the effectiveness of the PRO model and to determine whether it was successful in improving plant availability and in reducing energy losses. The expectation was that the PRO model would also increase plant performance through increased preventive maintenance compliance. This paper discusses an analysis of maintenance history from SAP reports and other performance data at the power stations as well as a survey from 70 respondents. The investigation indicated that the plant performance did not improve significantly after implementation of the PRO model although there was a significant improvement in preventive maintenance and schedule compliance. A number of factors that contribute towards poor plant performance were also identified and ranked. The survey indicated that the age of the plant, lack of discipline and production pressure were major contributors.

Improving Project Delivery – Will the New Asset Management System Standards Series ISO 55000 Make a Difference?

Ernst Krauss, AMBoK Id 1836, Full Paper

Project Managers are striving to deliver a scope that usually gets vetted numerous times, is challenged before committing funds and resources, and requires considerable effort to deliver. Skills shortage and lack of experience are often blamed for inadequate outcomes in Project delivery. Increasing complexity in systems and subsystems challenges not only the Project Manager, but discipline engineers and Owner personnel equally. Owners often experience significant issues in starting up new plants, maintaining those plants and most of all do not get the expected benefit (production and revenue) from the beginning of a new Operation. Recognising a need to align Projects with Operations resulted in embedding Operations personnel in Projects, delivering also "Operational Readiness". Why has nothing changed significantly? Observing major project outcomes and the value erosion experienced, indicates the need for radical improvement and change of project delivery strategy. Opportunities present themselves now to rethink project delivery and the value improvement through Operational Readiness by application of the new Asset Management Systems Standards. ISO 55000 defines Asset Management as "translating the organisation's objectives into asset-related decisions, plans and activities, using a risk based approach", we may already refocus the Project Manager and his delivery towards delivery of operating Assets rather than hardware alone.

Development and Implementation of an Asset Configuration Management System

Vera Rajanovic, AMBoK Id 1837, Full Paper

Asset Configuration Management (CM) is an integral part of the asset management system (AMS) and its purpose is to enable a system to be safely and efficiently operated and maintained throughout its lifecycle. It maintains the integrity of systems by: identifying and documenting the functional and physical characteristics, controlling changes to those characteristics, ensuring the system and its approved data and documentation conform, recording and reporting changes to implementation status. Complex infrastructure systems have long lifecycles and are often safety and mission critical and as such have the potential to significantly impact revenue, cost and reputation. The lack of an Asset CM process can be very expensive and sometimes can have such catastrophic consequences as critical asset failure. During AMS implementation, it was identified that there is no formal system in place to control asset changes. The purpose of this paper is to describe the process undertaken and results of the development and implementation of the Asset CM system within the business operation. It will detail the developed CM Plan, Process and Tool used by various internal and external process stakeholders. It will also demonstrate its integration with other management systems and its benefits for management of assets throughout lifecycle.

Evaluation of Risks for Asset Management and Support Services Improvement Projects

John Mo, AMBoK Id 1838, Full Paper

Asset intensive organisations are looking to reduce costs and waste to better enable them to improve their profitability and compete. The lean and six sigma project life cycle approach has been applied extensively hoping to achieve performance gains: Determine goals and targets; Determine improvement methods; Develop training of new methods; Implement; Measure performance. However, the potential benefits are counterbalanced by risks involved in the making changes. Technical, organizational and other factors may prevent the perceived potential benefit from being achieved. Therefore, there are still a lot of failures in these projects with various reasons, many of which are not convincing. Very few research has been done in determining whether the goals and targets are realistic, the methods are appropriate, the training are sufficient, and so on, prior to the project plan is being executed. This paper focuses on a method for evaluating the risks of change and providing an action list for assisting management to decide which projects to execute, plan risk mitigation strategies to minimise the impact of distraction in the change process, for example, enhancing most vulnerable enterprise elements.

Train Unloading Facility Defect Elimination Program

Cristiano da Costa Cunha and Indra Gunawan, AMBoK Id 1839, Full Paper

A total of 4% of availability increase was achieved in an Iron Ore Train Unloader facility. A Six Sigma approach, supported by statistical techniques such as Pareto and Jackknife, is used to identify the main causes of loss and implement corrective actions, based on repetitive data collected within the time usage model accounting system. A classification method was utilised to separate production delays into different categories and target the focus of the defect elimination program in a staged approach. Via root cause analysis and fishbone diagrams, effective defect elimination tasks are identified to eliminate process outliers. Prioritisation tools and effective resource allocation are utilised to achieve an increased value adding defect elimination strategy. A control process of ongoing monitoring and data analysis is implemented to maintain sustainability of the program throughout the lifecycle of the asset and continuously improve availability. A total of 3.3 Mt of increased iron ore productivity within the Iron Ore Train Unloader facility was the result observed in the last 12 months.

Case Study – Balancing Capital Efficiency with Optimising Operational Performance

John Doran, AMBoK Id 1840, Full Paper

Presentation of a case study demonstrating how involvement of Asset Management specialists in the early project phases (preliminary and detailed design) led to formulation of valuable decision support tools. Options analysis models were built establishing that additional CAPEX of ~$3m (on a $12 Bn project) could accomplish potential NPC (Net Present Cost) savings of some $500m as well as delivering significant other benefits and value in areas such as safety. Furthermore, improved asset 'availability' could also be achieved rendering potential revenue gains of ~$4.5Bn (for the same ~$3m investment) over the asset lifecycle. These outcomes resulted in review of the fundamental project philosophy with a new focus on balancing capital efficiency with operational performance optimisation. From a departure point where 'Capital Intensity' was the major driver, timely Asset Management work (i.e. when capacity to influence 'Locked-in', or 'Embedded' cost was high) resulted in the opportunity for balancing capital efficiency with operational performance optimisation across asset lifecycle. This averted retro-modification after asset commissioning and handover, or for the need for creating operational solutions to problems that may have been 'designed in', both of which can be costly.

Changing Definitions of Asset Management

T.W. Smith, AMBoK Id 1841, Full Paper

The International Organization for Standardization (ISO) 55000 Standard for Asset Management represents a significant change to our understanding of asset management. It broadens the activities associated with asset management and moves them in several new directions: From tactical to strategic; From isolated life phases to a full lifecycle view; From individual assets to asset systems and systems of systems; From program management to a management system. And it moves asset objectives from a performance focus to a value focus. Overall, the standard will elevate the status of asset management in many organizations and formalize its contributions. Asset managers at all levels need to understand these potential changes and be ready to meet the new challenges that they impose, as well as take advantage of the new opportunities they offer. It is evident that the view of asset management has generally broadened to include the whole life cycle and moved up to a portfolio view of assets as systems. The new standard encompasses this whole pyramid.

The Role of Asset Maintenance Organisations in Improving Return on Assets

Ankur Barua, AMBoK Id 1843, Extended Abstract

The world class assets currently being constructed both Onshore and Offshore will contribute substantially to the economy through the next 30 to 40 year asset lifecycle. Organisations engaged in engineered maintenance are presented with as much an opportunity as a challenge to demonstrate technical leadership, cost efficiency, flexibility and innovativeness in making these assets outperform their projected returns. This abstract and ensuing presentation will investigate how core maintenance services such as asset preservation and fabrication using leading edge technology can help expedite start up on greenfield projects as well as reduce lead times on brownfield projects in an environmentally friendly manner. Using asset preservation services for production and transmission facilities as a case study, the extended abstract will investigate the criticality and enormity of the challenge as well as methods employed by Orontide to assist asset owners in the Operations and Maintenance phase where on average over 50% of the corrosion costs are experienced. Particular emphasis will be on the subject of protective coatings which constitutes, by some estimates, more than 85% of the overall spend amongst commonly used prevention and rectification techniques.

