



## **Indian Health Service**

The Federal Health Program for American Indians and Alaska Natives

# **MANAGING CAPITAL INVESTMENTS AT THE INDIAN HEALTH SERVICE**

A "HOW-TO" GUIDE TO PERFORMANCE MANAGEMENT

JULY 2007



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# A “How-To” Guide to Performance Measurement

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## PURPOSE

This performance measurement guide is intended to be used by project managers and project team members to provide a basic framework for measuring the success of any Indian Health Service (IHS) initiative in meeting the needs of users and stakeholders. It is not intended to be a comprehensive reference guide. This guide provides an approach for developing objectives, measuring progress, and reporting performance results of an initiative. Specifically, this guide provides procedures that:

- serve as a basis for identifying, documenting, analyzing, and establishing performance standards and metrics that support the missions of IHS and the Department of Health and Human Services (HHS) and
- enable IHS executives and investment managers (IMs) to monitor and report the performance progress of an initiative throughout its life cycle.

The guide begins with an overview of the basics of performance measurement. It then describes the performance measurement process and provides specific examples of applying the process. Next, the guide describes roles and responsibilities and a performance measurement worksheet that should be maintained for each performance measure. The last section discusses how that process aligns with the phases of the capital planning and investment control (CPIC) process.

## THE BASICS

### What Is Performance?

Performance is the way in which a program or project contributes to meeting organizational goals and objectives and, thus, the way it supports the organization’s mission.

### What Are Performance Measures?

Performance measures are quantitative tools to determine whether the organization meets or moves toward intended outcomes. Selecting the right measures and establishing appropriate targets can communicate expected levels of performance to customers and stakeholders. These measures then drive processes or actions needed to achieve the organization’s overall goals.

Organizations manage performance using two types of measures:

- Effectiveness measures—provide information to indicate whether the organization achieves intended desired outcomes. Effectiveness measures ensure that resources (FTE, budget, etc.) are applied to those activities that will contribute to achieving the organization’s mission.
- Efficiency measures—provide information (for example, cycle time and cost per unit) to indicate whether the organization carries out its activities in the most efficient manner. Efficiency measures typically are based on industry standards or benchmarks.

Good performance measures reflect best-practice assessment criteria known as “SMART,” ensuring that each measure is specific, measurable, actionable, repeatable, relevant, and time-bound.<sup>1</sup> These criteria are defined in Table 1.

*Table 1. Definitions of Best-Practice Assessment Criteria*

Criterion	Definition
Specific	Addresses what the measure indicates and how it is derived
Measurable (quantifiable)	Indicates whether objective, analytical, or numerical data—including quantifiable subjective data such as survey data—supporting the metric are (or will become) accessible so that levels of performance (targets) can be established
Actionable	Indicates whether the measure provides information that supports action (for example, changes in behavior) that will transform the organization
Repeatable	Addresses whether the measure can be calculated consistently over multiple collection intervals
Relevant	Indicates whether performance measures are useful to the project manager; indicates whether strategic objectives are being met; provides the best information on changes in performance
Time-bound	Identifies a specific time frame for achieving targets and realizing goals

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<sup>1</sup> The acronym “SMART” is commonly used in many best practices documents. Various organizations have attributed the acronym to have different meanings. The original author is unknown.

## Why Is Measuring Performance Important?

Measuring performance is crucial to effective system and capital asset management. As stated by the Office of Management and Budget (OMB),

performance measurement indicates what a program is accomplishing and whether results are being achieved. It helps managers by providing them information on how resources and efforts should be allocated to ensure effectiveness. It keeps program partners focused on the key goals of a program. And it supports development and justification of budget proposals by indicating how taxpayers and others benefit.<sup>2</sup>

As the responsibility to become more results-oriented and accountable increases, government agencies undertake initiatives and identify tools to help them assess their performance against strategic goals and objectives. These initiatives and tools consider performance from a variety of perspectives—referred to as a balanced scorecard. Section 300 of OMB Circular A-11 identifies four high-level measurement categories—mission and business results, customer results, processes and activities, and technology—that must be reported annually for major information technology (IT) capital assets as part of a program’s funding request.<sup>3</sup> These measurement categories are described in greater detail in the Federal Enterprise Architecture (FEA) Performance Reference Model (PRM).<sup>4</sup>

Appendix A is a bibliography of documents related to performance measurement. To ensure that performance measures are framed in accordance with federal guidance, HHS and IHS policy and procedures, and industry best practices, this guide provides a framework that considers performance measurement from the perspectives of the PRM. Appendix B provides a brief description of the PRM. Appendix C provides a checklist for the presentation of performance measures in the OMB Circular No. A-11 Exhibit 300, but can be used as a generic checklist, also.

## Why Is Reporting Performance Important?

Performance goals and measures are important for demonstrating an investment’s contribution to satisfying mission requirements. They are used for justifying the investment to decision makers, to IHS CPIC reviewers, to HHS reviewers, and to OMB.

For major investments in an agency such as HHS, OMB requires the investment manager to complete a table describing performance goals and measures. These performance goals need to map to the gap in the agency’s strategic goals and objectives

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<sup>2</sup> Office of Management and Budget, *Performance Measurement Challenges and Strategies*, June 18, 2003.

<sup>3</sup> Office of Management and Budget, Circular A-11, *Preparation, Submission and Execution of the Budget*, June 2006.

<sup>4</sup> Federal Enterprise Architecture Program Management Office, *How to Use the Performance Reference Model*, Version 1, June 2005 ([www.egov.gov](http://www.egov.gov)).

that the investment is designed to fill. They are the internal and external performance benefits this investment is expected to deliver to the agency (e.g., improve efficiency by 60 percent, increase citizen participation by 300 percent a year to achieve an overall citizen participation rate of 75 percent by FY 2xxx, etc.). The goals must be **clearly measurable** investment outcomes. They do not include the completion date of the module, milestones, or investment, or general goals, such as “significant,” “better,” or “improved” that do not have a quantitative measure.<sup>5</sup>

The OMB format provides a good format for reporting the performance of an investment regardless of the OMB requirement and is the recommended format for reporting performance in this guide.

Table 2 lists the column heads and describes the content to be included in OMB’s Performance Information Table. OMB reporting allows for a comparison across systems and different systems across different agencies. This is done by using the standardized framework of the FEA PRM.

*Table 2. Performance Information Table*

Table column heads	Description
Fiscal Year	The fiscal year to which the metric goals and results apply. The first year shown should provide, if possible, historical data. Measurement should continue for several years, at a minimum, for the year following submission.
Strategic Goal(s) Supported	The specific HHS goal or Secretary’s priority that the measure supports.
Measurement Area	The high-level output-oriented framework for capturing performance. The PRM has four measurement areas: Mission and Business Results, Customer Results, Processes and Activities, and Technology Measurement. At least one measurement indicator must be developed for each measurement area.
Measurement Grouping	A further refinement of the categories to which the metric applies within a measurement category. The grouping should be selected from the associated measurement areas in accordance with the PRM. For example, Health Care Delivery Services is a measurement grouping under the Health measurement category.
Measurement Indicator	The name of the tailored measure for monitoring system performance. There must be at least one measurement indicator for each measurement area. The concept is to provide additional detail that translates overall strategic measures into a set of real-world operational measures that can be tailored to relate specifically to the objective. For example, the Health Care Delivery Services measurement grouping could have “percentage of elderly population receiving flu shots” as its measurement indicator.
Baseline	Baseline data, which are basic and gathered before a program or system is initiated: <ul style="list-style-type: none"> <li>• For an investment to upgrade or replace a legacy system, state the level that the legacy system obtained against the chosen measurement indicator.</li> <li>• For a totally new system where the baseline is not known, insert “TBD.”</li> </ul>

<sup>5</sup> OMB Circular A-11, Section 300, Part I, Section D of the Exhibit 300, June 2007.

Table 2. Performance Information Table

Table column heads	Description
Target	The target for improved performance. If system development is to upgrade or replace a legacy system, then state the quantitative value for improvement from the legacy system baseline. If this system is totally new, insert "TBD."
Actual Results	The performance result actually obtained by the investment for a completed year, presented in terms of the measurement indicator.

