

DEVELOPING AN INTEGRATED MODEL FOR MEASURING
ORGANIZATIONAL EFFECTIVENESS IN LIGHT OF THE
GOVERNMENT PERFORMANCE AND RESULTS ACT OF 1993

THESIS

Thomas A. Miller, Captain, USAF

AFIT/GCM/LAS/95S-6

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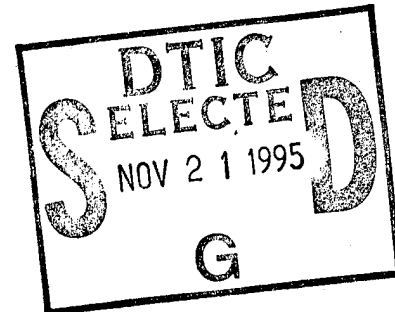
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THESIS

Presented to the Faculty of the School of Logistics and

Acquisition Management

Air Education and Training Command

In Partial Fulfillment of the

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Master of Science in Contracting Management

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Thomas A. Miller

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Abstract

The purpose of this thesis was to review current Systems Program Office (SPO) effectiveness measures in light of the recently implemented Government Performance and Results Act of 1993 (GPRA), and to develop an integrated model of organizational effectiveness SPOs can use to comply with GPRA. Specifically, this thesis attempted to answer three research propositions addressing whether or not:

1. Current effectiveness measures used within SPOs are strictly output goal measures;
2. GPRA, while emphasizing the need for a more "holistic" approach has not provided a good model to accomplish this; and
3. An integrated model can be developed to meet both the spirit of GPRA and the SPOs' need for a thorough mechanism for measuring organizational effectiveness.

These research propositions were answered through a comprehensive literature review, personal interviews conducted with SPO personnel, and SPO records analysis. The research identified the current SPO effectiveness measures do not comply with GPRA's intent to focus attention on strategic planning and outcomes. Rather, SPO effectiveness measures focus almost exclusively on output measures which tend to be reactive measures. Strictly output measures indicate a lack of emphasis on outcomes which are mandated by GPRA and defined as measures of effectiveness from a customer satisfaction perspective. Further, research yielded an integrated model which can help SPOs

implement GPRA and comply with its mandated emphasis on strategic planning and related outcome measures of effectiveness.

DEVELOPING AN INTEGRATED MODEL FOR MEASURING
ORGANIZATIONAL EFFECTIVENESS IN LIGHT OF THE GOVERNMENT
PERFORMANCE AND RESULTS ACT OF 1993

I. Introduction

In the early 1970's, Schlitz Brewing Company was the model organization in the brewing industry. By the late 1970's, Schlitz had fallen to number seven in the industry (Dang, 1993:4). Volume sales had plummeted by over 40%, company stock had lost \$1.7 billion in value, and independent wholesalers, disappointed with the company, turned to other brands for business (Dang, 1993:4). Schlitz's deterioration is a classic example of what can happen when an organization loses its strategic focus. A review of the data suggests that Schlitz's failure can be attributed to the company's preoccupation with short-term goals. For example, Schlitz's failure to diversify and a fixation on immediate cost reduction, both short-term perspectives, ultimately resulted in its free fall from the top of the industry. Dang illustrates the delicate balance that exists between short and long-term goals by writing:

Which time perspective is most appropriate in assessment? For example, if current production (a short-run criterion) consumes so much of an organization's resources that little is left over for investment in R&D, the organization may ultimately find itself with its products outmoded and its very survival (a long-term criterion) threatened. (Dang, 1993:21)

One could argue that an even more basic reason for the failure was Schlitz's inability to relate organizational effectiveness with strategic management. Gibson writes that organizations are "entities that enable society to pursue accomplishments that can't be achieved by individuals acting alone" (Gibson and others, 1994:5). Said another way, organizations form as a result of individuals deliberately seeking to take advantage of synergy, the idea that the end product is greater than the sum of its constituent parts. However, to obtain and sustain effectiveness, organizations must have goals that it strives to achieve. These goals must be periodically reviewed and updated to ensure the organization has something to work towards. Richard Steers captures this belief by stating that "the concept of organizational effectiveness is best understood in terms of a continuous process rather than an end state" (Steers, 1976:32). Organizations strive to be effective for many reasons. Effectiveness translates into increased profit, growth, market share, and ultimately, continued existence. Examples such as Schlitz have placed a premium on understanding the relationship between organizational effectiveness and accomplishing organizational goals.

As the Air Force continues to fight over ever dwindling Congressional appropriations, Air Force managers must place a strong emphasis on understanding the relationship between organizational effectiveness and goal accomplishment. Much like Schlitz, the Air Force is operating in a very dynamic environment characterized by downsizing, changing roles, and changing missions. To avoid a performance like Schlitz's, the Air Force must avoid the tendency for organizations to become preoccupied with short-term efficiency when faced with a dynamic environment. That is precisely why the Government

Performance and Results Act of 1993 (GPRA) can be so useful to Air Force managers. GPRA, if successful, will form the link between organizational effectiveness and strategic planning. Such a link will help ensure that the Air Force does not lose its strategic focus in an environment which severely punishes shortsightedness.

In recent years, the Department of Defense (DoD) has come under close scrutiny by Congress and the American public for its handling of high dollar, major weapon system acquisitions. For example, in 1991, then Secretary of Defense Dick Cheney, under pressure from Congress, canceled the Navy's A-12 aircraft acquisition citing gross mismanagement and unacceptable cost overruns. Government acquisitions have become characterized by terms such as "over budget" (Nicholas, 1990:341). Nicholas writes, "Cutting edge, high-technology and R&D projects frequently show cost escalation upwards of several hundred percent...and NASA spacecraft often exceed estimates by a factor of four to five" (Nicholas, 1990:342). Recognizing that public trust and efficiency must be injected into DoD business, Congress passed GPRA. In the preamble to the Act, Congress unequivocally stated its reasons and purpose in passing the Act:

Public confidence in the institutions of American government is suffering from a perception that those institutions are not working well...can be seen in the results of a recent public opinion poll which shows that Americans, on average, believe that as much as 48 cents out of every Federal tax dollar is wasted. In other words, the public believes that it is not getting the level and quality of government service for which it is paying...The Committee shares in the public's frustration with waste, inefficiency, and ineffectiveness ...the Committee believes that the regular and systematic measurement and reporting of program performance, compared to pre-established goals, would be a major addition...Governmental waste and under-performance will likely persist until there is a change in the behavior of federal agencies...The legislation will provide the information necessary to strengthen program measurement, to make objective

evaluations of program performance, and to set realistic, measurable goals for future performance. (United States Senate, 1993:2-3)

The vehicle by which Congress will attempt to meet these goals of efficiency and increased effectiveness is strategic planning. How Congress will measure organizational effectiveness remains to be seen. Traditional measures of organizational effectiveness have been output goal models. For example, in measuring Systems Program Office (SPO) effectiveness, Congress has monitored cost control and schedule maintenance, both of which are end results of the systems acquisition process. Such measures, in many cases, neglect other important factors critical to the effective performance of any organization. For example, information on stakeholder satisfaction and the quality of the transformation process are lost when the focus of measurement is strictly output oriented.

The intent of GPRA "is to improve the efficiency and effectiveness of Federal programs by establishing a system to set goals for program performance and to measure results (United States Senate, 1993:2). However, the General Accounting Office (GAO), a longtime advocate of such a system, intends to use GPRA as a means of allocating the federal budget. Donald H. Chapin, Assistant Comptroller General for Accounting and Financial Management, states:

..if we can get the agencies to supply us with measurable goals, we can relate those to financial results and then you can see what you are spending your money on and whether that money is well spent. And that is my fond hope, that we can get that into our system of Government and have it reported to the Committees of Congress as a regular matter so that they can see the effectiveness of the money that they appropriate. (United States Senate, 1993:4-5)

Such a statement indicates how critical it will be for Government agencies to correctly implement strategic planning and accurately measure organizational effectiveness.

In recent studies of organizations, researchers have focused on developing models for measuring organizational effectiveness. In general, these models can be classified into four categories: output goal, multiple constituency, systems resource, and the process approach (Cameron, 1980:67).

Overview of Thesis

The purpose of this thesis is to review current SPO effectiveness measures in light of GPRA, and to develop an integrated model of organizational effectiveness SPOs can use to comply with GPRA's intent. As will be discussed, the main strength of the integrated model is its ability to incorporate GPRA's main purpose, namely to serve as the link between measures of effectiveness and strategic planning. Additionally, the model uses a systems approach which stresses the importance of stakeholder feedback and de-emphasizes the pursuit of strictly short-term, output measures of effectiveness.

Chapter II will provide some general background information on organizational effectiveness to include a brief discussion of the four traditional models mentioned earlier. The chapter will be concluded with a discussion of both GPRA and the integrated model that will be used to assess SPO effectiveness measures.

Chapter III will present the methodology to be employed during the study. This methodology will be a qualitative methodology that uses triangulation theory as its foundation.

Chapter IV will present the data gathered via the qualitative methodology, and will close with a depiction of the model showing how SPOs are currently operating.

Chapter V will analyze the data presented in Chapter IV, and will discuss what SPOs can do to improve their effectiveness measurement process. The integrated model will be used to analyze the data and to draw conclusions from the data.

Definitions

Several key terms and definitions relevant to this thesis are provided below:

1. Output measure -- the amount of product or service produced by an organization's transformation process. Outputs are the result of the transformation process and typically are not measured from the customer's perspective. Therefore, it is common for output measures to be associated with process efficiency.
2. Outcome measure -- an assessment of the *results* of a program activity or product compared to its intended *purpose*. It is different from an output measure which merely counts the amount of product or service produced by the transformation process. Rather, outcomes flow from products and are viewed from a customer perspective, not a process perspective. As such, discussions of outcomes and effectiveness are intertwined as are discussions of outputs and efficiency.
3. System Program Office (SPO) -- a collection of personnel and resources from various functional disciplines working together to field a system or capability which fulfills a validated customer need.

4. Metric -- a measurement over time, that communicates vital information about a process or activity, drives appropriate actions, and is linked to a strategic plan (AFMC Metrics Course, 1994:47).
5. Effectiveness -- an aspect of performance that describes how well the organization's activities are contributing to achieving intended outcomes. Effectiveness is a "consequence" measure. In terms of GPRA, effectiveness means the consequence of an output from the customer's perspective.
6. Efficiency -- an aspect of performance that describes the relationship between inputs and outputs. Efficiency is measured from a process perspective and not a customer perspective as is done with effectiveness.

