The Performance-Based Management Handbook

A Six-Volume Compilation of Techniques and Tools for Implementing the Government Performance and Results Act of 1993 (GPRA)

Volume Two

Establishing an Integrated Performance Measurement System

Performance-Based Management Special Interest Group (PBM SIG)
http://www.orau.gov/pbm

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The **Performance-Based Management Special Interest Group (PBM SIG)** is a U.S. Department of Energy (DOE) and DOE contractor funded organization made up of DOE and DOE contractor personnel who have a special interest in performance-based management. The mission of the PBM SIG is to facilitate, promote, and advance the use of performance-based management in DOE. The activities and publications of the PBM SIG are coordinated and administered by the Oak Ridge Institute for Science and Education.

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Volume 2

Establishing an Integrated Performance Measurement System

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for the

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Chief Financial Officer

Office of Planning, Budget and Outreach
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Preface

?. . . chart a course for every endeavor that we take the people's money for, see how well we are progressing, tell the public how we are doing, stop the things that don't work, and never stop improving the things that we think are worth investing in."

President William J. Clinton, on signing the
Government Performance and Results Act of 1993

Introduction

All high-performance organizations, whether public or private, are, and must be, interested in developing and deploying effective performance measurement and performance management systems, since it is only through such systems that they can remain high-performance organizations. When President Clinton signed the Government Performance and Results Act of 1993 (GPRA) into law, this commitment to quality was institutionalized. Federal agencies were required to develop strategic plans for how they would deliver high-quality products and services to the American people. Under GPRA, strategic plans are the starting point for each federal agency to (1) establish top-level agency goals and objectives, as well as annual program goals; (2) define how it intends to achieve those goals; and (3) demonstrate how it will measure agency and program performance in achieving those goals.

The publication of *The Performance-Based Management Handbook, A Six-Volume Compilation of Techniques and Tools for Implementing the Government Performance and Results Act of 1993* follows a logical progression of resources developed to assist in the effective and efficient implementation of GPRA. In chronological order, these resources are:

- The National Performance Review (NPR)
- *How to Measure Performance—A Handbook of Techniques and Tools*
- *Guidelines for Strategic Planning*
- *Guidelines for Performance Measurement*
- *Executive Guide: Effectively Implementing the Government Performance and Results Act*
- *NPR Benchmarking Study Report Best Practices in Customer-Driven Strategic Planning*
- *NPR Benchmarking Study Report Best Practices in Performance Measurement*
- *The Performance-Based Management Handbook, A Six-Volume Compilation of Techniques and Tools for Implementing the Government Performance and Results Act of 1993*

The National Performance Review

In the same year that GPRA was signed into law, President Clinton and Vice President Gore initiated the National Performance Review (NPR) to reinvent government. One of NPR's reinvention initiatives was to foster collaborative, systematic benchmarking of best-in-class organizations, both public and private, to identify best practices in a wide range of subjects vital to the success of federal agencies in providing high-quality products and services to the American people.

How to Measure Performance—A Handbook of Techniques and Tools

Developed in October 1995, *How to Measure Performance—A Handbook of Techniques and Tools* was the Performance-Based Management Special Interest Group's (PBM SIG's) first handbook. It was produced at a time when DOE personnel were struggling with the concepts and conventions of performance measurement

and has been touted as a very useful guidance document. The handbook describes three different approaches to developing performance measures; provides sections on performance indexing, data analysis, and reporting techniques; and includes a thorough glossary of terms, an inclusive list of references, and a substantial list of sample performance measures.

Guidelines for Strategic Planning

This Department of Energy (DOE) guidance document (DOE/PO-0041) was published in January 1996 by the Office of Policy and International Affairs to help strategic planning teams plan for, organize, and prepare the departmental strategic plan required under GPRA. It provides guidance both to those organizations and personnel starting the strategic planning process for the first time and to those reviewing or updating existing plans. The steps outlined within this document represent a very simplified approach to strategic planning.

Guidelines for Performance Measurement

The DOE Performance Measurement Coordination Team released this guidance document (DOE G 120.1-5) in June 1996. It is often referred to as a companion document to the PBM SIG's first handbook. While both documents cover performance measurement, this document also covers the relationship of performance measurement to organizational operations, presenting topics such as performance linking, tying into departmental systems, and coordinating performance measures.

Executive Guide: Effectively Implementing the Government Performance and Results Act

The U.S. General Accounting Office (GAO) published this document (GAO/GGD-96-118) in June 1996. It resulted from a study done at the request of Congress in which a number of leading public sector organizations that were successfully pursuing management reform initiatives and becoming more results-oriented were studied. Each of these organizations set its agenda for management reform according to its own environment, needs, and capabilities. Yet, despite their differing approaches to reform, all these organizations commonly took three key steps to becoming more results oriented: (1) define clear missions and desired outcomes, (2) measure performance to gauge progress, and (3) use performance information as a basis for decision making. These three key steps are discussed in this GAO executive guide, along with their relationship to GPRA. Also discussed is the role of top leadership and the practices it can follow if it hopes to make GPRA a driving force in an organization. Accompanying the discussion of each practice is a case illustration involving a federal agency that has made progress in incorporating the practice into its operations.

NPR Benchmarking Study Report: Customer-Driven Strategic Planning

In February 1997, NPR published its *Benchmarking Study Report Best Practices in Customer-Driven Strategic Planning*, which documents and details the in-depth processes and approaches of those best-in-class organizations that excel at incorporating their customers' needs and expectations into their strategic planning processes. This study provided public and private leaders and managers with world-class practices and formulas for success in developing and deploying strategic plans and goals for an agency.

NPR Benchmarking Study Report: Best Practices in Performance Measurement

To complement its strategic planning study, NPR commissioned the first-ever intergovernmental benchmarking consortium involving not only U.S. federal agencies, but also local governments and the government of Canada in a collaborative study of performance measurement. As documented in its June 1997 report, the NPR Performance Measurement Study Team found that the best performance measurement and management systems and practices work within a context of strategic planning that takes its cue from customer needs and customer service. They also found that:

- Leadership is critical in designing and deploying effective performance measurement and management systems.
- A conceptual framework is needed for the performance measurement and management system.
- Effective internal and external communications are the keys to successful performance measurement.
- Accountability for results must be clearly assigned and well-understood.
- Performance measurement systems must provide intelligent information for decision makers, not just compile data.
- Compensation, rewards, and recognition should be linked to performance measurements.
- Performance measurement systems should be positive, not punitive.
- Results and progress toward program commitments should be openly shared with employees, customers, and stakeholders.

The Performance Measurement Process Model

To provide them with a useful frame of reference as they studied performance measurement in best-in-class organizations, the NPR Performance Measurement Study Team built a model of the performance measurement process used in the federal context. This Performance Measurement Process Model was published in its June 1997 report. This model is shown in Figure PBM.1 on the following page.

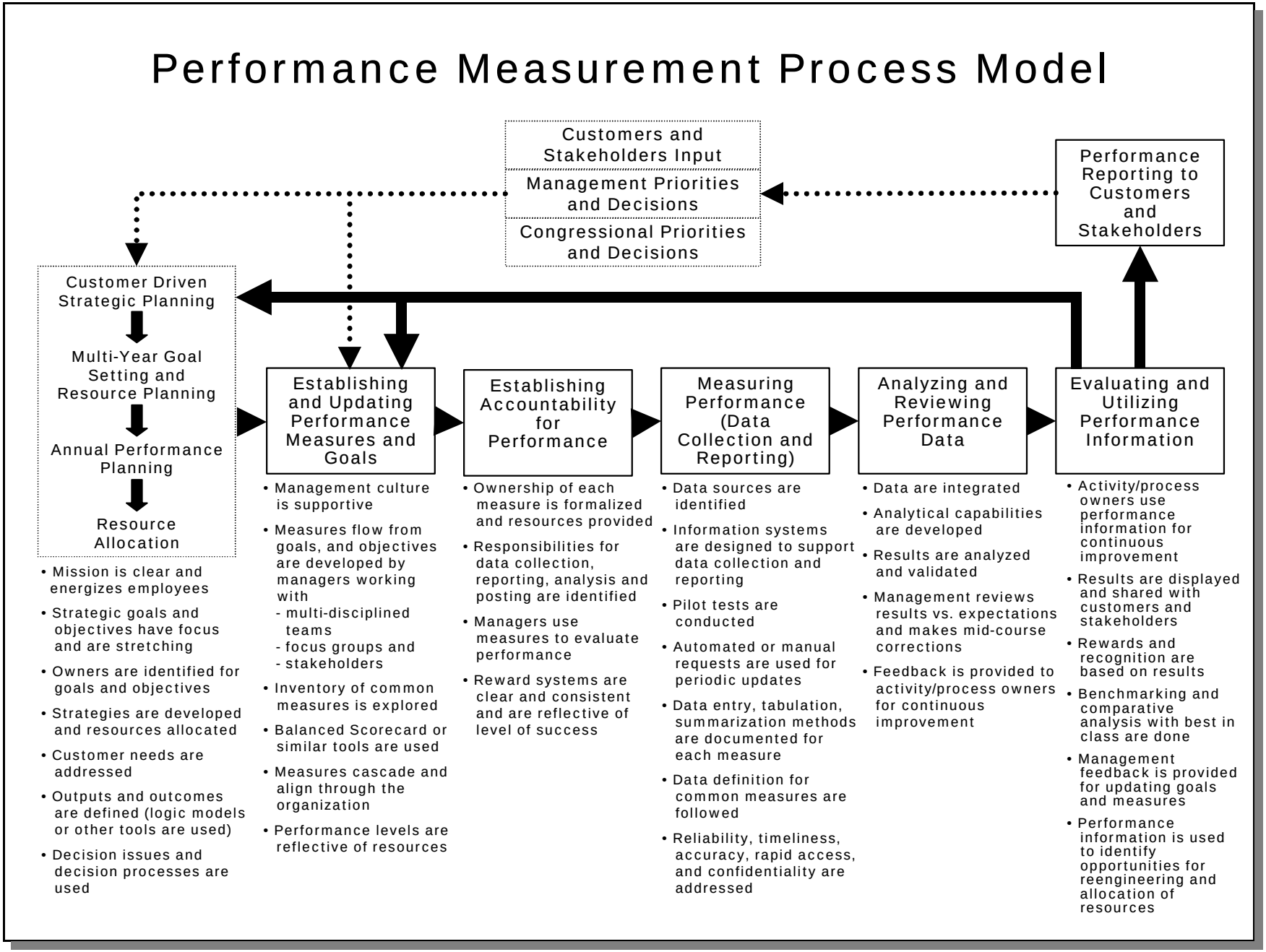

Figure PBM.1

NPR Performance Measurement Process Model

The Performance-Based Management Handbook

The PBM SIG adapted the NPR Performance Measurement Process Model into a performance-based management process model and used this model to structure *The Performance-Based Management Handbook*. The PBM SIG Performance-Based Management Process/Handbook Model is shown in Figure PBM.2 below. Topics covered by each volume are listed after the figure.

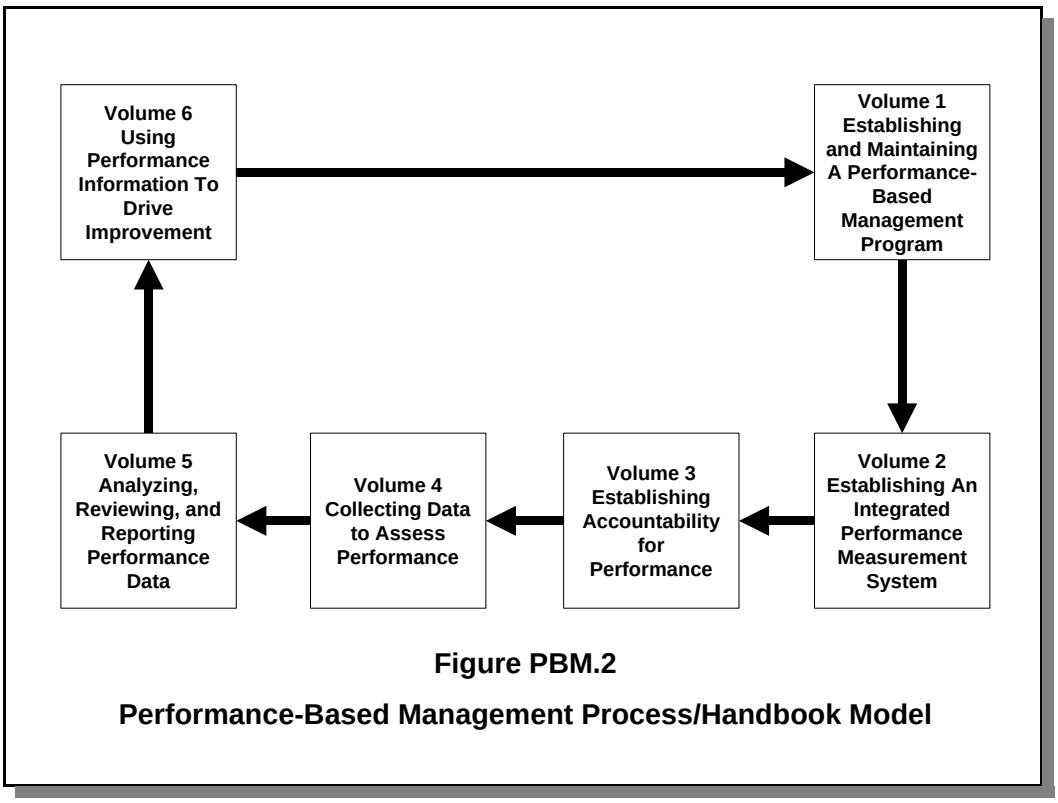

Figure PBM.2

Performance-Based Management Process/Handbook Model

Volume 1: Establishing and Maintaining a Performance-Based Management Program

- An Introduction to Performance-Based Management
- Step 1: Define Organizational Mission and Strategic Performance Objectives
- Step 2: Establish an Integrated Performance Measurement System
- Step 3: Establish Accountability for Performance
- Step 4: Establish a System/Process for Collecting Data to Assess Performance
- Step 5: Establish a System/Process for Analyzing, Reviewing, and Reporting Performance Data
- Step 6: Establish a System/Process for Using Performance Information to Drive Improvement
- Maintaining a Performance-Based Management Program

Volume 2: Establishing an Integrated Performance Measurement System

- Understanding Performance Measurement
- Establishing an Integrated Performance Measurement System
- Choosing a Performance Measurement Framework

- Developing Performance Measures—Getting Organized
- Developing Performance Measures—Sample Approaches
- Maintaining an Integrated Performance Measurement System

Volume 3: Establishing Accountability for Performance

- The Concept of Accountability
- Establishing Accountability for Performance
- Accountability Tools

Volume 4: Collecting Data to Assess Performance

- Determining Data Needs
- Components of a Data Collection Plan
- Data Collection Considerations
- Data Collection Methods
- Suggestions for Measuring R&D Activities

Volume 5: Analyzing, Reviewing, and Reporting Performance Data

- Introduction to Data Analysis
- Training Your Organization in Analysis Skills
- Generating Useful Information - Step 1: Question Review
- Generating Useful Information - Step 2: Data Collection and Organization
- Generating Useful Information - Step 3: Data Analysis
- Generating Useful Information - Step 4: Data Presentation

Volume 6: Using Performance Information to Drive Improvement

- Using Performance Information to Drive Improvement
- Benchmarking
- Reengineering
- Continuous Improvement
- Process Improvement

About This Volume

This volume was edited by: Will Artley, Oak Ridge Institute of Science and Education, and Randy LaBarge, Pacific Northwest National Laboratory. Editorial assistance was provided by Phyllis Baker, University of California; Cynthia Eubanks, Bechtel Jacobs Company; Buck Koonce, University of California; and Suzanne Stroh, University of California.

Volume 2 Overview

Performance measurement is the ?heart and soul" of the performance-based management process. Flowing from the organizational mission and the strategic planning process, it provides the data that will be collected, analyzed, reported, and, ultimately, used to make sound business decisions. It directs the business function by justifying budgetary expenditures, documenting progress towards established objectives, identifying areas of both strength and weakness, providing an on-going assessment of the current ?organizational climate," and driving business improvement. In a nutshell, performance measurement supports organizational existence.

Performance measurement systems succeed when the organization's strategy and performance measures are in alignment and when senior managers convey the organization's mission, vision, values and strategic direction to employees and external stakeholders. The performance measures give life to the mission, vision, and strategy by providing a focus that lets each employee know how they contribute to the success of the company and its stakeholders' measurable expectations.

Integration places performance measures where they are the most effective: integrated with the strategic, business activity. It makes it possible for the measures to be effective agents for change. If the measures quantify results of the activity, one only need compare the measured data with the desired goals to know if actions are needed. In other words, the measures should carry the message.

While the flow of information in Volume 2 is designed for those who are ?first-timers" to performance measurement, this volume will prove very useful to those who are experienced and knowledgeable about the subject. Novices will be provided with the information necessary to establish an integrated performance measurement system. ?Old timers" will get a ?refresher course" on performance measurement and may gain insight into new areas and new experiences about which they had not considered.

Volume 2 is divided into six sections covering:

- **Understanding Performance Measurement** - A thorough education of ?the in's and out's" of performance measurement.
- **Establishing an Integrated Performance Measurement System** - An explanation of the components of an integrated performance measurement system.
- **Choosing a Performance Measurement Framework** - A discussion of the balanced approach to performance measurement and several frameworks that incorporate this approach, including the Balanced Scorecard, the ?Critical Few" set of measures, performance dashboards, and the Baldrige Quality Award criteria. Several examples of each are included.
- **Developing Performance Measures—Getting Organized** - A look at the things that need to be done before staring the development of performance measures.
- **Developing Performance Measures—Sample Approaches** - Three useful and successful approaches to developing performance measures.
- **Maintaining an Integrated Performance Measurement System** - A review of a series of ?maintenance checks" that can be performed to maintain an effective performance measurement system.

In addition, Volume 2's appendices cover several useful topics such as:

- **References/Suggested Reading** - A listing of all of the documents referenced in this volume as well as many useful resources for further exploration of information on the subject of performance measurement.
- **Performance Measurement Terminology** - A presentation of DOE performance measurement terms, selected measurement terms, and statutory measurement terms.

- **A Primer on Performance Measurement** - A ?primer" defining several performance measurement terms, outlining areas or functions where performance measurement may be difficult, and providing examples of different types of performance measures.
- **Performance Measurement Tools for the AGC Approach** - Tools (in the form of tables) that can be used with the approach to performance measurement developed by the Auditor General of Canada, an approach highlighted in the ?Developing Performance Measures—Sample Approaches" section of this volume.

Section I: Understanding Performance Measurement

The concept of performance measurement is straightforward: you get what you measure; and can't manage a project unless you measure it.

From *Performance-Based Management: Eight Steps to Develop and Use Information Technology Performance Measures Effectively*
General Services Administration

The purpose of this section is to give you an understanding of performance measurement. It's not intended to be an in-depth look at the subject, only a briefing for the not-so-experienced business person. For more information, please see the PBM SIG's first handbook, *How To Measure Performance—A Handbook Of Techniques And Tools*. Also, please refer to Appendix C, **?**References/Suggested Reading," for a list of useful documents and Web sites.

What Is Performance Measurement?

In *Performance Measurement and Evaluation: Definitions and Relationships* (GAO/GGD-98-26), the U.S. General Accounting Office (GAO) provides the following definition:

> *Performance measurement is the ongoing monitoring and reporting of program accomplishments, particularly progress towards preestablished goals. It is typically conducted by program or agency management. Performance measures may address the type or level of program activities conducted (process), the direct products and services delivered by a program (outputs), and/or the results of those products and services (outcomes). A* **?***program" may be any activity, project, function, or policy that has an identifiable purpose or set of objectives.*

What Are Performance Measures?

Performance measures quantitatively tell us something important about our products, services, and the processes that produce them. They are a tool to help us understand, manage, and improve what our organizations do. Effective performance measures can let us know:

- How well we are doing,
- If we are meeting our goals,
- If our customers are satisfied,
- If our processes are in statistical control, and
- If and where improvements are necessary.

They provide us with the information necessary to make intelligent decisions about what we do.

A performance measure is composed of a number and a unit of measure. The number gives us a magnitude (how much) and the unit gives the number a meaning (what). Performance measures are always tied to a goal or an objective (the target). Performance measures can be represented by single-dimensional units like hours, meters, nanoseconds, dollars, number of reports, number of errors, number of CPR-certified employees, length of time to design hardware, etc. They can show the variation in a process or deviation from design specifications. Single-dimensional units of measure usually represent very basic and fundamental measures of some process or product.

More often, multidimensional units of measure are used. These measures are expressed as ratios of two or more fundamental units. They may be units such as miles per gallon (a performance measure of fuel

economy), number of accidents per million hours worked (a performance measure or the companies safety program), or number of on-time vendor deliveries per total number of vendor deliveries. Performance measures expressed this way almost always convey more information than the single-dimensional or single-unit performance measures. Ideally, performance measures should be expressed in units of measure that are the most meaningful to those who must use or make decisions based on those measures.

Most performance measures can be grouped into one of the following six general categories. However, certain organizations may develop their own categories as appropriate depending on the organization's mission:

1. Effectiveness: A process characteristic indicating the degree to which the process output (work product) conforms to requirements. (Are we doing the right things?)
2. Efficiency: A process characteristic indicating the degree to which the process produces the required output at minimum resource cost. (Are we doing things right?)
3. Quality: The degree to which a product or service meets customer requirements and expectations.
4. Timeliness: Measures whether a unit of work was done correctly and on time. Criteria must be established to define what constitutes timeliness for a given unit of work. The criterion is usually based on customer requirements.
5. Productivity: The value added by the process divided by the value of the labor and capital consumed.
6. Safety: Measures the overall health of the organization and the working environment of its employees.

Why Measure Performance?

Why measure performance? Many authorities on the subject have provided answers to this question. Several of them are quoted below.

National Performance Review

In their benchmarking study report, *Serving the American Public: Best Practices in Performance Measurement* (1997), the National Performance Review (NPR) notes that:

- Performance measurement yields many benefits for an organization. One benefit is that it provides a structured approach for focusing on a program's strategic plan, goals, and performance. Another benefit is that measurement provides a mechanism for reporting on program performance to upper management.

General Services Administration

The General Services Administration's (GSA's) *Performance-Based Management: Eight Steps to Develop and Use Information Technology Performance Measures Effectively* states that:

- Measurement focuses attention on what is to be accomplished and compels organizations to concentrate time, resources, and energy on achievement of objectives. Measurement provides feedback on progress toward objectives. If results differ from objectives, organizations can analyze gaps in performance and make adjustments.

U.S. Department of Energy

In DOE G 120.1-5, *Guidelines for Performance Measurement* (1996), the U.S. Department of Energy proposes that:

- Performance measurement improves the management and delivery of products and services. A recent opinion poll asked a group of adults what they thought the Federal government's top priority should be. Almost half wanted emphasis put on better management. In a world of diminishing resources, improving management of programs and services is critical.