Though the elements listed in Table 2 follow the same order as in the OMB Exhibit 300 guidance, it may be easier to complete the table in the following sequence:

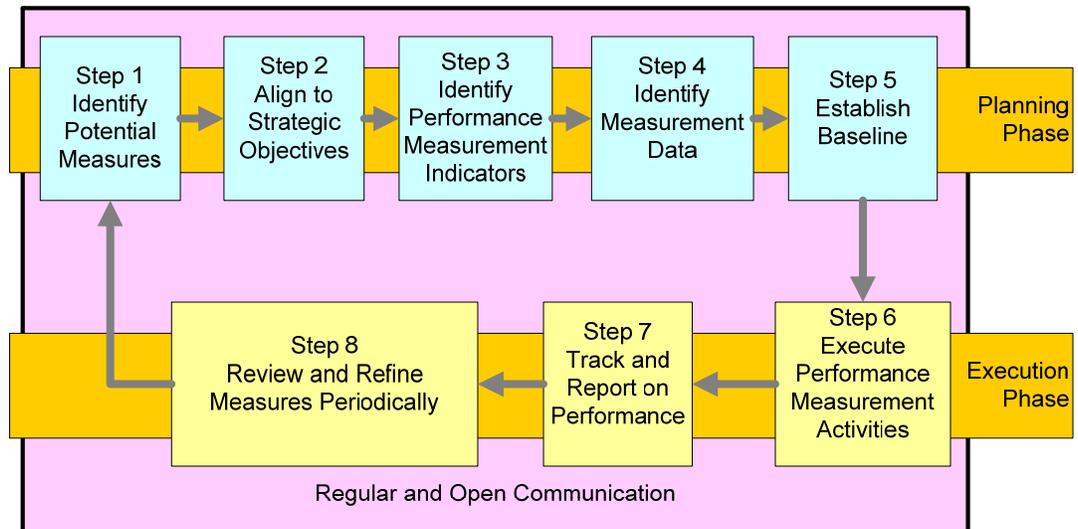
1. *Measurement Indicator.* Determine what to measure.
2. *Strategic Goal(s) Supported.* Determine which HHS goal the measure supports. If it doesn't support a goal, reevaluate if a more informative measure exists. The current HHS strategic goals or Secretary's priorities can be found on the HHS website, at [www.hhs.gov](http://www.hhs.gov).
3. *Measurement Area/Measurement Grouping.* Determine which measurement area and measurement grouping in the FEA PRM that best fits the measurement indicator. The measurement area/measurement grouping information can be found at the PRM web site, at <http://www.whitehouse.gov/omb/egov/a-2-prm.html>.
4. *Baseline.* Document the baseline (or current, if no baseline) level of performance. The baseline is the existing level of performance.
5. *Planned Improvements to the Baseline.* Set targets for improved performance.
6. *Actual Results.* Report actual performance levels as data become available.

An entry should be provided for each performance measurement indicator for each year. For reporting to OMB in the Exhibit 300, there should be performance measurement indicators for each year of funding in the Exhibit 300 summary of spending table.

# THE PERFORMANCE MEASUREMENT PROCESS

Figure 1 depicts the eight steps of the process used to monitor performance. As the figure shows, the process has two phases: a planning phase and an execution phase. All performance measurement activities are conducted in an overall atmosphere of regular and open communication within the program team and among stakeholders and users.

Figure 1. Performance Measurement Process



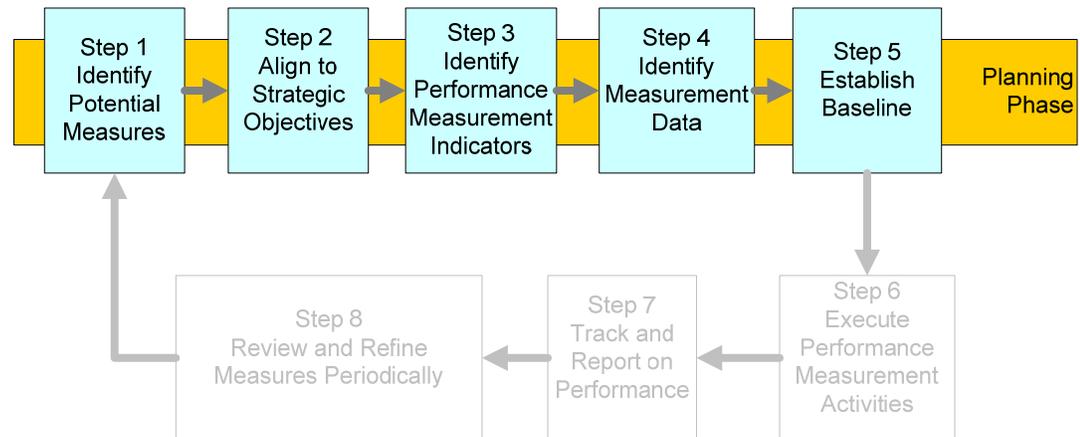
## Planning Phase

The planning phase of the performance measurement process has five steps:

- Identify potential measures
- Align to strategic objectives
- Identify performance measurement indicators
- Identify measurement data
- Establish baseline and targets.

Figure 2 highlights the five steps in the planning phase.

Figure 2. Performance Measurement Process—Planning Phase



## STEP 1—IDENTIFY POTENTIAL MEASURES

Performance measures are meaningless unless they are linked to a purpose or reason for improvement. To develop meaningful measures, the IM should examine stated objectives and benefits of the initiative. To identify potential performance measures, the IM should ask three questions for each objective and benefit:

- What is to be accomplished?
- How can it be accomplished?
- Is it consistent with the agency enterprise architecture?

A long list of potential performance measures could result from this step. However, best practice indicates that an organization should use only a few measures that link strategic direction to performance results.

Developing performance measures is an iterative process throughout the program life cycle. New measures may be suggested by users, or existing measures may be found to provide no additional value. The IM should review performance measures at least annually to determine if they need to be adjusted. The IHS Enterprise Architect may be evaluating them more frequently.

## STEP 2—ALIGN TO STRATEGIC OBJECTIVES

The performance measurement life cycle begins with strategic planning. The highest level of strategic goals to support is at the national level, based upon the strategic initiatives of the President and e-government. The Federal Enterprise Architecture includes the PRM, discussed in Appendix B, which establishes areas of measurement for performance. Next, the IM should consider alignment with the HHS strategic plan as the basis for any performance measures. Then the HHS IT strategic plan defines objectives and strategies for achieving the HHS mission

through IT investments. At the agency level, IHS establishes goals that align with the HHS mission and are presented in the IHS Strategic Plan. The IHS Information Systems Advisory Commission (ISAC) establishes information system priorities. The IM must use performance measures that provide visibility for senior executives into how the program supports HHS and IHS objectives. Although technology measures (such as quality, efficiency, standardization, accuracy, and availability) are relatively easy to attribute to performance, the IM must also identify how the program contributes to business processes, customer results, and the HHS mission.

As mentioned earlier, OMB Exhibit 300 guidance mandates that performance be considered from a variety of perspectives—referred to as a balanced scorecard—including financial management, customer service, business process efficiency, and responsiveness of the agency to changing requirements and demands. These measurement areas are defined in the PRM.

During the planning process, the IM should align potential performance measures to HHS and IHS strategic direction and refine them to include balanced scorecard perspectives. This will result in a mapping of performance measures to HHS and IHS missions and goals. This mapping is needed to provide visibility for senior executives into how the program contributes to missions and goals, as well as to help justify the continued investment of resources.

OMB Circular A-11, Section 300, identifies four high-level measurement categories that must be reported annually as part of a program’s funding request: mission and business results, customer results, processes and activities, and technology.<sup>6</sup>

### STEP 3—IDENTIFY PERFORMANCE MEASUREMENT INDICATORS

In this step, the IM should develop indicators that measure performance. A performance measurement indicator is a quantitative dimension or scale to measure results against a strategic objective or a program outcome. For example, when measuring customer service, the IM would determine if customer satisfaction, customer complaints, or customer impact is the best indicator for the measure. This is often the most difficult step in the planning process, but it should result in a refined list of the appropriate set or “vital few” measures. That number should be no more than 15 total indicators, and fewer than that would be better.<sup>7</sup>

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<sup>6</sup> Federal Enterprise Architecture Program Management Office, *How to Use the Performance Reference Model*, Version 1, June 2005.

<sup>7</sup> Nicholas Mathys and Kenneth Thompson, *Using the Balanced Scorecard: Lessons Learned from the U.S. Postal Service and the Defense Finance and Accounting Service*, (IBM Center for The Business of Government, Fall 2006).

The Performance Reference Model provides the following guidance for selecting performance measurement indicators:

- *Informative.* Would the indicator help articulate success for the initiative and the programs it supports? Would the indicator demonstrate progress toward achieving goals, closing performance gaps, and achieving critical results?
- *Feasible.* What data are currently collected and available? Would the burden or cost of collecting new data for the indicator be reasonable considering how informative it would be for managers and decision makers?
- *Manageable.* Is the entire list of indicators pared down to the vital few measures that can help drive improvement and characterize success?
- *Complete.* Does the entire list of indicators collectively provide an accurate and broad enough “snapshot” of performance? Could the list be further cascaded or supplemented with additional indicators to provide relevant information to the public, decision makers, and managers? Does the list track progress toward addressing key performance gaps or constraints?

OMB’s Program Assessment Rating Tool guidance states that performance measures should reflect both outcomes and outputs.<sup>8</sup> The IM will need to determine how the measurement indicator will be calculated. Using the customer service example, if the IM determines that customer satisfaction will be the indicator, he or she then would need to identify what the target satisfaction rate should be and how necessary data would be collected to calculate the satisfaction rate.