II. Literature Review

Overview

This chapter provides a background for the research topic of developing an integrated model for measuring organizational effectiveness. The chapter will begin with an introduction of why organizational effectiveness is important and how Congress intends to ensure it. The introduction will be followed by a definition of organizational effectiveness developed from an illustration of four traditional models used to measure it. Next will be a brief analysis of the four models and a discussion of the current trend in organizational effectiveness literature. The chapter will be closed with a review of GPRA, and how it fits into the current stream of effectiveness literature. Based on this discussion, a series of research questions to be addressed by this study will be presented.

Theoretical Background

Although many models of organizational effectiveness exist, most of them are grounded in four traditional models. These models include: output goal, multiple constituency, systems resource, and the process approach model (Cameron, 1980:67).

Output Goal Model. The first and most widely used approach defines effectiveness in terms of how well an organization accomplishes its goals--the closer the organization's outputs come to meeting its goals, the more effective it is (Cameron, 1990:67; Gibson and others, 1994:31). For example, a business may set an annual sales goal of \$10 million or a production goal of 1000 units per month. If the firm exceeds \$10 million in sales or produces units at a rate that exceeds 1000 units per month, the firm would be considered effective.

Multiple Constituency Model. This model has also been termed the strategic constituencies approach, the participant satisfaction model, and the stakeholder management model (Cameron, 1980:67; Sturdivant, 1979:54). Sturdivant explains the concept by defining stakeholder groups as “people who are affected by corporate policies and practices and who see themselves as having a stake in the business” and “any group whose collective behavior can directly affect the organization’s future, but which is not under the organization’s direct control” (Sturdivant, 1979:54). For example, stakeholders in the DoD would include politicians and taxpayers. Stakeholder management attempts to achieve an equitable balance between the objectives of the corporation and the interests of the stakeholder groups (Sturdivant, 1979:54). An effective firm is one that is able to meet its objectives while satisfying the interests of stakeholder groups (Zammuto, 1984:606).

System Resource Model. The focus in this approach to measuring organizational effectiveness lies in the ability to obtain resources. Cameron writes: “..an organization’s effectiveness is judged on the extent to which it acquires needed resources--that is, the more of the needed resources an organization can obtain from its external environment, the more effective it is” (Cameron, 1980:67). Here, the emphasis on organizational inputs is analogous to the emphasis on outputs in the output goal model.

Process Approach Model. Cameron writes that:

...effective organizations are those with an absence of internal strain, whose systems are highly integrated into the system, whose internal functioning is smooth and typified by trust and benevolence toward individuals, where information flows smoothly both vertically and horizontally, and so on. (Cameron, 1980:67)

Here, organizations are more effective if they are able to achieve these internal characteristics and less effective if they cannot.

Organizational Effectiveness: Analysis

In analyzing the different organizational effectiveness models, authors agree that no model is appropriate in all circumstances or for all organizational types (Cameron, 1980:70; Hitt and Middlemist, 1979:373; Ostroff and Schmitt, 1993:1345). Chakravarthy, in describing the exclusive use of output goal models, states “they assume that a single performance criterion can assess ‘excellence’, they focus only on customers to the exclusion of the transformation process within the firm, and they ignore the claims of other stakeholders...” (Chakravarthy, 1986:445). Also critical of exclusive use of the output goal model were Hansen and Wernerfelt. They add that both economic factors (i.e. output goals) and organizational factors (i.e. process approach measures) are important, but organizational factors explain more of the variance in performance than do economic factors (Hansen and Wernerfelt, 1989:406). Researchers are equally as critical of the exclusive use of the multiple constituency, systems resource, and process approaches (Cameron, 1980:68-70; Seashore, 1983:61-62).

In recent years, however, researchers have begun to push their studies of organizational effectiveness models in a new direction. This new direction has been to develop hybrid models that heavily weigh stakeholder satisfaction in defining effectiveness.

For example, Chakravarthy writes:

This paper demonstrates the inadequacy of traditional measures that are based on a firm's profitability, for evaluating its strategic performance. Two other measures, one that attempts to assess the quality of a firm's transformations (and not merely its outcomes)

and the other that attempts to measure the satisfaction of all of the firm's stakeholders (and not merely its stockholders), are shown here to be important discriminators of strategic performance. (Chakravarthy, 1986:437)

Cameron, speaking of the four general models, adds that "each approach is analytically independent and that weaknesses exist in all of them" and "researchers have been trying to define and evaluate organizational effectiveness to get a framework that will attain general consensus" (Cameron, 1980:79). Additionally, Hansen and Wernerfelt integrated two sample models of organizational effectiveness, one from the economic viewpoint (i.e. the output goal approach) and one from the organizational viewpoint (i.e. the process approach) concluding "the results confirm the importance and independence of both sets of factors in explaining performance" (Hansen and Wernerfelt, 1989:406). Lastly, Seashore discusses an integrated model in which constituents serve as "integrators" and defines effectiveness within the context of the integrated model as "whatever some constituent or some researcher making attributions to a constituency says it is" (Seashore, 1983:65). Given the almost universal belief among researchers that no single model alone can fit all situations and organizations, integrated models will take on more importance.

Evolution of Performance Measures Within SPOs

The prominent and nearly exclusive performance measurement instrument used by SPOs to measure organizational effectiveness is metrics, which can be defined as a measurement over time, that communicates vital information about a process or activity, drives appropriate actions, and is linked to a strategic plan (AFMC Metrics Course, 1994:47). Many believe that measurement is a fundamental part of good management,

and that metrics are merely the way to achieve meaningful measurement. Bill Hewlett, co-founder of Hewlett-Packard, states "You cannot manage what you cannot measure," and "What gets measured gets done" (House and Price, 1991:93).

Metrics used by SPOs have evolved and will continue to evolve over time. Air Force Material Command (AFMC) has identified three major external change agents that are forcing the current phase of evolution: 1) Dwindling resources, 2) Competitive environment, and 3) Government reform. The third change agent, Government reform, is the focus of this thesis and will be studied more closely. Two examples of Government reform cited by AFMC are GPRA and Executive Order 12862 entitled "Setting Customer Service Standards." GPRA has been mentioned and will be outlined in the next section. Executive Order 12862, signed by President Clinton on 11 September 1993, will require Government agencies to have customer focus and *reward performance and allocate resources based on customer satisfaction results* (Clinton, 1993: 1737-1738). The evolution of SPO performance measures is illustrated in Figure 2.1 below:

The Evolution of Performance Measures

- | | | |
|----------------------------|-------|--------------------------------|
| • Functional Perspective | ————→ | • Global/System Perspective |
| • Lack of Customer Focus | ————→ | • Customer Focus “Designed In” |
| • Not Strategically Linked | ————→ | • Strategically Aligned |
| • Control | ————→ | • Empowerment |
| • Management by Emotion | ————→ | • Management by Facts |
| • Variation Misinterpreted | ————→ | • Variation Understood |
| • Quick Fixes | ————→ | • Continuous Improvement |
| • Reactive | ————→ | • Proactive |

Figure 2.1. Evolution of SPO Performance Measures
(AFMC Metrics Course, 1994:61)

From this relationship has emerged the core relationship a good metric must capture.

AFMC calls this relationship the “customer-product-process relationship” or “CP2” and states that all modern measures (metrics) must focus on the entire relationship (outcome).

A good metric or group of metrics must therefore incorporate the entire system to include inputs, processes, outputs, and customers. In other words, a good metric or group of metrics must integrate all the players in the system. This relationship is depicted in Figure 2.2 below:

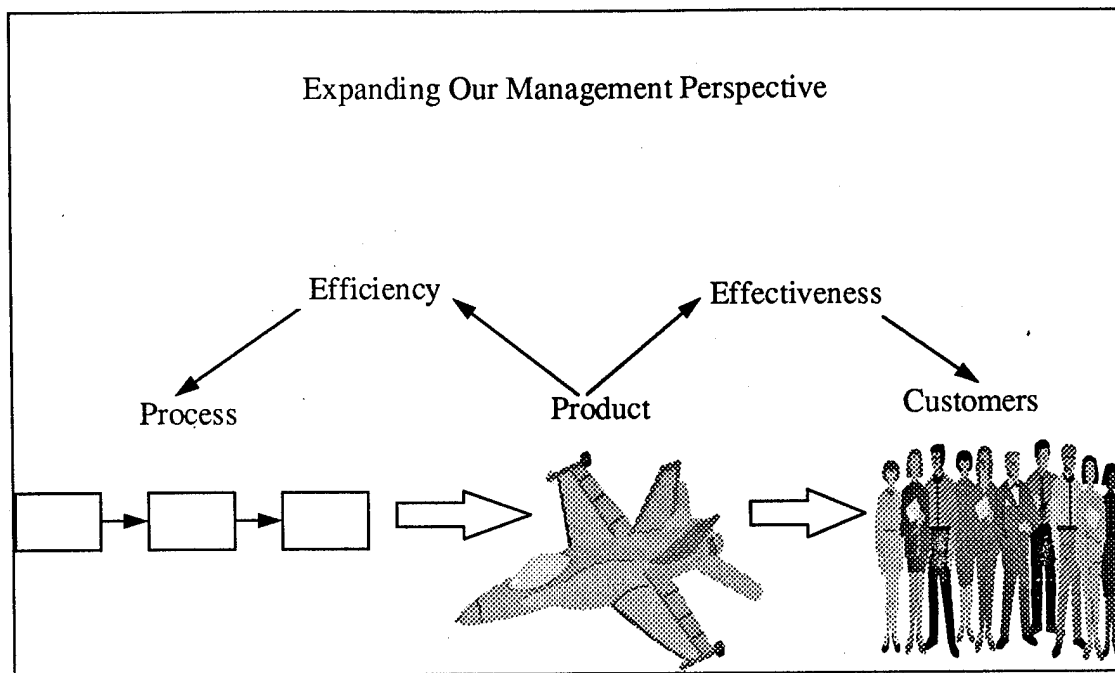


Figure 2.2. Customer-Product-Process Relationship
(AFMC Metrics Course, 1994:60-61)

The slide above incorporates the concepts of efficiency and effectiveness, the primary motivators Congress cited in its preamble to GPRA. Therefore, it can be said that AFMC recognizes that GPRA will impact performance measurement (metrics) currently in use. Additionally, AFMC recognizes that metrics must be linked to strategic plans (AFMC Metrics Course, 1994:10) and must embody the CP2 relationship. This emphasis on strategic planning and customers is reflected in the following excerpt from the AFMC Metrics Course Handbook:

The command's strategic planning process provides the foundation for metrics. Strategic plans at every level within the command should be aligned with the organizational level above it. It is essential that AFMC personnel understand that metrics are not an end to themselves but are by-products of effective strategic planning that link organizational mission, goals and objectives to their day-to-day work.
(33)

This thesis will investigate, among other things, whether current SPO effectiveness measures (metrics) incorporate GPRA concepts. Also, this thesis will address whether current effectiveness measures are compatible with the intent of GPRA which is to provide a link between measures of effectiveness and strategic planning.

