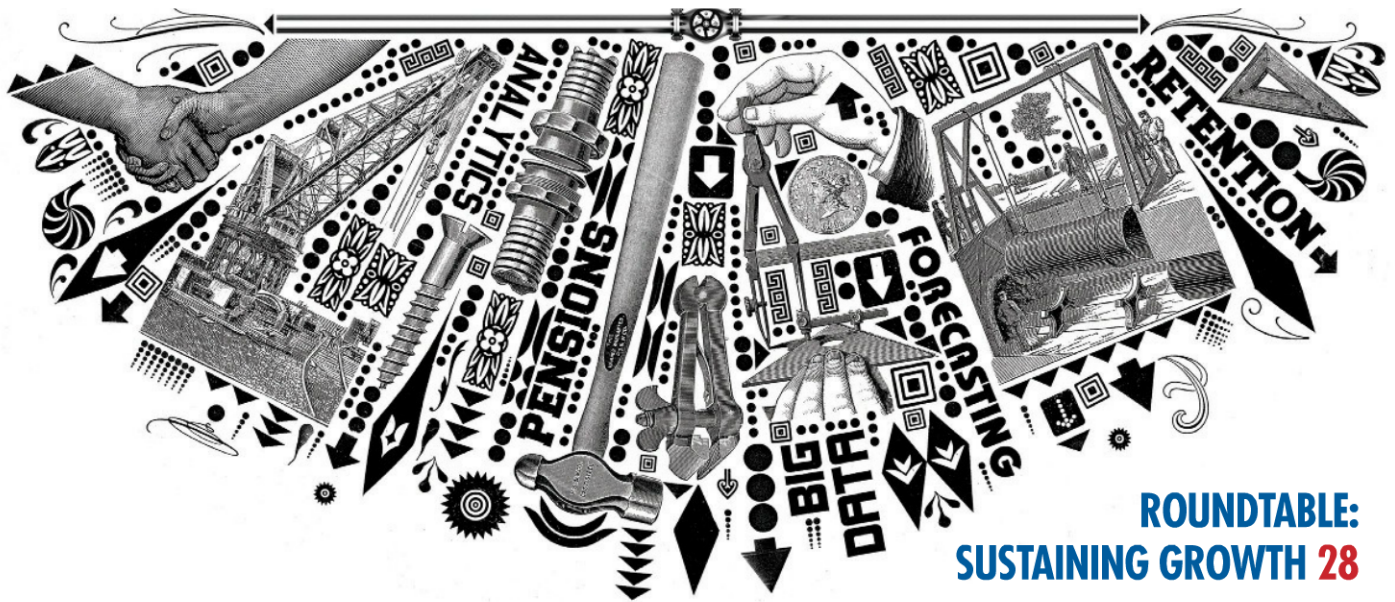




AMERICAN GAS



CHALLENGES AND OPPORTUNITIES



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Planning for change and retaining know-how

questions: What challenges does an aging workforce pose for a utility? How do we plan for the loss of experienced people? How do we retain and transfer knowledge to a new generation of workers? And how do we cope with the legacy costs associated with accumulated pension benefits?

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COSTS AND RISKS UTILITIES' CHANGING WORKFORCE

In a December 2013 report, consultancy PwC discussed the challenges of responding to a changing workforce in the utilities industry. The following is an excerpt from that report, "Power and Utilities Changing Workforce."

Ask utilities executives what keeps them awake at night and workforce issues will likely loom large.

That's not just because labor costs—historically higher in this industry relative to others—seem to be trending upward again. As the economy recovers, turnover rates are rising too. And with experienced workers now emboldened to revive their retirement plans, and far too few younger people ready to replace them, the talent gap that already threatened the industry pre-recession has re-emerged....

While the number of employees currently eligible for retirement (or due to become eligible over the next 3-5 years) appears to have stabilized, eligibility rates for executives have continued to increase. Indeed, there was a 50 percent jump in executives currently eligible for retirement between 2011 and 2012....

Small wonder that benefits costs (and retirement benefits in particular) constitute such a significant proportion of rising labor costs. Pension packages offered by utilities can be extremely generous. Retiring workers are receiving as much as 80 percent of their final year's salary or the average of their last few years' salary plus all, or nearly all, of their medical benefits. Not only does the utility have to continue paying out these sums, it also has to pay benefits for the replacement employees coming in, with increasing costs on the medical benefits side....