There is often a desire to put in a milestone as a performance measure, such as number of sites implemented. OMB specifically states that performance indicators do not include the completion date of the module, milestones, or investment, or general goals, such as, significant, better, improved that do not have a quantitative measure.<sup>9</sup>

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<sup>8</sup> Outcomes describe the intended result or consequence that will occur from carrying out a program or activity. Outcomes are of direct importance to beneficiaries and the public generally. It is sometimes not possible to measure outcomes annually.

Outputs are the goods and services produced by a program or organization and provided to the public or others. They include a description of the characteristics and attributes (e.g., timeliness) established as standards. Outputs can include process measures (e.g., paper flow, adjudication), attribute measures (e.g., timeliness, accuracy, customer satisfaction), and measures of efficiency. They may be measured as the total quantity of a good or service produced or may be limited to those goods or services having certain attributes (e.g., number of timely and accurate benefit payments). Typically, outputs are measured at least annually.

Performance measures should distinguish between outcomes and outputs, but there should be a logical connection between them, with outputs supporting outcomes. Inputs are resources, often measured in dollars, used to produce outputs and outcomes. Performance measures may include consideration of inputs, particularly in the context of cost efficiency or unit costs.

<sup>9</sup> OMB Circular A-11, Section 300, Part I, Section D of the Exhibit 300, June 2007.

## STEP 4—IDENTIFY MEASUREMENT DATA

After performance measurement indicators are identified, the IM needs to identify methods and techniques for data collection, analysis that will be used, and frequency of collection. In addition, the IM should identify the source or system of record in which required data are housed.

In this step, the IM should assess the availability of data sources and the feasibility of collection methods in order to identify potential problems. The initial focus of the team is to use existing data collection methods to minimize the burden and cost of collecting performance data. If a survey is to be used as the data collection method for customer satisfaction, the IM must first design a questionnaire to capture the necessary information.

After the IM identifies data sources and collection methods, he or she must determine the frequency of data collection. The team needs to ask the following questions:

- When will the data first be available?
- When will the data actually be collected?
- How often must data be collected thereafter?
- Who is responsible for collecting the data?

Because outputs are short-term, logical consequences of activities, information gathered on the achievement of outputs can provide the team with ongoing, useful information for managing and continuously improving performance. Best practice warns that surveying customers too frequently provides minimal results. Outcomes that are more medium-term logical consequences of a combination of outputs manifest themselves only after a combination of outputs has been achieved.

## STEP 5—ESTABLISH BASELINE AND TARGETS

After identifying the needed data and the data collection method for the selected performance measures, the IM will need to establish a baseline for each. A baseline is a quantifiable point at which an effort began, and from which change can be measured and documented.<sup>10</sup>

The IM should establish the baseline by assessing current performance against the chosen indicators, benchmarking current performance with similar organizations, or using a target measure as the baseline. When establishing the baseline, the team might recognize that collecting the data for an indicator is too burdensome and costly; therefore, it will need to reassess the usefulness of that particular measure.

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<sup>10</sup> National Academy of Public Administration, *Information Management Performance Measures: Developing Performance Measures and Management Controls for Migration Systems Data Standards and Process Improvement*, 1996.

For customer satisfaction, the IM may have to capture information on a targeted stakeholder group initially to establish the baseline level against which to measure the achievement of outputs or outcomes.

In some cases, the baseline information may not exist or may be too costly to determine. In those cases, the initial performance of the system will have to be the baseline from which future performance is measured.

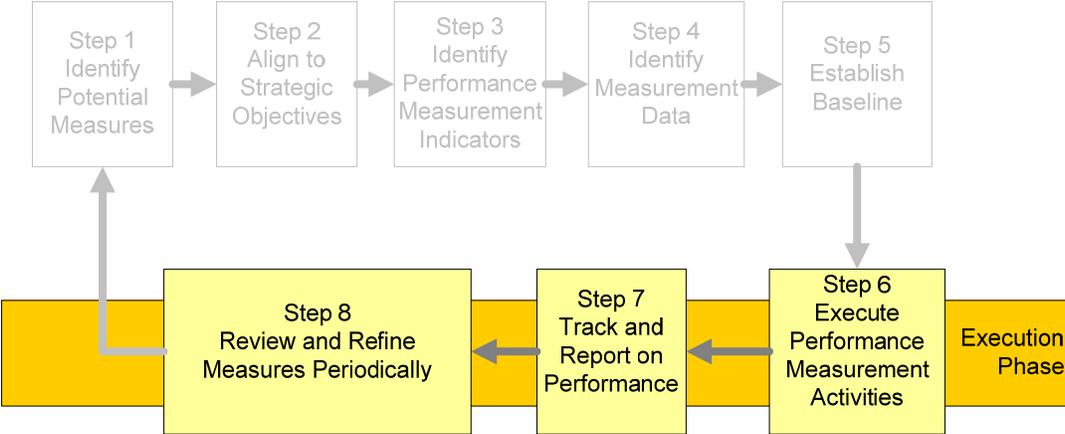
Whether there is a baseline or not, the investment sponsor and the investment manager should set a target for the performance of the system in each fiscal year. The performance target is defined based on the performance measurement indicator and the expected mission and functional requirements. The performance target, also called the planned improvement to the baseline, will provide a “stake in the ground” to determine if the investment is meeting its mission and functional requirements.

### Execution Phase

Figure 3 highlights the execution phase of the performance measurement process. This phase has three steps:

- Execute performance measurement activities
- Track and report on performance
- Review and refine performance measures periodically.

Figure 3. Performance Measurement Process—Execution Phase



#### STEP 6—EXECUTE PERFORMANCE MEASUREMENT ACTIVITIES

The staff responsible for executing performance measurement activities should do so in accordance with the method and frequency identified and documented during the planning phase and in accordance with the plans managed by individual investment managers.

## STEP 7—TRACK AND REPORT ON PERFORMANCE

Actual performance and progress on measures are tracked with the method and frequency (monthly, quarterly, annually) identified and documented during the planning phase. The program team and IM will review progress monthly and should take appropriate actions, as required.

Progress toward target measures should be reported annually to senior IHS management and, as required, to OMB through the CPIC process and the Exhibit 300.

## STEP 8—REVIEW AND REFINE PERFORMANCE MEASURES PERIODICALLY

The program team, led by the IM, will review actual performance at least annually to determine if existing measures provide value and continue to align with strategic objectives. This review should take place in time to prepare for submission of the OMB Exhibit 300, if one is required. As a result of this review, the team may need to identify new performance measures.

# APPLYING THE PERFORMANCE MEASUREMENT PROCESS

This section illustrates the development and application of performance measurements through a fictional example. In the example, the eight steps of the performance measurement process are applied to the four measurement areas of the PRM:

- Processes and activities
- Customer results
- Mission and business results
- Technology.

In the process of working through the example, performance measures will be identified and a performance report will be completed. Table 3 is a blank performance report. The report is based on the performance reporting requirements for major investments reviewed by OMB. In Table 3, an additional column (Results definition) has been added to the OMB table on the right to document how the IM will identify methods and techniques for data collection, analysis that will be used, frequency of collection, etc.

Table 3. Example Performance Report—Blank

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Target	Actual results	Results definition
FYxx		Processes and activities						
FYxx		Customer results						
FYxx		Mission and business results						
FYxx		Technology						

Performance reports for smaller investments may be tailored to individual needs. However, the format shown here should satisfy any performance reporting requirements at IHS, HHS, or OMB.

In the examples below, only one performance measurement indicator is identified in each measurement area. For each investment, there should be, at a minimum, at least one measurement indicator in each of the four measurement areas. Normally, there would be more than one performance measurement indicator in a measurement category. However, as mentioned earlier, there should be no more than 15 total indicators in any one fiscal year.

## Example 1—Processes and Activities Measurement Area

In the process of conducting medical research, an area office ordered 1,000 prescriptions in FY04. The process for ordering the prescriptions was manual. The area office’s Quality Review Staff (QRS) determined that 20 of the prescriptions were ordered incorrectly. During FY05, the area office grew considerably and 5,000 prescriptions were ordered. The number of errors also increased to 150. Management concluded that 150 errors in a year were unacceptable and set a goal to reduce the number of errors by 50 percent in FY07 and an additional 50 percent in FY08. The manual process was used throughout FY06 while an integrated automated system was developed. In FY06, 6,000 prescriptions were ordered through the manual system and 240 were incorrect, resulting in an error rate of 4 percent. The automated system completely replaced the manual system at the beginning of FY07.

### STEP 1. IDENTIFY POTENTIAL MEASURES

After due consideration, the investment sponsor determined that one of the objectives of the investment in the new automated system should be to prevent processing errors through replacement of the manual ordering of prescriptions by electronic order entry. The PRM measurement area would be Processes and Activities.

Now that the goal has been determined, several items can be entered in the performance report from the measurement area and measurement grouping definitions in the PRM, as shown in Table 4.