GPRA in Light of Organizational Effectiveness Analysis

Given the recent push away from exclusive models and towards integrated models, Congress has attempted not to prescribe a particular model to measure organizational effectiveness under GPRA. The United States Senate Committee on Governmental Affairs report on GPRA discusses the importance of long-range strategic planning and proper measurement of organizational effectiveness (United States Senate, 1993:9-20). The report suggests that GPRA is descriptive in nature and not prescriptive. Such a format would give considerable discretion to organizations in developing strategic plans and measuring their own organizational effectiveness against them (United States Senate, 1993:17). It should be noted, however, that the Senate report eludes to Sunnyvale, California as a prototype by which the government could model its strategic planning and organizational effectiveness measurement efforts (United States Senate, 1993:10). The Senate report cites several performance measures used by Sunnyvale's local government in assessing its effectiveness. For example, the report cites measures such as unit costs, complaints per year, and phone response times (United States Senate, 1993:11). Much of what Sunnyvale, California measures effectiveness against are strictly output goal measures. By repeatedly referring to Sunnyvale, Congress may be encouraging an exclusive reliance on output measures, irrespective of its intent not to prescribe.

Government Performance and Results Act of 1993

As mentioned in Chapter I, GPRA was enacted to increase the efficiency and effectiveness of the Federal government via strategic planning. Additionally, according to President Clinton, GPRA will “strengthen the American economy and the bonds of our citizenship” (Whittaker, 1995:1). The following summary outlines the multiple purposes of GPRA as well as its major provisions:

GPRA’s Purpose. GPRA’s purpose can be summarized as follows:

- (1) improve the confidence of the American people in the capability of the Federal Government, by systematically holding Federal organizations accountable for achieving program results;
- (2) initiate program performance reform with a series of pilot projects in setting program goals, measuring program performance against those goals, and reporting publicly on their progress;
- (3) improve Federal program effectiveness and public accountability by promoting a new focus on results, service quality, and customer satisfaction;
- (4) help Federal managers improve service delivery, by requiring that they plan for meeting program objectives by providing them with information about program results and service quality;
- (5) improve congressional decisionmaking by providing more objective information on achieving statutory objectives, and on the relative effectiveness and efficiency of Federal programs and spending; and
- (6) improve internal management of the Federal government.

GPRA's Major Provisions. GPRA's major provisions will require Federal

organizations to:

- (a) Develop strategic plans by fiscal year 1998.
- (b) Develop annual performance plans based upon the strategic plan, setting performance goals beginning with fiscal year 1999.
- (c) Make performance reports annually, starting in March 2000, on actual performance compared to goals established in the strategic plan.

The act also:

(a) Allows Federal organizations to waive administrative requirements and controls under certain situations to provide greater managerial flexibility to get the job done in exchange for greater accountability.

(b) Establishes three sets of pilot projects during the new few years. They are:

(1) A set of pilot projects starting in fiscal year 1994, undertaken to test and demonstrate annual performance plans and performance reports (i.e. planning pilots).

(2) A set of pilot projects starting in fiscal year 1995 will selected from the Federal organizations participating in the initial annual performance plan pilots to test and demonstrate the concepts involved in managerial flexibility and accountability (i.e. managerial flexibility and accountability pilots).

(3) A set of pilot projects on performance budgeting (i.e. performance budgeting pilots).

These major provisions and other details of GPRA are summarized in Table 2.1 below:

Table 2.1. GPRA Milestones and Projected Timetables (OMB, 1993:41, 52)

| What's Required | When | Who |
|---|----------------|-----------|
| 1. Agency points of contact for strategic planning identified | Sep 93 | Agencies |
| 2. Distribute guidance on strategic plan content | Nov 93 | GMD (OMB) |
| 3. Agencies may submit plans that satisfy requirements of Section 3 of GPRA | After 1 Oct 95 | Agencies |
| 4. Agencies submit initial strategic plan to OMB and Congress | By 30 Sep 97 | Agencies |
| 5. Three year revision and update period begins for agencies submitting strategic plans after October 1, 1995 | Oct 98 | Agencies |
| 6. Agencies must have updated and revised initial strategic plan | By 30 Sep 97 | Agencies |
| 7. Based on results of pilot projects, issue any necessary guidance on preparation of annual performance plans for FY 1999 | Jun 97 | OMB |
| 8. Agencies submit annual performance plan for FY 1999 to OMB | Sep 97 | Agencies |
| 9. OMB authorizes agencies to use alternative forms of performance measurement in plans | Oct 97 | OMB |
| 10. Agencies revise annual performance plans to reflect budgetary decisions | Dec 97 | Agencies |
| 11. Agencies provide copies of complete final performance plan to appropriate authorizing and appropriation committees, and make such plans available to the public | Feb 98 | Agencies |
| 12. At agency option, agencies revise plan to reflect FY 1999 budgetary decisions, and provide to OMB, appropriate Congressional authorizing and appropriating committees, and make available to the public | By 30 Sep 98 | Agencies |

What is GPRA Really About and How Will it Affect or Change Government? Despite its complexity, GPRA is really about change--change in the way the federal government does *business*; change in the way federal managers are held *accountable* for program results; and change in the *focus* placed on service quality and customer satisfaction. In effect, GPRA means that "results-oriented management is in, and spending program

dollars with no accountability is out" (Whittaker, 1995:3). The GPRA is intended to bring about a fundamental transformation in the way government operates and could be the catalyst for improving the overall management of the federal government (OMB, 1993:5; Whittaker, 1995:3). Some of the major effects GPRA is anticipated to have on the federal government are outlined below:

(1) Much greater emphasis will be placed on program execution--on outputs, outcomes, and results. For those managers mainly concentrating on the front end (i.e. inputs, program definition, and policy formulation), this focus will have to be replaced with a focus on how programs are currently doing and what is being accomplished. This viewpoint is summarized by James Whittaker, who writes that "the current emphasis is more on process than results, and this must change," and, "the 'heyday' of the input style of accountability appears to be over. Now it will be most important to work on the output, outcome, and results side of the equation" (Whittaker, 1995:4,8). Congress, in passing GPRA, recognized this improper focus, and they have attempted to remedy this problem.

(2) No longer will strict adherence to rules and regulations be sufficient evidence of good management. "Put simply, process will not disappear, but the results achieved will be more determinate of managerial success or failure than whether one merely followed the rules" (OMB, 1993:6).

(3) Organizational success will require participative management.

(4) Ineffective programs or activities will be improved, or they will be ended. Of all the impacts of GPRA, this is perhaps the strongest and most universal. In essence, GPRA

will be used as a budgeting tool in which annual appropriations are based on actual performance results rated against annual performance plan goals. Perhaps this explains why an earlier title for GPRA was the "Bang for the Buck Act" (OMB, 1993:6). The last of the three pilot projects under GPRA deals with what has been termed "performance budgeting." Performance budgeting has been defined as "presenting the varying levels of performance that would result from different budgeted amounts" (OMB, 1993:5).

Conclusion

For the last several decades, organizational behavior researchers have devoted significant time to the topic of organizational effectiveness. One of the few common themes to come from all this research has been the realization that there is no one exclusive model that accurately measures organizational effectiveness in all contexts. As a result, the new focus in organizational effectiveness research has been towards developing an integrated model capable of being used in many contexts. This integrated model, while incorporating each of the four general approaches (i.e. output goal, multiple constituency, systems resource, and process) places particular emphasis on constituencies. In passing GPRA, Congress told the American people that government must be more accountable for its management actions. Additionally, GPRA, despite being more descriptive than prescriptive in nature, models itself after the organizational effectiveness model of Sunnyvale, California, a city which relies almost exclusively on output goal measures of effectiveness. Although current research "discourages" using one of the effectiveness approaches exclusively, Congress, by praising Sunnyvale, California, appears to be advocating, directly or indirectly, the exclusive use of the output goal approach.

Integrated Model of Organizational Effectiveness

The integrated model depicted in Figure 2.3 below will be used to assess current SPO effectiveness measures. As mentioned in Chapter I, the model's strengths are its systems approach, and its incorporation of GPRA's intent to serve as the link between effectiveness measurement and strategic planning.

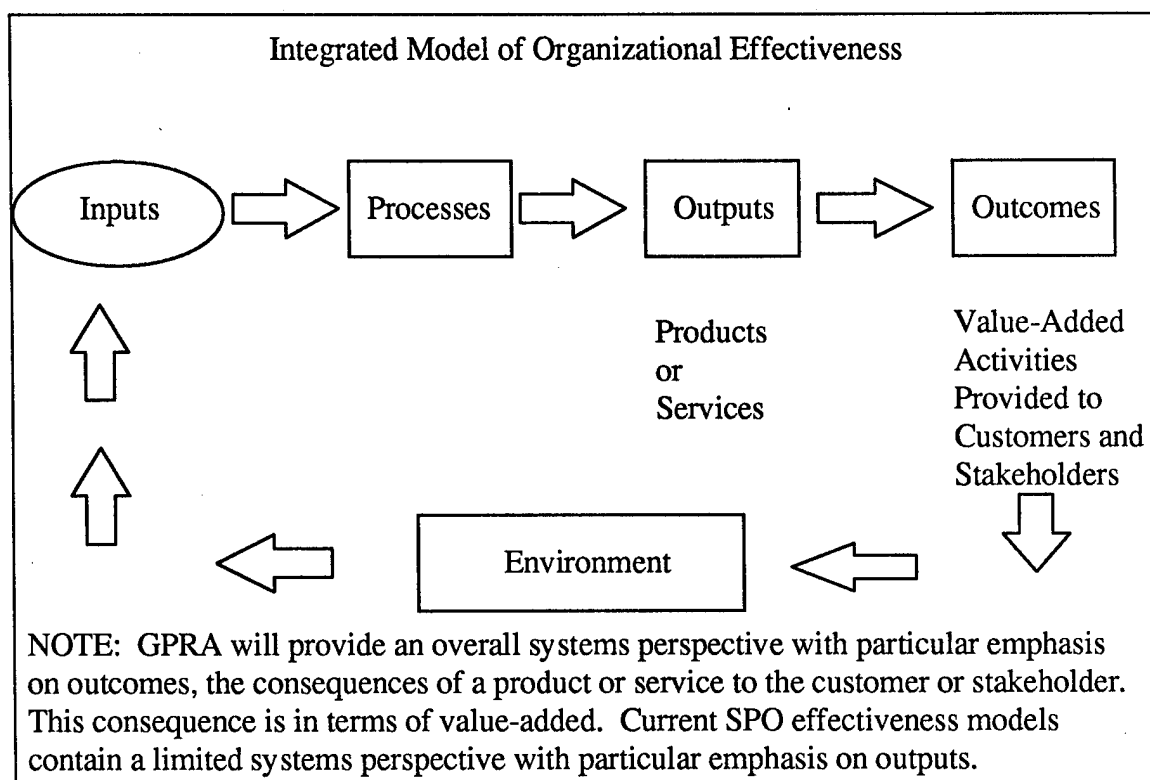


Figure 2.3. An Integrated Model for Measuring SPO Effectiveness

Discussion of Integrated Model

As noted in Figure 2.3, the integrated model was derived from general systems theory. In the context of the general systems theory of organizational effectiveness, the organization or program is only one element of a number of elements interacting interdependently. The flow of inputs and outputs is the basic starting point in describing

