McGraw Hill CONSTRUCTION

In Partnership with CH2MHILL

WATER INFRASTRUCTURE ASSET MANAGEMENT: Adopting Best Practices to Enable Better Investments

Key Findings from a New McGraw-Hill Construction *SmartMarket Report* Research Study*

What is Asset Management?

Asset management, as the term is used in the research discussion below, is a set of practices and methods for delivering desired services to residents and businesses, at the lowest life cycle cost (including environmental and social costs), while managing risk to an acceptable level. Asset management practices have been adopted by utilities throughout the U.S. and around the world, and they are easily applied in roads, transit, facilities and other infrastructure-intensive departments.

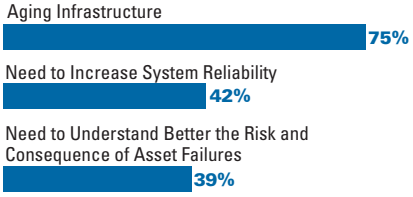
Factors Leading to Adoption of Asset Management

Concerns about the condition of their physical assets are the most important factors driving adoption of asset management by water utilities. For 75% of the utilities surveyed, addressing their aging infrastructure is an important factor leading them to adopt an asset management approach. More than one third also seek to increase their infrastructure system reliability.

However, a significant percentage (more than one third) seek to improve the way they do business as well, with the goal of understanding the risks and consequences of asset failures to make better decisions regarding their assets.

In-depth interviews with utilities that practice advanced asset management reveal that the common factor that led each utility to begin implementing asset management is the desire to do their business better.

Top Factors Leading to Asset Management Implementation (According to Those Doing Asset Management)



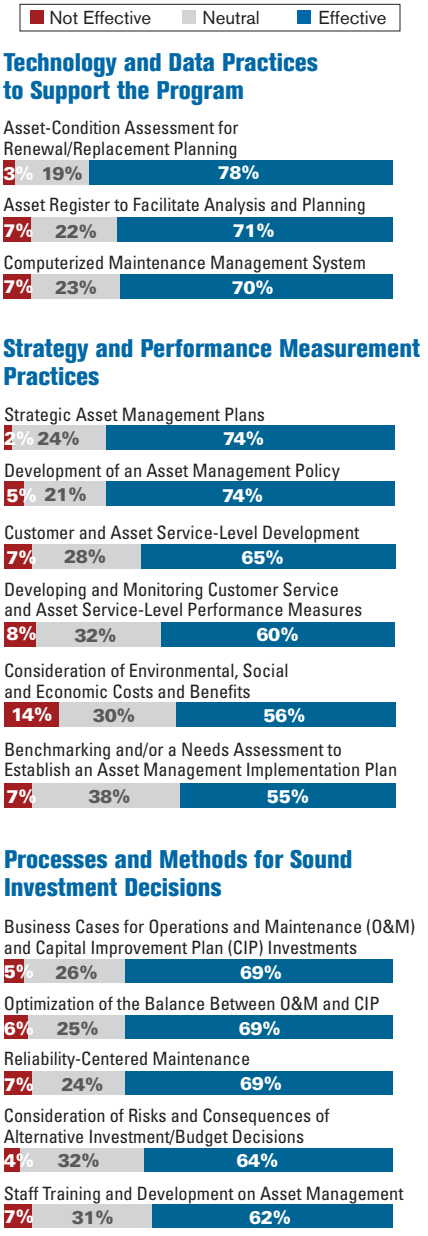
Several respondents also echoed the main survey results in their concerns about aging infrastructure. In addition, these utilities were influenced by the need to fulfill consent decrees, by the desire to control rate increases and reduce debt, and by concerns about retiring staff.

Best Practices

Survey respondents indicated which of fourteen leading asset management practices they use. The practices are divided into three categories in the chart to the right. Those who indicate that they use specific practices were then asked to rate their effectiveness.

Overall, the strongest response was to the practices in the first category involving the use of data and technology. The top factor is asset-condition assessment for renewal/replacement planning, which is considered effective by 78%. Understanding the condition of existing assets is an essential foundation to sound decisions about how to manage them better. Tracking their assets, in asset registers and through computerized maintenance management programs, is also found to be effective by at least 70%.

Effectiveness of Asset Management Practices



* McGraw-Hill Construction partnered with CH2M HILL to research the current status of water infrastructure asset management and trends for future adoption. The study was done in conjunction with five industry associations reviewed the survey and distributed it to their members: ***American Public Works Association, American Water Works Association, National Association of Clean Water Agencies, National Association of Water Companies and Water Environment Federation***.

There were 451 responses to the survey received from the U.S. and Canada, with 90% of the respondents from the U.S. Respondents reflect a wide range of utility sizes, varying from those serving a population of 3,300 to over 500,000. Additional in-depth interviews were conducted with five utilities with advanced asset management practices.