Delivery reliable customer Outcome Through performance Based Maintenance Service

Alan Roland, Adel Ali, AMBoK Id 1844, Extended Abstract

The Main Roads is one the key Divisions of the Department of Transport (DoT) managing, operating and maintaining currently a road network of approximately 10,000 lane.km and the network

is growing rapidly due to increased demand and economic development of the Abu Dhabi Emirate. The traditional way of contracting out road maintenance is based on a "measure and value" i.e. the amount of work being measured and paid for on agreed rates for different work items. Consideration is given to the Performance Specified Maintenance Contracts (PSMC) as medium to long term alternative that will define the minimum conditions of highways, road structures. A pragmatic approach and ongoing commitment from the DoT – Main Roads management to improve the decision making process can have a positive effect on successful PSMC implementation. It will assist to gain experience for further contracts and to build industry capability and capacity. This paper provides a brief background on Performance Specified Maintenance Contracts (PSMC) and a pilot project recently implemented, describes the main reasons for such PSMC contracts for Abu Dhabi Emirate, presents the spectrum of performance indicators and response times, gives special attention to the performance specifications and control procedures.

Are Your Decisions Truly Optimal?

Boudewijn Neijens, AMBoK Id 1847, Extended Abstract

Asset managers are faced with the need to make decisions every day. Often these decisions involve selecting one project over another, based on which project brings the highest value to the corporation. But how exactly do we quantify value? Are we sure that we're picking the right projects? Are the decisions we make truly optimal and defensible? Join Copperleaf for an interactive session exploring how to optimize portfolios of projects. Participants will be challenged to value and rank the various projects of a sample portfolio while respecting multiple financial, resource and time constraints. We will gradually iterate towards the optimal portfolio, while at the same time discovering the challenges presented by real-life scenarios where hundreds of projects subject to numerous constraints might be competing for scarce resources. To conclude we will highlight the benefits of optimization over more traditional ranking or prioritization techniques.

Effective Asset Management Programs through Open Data Systems and Mobility - Global Best Practice Case Studies

Dan Drum, AMBoK Id 1849, Full Paper

As asset management procedures evolve with the introduction of ISO5500, the ways of collecting and consuming information must also change. Managing remote assets and maintenance management will be critical as organizations are challenged by a more global approach to doing business and regulatory compliance. Effective Asset management programs need data systems that speak to each other – Open systems, inter-departmental, and user-friendly ease-of-use from diverse levels of knowledge across the workforce are critical to gaining company-wide compliance and productivity through the use of the same source of asset management information. Mobility is a key factor in global best practice. Find out how the South African Department of Foreign Affairs manage their asset base across 192 countries using mobility; how one of Australia's leading manufacturing, supply and service companies in the field of lifting and rigging equipment - A. Noble & Sons Limited have managed over 25,000 assets across 100 clients Australia-wide since 2007; and how South Australian Police maintain their radio and traffic cameras across the State. All 3 organizations are successfully using a centralized core asset management system which puts input and use of information across multiple levels of users from data collection through to Finance, Operations, and OH&S compliance.

Managing Maintenance Resources for Efficient Asset Utilization

Winda Nur Cahyo, Khaled El-Akruti, Richard Dwight, Tieling Zhang, AMBoK Id 1850, Full Paper

Efficient asset utilization can be measured by many performance parameters. Asset productivity is one measure of how efficient an asset is deployed and maintained. It is argued that implementing an appropriate maintenance resource management will enhance utilization of asset and improve asset productivity. In this paper, a policy to manage integrated maintenance resource is developed covering human resource and supporting material required to perform maintenance activities. Human resource management encompass policies for recruitment, training, and outsourcing. Supporting material management includes policies for procurement and inventory. Optimization can be attained by maintaining the required asset productivity while using maintenance resources efficiently or reducing maintenance resources used. In an organization, the operation and maintenance of assets requires coordination with other supporting departments for efficient utilization. In this research, an integrated model to determine the criteria requirement at these related departments for developing a combined optimum maintenance resource policy. The proposed model consists of three sub model to represent three different departments in the organisation which are Maintenance, Human Resource, and Inventory and Procurement. Using available data can allow the develop model to provide basis for analysis to determine the combined criteria at the related departments for efficient assets utilization.

Condition Monitoring Programs Defined as a Process with Performance Measures at Each Step. Leads to Precision Maintenance Initiatives which Eliminate Systemic Problems.

Chris Purkiss, Dr Michael Dickenson, AMBoK Id 1851, Full Paper

For many organisations Condition Monitoring (CM) programs have plateaued and are not returning maximum benefits. The steps undertaken in any CM program can be characterised in the form of a process map. Establishing performance measures for each step identifies where an organisations CM program has plateaued. Where it is "STUCK". Clarification of purpose and focussing energy on the correct step in the process can return significant improvements. This paper explains the process map and gives several examples of performance measures for each step. An effective CM program should be identifying and solving systemic problems through the use of Precision Maintenance initiatives. The paper presents the fundamental "WHY" behind Precision Maintenance, in the language of equations that Engineers understand.

The Uncertain Future: Planning for Alternate Realities

Anna Robak, AMBoK Id 1852, Full Paper

Our assets are expected to last up to 100 years, but mightn't they become obsolete well before then? We are travelling at speeds we would not have thought possible one hundred years ago, and communicating in ways that were only science fiction thirty years ago. Given the possibility that the nature of our services could drastically change within our assets' lives, it is only prudent that we consider alternate realities when planning for future services. This paper explores the possible outcomes of a handful of future scenarios, including: Physical resources are inadequate to meet demand; Demand for services disappears; You stop providing the service; External factors make cost of service provision uneconomic; You provide a profit-generating service. The possible outcomes associated with these scenarios are based on recent research that evaluated people's preferences, willingness to pay, and their behaviours related to their infrastructure services. Considering extreme scenarios will help asset managers prepare for these possible futures, preparing them for new roles – such as that of monitor and advisor rather than physical infrastructure operator – and new service provision alternatives.

Establishing Optimal Long Term Funding Allocation Systematic Approach based on Network Needs & Availability of Funds

Alan Roland, Prof. John Yeaman, Prof. Mark Porter, AMBoK Id 1853, Full Paper

Road Controlling Agencies (RCAs) around the world are facing continuous challenges sustaining network funds. Roads are usually funded through budget allocations determined as part of annual government budgetary processes. Roads with different hierarchies and functional classifications may be managed by different road administrations. Sometimes they will have their own sources of funds (investments). For others, funding will come from the national sources. Particularly for roads of lower hierarchy, the provision of funds will often be shared between national and local / regional sources. The research will provide a solid basis for a systematic approach and resulting a tool for assessing fund forecasts considering various scenarios. This system will be flexible and can be adjusted to provide a confidence to the road authorities and governments on needs verses available revenue. The system also will assist the government funding agency to compile and integrate funding request from various authorities to optimize fund bids. This research will be unique in that it will provide the road network owner's view point and be driven by value for money rather than profit whilst meeting the fundamental principles of sustainability, innovation and risk management.

Improving Points Reliability on Perth's Metropolitan Rail Network – A Case Study

Rebecca Taylor, Simon Ayres, AMBoK Id 1854, Full Paper

With increasing patronage demand on Perth's metropolitan rail network, improved reliability of the infrastructure and reduction of consequential delays is becoming increasingly important. In recent years, one of the main causes of infrastructure faults impacting the reliability of train service operations have been attributed to points assets. Points provide the means for one train to pass from one track to another and are complex assets which require maintenance interventions from a number of engineering disciplines, thereby incurring technical interface challenges. The Public Transport Authority of Western Australia commenced a project in 2011 to improve reliability and performance of points assets. This paper provides a case study of the strategy, reliability principles and the asset management practices adopted.