Increasing retirement eligibility, the generational shift in the traditional utility workforce, and rising turnover and

benefits costs are clearly aligning to drive a negative impact on productivity for the sector. As a result, traditional "word-of-mouth," on-the-job training of utility workers is not sustainable. More than ever before, work processes and procedures should be documented and continuously improved. Explicit governance and controls procedures should be put in place and sustained. Moreover, focused and efficient knowledge-transfer and succession-planning approaches should align with the operational imperatives of the company.

A Changing Risk Profile

Most utilities organizations recognize that these trends are changing their risk profile—and some are already experiencing the implications for operational controls and levels of compliance, as well as for the integrity of their financial data.

The impact on individual utilities will vary, depending on the retirement and hiring profiles of each organization, as well as its level of tactical versus strategic focus.

The tendency of veteran utilities workers to retain valuable institutional knowledge in their heads and to pass it on orally, rather than systematically documenting and updating it, has compounded the problem. When these workers leave, intellectual capital is often lost if a formal program to capture know-how is absent. Their departure can impact efficiency and create risk for the utility—especially as they typically go before replacements can be effectively on-boarded.

The full report, "Power and Utilities Changing Workforce," is available at <http://pwc.to/1sF51Pk>.



INFORMATION WORKFORCE PLANNING AND BIG DATA

By Peter Louch

We have heard talk for years about the looming retirement bubble within electric and gas utilities, so one could easily assume that utilities have sophisticated workforce plans to assess attrition risk of key personnel that include identification, knowledge transfer, and replenishment of resources. But with the exception of a few larger utilities with sophisticated workforce plans, most utilities have made only modest investments in workforce planning, perhaps bringing on a small workforce planning department that manually prepares a suite of forecasts and reports for senior management. Such reports are typically interesting but not sufficiently actionable, and do not work their way into the operational management of the utility.

There are a number of reasons for the immature state of workforce planning, including:

- **Time frame:** Many managers are focused on executing current year results, but workforce planning has typically addressed a longer time frame.
- **Data integrity:** Managers are reluctant to review future plans when they feel that they can't get a proper view of current headcount.
- **Control:** Some managers have gut feelings and don't want to listen to data, and without a compelling data story, there is no opportunity to shift this stance.
- **Forecasting:** Traditional forecasting methods are poor at predicting the actual individuals at risk for turnover and retirement.

There are also new complicating factors on the horizon. As utilities switch from defined benefit plans to defined contribution plans for newer hires, voluntary turnover increases relative to retirements, adding to the challenge of forecasting workforce changes. And years of technology investments mean that fewer workers and different types of workers are required than in decades past.

Recent advances in predictive analytics and modeling provide more compelling and actionable information about retention risk at the employee level. Machine-learning forecast techniques allow organizations to move away from simpler regression models that only incorporate

job type, age, and tenure and instead use multivariate regression that uses many factors. The data mining approach combines both traditional attrition predictors with additional factors that are specific to the organization and that were not previously considered in attrition analysis, such as source of hire, job history and movement, organizational structure, and working environment.

With more powerful computing resources and data services, analytics can also incorporate big data such as labor market data and economic trends. These advances, when coupled with increased interest in driving business through analytics, make workforce planning much