Source: McGraw-Hill Construction, 2013 to be published in March 2013 in the *Water Infrastructure Asset Management SmartMarket Report*

There is less consensus about the second category of strategy and performance measurement practices. While the top two practices in this category, strategic asset management plans and development of an asset management policy, are selected by 74% as effective, other practices are less popular. In fact, 44% of respondents are either neutral (30%) or negative (14%) about the effectiveness of considering environmental and social costs and benefits when creating a strategy for their assets. This advanced practice is still considered difficult to measure by many, which may explain its low approval rating.

Another factor in this category, benchmarking, is selected by the lowest percentage as effective. However, it is worth noting that, unlike triple bottom line assessments, this practice has the highest percentage that report being neutral about its effectiveness (38%), which may suggest that better benchmarking and needs assessment tools are required in the marketplace.

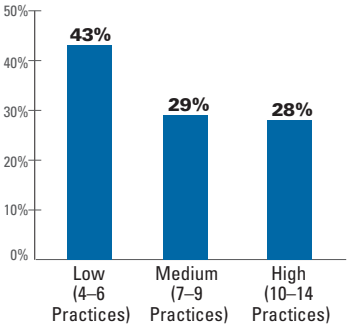
While this is just a quick glance at the most and least effective practices, the SmartMarket Report to be published in March 2013 will include more extensive analysis of all of these practices and the larger categories into which they fall.

By measuring the implementation level of these fourteen practices, the survey reveals a spectrum in the level of adoption of asset management, with adoption levels indicated in the chart to the right.

Already, some trends have begun to emerge by looking at the industry based on the spectrum of asset management adoption:

- **Size of utility:** A significantly higher percentage of utilities serving populations of over 50,000 are at the high end of the asset management spectrum.
- **Rates:** Surprisingly, utilities at the high end of the asset management spectrum trend toward higher levels of planned rate increases by 2017 than firms at the low end. This is likely due to the fact that organizations using most of the asset management practices can better predict the needs they face and set realistic rate increases.

Asset Management Spectrum



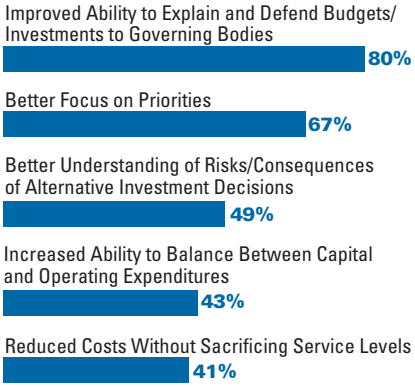
Benefits of Adopting Asset Management

The ability to explain and defend budgets and investments is the benefit experienced by the largest percentage of those doing four or more asset management practices. Better data on asset condition as well as business plans created for major investments are two of the most important practices that enable utilities using asset management to explain exactly why money is needed and the value that will be gained over the lifecycle of the asset based on current investments.

The other major benefit noted by over two-thirds of the respondents is a better focus on priorities. This demonstrates that one important advantage gained from asset management adoption is improving the ways utilities conduct their businesses. This finding is supported by the responses from the in-depth interviews, where additional organizational benefits were reported. These include having employees better understand their role in the organization, the ability to institutionalize knowledge, which is particularly important to organizations facing aging and retiring staff, and the critical impact of educating decision-makers, which allows them to ask the right questions about how to improve the utility performance, rather than simply question why work is to be done.

Other important benefits reported by more than 40% of survey respondents demonstrate how asset management helps utilities to make stronger investment decisions and reduce cost, including a better consideration of risk, better ability to balance capital and operational expenditures, and cost reductions without service reductions.

Benefits from Taking an Asset Management Approach (According to Those Doing Asset Management)



Lessons Learned

Preliminary analysis of the survey results combined with the findings of the in-depth interviews demonstrates two major lessons learned.

- Culture change is necessary to implement asset management effectively. Organizations must overcome the perception of doing well enough and engage the entire organization in the value of an asset management approach.
- While the use of benchmarking to implement an asset management program is relatively low in the main survey and responses about its effectiveness uncertain, all of the advanced practitioners in the in-depth interviews report that benchmarking provided a critical first step for them to understand their agency and create effective policies. This suggests that greater education on the importance of benchmarking is required and may also be a call to the industry for better U.S. and Canadian-based benchmarking efforts.

For additional information on these findings, contact:

- **Donna Laquidara-Carr, McGraw-Hill Construction**, 781-430-2010, donna_laquidara@mcgraw-hill.com
- **Nick Pealy, CH2M HILL**, 206-852-9790, Nick.Pealy@CH2M.com

More detailed information from the research will be published in the *Water Infrastructure Asset Management SmartMarket Report*, which will be available for free download in March 2013 at www.construction.com/market_research.

Source: McGraw-Hill Construction, 2013 to be published in March 2013 in the *Water Infrastructure Asset Management SmartMarket Report*