

ASSETPERSON – ASSET MANAGER OR SUPERHERO? GLOBAL WATER INDUSTRY INSIGHTS

Don Vincent, Manager Asset Management, GHD Pty. Ltd. Melbourne

Brenton Marshall, Global Service Line Leader, GHD Pty Ltd

Farshad Ibrahimi, Senior Consultant, GHD Pty. Ltd. Melbourne.

Abstract

The 2008 Asset Management Process Benchmarking Project sponsored by the Water Services Association of Australia (WSAA) and the International Water Association (IWA) involved 42 water urban water utilities in 7 countries. The wide spread of international participants in the project provided unique and interesting comparisons across the group.

Leading practices were identified that were shared at a 3-day Best Practices Conference – the culmination of the year-long project. Participating utilities gained a suite of strategic improvement initiatives, informed by the benchmarking analysis.

The project revealed common characteristics across leading asset management organisations and practitioners that drove effectiveness in asset management decision-making. In particular, the view of asset management as a practical, customer-centred, collaborative, cross-business activity was identified as a key factor in leading asset managers. In addition, there was very strong confirmation that asset management excellence is a journey that takes time, effort and resources to drive benefits. These observations led to the creation of the “AssetPerson” superhero – a model of the leading Asset Manager.

Key Words: asset management, benchmarking, water, utilities, asset manager.

Introduction

What are the attributes of a leading Asset Manager?

Can a normal human being deliver on the requirements of an Asset Manager in a contemporary organisation that operates a diverse asset portfolio?

The 2008 IWA-WSAA Asset Management Process Benchmarking project provided some unique global insights into the practices of leading utility asset managers, applicable beyond the water sector.

The Project

Forty two water sector utilities participated in this project from Australia, Canada, Hong

Kong, New Zealand, Sultanate of Oman, United Arab Emirates and the United States of America, providing a unique and, unprecedented, opportunity for international asset management process comparison and learning.

The Water Services Association of Australia Inc (WSAA) initiated this 2008 project as part of its ongoing benchmarking program in the water sector.

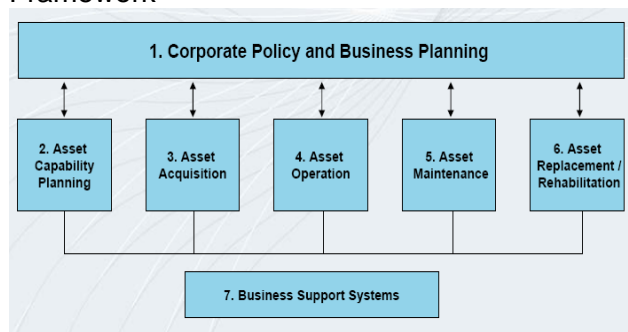
The 2008 project was co-sponsored by the International Water Association (IWA), and delivered through a consultant consortium led by GHD Pty Ltd and including Marchmont Hill Consulting and CH2MHill.

The project purpose was to raise the level of asset management practice in the global water industry through identifying process improvements and leading practices that can be shared across the industry.

The process assessment used the Aquamark Asset Management Framework and software tool, developed by WSAA in 2003 specifically to provide a consistent and repeatable web-based asset management process benchmarking model.

The Aquamark Asset Management Framework is based around seven core functions covering the asset lifecycle from its conception (planning) to ultimate replacement, fitted within an organisational context of corporate goals/policy and business support systems, as depicted in Figure 1 below. The core functions are further subdivided into process, sub-processes and ultimately measures (over 900) to enable detailed assessment.

Figure 1 - The Aquamark Asset Management Framework



The project required each utility to complete a self-assessment using the Aquamark tool. Consultants from the consortium independently reviewed each assessment through onsite interviews, completed detailed analysis, and prepared all project reports, both at an overall industry level and for each utility.

Leading practices were identified across the whole participant group, that were showcased at a 3-day Best Practices Conference in Sydney, Australia in October 2008, attended by around 150 representatives of the participating utilities.