*Table 4. Example 1 Performance Report—Measures*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07		Processes and activities	Errors					
FY08		Processes and activities	Errors					

## STEP 2. ALIGN TO STRATEGIC OBJECTIVES

The strategic objective targeted for this measure is HHS Goal 1: Improve the safety, quality, affordability and accessibility of health care, including behavioral health care and long-term care, and more specifically, Objective 1.3: Improve health care quality, safety, cost, and value. An appropriate entry can now be entered, as shown in Table 5.

*Table 5. Example 1 Performance Report—Strategic Goal*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Processes and activities	Errors					
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Processes and activities	Errors					

## STEP 3. IDENTIFY PERFORMANCE MEASUREMENT INDICATORS

Under a measurement grouping of Errors, performance measurement indicators would measure the extent to which processing errors are reduced or eliminated. The indicator would be a measure of the number of total transactions reported and number of total transactions reported with confirmed errors resulting during the reporting periods following implementation of the electronic order entry capability. An appropriate entry can now be entered, as shown in Table 6.

*Table 6. Example 1 Performance Report—Measurement Indicators*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Processes and activities	Errors	Error rate				
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Processes and activities	Errors	Error rate				

**STEP 4. IDENTIFY MEASUREMENT DATA**

To determine the error rate, the number of transactions reported with errors is divided by the total number of transactions received. Then, this rate is compared against the baseline rate of confirmed reported transactions in error from the previous period for the manual order entry system. Calculations will begin immediately upon implementation of the electronic order entry process in FY07. The period for data collection performance reporting will be quarterly for the first year, then annually. An appropriate entry can now be entered, as shown in Table 7.

*Table 7. Example 1 Performance Report—Measurement Data*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Processes and activities	Errors	Error rate				Error rate is defined as the number of transactions reported with errors divided by the total number of transactions.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Processes and activities	Errors	Error rate				Error rate is defined as the number of transactions reported with errors divided by the total number of transactions.

**STEP 5. ESTABLISH BASELINE AND TARGETS**

The baseline for this performance measurement indicator will be the rate of confirmed transaction errors in the manual order entry system, taken from the period of 1 year before implementation of the electronic order entry process. This baseline is already known and would now be entered, as shown in Table 8.

The expected improvement over the baseline, as defined and agreed upon by the investment manager and investment sponsor, is also listed in the performance report, as shown in Table 8.

*Table 8. Example 1 Performance Report—Baseline and Targets*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Processes and activities	Errors	Error rate	4% in FY06	Reduce error rate to 2%		Error rate is defined as the number of transactions reported with errors divided by the total number of transactions.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Processes and activities	Errors	Error rate	4% in FY06	Reduce error rate to 1%		Error rate is defined as the number of transactions reported with errors divided by the total number of transactions.

## STEP 6. EXECUTE PERFORMANCE MEASUREMENT ACTIVITIES

The specific steps necessary to demonstrate the feasibility of this improvement involve the following. The Transaction Processing Unit (TPU) will collect the necessary data to determine the baseline. The TPU will also collect the numbers of transactions received both manually in FY06 and electronically starting in FY07. Errors reported by the Quality Review Staff (QRS), either ones it discovers or those reported to QRS from order entry customers, will be provided to the TPU. The TPU will perform the necessary calculations for this performance measurement indicator.

## STEP 7. TRACK AND REPORT ON PERFORMANCE

At the beginning of FY07, the automated system was deployed and the manual system was eliminated. During the first half of FY07, 7,000 prescriptions were ordered, and 70 were incorrect.

The TPU will collect the necessary data weekly and report progress weekly to the IM. This activity will help the identification of all necessary steps to ensure the satisfactory achievement of program goals and attainment of IHS and HHS strategic goals. Progress toward target measures will be reported annually to senior IHS management and stakeholders. The results of this activity would be used to update the actual results entry, as shown in Table 9.

*Table 9. Example 1 Performance Report—Actual Results*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Processes and activities	Errors	Error rate	4% in FY06	Reduce error rate to 2%	1%	Error rate is defined as the number of transactions reported with errors divided by the total number of transactions.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Processes and activities	Errors	Error rate	4% in FY06	Reduce error rate to 1%	TBD	Error rate is defined as the number of transactions reported with errors divided by the total number of transactions.

**STEP 8. REVIEW AND REFINE PERFORMANCE MEASURES PERIODICALLY**

The IM, working with TPU and QRS leaders, will review actual performance weekly for the first two quarters after implementation of the electronic order entry process. Following that, status review meetings will be held quarterly. This activity is necessary to ensure that the correct process is in place to accomplish the program objectives.

Since the actual results achieved in the first half of FY07 exceeded the planned improvements to the baseline for FY07, the investment manager has changed his planned improvements to the baseline for FY08 to a more ambitious target, as shown in Table 10.

*Table 10. Example 1 Performance Report—Refined Measures*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Processes and activities	Errors	Error rate	4% in FY06	Reduce error rate to 2%	1%	Error rate is defined as the number of transactions reported with errors divided by the total number of transactions.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Processes and activities	Errors	Error rate	4% in FY06	Reduce error rate to 0.5%	TBD	Error rate is defined as the number of transactions reported with errors divided by the total number of transactions.

**Example 2—Customer Results Measurement Area**

**STEP 1. IDENTIFY POTENTIAL MEASURES**

The investment sponsor has determined that another one of the objectives of the investment should be to improve customer satisfaction and ease of use of the elec-

tronic order entry system. The goal for first quarter FY07 was to develop criteria for acceptance of the electronic order entry system based on suggested improvements received from the customer community and from IHS stakeholders. The goal for the remaining three quarters of FY07 is the collection of data from the customer community based on the criteria developed. The PRM measurement area would be Customer Results.

Now that the goal has been determined, several items can be entered in the performance report from the measurement area, measurement category, and measurement grouping definitions in the PRM, as shown in Table 11.

*Table 11. Example 2 Performance Report—Measures*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07		Customer results	Customer satisfaction					
FY08		Customer results	Customer satisfaction					

## STEP 2. ALIGN TO STRATEGIC OBJECTIVES

The strategic objective targeted for this measure is HHS Goal 1: Improve the safety, quality, affordability and accessibility of health care, including behavioral health care and long-term care, and more specifically, Objective 1.3: Improve health care quality, safety, cost, and value. An appropriate entry can now be entered, as shown in Table 12.

*Table 12. Example 2 Performance Report—Strategic Goal*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Customer results	Customer satisfaction					
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Customer results	Customer satisfaction					

## STEP 3. IDENTIFY PERFORMANCE MEASUREMENT INDICATORS

Under a measurement grouping of Customer Satisfaction, a performance measurement indicator would measure the extent to which the electronic order entry system meets expectations. The performance measurement indicators will be taken from customer and stakeholder suggestions relative to the manual order en-

try system. The quality of acceptance of the electronic order entry system over the manual system will be based on the following five-point qualitative scale:

- 1–new system does not perform well at all
- 2–new system is difficult to use
- 3–no noticeable improvement
- 4–some improvement over the manual system
- 5–exceptional improvement over the manual system.

The method of defining the results having been determined, an appropriate entry can now be entered, as shown in Table 13.

*Table 13. Example 2 Performance Report—Measurement Indicators*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Customer results	Customer satisfaction	Customer satisfaction rating from online questionnaire				
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Customer results	Customer satisfaction	Customer satisfaction rating from online questionnaire				

#### STEP 4. IDENTIFY MEASUREMENT DATA

During FY07, the data will be collected by surveying each customer who has used the manual system (the basis for developing the baseline). Responses will be solicited and received electronically. The period for data collection will begin at the beginning of the fiscal year and will continue until the system is implemented. This process, or the result of applying the process, would be identified under the measurement indicator column, initially stating how results will be determined, as shown in Table 14.

During FY08, the data will be collected by surveying each customer who responded to the baseline survey and who submits orders electronically. Responses will be solicited and received electronically. The period for data collection will begin the second quarter following implementation of the electronic order entry system and will continue for the next three quarters of the first year. Again, this process, or the result of applying the process, would be identified under the measurement indicator column, initially stating how results will be determined, as shown in Table 14.

*Table 14. Example 2 Performance Report—Measurement Data*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Customer results	Customer satisfaction	Customer satisfaction rating from online questionnaire				Data will be collected electronically from each customer who had used the manual system. Period for data collection will begin the second quarter following implementation of the electronic order entry system and will continue for the next three quarters of the first year.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Customer results	Customer satisfaction	Customer satisfaction rating from online questionnaire				Data will be collected electronically from each customer who had used the manual system. Period for data collection will begin the second quarter following implementation of the electronic order entry system and will continue for the next three quarters of the first year.

**STEP 5. ESTABLISH BASELINE AND TARGETS**

To develop a questionnaire to be used to measure customer satisfaction, qualitative characteristics will be derived from suggestions already received from both customers and stakeholders. These characteristics will form the basis for the questions to be asked of the online customers.

Although the baseline does not exist, the investment sponsor knows he should still have a planned improvement target. He would like to achieve a satisfaction rate of 4.0 on the 5-point scale. Considering his research on the initial user response to new systems, he knows that users tend to reject change and be initially unhappy with most new systems. Therefore, he establishes the goals of achieving a satisfaction rate of 3.5 on the 5-point scale for FY07 and a satisfaction rate of 4.0 for FY08.