- Performance measurement improves communications internally among employees, as well as externally between the organization and its customers and stakeholders. The emphasis on measuring and improving performance (i.e., ?results-oriented management") has created a new climate, affecting all government agencies, and most private sector and nonprofit institutions as well. A results-oriented organization requires timely and accurate information on programs and supporting services, whether at headquarters, field elements, or contractor locations. Collecting and processing accurate information depends on the effective communication of mission-critical activities.
- Performance measurement helps justify programs and their costs. The public, Congress, and Office of Management and Budget are increasingly taking a more ?results-oriented" look at government programs, and the cost-effectiveness of program expenditures is increasingly being called into question. In an era of shrinking federal budgets, demonstration of good performance and sustainable public impacts with positive results help justify programs and their costs.
- Performance measurement demonstrates the accountability of Federal stewardship of taxpayer resources. Federal employees and contractors want their day-to-day activities to contribute to a better society. Performance measurement can show that we are addressing the needs of society by making progress toward national goals.
- Performance measurement is mandated by the Government Performance and Results Act (GPRA) of 1993 and is central to other legislation and Administration initiatives. In addition to holding federal agencies accountable for achieving program results, GPRA also promotes a focus on service quality and customer satisfaction, and seeks to improve executive and Congressional decision making by clarifying and stating organizational performance expectations, measures, and program costs ?up front." The Government Management Reform Act of 1994 gives additional impetus to improve management of government performance by requiring, among other things, annual audited financial statements. Agencies must include performance information (programmatic and financial) in the overview to their financial statements.

Mark Graham Brown

Noted performance measurement expert, Mark Graham Brown, points out that:

- Measurement reduces emotionalism and encourages constructive problem solving. Measurement provides concrete data on which to make sound business decisions, thus reducing the urge to manage by ?gut feeling" or intuition.
- Measurement increases one's influence. Measurement identifies areas needing attention and enables positive influence in that area. Also, employees ?perform to the measurement," an example of how measurement influences employee performance.
- Improvement is impossible without measurement. If you don't know where you are, then you can't know where you're going and you certainly can't get to where you want to be. It's akin to traveling in unknown territory without a compass or a map. You're totally lost.

How Is Performance Measurement Used?

Another way of asking this question is, ?What are the benefits of performance measurement?" The answer is that performance measurement has many beneficial uses. For example, it can be used to:

- Set goals and standards.
- Detect and correct problems.
- Manage, describe, and improve processes.
- Document accomplishments.

- Gain insight into, and make judgments about, the effectiveness and efficiency of programs, processes, and people.
- Determine whether organizations are fulfilling their vision and meeting their customer-focused strategic goals.
- Provide measurable results to demonstrate progress towards goals and objectives.
- Determine the effectiveness of your part of your group/department/division/organization.

What Performance Measures Won't Tell You

The aforementioned DOE G 120.1-5, *Guidelines for Performance Measurement* (1996), makes five points about what performance measures won't tell you. Consider the first when your measurement program is going well. Consider the second and third when your performance program is going poorly. Bear the fourth and fifth in mind in either case.

1. **The Cause and Effect of Outcomes Are Not Easily Established.**
   Outcomes can, and often do, reveal the impact of the program, but without collaborating data, it is difficult to demonstrate that your program was the cause of the outcome(s). The outcomes of public sector services are inevitably affected by many events outside public control. In the weatherization assistance program, for example, it is not always easy to demonstrate energy savings because the changes introduced to homes may result in changes in the behavior of inhabitants that confounds the analysis. Assume, as a second example, that the goal of energy research is to encourage the development of new technologies that will be adopted by industry and result in energy savings. The outcome may not occur for decades, and while it may be possible to claim that the original research contributed to the final product, it will most likely not be the only contributing factor.

   To determine the extent to which a program has affected the outcomes and to measure the impact, you need to do an in-depth analysis. Special program evaluations provide estimates of program impacts and help determine why some programs succeed and other do not. The cost of special program evaluations to demonstrate the causes and effects may outweigh the benefits of knowing more about causal relationships.

   Though most benefits are expected to be related to your efforts and the original program plan, others may be viewed as serendipitous impacts. Such unplanned outcomes contribute to the value of programs, and should be reflected in performance results appropriately.

2. **Poor Results Do Not Necessarily Point to Poor Execution.**
   If performance objectives are not being met, it is obvious that something is wrong, but performance information itself does not always provide the reason. Instead, it raises a flag requiring investigation. Possibilities include performance expectations that were unrealistic or changed work priorities. Your organization should be able to explain performance results and to define and address the contributing factors.

3. **Numerical Quotas Do Not Fix Defective Processes.**
   There is also a danger when performance objectives become numerical quotas. The setting of numerical goals and quotas does nothing to accomplish improvements in the process. Identify the challenges and changing the processes are what is needed to improve performance and achieve desired outcomes.

4. **Measurements Only Approximate the Actual System.**
   Performance measurement provides a valuable tool for management and continuous improvement. However, people might try to **?**game" the system in a way that will make their programs look good. Additionally, accurate data may not be available. These are among the reasons why you need to recognize the fact that the measured system is not the same as the actual system.

5. **Performance Measures Do Not Ensure Compliance with Laws and Regulations.***
   Performance measures help form the basis for sound performance-based management. Performance measures do not however provide information on adherence to laws and regulations or the effectiveness of internal controls. Bypassing internal controls or noncompliance with laws and regulations may expedite operations and thus result in a ?favorable performance" statistic which does not necessarily indicate good performance. For example, a building could be constructed more quickly if safety controls and funding limitations were ignored. Because compliance and internal controls often have a direct effect on performance, care should be taken to supplement performance measurement with other oversight activities to ensure that controls are in place and working as intended and that activities are adhering to laws and regulations.

   *Editor's Note: Performance measures *can* be constructed in such a way that ensures compliance with laws and regulations. However, it shouldn't be automatically assumed that they do ensure compliance.

Performance Measurement ?Roadblocks"

During the course of the performance measurement implementation phase, and even during the maintenance phase, your performance measurement system may run into a few obstacles or roadblocks to success. Some may be laced with good intentions; some may be deliberate attempts at derailment. Whatever the case, be aware of them and beware of them. In addition to the ?roadblocks" listed below, please see ?Major Pitfalls of Performance Measurement Systems" on page 8 for other things of which to beware.

- **Let's Go Over it One More Time**
  Establishing and implementing a performance measurement system is an in-depth and continuous process. As a result, it is very easy for personnel to get caught up in the process of developing and perfecting the process. When this preoccupation occurs, the original intent of improving performance ?takes a back seat" while people totally engross themselves in a ?jungle" of charts and graphs and meetings to design and redesign and re-redesign the system. Beware of this cycle. Don't let the design process take over the overall project to improve performance.
- **Easy Rider**
  Performance measurement systems take time to design, implement, and perfect. It can be a difficult process. As a result, a strong urge to take the easy way out, to get it over quickly, to measure the trivial or the obvious or to set goals or targets that are easily attainable may surface. Resist this urge. If you and your organization are sincerely committed to the performance measurement process, then make a sincere effort to follow through with it. Look at it as a positive process, not a taxing mandate.
- **Mission Impossible**
  This factor is the complete opposite of the one above. Rather than take the ?low road" of easiness, the person/group/organization decides to take the ?high road" of impossibility. Adorned with good intentions and lofty aspirations, they establish unmeasurable objectives and set unreachable goals. Then, when failure sets in, the entire performance measurement system gets ?scrapped.". When establishing your performance measurement system, be realistic. Don't set yourself up for failure. Take small steps at first, then let your system grow with your organization.
- **Viva L' Resistance!**
  It's inevitable that you will find resistance to the performance measurement process, usually in the development phase. It's human nature. It's a fact: people don't like change. And, besides, performance measurement may expose weak areas in employee performance. It also carries along that ?accountability factor." The only way to deal with resistance is by involving employees in the performance measurement process from start to finish. It's a wonderful concept called "employee buy-in."
- ?**Gotcha! Gotcha! Gotcha!"**
  Some organizations may use their performance measurement system as a punitive measurement system, a way to catch employees doing something wrong and to punish them. If such is the case, can you imagine how the employees feel? Not very committed nor very loyal. Playing ?gotcha" decreases

employee performance which in turn decreases organizational performance. It is not conducive to the development of a high performance organization. Avoid it at all costs.

- **It Won't Play in Peoria!**
  This cry is the mantra of performance measurement doubters. It goes along with such statements as, ?It'll never happen!" or ?It won't work!" There are two reasons for a doubting attitude: (1) past organizational experience shows a trend of unfinished or failed projects or (2) the person is a natural doubter. In the first case, organizational leadership needs to champion the cause and show unending commitment to the performance measurement undertaking. In the second case, the employee needs an attitude adjustment or a one-way ticket to Peoria!

- **The Rear-View Mirror**
  Some business entities only focus on bottom-line results. For example, each morning a restaurant owner may look only at the previous day's profits as a performance indicator. Unfortunately, that only shows how the restaurant did in the past. It won't predict how the restaurant's going to do in the future. Many in the performance measurement arena call this ?driving through the rear-view mirror." You're not focused on where you're going, only on where you have been. And, if you're driving through the rear-view mirror, you won't see the large hole in the road until you've driven right into it. So, when you're setting up your performance measurement system, remember to measure the critical things that impact your results, not just the results themselves.

- **That's All We Need to See**
  This scenario is subtitled ?Data Tunnel Vision." Although it comes well after the performance measurement system has been developed and implemented, it needs to be kept in the back of your mind while you're doing the developing and implementing. This tunnel vision comes after measurement data has been collected, analyzed, and reported. It happens when management and/or stakeholders focus only on one piece or area of measurement data on which to base their decisions, completely forgetting about the consequences of doing so. For example, if a pizza delivery company focuses only on the delivery time of its pizzas, then such an action could lead to compromising employee and public safety (from the deliverer driving too fast and taking shortcuts), jeopardizing customer health (from undercooking the pizza to get it out faster), and dissatisfying the customer (for either one of the two previous reasons plus delivering incorrect orders due to rushing). When working with performance measurement, look at the big picture first, then focus on the pieces that fit into that picture. Also, remember to bear this factor in mind when developing and implementing your performance measurement system.

- **I'm/we're in Control Here**
  ?Business politics" play a big part in this scenario. One person or a group of people may consider the performance measurement process/system to be a part of ?their turf" and won't want to relinquish control to anyone else. The problem with this situation is that it precludes the total organizational involvement necessary for establishing and implementing the system. The result will be a failed system and a bunch of employees saying, ?See, I told you so!" When implementing changes and designing the system, give control over to those held responsible for performance and improvement. And involve all ?interested" parties in the process.

Major Pitfalls of Measurement Systems

The most common mistake organizations make is measuring too many variables. The next most common mistake is measuring too few.

Mark Graham Brown
Keeping Score (1996)

It is rare to find an organization that doesn't have problems with its performance measurement system. Some may need only simple fixes while others may need major overhauls. However, learning from and avoiding others' mistakes is a wise thing to do. Here are some of the mistakes other organizations have made. Don't let one of them be the pitfall of your measurement system.

1. Amassing too much data - It results in ?information overload." So much so that managers and employees either will ignore the data or use it ineffectively.
2. Focusing on the short-term - Most organizations only collect financial and operational data. They forget to focus on the longer-term measures—the very ones on which the Malcolm Baldrige National Quality Award focuses—of customer satisfaction, employee satisfaction, product/service quality, and public responsibility.
3. Failing to base business decisions on the data - A lot of managers make decisions based on intuition and past experience rather than the data being reported to them. If the data is valid, it should be used appropriately.
4. ?Dumbing" the data - Sometimes data can be summarized so much that it becomes meaningless. If business decisions are going to be based on the data, then the data needs to be reported clearly and understandably.
5. Measuring too little - Making business decisions with too little data is just as problematic as basing them on too much data. Some organizations (particularly smaller ones) tend to measure too few key variables to get the ?whole picture" of the health of their organization. Mostly, their focus is on financial indicators. However, as with Number 2 above, there needs to be focus on longer-term measures, such as customer and employee satisfaction and market share.
6. Collecting inconsistent, conflicting, and unnecessary data - All data should lead to some ultimate measure of success for the company. (Brown 1994) An example of conflicting measures would be measuring reduction of office space per staff while, at the same time, measuring staff satisfaction with facilities.
7. Driving the wrong performance - Exceptional performance in one area could be disastrous in another. Mark Graham Brown tells a poignant anecdote about ?chicken efficiency" in which the manager of a fast-food chicken restaurant scores a perfect 100 percent on his chicken efficiency measure (the ratio of how many pieces of chicken sold to the amount thrown away) by waiting until the chicken is ordered before cooking it. However, the end result of his actions were dissatisfied customers (from waiting too long) and lack of repeat business. Thus, the ?chicken efficiency" was driving the wrong performance . . . and driving the customers away!
8. Encouraging competition and discouraging teamwork - Comparing performance results of organizational unit to organizational unit, or one employee to another, sometimes creates fierce competition to be ?Number 1" at the expense of destroying a sense of teamwork. Remember to compare to stated performance goals.
9. Establishing unrealistic and/or unreasonable measures - Measures must fit into the organization's budgetary and personnel constraints and must be cost-effective. They also must be achievable. Nothing can demoralize an employee quicker than a goal that never can be reached.
10. Failing to link measures - Measures should be linked to the organization's strategic plan and should cascade down into the organization (horizontal and vertical linkage). Measures without linkage are like a boat without water. They're useless and they're not going anywhere.

11. Measuring progress too often or not often enough - There has to be a balance here. Measuring progress too often could result in unnecessary effort and excessive costs, resulting in little or no added value. On the other hand, not measuring progress often enough puts you in the situation where you don't know about potential problems until it's too late to take appropriate action.
12. Ignoring the customer - Management often wants to measure only an organization's internal components and processes. That way they can **?**command and control" it. However, in reality, it is the customer who drives any organization's performance. As noted by NPR (1997), **?**most of the best-in-class organizations place customer satisfaction above all else."
13. Asking the wrong questions/looking in the wrong places - Sometimes business executives ask who's too blame instead of asking what went wrong. They look for the answers in the people instead of the process. A faulty process makes employees look faulty.
14. Confusing the purpose of the performance measurement system - The purpose of a performance measurement system is not merely to collect data but rather to collect data upon which to make critical business decisions that will in turn drive business improvement. Knowing that you're 10 pounds overweight is just knowledge of a fact. Taking improvement actions based on that knowledge is where **?**the truth" lies.

Performance Measurement Terminology

Performance measurement terminology is tricky. For example, some people equate performance measures and performance indicators as being one and the same. Others look at the two as being entirely different. Or some use goals, objectives, and targets interchangeably, while others do not. Then there's the statutory definitions (such as those in GPRA), the agency definitions (such as those by DOE), and those used in the private sector. A sampling of the differing terminology is provided in Appendix D of this document. Additionally, a *Primer on Performance Measurement* is given in Appendix E. The object for you is to pick the terminology that best fits your organization and your performance measurement system and to ensure that all players are in alignment with and using that terminology. In other words, before you start, everyone needs to be on the same page and speaking the same language.

Section II: Establishing an Integrated Performance Measurement System

All high-performance organizations whether public or private are, and must be, interested in developing and deploying effective performance measurement and performance management systems, since it is only through such systems that they can remain high-performance organizations.

National Performance Review
Serving the American Public: Best Practices in Performance Measurement (1997)

Change might be inevitable, but all too often it occurs like an unguided missile seeking an elusive target at unpredictable speeds. For most activities, it is far better to manage change with a plan—one that includes clear goals and useful indications of progress toward a desired objective. Participants in any activity need to know what outcome is expected, how their work contributes to the overall goal, how well things are progressing, and what to do if results are not occurring as they should. This approach places performance measures where they are the most effective: integrated with the activity.

Why Establish an Integrated Performance Measurement System?

Performance measurement systems succeed when the organization's strategy and performance measures are in alignment and when senior managers convey the organization's mission, vision, values and strategic direction to employees and external stakeholders. The performance measures give life to the mission, vision, and strategy by providing a focus that lets each employee know how they contribute to the success of the company and its stakeholders' measurable expectations.

Integration makes it possible for performance measures to be effective agents for change. If the measures quantify results of an activity, one only need compare the measured data with the desired goals to know if actions are needed. In other words, the measures should carry the message.

Inappropriate measures are often the result of random selection methods. For example, brainstorming exercises can get people thinking about what is possible and provide long lists of what could be measured. Unfortunately, such efforts by themselves do not provide reliable lists of what should be measured. Unless the measures are firmly connected to results from a defined process, it is difficult to know what corrective actions to take as well as be able to predict with confidence what effects those changes will have.

In order to be able to identify effective corrective actions to improve products and services, results of all key processes must be measured. In this way, specific processes that need to change can be identified when progress is not satisfactory.

Major Components of Integrated Performance Measurement Systems

There are a number of sources that should be examined as a first step in establishing an Integrated Performance Measurement System. These sources typically provide a strategic perspective in developing a set of ?critical few" performance measures. They also give us the major components of an integrated performance measurement system. These components are:

1. The strategic plan
2. Key business processes
3. Stakeholder needs
4. Senior management involvement
5. Employee involvement
6. Accountability for measures
7. A conceptual framework
8. Communication
9. A sense of urgency

The Strategic Plan

Strategic Plans set the foundation for effective performance measurement systems. Traditional performance measurement systems that focus on the wrong set of performance measures can actually undermine an organization's strategic mission by perpetuating short-sighted business practices. For this reason, it is appropriate to discuss the critical elements of strategic plans and review the compatibility of strategic plans to an integrated performance measurement system.

A well-developed strategic plan should contain the basic information necessary to begin the formulation of an integrated performance measurement system as shown in Table 2.1 below.

STRATEGIC PLAN ELEMENT	PERFORMANCE MEASUREMENT ATTRIBUTES
Strategic Goal	Articulates the enduring mission or ?end state" desired
Objective	Describes (in verb/noun format) the strategic activities that are required to accomplish the goal
Strategy	Defines strategic (long-term) requirements in verb/noun format that link to objectives. Typically contain dates, basis of measurement, and performance aspirations (targets)
Tactical Plans	Identifies the short term requirements that link to strategy. Typically contain cost, time, milestone, quality, or safety attributes as well as performance targets

Table 2.1

Strategic Plan Element and Performance Measurement Attributes

‘ Mapping Existing Measures to the Strategic Plan

With performance measurements collected from the strategic plan (as well as from stakeholders and senior management), an assessment must be performed to determine the quality of information and current use of existing measures. The objective is to find out what measures are maintained and monitored, and who are the owner(s) and data customer(s). Finding answers to the following five questions should provide enough information on this step in the process:

1. Who is responsible for collecting and reporting performance information?
2. What information is being reported?
3. When and how often is the performance measure reported?
4. How is the information reported?
5. To whom is the performance measure reported?

Mapping performance measures to the strategic plan can be performed by using a spreadsheet or a table. Using this method, all strategies are placed on the left-hand side of a page. Each of the performance measures collected in the previous step is then mapped to the strategy that most closely aligns with the outcome of the measure. At the conclusion of the exercise, some srategies may have no performance measures mapped, while some performance measures may not be able to develop any connections to a srategy. This view of your existing performance measures will provide an opportunity to establish an overall framework.

- **Reconciling Gaps in the Strategic Plan**

  Once existing performance measures are mapped to strategies, the result will be a more precise strategy formulation for senior managers. With the map created in the previous section, there will be some performance measures that do not align with the strategic plan, while other elements of the plan have a very strong representation. There are three primary reasons why performance measures may not cleanly map to the strategic plan:

  1. The strategic plan has been written at a level that is too abstract.
  2. The right things are being measured, but the strategy is obsolete and must be realigned to the changing environment, or
  3. Incorrect performance measures focus attention on undesired behaviors.

  Where the strategy is abstract or obsolete, senior management must use the analysis provided as part of this exercise to update the strategic plan. If a measure or its corresponding data cannot be linked back to strategic planning, it immediately should be considered for de-emphasis or elimination. This consideration frees the organization from ?rescue initiatives" in areas that produce little value and, equally important, avoids data overload. (NPR 1997)

Key Business Processes

Processes and their activities are the means to achieve the outcomes—the end results—of the strategic plan. But, usually, there are many processes and activities within an organization, each potentially needing performance measures. With this reality in mind, the secret to a successful integrated performance measurement system is to clearly identify the organization's ?key" business processes, that is, those having the most impact on the success or failure of the organization's goals. The primary objective should be to keep the number of key processes to a manageable yet useful level. Too many can lead to an overwhelming number of measures and resulting data. Too few can lead to inadequate information on which to base business decisions.

To understand your key business processes, map your organization's business processes to show the elements and relationships of the functions and systems required to develop and deliver products and services to customers. (Three types of process maps are discussed in Volume 6, *Using Performance Information To Drive Improvement*, of this handbook.)

Stakeholder Needs

Stakeholders is a common term in performance-based management and refers to those people who have or perceive they have a stake in the future success of an organization or organizational unit. It is imperative to have a very clear idea of who these people are and what their needs and expectations are. Their points of view and expectations should all be considered in developing strategic goals and objectives. If they have a stake in the output of the process, they should have a stake in the input to the process.

If a stakeholder group is important to achieving organizational objectives, the organization should actively manage the relationship with that stakeholder group. Companies must address this increasingly important element in their performance measurement system by communicating with key stakeholders to determine their perspectives on what constitutes business success. (Atkinson 1997) This communication means listening to and understanding their wants and expectations. Equally important, it also means communicating what the organization is doing, as part of its strategy, to satisfy the stakeholders.

Successful organizations require the active participation and support of five broad stakeholder groups to achieve their objectives. These stakeholder groups are:

1. Customers
2. Owners
3. Employees
4. Suppliers
5. The broader community.

A strategy has to be developed to systematically understand what these stakeholders want and expect. Depending on the stakeholder, however, different techniques or tools are used. For *customers*, organizations often use surveys or customer focus groups. For *employees*, surveys, focus groups or discussions are excellent tools.

Developing performance measurement information from stakeholders serves two purposes:

1. It evaluates whether tactical plans, such as customer satisfaction and employee commitment, are being met.
2. It provides a means of testing the presumed cause and effect relationships between performance measures and strategies. For example, does higher quality result in increased sales? (The cause and effect relationships are discussed in more detail in the section entitled *Reconciling Gaps In The Strategic Plan*.)

Senior Management Involvement

In most best-in-class organizations, the performance measurement initiative is originally introduced, and continually championed and promoted, by the top executives. In many organizations, leadership commitment to the development and use of performance measures is a critical element in the success of the performance measurement system.