The Role of Condition Benchmarking in Asset Management, Case Study for Pavement Asset in Abu Dhabi – UAE

Alan Roland, Daniel Ludemann, AMBoK Id 1855, Extended Abstract

Best practice asset management involves benchmarking to ensure that a continuous improvement cycle is maintained. Infrastructure asset benchmarking measures the service quality, asset performance, condition, safety and environmental effectiveness. It is important to determine the impact of the benchmark measure on the level of service and future operations and maintenance costs. The Department of Transport (DoT) – Main Roads (MR) is managing, operating and maintaining a road network for approximately 10,000 lane.km within Abu Dhabi Emirate. The network is growing rapidly as a result of current capital investment and other improvement projects carried out by the DoT where road projects are vested and handed over by a third party. As part of asset benchmarking, four typical applications, including construction quality control/quality assurance (QA/QC), layer moduli estimation, estimation of remaining service life, and mechanistic-empirical procedures are used to assess asset performance with respect to structural capacity. This paper presents a case study where all the above tools are used to evaluate the condition of a recently completed road project, evaluates several quality issues, and the recommendations for mitigating risk of future unforeseen maintenance costs over the asset life.

Gaining Productivity and Cost Effectiveness Through Better Processing and Understanding of Asset Data

Edwin Karema, AMBoK Id 1858, Full Paper

To get approval from the management, one of the most important things for any asset management improvement project is to present the data that can justify the project. Today, with the advancement of technology, most plants will have multiple sensors and data sources. However, this condition creates new challenges which related to: Volume – the amount of data that continuously growing (1 second resolution sensor correspond to over 31 million rows data); Velocity – time to acquire and process the data; Variety – different type of data(i.e. structured data from database, or unstructured data e.g. text photo and video); Veracity – the degree of trust in the data set. By using data warehousing concept and business intelligence software, it is possible to address the above issues in structured, logical and transparent manner. The high volume of data from multiple sources can be sliced, diced, combined and then presented in a dynamic dashboard. The dynamic dashboard allows user with different role to access the same data set and create a customized/specific visualization/insight that can support their project proposal. In turn, this approach promotes better decision making process which can lead to productivity improvement.

Financial Return of the Performance Culture

Mark Broussard, AMBoK Id 1859, Full Paper

In 2012, Strategic Asset Management Inc. (SAMI) introduced a unique approach to organizational improvement called The Performance CultureTM. The concept and model of The Performance Culture revolves around four domains, each with three supporting elements. Two of the enabling domains, Purpose and People, focus on leadership and organizational development. Two others, Predictability and Performance, focus on elements which drive the financial results of the enterprise. To achieve the desired performance, a company must initiate behavioural change and invest in certain aspects of managing it effectively. The paper identifies key variables for implementing The Performance Culture, the investments necessary to achieve a higher level of financial performance, and the interrelationships of the variables involved in the process. Financial improvement and predictable levels of return—major components of the paper—represent a compelling case for companies to consider implementing the Performance Culture, as well as improved performance throughout an organization.

Extent of Use of Continuous Improvement Process in Engineering Asset Management Practices in Oil and Gas Service Industry in Nigeria

Olatunji Ilori, AMBoK Id 1860, Full Paper

A systematic approach to realizing the extent of problems associated with assets and providing mechanisms for improvement is offered by Asset Management (Wilson, 2005). Continuous Improvement Process (CIP) is an approach to improving organizational performance with small incremental steps, over time (Irani and Sharp, 1997). The concept of CIP has been adopted in advanced nations. However, there is dearth of information on its usage in engineering assets management (EAM) in the Oil and Gas Services (OGS) industry

in Nigeria needs the highest level of focus. The study therefore, examined the extent of the use of CIP in EAM in the OGS industry in Nigeria. The research study covered 60 OGS companies in Nigeria. Data were collected through questionnaire and were analysed using descriptive and inferential statistics. The study revealed that CIP was recently embraced in OGS companies and has their assets performance level. The study concluded that OGS industry were practicing EAM and had introduced CIP.

Integrating Asset Management across Fremantle Ports

Alessandra Mendes, Rouzbeh Pourazim, Steve Marley, Dario Vallini, Hessam Mohseni, Frédéric Blin,

AMBoK Id 1864, Full Paper

Asset ownership is a significant cost to Fremantle Ports and developing a best practice strategic asset management (SAM) framework that provides a simple, logical and innovative approach for optimising the whole of life cycle cost of asset delivery in meeting the agreed levels of service and risk exposure has been a corporate priority over the past years. With the development and implementation of the SAM framework well underway, Fremantle Ports now focuses on the integration of asset management practices across the business, from operational through to tactical and strategic planning. A pilot project has been proposed to assess and improve asset management practices across one of Fremantle Ports' most critical asset classes, the wharves and jetties. This paper reviews the findings and challenges of this project and the various tools that were developed, including a lifecycle cost model. This model is based on asset condition and related deterioration curves that allow for the estimation of remaining life. In addition, the model enables the selection of most cost effective rehabilitation strategies while considering risk profile and available funding, assisting Fremantle Ports in optimising the decision making process by providing an actual and an optimised lifecycle cost plan.

A Tool to Investigate the Status of Engineering Asset Management in Organizations

Khaled El-Akruti, Richard Dwight, Tieling Zhang,

AMBoK Id 1865, Full Paper

The paper defines Engineering Asset Management (EAM) as a system and establishes a framework for it that addresses a set of activities utilized by organizations to manage asset related activities. The framework is proposed to guide organizations in investigating if the status of the EAM system that they have in place is adequate to serve achieving the intended objectives. It also serves as a guide for researchers in EAM. A 'retroductive' approach in the context of case studies is argued to fit the investigation and lead to a better contribution in research. The proposed framework can be used as a research tool, as well as a practical reference base in determining what activities should be in place within the asset management system in order to enhance an organization's ability to capture intended benefits. The proposed framework ensures a holistic approach to EAM in the sense that it explores the required asset management activities, relationships and mechanisms for achieving organizational success.

Using Physical Asset Management as a Strategy for the Cultural Transformation of the Department of Public Works and Highways, Through the Bureau of the Equipment

Toribio Noel Ilao, AMBoK Id 1866, Extended Abstract

This paper will feature and showcase how DPWH, thru the BOE, with its negative tagged before has used PAM for its land and water-based equipment fleet, as one of the strategies, has started its transformation to a world class government organization to efficiently and effectively deliver mandated required services. It will also feature the 5-Year Re-fleeting and Disposal Program based on Life Cycle Analysis and implementation of PAM Strategies. About 86% of the equipment fleet being managed by BOE has an average age of twenty (20) years and above. Reflective of the age of the equipment is rate of nationwide availability of only 45%, 28% of this fleet for disposal and increasing cost in maintenance, repair and operations (MRO). DPWH, thru the BOE, has embarked and adopted to implement a nationwide Physical Asset Management Program (PAMP) nationwide based on the PAS 55 tenets in the middle of CY 2011. Before the end of CY 2012, the massive re-fleeting and disposal has started which is projected to be completed by the 2nd Quarter of CY 2017. Some new units are now being used in various areas in the Philippines stricken by recent calamities and disasters, including Typhoon Haiyan.

Designing Modern Maintenance Programs for Heritage Rail Vehicles using Heritage Maintenance Analysis Methods

James Kennedy, Jennifer Edwards, Peter Kohler,

AMBoK Id 1867, Full Paper

The development of preventive maintenance programs for regularly used productive equipment, using modern risk based analysis techniques such as RCM, is well documented in the public domain. Not so the development of preventive maintenance programs for lowly utilised yet safety critical equipment. Operating large heritage rail transport equipment on the public rail system amongst normal traffic presents some unusual challenges. Large steam locomotives consists hauling up to 20 fully occupied heritage carriages, even when required for only a handful of days per year, must be as safe as normal well used rail traffic yet be cost effectively maintained by a mixed group of paid and volunteer staff. This paper will describe the successful application of a "heritage" maintenance analysis process, developed in the mid 1970s and last used almost 20 years ago in power station maintenance plan development, to develop a cost effective and defensible program for the working carriages of the Rail Transport Museum at Thirlmere in New South Wales. The paper will demonstrate how decades of experience was cost effectively harvested to develop a defensible preventive maintenance program, which achieved a significant reduction in effort and reflected the unique usage of Heritage assets designed for commercial operation more than 80 years ago.