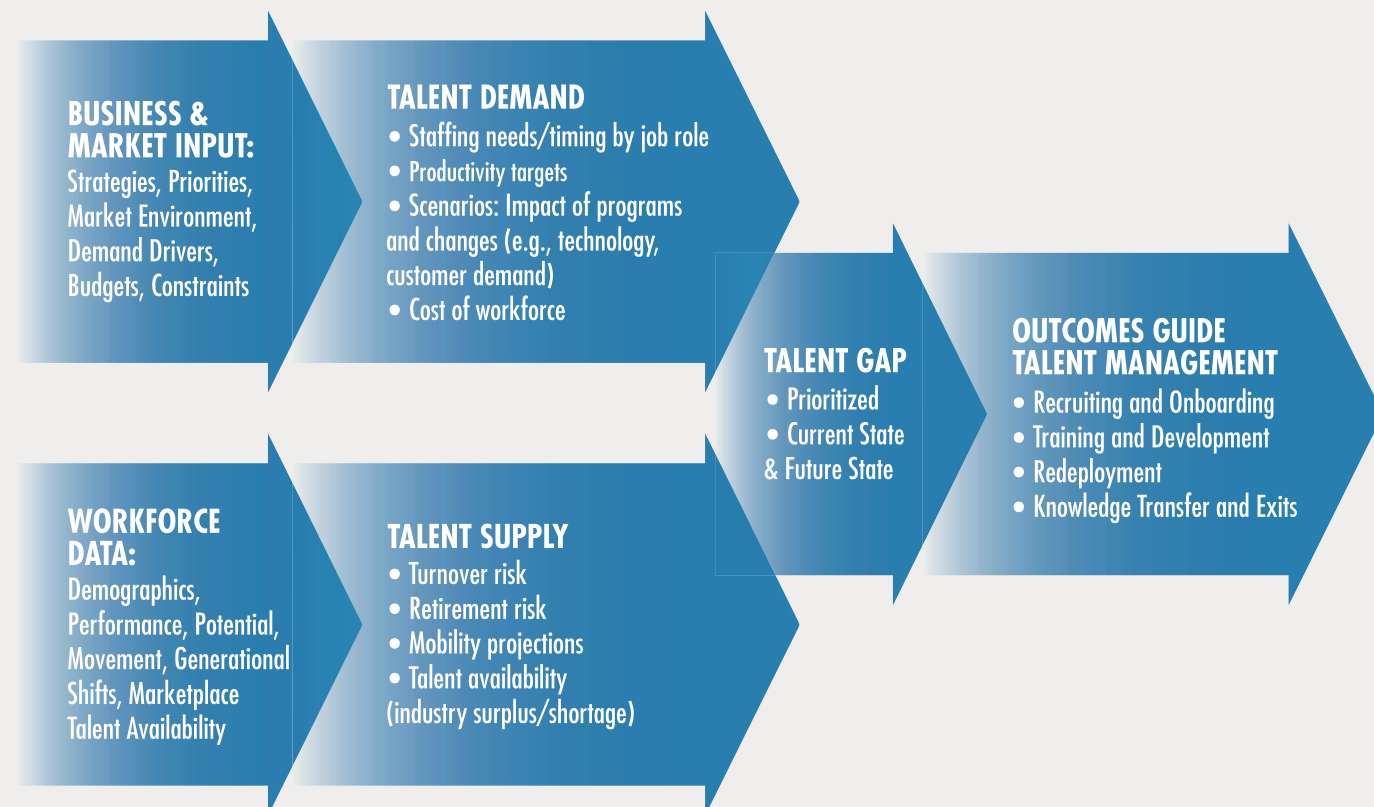
more actionable. The chart below outlines a workforce planning process that combines end-user based demand planning with predictive supply analytics.

Predicting and acting upon talent supply entails five steps: data acquisition, data transformation, key driver analysis, forecasting, and counterfactual modeling, all of which need to be supported by the right type of visualization to tell compelling stories to decision-makers.

Each organization has different drivers of turnover and retirement. That being said, these are some of the top drivers of attrition, as identified by numerous workforce planning engagements we have conducted:

TALENT MANAGEMENT USING BIG DATA

Predictive Supply Analytics — coupled with Demand Planning — provides a blueprint for Talent Management activities



Source: Vemo

- Employee demographics such as tenure, age, salary, job type, and commute time
- Employee actions/workforce conditions such as promotion and raise patterns, manager and support ratios, work environment, and salary distribution
- External economic conditions (Big Data) such as competitive job market data, unemployment, and economic data

Using these drivers, it is possible to forecast the turnover and retirement risk of each employee both short-term (over the next six months) and long-term (over the next several years). In addition, it is possible to model the likely affect of hypothetical events on attrition. An individual manager could explore how changes to promotions, pay distribution, and working group reorganization could affect turnover rates or even influence the retention of a specific individual. For an organization, it could show how a salary freeze, reduction in force, or changes in the economy will impact overall turnover and retirement rates, and help to shape HR policies.

Using Vemo's data-mining approach, a major Northeast U.S. utility can now:

- Pinpoint the difference in retention for management trainees and experienced professional management hires, which assists in deciding how to replace retired employees.
- Measure whether efforts to increase spans and reduce layers will result in higher turnover of certain employees.
- Model the impact of each promotion and lateral transfer event upon the retention of the employees whose job is changing.

The net result for this utility has been more effective hiring practices and timing and better-informed budgeting for people expenses.

There is now a tremendous upside for

such organizations to invest in their workforce planning efforts. New tools incorporating predictive analytics, including big data sources, allow for more accurate and actionable forecasts for both turnover and retirement that can be incorporated into operational decision-making.