A significant element of senior management's stewardship is to implement the strategic plan they had a hand in developing. Therefore, they must be involved actively and directly right from the start of any performance measurement process development by formulating and communicating strategy and by providing input on critical measures. (Thomson and Varley 1997)

Four specific ways Senior Management can make a successful impact through their involvement are:

1. Champion the cause. Lead by example. Show a sincere interest in the system and a fervent commitment to its success.
2. Delegate responsibilities. Empower employees. Senior managers at companies representing best practices in performance measurement often form design teams that have the responsibility for selecting, defining, and identifying a contact person who has overall responsibility for strategic measures. (APQC 1996)
3. Develop good communication processes. A good communication process provides a critical link between the tasks employees perform and the corporate strategic plan/measures. Two of the most effective methods of communication are the use of special meetings and company publications. These methods have proven to be effective because they can hold the attention of the employees long enough to provide a thorough explanation.
4. Always seek feedback. Senior managers need to know what employees think about their jobs and the company—especially if they're not in alignment with the company's strategic direction. Therefore, they must encourage all employees to tell them the truth and then accept it graciously. Doing so creates accountability for both employees and senior management.

Employee Involvement

When developing an integrated performance measurement system, don't forget to involve your employees in the process. After all, they are the ones who directly contribute to the input, output, outcome, performance, process, and every other aspect of the organizational operation. Employee involvement is one of the best ways to create a positive culture that thrives on performance measurement. When employees have input into all phases of creating a performance measurement system, buy-in is established as part of the process. The level and timing of employee involvement should be individually tailored depending on the size and structure of the organization. Here are some factors to consider when involving employees:

1. *Involvement* creates *ownership* which increases *loyalty* and *commitment* which increases *accountability*.
2. Involved employees generally are happy employees, and happy employees contribute to the success of the organization. That's why best-in-class companies measure employee satisfaction, and the Malcolm Baldrige National Quality Award criteria lists it as a focus area.
3. Employees will perform according to the performance metric, i.e., the performance metric will drive the employees' behavior. It would be prudent to give them a say-so in the development of a system that will drive their performance.
4. Involve those employees who will be directly impacted by the system as well as those who will have to implement it.
5. Make sure the employees understand the ?assignment" and the extent of their involvement.
6. Identify gaps in knowledge and experience—at whatever level—and provide targeted, just-in-time training to address these (NPR 1997).

Accountability for Measures

Successful deployment of an integrated performance measurement system is related strongly to developing a successful system of accountability, that is, managers and employees alike ?buy in" to performance measurement by assuming responsibility for some part of the performance measurement process (NPR 1997). When establishing accountabilities for the integrated performance measurement system, here are some things to remember:

- Each performance measure needs to have an *owner* who is responsible for that measure. *Champions* also may be identified for groups of measures.
- Employees need to know how the measurement(s) for which they are being held accountable relates to the overall success/failure of the organization. In other words, they need to know how their performance affects the bottom line.
- Employees must be given adequate resources to perform the work for which they are being held accountable.
- Employees are most likely to meet or exceed performance goals when they are empowered with the authority to make decisions and solve problems related to the results for which they are accountable. (NPR 1997)
- The purpose of establishing accountability is not to play ?gotcha." Rather, accountability is an expectation of the empowerment process.
- Good performance needs to be rewarded and, conversely, poor performance needs to be penalized.

(Note: See Volume 3, *Establishing Accountability for Performance*, for more information about accountability.)

A Conceptual Framework

A conceptual framework can help in deciding what to measure. For example, measuring organizational performance can be linked to the strategic planning process. Or you can use a balanced set of measures to ensure that senior leaders can get a quick comprehensive assessment of the organization in a single report. A family of measures can be used to align measurement across levels of the organizations (NPR 1997). These and other frameworks are discussed in Section III of this document.

Communication

Communication is crucial for establishing and maintaining a performance measurement system. It should be multidirectional—running top-down, bottom-up, and horizontally within and across the organization. Best-in-class organizations communicate internally by way of:

- Interactive, group-oriented mechanisms (town hall meetings, business update meetings, and focus groups)
- Various forms of print media (newsletters, reports, and publications)
- Advanced computer technology (e-mail, video conferencing, and on-line internet/intranet systems)
- Other highly visible means, such as the routine placement of progress charts in appropriate work areas.

A Sense of Urgency

The impetus to move—or move more aggressively—to a new or enhanced performance measurement and performance management system is generally the result of a cataclysmic event—most frequently, a circumstance threatening the organization's marketplace survival. One of several scenarios may precede initiating a performance measurement system within an organization:

- A newfound leadership commitment to performance measurement.
- The desire of a high-performance organization to keep its competitive edge.
- The need to link organizational strategy and objectives with actions.
- The resultant outcome of current quality programs. (NPR 1997)

Integrating Performance Measures Vertically and Horizontally

Performance measures need to be integrated in two directions: vertically and horizontally.

Vertical Integration of Performance Measures

Vertical integration of performance measures motivates and improves operating performance by focusing all employees' efforts on the organization's strategic objectives. It is initiated once the company's strategic plan and measures are solidified.

As each succeeding level of the organization reviews and makes performance measurement commitments, the developed measures must fit into the overall performance measurement framework established by the strategic agenda. Figure 2.1 (on the following page) provides a simplistic sample of how this deployment is accomplished. An actual deployment can have much more than the three levels depicted here. Full deployment of the performance measures occurs throughout the organization, all the way down to the individual staff member via the established employee appraisal process. Staff members at each level should be able to identify the performance measures that provide a ?line-of-sight" flow back up to the strategic measures.

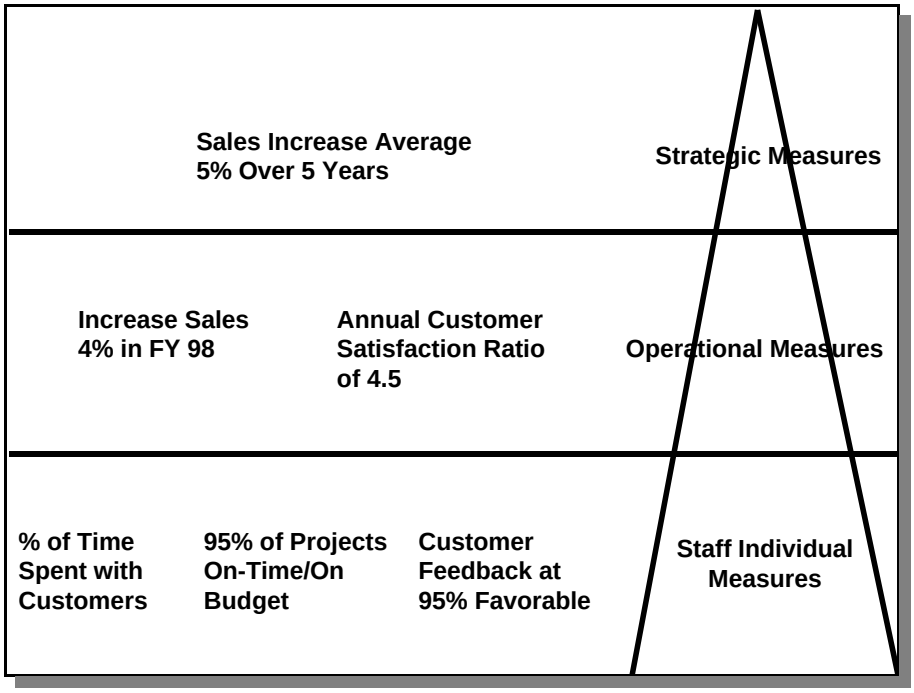

Figure 2.1

An Example of How Different Levels of Performance Measures Are Deployed at Different Levels Within the Organization

Characteristics of vertically integrated performance measures from the operational level on down through the organization include:

- The accomplishment time horizon is limited to the current year or current year plus one.
- It should be mandatory (as much as possible) that they align to strategic measure and goals. If a clear alignment is not possible, a cause-effect relationship can be identified by stating the objective the measure is intended to accomplish.
- All measures must contain performance targets.
- The use of process measures is increased, and they are integrated with results measures.
- Ownership for each measure is assigned at the appropriate level of the organization.

Horizontal Integration of Performance Measures

Horizontal alignment of performance measures assures the optimization of work flow across all process and organizational boundaries. These performance measures are customer-focused and assess the enterprise-level capability of a process to provide value from the customer's perspective. Customers do not ?see" the process boundaries through which their products flow, but they care about the attributes of the product delivered to them.

An excellent example of this concept of horizontal alignment of performance measures is the procurement cycle. The procurement organization may measure cycle times to improve customer satisfaction with the procurement process. However, the procurement requester may see the cycle time for procurements as much more than the procurement organization's portion of the cycle. From the procurement requester's viewpoint, all of the processes, beginning with the identification of the need for a product or service to the actual delivery of the product or service, represent the complete procurement cycle. To capture the entire cycle, many departments—computer services, mail room, procurement, receiving, property management and transportation—might all need to be involved.

Another example of this concept can be found at The Boeing Company where performance measures focus on five areas known as QCDSM, or Quality, Cost, Delivery, Safety, and Morale. As a product flows through engineering development, full-scale development, production, and finally, delivery, QCDSM measures are maintained to assure full customer satisfaction. Maintaining a perspective of the entire product life cycle ensures that local organizational interests are subordinated to customer needs and what is best for the entire business.

Ensuring Organizational Commitment

The last step in establishing an integrated performance measurement system is to ensure organizational commitment to the system. This step can be achieved by integrating the key components of the measurement system (identified earlier in this section) through a technique called *Catchball*. In this technique, stakeholders, customers, senior management, and employees ?throw and catch" ideas, needs, strategies, etc., as if playing a game of ?catch." In doing so, these ideas, needs, strategies, etc., are cascaded throughout the organization through the involvement of the principal parties. This involvement brings about ?buy-in" which brings about commitment.

An example of this technique is shown in Figure 2.2 below. In this example, Raytheon, a global technology leader, cascades goals throughout their organization through an eight-step process in which (1) the *Leadership Team* allocates goals to *Divisions*, (2) the *Divisions*, in turn, allocate goals to *Program/Process Teams*, (3) the *Program/Process Teams* assess the goals, (4) the *Program/Process Teams* set Team goals, (5) the *Program/Process Teams* pass these goals and/or barriers to *Divisions*, (6) the *Metrics Team* reviews these goals and/or barriers, (7) the *Leadership Team* adopts the goals, and (8) the *Leadership Team* communicates the goals.

This technique could be used to determine or review performance objectives and measures, targets and goals, strategies, and many other areas of the performance measurement system. The key is that it *involves* people in the process.

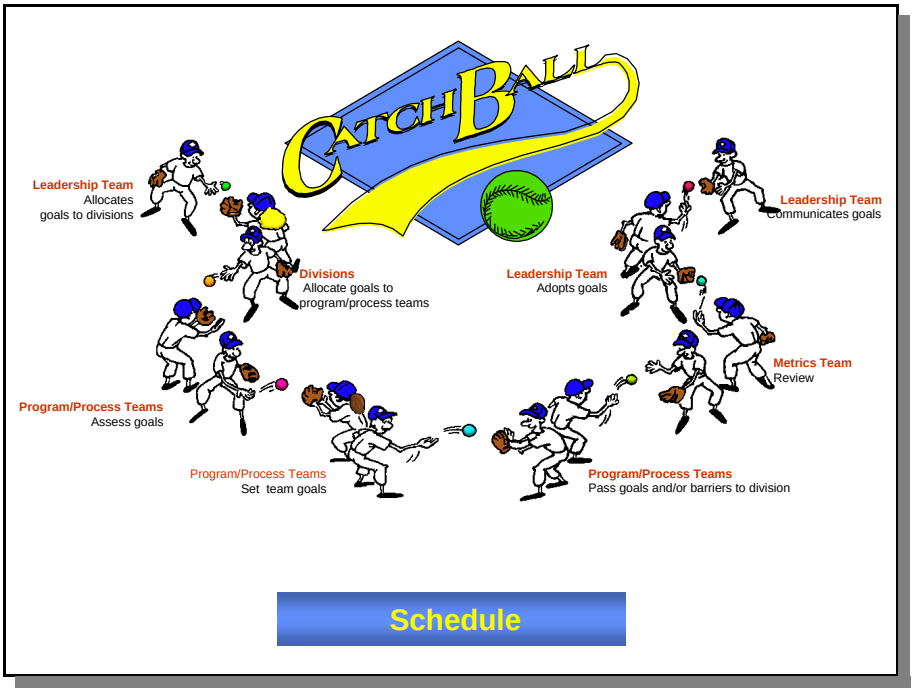

Figure 2.2

Raytheon's Catchball Technique

Section III: Choosing a Performance Measurement Framework

When you are developing or updating your performance measures, you should consider conceptual frameworks to stimulate thought about what should be measured. Experience has shown that a framework is needed to organize your thoughts, identify common vocabulary, and ensure appropriate coverage for your performance measurement system. This is particularly important when you are beginning to develop a measurement system for the first time. If you are just developing your performance measurement system, select one framework and use it. Although some frameworks fit particular organizations better than others, any framework will help get you started. When updating your performance measures, it is useful to review other frameworks to identify new ideas and approaches that might improve your system (DOE 1996).

Balancing Measures: One Concept, Different Frameworks

The concept of *balancing* performance measures took root in 1992 when Robert Kaplan and David Norton first introduced the Balanced Scorecard. The gist of the concept is to translate business mission accomplishment into a critical set of measures distributed among an equally critical and focused set of business perspectives. In the time since Kaplan and Norton introduced the Balanced Scorecard concept, many variations of the concept have surfaced, due mainly to the fact that no two organizations are alike and their need for balanced measures and their identified business perspectives vary. Regardless, the two key components of all of these frameworks are a balanced set of measures and a set of strategically focused business perspectives.

This section will present four frameworks that use a balanced approach. These frameworks are:

1. The Balanced Scorecard
2. The ?Critical Few" Set of Measures
3. Performance Dashboards
4. Malcolm Baldrige National Quality Award criteria

The Balanced Scorecard

In 1992, Robert Kaplan and David Norton introduced the Balanced Scorecard concept as a way of motivating and measuring an organization's performance. The concept takes a systematic approach to assessing internal results while probing the external environment. It focuses as much on the process of arriving at successful results as on the results themselves. Under the Balanced Scorecard methodology, the processes that contribute to desired results are viewed cross-functionally. Measures that make one function look good while deflating another are avoided, thus minimizing negative competition between individuals and functions. As put forth by DOE (1996), ?This framework is intended for top managers in an organization to be able to obtain a quick and comprehensive assessment of the organization in a single report. Use of the Balanced Scorecard requires executives to limit the number of measures to a vital few and allows them to track whether improvement in one area is being achieved at the expense of another area."

The Kaplan/Norton Balanced Scorecard looks at four interconnected business perspectives. These are:

1. Financial – How do we look to our stakeholders?
2. Customer – How well do we satisfy our internal and external customer's needs?
3. Internal Business Process – How well do we perform at key internal business processes?
4. Learning and Growth – Are we able to sustain innovation, change, and continuous improvement?

A graphic representation of these perspectives is provided in Figure 2.3 on the following page.

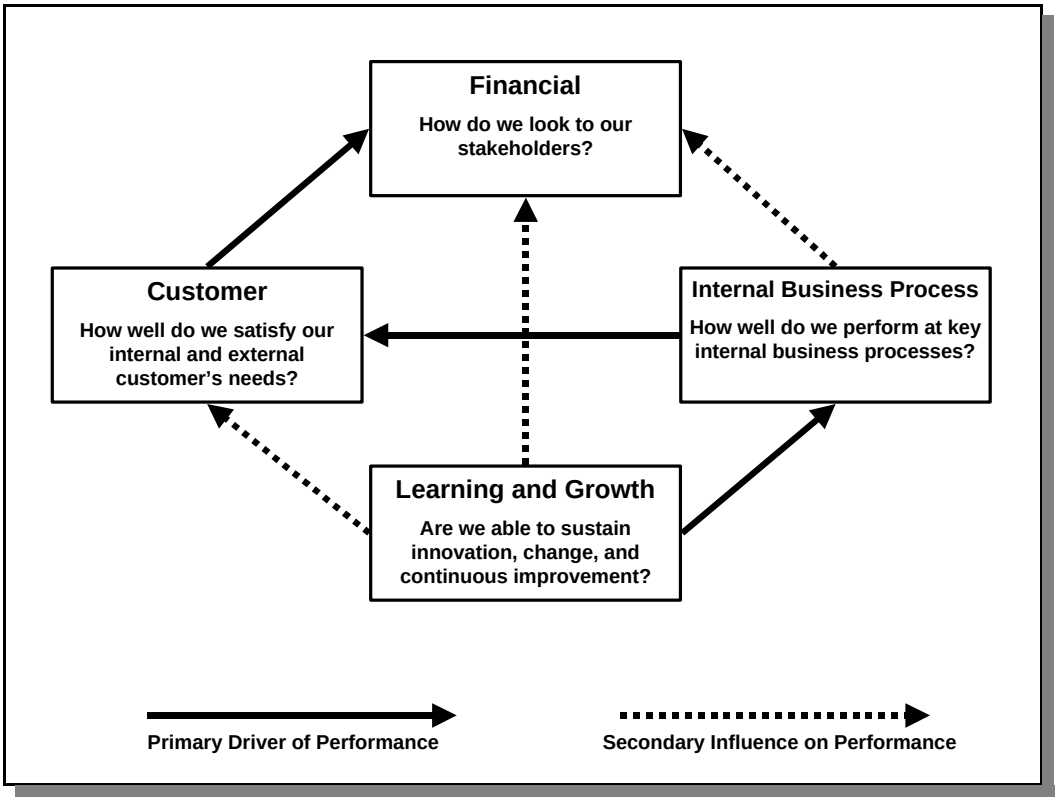

Figure 2.3

The Four Perspectives of the Balanced Scorecard

The Balanced Scorecard provides a way for management to look at the well-being of their organization from the four identified perspectives. Each perspective is directly tied to organizational strategy, and strategically linked performance objectives and measures flow from these perspectives, providing the user with an integrated performance measurement system.

In the Balanced Scorecard, the *Financial* perspective becomes the **?**lead perspective" as organizations first identify their strategic financial objectives. These objectives then facilitate the identification of objectives and measures for the other three perspectives. In this framework, customer satisfaction drives financial success; effective and efficient business processes ensure high levels of customer satisfaction; and sustained, continuous improvement enhances the organization's *Operational* performance. Each perspective also has a secondary influences, as shown in Figure 2.3.

Selecting performance objectives and measures for each of these perspectives would follow the main drivers of performance. A way to identify these measures is to ask the following questions (in addition to the ones proposed in Figure 2.3):

1. Financial - What are our strategic financial objectives?
2. Customer - What do we have to do for our customers in order to ensure our financial success?
3. Internal Business Process - Which of our business processes most impact customer satisfaction?
4. Learning and Growth - What improvements can be made to ensure sound business processes and satisfied customers?

(Note: The Balanced Scorecard was designed for private sector businesses, but can be adapted for governmental and/or non-profit organizations as shown later in this section.)

Why a Balanced Approach?

In 1999, the National Partnership for Reinventing Government (NPR) published *Balancing Measures: Best Practices in Performance Management* (NPR 1999). In this document, they state:

> ?A balanced approach allows you to consider all the important operational measures at the same time, letting you see whether improvement in one area is achieved at the expense of another. Key indicators should tell you how the organization is doing. They will probably change over time to reflect shifting organizational goals. Performance levels can be reported on a monthly or quarterly basis. All levels of management, including field personnel, can participate in the reporting process; together, they provide a good idea of the health of the organization from a variety of perspectives. It is only with a balanced approach that leaders can create success throughout their organizations."

Other reasons given in the NPR document for using a balanced approach include:

- Using balanced measures allows you to mirror the factors you believe are critical to the success of your organization.
- A balanced approach imbeds long-term strategy into the management system through the mechanism of measurement.
- The balanced approach translates vision and strategy into a tool that effectively communicates strategic intent and motivates and tracks performance against established goals.
- Balancing measures allows management to translate strategy into a clear set of objectives.
- The balanced measures approach solidifies an organization's focus on future success by setting objectives and measuring performance from distinct perspectives.

NPR's Balanced Measures Approach

If the customer, stakeholder, and employee are not part of the solution, they will forever be part of the problem.

National Partnership for Reinventing Government
Balancing Measures: Best Practices in Performance Management (1999)

NPR's *Balancing Measures: Best Practices in Performance Management* calls for organizations to look at their performance management from three perspectives when establishing a balanced set of measures. These three perspectives are:

1. Employee perspective - The employee perspective focuses attention on the performance of the key internal processes that drive the organization. This perspective directs attention to the basis of all future success—the organization's people and infrastructure. Adequate investment in these areas is critical to all long-term success. Without employee buy-in, an organization's achievements will be minimal. Employees must be part of the team.
2. Customer perspective - The customer perspective considers the organization's performance through the eyes of a customer, so that the organization retains a careful focus on customer needs and satisfaction. For a government entity, this perspective takes on a somewhat different meaning than for a private sector firm; that's because most public sector organizations have many types of customers. The private sector recognizes the importance of the customer and makes the customer a driver of performance. To achieve the best in business performance, the government, too, must incorporate customer needs and wants, and must respond to them as part of its performance planning.
3. Business perspective - The business perspective, like the customer perspective, has a different interpretation in the government than in the private sector. For many organizations, there are actually two separate sets of measures: the outcomes, or social/political impacts, which define the role of the agency/department within the government and American society; and the business process needed for organizational efficiency and effectiveness.

NPR identified three steps in the establishment of balanced performance measures. These are:

1. Define what measures mean the most to your customers, stakeholders, and employees. This step combines the three perspectives shown above. It can be accomplished by having customers, stakeholders, and employees work together; creating an easily recognized body of measures; and clearly identifying measures within each area.
2. Commit to Initial Change. Change brings on resistance. Therefore, it is important to have organizational buy-in when changing your performance measurement system (or starting one ?from scratch"). Things that you can do to enhance buy-in are: use expertise whenever you find it; involve everyone in the process; make the system nonpunitive; bring in the unions; and provide clear, concise guidance.
3. Maintain flexibility. A balanced set of measures cannot be established overnight. It is an iterative process. It will always be changing. Therefore, it is important to be flexible. Here are some things you can do to maintain flexibility: limit the number of measures, recognize that this is a living process, and maintain a balance between financial and nonfinancial measures.