the organization. In the simplest terms, the organization takes resources (inputs) from the larger system (environment), processes these resources, and returns them in changed form (output). Systems theory also stresses the organization's connection to the larger system of which it's a part. Every organization is part of an industry (a larger system), a society (a yet larger system), and so on. Thus, the organization can't simply produce a product or service to satisfy its customers only; it must also produce products or services to satisfy other important components of the larger environment. In the SPO and GPRA context, SPOs must produce weapons systems that satisfy its immediate customer (such as ACC), yet it must also satisfy other stakeholders within the environment such as Congress and the American taxpayers (Gibson and others, 1994:34).

The concept of the organization as a system that's related to a larger system introduces the importance of feedback. As noted above, the organization depends on the environment not only for its inputs, but also for the acceptance of its outputs. Thus, the organization must develop means for adjusting to organizational demands. The means for adjustment are information channels that enable the organization to recognize these demands. As identified in the interviews conducted and from the records analysis performed in this study, SPOs typically employ metrics, customer surveys, and periodic customer meetings as both the information gathering and feedback mechanisms.

Gibson and others illustrate effectiveness at each stage by providing the following example dealing with universities. A university uses resources (*inputs*) to teach students (*process*), to do research (*output*), and to provide technical information to society (*output*). A university's survival depends on its ability to attract students' tuition and

taxpayers' dollars (*defined earlier in the chapter as effectiveness from the systems resource model's perspective*) in sufficient amounts to pay the salaries of its faculty and staff. If a university's output is rejected by the larger environment so that students enroll elsewhere (*defined earlier in the chapter as ineffectiveness from the output goal model's perspective*), or if a university is guilty of expending too many resources in relation to its output (*defined earlier in the chapter as ineffectiveness from the process approach model's perspective*), it will cease to exist. Like a business, a university must provide the right output at the right price if it's to survive (Gibson and others, 1994:35-36). This last sentence implies there is a difference between outputs and outcomes. This is a major characteristic of the integrated model depicted in Figure 2 above. The model does not reject the merits of the four basic models introduced earlier in the chapter (system resource, process approach, output goal, and multiple constituency models). Rather, the model integrates all four of the models and incorporates a new component called outcomes, defined by the model as the value added portion of the organization's output, where value added means the consequences of the output to the customer/stakeholder. This model provides the proper orientation from which SPOs can measure effectiveness in a manner most favorable under the requirements of GPRA. In short, this integrated model stresses the major points cited in GPRA--outcomes and customers/stakeholders.

As will be mentioned in Chapter V, this model should be tested after Congress mandates that SPOs implement GPRA. Since this study was a qualitative study geared at assessing current SPO effectiveness models and developing an integrated model of effectiveness, I would recommend testing the model statistically. This could be

accomplished by surveying SPOs' relevant stakeholders (i.e. ACC, SAF, ANG, Congress, Reserves, etc.) and statistically analyzing their responses. This analysis could determine whether stakeholders are more satisfied under this model than in the previous, non-GPRA environment with the assumption that increased satisfaction results from increased effectiveness.

For the purposes of this research study, we propose the following:

1. Current effectiveness measures used within SPOs are strictly output goal measures;
2. GPRA while emphasizing the need for a more "holistic" approach has not provided a good model to accomplish this; and
3. An integrated model can be developed to meet both the spirit of GPRA and the SPOs' need for a thorough mechanism for measuring organizational effectiveness

III. Methodology

Overview

This chapter introduces the methodology and research design procedures that will be used to answer the three propositions presented in Chapter II Literature Review:

1. Current effectiveness measures within System Program Offices (SPOs) strictly output goal models;
2. GPRA while emphasizing the need for a more “holistic” approach has not provided a good model to accomplish this; and
3. An integrated model of organizational effectiveness be developed which will help SPOs succeed under the Government Performance and Results Act of 1993

The F-16 SPO will be used to assess effectiveness measures currently in use. This portion of the research will seek to answer proposition one above. From this assessment, an integrated model of organizational effectiveness will be developed. This integrated model will incorporate principles of each of the four general models presented in Chapter II Literature Review. The four general models of organizational effectiveness included: 1) the output goal model which focuses on output measures such as profit, costs, etc.; 2) the systems resource model which measures an organization's ability to acquire limited resources relative to its competitors; 3) the process approach model which analyzes the effectiveness of an organization's transformation processes; and 4) the multiple constituency model which defines effectiveness as an organization's ability to meet its objectives while satisfying the interests of stakeholders (Zammuto, 1984:606). The

integrated model will then be applied to the F-22 SPO. This portion of the research will seek to answer proposition two above.

The remainder of this chapter will introduce critical issues related to research design, data collection, and data analysis.

Research Design

Cooper and Emory state that several different design approaches exist in research “but unfortunately, no simple classification system defines all the variations that must be considered” (1995:114). Gay and Diehl propose using only two research classifications-- purpose and method (1992:8). Classification by purpose is defined as “the degree to which findings have direct business applications and the degree to which those findings are generalizable” (Gay and Diehl, 1992:8). Classification by method is defined as “the overall strategy followed in collecting and analyzing data” (Gay and Diehl, 1992:8).

Research by Purpose. The segregation of research by purpose yields two types--basic and applied research (Gay and Diehl, 1992:8). Gay and Diehl state that basic research takes place in a controlled environment and results in theory development/refinement; applied research takes theory and applies it for the purpose of answering specific research questions (1992:9). Emory and Cooper discuss the debate over which is “better,” and conclude that not all research needs to be “guided by theory and hypotheses about presumed relations” (1995:10). They quote Robert Dubin’s 1969 book, Theory Building:

There is no more devastating condemnation that the self-designated theorist makes of the researcher than to label his work purely descriptive. There is an implication that associates ‘purely descriptive’ research with empty-headedness; the label also implies that as a bare minimum every healthy researcher has at least an hypothesis to test, and preferably a whole model. This is nonsense...Descriptive research is the stuff out of which the mind of man, the

theorist, develops the units that compose his theories. The very essence of description is to name the properties of things: you may do more, but you cannot do less and still have description. The more adequate the description, the greater is the likelihood that the units derived from the description will be useful in subsequent theory building. (1995:11)

Research by Method. Gay and Diehl assert that five classifications of research by method can be used: 1) *historical* research which involves examining and explaining past events; 2) *descriptive* research which studies and reports things in their current state; 3) *correlational* research which attempts to ascertain whether two variables, events, etc. are related; and 4) *causal* and *experimental* research which attempts to discover causation between variables, events, etc. The authors present a decision tree researchers may use in choosing a research method. This decision tree is presented below in Figure 3.1.

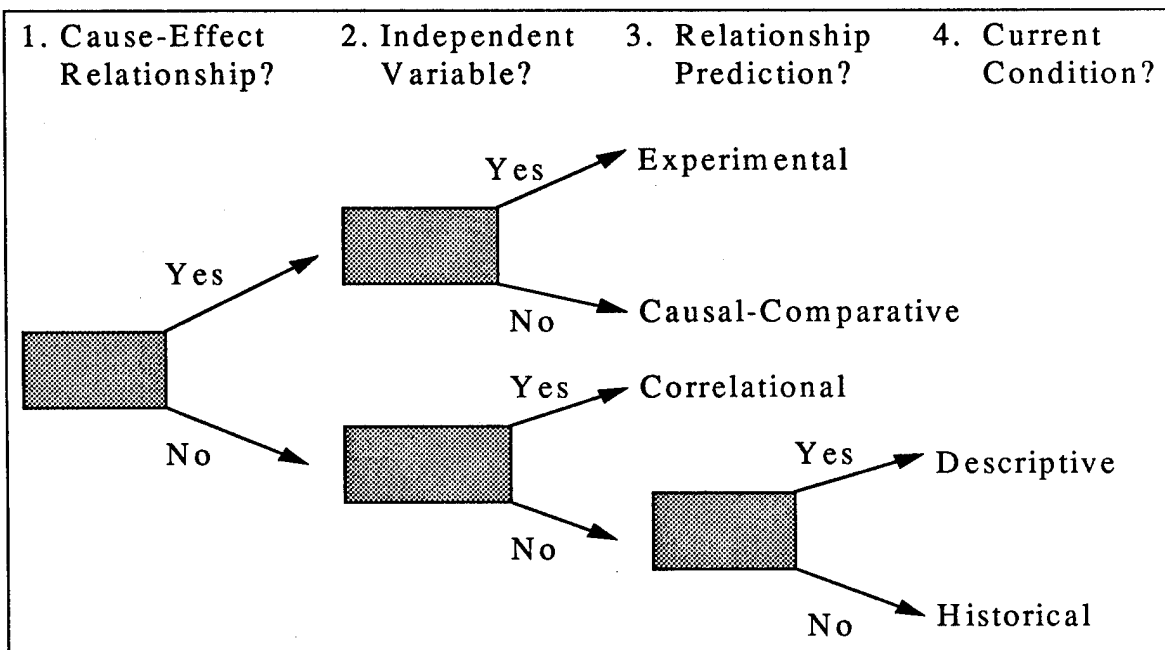


Figure 3.1. Decision Tree for Determining Methods of Research (Gay and Diehl, 1992:19)

As will be discussed in the next sections, this study will employ applied research (research purpose) and descriptive research (research method). Although aspects of both applied and basic research may be present, the *primary* purpose of the study is applied research. The four general models of organizational effectiveness theory will be used to study the F-16 SPO. This portion of the study will serve two purposes. First, the study will reveal which models of organizational effectiveness are currently used by SPOs. Second, the study of the F-16 SPO will provide useful information for the development of the integrated model of organizational effectiveness that will be applied to the F-22 SPO. The F-16 portion of the study will provide answers to proposition one addressed earlier in the chapter and, therefore, represents applied research (through the application of the four general theories of organizational effectiveness). These results will provide inputs for the development of the integrated model to be tested in the F-22 SPO. Since no specific hypotheses will be tested, and because the F-22 results will be used to modify the integrated model, this portion of the research represents basic research.