Peter Louch is founder and CEO of Vemo, a cloud-based workforce planning and analytics technology provider.

LEARNING CAPTURE AND TRANSFER YOUR KNOWLEDGE

By Ken Mall

As we travel around the country, we see more and more HR managers caught off-guard as some of their longest-tenured employees announce their retirements. As the economy has recovered over the past five years, many employees are approaching the point where they feel they have enough financial security to walk away from their jobs.

Many American utilities are starting to utilize workforce analytics to get a better sense of which individuals are going to retire and when. But they still need to answer the question, How do we distill and bottle 30-plus years of institutional knowledge and share it with future generations of employees?

Knowledge management is about using the current and future brain power of an organization to achieve the organization's goals in a systematic and organized manner. It has two critical components:

- **Knowing what knowledge is important to manage.** If you asked 10 workers if their knowledge about their job was critical to the company's operations, nine would say yes; the tenth probably didn't hear the question right. Capturing all that knowledge would take years and yield little overall value.
- **Knowing what type of knowledge needs to be managed.** *Explicit* knowledge has been documented, typically as reports, processes, or policy manuals. *Tacit* knowledge, or know-how, is mostly undocumented. Not all tacit knowledge is important, but it is likely that most of the important knowledge is tacit. Effective knowledge management converts critical tacit knowledge known by a few (or by just one) into explicit knowledge to be transferred to many.

No two knowledge management plans are alike. But here are some basic steps all organizations should consider in defining knowledge management priorities and creating a plan to meet current and future needs:

- **Perform an organizational analysis.** Identify current practices in documenting practices and procedures. Examine the corporate policies, support methods, technological applications, and tools used to perform important work in the organization. Where there are multiple departments, there may be information silos leading to redundancy in both functions and work.
- **Conduct a job task analysis.** Engage subject matter experts in identifying and documenting the important and tacit job tasks performed in each job. Job analysts work with SMEs to determine their job tasks and how they are organized. The result is a highly detailed job task list. With several

people participating, many variations of the task lists are generated and combined to effectively describe the job and its tasks.

- **Use skill surveys.** Skill surveys identify the location of tacit and important knowledge. The survey lists job tasks related to the desired skill level and current job requirements. Traditionally, respondents rank their abilities using a simple scale ranging from “unaware of this type of work” to “able to instruct others in this type of work.”
- **Identify knowledge gaps.** A skill gap analysis can be performed by comparing the job skill needs identified during the job task analysis to the skill survey results. At EDSI, we can create a skill gap analysis for individual employees or a visual representation of skill gaps within a department or organization. We can then overlay demographic information (like anticipated retirement dates) to forecast future skill gaps. This matrix helps to define knowledge management priorities.

Creating the Plan

Having completed your analysis, you can now determine how to transfer important and tacit knowledge to other employees. Many organizations are creating structured mentoring/cross-training plans. Individual skill gap reports become the road map for any customized training initiatives. These reports allow us to create customized training plans and measure their effectiveness.

If the important and tacit knowledge is needed only periodically, then a case study, training manual, or video might be the proper vehicle to capture and transfer that knowledge. If you are in a large organization, you may have an enterprise system or database that could be leveraged to manage knowledge transfer and track progress. Stand-alone systems also exist to help manage knowledge capture and transfer.

A good system will catalog important and tacit job tasks, keep track of employees’ existing skills, and monitor employees’ progress in filling skill gaps. Some systems can quickly and graphically show where knowledge gaps exist.

Once you decide on methods, creating a knowledge management plan is just like creating a plan for any project, with action items, deadlines, deliverables, and clearly assigned responsibilities. Be prepared to adjust the plan as the needs change and the methods are perfected.

A well-thought-out and implemented knowledge management program will result in a culture of learning that benefits both the employees and the organization.

Ken Mall is managing director at EDSI Consulting, a workforce development, customized training, and consulting company.

RETIREMENT RISKS ADDRESSING GROWING PENSION OBLIGATIONS

By Royce Kosoff

Like other legacy industries, the utility sector faces significant retirement obligations for its current workforce and former employees. These retirement obligations have grown over the past several decades, fueled by declining interest rates, long average tenures, and longer life expectancies. The active workforce supporting these obligations has shrunk dramatically over this period, leveraging the risk exposure for plan sponsors.

Average projected benefit obligations for utilities currently represent 32 percent

of market capitalization, compared to 25 percent for the average Fortune 1000 plan sponsor. In fact, one-sixth of utilities have pension obligations that exceed 50 percent of market capitalization. And these percentages are even higher when post-retirement medical and life insurance plans are factored in.

