Measuring up: do you have a scorecard?

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Abstract Performance measurement can be an effective tool in driving organization improvement to enable your utility to become more competitive, or improve customer satisfaction. WERF Project #99-WWF-7, *Developing and Implementing a Performance Measurement System*, is developing performance measurement systems by investigating a number of "best practices" in other industries and implementing selected practices at various water/wastewater utilities nationwide to determine how these practices can be adapted and applied. This joint WERF/AWWARF research project has been underway since mid-1999 to provide methods and tools that enable the utility to develop and implement a performance measurement system based on a demonstrated, proven approach. The Volume I Report summarizes the secondary research and project approach.

Well designed, properly implemented performance measurement systems can enable utilities to achieve new levels of performance in terms of efficiency, quality, and effectiveness. Interest in performance measurement is increasing in all competitive businesses and industries today, and has been advanced through concepts such as the Balanced Scorecard. Utilities can employ these same concepts and learn "best practices" from other industries' experiences.

While a performance measurement system alone doesn't improve performance or make a utility competitive, when combined with an appropriate business strategy and performance improvement initiatives, it can drive a cycle of change. A successful performance measurement system combines a holistic approach around improved business practices and effective human/organizational strategies in addition to actual performance information for operational decision-making.

Keywords Balanced scorecard; performance indicators; performance measurement; utility management

Secondary research identified performance measurement "best practices"

From secondary research conducted in other industries (including Fortune 500 companies that were included as part of consortium studies (APQC, 1999, 1997, 1996), five key areas have been identified for successful performance measurement. Examples of "best practices" are shown for each area.

1. *Performance measures must be linked, aligned, and integrated with an organization's strategic plan and business initiatives*.

• Performance measurement has strong, clear alignment with an organization's strategic planning process. The reporting of measures reinforces the strategic plan and helps communicate it to all employees.

• Performance measurement is integrated with quality initiatives (ISO 9000, 14000), award programs (Baldrige), or performance improvement programs/strategy. The quality initiatives are a specific part of the strategic plan. Performance measurement systems provide a major part of the information required in these initiatives.

• Visible leadership through senior "champions". Senior management makes performance measurement an important part of the way business is done and communicates the targets and results on a regular basis.

• Performance measurement ties to incentive programs, pay for performance, or at-risk compensation, especially at the executive and senior levels. The performance measures are often for a team or business unit, but may also include personal performance.
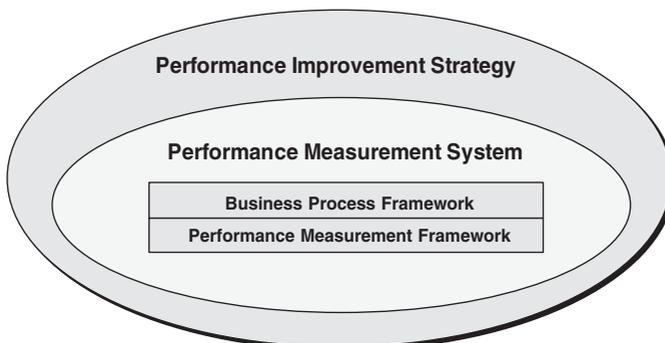
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2. *Successful performance measures are based on a framework such as the "balanced scorecard" at the enterprise level.*

- Using small numbers of vital measures is a feature of the best performance measurement systems. By reducing the data available to the critical factors, people are able to focus on what is most important.
- Financial measures are not the majority of measures. Adding the majority non-financial measures is a consequence of relating to the strategic plan.
- BSC is used at corporate/enterprise level (typically 10–20 measures). The BSC may also be used at other organizational levels, particularly when a business unit has a need to have its own strategic plan.
- A family of measures (typically 5–10 measures) is typically used at business process levels throughout the hierarchy.
- System usually includes predictive measures for the "look ahead". The predictive measures are typically control factors because these activities can be built into business plans and will produce the desired performance.
- Direct measures of customer and employee satisfaction are usually included. The customer perspective is an important part of the BSC; however, a customer satisfaction index may not be a critical measure because of the difficulty associated with making the measurement and understanding the results. Employee satisfaction is also important for the internal business perspective; however, this measurement may not be viewed as one of the top five factors for success from the business perspective.