Data Collection

Coomer and Moynihan summarize data collection as four critical decisions. The first decision is what to use as the unit of analysis. Second, the researcher must determine the proper methodology that will enable the researcher to answer the research questions/propositions. The third decision the researcher faces is selecting the proper sample size. Lastly, the researcher must decide on the appropriate measuring instrument(s) (1994:45).

Unit of Analysis. The researcher has limitless possibilities on which unit of analysis to employ. Patton states that units of analysis can range from individuals to groups, programs, organizations, countries, etc. (1990:166-168). Coomer and Moynihan cite Patton's assertion that the bottom line in determining the: "appropriate unit of analysis is to decide what it is you want to be able to say something about at the end of the study" (1994:46). This study will attempt to ascertain organizational effectiveness models currently in use within SPOs. From these results, an integrated model will be developed and applied to the F-22 SPO, with the goal that this model will be generalizable to all SPOs. Given the "bottom line" approach suggested by Patton, this study will use SPOs as the proper unit of analysis.

Methods. Coomer and Moynihan classify methods according to a general scheme from Patton's book, Qualitative Evaluations and Research Methods. Patton classifies research methods as one of three types: 1) quantitative, 2) qualitative, or 3) mixed (1990:165). Patton distinguishes between them by stating that quantitative methods produce breadth of coverage of a topic area, qualitative methods provide depth of coverage of a topic area, and the mixed method produces both breadth and depth of coverage of a topic area (1990:165). This explanation suggests that quantitative methods tend to gather and test data from as many sources as is practicable while qualitative methods seek to completely investigate a limited number of areas. The research that will be conducted in this study will be gathered from only two SPOs, the F-16 and the F-22. Given this limited number of research areas, the study will be strictly qualitative. The F-16 and F-22 SPOs were selected based on their applicability, maturity, availability, visibility/reputation, and level of complexity.

Applicability: As was noted above, Patton states that units of analysis can include individuals, groups, programs, organizations, etc. However, Patton's bottom line in determining the "appropriate unit of analysis is to decide what it is you want to be able to say something about at the end of the study." Since this study focuses on effectiveness measures applicable to SPOs, SPOs are the most applicable unit of analysis.

Maturity: The F-16 and F-22 SPOs represent the spectrum of life cycle maturity. Specifically, the F-16 SPO is a very mature SPO currently in the production and operations and support phases of the acquisition life cycle. Its processes and procedures are well-established, defined, and visible. On the other hand, the F-22 SPO is a relatively immature SPO in terms of its life cycle. It has not yet entered the production phase and only completed its Critical Design Review (CDR) in Apr 95. Together, the F-16 and F-22 SPOs represent a good cross-section of the acquisition life cycle continuum along which all programs mature.

Availability: Both the F-16 and F-22 SPOs are located at Wright-Patterson AFB OH, thus making the data available, convenient, and less costly to obtain. It is also important to remember that while all SPOs (i.e. organizations) are unique, they are also similarly organized and follow roughly the same processes and procedures. Therefore, the research effort will not be biased by the fact that only the F-16 and F-22 SPOs will be analyzed. In other words, the results obtained in this research will not be significantly altered by the selection of the F-16 and F-22 SPOs versus any other SPOs.

Visibility/Reputation: Both the F-16 and F-22 SPOs are considered two of ASC's more successful SPOs. Therefore, these SPOs provide the opportunity to investigate how

well our top SPOs measure organizational effectiveness within the context of GPRA. In other words, the F-16 and F-22 SPOs are the SPOs most likely to be compatible with GPRA at this time, and they will provide a picture of just where ASC stands in terms of its compatibility with GPRA. Additionally, both SPOs have employed the ASC mandated Integrated Product Team (IPT) organizational structure in place of the traditional functional/matrix structure. Although not an express purpose of this research, results from this study may provide some insight into the success of the new IPT organizational structure.

Level of Complexity: SPOs represent the level of complexity most advantageous to answering the propositions addressed by this thesis. SPOs closely resemble "profit centers." This does not mean profit in the traditional sense as SPOs are nonprofit, Government organizations. Rather, profit in this context implies that the organization is monitored for its effectiveness and efficiency. In other words, the organization will not continue to exist if their performance is poor, unlike an organization like AFMC which will exist indefinitely, irrespective of performance. Therefore, profit centers have a motivation to perform effectively and efficiently. It is this performance/survival duel that distinguishes a profit center from larger, "permanent" organizations. Because SPOs represent the highest level organization most like a profit center, they are most appropriate in this study in terms of level of complexity.

It should be noted, however, that the use of a limited number of SPOs will not necessarily affect the *generalizability* of the results produced by this study. All of the SPOs within Aeronautical Systems Center (ASC) have similar organizational structures

and are required to produce and report information in similar fashions. The F-16 and the F-22 SPOs are organized in a manner similar to all SPOs, and the results generated by studying only these two can be applied to all SPOs. This degree of applicability/generalizability may vary from SPO to SPO, however, the results of this study will provide useful information to all SPOs.

Instruments. Data collection for qualitative methods can be accomplished in a number of ways. Emory and Cooper cite nine approaches to data collection in qualitative research (1995:118-119). These methods include:

1. In-depth-interviewing
2. Participant observation
3. Films, photographs, and videotape
4. Projective techniques and psychological testing
5. Case studies
6. Street ethnography
7. Elite interviewing
8. Document analysis
9. Proxemics and kinesics

This study will focus on three of the nine approaches to data collection cited by Emory and Cooper. Specifically, this study will use in-depth-interviewing, document analysis and direct observation. Patton describes these data collection techniques as follows:

data from interviews consist of direct quotations from people about their experiences, opinions, feelings, and knowledge. The data from observations consist of detailed descriptions of people's activities, behaviors, actions, and the full range of interpersonal interactions and organizational processes that are part of observable human experience. Document analysis in the qualitative

inquiry yields excerpts, quotations, or entire passages from organizational, clinical, or program records; memoranda and correspondence; official publications and reports; personal diaries; and open-ended written responses to questionnaires and surveys. (1990:10)

This study will conduct interviews with numerous people within both the F-16 and F-22 SPOs via structured interviews. The interview questions and their purposes are outlined below in Table 3.1:

Table 3.1. Interview Question and Purpose Matrix

| Question Number | Purpose of Question |
|---|---|
| Question #1: How do you measure your ability to meet your customers' needs? | To assess the level of customer and stakeholder awareness and involvement within SPOs; To reveal the types of measures used by SPOs in measuring customer satisfaction. |
| Question #2: What is your definition of an effective program? What do you believe is the SPO Director's definition? | To identify if SPOs view effectiveness in terms of inputs, processes, outputs, or outcomes; To identify what lower level personnel perceived to be the SPO Director's definition. Was it input oriented? Process oriented? Output oriented? Outcome oriented? |
| Question #3: Given the way you currently measure effectiveness, do you consider this to be proactive or reactive? | To determine whether current effectiveness measures were perceived to be proactive or reactive. |
| Question #4: Given the way you currently measure effectiveness, can you think of any ways to improve the measurement process? | To identify any potential areas which could be factored into the integrated organizational effectiveness model produced by this study. |

Additionally, document analysis will be performed by looking at minutes from program reviews, unit self-assessments, metrics reports, integrated product team (IPT) meeting minutes, etc.. The main records to be analyzed are outlined below in Table 3.2:

Table 3.2. Matrix of Records Reviewed

| Record/Report | Frequency of Report | Prepared/Attended By | Purpose |
|--|---------------------|---|---|
| Unit Self-Assessments (USAs) | Annually | SPO Director | Annual SPO assessment of seven areas to include: 1) leadership, 2) Information & Analysis, 3) Strategic Planning, 4) Process Management, 5) Quality, 6) Operational Results, and 7) Customer Satisfaction |
| Executive Program Management Reviews (EPMRs) | Quarterly | Top SPO Managers and Contractor personnel | Provide SPO Director a broad based review of SPO performance |
| Requirements and Planning Councils (R&PCs) | Quarterly | Top SPO Managers and main SPO customers to include ACC, ANG, Reserves, etc. | Get SPO management together with the definer of requirements, ACC, to plan how SPO will pursue ACC's long-term requirements |
| Kenne Interviews | Unknown | ASC/CV meets with Air Mobility Command (AMC), ACC, Air Education and Training Command (AETC), and other major customers | Gives ASC customers opportunity to highlight their areas of importance and concern |
| ASC/CC Mandated Metrics | Monthly | SPO Personnel | Give ASC/CC insight into each of 22 programs' current performance |

The records review serves the following purposes:

1. Validates SPOs track and monitor program performance and effectiveness
2. Assesses the existence and extent of any SPO strategic planning being accomplished
3. To illustrate top-level performance indicators/metrics used within SPOs

Lastly, direct observation of SPO members activities will be conducted during on-site visits. By combining these three approaches, the study will capitalize on the principle of “triangulation” (Patton, 1990:187) which is discussed in the next section.

Triangulation

In the area of research, triangulation is defined as “the combination of methodologies in the study of the same phenomena or programs” (Patton, 1990:187). This can mean using several kinds of methods or data, including using both quantitative and qualitative approaches. Additionally, mixes of measurement, design, and analysis are possible (Patton, 1990:189). The term triangulation is borrowed from land surveying and basic geometry. Knowing a single landmark only locates you somewhere along a line in a direction from the landmark, whereas with two landmarks you can take bearings in two directions and locate yourself at their intersection (Fielding and Fielding, 1986:23).

Denzin adds that the logic of triangulation is based on the premise that:

no single method ever adequately solves the problem of rival causal factors...Because each method reveals different aspects of empirical reality, multiple methods of observations must be employed. This is termed triangulation. I now offer as a final methodological rule the principle that multiple methods should be used in every investigation. (Denzin, 1978:28)

This passage reveals that triangulation provides increased breadth of coverage of a particular phenomena or program. Other important strengths of triangulation are its ability to reduce risk and increase validity. Patton writes:

Studies that use only one method are more vulnerable to errors linked to that particular method (e.g., loaded interview questions, biased or untrue responses) than studies that use multiple methods in which different types of data *provide cross-data validity checks* (emphasis added). (Patton, 1990:188)

Denzin has identified four basic types of triangulation in research: (1) data triangulation--the use of a variety of data sources in a study; (2) investigator triangulation--the use of several different researchers or evaluators; (3) theory triangulation--the use of multiple perspectives or theories to interpret a single set of data; and (4) methodological triangulation--the use of multiple methods to study a single phenomena, program, or problem (Denzin, 1978:28).