DOE's Balanced Scorecard Approach

The U.S. Department of Energy's Office of Procurement and Assistance Management (DOE/PR) maintains a Balanced Scorecard Home Page (http://www.pr.doe.gov/bsc001.htm) to assist all DOE employees and contractors. Their balanced scorecard contains the following four perspectives:

1. Customer Satisfaction - This perspective captures the ability of the organization to provide quality goods and services, effective delivery, and overall customer satisfaction. For purposes of this model, both the recipient of goods and services (the internal customer) and the sponsor/overseer (DOE) are regarded as customers of the business processes. In a governmental model, or for the major DOE contractors, the principal driver of performance is different than in the strictly commercial environment; namely, customers and stakeholders take preeminence over financial results. Recognizing that budgets are limiting factors, public organizations and the major DOE contractors have a greater stewardship responsibility and focus than do private sector entities.
2. Financial - In government, and with DOE's major contractors, the financial perspective differs from that of the traditional private sector. Private sector financial objectives generally represent clear, long-range targets for profit-seeking organizations, operating in a purely commercial environment. Financial considerations for public organizations, including DOE's major contractors, have an enabling or a constraining role, but will rarely be the primary objective for business systems. Success for such organizations should be measured by how effectively and efficiently these organizations meet the needs of their constituencies. In government, and for DOE's major contractors, this perspective captures cost efficiency, delivering maximum value to the customer for each dollar spent.
3. Internal Business - This perspective provides data regarding the internal business results against measures that lead to financial success and satisfied customers. To meet the organizational objectives and customers expectations, organizations must identify the key business processes at which they must excel. Key processes are monitored to ensure that outcomes are satisfactory. Internal business processes are the mechanisms through which performance expectations are achieved.
4. Learning and Growth - This perspective captures the ability of employees, information systems, and organizational alignment to manage the business and adapt to change. Processes will only succeed if adequately skilled and motivated employees, supplied with accurate and timely information, are driving them. This perspective takes on increased importance in organizations, like DOE and its contractors, that are undergoing radical change. In order to meet changing requirements and customer expectations, employees may be asked to take on dramatically new responsibilities, and may require skills, capabilities, technologies, and organizational designs that were not previously available.

(Note: In addition to outlining these four perspectives, the DOE Balanced Scorecard Home Page also provides the following guidance for each perspective: implementation, lessons learned, benchmarking, best practices, process mapping, and performance results.)

Mark Graham Brown's Balanced Scorecard Approach

Whereas the Kaplan/Norton balanced scorecard calls for a balance between four categories, the Mark Graham Brown model (Brown, 1996) includes five categories.

1. Financial Performance - There is usually no shortage of performance measures in the finance category. When selecting this set of measures, however, consideration should be given to going beyond the traditional financial measures of budget performance and variances from a standard. Other traditional measures for areas, such as payback methods on capital justification, are focused primarily on accounting earnings and return on investment targets.

   Benchmarking data on the cost of performing the many different functions within an organization can be used to both structure financial measures and for determining future targets or goals. Many government agencies rely on simple metrics to tell them whether they are spending their available funding on target so that none will be left at the end of a fiscal year. Unfortunately, from a big picture standpoint, important information on the cost of doing business and the level of output or productivity cannot be derived from this kind of traditional measure. Each organization needs to determine the cost of providing their products and services as well as to determine whether they are providing them at an optimal cost compared to their competitors or best-in-class benchmarks.

   Innovations of contemporary performance measures, while not providing a ?silver bullet" (i.e., a quick fix), provide advances in capital budgeting techniques as demonstrated by Economic Value-Added (EVA). EVA is defined as after-tax operating income minus the total annual cost of capital. This concept can be adapted to the government sector by measuring trends in indirect or overhead rates as part of the cost of doing business, and helps normalize any differences between large DOE sites and smaller ones by focusing on percentage reductions or increases. Theoretically, this measure provides incentives for managers to improve economic performance by increasing earnings without using more capital. (At DOE sites, this concept relates to the desire to accomplish more science or environmental clean-up for the same dollar, or making other productivity gains). Other contemporary measures use techniques such as activity-based cost management to help define productivity and better understand unit costs. In DOE, the cost accounting standards being applied at each organization is helping to better understand the cost of work and is beginning to have an impact on the traditional ?full cost recovery" concepts of the past on organizations whose missions have changed and who must become more cost competitive.

2. Process/Operational Performance - Process or operational performance measures can:

   - Be both proactive and preventative in nature.
   - Focus on a work activity that is occurring.
   - Represent lagging indicators of end-state performance.

   While many organizations focus on output measures in this category, great value can be gained by selecting critical, in-process metrics that are predictors of the quality of the products or services provided, such as cycle time, error rates, or production rates. An example of this concept for a research organization can be the number of new technology ?licenses issued" (an output measure). Assuming there is a correlation between licenses issued and patents issued and, ultimately, to inventions disclosed, an in-process measure of licenses issued could be ?number of inventions disclosed." The inventions disclosed then become a leading indicator that is a predictor of the number of licenses issued.

3. Customer Satisfaction - Many organizations are now beginning to measure customer satisfaction, and most are doing so in very elementary ways. The International Quality Survey conducted by Ernst & Young, for example, found that customer satisfaction measures were of major or primary importance for strategic planning in 54.3 percent of the surveyed organizations in 1988 and 80.7 percent in 1991, and were expected to be of importance in 96.7 percent of the organizations in 1994. (Ernst & Young 1990)
   Mature measures of customer satisfaction have the following characteristics:
   - Measurement is done frequently, at the point of delivery, and with large sample sizes.
   - Focus groups, phone interviews, and surveys are the tools used to measure satisfaction.
   - A strong use of statistical tools is in place for measurement analysis.
   - The measures provide immediate performance feedback to drive improvement.
   - Relationships between customer satisfaction measures and other strategic measures are carefully documented.

4. Employee Satisfaction - Your Human Resource Manager may track statistics such as employee turnover rate or report annual survey statistics on morale, but often this information is not viewed by senior management on a regular basis. A number of mature organizations have determined that there is a linkage between the health and satisfaction of their employees and the performance of their companies. Companies such as AT&T and Federal Express, for example, have developed very good metrics to inform management of the health and well-being of its workforce. (Brown 1996)

   The Malcolm Baldrige National Quality Award criteria calls for excelling companies to have both hard measures (such as turnover, grievances, and absenteeism) and soft measures (such as employee morale and employee climate surveys) of employee satisfaction. It also notes that the company should compare levels of employee satisfaction to that of its competitors and other organizations in general.

5. Community/Stakeholder Satisfaction - For organizations that operate for, and on behalf of, government institutions and many for-profit enterprises, maintaining good relations with the community and other stakeholders is an important element in measuring success. In a sense, the community/stakeholders allow the organization to operate as long as conformance to laws is maintained (Atkinson 1997).

   Typical community/stakeholder satisfaction measures include:
   - An assessment of the organization's reputation in the community.
   - An assessment of the organization's performance in public health and safety and environmental protection.
   - Economic impact and corporate citizenship efforts within the community.
   - Compliance to laws/regulations.

The ?Critical Few" Performance Measures

Having too many measures—therefore generating a large amount of routine data—could distract senior management's focus from those measures that are the most critical to organizational success. The process of simplifying and distilling a large number of performance measures across the organization to select a ?critical few" that drive strategic success should be viewed as part of the performance measurement process itself. It helps sharpen understanding of the strategic plan and its supporting objectives.

The selection of a critical few set of performance measures highlights the need for a balance between internal and external requirements, as well as financial and nonfinancial measures. Although there is not a magical,

?right" number of strategic measures, best practice companies typically have defined a working number of measures of between three and 15 at each level within the organization, depending on the complexities of the organization.

As with the balanced scorecard, the ?critical few" framework develops strategically focused business perspectives and then identifies performance objectives and measures for each perspective. Whereas some organizations develop a working number of measures for each perspective, others develop performance indexes (see Volume 5, *Analyzing and Reviewing Performance Data*, for more information) to report performance levels for a particular perspective. These indexes take data from many measurement sources and ?roll them up" into a single, meaningful, reportable number.

DOE/EM's Critical Few Performance Measures

In 1996, the U.S. Department of Energy's Office of Environmental Management (DOE/EM) devised its critical few performance measures. (These measures are posted at: http://www2.em.doe.gov/crosscut.) In establishing these critical few, EM noted:

> ?The Critical Few are key measures for Office of Environmental Management performance that focus on 'big picture' outcomes along the five broad areas of: mission completion, business indicators, major milestones, trust and confidence, and safety & health—the 'vital signs' of EM's corporate health. These measures align the entire Environmental Management organization around the tangible results that are both important to the public and essential to the accomplishment of our program's mission and six strategic goals. Progress against the Critical Few measures will be assessed on a quarterly basis, and summarized and analyzed in an annual report. Fiscal year Program goals will be established against the Critical Few measures as targets for achieving--and demonstrating--quantifiable improvements in performance over time.
>
> The Critical Few measures will provide both the essential information and the means for credibly communicating EM's most important programmatic results to Congress, our stakeholders, and the American public. In so doing, they will enable the Office of Environmental Management to more effectively 'tell the story' of its progress, accomplishments, efficiency and process improvements in a quantitative, defensible and year-to-year consistent manner."

‘ Integrating DOE/EM's Critical Few

With regard to integrating their critical few performance measures, DOE/EM states:

> ?In order to become an integral part of our performance management system and drive the performance of our organization, the Critical Few measures must be fully integrated with existing Departmental and EM processes and initiatives. This integration of the Critical Few involves ensuring that these macro-level measures are:
>
> - Directly linked to (or aligned with, as appropriate) key planning and execution processes and documents both at EM Headquarters and in the Field;
> - Included in program review/evaluation processes used to report program results and provide internal and external feedback to EM managers, Congress, and the American public;
> - Consistent with current policy and guidance from both DOE and EM, including contract reform initiatives;
> - Tied to the objectives of each EM work group and individual performance standards; and
> - Woven into the EM management culture—to encourage changes in behavior and to assist in making informed management decisions.
>
> The EM Strategic Plan and the Critical Few measures will ultimately serve as the basis for unifying various Departmental and EM processes and initiatives (e.g., GPRA, performance-based budgeting) into an integrated and balanced approach to performance management."

‘ **DOE/EM's Critical Few Measures**

The critical few measures that DOE/EM selected and their reasons for selecting them are given below. (Note: This information comes *verbatim* from the DOE/EM Critical Few Web site.).

1. Mission Completion - The ultimate mission of the Environmental Management program is to ?close the circle on the splitting of the atom"—reducing risks and returning land to the public to the maximum extent practicable. To accomplish this mission, nuclear materials, waste, and spent nuclear fuel must undergo stabilization, treatment, volume reduction, storage and disposal; while contaminated facilities and sites must be deactivated, remediated and restored. EM's Mission Completion measure was designed to assess the overall progress toward achieving this final goal. Definitionally, this measure only counts those actions, items or activities which have been completed—and are therefore considered to be ?off the books." The EM Offices of Waste Management, Environmental Restoration, and Nuclear Material and Facility Stabilization have each developed specific variables and methods for representing their individual Program's life-cycle progress against this measure.

2. Business Indicators - In today's corporate world, the health of a business can frequently be determined by examining its return on investment (ROI). Typically, ROI is a comparison of the benefits and costs associated with operating the business. While there is a general viewpoint that the Environmental Management program must move toward determining a programmatic ROI, ?benefits" are not quantified on any agreed-upon basis, thus making it extremely difficult to technically calculate a true return on investment. Therefore, the near-term approach to determining a ROI for EM is to use selected business indicators to represent—by means of quarterly and annual trends—our corporate progress toward achieving business efficiency, programmatic effectiveness and process improvements.

   A total of twelve business indicators have been proposed. These will all be tracked quarterly, or as applicable. Furthermore, a subset of five of these measures will be considered as the Environmental Management Critical Few Business Indicators for the purpose of external reporting, i.e., to be highlighted in the EM Critical Few Performance Measures Annual Report.

3. Major Milestones - The Major Milestones Critical Few measure will assess the ability of Environmental Management to meet its scheduled commitments, in support of key programmatic objectives. This will be accomplished through the tracking of high-level milestones for each EM Program.

   For FY 1996, a total of 34 milestones have been compiled for EM's Major Milestones Critical Few measure. These will be tracked on a quarterly basis. Additionally, from this list of 34 milestones, ten key milestones were selected which (analogous to the Business Indicators above) will be considered as the EM Critical Few Major Milestones for the purpose of external reporting. The criteria for selecting these major milestones for EM's ?top ten" list include: (1) linkage to the EM strategic plan; (2) completion or start of a major programmatic action; (3) external interest to regulators or stakeholders; (4) accomplishment results in risk reduction or contributes significantly to the completion of EM's mission; and/or (5) yields a tangible and easily-understood result.

4. Trust and Confidence - The objectives of the Trust and Confidence Critical Few measure are to: (1) map the corporate measure of customer satisfaction to stakeholder trust and confidence in the EM program; and (2) support EM's sixth goal—-to develop strong partnerships between DOE and its stakeholders. Surveys of our stakeholders are deemed to be the most appropriate way to quantify progress towards this goal. Time, expense, and the potential for respondent ?burnout" require that the number of stakeholder surveys be minimized. Therefore, the methodology combines both quantitative and qualitative measures—thus allowing us to gather quantifiable results while at the same time providing vital qualitative information on a frequent basis.

Three methods will be used to assess the level of trust and confidence our stakeholders have in EM: (1) a biannual national telephone survey of all EM stakeholders; (2) semi-annual mail surveys of members of the EM Site-Specific Advisory Board (EMSSAB), the State and Tribal Government Working Group (STGWG), the Environmental Management Advisory Board (EMAB) and the Defense Nuclear Facilities Safety Board (DNFSB); and (3) quarterly informal telephone interviews with key stakeholders involved with current EM participation programs.

The following approach will be used on a trial basis; modifications can be made as necessary: Biannually (that is, every two years), EM's Office of Intergovernmental and Public Accountability (EM-22) will survey all of EM's stakeholders in conjunction with the DOE trust and confidence study. The survey questions will mirror the key questions asked in the 1992 and 1994 stakeholder trust and confidence surveys to ensure comparability. On a semi-annual basis (i.e., every six months), EM-22 will conduct a random sample of all the participants on the EMSSAB, STGWG, EMAB and DNFSB. The sample, consisting of no more than 50 individuals, will be provided with a brief trust and confidence survey(approximately two pages long). The information will be used to track changes in trust and confidence indicators over time.

5. Safety and Health - The Office of Environmental Management is committed to being a world leader in worker safety and health in environmental activities. It is recognized that the methodologies which have traditionally been used were inadequate to assure this. Consequently, the Office of Environmental Management has looked at what other government agencies, private industry, and trade organizations were using to assess and improve their performance in worker safety and health (S&H). Over 1000 sources were consulted by means of a literature search (both paper and on the Internet), and numerous programs known for excellence in S&H were reviewed. From this, the EM Performance Indexing program was born, based on a program developed by the Kodak Corporation, and incorporating some ?best practices" from other organizations.

   The ultimate objective is that the Safety and Health Critical Few measure will be based on a Performance Index which measures three types of indicators: leading, lagging and behavior. *Leading* indicators measure precursors to serious worker accidents, injuries and illness. Examples of leading indicators are unsafe on-the-job acts and degraded safety equipment. *Lagging* indicators are the more traditional items, such as lost workday rates, injury rates, and chemical exposures or uptakes. *Behavior* indicators measure the managerial and organizational culture—the commitment to continuous improvement in worker safety and health. Examples include S&H training and safety program implementation. Individual Field and Operations Office values for each of the indices (leading, lagging, behavior) will be rolled-up into EM-wide values based on a weighting of the number of people performing EM-related work at that Operations Office, as compared to the number of people performing EM work at all Operations Offices. It is therefore planned that one final EM leading, lagging and behavior index will be reported as the Critical Few safety and health value.

Performance Dashboards

A performance dashboard is an executive information system that captures financial and nonfinancial measures as indicators of successful strategy deployment. In France, companies have developed and used the *Tableau de Bord*, a dashboard of key indicators of organizational success, for more than two decades. The *Tableau de Bord* is designed to help employees ?pilot" the organization by identifying key success factors, especially those that can be measured as physical variables. Many dashboards are indexed measures that roll-up performance in a weighted manner to a few select gauges based on many measures, or inputs.

The Balanced Scorecard As A Dashboard

In *Balancing Measures: Best Practices in Performance Measurement* (NPR, 1999), the subject of performance dashboards is addressed in the following manner: **?**Another useful metaphor in discussing a balanced approach to performance management is the **dashboard approach**. Management, when resistant to change, will often complain that it cannot focus on everything at once, that the 'powers that be' need to make up their mind about exactly what it is the leader is to look at. The answer to this is that being a good leader is like driving a car. After all, there are many gauges on the dashboard. While you are driving, you take note of the level of fuel (you don't want to run out of gas). You watch the water level (you wouldn't want to overheat the engine). And if an emergency light were to come on, you would notice that as well. These all are secondary observations, however, to the driver's primary focus of moving the car safely in one direction while watching for obstacles in the road, including other drivers. That is exactly what a good leader in an organization should be doing. A balanced set of performance measures is like the gauges on the car; the mission is the destination."

Taken from this analogy, Figure 2.4 below shows how the Balanced Scorecard *might* be presented as a performance dashboard. Each of these gauges could represent a **?**roll-up of measures" to give an overall indicator of performance. For example, the *Temperature* gauge could represent customer satisfaction. It could be an index made up of several components, such as complaints, repeat customers, new customers, reputation, etc. When looking at this figure, compare it to Figure 2.3 (on page 20) which shows primary and secondary influences on the four perspectives of the Balanced Scorecard.

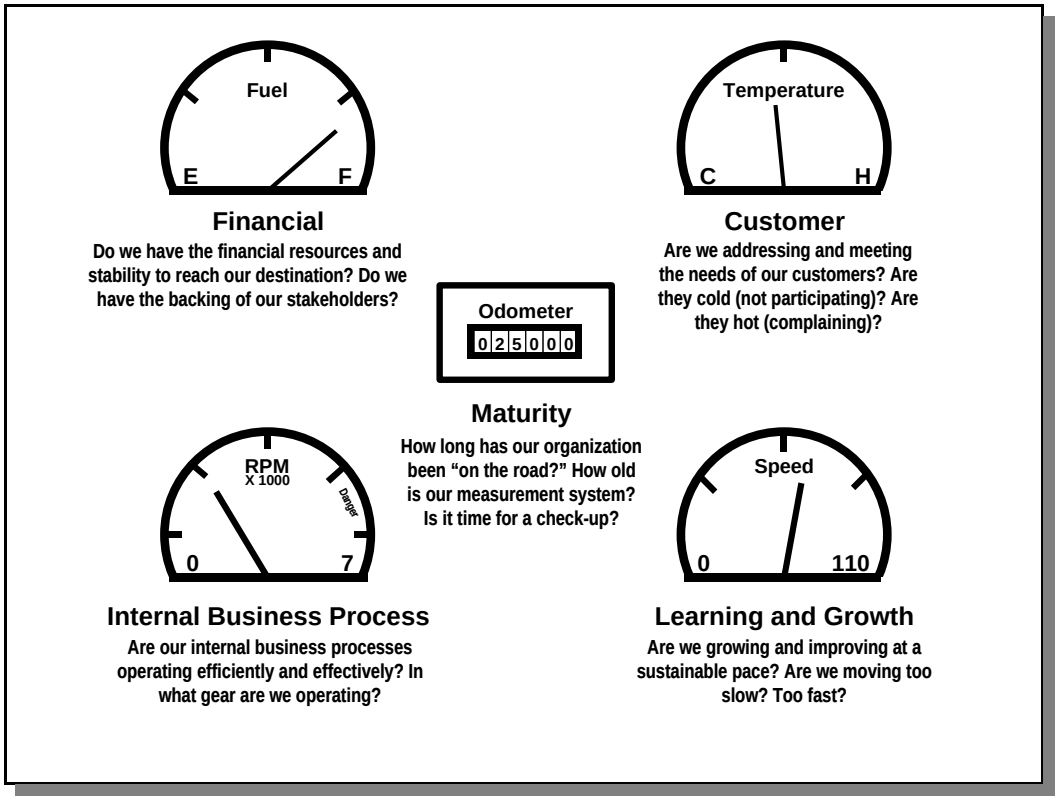

Figure 2.4
The Balanced Scorecard As A Performance Dashboard

University Of California Dashboard

The University of California manages three national laboratories for the Department of Energy: Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory. To closely monitor the overall performance of these laboratories, they use a nested structure which rolls specific performance measures up to general criteria, and, finally, to overall objectives for each of 10 administrative and operational functional areas, as noted below.

1. Laboratory Management
2. Environmental Restoration and Waste Management
3. Environment, Safety and Health
4. Facilities/Project Management
5. Safeguards and Security
6. Finance
7. Human Resources
8. Information Management
9. Procurement
10. Property Management

Each functional area receives an annual score, and the 10 areas are combined to provide a total score for administrative and operational performance for each laboratory. The performance scale is:

- Outstanding= 90-100%
- Excellent= 80-89%
- Good= 70-79%
- Marginal= 60-69%
- Unsatisfactory= <60%

By reviewing the scores earned by the 10 functional areas, senior management can see at a glance how the organization is performing in key administrative and operational areas.

Examples of the performance measures for each of the three laboratories administered by the University of California are provided in Appendix F to the UC-DOE contracts to operate the laboratories. This appendix may accessed at http://labs.ucop.edu/internet/comix/. Also, a good overview of the entire performance-based management process at the University of California may be found in the ?Self-Assessment and Annual Review Manual", available on the UC-DOE National Laboratories Web site at http://labs.ucop.edu/internet/lib/lib.html#Anchor-Performance-12667.

Houghton College Dashboard Indicators

Houghton College is a liberal arts and sciences college located in western New York. Their dashboard indicators—also referred to as top mission-critical indicators—provide a good example of the balanced and strategically focused perspective of the performance dashboard framework. (This dashboard is located at http://campus.houghton.edu/offices/ipo/HotTopics/dashboard/Dash_bd_Ind.htm.)

In a preamble to their dashboard indicators, Houghton College notes:

> ?Mission-oriented thinking requires objectivity: an honest assessment of how an institution is doing, where it is heading, and its alignment with its mission. The following indicators, identified as those that we want to assess first and monitor regularly, form the core of our 'to watch' list. They focus on areas that are measurable and most likely to assure the long-term success of Houghton College in fulfilling its mission . . . These mission critical indicators provide a framework for understanding the institutional condition and for taking steps to improve our competitive position."

The Houghton College dashboard focuses on nine business perspectives. These perspectives and their focus are shown in Table 2.2 (on the following page). The rationale behind these perspectives is provided after the table.

Dashboard Indicator	Focuses On . . .
1. Income Stability	Tuition dependency
2. Commitment To Academic Excellence	Instructional expenses
3. Stewardship	Financial viability
4. Competitiveness/Selectivity	Selectivity; academic quality
5. Productivity	Faculty workload; administrative workload
6. Affordability	Student aid expense
7. Mission and Program Mix	FT employees who are faculty
8. Facility Maintenance	Maintenance backlog
9. Alumni Support	Alumni contribution

Table 2.2

Houghton College Performance Dashboard

- **Income Stability**

  Excessive tuition dependence increases volatility, particularly during economic recession and times of demographic change and uncertainty. The income stability perspective focuses on tuition dependency. Its measurement is gross tuition and fees as a percentage of gross Education and General (E&G) revenue.