The Participants

The 42 participants shown in Table 1 were a diverse group of water utilities, ranging in size from the smallest serving some 4000 people and industry, to the largest serving some 6.9 million people. Some USD 48 billion in asset

replacement costs were managed by the participant group.

Table 1 Benchmarking Participants by Region

Australia
Barwon Water
Brisbane Water
Central Highlands Water
City West Water
Coliban Water
Wannon Water
Water Corporation of Western Australia
Gladstone Area Water Board
Gold Coast Water
Goulburn Valley Water
Hobart Water
Hunter Water Corporation
Melbourne Water Corporation
SEQ Water
South Australia Water Corporation
South East Water
Sydney Catchment Authority
Sydney Water Corporation
New Zealand
Christchurch City Council
Dunedin City Council
Manukau Water
Metrowater Ltd
North Shore City Council
Watercare Services Limited
North America
USA
Anchorage Water and Wastewater Utility
Metropolitan Sewer District of Greater Cincinnati
City of Portland Environmental Services Bureau
City of Portland Water Bureau
City of Tacoma Environmental Services
City of Tacoma Water Services
Los Angeles Department of Water and Power
Philadelphia Water Department
Seattle Public Utilities – Water & Wastewater
Tohokekaliga Water Authority
CANADA
City of Toronto
The Regional Municipality of Peel
The Regional Municipality of York
Middle East / Hong Kong
HONG KONG
Hong Kong Water Supplies Department
UNITED ARAB EMIRATES
Abu Dhabi Distribution Company
Abu Dhabi Sewerage Services Company
SULTANATE OF OMAN
Oman Wastewater Services Company

The participant group included water-only, wastewater-only and combined service utilities; wholesale, retail and vertically integrated utilities; utilities owned by National, State and local government; corporatised and non-corporatised utilities; and utilities under various levels of external regulatory and legislative control. This diversity enabled some interesting comparisons of process development.

Drivers for Change in Asset Management

The water sector faces one of the most – if not the most – challenging strategic outlooks in its history. Numerous global trends are placing pressures on the water sector, and in turn asset management and other business processes. Other sectors are similarly affected. These inter-related trends include:

- Responses to global warming / climate change
- Significant asset development and growth
- Skills shortages arising from demographic changes
- Changes and competing demands from other industries
- New technologies enabling data collection and analysis on a previous unprecedented scale
- Increasing levels of stakeholder involvement and engagement in decision making
- Increasing complexity in customer needs and relationships
- Regulatory scrutiny and control
- Access to capital for investment.

These aspects of the strategic context are driving changes to the way water utilities are being managed.

In this participant group, those drivers of change that were most important and common across all regions, were:

- Asset acquisition and capital delivery
- Staff skills – experience and retention

These business drivers are closely aligned. The availability of skilled resources, both professional and technical, is a global issue occurring through demographic changes and competing demands for resources. The water industry as a whole, including the

consulting and contracting sectors, is short of skilled resources. Water utility capital programs are increasing due to urbanisation, water resource limitations and increased service expectations. The resource shortage impacts significantly on planning and delivery of capital programs by utilities.

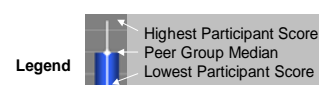
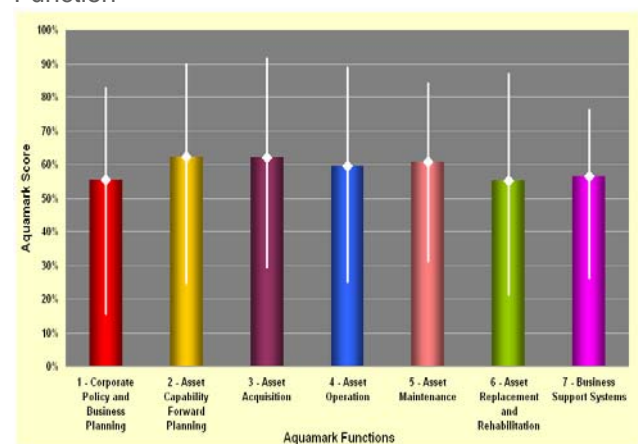
In addition, asset replacement, demand growth and knowledge of assets were significant drivers in more than one region. These were due to common factors of urbanisation and the aging of asset bases that were substantially established post-World War 2.