Asset Health Management – A Strategic Perspective

Yvonne Power, AMBoK Id 1868, Extended Abstract

The Australian Resources Industry is continually looking for ways to reduce operating costs, increase safety and to optimise asset performance. While initiatives such as implementing remote operating centres, installing on-line condition monitoring sensors, offshoring asset performance data analysis and engaging original equipment manufacturers to provide specialist diagnostic services provide short term benefits, organisations must consider having an Asset Health Management strategy in place to support an organisations long term approach to managing asset performance across the life of the asset. This paper discusses Asset Health Management as a strategic initiative. It presents Asset Health Management strategies which have been successfully implemented within large-scale resource organisations. It discusses the challenges of implementing these strategies at all levels within an organisation from those in the field to upper level management. It also presents the benefits of implementing methods which are sustainable and suitable for the long term benefit of the organisation and the industry as a whole.

Maintainers of the Future

Professor Melinda Hodkiewicz, AMBoK Id 1869, Full Paper

In the last two decades we have seen significant changes in how assets are operated and in the duties of operators due to advances in process control, remote operations systems and development of autonomous assets. However the day to day work of maintenance technicians engaged in the resources and infrastructure sectors has changed very little. This paper looks at trends in asset management particularly with respect to assets in remote locations and how these trends might affect the role and competences of our maintainers of the future.

Maintenance Evaluation Case Study

Geoffrey Fox, AMBoK Id 1871, Extended Abstract

This paper details a case study at a mining and mineral processing operation. Bluefield Asset Management Services conducted a "Bluefield Evaluation" which looked at the equipment throughput and how it was impacted by the quality of the maintenance strategies being employed and the quality and consistency of the execution of those strategies in the field. Producing high quality equipment maintenance strategies and maintenance instructions is vital to achieve world class reliability and maintainability. Well thought out, practical and unambiguous work instructions define the quality standard required in the field, and support and motivate the field personnel as they strive to achieve quality and consistent execution of that work. The Bluefield evaluation identified specific improvements in the work instructions and the maintenance strategies to remove ambiguity and increase the subjectivity of the inspections. However, more importantly, the evaluation and subsequent improvement process allowed the site to obtain the necessary quality in the execution of the work that was missing in the organisation. The improved work execution quality provided rapid equipment reliability improvements and a stable foundation for the site to continue to improve performance. The paper presents key findings of the evaluation, the underlying causes, the actions identified and the progress which has been made in implementing them.

Improving Woodside's Asset Management Capability Using an Integrated Risk Based Inspection System

Matthew Turnbull, AMBoK Id 1876, Extended Abstract

Woodside is Australia's largest independent oil and gas company, with a proud history of safe and reliable operations spanning decades. As one of the world's leading operators of oil and gas, Woodside produces around 900,000 barrels of oil equivalent each day from a diverse portfolio of facilities which we operate on behalf of some of the world's major oil and gas companies. Woodside strives for excellence in safety and environmental performance and continues to strengthen relationships with customers, co-venturers, governments and communities to ensure we are a partner of choice. In 2012-13, Woodside engaged Bentley Systems and Ajilon to implement Bentley's world class integrated risk based inspection system, AssetWise Ivara Performance Management. Learn how the team implemented an integrated Inspection Data Management system (IDMS) to help Woodside establish a single source of truth for inspection information, advancing our journey towards production excellence.

Exploring the Effect of Political Risks in Large Infrastructure Projects in Politically Unstable Countries

Saad Khan, Dr. Azam Khan, Daniyal Mian,
AMBoK 1877, Extended Abstract

This research aims to explore and identify political risks on a large infrastructure project in an exaggerated environment to ascertain whether sufficient objective information can be gathered by project managers to be able to utilise risk modelling techniques. During the study, the author proposes a new definition of political risk; performs a detailed project study of the Neelum Jhelum Hydroelectric Project in Pakistan, implements a probabilistic model using the principle of decomposition and Bayes probabilistic theorem and answers the question: was it possible for project managers to obtain all the relevant objective data to run a probabilistic model?

Synergy Between Methodology and Technology to Improve System Reliability

Sridhar Ramakrishnan, AMBoK Id 1885, Extended Abstract

There was an opportunity to eliminate a bad actor on our expansion project through a combination of right methodology selection (RCM) and utilization of a novel tool (Production Simulator). Boiler feed water is the heart of any SAGD operation. However, ensuring uninterrupted supply of high pressure feed water to the boilers is a challenging task because the process design is a complex network of heat exchangers and prime-movers, controlled and protected by advanced instrumentation and control systems. Failure of assets in this complex network interrupts steam generation, directly causing deferment of bitumen production and thereby our revenue. Buy-in from the senior management was followed by selection of the right consultant and gathering of the RCM analysis with right skill-set. On many occasions during the two weeklong analysis, effective collaboration with operations helped us utilize production simulator (at no additional cost) and answer the 4th and 5th questions of RCM "what happens when each failure occurs", and "in what way does each failure matter". RCM helped us develop a robust maintenance and reliability strategy for a critical system having over 400 tagged assets, in addition to some re-design recommendations one of which can save up to $ 1 million as failure avoidance cost. By identifying the right methodology, applying it correctly, and implementing the recommendations fully within a specific time-frame, we expect to save millions of maintenance dollars in future.

Asset Management Stewardship and Best Practice in Toll Road Operations and Maintenance

George Vasiliadis, David Evans, Heinz Volma,
Les Hill, Mike Mundy, AMBoK Id 1896, Full Paper

Transfield Services has considerable experience in operating and maintaining major toll roads such as CityLink and EastLink in Melbourne since 1999, and more recently the M2/Lane Cove Tunnel in Sydney since 2007. Known as Terotechnology, our approach to Operations and Maintenance (O&M) requires a close 'stewardship' type relationship with the road and tunnel planning and design teams to ensure that best practice design requirements are documented and considered in the early stages of infrastructure design. Our methodology focuses on the whole-of-life performance of the asset base, in order to deliver key outcomes of safety, reliability and long-term value for money to our Clients. Our focus is aimed at putting in place 'best practice' arrangements to up-keep the condition of the asset base, whilst simultaneously supporting the criticality of its operation, particularly in the event of serious traffic incidents. This paper discusses sound asset management principles for maintaining and operating three toll road corridors which, in total, carry an estimated bi-directional traffic volume approaching one million vehicles per day.

THE ASSET MANAGEMENT COLLEGE

Asset Management College Pty Ltd

Networking Lunch Sponsor, Tuesday

The Asset Management College is a fresh approach to professional asset management education. We are a specialist provider of asset management and related training courses, with an emphasis on the technical, financial and economic processes, knowledge and tools to support asset management as a strategic business discipline. The Asset Management College intends to offer a range of targeted short courses that can be taken individually or, subject to confirmation of our Registered Training Organisation status, counted towards the award of a Diploma of Strategic Asset Management Planning. We also intend to offer a Diploma of Quality Auditing –ISO55001 to support your internal auditing obligations under ISO55001. The Asset Management College team includes recognised leading technical, financial and economic trainers, facilitators and mentors all with Professional Industry Body Certification such as CFAM and CPA. With a launch date in Third Quarter 2014, register your interest now by visiting www.theamcollege.com.au .

