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OMB Needs To Intensify Its Work Measurement Effort. FPCD-78-63; B-161931. July 24, 1978. 7 pp. + appendix (3 pp.).

Report to James T. McIntyre, Jr., Director, Office of Management and Budget; by H.L. Krieger, Director, Federal Personnel and Compensation Div.

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The Office of Management and Budget (OMB) has directed Federal agencies to use work measurement systems, when available, in preparing their fiscal year 1979 Zero Base Budget (ZBB) submissions. Without reliable work measurement systems, budget reviewers cannot review, evaluate, and set ZBB priorities from well-supported staffing requirements. Therefore, agencies may be employing too many or too few employees to support their missions. A review was conducted of five agencies which OMB designated as having the best ZBB submissions--the Environmental Protection Agency, the Army Corps of Engineers, the United States Information Agency, the Internal Revenue Service, and the National Aeronautics and Space Administration.

Findings/Conclusions: The agencies reviewed varied considerably in their use of work measurement systems to determine staffing requirements. The general attitude among these agencies was that the use of work measurement systems to support staffing requirements is not mandatory. They have not received any specific guidance from OMB identifying those areas which are susceptible to work measurement. Since they do not believe that establishment of work measurement systems would be cost effective, these agencies generally do not have any immediate plans to develop such systems. Recommendations: The Director of OMB should: identify areas where work measurement systems are applicable and cost effective and enforce their use, clearly specify the functions or elements of agency responsibilities where use of work measurement systems to support staffing requirements is optional, provide agencies with assistance in developing work measurement systems and enforce their use as planning tools, and monitor the reliability of agency work measurement systems. (RRS)

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REPORT BY THE U.S.

# General Accounting Office

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## OMB Needs To Intensify Its Work Measurement Effort

The Office of Management and Budget (OMB) directed Federal agencies to use work measurement systems, where available, in preparing their fiscal year 1979 Zero Base Budget submissions. If such systems were not available, agencies were advised to use indirect or proxy indicators initially while evaluation and workload systems were being developed.

Three of the five agencies OMB identified as having good Zero Base Budget submissions did not use work measurement systems to determine their staffing needs for the fiscal year 1979 submission, nor do they have plans to develop such systems.

OMB should (1) intensify its effort to identify those areas where use of work measurement is feasible, (2) provide agencies assistance in developing work measurement systems, and (3) enforce their use as a planning tool for developing staffing needs.





UNITED STATES GENERAL ACCOUNTING OFFICE

WASHINGTON, D.C. 20548

FEDERAL PERSONNEL AND  
COMPENSATION DIVISION

B-161931

The Honorable James T. McIntyre, Jr.  
Director, Office of Management  
and Budget

Dear Mr. McIntyre:

We have reviewed how Federal agencies determined their staffing requirements for fiscal year 1979 Zero Base Budget (ZBB) submissions. The Office of Management and Budget (OMB) Bulletin 77-9 directs agencies to develop and use work measurement systems in making these staffing determinations when developing ZBB submissions. Three of the five agencies OMB identified as having good ZBB submissions

--did not use work measurement systems to determine staffing needs for their initial ZBB submissions and

--do not have plans to develop such systems.

Without reliable work measurement systems, budget reviewers at all levels within and outside of agencies cannot review, evaluate, and set ZBB priorities from well-supported staffing requirements. Hence, agencies may be employing too many or too few employees to fulfill their missions. This issue was brought to the attention of the Congress in a GAO report entitled "Personnel Restrictions and Cutbacks in Executive Agencies" (FPCD-77-85, Feb. 9, 1978).

The administration assessed the initial ZBB as having gotten off to a good start. But we believe the ZBB process could be improved if agencies support their staffing requirements by using work measurement systems where feasible. Without a work measurement system, any assessment of shifting resources among and within competing program activities is subjective. Agencies need reliable indicators to show the relationship between the expected output of program activity and the amount of resources needed to achieve it.

To remedy this situation, OMB should (1) intensify its efforts to identify areas where measurement is feasible,

(2) provide agencies assistance in developing work measurement systems, and (3) enforce their use as a planning tool for developing staffing needs.

Our work on this review was performed at five agencies which OMB designated as having the best ZBB submissions-- the Environmental Protection Agency (EPA), the Army Corps of Engineers, the United States Information Agency (USIA), 1/ the Internal Revenue Service (IRS), and the National Aeronautics and Space Administration (NASA). We analyzed each agency's ZBB submission and how each determined its staffing requirements. We examined applicable policies, procedures, and related documents and discussed our work with cognizant agency officials. We did not, however, evaluate the process used by these agencies in establishing existing work measurement systems.