- **Commitment to Academic Excellence**

  Generally, to the extent that we are able to preserve a significant portion of our budget for instruction, we are investing in academic excellence today and in the future. This perspective focuses on instructional expenses. Its measurement is instructional expenses as a percentage of net expenditures.

- **Stewardship**

  An operating excess generally will mean that we are meeting our budgetary goals and living within our means. The stewardship perspective focuses on financial surplus. Its measurement is total current fund revenues less total current fund expenditures.

- **Competitiveness/Selectivity**

  These two separate measures are highly interrelated. While the first is a widely used measure of selectivity, the second is a qualitative measure of admissions ?yield," an important indication of Houghton's attractiveness. Together they suggest how much flexibility we have to control the quality and composition of our student body. This perspective focuses on selectivity and academic quality. Selectivity is measured in terms of the percentage of applicants accepted as freshmen. Academic quality is measured in terms of the percentage of freshmen who graduated in the top 10 percent of their high school class.

- **Productivity**
  While our overall ratio of students to faculty may mask significant variability among programs and departments, this measure is the starting point for assessing faculty workload and productivity. The second measure, while again tied to the number of students, provides a measure of our administrative productivity. The productivity perspective focuses on faculty and administrative workload. It measures full-time students per full-time faculty member and full-time equivalent students per full-time equivalent staff member.

- **Affordability**
  The policy of tuition discounting may be justified as long as net tuition (gross tuition revenue - institutionally-funded aid) continues to grow. This indicator should be considered in light of institutional selectivity. This perspective focuses on student aid expenses. It is measured in terms of college-funded student financial aid as a percentage of tuition and fees.

- **Mission and Program Mix**
  The proportion of employees who are faculty reflects the college's mission and program mix, as well as its choices about the division of labor between faculty and staff. This perspective focuses on full time employees who are faculty members and is measured in terms of the percentage of full-time employee who are faculty.

- **Facility Maintenance**
  Deferred maintenance is a growing concern for many colleges, whose capital assets are deteriorating as scarce funds are diverted to academic and other priorities that seem to be more pressing. The lower this number is, the better. The facility maintenance perspective focuses on facility maintenance backlog. It is measured in terms of the estimated maintenance backlog as a percentage of the total replacement value of the plant.

- **Alumni Support**
  Alumni giving is a significant source of institutional support and an important barometer for constituent opinion about institutional performance. This perspective focuses on alumni contributions. Its measurement is the percentage of alumni who have given at any time during the past year.

Malcolm Baldrige National Quality Award Criteria

In 1988, the Malcolm Baldrige National Quality Award (MBNQA) was instituted to promote total quality management (TQM). Since that time, TQM has gone through many changes and now generally is referred to by other names, such as **?**continuous improvement" or **?**reengineering." One fact remains, though, and it is that all Baldrige winners don't look at TQM (or whatever they call it) as a separate program or entity. On the contrary, they integrate its philosophies and practices into their organization's day-to-day operations.

The Malcolm Baldrige Award criteria focus on three business factors:

- Approach - The processes used to run an organization.
- Deployment - The execution of an approach.
- Results - The outcome of the approach and the deployment.

Based on a 1000-point scale, the award criteria are divided into seven perspectives. The first six pertain to the Approach/Deployment factors. The last one focuses on the Results factor. The seven items and their point values are shown on the following page.

1.0 Leadership . . . . . 125 points
2.0 Strategic Planning . . . . . 85 points
3.0 Customer and Market Focus . . . . . 85 points
4.0 Information and Analysis . . . . . 85 points
5.0 Human Resource Focus . . . . . 85 points
6.0 Process Management . . . . . 85 points
7.0 Business Results . . . . . 450 points

Today, the Baldrige standards call for a balance among customer satisfaction, employee satisfaction, and business results. The Award is based on criteria created through a public-private partnership. These criteria have many benefits, including:

- They provide an excellent framework for developing an integrated performance measurement system.
- They provide an excellent roadmap for operating a better organization.
- They are a good tool for performing an organizational self-assessment to find areas for improvement.
- They provide a common framework for making sense out of all the theories, tools, and approaches that are part of running an effective organization (Brown, 1999).

A graphical representation of the Baldrige framework is shown in Figure 2.5 below. The seven MBNQA perspectives, criteria, and desired information (for the 1999 award application) are provided on the following page.

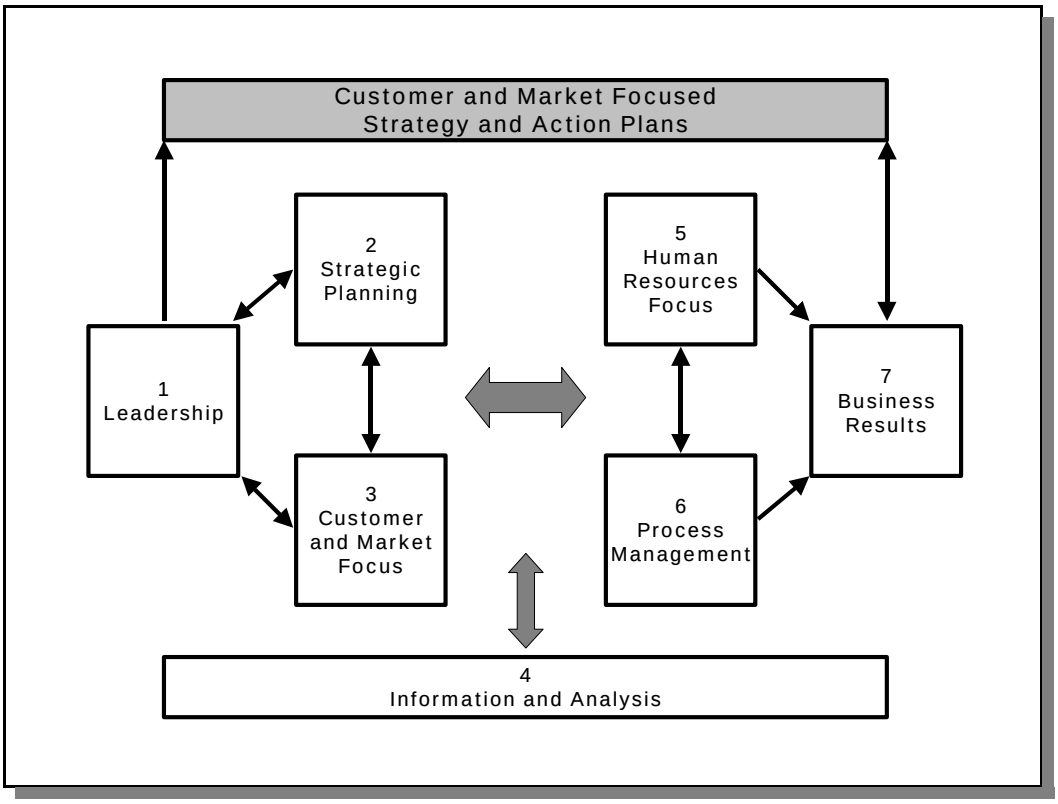

Figure 2.5

Baldrige Criteria for Performance Excellence Framework—A Systems Perspective

Leadership

The *Leadership* perspective is Category 1.0 of the Baldrige framework. Its two criteria are:

- 1.1 Organizational Leadership - Describe how senior leaders guide your organization and review organizational performance.
- 1.2 Public Responsibility and Citizenship - Describe how your organization addresses its responsibilities to the public and how your organization practices good citizenship.

Strategic Planning

The *Strategic Planning* perspective is Category 2.0 of the Baldrige framework. Its two criteria are:

- 2.1 Strategy Development - Describe your organization's strategy development process to strengthen organizational performance and competitive position. Summarize your key strategic objectives.
- 2.2 Strategy Deployment - Describe your organization's strategy deployment process. Summarize your organization's action plans and related performance measures. Project the performance of these key measures into the future.

Customer and Market Focus

The *Customer and Market Focus* perspective is Category 3.0 of the Baldrige framework. Its two criteria are:

- 3.1 Customer and Market Knowledge - Describe how your organization determines short- and longer-term requirements, expectations, and preferences of customers and markets to ensure the relevance of current products/services and to develop new opportunities.
- 3.2 Customer Satisfaction and Relationships - Describe how your organization determines the satisfaction of customers and builds relationships to retain current business and to develop new opportunities.

Information and Analysis

The *Information and Analysis* perspective is Category 4.0 of the Baldrige framework. Its two criteria are:

- 4.1 Measurement of Organizational Performance - Describe how your organization provides effective performance measurement systems for understanding, aligning, and improving performance at all levels and in all parts of your organization.
- 4.2 Analysis of Organizational Performance - Describe how your organization analyzes performance data and information to assess and understand overall organizational performance.

Human Resource Focus

The *Human Resource Focus* perspective is Category 5.0 of the Baldrige framework. Its three criteria are:

- 5.1 Work Systems - Describe how your organization's work and job design, compensation, career progression, and related work practices enable employees to achieve high performance in your operations.
- 5.2 Employee Education, Training, and Development - Describe how your organization's education and training support the achievement of your business objectives, build employee knowledge, skills, and capabilities, and contribute to improved employee performance.
- 5.3 Employee Well-Being and Satisfaction - Describe how your organization maintains a work environment and an employee support climate that contribute to the well-being, satisfaction, and motivation of all employees.

Process Management

The *Process Management* perspective is Category 6.0 of the Baldrige framework. Its three criteria are:

- 6.1 Product and Service Processes - Describe how your organization manages key product and service design and delivery processes.
- 6.2 Support Processes - Describe how your organization manages its key support processes.
- 6.3 Supplier and Partnering Processes - Describe how your organization manages its key supplier and/or partnering interactions and processes.

Business Results

The *Business Results* perspective is Category 7.0 of the Baldrige framework. Its five criteria are:

- 7.1 Customer Focused Results - Summarize your organization's customer focused results, including customer satisfaction and product and service performance results. Segment your results by customer groups and market segments, as appropriate. Include appropriate comparative data.
- 7.2 Financial and Market Results - Summarize your organization's key financial and marketplace performance results, segmented by market segments, as appropriate. Include appropriate comparative data.
- 7.3 Human Resource Results - Summarize your organization's human resource results, including employee well-being, satisfaction, development, and work system performance. Segment your results by types and categories of employees, as appropriate. Include appropriate comparative data.
- 7.4 Supplier and Partner Results - Summarize your organization's key supplier and partner results. Include appropriate comparative data.
- 7.5 Organizational Effectiveness Results - Summarize your organization's key operational performance results that contribute to the achievement of organizational effectiveness. Include appropriate comparative data.

Section IV: Developing Performance Measures—Getting Organized

Thus far, you have gained an understanding of performance measurement and integrated performance measurement systems. You also have looked at performance measurement frameworks and, hopefully, selected one that suits your organizational needs. The framework that you select will help you determine your strategic focus as you begin to develop your performance measures. However, before you go about this task, you need to ?get yourself organized." This section will show you how.

Step 1: Establish the Performance Measurement Team

The first step in getting organized is to establish the performance measurement team. The team should be made up of:

1. People who actually do the work to be measured
2. People who are very familiar with the work to be measured.

It is important that each person understands the task before them and their role in its accomplishment.

Guidelines for Teams

When meeting as a team, consider these *Guidelines for Teams* developed by the University of California:

1. Products [including the POCMs (performance objectives, criteria and measures), agreements, gradients and any site-specific issues] must be reviewed and understood by the full team.
2. Focus on effectiveness of systems and the appropriate level of internal controls.
3. Maintain a balance between outcome (objective) and process (subjective) measures.
4. Develop measures that crosscut functional areas to better represent overall organizational performance.
5. Incorporate ?Best Practices" and reflect management's judgment as to the key elements for overall successful operation, including cost/risk/benefit effectiveness—ascertain that measures add value and improve effectiveness in support of the organizational mission.
6. Consider value-added criteria, including evaluating the cost of measuring and administering the measure, and the number of measures that can be effectively managed.
7. Performance objectives include criteria and measures that are objectively measurable and allow for meaningful trend and rate-of-change analysis where possible. Include targets or goals, upper and lower control limits, benchmark levels, or other delineators on all graphics to make them more useful to managers.
8. Each Performance measure must be measurable during the annual performance period.
9. Functional teams assign rating weights at the measure, criteria and performance objective level.
10. Functional teams should discuss the integration of operational awareness and self-assessment activities, and reporting as a part of the process.

Step 2: Gain an Understanding of the Jargon

Performance measurement jargon can be very confusing, but needs to be understood and agreed to by the performance measurement team. The information given below as well as the information provided in ?Appendix D: Performance Measurement Terminology" and ?Appendix E: A Primer On Performance Measurement" should prove to be helpful.

Types of Performance Measures

Generally, performance measures are divided into five types. These five types are:

- **Input Measures** - Used to understand the human and capital resources used to produce the outputs and outcomes.
- **Process Measures** - Used to understand the intermediate steps in producing a product or service. In the area of training for example, a process measure could be the number of training courses completed as scheduled.
- **Output Measures** - Used to measure the product or service provided by the system or organization and delivered to customers. An example of a training output would the number of people trained.
- **Outcome Measures** - Evaluate the expected, desired, or actual result(s) to which the outputs of the activities of a service or organization have an intended effect. For example, the outcome of safety training might be improved safety performance as reflected in a reduced number of injuries and illnesses in the workforce. In some instances, such as the training example above, establishing a direct cause and effect relationship between the output of the activity and its intended outcome, can be difficult.
- **Impact Measures** - Measure the direct or indirect effects or consequences resulting from achieving program goals. An example of an impact is the comparison of actual program outcomes with estimates of the outcomes that would have occurred in the absence of the program.

You may also hear of performance measures categorized as *leading*, *lagging*, and/or *behavioral*. These types of measures are defined below:

- **Lagging Measures** - Measure performance after the fact. Injury and illness measures such the Lost Workday Case Rate and the Total Recordable Case Rate are examples of lagging measures commonly used to measure environment, safety and health performance. Project cost performance is an example of a lagging indicator used to measure program performance.
- **Leading Measures** - Are more predictive of future performance and include measures such as near misses, procedural violations, or estimated cost based on highly correlated factors.
- **Behavioral Measures** - Measure the underlying culture or attitude of the personnel or organization being measured. Examples would include management walk-throughs, safety program implementation, or employee satisfaction questionnaires.

Again, for more in-depth information about types of performance measures, please go to **?**Appendix D: Performance Measurement Terminology" and **?**Appendix E: A Primer On Performance Measurement."

Classifications of Performance Measures

The University of California identifies five classifications of performance measures. These five are:

- Efficiency
- Effectiveness
- Quality
- Timeliness
- Productivity

A description of each classification and how each is expressed is provided in Table 2.3 on the following page.

A Measure of . . .	Measures . . .	And Is Expressed as a Ratio of . . .
Efficiency	The ability of an organization to perform a task.	Actual input/planned input
Effectiveness	The ability of an organization to plan for output from its processes.	Actual output/planned output
Quality	Whether a unit of work was done correctly. Criteria to define ?correctness" are established by the customer(s).	Number of units produced correctly/ total number of units produced
Timeliness	Whether a unit of work was done on time. Criteria to define ?on time" are established by the customer(s).	Number of units produced on time/ total number of units produced
Productivity	The amount of a resource used to produce a unit of work.	Outputs/inputs

Table 2.3

Classification Of Performance Metrics

Step 3: Consider ?The Considerations"

Here are some things for the measurement team to consider when developing performance measures:

- Keep the number of performance measures at each management level to a minimum. For any program, there are a large number of potential performance measures. It is important to identify a limited number, i.e., critical few, performance measures because acquiring and using information is costly. Measure what you want to have managed. Identification of critical performance measures is recommended. The more critical the individual result is to objective accomplishment, the more likely that development of a specific performance measure to evaluate the result may be appropriate. In a similar manner, if the result is not critical to accomplishing the objective, development of a separate performance measure may not be necessary.
- Develop clear and understandable objectives and performance measures. Performance measures should clarify the objective and be understandable. Experience has shown that performance measurement systems frequently fail because the respective parties do not have a common understanding regarding the purpose and concepts of the performance measurement system.
- Determine if the cost of the measure is worth the gain. The decision to establish a measure should include a consideration of how much it might cost to obtain data for that measure. Sometimes the cost of obtaining a measurement may outweigh any added value resulting from the measurement.
- Consider the cost of attaining the next level of improvement. Establishing a measure that encourages reaching for a new or higher level of improvement should take into account the cost of implementing such a measure against the value of the additional improvement.
- Assure that the measure is comprehensive. Comprehensive measurement is desired—both the positive and negative effects should be measured. In developing performance measures, consider measuring positive performance as well as minimizing possible negative side-effects of the program. For example, a possible (negative) side-effect of a productivity program would be to increase the number of fatalities and injuries as safety practices are eliminated in the pursuit of greater productivity.
- Consider performing a risk evaluation. Organizations developing performance measurement systems should consider performing a risk evaluation of the organization to determine which specific processes are most critical to organizational success or which processes pose the greatest risk to successful

mission accomplishments. The organization should place greater emphasis on measuring high-risk process and lesser emphasis on measuring medium- to low-risk processes.

- Consider the weight of conflicting performance measures. Organizations frequently have several objectives that may not always be totally consistent with each other. For example, an objective of high productivity may conflict with an objective for a high quality product, or an objective of meeting specific deadlines may conflict with an objective of providing the highest quality reports to meet those deadlines.
- Develop consistent performance measures that promote teamwork. Performance measures should be designed to maximize teamwork between different organizational elements. The performance measures for different levels of an organization should be generally consistent with each other from the top to the bottom and across the hierarchy. The risks of suboptimization (pursuing a specific objective to such an extent that you sacrifice a second objective) should be determined when setting performance measures. Two examples of suboptimization are: (1) a technical group, in its haste to complete a project, prepares an incomplete, error-filled specification which prevents the contractor from completing the project on time and results in increased costs and (2) a procurement group awarding a contract to an unqualified low bidder who delivers a defective product which results in both schedule delays and increased costs.

Step 4: Know How to Check/Test Your Performance Measures

After you have developed your performance measures, you will need to check/test them for soundness (i.e., completeness, applicability, usefulness, etc.). Knowing how to perform these checks/tests and, thus, knowing what to look for in a performance measure, will help your team develop sound performance measures from the start. Here are several checks/tests from which to choose.

The SMART Test

The University of California frequently uses the SMART test to provide a quick reference for determining the quality of a particular performance measure:

- **S = Specific** Is the measure clear and focused to avoid misinterpretation? It should include measurement assumptions and definitions, and should be easily interpreted.
- **M = Measurable** Can the measure be quantified and compared to other data? It should allow for meaningful statistical analysis. Avoid **?**yes/no" measures except in limited cases, such as start-up or systems-in-place situations.
- **A = Attainable** Is the measure achievable, reasonable, and credible under conditions expected?
- **R = Realistic** Does the measure fit into the organization's constraints? Is it cost-effective?
- **T= Timely** Is measurement doable within the time frame given?

The Quality Check

The following questions serve as a checklist to determine the quality of the performance measures that have been defined:

- Is the measurement objectively measurable?
- Does the measurement include a clear statement of the end results expected?
- Does the measure support customer requirements, including compliance issues where appropriate? (Keep in mind that in some areas compliance is performance, e.g., ES&H.)
- Does the measure focus on the effectiveness and/or efficiency of the system being measured?
- Does the measure allow for meaningful trend or statistical analysis?
- Have appropriate industry or other external standards been applied?

- Does the measure include milestones and or indicators to express qualitative criteria?
- Are the measures challenging, but, at the same time, attainable?
- Are assumptions and definitions specified for what constitutes satisfactory performance?
- Have those who are responsible for the performance being measured been fully involved in the development of this measure?
- Has the measure been mutually agreed upon by you and your customers?

The Three Criteria Test

Another test to which performance measures should be subjected include the satisfaction of three broad criteria:

1. **Strategic Criteria** - Do the measures enable strategic planning and then drive the deployment of the actions required to achieve objectives and strategies? Do the measures align behavior and initiatives with strategy, and focus the organization on its priorities?
2. **Quantitative Criteria** - Do the measures provide a clear understanding of progress toward objectives and strategy as well as the current status, rate of improvement, and probability of achievement? Do the measures identify gaps between current status and performance aspirations, thereby highlighting improvement opportunities?
3. **Qualitative Criteria** - Are the measures perceived as valuable by the organization and the people involved with the metrics?

The Treasury Department Criteria Test

The U.S. Department of the Treasury, in *Criteria for Developing Performance Measurement Systems in the Public Sector* (1994), identified a variety of criteria a performance measurement team can use to select appropriate performance measures and can use to assist them in identifying and reaching consensus on measurement goals. These criteria also can prove useful in checking/testing performance measures.

1. **Data Criteria** - Data availability and reliability can impact the selection and development of performance measures. With regard to *Data Criteria*, the Treasury Department asks you to consider the following:
   - Availability - Are the data currently available? If not, can the data be collected? Are better indicators available using existing data? Are there better indicators that we should be working towards, for which data are not currently available?
   - Accuracy - Are the data sufficiently reliable? Are there biases, exaggerations, omissions, or errors that are likely to make an indicator or measure inaccurate or misleading? Are the data verifiable and auditable?
   - Timeliness - Are the data timely enough for evaluating program performance? How frequently are the data collected and/or reported (e.g., monthly vs. annually)? How current are the data (e.g., how soon are data reported after the close of the fiscal year)?
   - Security - Are there privacy or confidentiality concerns that would prevent the use of these data by concerned parties?
   - Costs of Data Collection - Are there sufficient resources (e.g., expertise, computer capability or funds) available for data collection? Is the collection of the data cost-effective (i.e., do the costs exceed the benefits to be derived from the collection of the data)?

2. **Measurement Criteria** - With regard to *Measurement Criteria*, the Treasury Department asks you to consider the following:

   - Validity - Does the indicator or measure address financial or program results? Can changes in the value of the indicator be clearly interpreted as desirable or undesirable? Does the indicator clearly reflect changes in the program? Is there a sound, logical relationship between the program and what is being measured, or are there significant uncontrollable factors?
   - Uniqueness - Does the information conveyed by one indicator or measure duplicate information provided by another?
   - Evaluation - Are there reliable benchmark data, standards, or alternative frames of reference for interpreting the selected performance indicators?

3. **Measurement System Criteria** - With regard to *Measurement System Criteria*, the Treasury Department asks you to consider the following:

   - Balance - Is there a balance between input, output, and outcome indicators, and productivity or cost-effectiveness measures? Does the mix of indicators offset any significant bias in any single indicator?
   - Completeness - Are all major programs and major components of programs covered? Does the final set of indicators and measures cover the major goals and objectives? Are there measures of possible ?unintended" program outcomes—particularly negative effects?
   - Usefulness - Will management use the system to effect change based on the analysis of the data? Are there incentives for management to use the data after they are collected? Does management have the resources to analyze the results of the system? Is management trained to use and interpret the data? Are management reports ?user-friendly"—that is, clear and concise?