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assetivity

Assetivity Pty Ltd

Writing Pad & Pen Sponsor

Assetivity is a hybrid Engineering and Management Consulting organisation assisting organisations to obtain maximum value from the capital invested in physical assets. Assetivity has extensive experience in improving the asset performance and operational capability of organisations in asset-intensive industries, such as Mining, Mineral Processing, Oil & Gas, Utilities, Transport and Infrastructure. Assetivity brings a comprehensive set of Asset Management tools and techniques to every assignment. We can assist with Asset Management Strategy Development, Asset Management Planning, Asset Management Implementation and Asset Management Training and Audits/ Assessments endorsed by the IAM. Assetivity also offers a wide range of services in Operations Management, Maintenance Management and Supply Management, all of which are tailored to each unique situation. Our focus is on developing long-term sustainable improvement through transfer of knowledge and skills to our clients, and the establishment of simple, robust, repeatable management processes. Assetivity has been nominated for a variety of awards including State Finalist for the Telstra Business Awards for the 3rd year running as well as being listed in the BRW Fast 100 for the fifth time and the SmartCompany Smart50 for the third time.

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I&E SYSTEMS

I&E Systems

Afternoon Tea Sponsor, Tuesday

I&E Systems are systems engineers for control, safety, SCADA, turbo machinery and power applications. They define operational requirements, design, configure, supply and commission these systems. They replace, revamp, retrofit and upgrade systems with minimum downtime and have performed many complex upgrades in hazardous operations during full production based on high integrity, error free designs developed using our System Information Modelling software DAD. Their work is of the highest quality and their record for accuracy, and adherence to schedule and budget, on many projects successfully completed around the world demonstrates this. Their DAD System Information Modelling tool creates a 1:1 digital representation of any physical system, where digital components, connections and functions are linked just like their physical counterparts. DAD's impact on system design is ground-breaking, delivering a time and cost saving of greater than 60% when compared with any current methods, and continues to deliver accuracy and savings for the lifetime of any connected system.

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IQ-AM
Institute of Quality Asset Management

Institute of Quality Asset Management

Welcome Function Sponsor

IQ-AM is a private Registered Training Organisation that specialises in education and change management for asset dependent organisations. Our facilitators and trainers are all qualified trainers and highly experienced Asset Management practitioners. Our client base includes utilities, local and state government agencies, mining companies, industry associations, consultants and Asset Management service providers. We have developed a curriculum of accredited workplace training programs that provide our clients with vertically and horizontally aligned Asset Management training from Certificate IV to post-graduate diploma level. The core curriculum is aligned to the ISO 5500# series of Asset Management Standards and is complimented by awareness training, short courses and workshops for strategic planning and issues management for executive teams and governing bodies. For further information go to www.iq-am.com.au

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K2

K2 Technology Pty Ltd

USB of Proceedings Sponsor

Award-winning asset management solutions tailored to industry needs. Founded in 2000, K2 has established itself as a leader in maintenance engineering and asset management services at all stages of the resource life-cycle. With offices in Perth, Brisbane and Singapore, and two further agents representing the company in the Asian market, K2's growing presence ensures its ability to offer expertise to an expanding global client base. Certified to ISO 9001:2008 Asset Management Services Standards, in 2013 K2 was awarded the prestigious Gold Asset Management Award from the Asset Management Council for the successful completion of Woodside's NR2 Production Readiness project. With eight integrated divisions, K2 provides complete asset management services and support capability: strategic consulting; maintenance and reliability management; operations engineering support; operational readiness; advanced database systems; commissioning services; governance & integrity management; supply chain management. K2 is committed to providing clients with safe, reliable, fit-for-purpose asset management and engineering services. The company's expertise is continually refined, ensuring it can provide leading edge services in line with the latest available enterprise asset management systems.

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Lycopodium

Lycopodium Asset Management

Water Bottles Sponsor

Lycopodium Asset Management Pty Ltd has its headquarters in Perth Western Australia with offices in Brisbane (Queensland) and Manila (Philippines). We are an engineering consultancy providing a range of Asset Management services to clients in the Petrochemical, Oil & Gas, Mining, Minerals Processing, Manufacturing and Marine sectors. Established in 1999, our company is recognised as a leader in the Asset Management field. We pride ourselves on providing practical solutions for our clients and have significant experience in re-engineering existing systems for Brownfield operations as well as developing and implementing new maintenance management systems for Greenfield developments.

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TEAKYEW

Teak Yew

Morning Tea Sponsor, Wednesday

As a Corporate Leader you strive to create value for your stakeholders. You make the decisions that matter. We provide independent Strategy advice to support your decision making and generate long-term value. Our specialist experience focuses on capital intensive industries, where the effective management of assets is critical to achieving your strategic objectives. We work to ensure that you have a clear line of sight between the Board room and the workshop floor, so that everyone in your organisation is aligned towards a shared vision. Our clients include companies in mining, manufacturing, construction, facilities management, port operations and other asset intensive enterprises.

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TRANSFIELD SERVICES

Transfield Services Pty Ltd

Principal Sponsor

Transfield Services is an operations, maintenance and construction services business, operating globally in the resources, energy, industrial, infrastructure, property and defence sectors. They work closely with our clients, helping them to achieve their business outcomes through optimising the sustainable performance, integrity and output of their assets. www.transfieldservices.com

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ARMS RELIABILITY

ARMS Reliability Engineers

Since 1995, ARMS Reliability has been at the forefront of proactive asset management strategies for a range of blue chip companies throughout the world. These companies have entrusted ARMS Reliability with delivering business goals through effective asset management and improvements in operational productivity. Through a unique blend of consulting, education and software solutions, we provide a "one stop shop" service to assist companies in two core areas: improving asset performance and improving problem solving. Servicing a diverse range of industries, including mining, manufacturing, oil and gas, power generation and utilities, our presence is worldwide. With offices in North America, Latin America, Europe, Australia and Africa, our experienced team of engineers and trainers span the globe.

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ASSET MANAGEMENT COUNCIL

Asset Management Council

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 alliance with the Global Forum of Maintenance and Asset Management to its members and the ever-increasing global asset management community. The object of the Asset Management Council is to carry out the following purposes: to strengthen and enhance the asset management and maintenance engineering capabilities of asset management practitioners and organisations; to promote excellence in the practice of asset management and maintenance engineering; to promote practitioner participation in and contribution to activities of the Company; to facilitate linkages at national and international levels; to facilitate active participation from other disciplines and professions; and to encourage research and increase the body of asset management knowledge.

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assetivity

Assetivity Pty Ltd

Assetivity is a hybrid Engineering and Management Consulting organisation assisting organisations to obtain maximum value from the capital invested in physical assets. Assetivity has extensive experience in improving the asset performance and operational capability of organisations in asset-intensive industries, such as Mining, Mineral Processing, Oil & Gas, Utilities, Transport and Infrastructure. Assetivity brings a comprehensive set of Asset Management tools and techniques to every assignment. We can assist with Asset Management Strategy Development, Asset Management Planning, Asset Management Implementation and Asset Management Training and Audits/ Assessments endorsed by the IAM. Assetivity also offers a wide range of services in Operations Management, Maintenance Management and Supply Management, all of which are tailored to each unique situation. Our focus is on developing long-term sustainable improvement through transfer of knowledge and skills to our clients, and the establishment of simple, robust, repeatable management processes. Assetivity has been nominated for a variety of awards including State Finalist for the Telstra Business Awards for the 3rd year running as well as being listed in the BRW Fast 100 for the fifth time and the SmartCompany Smart50 for the third time.