This thesis will employ two of the four types of triangulation proposed by Denzin. Specifically, this study will use aspects of data and theory triangulation. Data triangulation, or the use of a variety of data sources in a study, will be accomplished by using several data sources during the study. These data sources include interviews, records analysis, unit self assessments, and direct observation. Theory triangulation, or the use of multiple perspectives or theories to interpret a single set of data will be accomplished by applying four traditional models of organizational effectiveness to the data gathered via interviews, records analysis, etc. These models are the output goal, multiple constituency, systems resource, and process approach models that were presented in Chapter 2. These models will act as filters through which all research data will be “strained” to evaluate the data’s orientation to each model.

The use of the triangulation technique will produce overlap and redundancy within the results. These areas of overlap produced by triangulation will be a main focus of the research and will be the main source of information used to modify the integrated model of organizational effectiveness developed in Chapter II Literature Review.

IV. Data Analysis and Findings

Overview

Chapter II concluded by presenting two propositions to be addressed by this study.

These propositions were identified as follows:

1. Current effectiveness measures used within SPOs are strictly output goal measures;
2. GPRA while emphasizing the need for a more “holistic” approach has not provided a good model to accomplish this; and
3. An integrated model can be developed to meet both the spirit of GPRA and the SPOs’ need for a thorough mechanism for measuring organizational effectiveness

As noted in Chapter III, triangulation was defined as the combination of methodologies in the same study. This study capitalized on two types of triangulation--data triangulation and theory triangulation. Data triangulation, was accomplished through interviews, records analysis, Unit Self Assessments (USAs), and direct observation. Theory triangulation, was accomplished by applying the four traditional models of organizational effectiveness introduced in Chapter II to the data gathered from interviews, records analysis, etc. Recall that the strength of triangulation is its ability to identify common patterns within data gathered from various sources. The overlap produced by triangulation resulted in increased breadth of coverage, reduced risk, and increased validity.

This chapter will present and analyze the data gathered during this study. First, the data gathered from interviews with F-16 and F-22 SPO personnel will be presented and

analyzed. This will be accomplished by addressing each interview question individually in terms of the results/findings they produced.

After presenting the interview results, data collected from SPO records are be presented and analyzed. This data was gathered from records that included Executive Program Management Reviews (EPMRs), Unit Self Assessments (USAs), and metrics reports. The records data analysis will be accomplished in the same manner as was used in analyzing individual interview questions (i.e. purpose, results/findings, and analysis/conclusions). Lastly, based on the data analysis and conclusions reached, the integrated model for measuring organizational effectiveness developed in light of GPRA will be used to depict the current state of SPO effectiveness measures.

Interview Questions

Interview Question #1: How do you measure your ability to meet your customers' needs?

Results/Findings:

The interviewees named several methods used to measure their ability to meet their customers' needs. These methods were broken down into instruments and forums. Instruments used included surveys, metrics, and management reviews. Forums in which SPOs met with their customers included EPMRs, R&PCs, and strategic planning offsites. Actual measurements were separated into periodic/long-term (surveys, EPMRs, R&PCs, and offsites) and day-to-day (metrics).

Interview Question #2 What is your definition of an effective program? What do you believe is the SPO Director's definition?

Results/Findings: Most of the respondents answered that effective programs are programs that meet the customer's stated requirements. This indicated that most of the respondents associated effectiveness with customer satisfaction. This viewpoint, however, was not shared by all respondents. Several of the respondents cited timeliness and cost savings as the central determinants of an effective program. For example, one interviewee stated that an effective program is one that sticks as closely as possible to original targets in terms of Cost/Schedule Control Systems Criteria (C/SCSC). Another interviewee responded that Contract Administrative Lead Time (CALT), a measure of timeliness, was the most important and only real measure of effectiveness within the contracting domain. These last two examples indicate that these interviewees associate effectiveness with strictly output measures such as timeliness and cost savings.

Regarding the SPO Director's definition of an effective program, interviewees regarded this as a problem in most instances. Several F-16 interviewees stated that there have been three SPO Directors since 1993. The result of such turnover has been an unstable focus for lower level employees, as they are unsure of which direction the SPO is headed. Additionally, several SPO employees and interviewees mentioned a previous ASC Commander mandate that all SPOs report a limited set of common, standardized metrics to ASC. These limited, standardized metrics included eighteen metrics dealing with cost, schedule, and performance only. The eighteen metrics as applied to the F-16 SPO are listed below in Table 4.1:

Table 4.1. ASC/CC Mandated Metrics

| Standardized Cost Metrics | Standardized Schedule Metrics | Standardized Performance Metrics |
|----------------------------------|--|---|
| Planned v. Actual Obligations | Contractor Production Profile | Mission Capability (F-16 A/B Models) |
| Contract Cost Variance | Schedule Variance | Mission Capability (USAF F-16 C/D Models) |
| Required v. Budget (Development) | Key Milestones (Block 50 OFP Tape 4) | Mission Capability (ANG F-16 C/D Models) |
| Required v. Budget (Production) | Key Milestones (F-16 1994 Buy) | Mission Capability (AFR F-16 C/D Models) |
| Required v. Budget (O&M) | Key Milestones (Modified Modular Mission Computer) | Mission Capability Aircraft Availability |
| Program Cost Disconnect | Key Milestones (Digital Terrain System) | Technical Performance Parameters |

The employees and interviewees added that the then ASC Commander did not communicate with the SPOs on which metrics would be used or why the metrics chosen were deemed so important. They also added that the metrics chosen were not used by SPO managers to manage their daily responsibilities.

Interview Question #3 Given the way you currently measure effectiveness, do you consider this to be proactive or reactive?

Results/Findings: Several of the respondents cited this area as one of big concern. They stated that many of the metrics employed were too short term to be beneficial to daily planning and management. Additionally, they stated that many of the measures were received after the completion of the activity of interest. That is, many of the measures were strictly output measures which could not help planning, because by their very nature, these measures were after the fact. All the respondents did state, however, that many of

their SPO's metrics provide timely information which helps daily planning and management.

Several of the respondents also mentioned that SPOs, being Government organizations, change so frequently that they tend to be/are forced to be reactive and oriented to the short-term. That is, the respondents felt that many Government organizations are too constrained to engage in proactive, long-range planning. For example, personnel in contracting felt that their specific areas are too volatile to be suitable for stable, long-range planning. This sentiment has been echoed by Congress, which in passing GPRA noted that "government management tends to be driven by the constraints of the organization, not the tasks of the organization" (United States Senate, 1993:3).

Interview Question #4 Given the way you currently measure effectiveness, can you think of any ways to improve the measurement process?

Results/Findings: The interviewees had several suggestions on how to improve the measurement process. These suggestions are highlighted below:

- 1) One interviewee was bewildered as to why SPOs were asked to reorganize before they had first defined all of their processes. In the interviewees eyes, SPOs were forced to implement the IPT organizational structure before it had defined all of its processes and without any statistical validation that the IPT structure was a better organizational structure. The interviewee argued that more time should be spent on defining, understanding, and publicizing SPO processes. This would have a greater impact on what is measured and how it is measured than does a reorganization.

2) Several interviewees commented on the use of qualitative versus quantitative measures of effectiveness. One interviewee believed that long-range goals (i.e. strategy) should include abstract items, whereas short-range goals (i.e. tactical objectives) should be quantifiable. In short, these interviewees believed that qualitative measures drive quantitative measures. The interviewees argue that since too many people believe only quantifiable areas should be measured, we tend to manage using short-range tactical objectives and no overarching long-range strategic umbrella. In other words, strategy is neglected because it tends to be long-range and abstract. As a result, strategic planning tends to be very weak.

3) One interviewee noted that many different organizations interact with SPOs and that each can serve as a customer to some or all of these organizations. Despite the existence of many customers such as the contractor, Air Combat Command (ACC), the Air National Guard (ANG), the Secretary of the Air Force's Staff (SAF), Congress, etc., no formal strategic planning is accomplished jointly with all customers. For example, the F-16 strategic planning document was developed by the SPO and the contractor, Lockheed Fort Worth Company (LFWC) at an offsite in Jan 95. Yet ACC, the ultimate end user of the F-16, were not part of the offsite. The interviewee noted that all players are brought together at quarterly Requirements and Planning Councils (R&PC), but that currently formal strategic planning was not an activity included in the meeting. The interviewee suggested that formal strategic planning be accomplished at these meeting arguing that goals could be established for all customers.

Records Analysis

Results/Findings:

Unit Self-Assessments (USAs). USAs provided the most extensive documentation and insight into how SPOs track and monitor performance, to what degree strategic planning is being used, and what types of performance indicators are used within SPOs. As indicated in Table 3.2, each SPO's USA addresses seven areas, including strategic planning and metrics in Sections 3 and 6, respectively. Each SPO's USA indicated that strategic planning is taking place. For example, the F-22 strategic plan is called the F-22 Team Plan. The plan was jointly developed by senior management from both the SPO and contractors, as well as representatives from major customers such as ACC and Secretary of the Air Force (SAF) staff. The plan is reviewed annually at an executive offsite and updated accordingly. The annual offsite produces "goals" and "focus areas" to support the overall strategic plan. Goals capture the long-term objectives (one to six years) and the focus areas delineate the short-term objectives (one year or less).

The F-16 SPO's USA also showed evidence of strategic planning. However, the F-16's strategic planning process is relatively new. For example, the F-16 USA states that a new initiative was started in Jul 94 to develop a strategic planning process the links existing processes into an Integrated Strategic Master Plan (ISMP). From there, a senior management offsite was accomplished in Jan 95. Additionally, the F-16 SPO has developed nineteen "implementation plans" which are analogous to the F-22's goals and focus areas concept.

The USAs also validated that SPOs track program performance and have top-level metrics for measuring performance. Section 6 of both SPO's USAs depicted numerous metrics covering many program areas. Although these metrics covered many areas, there was a substantial amount of attention devoted to cost, schedule, and performance metrics.