Step 5: Take a Look at How Other Organizations Measure Performance

Now that your team is organized and ready to develop its performance measures, take one last important step: look at what other organizations similar to yours have done and are doing with regard to their performance measurement system. If it's an organization within DOE or within your company, an informal meeting or survey may suffice to gain the information for which you are looking. If it's an external organization (e.g., private sector and/or competitor), a more formalized structure for contacting them may be necessary. If this latter scenario is the case, please refer to Volume 6, *Using Performance Information To Drive Improvement*, for an excellent set of guidelines for contacting external companies.

The point here is to eliminate your team's ?reinventing the wheel" and, thus, save you valuable time and resources (and spare you many headaches!). The odds run high that you will be able to find another organization to share useful information that your team (and organization) can adopt and adapt to its particular circumstances.

Section V: Developing Performance Measures—Sample Approaches

Now that you've gotten yourself organized, you're ready to begin developing your performance measures. The purpose of this section is to provide you with some successful approaches and useful points to consider as you go about this task. Presented here are approaches devised/used by:

- The Department of Energy
- The University of California
- The Auditor General of Canada

Please note that the PBM SIG does not recommend one of these approaches over another (or any other that exists). The point here is to present various approaches that might be useful (and ?feel comfortable") to an individual or an organization. Inevitably, it is up to that individual or organization to decide which approach provides the ?best fit" for them. (For more information on how to develop performance measures, please refer to the PBM SIG's first handbook, *How to Measure Performance—A Handbook of Techniques and Tools*, as well as the documents identified in ?Appendix C: References/Suggested Reading.")

The DOE Approach*

The fundamental purposes of performance measurement are to provide insights into operations and to support planning (to make adjustments in organization goals, strategies, and programs that translate into improved products and services to customers and stakeholders). The approach outlined here assumes that your organization already has a strategic plan. Development of performance measures relies upon the description of your organization that comes from strategic planning.

*From *Guidelines for Performance Measurement* (DOE G 120.1-5, 1996).

The DOE Approach

The approach outlined in *Guidelines for Performance Measurement* calls for a six-step process. These six steps are:

1. Use a collaborative process
2. Describe your organization processes
3. Design the measurements
4. Collect the data
5. Use the data
6. Continually improve the measurement process

Steps 1, 2, 3, and 6 are covered in this volume (Volume 2) of the PBM SIG's *The Performance-Based Management Handbook*. Steps 4 and 5 are covered thoroughly in ?Volume 4: Collecting Data To Assess Performance," ?Volume 5: Analyzing And Reviewing Performance Data," and ?Volume 6: Using Performance Information To Drive Improvement."

‘ Step 1: Use a Collaborative Process

Develop the measurements using collaborative processes and include both the people whose work will be measured and the people who will implement important parts of the measurement process (if they are different). You may want to have sponsors, internal customers, process owners, and external customers review proposed performance objectives, measures, expectations, and results.

Obtain commitment to your measures and measurement approach from your organization's top management. In order for your measures to be taken seriously, it is extremely important that top managers support your performance measurement process.

‘ **Step 2: Describe Your Organization Processes**

Pick one of the frameworks summarized in the beginning of this section. If you are developing measures for the first time, simply pick the one that makes the most sense to you and start. If you already have a system of measures, it is reasonable to look at other frameworks. They may help you to improve your measures.

Develop a flow process model or input/output chart that defines your organization's main activities.

- What are your main business processes?
- What are the inputs to your organization and their sources?
- What are outputs (e.g., products and services) from your organization?
- Who are your customers (e.g., the users of the products and services)?
- What are the desired outcomes for each business area?
- What are the critical support functions (e.g., resource management) within your organization?

This work may have been already done during your organization's strategic planning effort.

‘ **Step 3: Design the Measurements**

When you design performance measures, you should try to:

- Identify Information requirements from strategic plans. Design performance measures to demonstrate progress toward achieving the strategic and shorter-term goals laid out in your organization's strategic plan. This will identify your information needs. Make sure you have identified information to measure inputs, outputs, and outcomes for each business area. Identify some long-term, multiyear measures, for purposes of monitoring long-term performance..
- Understand the information requirements of organizations between you and the Secretary. Consider your organization's location within the DOE hierarchy, measures needed for reporting upward, and measures defined by parallel organizations particularly those that use the same support organizations. Also consider measures in use by **?**best in class" organizations. If they fill one of your needs, adopt them.
- Consider the impact of the measures that you define on organizations that support you. Carefully consider the resource impact of measurement implementation on support organizations. You should coordinate and establish standard definitions and reporting methods to ensure translation or integration of measures between and across multiple DOE organizations and organizational levels.
- Select a few balanced measurements. Be selective in defining the actual measures to be generated. It is quite easy to measure too much. The process by which performance measurement data will be obtained should be defined at the same time the performance measure is defined. Developing a few particularly relevant measures is a good conceptual goal and is not easy to do. Balance (i.e., measuring multiple facets of your organization) assures that no aspect of the organization will suffer while another part is improved.
- Avoid **?**yes/no" and milestone measures. Avoid **?**Yes/No" performance measures, if possible. There is no valid calibration of the level of performance for this type of measure, and it does not motivate improvement. It is difficult to improve upon **?**pass" in a pass or fail measure.*

Designing measures involves up-front analytical considerations. Quantitative measures are preferred because they yield comparative data about trends which support continuous improvement. In some cases, however, milestone measurement may be all you can come up with. An example is progress on meeting National Environmental Policy Act (NEPA) milestones. Milestones may be acceptable measures when accompanied by an assessment of your organization's ability to meet the performance expectation.

(*Editor's Comment: One way to improve upon ?pass" in a pass/fail measure, would be to raise the value for ?pass.")

- **Step 4: Collect the Data**

  (Note: This step is not covered here. Rather, it is covered in detail in ?Volume 4: Collecting Data To Assess Performance" of the PBM SIG's *The Performance-Based Management Handbook*.)

- **Step 5: Use the Data**

  (Note: This step is not covered here. Rather, it is covered in detail in ?Volume 5: Analyzing, Reviewing, And Reporting Performance Data" and ?Volume 6: Using Performance Information To Drive Improvement" of the PBM SIG's *The Performance-Based Management Handbook*.)

- **Step 6: Continually Improve the Measurement Process**

  Expect to change your measures and measurement process to respond to changing needs and priorities. Apply the concept of continuous improvement to your measurement system to make sure your measures make sense and measure the right things.

  There is an unavoidable tension between ?continuous improvement" and continuity in measures and data sets. This should be acknowledged and anticipated, rather than used as an excuse to ?lock in" measures permanently, or worse, as an excuse to delay starting measuring performance until the measurement system is perfect. However, care should be taken not to change the measures without careful consideration. Changes may make trend analysis impossible.

The University of California Approach

The University of California approach was first highlighted in the PBM SIG's *How to Measure Performance—A Handbook of Techniques and Tools* (PBM SIG 1995). It provides an easy-to-follow approach to developing performance measures.

The Process

In the UC approach, there are six basic steps to the process of developing performance metrics:

1. Assemble the people who actually do the work or are very familiar with it. Get your team together. Review the *Guidelines for Teams* (on Page 35). Make sure everyone understands the task and their roles and responsibilities.
2. Identify and focus on a limited number of critical work processes and internal and external customer requirements that can be effectively managed. Use a balanced approach. Pick one of the frameworks shown inSection III of this volume or devise one suitable to your needs.
3. Identify and align critical desired results to customer requirements. Keep your customer(s) in mind. They're your ?real employer." As noted by NPR (1997), ?most of the best-in-class organizations place customer satisfaction above all else."
4. Develop specific measurements to reflect critical work processes and results. Make sure your measures meet the criteria and ?pass the tests" outlined in Section IV of this volume.

5 Establish performance goals, standards, or benchmarks. You need to know where you are going and where you want to be. Goals, standards, or benchmarks will do this for you.

6. Create gradients for rating the degree of success. You need to grade yourself in order to know how well you are doing.

The Structure

The UC approach structures the performance measurement development process around what it calls POCMs (performance objectives, criteria, and measures).

- **Performance Objectives**: Broad, general areas of review that generally reflect the end goals based on the mission of a function. The overall set of PO's should characterize the organization's level of performance in the functional area over time.
- **Criteria**: Specific areas of accomplishment that satisfy major divisions of responsibility within a function. May be thought of as performance indicators.
- **Measures**: What is actually being measured. Should be quantifiable if possible and appropriate. Some cases include specific goals. Are designed to drive improvement and characterize progress made under each criterion.

Assumptions, agreements, and gradients also are included in the POCM structure.

- **Assumptions**: Stated (in writing) facts that define measurement terms, rating periods, indicators, etc. Examples of assumptions are: **?**For FY XX, the performance period will be July 1, XX to June 30, XX. or "X, Y, and Z are weighted equally.**?**
- **Agreements**: Acknowledgments (in writing) by the performance measurement team of the stated assumptions.
- **Gradients**: Ratings of degrees of success (e.g., 100% = Outstanding; 99%-90% = Excellent; 89%-80%=Good, etc.).

An Example

An example of the UC approach is given in Table 2.4 on the following page. Further examples are provided in Appendix F of this volume.

Performance Objective #2: Compliance	
Performance Objective	**#2 Compliance** The laboratory will comply with applicable Federal, State, and local ES&H laws, regulations and ordinances and with applicable and accepted DOE directives.
Criterion	**2.2 Regulatory Response** The Laboratory will be responsive to regulatory agencies.
Performance Measure	**2.2a Regulatory Commitments** All funded regulatory consent agreement milestones will be met. If such milestones cannot be met, the Laboratory must inform the DOE in writing at the earliest possible time before the milestone passes and seek written concurrence from the appropriate regulatory agency on a revised schedule.
Assumptions	1. For FY XX, the performance period will be July 1, XX to June 30, XX. 2. CAA, CWA, and RCRA are equally weighted.
Gradients	**Good** • 70% of milestones met. • Requests are generated by the Laboratory for written concurrence on a revised schedule are submitted at least 30 days prior to the due date. **Excellent** • Accomplish milestones ahead of schedule as defined through dialogue with the local DOE office. • 90% of the completed milestones met are submitted to the DOE for transmittal to the regulator at least 30 days in advance of the commitment. **Outstanding** • 100% of the completed milestones met are submitted to DOE for transmittal to the regulator at least 30 days in advance of the commitment.

Table 2.4

An Example Of The University Of California Approach

The Auditor General of Canada Approach *

(*Reproduced with the permission of the Minister of Public Works And Government Services Canada, 2000.)

This approach comes from *Developing Performance Measures for Sustainable Development Strategies*, a document produced by the Office of the Auditor General of Canada (AGC) and the Commissioner of the Environment and Sustainable Development. With regard to this approach, the AGC states:

> ”(It) is designed to assist work units within departments in developing objectives and measures that contribute to achieving the department’s strategic objectives for sustainable development. The principle of ’alignment’—the idea that there must be direct linkages between the strategic objectives set by the department and the objectives, action plans and measures of each of its work units—forms the basis of the approach.

There is no single model or process for developing performance objectives and measures, nor is there a process that will guarantee good results. We have attempted to synthesize lessons learned from the literature as well as the insights gained from interviews and work with practitioners on applying performance measurement to the management of environmental and sustainable development issues.?

About the AGC Approach

Sustainable development has been defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs.? As used in *Developing Performance Measures for Sustainable Development Strategies*, it applies to human and ecosystem well-being. However, in the discussion below, the AGC approach has been modified (made generic) so as to be applicable to most business units and organizational strategies. For the full text of the AGC document, please go to the following Web address:

http://www.oag-bvg.gc.ca/domino/cesd_cedd.nsf/html/pmwork_e.html.

Please note that, tor the steps in this section:

? A question mark signifies questions you should ask yourself about that step.

ö An arrow signifies remarks you should consider about that step.

U A check mark signifies a development tool that can be used in that step. Development tools are located in Appendix G: Development Tools For The AGC Approach.

The AGC approach is organized into two main parts:

1. Establish Program-Level Objectives That Contribute to Strategic Objectives - Part 1 makes use of a performance framework that provides the logic for establishing program-level objectives and performance measures that support strategic objectives. The section begins by explaining the performance framework and contains five work steps (1 through 5) designed to assist users in working through the performance framework to identify key issues and objectives.
2. Establish Performance Measures - Part 2 sets out four work steps (6 through 9). These steps are intended to assist users in establishing sound performance measures to correspond with their objectives as well as accountability and resource requirements for implementation.

Part 1: Establish Program Level Objectives That Contribute to Strategic Objectives

A performance framework brings structure to performance planning and clarifies the connection between activities, outputs and results. A good performance framework will address the following questions relative to the objectives specified in the department's strategic plan:

- **Strategic Objective** - Objective(s) specified in the department's strategic plan.
- **WHY is your program relevant to the strategic objective?** - This question relates to the long-term, sustainable development result(s) that the program can reasonably be expected to produce in support of a strategic objective.
- **WHO do you want to reach?** - This question relates to the "reach? of program activities and outputs in terms of target groups, clients, co-deliverers, partners, and other stakeholders.
- **WHAT results do you expect to achieve?** - This question relates to the short-term (or intermediate) result(s) of program activities or outputs that are believed to contribute to achieving the long-term results.
- **HOW are you going to achieve your objectives?** - This question relates to program inputs, processes, activities and outputs.

‘ **Step 1: Confirm Program Role**

WHY is your program relevant to the strategic objective? Defining the role that the program is intended to fulfill with respect to strategic objectives provides a basis for establishing program targets and performance measures.

? Have you established the links between the main activities and outputs of your program and your organization's strategic objectives (e.g. activity/output "Y**?** contributes to, or detracts from, strategic objective/outcome "X**?**)?

U Table 1: Linking Program Activities And Outputs To Strategic Objectives (Appendix G)

‘ **Step 2: Identify the Key Program Activities and Outputs**

This step is essential to ensure that program managers and staff focus on key issues that contribute to the achievement of organizational strategy.

? Have you identified the key activities and outputs of your program in terms of their significance (e.g. High, Medium or Low) in contributing to your organization's strategic objectives?

U Table 2: Identifying The Key Program Activities And Outputs (Appendix G)

‘ **Step 3: Identify Program Stakeholders and Issues**

WHO do you want to reach? In order to formulate a set of strategic objectives, it is essential to identify who program activities and outputs are intended to serve, influence or target, who the other principal groups affected are and how they are affected. For the medium and highly significant program activities and outputs identified in Table 2:

? Have you identified the key issues (desired effects and undesirable effects) associated with these activities and outputs? Have you identified the principal groups affected?

U Table 3: Identifying Key Issues And Affected Stakeholder Groups (Appendix G)

‘ **Step 4: Identify What the Program Aims to Accomplish**

WHAT results do you expect to achieve? Desired results should be defined in terms of outcomes that then become the focus for determining appropriate objectives, milestone targets, and measures. Referring to the "undesirable**?** program effects and the "negatively affected**?** stakeholder groups (Table 3):

? Have you established a desired long-term outcome for each of these program activities or outputs?

ö Document the positive effect(s) that need to be produced.

? Have you established the near-term outcomes that can be expected to lead to the long-term outcomes?

ö Explain WHO needs to take WHAT action(s) to produce the desired effects.

U Table 4: Defining Results (Appendix G)

While this work step focusses on establishing objectives to redress (remedy) identified undesirable outcomes, it is possible that positive effects can also be further reinforced or improved.

‘ **Step 5: Identify Responses and Performance Requirements**

HOW are you going to achieve your objectives? Performance objectives must be defined in operational terms to be managed effectively.

? Have you defined the performance requirements necessary to achieve the desired results? What level of compliance, participation, reduction, behavioral effect, etc., is required by whom, to achieve the result? By when is it required?

U Table 5: Performance Requirements Relative To Responses And Results (Appendix G)

Part 2: Establish Performance Measures

The next four work steps are intended to assist the user in establishing sound performance measures as well as accountability and resource requirements for implementation.

‘ **Step 6: Identify Potential Performance Measures**

Performance measurement is required to understand the gap between actual and expected levels of achievement and when corrective action may be warranted. The results indicated by a performance measure will generally be compared with expectations specified by a performance target (which might be based on a benchmark best practice, a technical standard, or some specified progression from the baseline value). Therefore, performance measures should correspond with performance targets and indicate the extent to which the organization is achieving these performance expectations. Performance measures are an important source of feedback for effective management.

? Have you established a list of performance measures that correspond to your performance targets?

Ö **The Set of Measures Should Address Each Aspect of the Performance Framework**. Recalling the performance framework outlined above (Part 1), some performance measures will reflect HOW well the program was managed. Such measurements may focus on environmental hazards and risk management, resource intensity, compliance, or conformance with relevant aspects of standard operating procedures and policies (e.g. procurement). Other measures will reflect WHAT was achieved for WHOM. These measures will generally focus on the intermediate effects of program outputs and activities. Measurement in this area can involve observation of behavior (e.g. implementation of an environmental management system, increased ”3R**?** behaviors); content analysis (e.g., changes to regulation, policies, or procedures); or feedback (e.g. survey responses). Finally, some measures will allow a judgment to be made on whether the long-term objectives, which provided the rationale for WHY the program was funded, were met. These measures involve monitoring long-term phenomena occurring in society, the environment, and the economy that can plausibly be linked back to the program initiatives, outputs and intermediate effects. These measures serve as the ultimate barometers of program success.

U Table 6: Establishing Potential Performance Measures (Appendix G)

‘ **Step 7: Establish Information Capabilities and a Baseline for Each Measure**

Understanding what information is currently available to your organization as well as your organization’s capabilities for gathering and analyzing information is an important first step in the selection of performance measures.

The process of establishing baseline measures for each measure will shed light on your organization's information capabilities and gaps. Baseline measures help to clarify the implications of objectives in terms of "level of effort" and resource requirements, and they facilitate assessment of the extent to which progress has been made from an initial condition. Baseline information provides further context that helps to clarify the magnitude of performance challenges and achievements.

? Have you established (or can you readily establish) the initial value or baseline of each measure?

U Table 7: Establishing Baselines For Measures (Appendix G)

‘ Step 8: Assess the Adequacy of Performance Measures*

Once a list of candidate performance measures has been developed, the next step is to select a set of performance measures that are suitable for tracking performance toward specified objectives. One consideration when selecting performance measures are the QUALITY requirements shown in Table 2.5 below.

Attribute	Explanation
Meaningful	Understandable • Clear (clearly and consistently defined) • Context (explained) • Concrete (measurable) • Lack of ambiguity in direction Relevant • Relates to objectives • Significant and useful to the users • Attributable to activities Comparable • Allows comparison over time or with other organizations, activities or standards
Reliable	• Accurately represents what is being measured (valid, free from bias) • Data required can be replicated (verifiable) • Data and analysis are free from error • Not susceptible to manipulation • Balances (complements) other measures
Practical	• Feasible financially • Feasible to get timely data

Table 2.5

Quality Criteria for Performance Measures

? Have you "screened" your measures against criteria for good performance measures?

U Table 8: A Screening Tool For Quality Considerations (Appendix G)

***** *Developing Performance Measures for Sustainable Development Strategies* also calls for assessing the CONTENT of measures with regard to their impact on human and ecosystem well-being. This assessment has not been included here.

‘ **Step 9: Establish Accountability and Resources for Implementation**

An accountability system formalizes the relationship between results, outputs, activities, and resources. It allows people to see how their work contributes to the success of the organization and clarifies expectations for performance.

? Have you established accountability for implementation?

U Table 9A: Establishing Accountability For Implementation (Appendix G)

? For each objective, have you estimated the resource requirements necessary to respond successfully?

U Table 9B: Identifying Resource Requirements For Implementation (Appendix G)

Conclusion

A set of performance measures should support a broader explanation of performance results—a performance story—for managers and executives and for internal and external stakeholders. Performance information should explain how the resources committed to specific initiatives for achieving performance objectives did or did not achieve the specified results. A set of performance measures will likely be required to provide a coherent performance storyline traced by Why, Who, What, and How.

Section VI: Maintaining an Integrated Performance Measurement System

Section III of this volume covered ?Establishing An Integrated Performance Measurement System," but, for those who already have established an integrated system, the real issue is managing a mature system. They might ask, ?How do I maintain it?" The answer is that you maintain it like you would an automobile or an airplane—through a series of regularly scheduled maintenance checks (which are outlined in this section).

Two ?Truths" About Maintaining A Measurement System

Before getting into the maintenance checks, please review these two divergent ?truths" about maintaining a measurement system and make sure you understand them.

?If It Ain't Broke, Don't Fix It!"

If your performance measurement system is meeting your organizational needs, is effective, and is driving improvement, don't think that you have to change it. You don't. However, you still need to go through the maintenance checks outlined in this section. The object is to *maintain* your successful measurement system and possibly improve it. Giving your system a ?check-up" will ensure that you meet this objective.

?If It's Broke, Don't Ignore It!"

If your performance measurement system *isn't* meeting your organizational needs, *isn't* effective, and *isn't* driving improvement, then you have to change it! Don't ignore that fact. Don't assume that miraculously it will get better. It won't. A system that isn't driving improvement is driving in the opposite direction and toward ultimate failure! Another way of putting this ?truth" is, ?If it's broke, fix it!" And do it fast!

Maintenance Check #1: Measurement System Components

Section II provided a list of nine key components of an integrated performance measurement system. These components should be checked (reevaluated) annually to look for any changes within the component that would impact the system.

The Strategic Plan

An organization's strategic plan is its foundation, and it is the foundation for an effective performance measurement system. Here are some maintenance checks for this component:

- If the strategic plan has been revised, check the current measurement system for alignment to the revised plan and revise the system as necessary.
- If the strategic plan has not been revised, check the measurement system to ensure that it remains in proper alignment with the plan. Check linkages of division/department/program objectives to strategic objectives.
- Check the mapping of measures to the plan. Reconcile any gaps that still exist.

Key Business Processes

The secret to a successful integrated performance measurement system is to clearly identify the organization's ?key" business processes, that is, those having the most impact on the success or failure of the organization's goals. Maintenance checks for this component are:

- Review all identified key business processes to ensure that they are, in fact, ?key business processes."

- Check to see whether any key business processes have been added, altered, or dropped from the organizational function. Revise the measurement system to reflect these changes.
- Check the number of key business processes being measured to ensure that it is at a manageable yet useful level. Make adjustments as necessary.

Stakeholder Needs

Stakeholders' points of view and expectations should all be considered in developing strategic goals and objectives. If they have a stake in the output of the process, they should have a stake in the input to the process. Here are some maintenance checks for this component:

- Reevaluate stakeholder points of view and expectations for significant changes. For example, the emergence of a new competitor or a new program within your organization may impact your stakeholders' points of view or expectations of your organization. Or a significant change in organizational mission (e.g., from non-hazardous waste storage to hazardous waste storage) may significantly impact stakeholder point of view and expectations.
- Assess your stakeholder base for new individuals/groups that originally weren't included but should be included. Gain an understanding of their point of view and expectations.