This commonality of business driver points to the potential for the industry to work cooperatively on an international scale, addressing issues of collective importance. Interestingly, sustainability was the most important driver for change in Australia, and was ranked lower or indeed was absent from the priorities in other regions. This concept of sustainability not only included external environmental and social aspects, but also the financial sustainability of the organisation and its capability to sustain its business through knowledge retention and capture.

High Level Benchmarking Results

The overall results are provided in Figure 2 at a function level.

Figure 2 Overall Benchmarking Results by Function



There are a range of high level observations that are apparent. Some of these are open to

individual interpretation, and the interactions between analyses are complex and sometimes difficult to detect. Even with 42 participating utilities, the peer group sizes can be small and apparent trends may not be reliable. Some of the key interpretations included:

- The median result at the 'Function' level across all participants had a range of only some 7% in Aquamark scores (from ~ 55% to 62%), showing an unexpectedly close balance in development of processes across all functions.
- The higher median results were in the functions of Asset Capability Forward Planning, Asset Acquisition, Asset Operations and Asset Maintenance - functions that are typical of engineering and operationally-based utilities which have a focus on customer service and providing safe and reliable services. The water industry generally has a long and mature history in these functions.
- The lower median scores were in the more strategic and analytical functions of Corporate Policy and Business Planning and Asset Replacement and Rehabilitation. This pointed to a need to develop strategic and analytical processes in many water utilities.

The wide spread of results in all functions (lowest participant score to highest) indicated divergent levels of maturity in asset management processes across the participant group. The analysis revealed 5 general categories of utility with respect to their stage of asset management process development or maturity:

- Formative (at the lower end),
- Developing,
- Established,
- Mature, and
- Advanced (at the upper end).

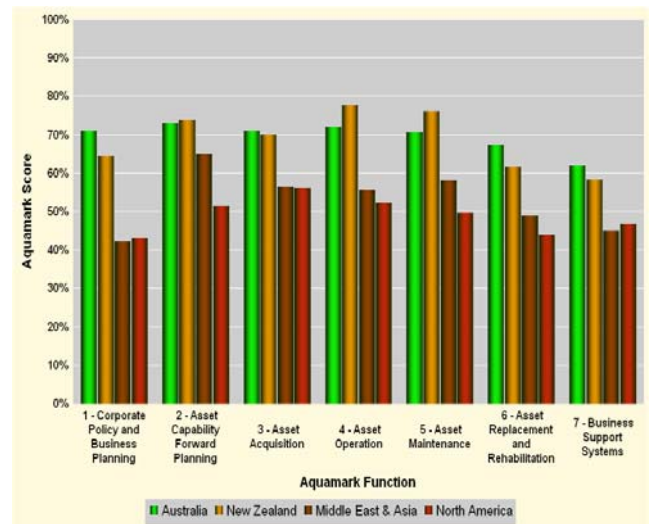
All levels of development were evident in the participant group. This indicated a clear evolution in asset management processes, from formative utilities with less developed processes, especially strategic and corporate planning, to advanced utilities with balanced process scores across all functions.

Regional Comparisons

At a regional level, Australia and New Zealand generally scored at a “mature” level of asset management practice, reflecting development of asset management practice over the past 20 years. By comparison, the Middle East / Hong Kong and North America scored generally lower, with both regions characterised by “developing” to “established” asset management practices. Higher scores were generally achieved in the tactical and operations/maintenance areas. The aggregate scores for each region are shown comparatively in Figure 3 below.

Note that overall regional results were not a reliable guide to the results for any individual utility.