Executive Program Management Reviews (EPMRs). EPMRs also validated that SPOs do track and monitor program performance. A key indicator of senior management's focus was revealed in the area of action items. Action items are areas needing action or attention as determined by top management within the SPO. For example, the F-16 EPMRs monitor thirteen different functional areas including contract management and financial management, the traditional owners of cost, schedule, and performance metrics. Of the thirteen action items in EPMR #9, four were in the area of contract and financial management. Of the eighteen action items in EPMR #8, five were in the area of contract and financial management.

The EPMRs also established that strategic planning is becoming more important to top management. In the F-16, both EPMRs 8 and 9 included a briefing on the current status of strategic planning within the SPO.

Kenne Interviews. Brigadier General Kenne's interviews with AMC, ACC, AETC, HQ AFR, and the Air Force Special Operations Command (AFSOC) revealed three areas were deemed important from the customer's perspective. The three areas were communications, responsiveness, and strategic planning. Of particular interest was the emphasis the customers are placing on strategic planning.

In addition, Brigadier General Kenne also had each command prioritize the more traditional indicators of cost, schedule, and performance. The commands voted that, even in times of severe fiscal constraint, performance is their number one priority. Cost and Schedule were rated relatively equal, but both were below performance.

The commands were also asked to identify any items they considered to be better indicators of system performance than acquisition cost, schedule, and performance. The commands identified three additional indicators of effectiveness. They were life cycle cost, standardization and simplification of parts across different weapon systems, and the size of the mobility footprint.

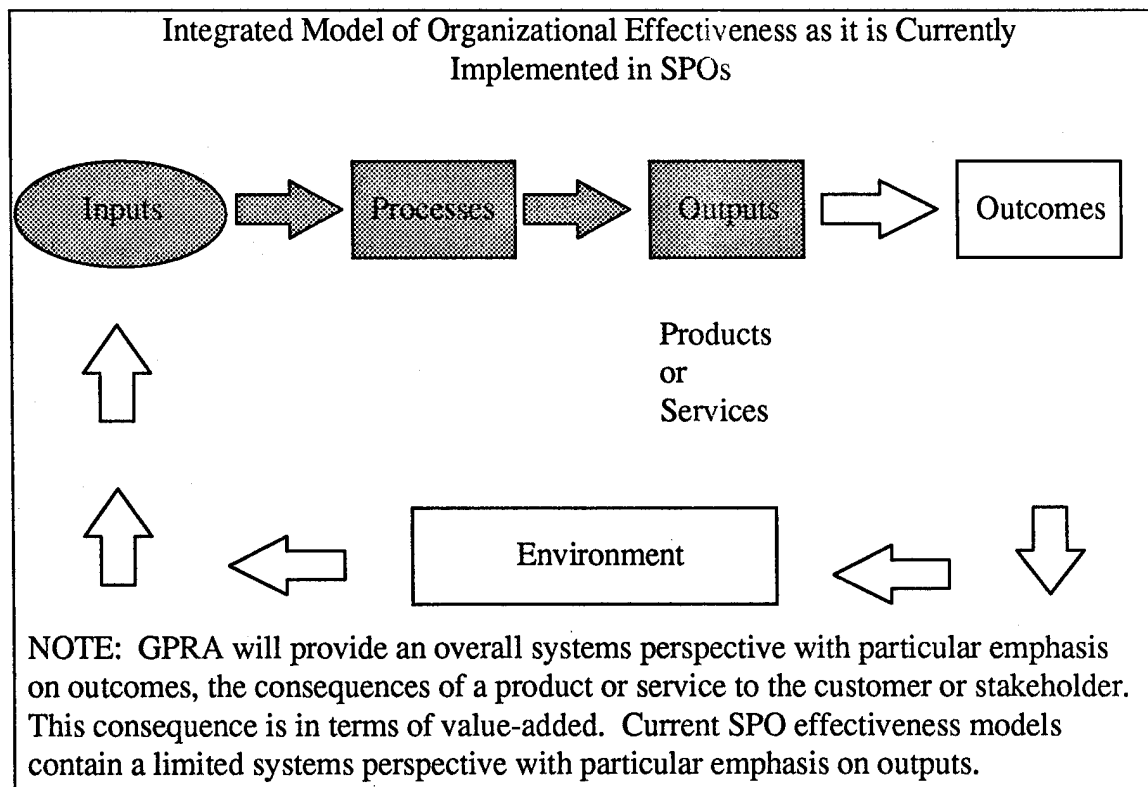


Figure 4.1. Current State of SPO Effectiveness Measurement Process in Light of Integrated Model of Organizational Effectiveness

Figure 4.1 above illustrates the current situation within the F-16 SPO and the F-22 SPO. As shown in the interviews and records reviews, the data suggest that SPOs have placed a heavy emphasis on short-term, efficiency or output measures of effectiveness. This is not to say that SPOs have totally excluded outcome measures or ignore customer feedback. However, SPOs appear to give much more weight to output measures such as Cost/Schedule Control Systems Criteria (C/SCSC). Unit Self-Assessments did provide evidence that SPOs seek to use outcome measures. By including their main customer, ACC, the F-22 SPO successfully incorporated the outcomes and environment aspects of the integrated model. However, this did not change the perception of most interviewees who concluded the SPO was much more focused on short-term, output measures. This indicates a possible disconnect between top management (preparers of USAs) and lower level employees (interviewees) within the SPO. Such disconnects have been cited by Schmenner and Vollmann in an article discussing performance measures. The authors' research used a statistical methodology that compared how employees and top management ranked various performance measures in terms of their overall impact on organizational success. The results suggested a big difference between what each group thought was important to organizational success. These differences between groups were termed by the authors as "gaps" and "false alarms." A gap was defined as "failing to use the *right* measure, so that something important stays neglected." False alarms were defined as "using the *wrong* measure to motivate managers so that they spend time improving something that has few positive, and perhaps many harmful, consequences" (Schmenner and Vollmann, 1993:58). SPOs should be very wary of such disconnects.

V. Conclusions and Recommendations

Overview

This chapter presents the conclusions drawn from the data presented in Chapter IV and addresses the individual research propositions. Limitations to this thesis as well as recommendations for future research are also provided.

Conclusions

The conclusions based on individual interviews are presented below:

Interview Question #1: How do you measure your ability to meet your customers' needs?

The results from this question indicated that SPOs interact with customers via many different mediums to include surveys, EPMRs, R&PCs, etc. Despite the many opportunities to interact with customers to analyze and assess customer satisfaction, SPOs have relied on metrics to measure their ability to meet customers' needs. By itself, this is not wrong, however, it does appear that SPOs can capitalize on the face-to-face forums such as EPMRs and R&PCs. Perhaps strategic planning or team building exercises could be added as formal requirements at every EPMR and/or R&PC. Fact-to-face forums provide SPOs with the best opportunity to discover and measure customer needs. By capitalizing on the face-to-face forums, SPOs could increase the probability that they are providing value-added outcomes instead of just measuring pure outputs.

Interview Question #2: What is your definition of an effective program? What do you believe is the SPO Director's definition?

Results from this question indicate that SPO personnel covering the entire chain-of-command define an effective program as one which provides good output results such as

timeliness and cost savings. Given that a former ASC Commander dictated that effective programs can be defined in terms of seventeen cost, schedule, and performance metrics, one can conclude that this is the prevailing definition of program effectiveness. At best, the results may indicate a serious disconnect between top management and lower level employees. At worst, the results may indicate that SPOs are relatively unaware of the outcomes or value-added consequences of products they provide to their customers. It is important to recognize that cost, schedule, and performance problems are at the core of Congressional decisions to fund or kill programs. However, it is equally important to note that such a preoccupation may be to the detriment of outcomes, and therefore customers.

Interview Question #3: Given the way you currently measure effectiveness, do you consider this to be proactive or reactive?

Change and volatility pervade in nearly all organizations. The majority of interviewees concluded that Government organizations, especially SPOs, are too volatile to engage in proactive measuring and strategic planning. This volatility stems from a changing political scene, changes in funding, changes in SPO leadership, etc. and has always been present. The interviewees argued that volatility causes more emphasis on the immediate future. Consequently, managers measure short-term effectiveness with little concern for longer range goals and strategies. As mentioned in Chapter IV, Congress recognized this when it stated "government management tends to be driven by the constraints of the organization, not the tasks of the organization." GPRA will force top managers to place more emphasis on longer range goals and strategies. However, is it possible that Congress has potentially underestimated the impacts of higher levels of change and volatility to the point that

GPRA, as written, promotes short-term, output measures of effectiveness, measures which have a very minimal impact on long-range strategic planning and effectiveness?

Interview Question #4: Given the way you currently measure effectiveness, can you think of any ways to improve the measurement process?

The recommendations provided by the interviewees could be reduced to three general recommendations listed below:

1. Place more emphasis on defining and understanding organizational processes
2. Promote greater use of qualitative measures of effectiveness
3. Increase the amount of formal strategic planning

Recommendation #1 suggests that to improve how SPOs measure performance they must understand their business. Such an understanding of the business would increase their chance of knowing just what it is that the customer wants. Recommendation #2 stresses the belief that many quantitative measures tend to be geared to the short-term. Such a focus is to the detriment of the long-term and therefore, strategic planning.

Recommendation #3 implies that formal strategic planning should be incorporated into high-level meetings such as EPMRs and R&PCs, meetings in which the SPO interacts face-to-face with many important customers. Perhaps this would increase the chances of SPOs developing more outcome measures of effectiveness.

The conclusions based on records analysis are presented below:

1. There appears to be a possible disconnect between top SPO management and top ASC management. The records review revealed, as was the case with individual interviews, that the ASC mandated metrics are not necessarily the same metrics used by top SPO managers to run the program. Not only did this indicate a possible misalignment

of focus between ASC management and SPO management, but it indicated that ASC management defines effectiveness in terms of cost, schedule, and performance measures, measures which have traditionally been output measures of effectiveness.

2. Brigadier General Kenne's interviews with several major commands indicated that more emphasis is being given to strategic planning. Additionally, the commands' rankings of performance ahead of cost and schedule, even amid severe fiscal constraints, suggests commands place more emphasis on outcomes than outputs. System performance is more likely to result in effectiveness than cost or schedule performance. In other words, system performance is more likely to be a valuable outcome measure whereas cost and schedule performance are more likely to be output measures. Perhaps if customers continue to stress performance, any potential SPO reliance on strictly output measures as measures of effectiveness will be decreased.

EPMRs tracking of action items suggests heavy emphasis is placed on cost, schedule, and performance areas. As mentioned earlier, cost, schedule, and performance problems can be "show stoppers" in Congress, but a total fixation on those areas tends to be at the expense of keeping a good customer focus.