Senior Management Involvement

Leadership commitment to the development and use of performance measures is a critical element in the success of the performance measurement system. When performing a ?maintenance check" of this component, here are things to consider:

- Reevaluate senior management involvement in and commitment to the system. Recommunicate this commitment throughout the organization.
- If new management is in place, ensure their involvement in and commitment to the system. Communicate their commitment throughout the organization.
- Check to see that management is seeking feedback on the system and using this feedback to improve the system and the organization.

Employee Involvement

Employee involvement is one of the best ways to create a positive culture that thrives on performance measurement. Maintenance checks for this component include:

- Check to see that employees are, in fact, involved in the system.
- Reevaluate employee experience and gaps in knowledge to see if additional training is needed.
- Evaluate the employee base to see if its diversity has changed or its numbers have changed due to turn-over. Address these changes accordingly.

Accountability for Measures

Organizations must develop a successful system of accountability, that is, managers and employees alike ?buy in" to performance measurement by assuming responsibility for some part of the performance measurement process (NPR, 1997). Here are some maintenance checks for this component:

- Check to see that each measure has an ?owner." Reassign ?ownership" as necessary.
- Check to see that the accountability system is communicated to and understood by all relevant parties. If it is not, take steps to ensure that it is.
- Check to ensure that the accountability system is not being used to play ?gotcha." Take immediate corrective actions if your check reveals incidences of ?gotcha."
- Assess the use and impact of rewards and incentives.

A Conceptual Framework

A conceptual framework can help in deciding what to measure. Maintenance checks for this component are:

- Evaluate the framework you are using to ensure that it meets your organizational needs. If it isn't, ensure that your system focus is in alignment with your organization's strategic objectives. Also, consider other frameworks.
- If you already have a system of measures, it is reasonable to look at other frameworks. They may help you to improve your measures (DOE 1996).

Communication

Communication is crucial for establishing and maintaining a performance measurement system. It should be multidirectional, running top-down, bottom-up, and horizontally within and across the organization. When performing a ?maintenance check" of this component, here are things to consider:

- Assess your organization's communication methods to ensure that they are sufficient in number and reaching the intended audience.
- Evaluate the existence and use of new methods/styles of communication.

A Sense of Urgency

The impetus to move—or move more aggressively—to a new or enhanced performance measurement and performance management system is generally the result of a cataclysmic event—most frequently, a circumstance threatening the organization's marketplace survival. Maintenance checks for this component are:

- Check for a remaining existence of a sense of urgency within your organization. Rechannel it, then recommunicate it (i.e., don't let it die, but don't play the ?grim reaper" year after year either).
- Check for new developments (e.g., new/more competition, new laws/legal requirements) that will ?rekindle" the organization's sense of urgency.

Maintenance Check #2: The Performance Measurement Team

The performance measurement team is made up of the people who actually do the work being measured and those who are very familiar with the work being measured. It is important to periodically check the following things about your team:

- Changes to the make-up of the team due to turn-over, reassignment, etc.
- ?Burn-out" of team members due to stagnant, repetitive roles/responsibilities. Perhaps a rotation of assignments is in order.
- Understanding of roles/responsibilities and task by team members. All should understand them and agree to them.

Maintenance Check #3: New Legal Requirements/ Issues

The issuance of new laws, regulations, and orders can have significant impact on an organization and its mission. For the most part, adherence to these laws, regulations, and orders is a requirement, not an option. Therefore, it is imperative that an organization ?stay on top" of legal developments and incorporate their requirements into the performance measurement system. It also is ?a must" that these requirements be communicated thoroughly to employees and stakeholders.

Maintenance Check #4: New Developments/Technology

It will be necessary to keep abreast of and review any new developments (theories, practices, etc.) and/or technology that has emerged in the performance measurement field since the time that your system was instituted. When assessing these new developments/technology, consider:

- The impact (both positive and negative) the incorporation of these new developments and/or technology into your system would have on the organization and the system.
- The value-added of these new developments and/or technology.
- The cost of these new developments and/or technology.

Maintenance Check #5: Feedback, Feedback, Feedback!

Feedback may be the greatest asset for a maintenance check. Seek it and use it. Get it from your employees and your customers/stakeholders. In particular, get it from a benchmarking partner—a similar organization with a successful, mature measurement system. They can give you new ideas to **?**breathe life" into your system. (See Volume 6, *Using Performance Information To Drive Improvement*, for more information on benchmarking.)

Appendix A: Definitions

Because people often associate different meanings to ?common" terminology, definitions are always tricky and controversial. Such may be the case with the definitions given herein. Please remember that many of these definitions are applicable with respect to the U.S. Department of Energy and its operations. The intent here is to define terminology such that the reader can get a general understanding of it. The PBM SIG does not intend to be prescriptive or inflexible, nor does it admit to being the highest source of information.

Accountability
The obligation a person, group, or organization assumes for the execution of assigned authority and/or the fulfillment of delegated responsibility. This obligation includes: answering—providing an explanation or justification—for the execution of that authority and/or fulfillment of that responsibility; reporting on the results of that execution and/or fulfillment; and assuming liability for those results.

Activity
Actions taken by a program or an organization to achieve its objectives.

Assessment
An all-inclusive term used to denote the act of determining, through a review of objective evidence and witnessing the performance of activities, whether items, processes, or services meet specified requirements. Assessments are conducted through implementation of activities such as audits, performance evaluations, management system reviews, peer reviews, or surveillances, which are planned and documented by trained and qualified personnel.

Baseline
The initial level of performance at which an organization, process, or function is operating upon which future performance will be measured.

Benchmarking
1. To measure an organization's products or services against the best existing products or services of the same type. The benchmark defines the 100 percent mark on the measurement scale.
2. The process of comparing and measuring an organization's own performance on a particular process against the performance of organizations judged to be the best of a comparable industry.

Bottom Up
Starting with input from the people who actually do the work and consolidating that input through successively higher levels of management.

Cascaded Down
Starting with a top level of management, communicated to successively lower levels of management and employees.

Characteristics
Any property or attribute of an item, process, or service that is distinct, describable, and measurable.

Continuous Improvement
1. The undying betterment of a process based on constant measurement and analysis of results produced by the process and use of that analysis to modify the process.
2. Where performance gains achieved are maintained and early identification of deteriorating environmental, safety, and health conditions is accomplished.

Corrective Action
Actions taken to rectify conditions adverse to quality and, where necessary, to preclude repetition.

Criteria
The rules or tests against which the quality of performance can be measured.

Goal
1. The result that a program or organization aims to accomplish.
2. A statement of attainment/achievement, which is proposed to be accomplished or attained with an implication of sustained effort and energy.

Guideline
A suggested practice that is not mandatory in programs intended to comply with a standard. The word ?should" or ?may" denotes a guideline; the word ?shall" or ?must" denotes a requirement.

Impact
Characterization of the outcome of a program as it relates to specific objectives.

Item
An all-inclusive term used in place of the following: appurtenance, sample, assembly, component, equipment, material, module, part, structure, subassembly, subsystem, unit, documented concepts, or data.

Lessons Learned
A ?good work practice" or innovative approach that is captured and shared to promote repeat application. A lesson learned may also be an adverse work practice or experience that is captured and shared to avoid recurrence.

Line Manager
Includes all managers in the chain of command from the first-line supervisors to the top manager.

Management
All individuals directly responsible and accountable for planning, implementing, and assessing work activities.

Measurement
The quantitative parameter used to ascertain the degree of performance.

Metric
A standard or unit of measure.

Objective
A statement of the desired result to be achieved within a specified amount of time.

Occurrence
An unusual or unplanned event having programmatic significance such that it adversely affects or potentially affects the performance, reliability, or safety of a facility.

Outcome
The expected, desired, or actual result to which outputs of activities of an agency have an intended effect.

Outcome Measure
An assessment of the results of a program activity or effort compared to its intended purpose.

Output
A product or service produced by a program or process and delivered to customers (whether internal or external).

Output Measure
The tabulation, calculation, or recording of activity or effort and can be expressed in a quantitative or qualitative manner.

Performance-Based Management
A systematic approach to performance improvement through an ongoing process of establishing strategic performance objectives; measuring performance; collecting, analyzing, reviewing, and reporting performance data; and using that data to drive performance improvement.

Performance Expectation
The desired condition or target level of performance for each measure.

Performance Indicator(s)
1. A particular value or characteristic used to measure output or outcome.
2. A parameter useful for determining the degree to which an organization has achieved its goals.
3. A quantifiable expression used to observe and track the status of a process.
4. The operational information that is indicative of the performance or condition of a facility, group of facilities, or site.

Performance Measure
A quantitative or qualitative characterization of performance.

Performance Measurement
The process of measuring the performance of an organization, a program, a function, or a process.

Performance Objective
1. A statement of desired outcome(s) for an organization or activity.
2. A target level of performance expressed as a tangible, measurable objective, against which actual achievement shall be compared, including a goal expressed as a quantitative standard, value, or rate.

Performance Result
The actual condition of performance level for each measure.

Process
An ongoing, recurring, and systematic series of actions or operations whereby an input is transformed into a desired product (or output).

Process Improvement
A set of management techniques for controlling and improving the effectiveness and efficiency of a process. In order to be measured, monitored, and analyzed, the process must be repeated frequently, perhaps weekly or monthly at a minimum. It must also have measurable inputs and outputs, and the process must be controllable.

Program Evaluation
An assessment, through objective measurement and systematic analysis, of the manner and extent to which federal programs achieve intended objectives.

Quality
A degree to which a product or service meets customer requirements and expectations.

Quality Management
The management of a process to maximize customer satisfaction at the lowest cost.

Reengineering
The radical redesign of current business processes with the intent of reducing cost and cycle time resulting in increased customer satisfaction.

Root Cause
The basic reasons for conditions adverse to quality that, if corrected, will prevent occurrence or recurrence.

Root Cause Analysis
An analysis performed to determine the cause of part, system, and component failures.

Self-Assessment
A systematic evaluation of an organization's performance, with the objective of finding opportunities for improvement and exceptional practices. Normally performed by the people involved in the activity, but may also be performed by others within the organization with an arms-length relationship to the work processes.

Senior Management
The manager or managers responsible for mission accomplishment and overall operations.

Situation Analysis
The assessment of trends, strengths, weaknesses, opportunities, and threats, giving a picture of the organization's internal and external environment to determine the opportunities or obstacles to achieving organizational goals. Performed in preparation for strategic planning efforts.

Stakeholder
Any group or individual who is affected by or who can affect the future of an organization, e.g., customers, employees, suppliers, owners, other agencies, Congress, and critics.

Strategic Planning
A process for helping an organization envision what it hopes to accomplish in the future; identify and understand obstacles and opportunities that affect the organization's ability to achieve that vision; and set forth the plan of activities and resource use that will best enable the achievement of the goals and objectives.

Task
A well-defined unit of work having an identifiable beginning and end that is a measurable component of the duties and responsibilities of a specific job.

Total Quality Management
1. A management philosophy that involves everyone in an organization in controlling and continuously improving how work is done in order to meet customer expectations of quality.
2. The management practice of continuous improvement in quality that relies on active participation of both management and employees using analytical tools and teamwork.

Validation
An evaluation performed to determine whether planned actions, if implemented, will address specific issue(s) or objective(s).

Verification
1. A determination that an improvement action has been implemented as designed.
2. The act of reviewing, inspecting, testing, checking, auditing, or otherwise determining and documenting whether items, processes, services, or documents conform to specified requirements.

Appendix B: Acronyms

ABM . . . . . Activity-based management
AOP . . . . . Annual Operating Plan
APQC . . . . . American Productivity and Quality Center
ARL . . . . . Army Research Laboratory
ASQC . . . . . American Society for Quality Control
BMOP . . . . . Business Management Oversight Pilot
CEO . . . . . Chief Executive Officer
CFO . . . . . Chief Financial Officer
CIO . . . . . Chief Information Officer
COO . . . . . Chief Operating Officer
CPI . . . . . Consumer Price Index
CRT . . . . . DOE Contract Reform Team
CSF . . . . . Critical success factor
DOE . . . . . U.S. Department of Energy
ES&H . . . . . Environment, safety and health
EVA . . . . . Economic value-added
FY 19xx . . . . . Fiscal Year 19xx
FY 200x . . . . . Fiscal Year 200x
GAO . . . . . General Accounting Office
GPRA . . . . . Government Performance and Results Act of 1993
IBM . . . . . International Business Machines
IRG . . . . . Initial Review Group
ISO . . . . . International Standards Organization
JIT . . . . . Just-in-time
JPL . . . . . Jet Propulsion Laboratory
MBNQA . . . . . Malcolm Baldrige National Quality Award
M&I . . . . . Management and Integrating
M&O . . . . . Management and Operating
NAC . . . . . National Advisory Council
NASA . . . . . National Aeronautics and Space Administration
NIH . . . . . National Institutes of Health
NPR . . . . . National Performance Review
NRC . . . . . Nuclear Regulatory Commission
NSF . . . . . National Science Foundation

OMB . . . . . Office of Management and Budget
OSHA . . . . . Occupational Safety and Health Administration
PBM SIG . . . . . Performance-Based Management Special Interest Group
PDCA . . . . . Plan-Do-Check-Act Cycle
POCMs . . . . . Performance objectives, criteria, and measures
QCDSM . . . . . Quality, cost, delivery, safety, and morale
R&D . . . . . Research and development
ROI . . . . . Return on investment
S&T . . . . . Science and technology
SAI . . . . . Strategic Alignment Initiative
SPC . . . . . Statistical process control
TQM . . . . . Total Quality Management
UC . . . . . University of California
UCOP . . . . . University of California Office of the President
URL . . . . . Universal Resource Locator
WWW . . . . . World Wide Web

Appendix C: References/Suggested Reading

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Appendix D: Performance Measurement Terminology

The U.S. Department of Energy's document, *Guidelines for Performance Measurement* (DOE G 120.1-5), lists three groupings of performance measurement definitions: DOE performance measurement terms (which this handbook uses), selected measurement terms, and statutory terms.

DOE Performance Measurement Terms

The following definitions were developed for the DOE Business Management Oversight Pilot project.

- **Performance Objective** - A statement of desired outcomes for an organization or activity.
- **Performance Measure** - A quantitative or qualitative characterization of performance.
- **Performance Expectation** - The desired or target level of performance for each measure.
- **Performance Result** - The actual condition of performance level for each measure.

A graphical representation of the flow of these terms is provided in Figure 2.6 below.

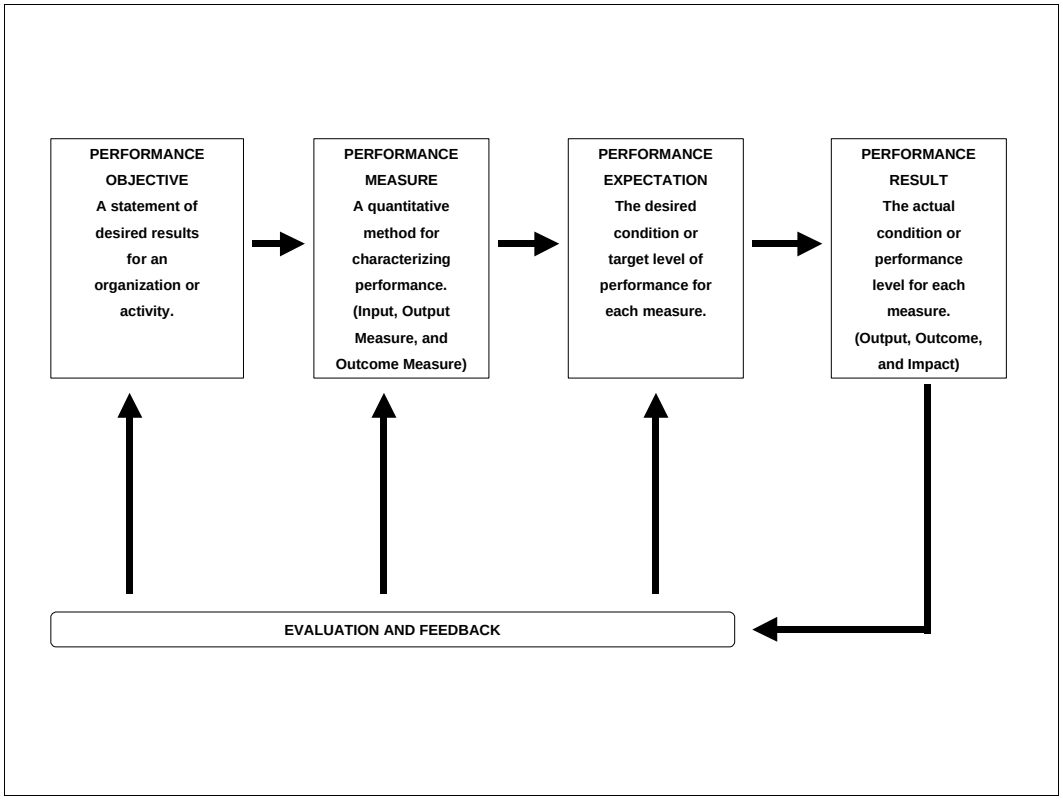

Figure 2.6

DOE Performance Measurement Terms

Selected Measurement Terms

- **Impact** - Characterization of the outcome of a program as it relates to strategic objectives.
- **Input** - A resource consumed by an agency's activities.
- **Metric** - A standard or unit of measure.
- **Outcome** - The expected, desired, or actual result to which outputs of activities of an agency have an intended effect.
- **Output** - A product or service produced by a program or process and delivered to customers (whether internal or external).
- **Performance Measurement** - The process of measuring the performance of an organization, a program, a function, or a process.

Statutory Terms

The following terms are found in the Government Performance and Results Act of 1993 (GPRA).

- **Outcome Measure** - An assessment of the results of a program activity or effort compared to its intended purpose.
- **Output Measure** - The tabulation, calculation, or recording of activity or effort and can be expressed in a quantitative or qualitative manner.
- **Performance Goal** - A target level of performance expressed as a tangible, measurable objective, against which actual achievement shall be compared, including a goal expressed as a quantitative standard, value, or rate.
- **Performance Indicator** - A particular value or characteristic used to measure output or outcome.
- **Program Activity** - Specific activity or project related as listed in the program and financing schedules of the annual budget of the United States Government.
- **Program Evaluation** - An assessment through objective measurement and systematic analysis, of the manner and extent to which Federal programs achieve intended objectives.

Appendix E: A Primer on Performance Measurement

[Note: The information in this appendix comes from the U. S. Office of Management and Budget's (OMB's) document entitled, *Primer on Performance Measurement* (located at http://www.npr.gov/library/omb/22a6.html), dated February 28, 1995.]

This ?primer" defines several performance measurement terms, outlines areas or functions where performance measurement may be difficult, and provides examples of different types of performance measures.

Definition of Terms

No standard definitions currently exist. In this primer, the definitions of output and outcome measures are those set out in GPRA. Input measures and impact measures are not defined in GPRA. As GPRA is directed at establishing performance goals and targets, the definitions are prospective in nature. Variations or divisions of these definitions can be found in other Federal programs as well as non-Federal measurement taxonomies. For example, a measurement effort which retrospectively reports on performance might define ?input" as resources consumed, rather than resources available. The nomenclature of measures cannot be rigidly applied; one agency's output measure (e.g., products produced) could be another agency's input measure (e.g., products received).

Outcome Measure

GPRA Definition: An assessment of the results of a program compared to its intended purpose.

Characteristics: Outcome measurement cannot be done until the results expected from a program or activity have been first defined. As such, an outcome is a statement of basic expectations, often grounded in a statute, directive, or other document. (In GPRA, the required strategic plan would be a primary means of defining or identifying expected outcomes.)

Outcome measurement also cannot be done until a program (of fixed duration) is completed, or until a program (which is continuing indefinitely) has reached a point of maturity or steady state operations. While the preferred measure, outcomes are often not susceptible to annual measurement. (For example, an outcome goal setting a target of by 2005, collecting 94 percent of all income taxes annually owed cannot be measured, as an outcome, until that year.) Also, managers are more likely to primarily manage against outputs rather than outcomes.

The measurement of incremental progress toward a specific outcome goal is sometimes referred to as an intermediate outcome. (Using the example above, a target of collecting 88 percent of taxes owed in 2002 might be characterized as an intermediate outcome.)

Output Measure

GPRA Definition: A tabulation, calculation, or recording of activity or effort that can be expressed in a quantitative or qualitative manner.

Characteristics: The GPRA definition of output measure is very broad, covering all performance measures except input, outcome or impact measures. Thus it covers output, per se, as well as other measures.

- Strictly defined, output is the goods and services produced by a program or organization and provided to the public or to other programs or organizations.

- Other measures include process measures (e.g., paperflow, consultation), attribute measures (e.g., timeliness, accuracy, customer satisfaction), and measures of efficiency or effectiveness.
- Output may be measured either as the total quantity of a good or service produced, or may be limited to those goods or services with certain attributes (e.g., number of timely and accurate benefit payments). Some output measures are developed and used independent of any outcome measure. All outputs can be measured annually or more frequently. The number of output measures will generally exceed the number of outcome measures. In GPRA, both outcome and output measures are set out as performance goals or performance indicators.
- GPRA defines a performance goal as a target level of performance expressed as a tangible, measurable objective, against which actual performance can be compared, including a goal expressed as a quantitative standard, value, or rate. e.g., A goal might be stated as ?Improve maternal and child health on tribal reservations to meet 95 percent of the national standards for healthy mothers and children by 1998". (Note that this goal would rely on performance indicators (see below) to be measured effectively.)
- GPRA defines a performance indicator as a particular value or characteristic used to measure output or outcome. e.g., Indicators for the maternal and child health goal above might include morbidity and mortality rates for this population cohort, median infant birth weights, percentages of tribal children receiving full immunization shot series, frequency of pediatric checkups, etc.
- Performance goals which are self-measuring do not require separate indicators. e.g., A performance goal stating that the FAA would staff 300 airport control towers on a 24 hour basis in FY 1996.

Impact Measure

Definition: These are measures of the direct or indirect effects or consequences resulting from achieving program goals. An example of an impact is the comparison of actual program outcomes with estimates of the outcomes that would have occurred in the absence of the program.

Characteristics: Measuring program impact often is done by comparing program outcomes with estimates of the outcomes that would have occurred in the absence of the program.

- One example of measuring direct impact is to compare the outcome for a randomly assigned group receiving a service with the outcome for a randomly assigned group not receiving the service. If the impacts are central to the purpose of a program, these effects may be stated or included in the outcome measure itself.
- Impacts can be indirect, and some impacts are often factored into cost-benefit analyses. An outcome goal might be to complete construction of a large dam; the impact of the completed dam might be reduced incidence of damaging floods, additional acreage converted to agricultural use, and increased storage of clean water supplies, etc.
- The measurement of impact is generally done through special comparison-type studies, and not simply by using data regularly collected through program information systems.