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Bentley

Bentley Systems Pty ltd

Bentley Systems is a leader in full asset life-cycle management from design, construct, hand over, operations and maintenance. With over 3,000 employees in over 50 offices worldwide, annual revenues surpassing US$550 million and over $1billion invested in research, development and acquisitions. Bentley's Asset Performance Management's solution, formerly known as Ivara, is a recognized world leader for implementing, verifying and systemizing asset management strategy within a client's existing IT environment. Customer's have achieved PAS55/ISO5500 certification through the adoption of Bentley's solutions and methodology. Strategies can include Risk Based Inspection, Corrosion Inspection, RCM, MTA, RCA etc. Through the acquisition of Ivara, Bentley owns RCM2 and the Aladon Network (formerly owned by John Moubray) which is a community of certified reliability professionals skilled in the delivery of RCM2, MTA (Maintenance Task Analysis) and Asset Prioritisation. Bentley has a large international

blue-chip client base including Shell, Woodside, Rio Tinto, QGC, Singapore LNG, Tenaga National, Roy Hill, Vale, Scottish Power, Arcelor Mittal, Dofasco, Domtar, Agrium and Oman Refinery.

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Capability Partners
ASSET MANAGEMENT

Capability Partners

Established in 1995 as Capability by Design, Capability Partners is a 100% Australian owned company that provides asset management and safety related engineering services to clients with complex, high energy physical assets. Our core competency is the holistic understanding of risk and its application to asset management and safety, within a business framework. We have developed a unique set of software tools to make our processes repeatable, efficient and cost effective. Our approach achieves a demonstrable balance between cost, risk and asset performance – a cornerstone of the ISO 55000 Asset Management Standard. We partner with commercial and public sector organisations in industries including defence, oil and gas, utilities and rail to ensure the 'safety of use' and 'fitness of purpose' of their assets, throughout their lifecycle. As acknowledged industry thought leaders, we bring an innovative approach to our work, providing effective and individually tailored solutions to complex asset management problems.

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GeomaticTechnologies

Geomatic Technologies

Geomatic Technologies (GT) is a recognised leader in advanced mobile and spatial technologies and is among Australia's leading providers of IT integrated solutions and services. GT's solutions portfolio includes solutions and services for mobile workforce management, asset capture and inspection, web mapping (including address validation and geocoding services) and solutions for data access, data management and data distribution. GT has a long and successful track record supporting asset management activities in sectors that include government, transportation, water and power, telecommunications, insurance and real estate.

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I&E Systems

I&E Systems are systems engineers for control, safety, SCADA, turbo machinery and power applications. They define operational requirements, design, configure, supply and commission these systems. They replace, revamp, retrofit and upgrade systems with minimum downtime and have performed many complex upgrades in hazardous operations during full production based on high integrity, error free designs developed using our System Information Modelling software DAD. Their work is of the highest quality and their record for accuracy, and adherence to schedule and budget, on many projects successfully completed around the world demonstrates this. Their DAD System Information Modelling tool creates a 1:1 digital representation of any physical system, where digital components, connections and functions are linked just like their physical counterparts. DAD's impact on system design is ground-breaking, delivering a time and cost saving of greater than 60% when compared with any current methods, and continues to deliver accuracy and savings for the lifetime of any connected system.

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intelfuse
INTELLIGENT FUSION OF DATA

INTELFUSE

Captured data is modelled to create a digital 3D representation of the utility's network, delivering precise information about the nature and location of assets and threats. Intelfuse has the in-house skills and resources required to provide a tailored end-use solution for your project. Our services range from high-resolution LiDAR and imagery collection, to the delivery of end-user engineering products, in a wide variety of formats, including PLS-CADD. Industries served by us include: Electricity Transmission & Distribution; Roads and Highways; Railways; Mining; Pipelines; Forestry

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K2 Technology Pty Ltd

Award-winning asset management solutions tailored to industry needs. Founded in 2000, K2 has established itself as a leader in maintenance engineering and asset management services at all stages of the resource life-cycle. With offices in Perth, Brisbane and Singapore, and two further agents representing the company in the Asian market, K2's growing presence ensures its ability to offer expertise to an expanding global client base. Certified to ISO 9001:2008 Asset Management Services Standards, in 2013 K2 was awarded the prestigious Gold Asset Management Award from the Asset Management Council for the successful completion of Woodside's NR2 Production Readiness project. With eight integrated divisions, K2 provides complete asset management services and support capability: strategic consulting; maintenance and reliability management; operations engineering support; operational readiness; advanced database systems; commissioning services; governance & integrity management; supply chain management. K2 is committed to providing clients with safe, reliable, fit-for-purpose asset management and engineering services. The company's expertise is continually refined, ensuring it can provide leading edge services in line with the latest available enterprise asset management systems.

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Landgate

Landgate

Landgate is Western Australia's primary source of land information and geographic data, providing the accuracy Government, business and individuals rely on. Landgate provides Western Australians with easy access to location information including: Property Details, Titles, Valuations, Property sales reports, Maps, Aerial photography; and Satellite imagery. As a Statutory Authority, Landgate maintains the State's official register of land ownership and survey information and is responsible for valuing the State's land and property for government interest. Landgate is at the cutting edge of location information technology. In 2008 we launched the Shared Land Information Platform (SLIP) Enabler, an application that has revolutionised the way spatial information is used and shared. The SLIP Enabler facilitates the sharing of spatial information across government and business to provide the community with easier access to data. It provides the infrastructure and services required to access Western Australia's considerable land and geographic information resources. At Landgate we recognise that making the right decisions requires location knowledge. We provide location information for optimal decision making in government, business and the community.

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Logsys Power Services

Logsys Power Services

Logsys employs around 150 dedicated electrical industry professionals and specialises in all aspects of overhead and underground electrical installation and maintenance as well as Electrical and Structural Engineering services. Logsys has good working relations with Global companies in the USA (Osmose Utility Services) and France (Soitec) which are global leaders in their specific fields. Our Services include, but are not limited to, design and installation of Concentrator Photo Voltaic systems, utility wood pole restoration systems and pole loading assessments, Street Lighting installation and Maintenance including bulk globe replacements, Electrical and Structural design services, Live line glove and barrier maintenance services, Transmission and Distribution asset inspections and construction services, metal pole inspections, HV & LV switchgear maintenance, Thermo graphic surveys and condition monitoring as well as Asset Management Plans.

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Lycopodium

Lycopodium Asset Management

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OMCS international

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.

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The Asset Partnership pwc

PWC The Asset Partnership

The Asset Partnership is amongst Australia's leading consulting organisations. We specialise in helping our clients make efficient and effective use of their investments in physical assets. We work with you to: Identify operational constraints and improve throughput, Optimise life cycle support costs, Deliver outputs with reduced safety and operational risks Our highly experienced consultants have experience in many industries and sectors including Mining and Minerals Processing, Defence, Power Generation, Utilities, Aerospace, Food and Beverage and Transport.

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riva modeling

Riva Modeling Systems

Riva's Advanced Asset Management Software Solutions provide a platform which supports long-range asset management planning and decision making, by bringing together your organization's data from various sources including spatial, work management and financial systems. Riva allows for the incorporation of your organization's current and best practices and integrating them with your corporate databases, work order systems and other applications to source the inventory and condition of assets. Our technology generates a lifecycle cost and risk profile for each asset, as well as a capital and maintenance strategy with prioritization capabilities. And, it all happens in real time, so your plan is always current and up to date for up to 100 years.

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SAP

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 75 countries worldwide. SAP applications and services enable more than 109,000 customers worldwide to operate profitably, adapt continuously and grow sustainably. Our mission is to help companies of all sizes and industries to run better. Our vision is to help the world run better.

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Teak Yew TEAKYEW

As a Corporate Leader you strive to create value for your stakeholders.
You make the decisions that matter. We provide independent Strategy advice to support your decision making and generate long-term value. Our specialist experience focuses on capital intensive industries, where the effective management of assets is critical to achieving your strategic objectives. We work to ensure that you have a clear line of sight between the Board room and the workshop floor, so that everyone in your organisation is aligned towards a shared vision. Our clients include companies in mining, manufacturing, construction, facilities management, port operations and other asset intensive enterprises.