Recommendations

1. In order to comply with GPRA, SPOs must place more emphasis on other areas of the integrated model besides outputs. Specifically, SPOs must increase efforts to incorporate the outcomes and environmental characteristics of the model. For example, recommendation #3 from the interviewees was for SPOs to engage in more formal strategic planning at face-to-face forums such as EPMRs and R&PCs. The interviewees

believed this would increase the likelihood of SPOs developing more outcome measures of effectiveness. Such forums provide an excellent opportunity for SPOs to receive feedback from customers. In short, more formal strategic planning with customers would help SPOs internalize the outcome characteristic of the model, and face-to-face forums would allow SPOs to receive feedback and therefore cover the environmental characteristic of the model. Such an increased emphasis is depicted in Figure 5.1 below:

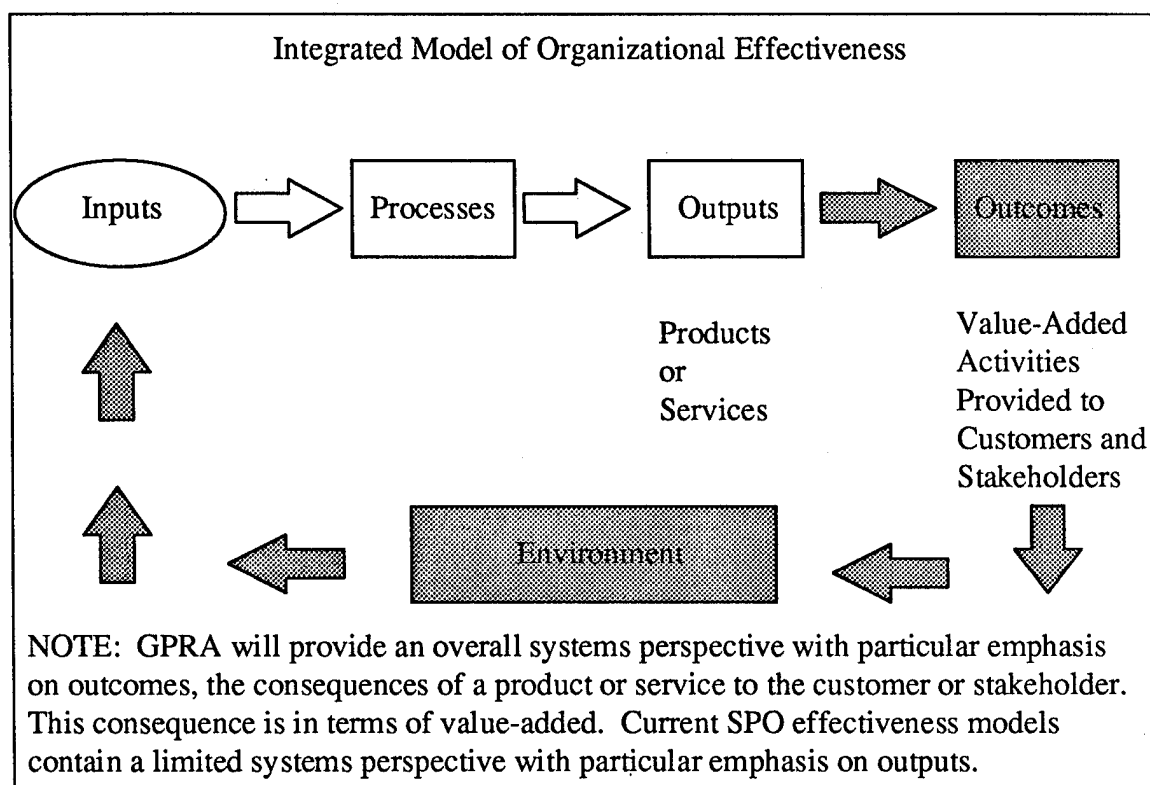


Figure 5.1. How SPOs Can Improve Their Current Effectiveness Measurement Processes

2. As mentioned in Schmenner and Vollmann's article on performance measures, many organizational performance measures are plagued by gaps and false alarms. To avoid these pitfalls, it may be useful for SPOs to periodically examine their performance measures in much the same way the article did. Perhaps senior leadership could let the

people within the SPO rank the performance measures currently being used within the SPO. Such a ranking would be beneficial to senior leadership for several reasons. First, the rankings would reveal which measures within the SPO are actually viewed as important to day-to-day activities. This perspective would be the perspective of middle managers and lower level employees, the people that perform the day-to-day management of the program. Second, it would allow middle managers to voice their opinions on what performance measures should be added to improve the program. In short, allowing lower level personnel to rank/evaluate the performance measures used in the SPO would ensure that senior leadership and middle managers manage areas jointly determined to be important. If senior management and middle management are not management from the same basket of important effectiveness measures, much inefficiency and loss of direction will result as both parties pursue different areas. As was mentioned in Chapter IV, a recent ASC Commander mandated that SPOs measure and report a common set of metrics to his office. Interviews conducted during this study revealed that the vast majority of middle managers did not use the common set of metrics to manage the daily activities within their area of responsibility.

3. All SPOs must understand that GPRA places even more importance on Congress as an important stakeholder. Specifically, Congress intends to use performance budgeting to appropriate monies to SPOs based on their performance. Of course, SPOs are a unique entity that due to its very nature may get “special” treatment. That is, many SPOs exist to fill a void in our nation’s defense capability. It is unlikely that such critical, sole source SPOs will lose all funding if their performance is unsatisfactory. The A-12 is an example

of a program that was canceled due to poor performance. However, I would argue that if the A-12 was the only system capable of filling the Navy's void, it most likely would not have been canceled. My point is that performance budgeting will impact SPOs, however, because many SPOs exist to fill a unique requirement, the limits of performance budgeting may be different than from other, "normal" federal agencies and activities. Perhaps this issue can be studied after SPOs have been subjected to performance budgeting for several years.

4. Awareness of GPRA must be increased. The only individuals I spoke with during this study who had even heard of GPRA were in the ASC Quality office. Aside from that office, no one I spoke with had ever heard of it. If GPRA will have the impact it purports to, middle managers and up need to be aware of its impacts on performance measures and strategic planning as soon as possible. The more educated SPO management becomes early on, the higher their chances for success when GPRA is mandated in their program office.

5. To comply with GPRA, SPOs need to ensure that each item within their strategic plan can be measured and assessed prior to the output stage. It is also important to note that measurement does not mandate a quantitative solution. Many qualitative measures (i.e. surveys, interviews, etc.) can also explain whether or not an organization is performing effectively. Numbers by themselves may be somewhat misleading. GPRA allows for qualitative goals so long as they can be measured.

6. I would argue that the F-22 SPO, as it currently operates, is very close to meeting the requirements of GPRA. A review of the F-22's Unit Self Assessment (USA) indicated

that the SPO has already built a solid foundation for success under GPRA. Specifically, the F-22 SPO implemented strategic planning from the start and manages according to their strategic plan. Additionally, the SPO conducts regular “what if” analyses that look at the potential impacts of various funding scenarios. This essentially amounts to an exercise in performance budgeting. In other words, I believe the F-22 SPO in many ways, has already implemented GPRA into their daily operations, and many SPOs could learn from the example the SPO has set.

7. This research to a large degree represents naturalistic inquiry, defined by Patton as a “discovery oriented approach that minimizes investigator manipulation of the study setting and places no prior constraints on what the outcomes of the research will be.” Patton goes on to say that naturalistic inquiry can be considered the opposite of experimental design where the investigator attempts to control study conditions by manipulating or holding constant external influences (Patton, 1990:41). From this explanation, we can consider naturalistic inquiry to be relatively equivalent to qualitative study. When speaking of generalizability and naturalistic inquiry, Patton writes:

The evaluator should do what he can to establish the generalizability of his findings...Often naturalistic inquiry can establish at least the ‘limiting cases’ relevant to a given situation. But in the spirit of naturalistic inquiry he should regard each possible generalization only as a working hypothesis, to be tested again in the next encounter and again in the encounter after that. For the naturalistic inquiry evaluator, premature closure is a cardinal sin, and tolerance of ambiguity a virtue.
(Patton, 1990:488)

Therefore, the generalizability of my findings and also my model must be tested/revalidated again and again. My findings should be regarded as working hypotheses to be tested in future thesis efforts.

Potential Follow-on Studies

Based on the limited generalizability of my findings, I would suggest the following potential follow-on research efforts:

1. The model developed in this study should be applied to SPOs in future research to validate its ability to predict effectiveness. Additionally, the model should be refined as new findings are produced and tested in SPOs after the implementation of GPRA. By testing a refined model after GPRA implementation, potential predictive capabilities of the model can be realized. Additionally, post-GPRA implementation testing of the model would provide the strongest case for its generalizability to other SPOs and, potentially, to other federal agencies within limits.

2. Any future follow-on research conducted should include the F-16 SPO. Since the SPO only began "formal" strategic planning in Jan 1995, much of the data gathered needs more time to stabilize and mature.

Limitations of Study

Based upon the methodology used in this thesis, several limitations must be recognized. These limitations restrict the level of generalizability my findings may be given. These limitations include the following:

1. The data used in this study were strictly cross-sectional data. That is, the data gathered represented only a point in time. Future research may seek to gather time series data, or data gathered over time.

2. The units of analysis in this thesis were SPOs. As mentioned in Chapter III, gathering data from levels above SPOs would have been too complex. As such, the ability to generalize my findings to other types of organizations is limited. The integrated model itself can be applied to any organization, however, the findings of this study deal strictly with SPOs. To generalize my findings to other types of organizations will require testing within those organizations.

3. The data were collected from two SPOs, both located at Wright-Patterson AFB OH. This represents a geographic limitation as Wright-Patterson AFB may follow slightly different procedures than SPOs located at Eglin AFB FL, Los Angeles AFB CA, or Hanscom AFB MA. Future studies may benefit from collecting data from two or more geographic locations.

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Vita

Captain Thomas A. Miller was born on 17 November 1968 in Davenport, Iowa. He graduated from Pleasant Valley High School in 1987 and entered undergraduate studies at the United States Air Force Academy in Colorado Spring, Colorado. He graduated with a Bachelor of Science degree in Economics and received his commission in May 1991. His first assignment was at Columbus AFB as the Services Flight Chief in the 14th Contracting Squadron. In May 1994, he entered the School of Logistics and Acquisition Management, Air Force Institute of Technology, to study Contracting Management. Upon graduation, he will be assigned to the Test Range, Air Base, and Weapons System Program Office (SPO), Eglin AFB FL, as a contracts manager.

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