Input Measure

Definition: Measures of what an agency or manager has available to carry out the program or activity: i.e., achieve an outcome or output. These can include: employees (FTE), funding, equipment or facilities, supplies on hand, goods or services received, work processes or rules. When calculating efficiency, input is defined as the resources used.

Characteristics: Inputs used to produce particular outputs may be identified through cost accounting. In a less detailed correlation, significant input costs can be associated with outputs by charging them to the appropriate program budget account. Often, a physical or human resource base (e.g., land acreage, square footage of owned buildings, number of enrollees) at the start of the measurement period is characterized as an input.

- Changes to the resource base (e.g., purchase of additional land) or actions taken with respect to the resource base (e.g., modernize x square footage, convert y enrollees to a different plan) are classified as outputs or outcomes.

An Example of Outcome, Output, Input, and Impact Measures for a Hypothetical Disease Eradication Program

Outcome: Completely eradicate tropical spastic paraparesis (which is a real disease transmitted by human-to-human contact) by 2005

Output: 1.) Confine incidence in 1996 to only three countries in South America, and no more than 5,000 reported cases. (Some would characterize this step toward eradication as an intermediate outcome.) 2.) Complete vaccination against this retrovirus in 84 percent of the Western hemispheric population by December 1995.

Input: 1.) 17 million doses of vaccine 2.) 150 health professionals 3.) $30 million in FY 1996 appropriations

Impact: Eliminate a disease that affects 1 in every 1,000 people living in infested areas, which is progressively and completing disabling, and with annual treatment costs of $1,600 per case.

An Example of Outcome, Output, Input, and Impact Measures for a Job Training Program

Outcome: 40 percent of welfare recipients receiving job training are employed three months after receiving job training.

Output: Annually provide job training and job search assistance to 1 million welfare recipients within two months of their initial receipt of welfare assistance.

Input: $300 million in appropriations

Impact: Job training increases the employment rate of welfare recipients from 30 percent (the employment level of comparable welfare recipients who did not receive job training) to 40 percent (the employment rate of those welfare recipients who did receive job training).

An Example of Outcome, Output, Input, and Impact Measures for a Technology Program

Outcome: Orbit a manned spacecraft around Mars for 30 days in 2010 and return crew and retrieved Martian surface and subsurface material safely to Earth.

Output: (For FY 2007) Successfully complete a 900 day inhabited flight test of the Mars Mission Module in lunar orbit in the third quarter of CY 2007.

Input: Delivery of 36 EU-funded Mars Surface Sample Return probes from the Max Planck Institute in Germany.

Impact: A comprehensive understanding of the biochemical, physical and geological properties of the Martian surface and subsurface to a 35 meter depth. Detection of any aerobic or anaerobic life forms (including non-carbon based, non-oxygen dependent forms) in the Martian surface crust.

An Example of Outcome, Output, Input, and Impact Measures for an Environmental Resources Program

Outcome: Restore the 653,000 square hectare Kolbyduke Paleoartic Biome Reserve to a pre-Mesolthic state, and preserve it in that state.

Output: (In FY 2002) Eradication on all non-native plants from 51,000 square hectares, for a cumulative eradication of non-native plants from 38 percent of the Reserve.

Input: (In FY 2002) Donation of 22,000 volunteer workhours from four wildlife organizations.

Impact: The protection of this biome as one of three internationally-designated Paleoartic biomes and perpetuating it as a research site for studies of the pre-historic ecological equilibrium.

Complexities of Measurement—Functional Areas

Some types of programs or activities are particularly difficult to measure.

Basic Research

Basic research is difficult to measures because often:

- Likely outcomes are not calculable (can't be quantified) in advance;
- Knowledge gained is not always of immediate value or application
- Results are more serendipitous than predictable;
- There is a high percentage of negative determinations or findings;
- The unknown cannot be measured.
- (Applied research, applied technology, or the ?D" in R&D is more readily measurable because it usually is directed toward a specific goal or end.)

Foreign Affairs

Foreign Affairs is difficult to measure, especially for outcomes, to the extent that:

- The leaders and electorate of other nations properly act in their own national interest, which may differ from those of the United States (e.g., Free Territory of Memel does not agree with US policy goal of reducing US annual trade deficit with Memel to $1 billion);
- US objectives are stated as policy principles, recognizing the impracticality of their universal achievement;
- Goal achievement relies mainly on actions by other countries (e.g., by 1999, Mayaland will reduce the volume of illegal opiates being transhipped through Mayaland to the US by 65 percent from current levels of 1250 metric tons).

Policy Advice

Policy Advice is difficult to measure because often:

- It is difficult to calculate the quality or value of the advice;
- Advice consists of presenting competing views by different parties with different perspectives;
- Policy advice may be at odds with the practicalities of political advice.

Block Grants

Block Grants are difficult to measure to the extent that:

- Funds are not targeted to particular programs or purposes;
- The recipient has great latitude or choice in how the money will be spent;
- There is little reporting on what the funds were used for or what was accomplished.

Complexities of Measurement—By Type of Measure

Some measures are harder to measure than others. Some of the difficulties include:

For Outcome, Output, and Impact Measures

- Direct Federal accountability is lessened because non-Federal parties (other than those under a procurement contract) are responsible for the administration or operation of the program.
- The magnitude and/or intrusiveness of the performance reporting burden.
- The nature and extent of performance validation or verification requires a substantial effort.
- Individual accountability or responsibility is diffuse.

For Outcome Measures

- Timetable or dates for achievement may be sporadic.
- Achievement often lags by several years or more after the funds are spent.
- Results frequently are not immediately evident, and can be determined only through a formal program evaluation.
- Accomplishment is interrupted because of intervening factors, changes in priorities, etc.
- Changing basepoints can impede achievement (e.g., recalculation of eligible beneficiaries).
- Achievement depends on a major change in public behavior.
- The outcome is for a cross-agency program or policy, and assigning relative contributions or responsibilities to individual agencies is a complex undertaking.

For Output Measures

- Equal-appearing outputs are not always equal (e.g., the time and cost of overhauling one type of jet engine can be very different from another type of jet engine).
- It may be difficult to weight outputs to allow different (but similar appearing) outputs to be combined in a larger aggregate.
- Many efficiency and effectiveness measures depend on agencies having cost accounting systems and the capability to allocate and cumulate costs on a unit basis.

For Impact Measures

- Impacts are often difficult to measure.
- A large number of other variables or factors contribute to or affect the impact, and which can be difficult to separate out when determining causality.

- Federal funding or Federal program efforts are of secondary or even more marginal significance to the achieved outcome.
- Determining the impact can be very expensive, and not commensurate with the value received from a policy or political standpoint.
- Holding a manager accountable for impacts can be a formidable challenge.

For Input Measures

- The measurement itself should not be complicated, but the alignment of inputs with outputs can be difficult.

Emphasized Measures in GPRA

GPRA emphasizes the use and reporting of performance measures that managers use to manage. There are several reasons for this emphasis:

- GPRA increases the accountability of managers for producing results. This underscores that these measures are central to an agency's capacity and approach for administering programs and conducting operations.
- Because of this, the amount of additional resources to develop and improve performance measurement and reporting systems should be rather limited.
- The conundrum is that agencies requesting large amounts of additional resources would be conceding either that their programs were not being managed, or were being managed using an inappropriate or poor set of performance measures.

As output measures are more readily and easily developed than outcome measures, more of these are expected initially in the GPRA-required performance plans, but agencies should move toward increasing the number and quality of outcome measures.

Selected Examples of Various Types of Performance Measures

Please Note: For the purpose of these examples: Some of the outcome measures are much more narrowly defined than would otherwise be appropriate or expected. Some of the outcome measures are not inherently measurable, and would require use of supplementary performance indicators to set specific performance targets and determine whether these were achieved. Some measures include several aspects of performance. Italics are used to feature the particular characteristic of that example. Many of the examples of output measures are process or attribute measures.

?**Traditional" Production or Delivery Type Measures**

Production Output: Manufacture and deliver 35,000 rounds of armor-piercing 120mm projectiles shells in FY 1997.

Outcome: Produce sufficient 120 mm armor-piercing projectiles to achieve a 60 day combat use supply level by 1999 for all Army and Marine Corps tank battalions.

‘ **Transaction Processing**

- Output: Process 3.75 million payment vouchers in FY 1995.
- Outcome: Ensure that 99.5 percent of payment vouchers are paid within 30 days of receipt.

- **Records**
  - Output: Update earnings records for 45 million employee contributors to Social Security Trust Fund.
  - Outcome: Ensure that all earnings records are posted and current within 60 days of the end of the previous quarter.
- **Service Volume**
  - Output: Provide meals and temporary shelter for up to 18 months for 35,000 homeless individuals for up to 18 months following the Short Beach tsunami disaster.
  - Outcome: Maintain a capacity to provide, nationally, meals and temporary shelter for an indefinite period for up to 100,000 individuals who are homeless as a result of major disasters.
- **Workload (Not Otherwise Categorized)**
  - Output: Annually inspect 3200 grain elevators.
  - Outcome: Through periodic grain elevator inspection, reduce the incidence of grain dust explosions resulting in catastrophic loss or fatalities to zero.
- **Frequency Rates**
  - Output: Issue 90 day national temperature and precipitation forecasts every six weeks.
  - Outcome: Provide users of meteorological forecasts with advance information sufficiently updated to be useful for agricultural, utility, and transportation planning.
- **Inventory Fill**
  - Output: Store a minimum of 3.5 million barrels of petroleum stock.
  - Outcome: Petroleum stocks shall be maintained at a level sufficient to provide a 60 day supply at normal daily drawdown.

Operating-Type Measures

- **Utilization Rates**
  - Output: Operate all tactical fighter aircraft simulator training facilities at not less than 85 percent of rated capacity.
  - Outcome: Ensure optimized operation of all simulator facilities to provide all active duty tactical fighter aircraft pilots with a minimum of 80 hours of simulator training every 12 months.
- **Out-of-Service Conditions**
  - Output: All Corps of Engineer locks on the Showme River basin shall be operational during at least 22 of every consecutive 24 hours.

- Outcome: Ensure no significant delays in commercial traffic transiting through the Showme River basin system.

‘ **Maintenance and Repair Intervals**

- Output: All out-of-service aircraft requiring unscheduled repairs shall be repaired within 72 hours.
- Outcome: The Forest Service will maintain 90 percent of its 135 firefighting aircraft in an immediately deployable status during forest fire season.

Quality-Type Measures

‘ **Defect Rates**

- Output: Not more than 1.25 percent of 120 mm armorpiercing projectiles shall be rejected as defective.
- Outcome: No armor-piercing ammunition projectiles fired in combat shall fail to explode on impact.

‘ **Mean Failure Rates**

- Output: Premature space Shuttle main engine shutdown shall not occur more than once in every 200 flight cycles.
- Outcome: Space Shuttle shall be maintained and operated so that 99.95 percent of all flights safely reach orbit.

‘ **Accuracy**

- Output: The initial monthly estimate of the previous month’s value of exports shall be within one percent of the revised final value.
- Outcome: All preliminary, periodic estimates of economic activity shall be within three percent of the final value.

‘ **Error Rates**

- Output: Not more than four percent of initial determinations of the monthly entitled benefit amount shall be incorrectly calculated.
- Outcome: (Not commonly measured as an outcome.)

Customer-Related Measures

‘ **Complaints**

- Output: Not more than 2.5 percent of individuals seeking information will subsequently re-request the same information because the initial response was incomplete.
- Outcome: (Not commonly measured as an outcome.)

- **Customer Satisfaction Levels** (Output and outcome measures may often be indistinguishable.)
  - Output: In 1998, at least 75 percent of individuals receiving a service will rate the service delivery as good to excellent.
  - Outcome: At least 90 percent of recipients will rate the service delivery as good to excellent.
- **Timeliness/Response times**
  - Output: Adjudicative decision on all claim disallowances will be made within 120 days of appeal hearings.
  - Outcome: Provide every claimant with timely dispositive determination on claims filed.
- **Adherence to Schedule**
  - Output: Operate 95 percent of all passenger trains within 10 minutes of scheduled arrival times.
  - Outcome: Provide rail passengers with reliable and predictable train service.
- **Responsiveness**
  - Output: 98 percent of notices to the Department of Transportation of navigational hazards will result both in an on-site inspection of the hazard and Notice to Mariners within 48 hours of receipt of the notice.
  - Outcome: Ensure prompt response to potential public safety concerns in the navigation of coastal and off-shore waters.

Efficiency and Effectiveness Measures

- **Efficiency**
  - Output: Annual transaction costs/production costs/delivery of service costs projected on a per unit basis. Produce 35,000 rounds of armor-piercing ammunition at a cost of $17.75 per round.
  - Outcome: (Not commonly measured as an outcome.)
- **Effectiveness**
  - Output: IN FY 1999, not more than 7,000 in-patients in military hospitals will be readmitted, post discharge, for further treatment of the same diagnosed illness at the time of initial admission.
  - Outcome: Annually, initial treatment will be therapeutically successful for 85 percent of all hospital admissions.

Other Types of Measures

Milestone and Activity Schedules

- Output: Complete 85 percent of required flight-worthiness testing for Z-2000 bomber by July 30, 1999.
- Outcome: The Z-2000 bomber will be flight-certified and operational by December 1, 2000.

Design Specifications

- Output: Imaging cameras on Generation X observational satellite will have resolution of 0.1 arc second.
- Outcome: Generation X observational satellite will successfully map 100 percent terrain of six Jovian moons to a resolution of 100 meters.

Status of Conditions

- Output: In 1995, repair and maintain 1,400 pavement miles of Federally-owned highways to a rating of ?good".
- Outcome: By 2000, 35 percent of all Federally-owned highway pavement miles shall be rated as being in good condition.

Percentage Coverage

- Output: Provide doses of vaccine to 27,000 pre-school children living on tribal reservations.
- Outcome: 100 percent of children living on tribal reservations will be fully immunized before beginning school.

Appendix F: Example POCMs from the UC Approach

Basics of the Development Process

Under the University of California (UC) approach, the development process for performance objectives and measures really begins when a group is assembled made up of people who do the work to be measured or are very familiar with it. It is useful to have major customers involved who are also subject matter experts so that customer needs and requirements can be included. These people together identify the critical work processes involved in their work and the desired outcomes. It is critical that such outcomes are consistent with and supportive of the missions of the organization. Management involvement is usually required to ensure that these missions are clearly understood by the work groups.

The actual construction of the performance objectives and measures requires careful attention to logical, clear definition of what is to be measured and how it will be scored. The best measures also include assumptions, definitions as needed, and specific gradients that define levels of success.

What's Wrong With This Picture?

Here are some examples of Performance Objectives and Measures. See if you can identify what is wrong with them and what works.

Example #1

Performance Objective: Leadership - XYZ will be recognized by the Government, Users, and XYZ staff as the National Laboratory with the highest quality leaders and the most effective and efficient management.

Performance Measure: Maintain/improve the diversity profile of the Laboratory - Increase the representation of under-represented minorities and females employed in two identified groups (Engineers and Professionals). Increase representation of females and minorities by the percentage from the table provided by achieving or exceeding the rate into each of the EEO categories identified. A percentage of the availability for each of the groups determines the performance level.

Analysis: A major flaw in this pair is the lack of clarity as to how the measure supports the objective. In what ways is the organization assuming that maintaining or improving diversity will lead to recognition for having the highest quality leaders? This is not to say that diversity is not a valid and important goal, but it is not well connected in this example to the objective.

This example has some definite pluses. Note the specific groups to be measured have been identified and that there are numeric goals provided. (The table in the actual example connected the percentage ranges with performance level scores and this is another plus). This measure may be flawed however, by having selected job groups for which there are not likely to be vacancies and by setting targets that are unrealistic and by failing to allow credit for good faith efforts such as participation in minority and women's job fairs, specialized advertising and recruitment. This is reminiscent of the test that is well known in performance-based management circles—the SMART test. This acronym suggests that good measures should be **S**pecific (clear and focused to avoid misinterpretation), **M**easurable (related to numbers, if reasonable), **A**ttainable (achievable under the conditions expected), **R**ealistic (fitting into the organization's constraints), and **T**imely (so that they can influence current management actions).

In this example, there are problems with the **?**S" and possibly the **?**A".

Example #2

Performance Objective: Utilities/Energy Conservation - The Laboratory will maintain a reliable utility system and conserve energy.

Performance Measure: Utility Service - Total number of customer hours of utility service less the number of customer hours of unplanned outages/total customer hours.

Assumptions: Unplanned outages that are caused by occurrences outside the boundary of the Laboratory utility system may be excluded. Utilities measured, with assigned weights will be made a matter of record on the first day of the fiscal year. Definition of **?**customer hours" will be defined separately for each utility measured. A 12-month running average will be reported.

Gradient: Unsatisfactory = < 99.823% Marginal = 99.823% Good = 99.883% Excellent = 99.941% Outstanding = 99.971%

Analysis: This pair is an excellent example of well conceived and well written performance objectives and measures. The desired outcome stated in the objective connects clearly to what is measured in the measure. The methodology for measurement is clearly stated as are a number of assumptions that together reduce the possibility for surprises at rating time. The scoring gradient is clear and straightforward. One might question, however, why the particular gradient values were chosen. Are these industry standards or were they obtained by benchmarking with similar organizations. Targets that are based on such external standards are usually desirable where such standards exist and are reasonably applicable to the organization in question.

Example #3

Performance Objective: Ensure the safety and health of the X Department work force and members of the public, and the protection of the environment in all Departmental activities.

Performance Measure: Implement Integrated Safety Management Systems in all major management and operations contracts.

Analysis: This example requires some explanation. Different performance measurement systems organize their objectives and measures in different ways and often use different terminology. One organization's performance objective may be another's' critical outcome, and one organizations' performance measure can be another's performance indicator or strategy. Different systems may also insert various layers of measurement between the objective and the actual measure. In this example, the actual structure includes the objective stated, but inserts a **?**performance goal" between the objective and the measure (which, in the actual case is called a **?**strategy.") The performance goal here says, **?**Reduce the Recordable Case Rate which measures work-related death, injury or illness, which result in loss of consciousness, restriction of work or motion, transfer to another job, or required medical treatment beyond first aid." We are expected to see a **?**line of sight" between the objective, this performance goal, and the performance measure (strategy).

The objective itself seems to be clear. Next, the performance goal (which is just one of several) seems to support the objective, and one could logically expect that the measure supports the goal. However, there is a lack of any assumptions, definitions, or gradients that delineate levels of performance. These are major flaws in this example and they are surprisingly common in many performance measurement systems.

Appendix G: Development Tools for the AGC Approach

The tables presented below were developed by the Auditor General of Canada and described in their document, *Developing Performance Measures for Sustainable Development Strategies*. This approach is presented in detail in Section V of this PBM SIG volume.

Step 1: Confirm Program Role ***WHY Is Your Program Relevant to the Strategic Objective?***		
Main Activities or Outputs of Program	**Contributes To/Detracts From a Strategic Objective(s)**	**Specify the Strategic Objectives or Outcomes to Which the Program Activity or Output Contributes**
Activity 1:		
Activity 2:		
Activity *X*:		

Table 1

Linking Program Activities and Outputs to Strategic Objectives

Step 2: Identify the Key Program Activities and Outputs			
Program Activities and Outputs	**Strategic Objective from Table 1**	**Strategic Objective from Table 1**	**Strategic Objective from Table 1**
Activity 1:	H	H	L
Output 1:	L	H	L
Activity *X*:			
Output *X*:			
Rank according to significance: H = High, M = Medium, and L = Low			

Table 2

Identifying the Key Program Activities and Outputs

Step 3: Identify Program Stakeholders and Issues *WHO Do You Want to Reach?*				
Main Program Activities and Outputs in Order of Significance (High, Medium)	**Key Issues**		**Stakeholder Groups (Affected Parties)**	
	Desired Program Effects	**Undesired Program Effects**	**Positively Affected**	**Negatively Affected**
Activity 1:				
Output 2:				
Activity *X*:				
Output *X*:				

Table 3

Identifying Key Issues and Affected Stakeholder Groups

Step 4: Identify What the Program Aims to Accomplish *WHAT Results Do You Expect to Achieve?*		
Main Program Activities and Outputs in Order of Significance (High, Medium)	**Desired Results (Objectives)**	
	Long-Term Strategic	**Near-Term Intermediate**
Activity 1:		
Output 2:		
Activity *X*:		
Output *X*:		

Table 4

Defining Results

Step 5: Identify Responses and Performance Requirements *HOW Are You Going to Achieve Your Objectives?*		
Objective(s) (from Table 4)	**New or Modified Activities, Outputs or Other Program Response(s) Necessary to Achieve the Objective(s) (from Table 4)**	**Performance Requirements Relative to each Activity, Output or Other Response Necessary to Achieve the Desired Results (Targets)**

Table 5

Performance Requirements Relative to Responses and Results

Step 6: Identify Potential Performance Measures			
Objective(s) (from Table 4)	**Activities, Outputs or Other Program Responses (from Table 5)**	**Performance Requirements (Targets from Table 5)**	**Potential Performance Measure(s)**

Table 6

Establishing Potential Performance Measures

Step 7: Establish Information Capabilities and a Baseline for Each Measure		
Potential Performance Measure(s) (from Table 6)	**Units**	**Initial or Baseline Value**
Measure 1:		
Measure *X*:		

Table 7

Establishing Baselines for Measures

Step 8: Assess the Adequacy of Performance Measures *Quality Considerations*						
Performance Measures	**Meaningful (Y/N)**			**Reliable (Y/N)**	**Practical (Y/N)**	**Measure Satisfies Quality Criteria (Y/N)**
	Understandable	***Relevant***	***Comparable***			
Measure 1	Y	N	Y	Y	Y	N
Measure *X*	Y	Y	Y	Y	Y	Y

Table 8

Screening Tool for Quality Considerations

Step 9A: Establish Accountability for Implementation					
Program Objectives (Step 4)	**Responsible Party(s) for Achieving Objective**	**Activities, Outputs or Other Responses Necessary to Meet Objectives (Step 5)**	**Responsible Party(s) for Managing Activities or Outputs and Meeting the Requirements**	**Performance Measure(s) (Step 8)**	**Responsible Party(s) for Evaluating Measures**
Objective 1		Response 1		Measure 1	
Objective 2		Response 2		Measure 2	

Table 9A

Establishing Accountability for Implementation

Step 9B: Establish Resources for Implementation				
Program Objectives	Activities, Outputs or Other Responses Necessary to Meet Objectives	Resource Requirements		
		Human	Financial	Other

Table 9B

Identifying Resource Requirements for Implementation

Appendix H: Contributors to Volume 2

The following people provided input to the ?original edition" of Volume 2 which was posted on the PBM SIG Web site in mid-1999. At the time, the volume was entitled *Establishing Performance Objectives And Measures*. Some of the material from that original volume was included in this volume, and the PBM SIG would like to recognize those people for their contributions.

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