#### AGENCY USE OF WORK MEASUREMENT SYSTEMS

The agencies we reviewed varied considerably in their use of work measurement systems to determine their staffing requirements. The staff coverage by such systems is shown below.

| <u>Agency</u>      | <u>Percent of coverage</u> |
|--------------------|----------------------------|
| IRS                | 63                         |
| EPA                | 26                         |
| Corps of Engineers | 0                          |
| NASA               | 0                          |
| USIA               | 0                          |

OMB has issued directives which encourage agencies to use work measurement in staffing determinations. OMB Circular A-11, which deals with preparation of budget estimates, encourages the use of work measurements, unit costs, and productivity indexes in justifying staffing requirements for measurable workload.

One of ZBB's major goals is to establish objectives against which accomplishments can be identified and measured. OMB Bulletin 77-9 provided heads of executive departments and establishments guidance in ZBB techniques for preparing and justifying fiscal year 1979 budget requests. Agencies

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1/The United States Information Agency and its functions have been reconstituted in the International Communication Agency.

were directed to specify measures of effectiveness, efficiency, and workload for each funding level; the measures were to be obtained from existing measurement systems. If such measures were not available, agencies were advised to use indirect or proxy indicators initially while evaluation and workload measurement systems were being developed. Individual agencies are discussed below.

### Internal Revenue Service

IRS uses a work measurement system to support the need for approximately 60 percent of its 85,000 employees. It uses historical estimates based on recorded data relating time expended to the work produced. Most of IRS' work-- processing and auditing tax returns--has a countable output and is performed in a consistent manner, which easily lends itself to measurement. For example, since IRS knows how many tax returns it has to process yearly and the amount of time required for each type of return, IRS officials can arithmetically determine its staffing requirements.

Although IRS work measures provide a good indication of the number of staff required, the measures may have historical inefficiencies built into them. Inefficient operations can be prolonged if work measurement is based on staffing patterns which rely on past procedures or staffing levels. Work measures should be set on the most efficient and economical method of doing a task. Method studies to identify nonessential and duplicate operations should be further emphasized in IRS' work measurement effort.

### Environmental Protection Agency

EPA identified approximately 26 percent of its 10,840 positions as being supported by some type of work measurement system. The general feeling among EPA officials is that most of their work does not lend itself to any type of work measurement. Work measures being used were developed through the initiative of lower level management. These measures are generally based on historical data with some instances of the use of comparative data.

In the Enforcement Program area, where the work consists primarily of repetitive inspections, work measurement standards were used to the greatest extent, with approximately 1,400 of 1,800 positions supported.

Army Corps of Engineers

The Corps of Engineers--Civil Works--requested 30,983 positions in its fiscal year 1979 ZBB submission to OMB. The Corps did not use any work measurement system to support its fiscal year 1979 staffing needs, nor does it have any plans to develop a work measurement system for future budget support. Corps officials stated that the type of work they do is so diverse from district to district that it would be very difficult and costly to develop any sort of measurement system to estimate staffing needs. Instead, they rely primarily on the professional judgment of their district engineers to determine how many people are needed to perform a given function.

United States Information Agency

USIA did not use any form of work measurement to support its approximately 8,900 positions budgeted for fiscal year 1979. USIA officials maintain that their type of work does not lend itself to measurement; they also maintain that it would not be cost effective to develop such a system. They believe that their mission, which is to project American society and explain U.S. foreign policy abroad, requires so many diverse activities that using work measurement standards would be of little value. USIA determines staffing requirements by using professional judgment and relying on past experiences to determine what is required to perform a given function.

National Aeronautics and Space Administration

NASA did not use a work measurement system to support any of its 23,000 plus employees in its fiscal year 1979 ZBB submission. In fact, NASA's ZBB submission did not include any manpower requirements, as it dealt only in dollars. NASA officials explained that this was due to the cut in their manpower in the middle of the budget cycle.

Officials explained that NASA is a program-driven organization with four highly technical programs. These programs are nonrepetitive and, to a large degree, nonmeasurable due to the large percentage of resources devoted to research and development. NASA officials stated that approximately 5,000 (25 percent) of their staff are in support positions, including finance and accounting, procurement, and real property management. NASA officials further stated that these

positions perform routine discrete functions which lend themselves to measurement. However, no work measurement standards were used to support the fiscal year 1979 ZBB submission.