Figure 3 Regional Comparison (Median aggregate scores)



Comparison by Utility Characteristics

The participant group was analysed for the influence of a range of characteristics on the level of asset management practice (measured by Aquamark). The analysis found:

- Larger utilities generally had higher scores than medium or smaller utilities for Asset Capability Forward Planning, Asset Acquisition and Asset Replacement and Rehabilitation, indicating some economies of scale or larger resource bases in these functions. The differences for other functions were less or insignificant, indicating that medium and smaller utilities may be swifter in

implementation of strategic planning, maintenance and systems improvements.

- Corporations and State-owned utilities (usually both) had significantly higher (15% to 20%) median scores in all functions compared to their internal department and local government-owned (usually both) counterparts. This result is moderated by the regional results, where Australian utilities are predominantly State-owned corporations (13 out of 18) with generally higher scores than the median.
- Higher levels of regulation, and/or legislative controls, were strongly linked to maturity in asset management process development.

Overall, the most significant finding is that the maturity or length of time involved in developing asset management is a stronger determinant of the level of asset management practice than ownership, level of economic regulation or organisational structure. This is characterised by both Australia and New Zealand being at a similar level of practice despite generally different regulatory regimes and ownership arrangements (Australia being largely State-owned Corporations under independent regulators – with some exceptions, and New Zealand predominantly Local Government-owned utilities under legislative controls).

The opportunity exists for utilities in other regions to draw from the learnings in developing this maturity, and significantly enhance and accelerate the development of asset management practice.

Major Improvement Initiatives

The following major strategic initiatives were identified to drive improved and integrated utility-wide asset management practice.

Initiative 1 - People Skills and Capability.

Participants adopted a range of management frameworks that worked to varying degrees to support each utility's commonly cited most important asset – its people. Utilities demonstrating leading practices work to foster an environment where people are encouraged to develop their skills and capability and are rewarded for it. Staff development plans, training and succession planning are key improvements.

Initiative 2 - Asset Management Operating Model and Organisation. A strong asset management-based operating model can create a step-change in the capability of utilities commencing the process of integrating asset management concepts into their business, and developing strategic asset management capacity. Relatively advanced utilities can also benefit by regenerating focus and direction in asset management.

Initiative 3 - Asset Management Leadership and Culture.

Asset management leadership and culture initiatives promote employee engagement and acceptance of asset management principles, process improvements, and decision-making capability. Effective change in asset management required both a “top-down” drive for improvement supported by “bottom-up” initiatives and integrated efforts to underpin sustaining change.

Initiative 4 - Asset Management Continuous Improvement.

Periodic self assessments of asset management capabilities using the Aquamark framework or similar tools will enable utilities to monitor the progress of their asset management improvement initiatives.

Initiative 5 - Asset Management Plans.

Formalised Asset Management Plans allow capture of asset management intellectual knowledge and can significantly improve asset management decision-making by providing clear guidance. Understanding the proposed uses of Asset Management Plans, internally and externally, helps in establishment of a suitable Plan framework.

Initiative 6 - Corporate Goals Linkage to Asset Management.

Adoption of consistent and clear corporate goals, including policy and business objectives, at an executive, business unit, team and individual level can significantly streamline the delivery of asset management.

Initiative 7 - Quality Management System.

The implementation of a Quality Management System (QMS) improves the formalisation of processes and approaches, leading to sustainability of corporate knowledge,

improved efficiency, consistency of approach and outcomes.

Initiative 8 - Asset Data Management Strategy. Utilities can expect significantly improved (efficient and accurate) investment decision making through aligning the collection, processing and management of data to meet business decision-making or reporting needs.

Initiative 9 - Asset Management Information Systems Strategy. Improved integration of business systems with respect to GIS, drawing systems, SCADA, analysis systems such as hydraulic models, the asset register and technical database, financial systems, risk registers, failure and condition registers and works management systems, all support efficiency in data management and decision-making.

Initiative 10 - Maintenance Strategy. A formalised maintenance strategy (incorporating reactive, preventive, predictive and replacement / rehabilitation strategies) for all assets is a necessary requirement to drive effective maintenance. The strategy should consider high cost or high risk assets first, along with pilot testing to confirm the delivery of maintenance objectives.