Since the baseline does not exist at this time, the investment manager indicates that in the performance report, as shown in Table 15. The expected improvement is also shown in Table 15.

*Table 15. Example 2 Performance Report—Baseline and Targets*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Customer results	Customer satisfaction	Customer satisfaction rating from online questionnaire	Baseline data do not exist	Satisfaction rate of 3.5 on a 5-point scale by end of first year	3.0	Data will be collected electronically from each customer who had used the manual system. Period for data collection will begin the second quarter following implementation of the electronic order entry system and will continue for the next three quarters of the first year.

*Table 15. Example 2 Performance Report—Baseline and Targets*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Customer results	Customer satisfaction	Customer satisfaction rating from online questionnaire	Baseline to be determined from FY07 actual results	Satisfaction rate of 4.0 on a 5-point scale by end of the year	TBD	Data will be collected electronically from each customer who had used the manual system. Period for data collection will begin the second quarter following implementation of the electronic order entry system and will continue for the next three quarters of the first year.

## STEP 6. EXECUTE PERFORMANCE MEASUREMENT ACTIVITIES

The expected improvement over the baseline, as defined and agreed upon by the investment manager and investment sponsor, is listed in the performance report, as shown in Table 15. The expected satisfaction compared with problems recorded in the baseline would be stated in the performance report. The QRS will develop and execute the electronic questionnaires. The QRS will follow up with customers to ensure satisfactory levels of response (at least 50 percent).

## STEP 7. TRACK AND REPORT ON PERFORMANCE

The QRS will report results weekly to the IM. This activity will help ensure that all necessary steps are taken to correct any problems revealed as a result of the questionnaires and to ensure the satisfactory achievement of program goals and attainment of IHS and HHS strategic goals. The results of this activity would be used to update the actual results entry in the performance report, as shown in Table 16.

*Table 16. Example 2 Performance Report—Actual Results*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Customer results	Customer satisfaction	Customer satisfaction rating from online questionnaire	Baseline data do not exist	Satisfaction rate of 3.5 on a 5-point scale by end of first year	3.0	Data will be collected electronically from each customer who had used the manual system. Period for data collection will begin the second quarter following implementation of the electronic order entry system and will continue for the next three quarters of the first year.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Customer results	Customer satisfaction	Customer satisfaction rating from online questionnaire	3.0, based on FY07 actual results	Satisfaction rate of 4.0 on a 5-point scale by end of the year	TBD	Data will be collected electronically from each customer who had used the manual system. Period for data collection will begin the second quarter following implementation of the electronic order entry system and will continue for the next three quarters of the first year.

## STEP 8. REVIEW AND REFINE PERFORMANCE MEASURES PERIODICALLY

The IM, working with QRS leaders, will review results of the questionnaire during three quarters of this customer results activity. Necessary improvements in the use of the electronic order entry system will be identified in accordance with responses received from customers.

The investment manager now has a baseline based on the actual performance of the system in FY07. Since the FY07 planned improvement to the baseline target was overly ambitious, the investment manager revises the target for FY08, as shown in Table 17.

*Table 17. Example 2 Performance Report—Refined Measures*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Customer results	Customer satisfaction	Customer satisfaction rating from online questionnaire	Baseline data do not exist	Satisfaction rate of 3.5 on a 5-point scale by end of first year	3.0	Data will be collected electronically from each customer who had used the manual system. Period for data collection will begin the second quarter following implementation of the electronic order entry system and will continue for the next three quarters of the first year.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Customer results	Customer satisfaction	Customer satisfaction rating from online questionnaire	3.0, based on FY07 actual results	Satisfaction rate of 3.5 on a 5-point scale by end of the year	TBD	Data will be collected electronically from each customer who had used the manual system. Period for data collection will begin the second quarter following implementation of the electronic order entry system and will continue for the next three quarters of the first year.

## Example 3—Mission and Business Results Measurement Area

### STEP 1. IDENTIFY POTENTIAL MEASURES

The investment sponsor has been informed that the primary goal of any IHS IT investment should be to improve the ability of IHS to support HHS strategic objectives. The PRM measurement area would be Mission and Business Results.

Now that the goal has been determined, several items can be entered in the performance report from the measurement area, measurement category, and measurement grouping definitions in the PRM, as shown in Table 18.

*Table 18. Example 3 Performance Report—Measures*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07		Mission and business results	Health care delivery services					
FY08		Mission and business results	Health care delivery services					

## STEP 2. ALIGN TO STRATEGIC OBJECTIVES

The strategic objective targeted for this measure is HHS Goal 1: Improve the safety, quality, affordability and accessibility of health care, including behavioral health care and long-term care, and more specifically, Objective 1.3: Improve health care quality, safety, cost, and value. An appropriate entry can now be entered, as shown in Table 19.

*Table 19. Example 3 Performance Report—Strategic Goal*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Mission and business results	Health care delivery services					
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Mission and business results	Health care delivery services					

## STEP 3. IDENTIFY PERFORMANCE MEASUREMENT INDICATORS

Under the measurement grouping of Health Care Delivery Services, a performance measurement indicator of effective order entry processing would measure the extent to which the quality of health care services is improved. The performance measurement indicator will be taken from a single question on the customer satisfaction questionnaire specifically asking whether the electronic order entry system effectively improved the ability to deliver health care services to the public. This effectiveness variable will be based on a three-point qualitative scale:

- 1—reduction in ability to deliver health care services
- 2—no noticeable change
- 3—measurable improvement in service delivery.

The method of defining the results having been determined, it can now be entered in the performance report, as shown in Table 20.

*Table 20. Example 3 Performance Report—Measurement Indicators*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Mission and business results	Health care delivery services	Effectiveness of order entry processing				
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Mission and business results	Health care delivery services	Effectiveness of order entry processing				

#### STEP 4. IDENTIFY MEASUREMENT DATA

The data will be collected from each customer who has used the manual system and who submits orders electronically. The period for data collection will begin the second quarter following implementation of the electronic order entry system and will continue for the next three quarters of the first year. This process would be identified under the measurement indicator column, initially stating how results will be determined. An appropriate entry can now be completed for the measurement indicator, as shown in Table 21.

*Table 21. Example 3 Performance Report—Measurement Data*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Mission and business results	Health care delivery services	Effectiveness of order entry processing				Effectiveness of order entry processing will be based on a 3-point qualitative scale: measurable improvement in service delivery, no noticeable change, reduction in ability to deliver health care services.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Mission and business results	Health care delivery services	Effectiveness of order entry processing				Effectiveness of order entry processing will be based on a 3-point qualitative scale: measurable improvement in service delivery, no noticeable change, reduction in ability to deliver health care services.

#### STEP 5. ESTABLISH BASELINE AND TARGETS

Systematic baseline data for this measure do not exist. Results of customer responses are subjective but assume each customer can perform satisfactory assessments. The investment manager wants to take a baseline survey to determine the level of customer satisfaction with the current manual system. The investment

sponsor determines that the cost of conducting the survey and the imposition on the customer’s time to complete the survey do not warrant the effort. Accordingly, the investment manager and the investment sponsor agree to use the initial survey results of the new automated system as the baseline.

Although the baseline does not exist, the investment sponsor knows he should still have a planned improvement target. Based on his research on initial user response to new systems, he knows that users tend to reject change and be initially unhappy with most new systems. Nevertheless, he establishes a goal of achieving a satisfaction rate of 2.5 on the 3-point scale.

Since the baseline does not exist at this time, the investment manager indicates that in the performance report, as shown in Table 22. The expected improvement target is also shown in Table 22.

*Table 22. Example 3 Performance Report—Baseline and Targets*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Mission and business results	Health care delivery services	Effectiveness of order entry processing	Baseline data do not exist	Satisfaction rate of 2.5 on a 3-point scale by end of first year		Effectiveness of order entry processing will be based on a 3-point qualitative scale: measurable improvement in service delivery, no noticeable change, reduction in ability to deliver health care services.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Mission and business results	Health care delivery services	Effectiveness of order entry processing	2.5, based on FY07 actual results	Satisfaction rate of 2.7 on a 3-point scale by end of year		Effectiveness of order entry processing will be based on a 3-point qualitative scale: measurable improvement in service delivery, no noticeable change, reduction in ability to deliver health care services.

## STEP 6. EXECUTE PERFORMANCE MEASUREMENT ACTIVITIES

The perception of potential for improved customer health care delivery will be collected during the questionnaire process for the Customer Results measurement area.

## STEP 7. TRACK AND REPORT ON PERFORMANCE

The QRS will report results weekly to the IM. This activity will help determine the effective role of electronic order entry in improving delivery of health care services and ensuring the satisfactory achievement of program goals and attainment of the strategic goals of the IHS and HHS. The results of this activity would be used to update the actual results entry in the performance report, as shown in Table 23.