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The Online Workshop

The Online Workshop

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.

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TRANSFIELD SERVICES

Transfield Services Pty Ltd

Transfield Services is an operations, maintenance and construction services business, operating globally in the resources, energy, industrial, infrastructure, property and defence sectors. They work closely with our clients, helping them to achieve their business outcomes through optimising the sustainable performance, integrity and output of their assets. www.transfieldservices.com

Contact: Nayyar Eshan
shsann@transfieldservices.com

vitech RELIABILITY

Vitech Reliability

Vitech Reliability is an Australian-owned organisation established in 1995 providing product sales, application support and training for machine reliability and dynamic measurement technologies. We equip industry with reliability and measurement solutions in Australia and New Zealand. Vitech Reliability offers: Vibration monitoring, machine diagnostics and portable & fixed CM solutions for rotating plant, Electric motor analysis and infrared thermal imaging solutions, Machinery alignment and corrective technology and NDT inspection technologies and dynamic measurement solutions, to the following industry sectors; heavy industry, water and waste water, power generation, defence, manufacturing, pulp & paper, food industry, mining, oil & gas, Refining.

Contact: Emma Wright
emma@vitechreliability.com

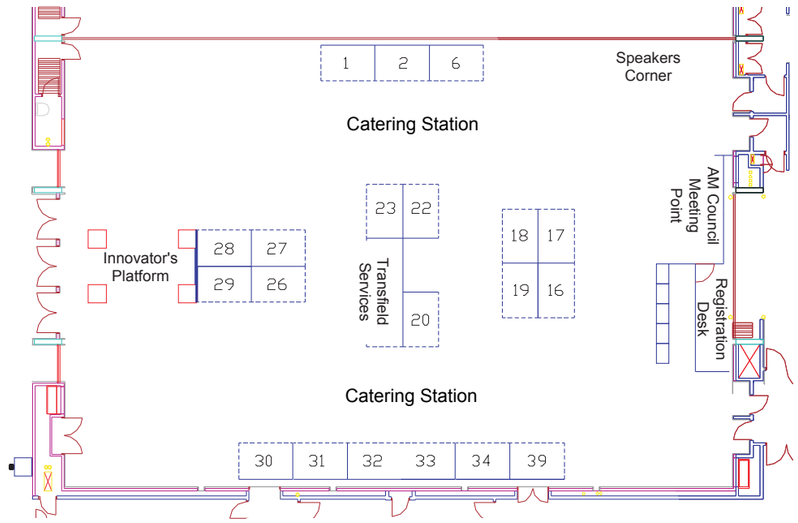
VIZIYA®

VIZIYA Corporation

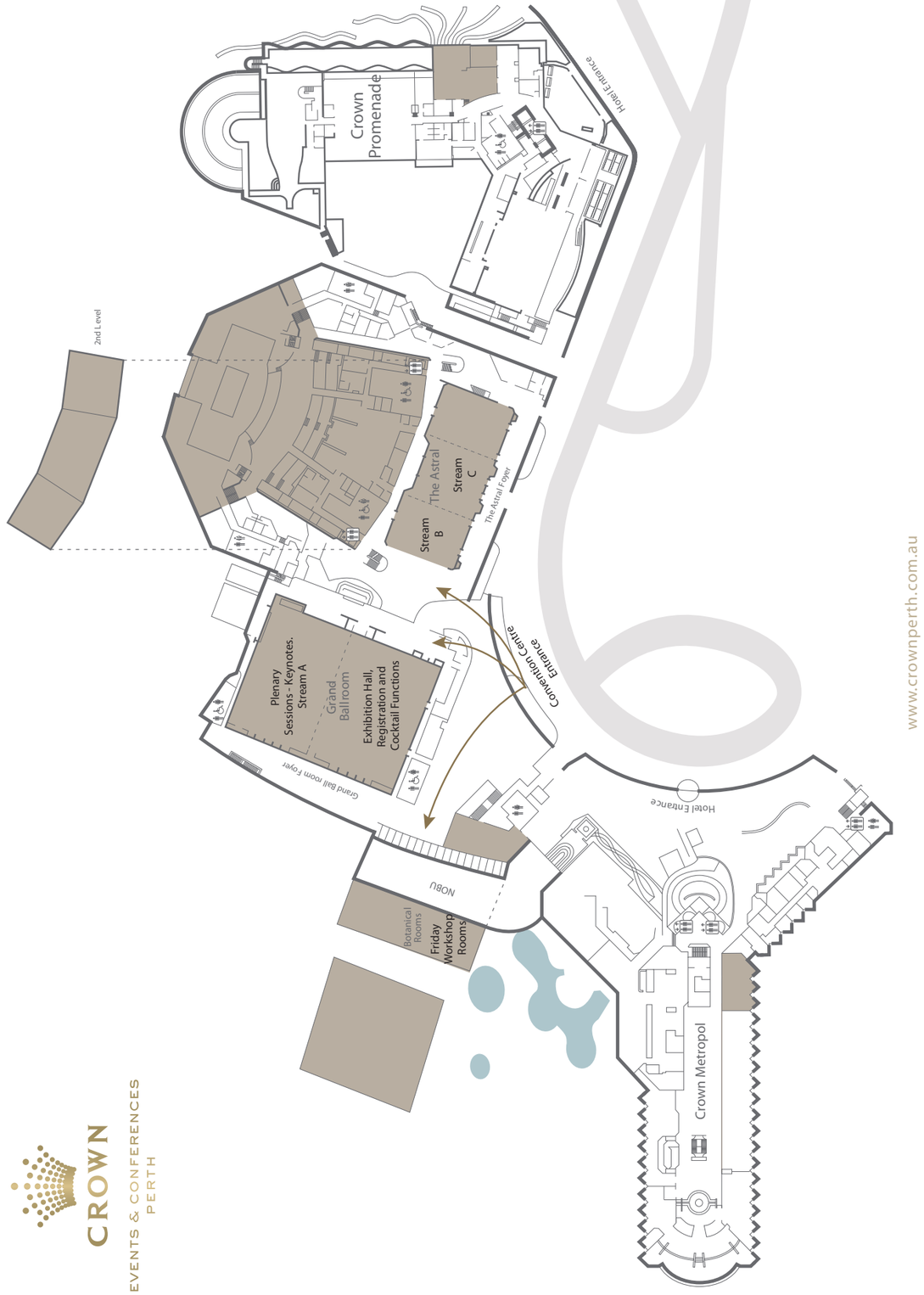
VIZIYA is the industry leader in bolt-on software products that enhance ERP-based asset maintenance systems. VIZIYA's proprietary WorkAlign™ Product Suite delivers seamless integration into existing Enterprise Asset Management (EAM) systems and is uniquely applicable to any existing ERP system. Our products work as bolt-on modules to existing maintenance software - they're fully functional, fully extending the capabilities of your system. Opposed to being a stand-alone application, we leverage your ERP system's APIs so you don't need a separate database or integration bridge. Your data stays where it belongs – in your ERP system's database. So, whether you're still using your asset management module, in the middle of implementation, or still evaluating its potential, VIZIYA can meet your needs and give you the tools to effectively manage your business. With over 47,000 users at 710 sites from Fortune 1000 companies, VIZIYA is the industry-standard for EAM systems worldwide.