In years when a pension sponsor’s investments perform poorly or interest rates decline, the funded status of the plan deteriorates, and as such, the utility may be required to make cash infusions—often in the hundreds of millions of dollars—to the pension plan in a single year. And while regulated utilities often fare better than other cyclical industries during these periods, these cash contributions (and accounting cost increases) still create a drag on overall company results. Recent changes in rules regarding how pensions are accounted for and funded in the U.S. have generally served to increase this volatility.

More than one-third of U.S. utilities have slowed this growth by closing their pension plans and moving new hires into a defined contribution savings plan [401(k)]. Some have taken the additional step of freezing plan accruals for all employees. However, this approach has been less prevalent in the utility sector so far. Implementing these types of plan changes presents other workforce challenges—and, unfortunately, they are also not sufficient to significantly reduce pension risk in the near-term.

Many utilities have taken other steps to reduce the current risk exposure of their plans, including:

- Reducing their pension obligations by offering former employees (“terminated vested participants”) a one-time lump-sum payment in lieu of future monthly benefits. This strategy serves to reduce the risks outlined above and also reduces ongoing administrative costs related to these participants.
- Shifting investment strategy to focus more on matching plan obligations,

rather than the traditional approach of “asset-only” optimization. Sponsors need to carefully balance the long-term benefits of return-seeking assets versus those assets whose purpose is to reduce plan volatility.

- Reviewing the appropriateness of settling retiree obligations through an annuity placement with an insurance carrier.

Most importantly—and unlike most other industries—utilities have a provision for pension cost reimbursement built into rate structures approved by regulators. During periods of low volatility, these mechanisms work well, with reimbursements often in line with actual plan costs. However, during periods of higher volatility, utilities often face a mismatch (sometimes known as “carrying cost risk”), where the reimbursement can lag actual plan costs for a significant period of time. In light of this mismatch, some utility sponsors and state rate commissions have moved to a cost “tracker” approach that better serves to align costs and protects both ratepayers and utility plan sponsors.

Last year was historically exceptional for pension plan sponsors due to strong equity returns and an uptick in interest rates. While the average Fortune 1000 plan sponsor saw its plan funding status increase to 82 percent at year-end 2013, the utility sector average climbed to a five-year high of 89 percent. These positions will now enable many sponsors to implement (or continue along) their pension journey plan—which should consider settlement strategies in a coordinated manner with investment, funding, and benefit design strategies. We recommend that utilities use this current opportunity, working with their respective rate commissions and other key stakeholders, to manage pension risk in a prudent way for the future.

Royce Kosoff is a senior consulting actuary with Towers Watson.

AGA SCHOLARSHIPS PROVIDE ASSISTANCE FOR FUTURE WORKERS

Recognizing the urgent need for skilled workers in the natural gas industry, the American Gas Association last year established the AGA Scholarship Program, providing a total of \$1 million over a five-year period in funding for students pursuing technical careers in the industry. To date, more than two dozen schools are working with AGA and its member companies to provide scholarship assistance to 37 students who either have already started their education or will begin their studies this fall. In some cases, AGA members offer additional financial assistance to qualifying students.

Participating schools may offer certificates or associate’s or bachelor’s degrees in relevant programs including HVAC, welding/welding technology, air conditioning technology, chemical engineering, civil engineering, transportation technologies, electronics and computer technology, construction engineering management, gas utility construction and service, manufacturing engineering technology, and mechantronics.

AGA anticipates that 200 students will be able to take advantage of the program over the next four years. Scholarship funds may be used for tuition, lab fees, books, tools, and other equipment needed to complete the academic program.

Participating schools include:



Baton Rouge Community College
Bishop State Community College
Bismarck State College
Butte College
California State Polytechnic University
Central Piedmont Community College
City Colleges of Chicago
Clackamas Community College
Colorado School of Mines
Eric Community College
Gwinnett Technical College
International School of Hydrocarbon
Measurement
Ivy Tech Community College

Kilgore College
Lamar Institute of Technology
Los Angeles Trade and Technical College
Marshalltown Community College
Monroe Community College
Northeast Iowa Community College
Northeast Wisconsin Technical College
Northern Virginia Community College
Pennsylvania College of Technology
Salt Lake Community College
Stevens Institute of Technology
University of Houston
West Virginia University
Westmoreland Community College