*Table 23. Example 3 Performance Report—Actual Results*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Mission and business results	Health care delivery services	Effectiveness of order entry processing	Baseline data do not exist	Satisfaction rate of 2.5 on a 3-point scale by end of first year	2.5	Effectiveness of order entry processing will be based on a 3-point qualitative scale: measurable improvement in service delivery, no noticeable change, reduction in ability to deliver health care services.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Mission and business results	Health care delivery services	Effectiveness of order entry processing	2.5, based on FY07 actual results	Satisfaction rate of 2.7 on a 3-point scale by end of year	TBD	Effectiveness of order entry processing will be based on a 3-point qualitative scale: measurable improvement in service delivery, no noticeable change, reduction in ability to deliver health care services.

## STEP 8. REVIEW AND REFINE PERFORMANCE MEASURES PERIODICALLY

The IM, working with QRS leaders, will review results of the questionnaire during three quarters of this customer results activity. Necessary improvements in the use of the electronic order entry system will be identified in accordance with responses received from customers.

The investment manager now has a baseline based on the actual performance of the system in FY07. Since the FY07 planned improvement to the baseline target was reached but not exceeded, the investment manager maintains the target for FY08, as shown in Table 24.

*Table 24. Example 3 Performance Report—Refined Measures*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Mission and business results	Health care delivery services	Effectiveness of order entry processing	Baseline data do not exist	Satisfaction rate of 2.5 on a 3-point scale by end of first year	2.5	Effectiveness of order entry processing will be based on a 3-point qualitative scale: measurable improvement in service delivery, no noticeable change, reduction in ability to deliver health care services.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Mission and business results	Health care delivery services	Effectiveness of order entry processing	2.5, based on FY07 actual results	Satisfaction rate of 2.7 on a 3-point scale by end of year	TBD	Effectiveness of order entry processing will be based on a 3-point qualitative scale: measurable improvement in service delivery, no noticeable change, reduction in ability to deliver health care services.

## Example 4—Technology Measurement Area

### STEP 1. IDENTIFY POTENTIAL MEASURES

The investment sponsor has determined that another one of the objectives of the investment should be to implement an electronic order entry system that is less costly than the current error-prone manual method and to provide the necessary

technology facilitation and training to accomplish satisfactory performance and acceptance of the online system. (Other performance measures are in place to determine the effectiveness of the new system.) The PRM measurement area would be Technology. In this case, the Strategic Goal supported remains the same.

Now that the goal has been determined, several items can be entered in the performance report from the measurement area, measurement category, and measurement grouping definitions in the PRM, as shown in Table 25.

*Table 25. Example 4 Performance Report—Measures*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07		Technology	Overall cost					
FY08		Technology	Overall cost					

## STEP 2. ALIGN TO STRATEGIC OBJECTIVES

The strategic objective targeted for this measure is HHS Goal 1: Improve the safety, quality, affordability and accessibility of health care, including behavioral health care and long-term care, and more specifically, Objective 1.3: Improve health care quality, safety, cost, and value. An appropriate entry can now be entered, as shown in Table 26.

*Table 26. Example 4 Performance Report—Strategic Goal*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Technology	Overall cost	Operating costs				
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Technology	Overall cost	Operating costs				

## STEP 3. IDENTIFY PERFORMANCE MEASUREMENT INDICATORS

Under a measurement grouping of Overall Cost, performance measurement indicators would measure the total cost to operate the electronic order entry processing system. The total cost would include the cost to maintain the system, the personnel cost to operate the system, and the cost for personnel training.

The method of defining the results having been determined, it can now be entered in the performance report, as shown in Table 27.

*Table 27. Example 4 Performance Report—Measurement Indicators*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Technology	Overall cost	Operating costs				
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Technology	Overall cost	Operating costs				

**STEP 4. IDENTIFY MEASUREMENT DATA**

The data will be the dollars spent on hardware and software maintenance, the dollars spent for services, and the time and grade of the personnel used to operate the system. The time and grade of the personnel used to operate the system can then be converted to dollars. This process, or the result of applying the process, would be identified in the measurement indicator column, initially stating how results will be determined, as shown in Table 28.

*Table 28. Example 4 Performance Report—Measurement Data*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Technology	Overall cost	Operating costs				Operating costs are defined as the cost to maintain the system, the personnel cost to operate the system, and the cost for personnel training.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Technology	Overall cost	Operating costs				Operating costs are defined as the cost to maintain the system, the personnel cost to operate the system, and the cost for personnel training.

**STEP 5. ESTABLISH BASELINE AND TARGETS**

The baseline will be the cost to maintain and operate the current manual entry system. Presumably, most of the cost will be the time and grade of the personnel used to operate the system. The time and grade of the personnel used to operate the system can then be converted to dollars.

The investment manager assigned the task of determining the cost to operate the current manual system to his budget analyst. The budget analyst determined that the manual system was operated by four GS-14 pharmacists, working approxi-

mately 50 percent of the time on the manual system. They were overseen by a GS-15 supervisory pharmacist, who allocated 10 percent of his time to this activity. The budget analyst determined that the cost of a GS-14 step 5 was \$103,594 in the Washington, DC, area and that the cost of a GS-15 step 5 was \$121,856 in the Washington, DC, area. The budget analyst determined that one of the four GS-14 pharmacists was new and required a training class that cost \$2,000. Thus, the baseline cost of the system was determined as follows:

$$\text{Baseline cost} = (0.5 \times 4 \times \$103,594) + (0.1 \times \$121,856) + \$2,000.$$

$$\text{Baseline cost} = \$221,374.$$

Since the baseline cost is known, the investment manager and the investment sponsor agree on a targeted improvement over the baseline. They agree that a modest targeted improvement is all that can be expected in FY07, because the staff will need to be trained on the new system and the staff will take time to become proficient in using the new system.

The baseline information and target information can now be entered into the performance report, as shown in Table 29.

*Table 29. Example 4 Performance Report—Baseline and Targets*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Technology	Overall cost	Operating costs	\$221K in FY06	Reduction in operating cost by 15%, to \$188K		Operating costs are defined as the cost to maintain the system, the personnel cost to operate the system, and the cost for personnel training.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Technology	Overall cost	Operating costs	\$221K in FY06	Reduction in operating cost by 30%, to \$155K		Operating costs are defined as the cost to maintain the system, the personnel cost to operate the system, and the cost for personnel training.

## STEP 6. EXECUTE PERFORMANCE MEASUREMENT ACTIVITIES

The QRS will oversee implementation of the new system and will perform the necessary training. Each quarter, the cost of the new system will be compared to the baseline.

## STEP 7. TRACK AND REPORT ON PERFORMANCE

The planned improvement over the baseline and the actual results are listed in the performance report, as shown in Table 30. The investment financial manager, in conjunction with the QRS, will report results of training and implementation costs quarterly to the IM. This activity will help determine the effective role of techni-

cal support and training in ensuring the successful transfer of customers to the new system.

*Table 30. Example 4 Performance Report—Actual Results*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Technology	Overall cost	Operating costs	\$221K in FY06	Reduction in operating cost by 15%, to \$188K	Q1–\$60K Q2–\$47K Q3–\$40K Q4–TBD Total–TBD	Operating costs are defined as the cost to maintain the system, the personnel cost to operate the system, and the cost for personnel training.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Technology	Overall cost	Operating costs	\$221K in FY06	Reduction in operating cost by 30%, to \$155K	TBD	Operating costs are defined as the cost to maintain the system, the personnel cost to operate the system, and the cost for personnel training.

## STEP 8. REVIEW AND REFINE PERFORMANCE MEASURES PERIODICALLY

The IM, working with QRS leaders, will review operational costs of the system and track system costs to the budget. Necessary improvements will be identified in accordance with this cost evaluation.

The actual results achieved in FY07 are exceeding the planned improvements to the baseline for FY07. However, because the actual results are almost equivalent to the planned improvement to the baseline, the investment manager and the investment sponsor decided to maintain the same performance measurement target for FY08, as shown in Table 31.

*Table 31. Example 4 Performance Report—Refined Measures*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Technology	Overall cost	Operating costs	\$221K in FY06	Reduction in operating cost by 15%, to \$188K	Q1–\$60K Q2–\$47K Q3–\$40K Q4–TBD Total–TBD	Operating costs are defined as the cost to maintain the system, the personnel cost to operate the system, and the cost for personnel training.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Technology	Overall cost	Operating costs	\$221K in FY06	Reduction in operating cost by 30%, to \$155K	TBD	Operating costs are defined as the cost to maintain the system, the personnel cost to operate the system, and the cost for personnel training.

## Example of Final Performance Report

Table 32 is an example of the final performance report resulting from all of the data from the examples merged into one report.

