



Baird



The Future of Water Infrastructure Asset Management, Part 3: Breaking Down Organizational Silos as Barriers to Cost Savings

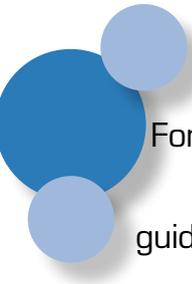
In the novel *The Three Musketeers*, Alexandre Dumas writes about the adventures of the French royal guard created in 1622 by Louis XIII. Their motto, “All for one, one for all,” represented a call for unity. Simply stated, unity is the state of being undivided or unbroken.

This same call for action comes in varying degrees from utility managers in an effort to break down the organizational silos that prevent a utility from achieving cost savings and efficiency gains. Comprehensive asset management is one of the most important cost-saving measures for business transformation as people, processes, and technology are strategically aligned. Asset management goes beyond normal collaborative efforts and promises to bring a wide range of tangible and intangible benefits to every utility function. Not using these types of cost-reduction and synergistic practices exposes a utility to greater external pressure on rates and budgets. (The Musketeers’ royal guard learned this lesson the hard way when it was disbanded for budgetary purposes in 1776.)

ORGANIZATIONAL SILOS

In a June 2005 JOURNAL article titled “Breaking Organizational Silos: Removing Barriers to Exceptional Performance,” Rodney Dell, an expert in business process optimization at MWH Global, explained that in the early 1900s the division of labor and standardized work methods improved the manufacturing processes, which enjoyed great success during the Industrial Revolution. He continued, “The traditional utility organization is divided into a series of departments, each of which is focused on a discrete function and is often driven by its own mission and objectives. Utility departments and divisions often operate in isolation from one another, developing their own processes, information systems, and databases for managing and carrying out their work.”

Although these silos of important utility functions helped departments train and specialize over the past 100 years, the challenges utilities face today require a more integrated approach to better manage all of their assets, service levels, and stakeholder expectations. In 2007, in an effort to address the common challenges of rising costs, aging infrastructure, increasingly stringent regulatory requirements, population changes, and a rapidly changing workforce, the US Environmental Protection Agency (USEPA) and six national water and wastewater organizations—AWWA, Association of Metropolitan Water Agencies, American Public Works



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Association, National Association of Clean Water Agencies, National Association of Water Companies, and the Water Environment Federation—agreed to jointly promote effective utility management practices under the banner WaterEUM (effective utility management; www.watereum.org). Simultaneously, the organizations announced the release of Findings and Recommendations for a Water Utility Sector Management Strategy. The report culminated a 12-month effort focused on excellence in water and wastewater utility management and identifies Ten Attributes of Effectively Managed Water Sector Utilities and Five Keys to Management Success. The 10 attributes describe utilities' key functional areas. As stated on the USEPA website (<http://water.epa.gov/infrastructure/sustain/watereum.cfm>), "The [attributes] describe desired outcomes that are applicable to all water and wastewater utilities. They include a comprehensive management framework related to operations, infrastructure, customer satisfaction, community sustainability, natural resource stewardship and financial viability." Each area can be assigned to a division such as customer service, operations, maintenance, and finance. Combined or separate, they still represent a silo, or even a silo within a silo, each with its own specific interests.

The Keys to Management Success are frequently used management approaches and systems that help water and wastewater utilities manage more effectively. These keys are leadership, strategic business planning, organizational approaches, measurement, and a continual-improvement management framework. These components are the building blocks for a "unified" utility to

achieve additional cost efficiencies. Leadership and proper governance are critical in providing continued support for real change.

CORPORATE APPROACH FOR ASSET MANAGEMENT TO OVERCOME SILOS

Formal utility asset management programs require more than top-level support. In fact, the asset management function may need to be housed at the utility's top level. In the Canadian best-practice model, asset management programs are operated from a corporate approach, serving as a key uniting function for the general manager or chief financial officer positions. This model can reduce the sparring and infighting over specialized interests, reduce duplication of effort, and centralize data management and decision-making.

Asset management in this case is viewed as a program or process that crosses all departments and divisions. The efficiencies and cost savings of asset management lie not only in a prioritized capital plan; they also rely heavily on the daily work processes of maintenance and a computerized maintenance management system. An effective asset management process rolls into the operation's standard operating procedures, allows time for analytical review, influences financial decision-making, flows into improved design engineering and procurement, and circulates again.

The synergistic properties of the business flow of asset management are either delayed or deadended when silos exist. As an example, during a potential cost-cutting exercise, the traditional method is for each silo to try to protect its own. This effort produces limited efficiency gains. On the other hand, with a corporate approach that uses a business process such as asset management, the entire process is reviewed and resources are redistributed across multiple areas to achieve the desired outcome and with the greatest benefit for the organization, which includes rate-paying stakeholders.