Attributes of a Leading Asset Manager

The Best Practices Conference heard from the leading practitioners across the full spectrum of lifecycle asset management processes. Surprisingly, some 33 of the 42 participants were able to present on at least one leading practice in their utility.

The conference revealed common leading characteristics across asset management practitioners that drove effectiveness in asset management decision-making.

This led to the creation of the superhero – “**AssetPerson**”, as indeed the requirements of the leading asset manager are daunting, challenging, and require diverse skills and strength of purpose.

AssetPerson is:

Passionate about asset management and its central role in a utility business.

Recognises that asset management is a journey and that a strong capability takes years to build. Nevertheless, short-term gains are possible, and indeed necessary to demonstrate value, as people, systems, processes and data are developed for the long haul. Patience is required, along with a preparedness to overcome setbacks and misunderstanding.

Customer-centric: Services to customers are the reason for assets' existence, and the leading Asset Manager keeps this foremost in thinking, in clearly identifying customer needs and aligning investment decisions with them.

Strategic and sustainable in thinking: The leading Asset Manager must ensure strategy is clear before embarking on action. Significant cost and time can otherwise be lost in misdirected activity. Sustainability is foremost, as many assets have long lifecycles and a commitment to create a new asset has long term economic, social and environmental implications.

Accountable: Clear accountabilities were demonstrated in leading asset management utilities at all levels, translating corporate goals to business unit and individual levels. In particular, a delineation of the strategic, tactical and service delivery roles in asset management was evident.

Practical and Adaptable: Asset Managers are faced with a wide range of regulatory and organisational requirements, approaches, systems, data configurations and qualities, and analysis tools. Asset management also demands a knowledge across management, finance, engineering and information technology disciplines. Leading Asset Managers are able to apply their knowledge practically and adapt whatever is available in order to make the best decisions at the time. A range of tools are at the leading Asset Manager's fingertips to distil complex issues into clear decisions based on known criteria. The leading Asset Manager must also be attuned to and adapt to external forces driving change, such as resource limitations, new technologies and climate change.

Collaborative: Asset management is an integrated discipline that requires

coordination across business areas of corporate strategy, finance, planning, asset creation or project delivery, production/operations and human resources and information technology. Leading Asset Managers are strong communicators and collaborators – both internally and externally. Examples were demonstrated of integrated thinking, for example, in risk and dividend models, probability-based scenario planning, and operational involvement in capital planning.

Concluding Remarks

This project provides a substantial body of knowledge for building improvements in asset management.

Irrespective of the history and context of each utility in terms of region, function, size, ownership, or form of regulation, participants were keen to improve their asset management processes and, by inference, their performance for customers, shareholders, staff and other stakeholders. The best water utilities take three additional and clear actions:

- They invest in demonstrable leadership of the change initiative. Effective asset management is enabled by the active support of the most senior executives, and is in turn supported by a detailed 'bottom up' commitment to specific, targeted improvement initiatives.
- They regard asset management as an integrated whole, and create initiatives which lead to improvement as part of a cohesive plan (and avoid working in silos).
- They appreciate that building a strong asset management capability takes years – they see it as a journey, and no matter what other issues they confront, they stay focused on the core asset management improvement tasks.

A conscious decision to improve is at the heart of success.

The Authors

Don Vincent is Manager Asset Management with GHD Melbourne. He consults widely to utility businesses in asset management, regulatory and performance reviews, and business improvement in Australia, SE Asia, China, Middle East and the USA. He was Project Director for the 2008 IWA-WSAA Asset Management Benchmarking Project.

Brenton Marshall leads GHD's Asset Management Service Line globally, consulting across a wide range of infrastructure sectors.

Farshad Ibrahimi is a Senior Asset Management Consultant with GHD Melbourne, consulting across the water, energy, mining and transport sectors.

Brenton and Farshad both played key consulting roles in the 2008 IWA-WSAA Asset Management Benchmarking Project.