*Table 32. Example Final Performance Report*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Processes and activities	Errors	Error rate	4% in FY06	Reduce error rate to 2%	1%	Error rate is defined as the number of transactions reported with errors divided by the total number of transactions.
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Customer results	Customer satisfaction	Customer satisfaction rating from online questionnaire	Baseline data do not exist	Satisfaction rate of 3.5 on a 5-point scale by end of first year	3.0	Data will be collected electronically from each customer who had used the manual system. Period for data collection will begin the second quarter following implementation of the electronic order entry system and will continue for the next three quarters of the first year.
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Mission and business results	Health care delivery services	Effectiveness of order entry processing	Baseline data do not exist	Satisfaction rate of 2.5 on a 3-point scale by end of first year	2.5	Effectiveness of order entry processing will be based on a 3-point qualitative scale: measurable improvement in service delivery, no noticeable change, reduction in ability to deliver health care services.
FY07	Objective 1.3: Improve health care quality, safety, cost, and value.	Technology	Overall cost	Operating costs	\$221K in FY06	Reduction in operating cost by 15%, to \$188K	Q1–\$60K Q2–\$47K Q3–\$40K Q4–TBD Total–TBD	Operating costs are defined as the cost to maintain the system, the personnel cost to operate the system, and the cost for personnel training.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Processes and activities	Errors	Error rate	4% in FY06	Reduce error rate to 0.5%	TBD	Error rate is defined as the number of transactions reported with errors divided by the total number of transactions.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Customer results	Customer satisfaction	Customer satisfaction rating from online questionnaire	3.0, based on FY07 actual results	Satisfaction rate of 3.5 on a 5-point scale by end of the year	TBD	Data will be collected electronically from each customer who had used the manual system. Period for data collection will begin the second quarter following implementation of the electronic order entry system and will continue for the next three quarters of the first year.
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Mission and business results	Health care delivery services	Effectiveness of order entry processing	2.5, based on FY07 actual results	Satisfaction rate of 2.7 on a 3-point scale by end of year	TBD	Effectiveness of order entry processing will be based on a 3-point qualitative scale: measurable improvement in service delivery, no noticeable change, reduction in ability to deliver health care services.

*Table 32. Example Final Performance Report*

Fiscal year	Strategic goal(s) supported	Measurement area	Measurement grouping	Measurement indicator	Baseline	Planned Target	Actual results	Results definition
FY08	Objective 1.3: Improve health care quality, safety, cost, and value.	Technology	Overall cost	Operating costs	\$221K in FY06	Reduction in operating cost by 30%, to \$155K	TBD	Operating costs are defined as the cost to maintain the system, the personnel cost to operate the system, and the cost for personnel training.

## PERFORMANCE MANAGEMENT ROLES AND RESPONSIBILITIES

The IM, investment sponsor, program team members, and stakeholders have specific performance measurement responsibilities. Table 33 lists them.

*Table 33. Performance Management Roles and Responsibilities*

Role	Responsibility
Investment manager	<p>The IM is responsible for overseeing, monitoring, and assigning all performance measurement activities.</p> <p>The IM will review program performance periodically, but at least once per year. This review will determine the usefulness of the performance measures for making decisions and alignment with new department goals and objectives. It will result in suggestions for new measures as well as suggestions for discontinuing some measures.</p>
Investment sponsor	<p>The investment sponsor has the following responsibilities:</p> <ul style="list-style-type: none"> <li>• Propose target metrics for achieving benefits</li> <li>• Develop an approach for data collection</li> <li>• Develop a schedule to implement the performance baseline</li> <li>• Identify the resources required to implement the performance metrics</li> <li>• With the help of the IM, determine frequency for reporting</li> <li>• Track and report on progress toward achieving target performance.</li> </ul>
IHS Enterprise Architect	Performance measures are evaluated by IHS EA.
Program team members and stakeholders	Any staff member, contractor, customer, or stakeholder can identify a performance measure by notifying the IM.

# PERFORMANCE MEASUREMENT WORKSHEET

A performance measurement worksheet should be developed and maintained for each measure. The worksheet provides the investment manager with the mechanics of the data collection effort and, in doing so, demonstrates the veracity of the performance measurement data collection process.

The worksheet describes the performance measurement indicator, the unit of measurement, and the data source in detail; describes the method of data collection; specifies the schedule and frequency for data collection; and identifies the office or individual responsible for each activity. Finally, the worksheet identifies critical assumptions and allows for comments and notes. Table 34 is a sample worksheet for one performance measurement indicator.

*Table 34. Sample Performance Measurement Worksheet*

Performance measurement indicator	Unit of measurement	Data source	Method of data collection	Data collection schedule and frequency	Responsible office or person	Critical assumptions	Comments/ notes
Error rate	Number of transactions reported with errors divided by the total number of transactions	Review of monthly reports generated from the enterprise database	Generate monthly report from the enterprise database	Quarterly	Program office	Site staff enters the data into the enterprise database on time	Site staff uses an Excel spreadsheet to enter the data

## ALIGNMENT OF THE PERFORMANCE MEASUREMENT PROCESS WITH THE CPIC PROCESS

### CPIC Select Phase

The planning phase of the performance measurement process coincides primarily with the select phase of the CPIC process. During the select phase of the CPIC process, the IHS Chief Information Officer (CIO) and the Information Technology Review Board reviews proposed investments to determine the degree of support of the IHS mission that is expected from the investment upon implementation, the functional requirement for the investment, and the benefits expected from the investment, among other criteria. This should suggest some relevant performance measurement indicators to the investment sponsor and the IM. For example, if the justification of the investment is its return on investment, the performance measurement indicators might include some that demonstrate the savings of the investment over the status quo or the legacy system. The agency

Enterprise Architect reviews proposed performance measures to assure that the investment is compliant with the agency enterprise architecture.

## CPIC Control Phase

The control phase of the CPIC process occurs during the traditional life cycle of project management, after project approval and before full implementation. Although the planning phase of the performance measurement process coincides primarily with the select phase of the CPIC process, Step 5, which requires collecting baseline data and, to some extent, Step 4, which requires identifying measurement data, may occur during the control phase of the CPIC process.

During the control phase of the CPIC process, the status of the project is evaluated using earned-value performance measures. These are separate and distinct from the investment performance measurement indicators. The earned-value performance measures indicate the success of the project manager in meeting cost and schedule performance targets. Among the earned-value performance measures are the following:

- Cost variance
- Cost variance percentage
- Cost performance index
- Schedule variance
- Schedule variance percentage
- Schedule performance index
- Estimated cost to complete the project
- Estimated total cost of the project.
- IHS has developed a separate guide for earned-value management.
- In addition to earned-value measures that measure the adherence of the project to cost and schedule baselines, the investment manager should include measures that evaluate the quality of the deliverables. Being on time and within budget is meaningless if the quality of the product is poor.
- During the control phase of the CPIC process, the IM may collect investment performance information for those sites or modules that have been implemented, if the investment is in a mixed life cycle. They indicate the success of the investment in meeting its performance targets.

## CPIC Evaluate Phase

The execution phase of the performance measurement process coincides with the evaluate phase of the CPIC process, when the investment is in steady-state opera-

tions. During the evaluate phase of the CPIC process, the agency reviews operational or steady-state investments to determine the extent to which the investment is still supporting the agency mission and satisfying user requirements, whether the agency is obtaining the benefits cited in the original justification for the investment, and the need to continue support of the investment. The investment performance measures should assist with that evaluation. During the execution phase of the performance measurement process, the IM collects and reports on the accomplishments of the investment.



## APPENDIX A. BIBLIOGRAPHY

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## APPENDIX B. PERFORMANCE REFERENCE MODEL

The PRM is a standardized framework to measure the performance of major IT investments and their contribution to program performance. The PRM has three main purposes:

- Help produce enhanced performance information to improve strategic and daily decision making
- Improve the alignment—and better articulate the contribution of—inputs to outputs and outcomes, thereby creating a clear “line of sight” to desired results
- Identify performance improvement opportunities that span traditional organizational structures and boundaries.

The PRM attempts to leverage the best approaches to performance measurement in the public and private sectors. In addition, the PRM was influenced by what agencies are currently measuring through the Program Assessment Rating Tool (PART), Government Performance and Results Act (GPRA), enterprise architecture, and capital planning and investment control. Agency use of the PRM will populate the model over time.

OMB requires reporting of performance in four areas: Mission and Business Results, Customer Results, Processes and Activities, and Technology. These measurement areas are described below. More detailed information on the PRM can be found at <http://www.whitehouse.gov/omb/egov/a-2-prm.html>.

### Mission and Business Results

This measurement area of the PRM is intended to capture the outcomes that agencies seek to achieve. Outcomes are usually developed during the agency budget and strategic planning process prescribed under GPRA and addressed by the PART. Table B-1 lists the various measurement categories that currently constitute this measurement area.

*Table B1. Measurement Categories for Mission and Business Results*

Administrative management	General government	Legislative relations
Community and social services	General science and innovation	Litigation and judicial activities
Controls and oversight	Health	Natural resources
Correctional activities	Homeland security	Planning and resource allocation
Defense and national security	Human resource management	Public affairs
Disaster management	Income security	Regulatory development
Economic development	Information and technology management	Revenue collection
Education	Intelligence operations	Supply chain management
Energy	Internal risk management and mitigation	Transportation
Environmental management	International affairs and commerce	Workforce management
Financial management	Law enforcement	

Health would be the measurement category for many IHS initiatives and might address the following:

- Access to care
- Population health management and consumer safety
- Health care administration
- Health care delivery services
- Health care research and practitioner education.