3. *Wide-ranging education is required to develop and apply measures in the operating units.*

- Employees are involved in developing operational-level measures, based on business processes. The involvement of people in the process creates ownership of the performance measures.
- Employees can relate measures directly to their jobs. By being part of the way business is done, performance measurement is directly related to the work, not an add-on.
- Corporate function drives education and implementation throughout all operating units. A small number of people are needed to train employees on performance measurement. Without the proper training, many people will not get the full benefit from performance measurement.
- Frequent review of measures with interpretation of results. The periodic review of results is typically a quarterly or yearly function for very large enterprises. Business units within the enterprise will report results quarterly or monthly. Work teams may report performance measurement very often, sometimes in real-time or near real-time fashion.
- Periodic refinement of measures and "raising the bar" (annual adjustments, target setting) is done to improve performance. Target setting is perhaps the most difficult aspect of performance management and is one reason for concentrating effort on a small number of measures.

4. *Systematic data collection/roll-up must be implemented through formal processes and systems.*

- Regular/periodic data collection is made through various information sources and systems. The data required for strategic purposes is usually scattered among a number of systems and, in some cases, has not been computerized at all.
- Employ a variety of technologies – many use "homegrown" solutions. The solutions may be built around a financial reporting application or from scratch.
- Formal, complex processes "roll-up" local data into corporate measurement systems. Variation in definition of measures within the organization often requires an interpretation process be performed.

- Automation of data gathering needs further development. Many companies use computer applications that require significant manual attention or provide measures that are not on the BSC.
- Tracking of performance over time shows trends and relationships (historical data). Trends are often as important or more important than the absolute measures. Trends will show long-term improvement or problems.

5. *Measurement results must be widely communicated and acted upon*.

- Formal, regular publishing of results via company news, intranets, etc. gives everyone in the company the same picture of how the company is performing.
- Regular, informal, in person communication of measurement results (e.g. via emails, team meetings, etc.) is used to stimulate participation in improving performance or improving the performance measurement system.
- "Road show" or high visibility communication by senior leaders shows employees their contribution is important and helps keep the organization aligned to the main performance factors.
- Cause and effect relationships are analyzed for business process improvements. The control factors (or leading factors) may have a complex relationship with the performance measures. Refining this relationship will enable better forecasting of performance.
- Team involvement and responsibility in adjusting performance puts the emphasis on results. When done on an individual basis, performance measurement is often seen as a tool for personnel management and often results in "outstanding" individual performance even when the team or company performance is poor.
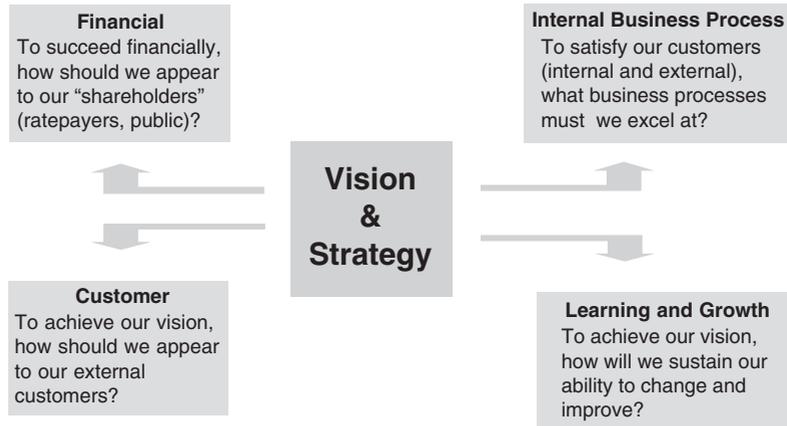
Framework selected for performance measurement system

A performance measurement framework, along with a business process framework, forms the basis for a performance measurement system (Figure 1). The business process framework is required because the most appropriate measures are process-based, independent of a utility's unique organization structure.