DE-SILOING AS A BUSINESS TRANSFORMATION

De-siloing can be a difficult process in striving for a business transformation that brings the discipline of standardized management practices to the organization. Change management and process engineering sometimes require succession policies to complete the de-siloing process, which can run the risk of trying to do too much too fast. Every organization is different, and in each case answers must be provided to questions such as, "How much change can you live with? Is there just too much effort for the benefit, and are we at the point of diminishing returns?" (Carson, 2012.)

It is at this point that internal efforts may need external support and training. A gap analysis—comparing actual performance with potential performance—can be conducted at any time to identify additional barriers to success, even if a road map was created in the beginning.

Conditions change, staffing of the organization changes, knowledge and experience fold into processes, and new technology needs arise. Think of how many times your mobile device advises course corrections while on a journey. Forging business transformation paths across the valleys and mountains of organizational silos requires guidance and sometimes re-orientation.

Organizations that have experienced the process of quality improvement programs and benchmarking may be better prepared to assimilate asset management practices when asset management knowledge supports empowerment for continued improvement. Part of the empowerment stems from the ability of groups or individuals to think outside of their current functions and reach out and communicate with other silos of thought and innovation.

DE-SILOING AND INNOVATION

Austin Water Utility treatment plants were successful adopters of business transformation. In Ken Wysocky's 2009 article, "Employees See the Light," the utility's story is told: "In a manner of speaking, employees of Austin [Texas] Water Utility treatment plants used to work in silos. They operated as inde-

pendent entities, largely isolated from each other's best management and operation practices. But propelled by an intense quality improvement program, management and employees grabbed their figurative sledgehammers and slowly broke down the walls. By sharing ideas and best practices for various processes, they improved water quality, met increased demand for water services with fewer water plant employees, significantly raised the utility's bond rating, and increased employee and customer satisfaction." In this case there was a disconnect between jobs and the utility's goals, such as reducing per capita water use to delay the addition of treatment facilities and reduce water purchases from the Colorado River Authority.

The article continues: "'We gained efficiencies through standardization,' says Bart Jennings, business strategy manager for the utility, which serves about 850,000 customers in metropolitan Austin, Texas. 'For example, if an employee moves to a different plant to fill in for a retiring employee, they don't have to learn a whole new way of doing things. This gave management greater flexibility. The intellectual power of employees is greatly enhanced when people work outside those silos.'"

Wysocky summarizes the results of Austin Water Utility's efforts: "The utility handled the growth even though it slowly eliminated 24 full-time plant positions during roughly the same period. The utility achieved the reductions, which now save \$1.2 million annually, by not filling positions as they became vacant. In addition, the utility's bond rating rose from A2 to Aaa, the highest possible ranking. Last but not least, customer satisfaction with water quality increased from 61 percent in the early 1990s to 83 percent in 2008."

DATA MANAGEMENT SILOS

One of the critical barriers to cross-silo integration occurs in the area of data ownership and management. In smart-grid data ownership, if applied to utility data in general, the claim of ownership would be as follows (Murphy, 2012):

- metering department—60%
- customer service department—43%
- IT department—43%
- transmission and distribution department—29%
- other (i.e., billing and engineering)—20%
- business systems—15%

Data-sharing for the overall benefit of the utility is critical. Separate systems may exist to meet the individual requirements of a department, but the scope and especially the data need to be folded into the decision-making process at the highest levels. This is where the best resource allocation and asset management decision-making can be done.

ENERGY AND WET INFRASTRUCTURE SILOS

Breaking down silos, even in the concept of "one" water, can offer various synergies with energy management and retrieval. Water treatment has a high energy cost. Wastewater treatment can provide energy. Art Umble, wastewater practice leader with MWH Global, explained that more energy is contained in the waste stream than is used to operate a plant and that there are current inefficiencies in the processes and equipment. "The amount of embedded energy in the incoming wastewater has more than ten times that [which] is needed to operate a conventional activated sludge plant. But as a general rule, the COD [chemical oxygen demand] we capture in today's plants—that we then ultimately convert to electrical energy—equates to a mere 9% of that incoming available energy. Part of that is due to the inefficiencies in the digestion process (heat losses), but the big hit is that most electrical energy conversion sets are only about 32% efficient. When all of the inefficiencies are added up, only about 9% is recovered."

The separation caused by the two silos of water type and wet infrastructure energy use can be overcome to create the next generation of efficiencies beyond the traditional benefits of asset management. A study by the Alliance for Water Efficiency (Mitchell

et al, 2008) estimates that for every million dollars spent on water efficiency in the United States, we not only can save as much as 10 tril gal of water, but also create about 220,000 jobs and increase economic output by as much as \$2.8 million.

Silos have been established to build the original structure and function of the basic needs of the water industry. Technology and advanced asset management practices have offered a path to the next generation of efficiencies that transcend traditional models. As we strive for continued improvements, our vision should drive us toward a more sustainable future in managing all of our water resources and infrastructure for both commercial and municipal use.

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