Contact: Vikesh Dayaram
vikesh.dayaram@viziya.com

EXHIBITION FLOOR PLAN



1. INTELFUSE
2. Riva Modeling Systems
6. Geomatic Technologies
11. Speakers Corner
12. AM Council Meeting Point
13. AM Council Meeting Point
14. Registration Desk
15. Registration Desk
16. Landgate
17.Lycopodium
18.Teak Yew
19. OMCS International
20. I&E Systems
22. The Online Workshop
23. Assetivity
24. Transfield Services
25. Transfield Services
26. K2 Technology
27. Vitech Reliability
28. Logsys Power Services
29. PwC The Asset Partnership
30. Capability Partners
31. ARMS Reliability
32. SAP Australia
33. SAP Australia
34. Bentley Systems
39. VIZIYA



CROWN
EVENTS & CONFERENCES
PERTH

Friday 6 June
8.30am – 4.30pm

WORKSHOPS & SITE VISITS

ASSET MANAGEMENT COUNCIL

Running concurrently so delegates can only enrol in one workshop or the Site Visit Tour 8.30am - 4.30pm

W1 Creative Technique to Evolve Condition Based Maintenance Strategies

SAP

Traditionally we have solved problems by overlapping what is viable from a business sense with what is technically feasible. Design Thinking is an approach to solving problems that starts with what is desirable from a people perspective. Design Thinking is generally considered the ability to combine empathy for the context of a problem, creativity in the generation of insights and solutions, and rationality to analyse and fit solutions to the context.

The intent of this workshop is to combine the collective ideas of the workshop participants and apply a Design Thinking approach to Condition Based Maintenance. The outcome will be a comprehensive approach to real time monitoring and analysis of condition based data in order to maximise equipment uptime and operational efficiency.

W2 Asset Management Fundamentals

Ernst Krauss, AM Council

This one-day training course helps participants understand the fundamentals of asset management and how those fundamentals can provide benefits to an organisation.

Course Objectives

- Define asset management
- Identify the principles that underpin asset management
- Identify available asset management tools and techniques applicable to an organisation
- Identify opportunities to apply these learnings to improve individual and organisational performance

To recognise and quantify your learning, there is an online exam initiated on the day of the course.

W3 Results Oriented Reliability and Maintenance

Andrew Pringle,
Managing Director and Senior Consultant, IDCON Australasia

This one-day workshop is designed to help organisations to accelerate their reliability and maintenance improvement initiatives. The basic principles of maintenance remain the same no matter what industry you are working in. Many organisations know what to do to achieve world-class performance, but only the best actually do it.

The workshop will enable participant to learn;

- 'What good reliability and maintenance looks like' and 'how to get there'
- What exactly should you focus on in order to develop and execute world-class reliability and maintenance management practices
- How to visualise and connect maintenance and reliability with the results of the whole organisation
- How to sell the maintenance initiatives to top management

SV Day of Site Visits

This one-day tour will take in the following industry sites:

Perth Desalination Plant

Completed in late 2006 the plant produces 45 billion litres of fresh drinking water a year – around 17% of Perth's water supply.

Australian Marine Complex Common User Facility (AMC CUF)

WA's first floating dock.

WesternPower Operation Centre

The Network Operations and Control Centre (NOCC) forms part of the System Management Division and manages the operation of the distribution network 24 hours a day, 7 days a week.

Registration Form

Office Use only

UID: Received:

Inv/Rcpt:

GENERAL INFORMATION

Registering yourself?

a. Register online, amcouncil.com.au/conference

b. Return the registration form by email/fax with your payment as indicated on the form

Please note: Only individual participants can register themselves online.

All prices include GST

Registering Someone Else?

Please complete a registration form for each individual you are registering and return the form/s by email/fax as indicated on the form.

When completing the form:

- Please type or use BLOCK CAPITALS in ballpoint pen
- Cheques and bank drafts are to be made payable to the **Asset Management Council** in Australian dollars
- Retain a copy of this form for your future reference

DELEGATE INFORMATION

Title First Name: Family Name:

Position:

Company Name:

Postal Address:

Postcode: Country:

Telephone: Fax:

Email of participant:

Special dietary requirements: Please detail

Personal detail on delegate list: ☐ Name, Organisation and Email ☐ Name and Organisation

☐ Please do not include me

PAYMENT DETAILS

☐ **Payment by EFT/cheque/bank draft/purchase order**

EFT Info: **BSB**: 633-000 **Account Number**: 139147284 **Account Name:** Asset Management Council Ltd

Swift code: bendau3B

Please enclose your cheque, draft or purchase order made out in Australian dollars to the **Asset Management Council Ltd**

☐ **Payment by credit card** Pease debit my ☐ Visa ☐ MasterCard ☐ Amex ☐ Diners

Cardholder Info:

Cardholder Name:

Card Number: ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ Expiry Date: / CCV:

Cardholder Signature: Date:

Email for Tax Invoice/Receipts (if different to above):

SUMMARY OF PAYMENT AND REGISTRATION DETAILS (Refer to prices overleaf)

Registration Type – If indv. Day/s, please specify:	$
Workshop or Site Visits – Please specify: ☐ W1 ☐ W2 ☐ W3 ☐ SV	$
Payment for accompanying spouse or partner:	$
Payment for additional USBs of proceedings:	$
Payment for additional Social Function Tickets:	$
TOTAL:	$

Cancellation policy:

95% refund by 11/4/14, 70% by 16/5/14. No refund thereafter.

Registrations may be transferred at any time to another person.

Asset Management Council Ltd

ABN 15 141 532 747

Please return your completed form via:

Email: AMPEAK@amcouncil.com.au

Fax: +61 (0)3 98192615

Mail: Asset Management Council,
PO Box 2249, Hawthorn VIC 3122 Australia

Registration Prices

Early bird prices apply until April 30th.

		Non-member	Member	Student*
Full Conference Attendance Includes attendance at all sessions on Tuesday, Wednesday & Thursday, lunches and refreshments, Practitioner Forum Monday, a USB of proceedings, Welcome Function, entrance to the Exhibition, YAMP Networking Evening, Annual Dinner and Farewell Drinks.	Full Conference	☐ $2560	☐ $2310	☐ $900 (NM) ☐ $770 (M)
	Payment before April 30th	☐ $2410	☐ $2150	
	Presenter	☐ $2050	☐ $1800	
	Presenter with payment before April 30th	☐ $1900	☐ $1640	
Day Registration Includes attendance at all sessions, lunch and refreshment breaks on the day of registration and entrance to the Exhibition. *Please specify which day/s in the payment summary overleaf.*	One day only	☐ $900	☐ $770	☐ $300
	Two days	☐ $1800	☐ $1540	☐ $600
	Three days	☐ $2690	☐ $2310	☐ $900
Workshops *Please indicate which workshop you will be attending in the payment summary overleaf.*	☐ **W1.** Creative Technique to Evolve Condition Based Maintenance Strategies	☐ $850	☐ $720	
	☐ **W2.** Asset Management Fundamentals			
	☐ **W3.** Results Oriented Reliability & Maintenance			
Site Visits (SV) Perth Desalination Plant, Australian Marine Complex Common User Facility and WesternPower Operations Centre		☐ $80	☐ $80	
Three-day Partner Program Three-day tour includes Welcome Function, YAMP Networking Evening, Annual Dinner and Farewell Drinks. *Individual days can be bought (See below)*		☐ $570	☐ $460	
Partner name for registration badge:				
Additional Tickets Social function tickets are included in the Full Conference Registration fee and the three-day Partner Program fee, as detailed above. **Please Note:** *Individual days for the Partner Program do not include the social functions but can be bought separately.*	Welcome Function (Mon)	☐ $80 per ticket		
	YAMP Networking (Tue)	☐ $35 per ticket		
	Annual Dinner & Awards (Wed)	☐ $190 per ticket		
	Farewell Function (Thu)	☐ $50 per ticket		
	Partner Program (per day)	☐ $200 per ticket		
Additional USB		☐ $88 each		

Please summarise your choices and payments overleaf.

* proof of student identity will be required upon registration

Please return your completed form via:

Email: AMPEAK@amcouncil.com.au
Fax: +61 (0)3 98192615
Mail: Asset Management Council,
PO Box 2249, Hawthorn VIC 3122 Australia