A modified version of the Balanced Scorecard (Kaplan and Norton, 1996) was selected as a basis for a performance measurement framework. This project's performance measurement framework uses extensive work done by Kaplan and Norton on the Balanced Scorecard (BSC). The BSC framework is based on the understanding that an organization's continuing success relies on more than financial factors. The BSC framework uses performance measures from four perspectives (Figure 2).

Figure 1 A performance measurement system is part of a strategy to improve utility performance

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Financial
To succeed financially, how should we appear to our "shareholders" (ratepayers, public)?

Internal Business Process
To satisfy our customers (internal and external), what business processes must we excel at?

Vision & Strategy

Customer
To achieve our vision, how should we appear to our external customers?

Learning and Growth
To achieve our vision, how will we sustain our ability to change and improve?

**Figure 2** Balanced scorecard provides common measurement framework (after Kaplan and Norton, 1996)

Common process for developing and implementing performance measurement systems

A seven-step process for developing and implementing a performance measurement system was created from best practice information and other secondary research completed during Phase 1 of the project. Completion of each of these seven steps is essential to successfully developing a performance measurement system, before regular use of the system can result in improved performance (Figure 3).

Each step outlined below requires significant involvement of the end-users through education and communication for successful implementation and use of the system.

1. *Define the utility strategic plan*. Define the utility's vision, mission (including customers and services provided), goals, and business strategies to meet the goals.
2. *Define the need for improvement*. Areas for improvement and potential benefits (e.g., cost savings, improved quality, better service) must be defined so that the performance measurement system serves a purpose. Improvement areas and benefits are typically defined through a competitiveness assessment, benchmarking process, or review program such as QualServe.
3. *Define the performance measures*. After clearly defining a utility's business processes, develop a balanced scorecard and set of measures for the selected business process (in the area identified for improvement).
4. *Set the targets for Improvement*. Based on the performance measures defined, set a target for each measure related to the need for improvement from Step 2. Link the targets to the appropriate organization or team accountabilities and/or incentives.
5. *Implement the performance measurement system*. Put in place the necessary data collection, recording, manipulation of data, and presentation of measurement results by periodic reporting or an on-line "dashboard."
6. *Measure and initially adjust*. With initial use of the performance measurement system, adjust the measures and/or the systems which collect and present these measures from initial user feedback. It may be necessary to go back to Step 3 or 4 and refine the initial set of measures or targets.
7. *Use the performance measurement system*. Regular use of the system means users take action based on the measures and periodically re-set the targets to new levels of performance.

The business process framework was developed based on the Utility Business Architecture (UBA) (AWWARF, 1997) and the American Productivity & Quality Center's (APQC, 1999) process classification framework (Figure 4). The business processes