## Customer Results

This measurement area of the PRM is intended to capture how well an agency or specific process within an agency is serving its customers. This is a critical aspect of successful e-government. Measurement categories (with possible groupings in parentheses) might include the following

- Service coverage (new customers, frequency, efficiency)
- Timeliness and responsiveness (time to respond to customer inquiries and requests and time to deliver products or services)
- Service quality (quality from the customer 's perspective and accuracy of responses to customer inquiries)
- Service accessibility (availability, automation, integration, access)
- Customer benefits (satisfaction, retention, complaints, impacts, training).

## Processes and Activities

This measurement area is intended to capture the outputs that are the direct result of the process that an IT initiative supports. These outputs are much more under the control of federal programs and generally contribute to or influence outcomes that are mission and business results and customer results. This measurement area also captures key aspects of processes or activities that need to be monitored or improved. Measurement categories (with possible groupings shown in parentheses) might include the following:

- Productivity and efficiencies (amount of work accomplished per relevant units of time and resources applied)
- Quality (error rates, complaints)
- Financial activities (costs, financial management, planning, savings, cost avoidance)
- Cycle time and timeliness (time required to produce products or services)
- Management and innovation (policies, innovation, improvements, participation, compliance, knowledge management, risk)
- Security and privacy (extent to which security is improved and privacy addressed).

## Technology

This measurement area is designed to capture key elements of performance that directly relate to the IT initiative. An IT initiative generally can include applications, infrastructure, or services provided in support of a process or program. Measurement categories (with possible groupings shown in parentheses) might include the following:

- Quality (compliance, IT composition, functionality)
- Reliability and availability (system or application capacity, availability to users, system or application failures)
- Financial (overall costs, licensing, support, operations and maintenance, training)
- Information and data (storage, internal and external sharing, reliability, standardization)
- Efficiency (response time, interoperability, accessibility, load levels, improvements)
- Effectiveness (customer satisfaction, user requirements, contribution to process, customer or mission).

As mentioned earlier, a complete description of the PRM and greater details can be found at the Federal Enterprise Architecture web site at <http://www.whitehouse.gov/omb/egov/a-2-prm.html>.

## APPENDIX C. PERFORMANCE GOALS AND MEASURES CHECKLIST

The Office of Management and Budget (OMB) changes the requirements to complete an Exhibit 300 annually. This may affect the content of any section. These requirements are presented in OMB Circular No. A-11, Section 300. The performance goals and measures section of the Exhibit 300 has remained reasonably consistent over the past 5 years. This appendix contains a checklist that can be used to ensure that the performance measurement analysis contains all of the information required to complete the current Performance Goals and Measures section of OMB Exhibit 300, and it should be useful for similar requirements in future Exhibit 300s.

While it is focused on the Exhibit 300, it can and should be used as a generic checklist for performance measurement development and reporting.

OMB Exhibit 300 Performance Information Table				
OMB Exhibit 300		Check	Advice	
Area	Consideration		Corrective action	What to say in the 300
Fiscal Year Column	Not all years between the investment initiation date and investment planned completion date are included.		Include information for all investment years.	
Fiscal Year Column	The field is blank.		Provide the fiscal year.	
Measurement Area Column	The field does not include all four FEA PRM measurement areas for each fiscal year.		Include at least one measurement indicator in every fiscal year for each of the four measurement areas: Mission and Business Results, Customer Results, Processes and Activities, and Technology.	
Measurement Indicator Column	The measurement indicator is not expressed in quantifiable terms; it is not clear what is being measured.		Use appropriate and quantitative metrics. For example, instead of saying "customer satisfaction," say "percentage of customers who respond satisfied or very satisfied on survey."	
Measurement Indicator Column	The improvement goal is included in the measurement indicator.		State the metric or measure being used to evaluate the effectiveness of the system (or its progress toward achieving a goal). This field should state what should be measured, not the desired improvement.	
Measurement Indicator Column	The measurement indicator is stated as a milestone.		Ensure that the measurement indicator is outcome focused. It should demonstrate improvement in outcomes benefiting the customer or the government.	
Measurement Indicator Column	The description includes the words "as above."		Repeat the measure name to improve readability of the metric.	
Measurement Indicator Column	The field does not include at least one measurement indicator for each of the four measurement areas.		Provide at least one measurement indicator for each of the four measurement areas. The concept is to provide the additional detail that translates the overall strategic measures into a set of real-world operational measures for the system.	
Measurement Indicator Column	The field has too many measurement indicators.		Have no more than 8 to 10 measurement indicators for each fiscal year.	
Measurement Indicator Column	The measurement indicator does not match the most appropriate measurement category.		Ensure that the information in the Measurement Indicator field is consistent with that in the Measurement Category field. Valid measurement categories are listed in section 3.2 of the FEA document.	
Measurement Indicator Column	The field is blank.		Provide a measurement indicator.	

OMB Exhibit 300 Performance Information Table				
OMB Exhibit 300		Check	Advice	
Area	Consideration		Corrective action	What to say in the 300
Baseline Column	Baseline is reset each fiscal year.		The baseline should not readjust each year (unless deliberately rebaselined). So, if the baseline was established in FY04, continue the information throughout the table.	Insert data for baseline year and specify the date.
Baseline Column	"TBD" is used on the previous fiscal year as the baseline.		Establish the baseline for the measurement indicator.	In the Baseline field, indicate that the measurement indicator is new and that data are being collected to establish the baseline. Include the date when data are expected to be available.
Baseline Column	The year the baseline was established is not included.		Add the year in which the baseline was established (at least for the first reporting of the baseline).	
Baseline Column	The units of measure are incorrect or inappropriate for the performance measure.		Ensure that the units of measure are appropriate and correct for the performance being measured (numbers, dollars, percentages, etc.).	
Baseline Column	The units of measure are inconsistent across the table row.		Ensure that the units of measure are consistent across the table row for the Measurement Indicator field, Planned Improvements to the Baseline field, and the Baseline field.	
Baseline Column	The baseline is not consistent with same metric in Table 1.		Include the same baseline in Table 2 as used Table 1.	
Baseline Column	The field is blank.		Provide the baseline.	
Baseline Column	No data are reported although a legacy system exists.		Use the performance of the legacy system as the baseline. This strengthens the case for a new/enhanced system. If no data on the legacy system are available, start collecting the data and state this information will be reported.	
Planned Improvements to the Baseline Column	All planned improvements to the baseline are stated as "completion of system development milestones" or are general goals such as "significant," "better," or "improved."		Identify the qualitative or quantitative performance improvement or level of effectiveness to be achieved. Use the same units of measure as used for the planned performance metric. Examples are "achieve/maintain 100% system uptime 24 hours a day/365 days a year," "achieve 95% ...," "increase x%," or "x% accomplished."	
Planned Improvements to the Baseline Column	The target planned improvement to the baseline does not include the performance level in a statement indicating that the level is being maintained.		Include the performance level in the description, such as "improve system uptime to 95%" or "maintain a performance level of x%."	

OMB Exhibit 300 Performance Information Table				
OMB Exhibit 300		Check	Advice	
Area	Consideration		Corrective action	What to say in the 300
Planned Improvements to the Baseline Column	The text describes how the program plans to improve in a particular area.		Identify how much improvement is planned from the current performance level, for example, "percentage of satisfied customers."	
Planned Improvements to the Baseline Column	The text describes the desired end state (e.g., zero errors, or 100% customer satisfaction) in the first year of system implementation.		Unless the end-state is expected to occur with the initial release, insert the expected incremental improvement for each fiscal year.	
Planned Improvements to the Baseline Column	The field is blank.		Identify planned improvements to the baseline.	
Actual Results Column	The field has too much text or description.		Improve readability by removing text that does not add to the quantified results.	If necessary, add explanatory comments in a note at the end of table.
Actual Results Column	The field is blank because data for the measure are not available until a future date.		Avoid having blanks. Add the estimated date when the measure data will be available, for example, "to be measured after going live, anticipated to be end 2007."	State "TBD."

## APPENDIX D. ACRONYMS

Acronym	Meaning
BRM	Business Reference Model, part of the FEA
CPIC	Capital Planning and Investment Control
FEA	Federal Enterprise Architecture
FTE	Full Time Equivalent staff member
GPRA	Government Performance and Results Act
HHS	Department of Health and Human Services
IHS	Indian Health Service
IM	Investment Manager
ISAC	Information Systems Advisory Committee
IT	Information Technology
OMB	Office of Management and Budget
PART	Program Assessment Rating Tool
PRM	Performance Reference Model, part of the FEA
QRS	Quality Review Staff on the example
TPU	Transaction Processing Unit in the example