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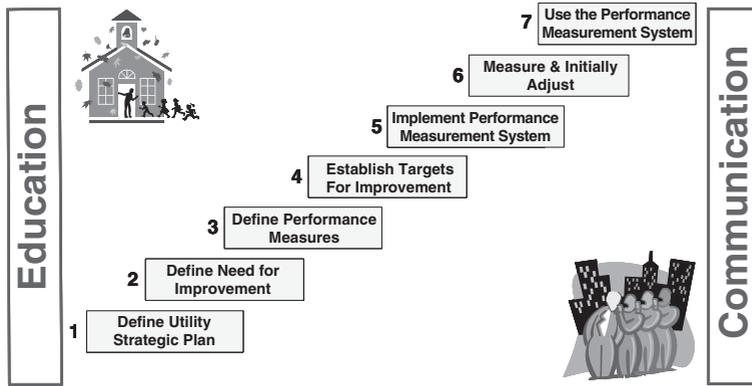
Figure 3 Seven-step process provides common approach for developing and implementing a performance measurement system
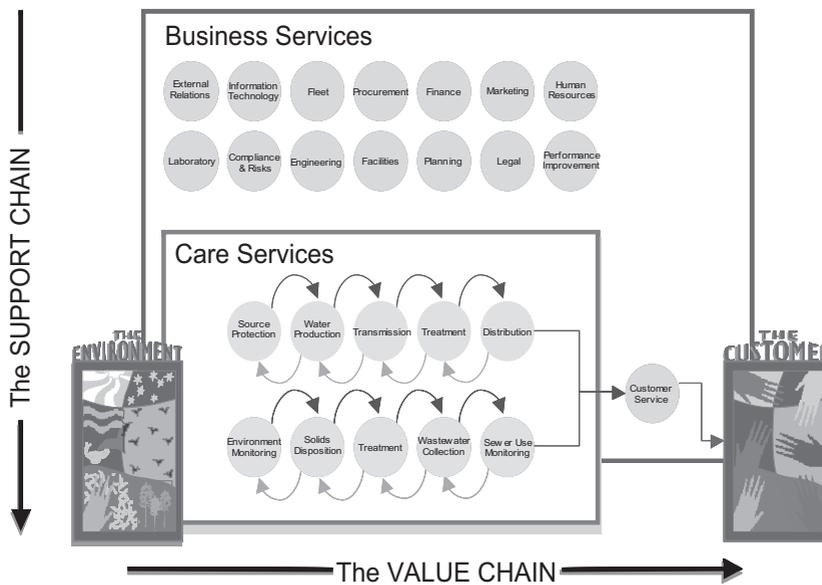
Figure 4 Business process framework is based on utility business architecture (UBA) and APQC's process classification

framework provides the structure for measures that are process-based for each of the scorecard perspectives.

Linking performance measures to strategic direction is key to implementation success

What makes performance measurement work? Utility examples, as well as secondary research of other industries, demonstrate that linking a performance measurement system with a utility's strategic direction provides organization alignment (Figure 5). A utility's strategic direction, business strategies, and related initiatives must provide the goals and objectives for a performance measurement system (Figure 5). This framework means that enterprise and business scorecards are aligned "top down" with strategy and "bottom up" with programs, initiatives, and on-going operations.

Developing performance measures for a utility's strategic and tactical initiatives (programs, projects, on-going operations) means that these initiatives will directly carry out and support a utility's strategic direction. The initiative's objectives, measures, and targets
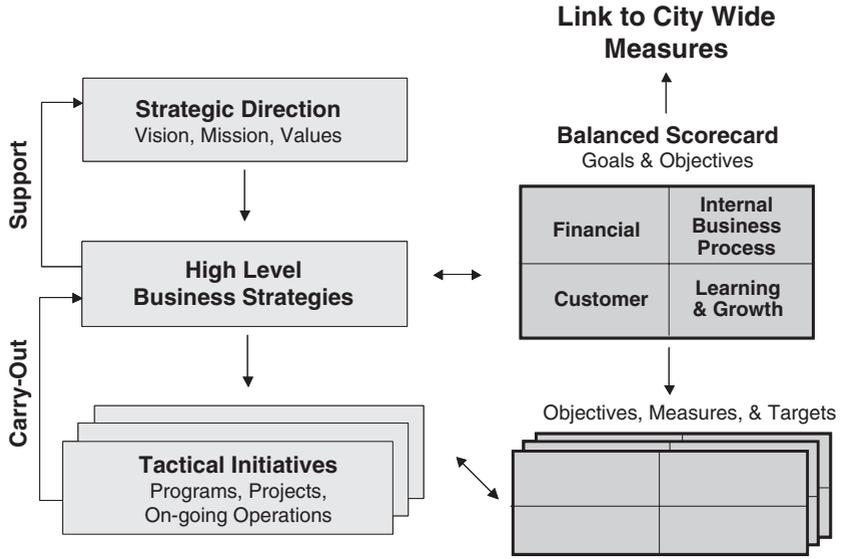
Figure 5 Performance measures must align with utility's strategic direction

provide feedback on performance directly to work teams or individuals. With systematic performance feedback, these teams and individuals can make operational improvements. With a cycle of continuous improvement, utilities can reach new levels of performance for customer and public benefit.

Using the performance measurement system

Use of the performance measures in an on-going improvement process or periodic review is key. The information provided to each user (or team of users) should enable them to adjust the business processes for which they are accountable (Figure 6). The measures should be part of a system of measures that are linked or related "so that" each user (or team) can see or understand the impact of their business process performance on the rest of the utility.

Using a performance measurement system doesn't guarantee a utility will meet its business goals; however, when utilized as a key tool for tracking performance, it can provide information critical for adjusting a utility's business processes so that goals can be reached
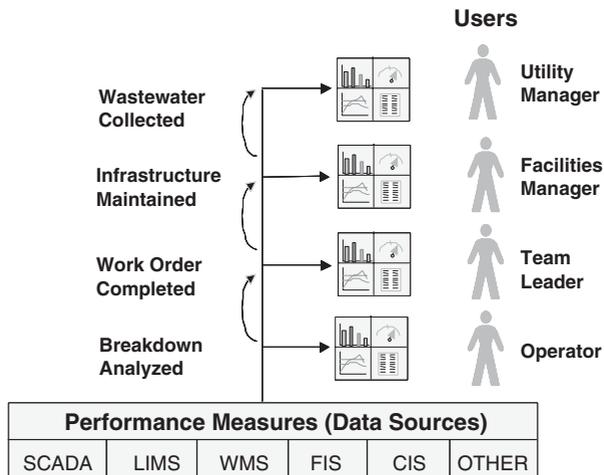
Figure 6 Measurement views relevant to each user provide feedback for actions

or even exceeded. If the business goals have been properly defined and competitive targets set, the result will be competitive utility performance.

Pilot projects apply performance measurement steps and "best practices"

Four utilities are piloting the seven-step process and best practices in their own unique circumstance (including one Targeted Collaborative Research program participant), to demonstrate how the process can be applied in a variety of utility types and situations. The utility pilots and their individual focus areas are as follow.

- **Phoenix Water Services Department** – A utility-wide scorecard was developed and linked to an updated Department Strategic Plan. Implementation of scorecard goals, objectives, and measures is proceeding in two focus areas: managing maintenance at Union Hills Water Plant; and prevention of sanitary sewer overflows for the Department's "zero tolerance" compliance program.
- **Central Contra Costa Sanitary District** – An initial plant operations scorecard was defined with identified key performance improvement areas. Additional development and implementation of this scorecard will align with the District's updated strategic direction.
- **Union Sanitary District** – A treatment and disposal (T&D) process scorecard is focusing work teams on establishing targets and measuring performance. A refined District scorecard will link to process and team-based scorecards for an enterprise view of utility-wide performance.
- **Seattle Public Utilities** – An updated strategic business plan will directly link measures from operational work plans and strategic initiatives to strategic business plan goals. Refinement of the existing organizational performance system will focus on balancing the types of measures as well as implementing "lateral team" measures.

Two of the pilot utilities, Seattle Public Utilities and Union Sanitary District, have previously implemented organization-wide performance measurement systems. All pilot participants have previously used performance measures in some areas. Therefore, this project can demonstrate an approach that helps utilities begin to embrace or expand performance measurement, as well as those experienced or "up the learning curve".

The utility pilots are scheduled to run through mid-2001. A subsequent report of the results will summarize the pilot implementations in terms of the individual utility's "lessons learned" as well as adjustments to the performance measurement framework, approach, or seven-step process.

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