Other studies, however, have demonstrated in several Federal agencies that it is both practical and beneficial to establish standards for seemingly "impractical to measure" work. 1/ For example:

- Standards were developed for legal work by attorneys where the work required, per case, varied greatly.
- An agency developed historical standards for geographically widely dispersed personnel who performed an advisory service for the general public which produced a wide variety of outputs with variable processing time.
- Standards were successfully used to plan and control work, and were used as a basis for the incentive awards for a group of employees who produced a variety of complex reports.

We believe far greater attention should be given to efficiency in Government and to the definition and measurement of its services and the required input. These agencies and OMB, as managers of their resources, should explore what portions of their workloads are susceptible to the discipline of work measurement. For example, the Corps of Engineers, which operates a construction program, may benefit from workload and labor analysis by project as used by private construction firms.

#### OMB HAS NOT PROVIDED SPECIFIC GUIDANCE IN WORK MEASUREMENT DEVELOPMENT

For over 25 years, OMB circulars and bulletins have supported the use of productivity and work measurements for budget justifications. However, the general attitude among the agencies we visited was that the use of work measurement systems to support staffing requirements is not mandatory; they have not received any specific guidance from OMB identifying those areas which are susceptible to work measurement. Since they do not believe that it would be cost effective to establish work measurement systems, they generally do not have any immediate plans to develop such systems.

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1/See appendix I "Definitions and Criteria Appropriate to Work Measurement Systems."

In responding to our report entitled "Improved Productivity in Real Property Management Would Save Money For Certain Agencies" (LCD-77-343, May 2, 1978), OMB agreed that work measurement systems at many Federal agencies are inadequate. OMB stated that it will do what it can to insure that provisions of Circular A-11 are properly considered during budget reviews. OMB also stated the GAO recommendation that OMB act as a focal point for monitoring the adequacy of work measurement systems on real property management will be considered in an ongoing Presidential reorganization study.

OMB has not, however, taken an active role in work measurement development other than the language contained in its broad budget directives previously mentioned. OMB needs to provide agencies more specific guidance and oversight to increase agencies' use of work measurement systems for supporting their staffing requirements.

#### RECOMMENDATIONS

To improve agency work force planning and development of work measurement systems, where feasible, we recommend that the Director of OMB: 1/

- Identify areas where work measurement systems are applicable and cost effective and enforce their use.
- Clearly specify the functions or elements of agency responsibilities where use of work measurement systems to support staffing requirements is optional.
- Provide agencies assistance in developing work measurement systems and enforce their use as planning tools.
- Monitor the reliability of agency work measurement systems.

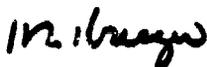
We believe these actions are needed if the Congress is to be provided with creditable staffing estimates for use in budget reviews.

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1/The following recommendations are consistent with those of our report entitled "The Federal Role in Improving Productivity--Is the National Center for Productivity and Quality Of Working Life the Proper Mechanism?" FGMSD-78-26, May 23, 1978.

As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first appropriation request made more than 60 days after the date of the report.

Sincerely yours,



H. L. Krieger  
Director

DEFINITIONS AND CRITERIA APPLICABLE  
TO WORK MEASUREMENT SYSTEMS

Work measurement describes the body of knowledge and techniques for designing job activities to require a minimum amount of resources and, when appropriate, for establishing standards useful to management in forecasting staff requirements. Its use in formulating budgets can provide realistic projections of work force and dollar needs.

CHARACTERISTICS OF EFFECTIVE  
WORK MEASUREMENT STANDARDS

Standards should be based  
on most efficient procedures

The most efficient and economical method of doing a task should be used in setting standards. Method studies, which identify nonessential and duplicate operations, should be a feature of any standards setting effort. The lack of such studies can result in serious deficiencies in work measurement systems since standards may have historical inefficiencies built into them. Inefficient operations can be prolonged if work measurement is based on technical estimates or staffing patterns which rely on past methods, procedures, or staffing levels.

An identifiable work unit is needed

Work measurement standards can reasonably be established for work that has a countable output and is performed in a consistent manner. Both are needed to determine the time required to achieve a defined unit of output. Work measurement systems have commonly been applied to industrial activities where consistency of work content is not a problem. In service-type organizations, quantification of output and consistency of work are not as obvious, nor is the direct relationship between staff resources used and corresponding output always readily apparent.

Work measurement systems  
must be credible

To be effective, work measurement systems must be credible and usable by management. The work measurement system should be applied consistently, with suitable organizational placement, staffing, direction, and control. A

reporting system is needed that (1) allows appropriate management levels to monitor planned and actual progress and (2) helps management determine the best possible program direction. To be useful to management, job designs and standards must be an integral part of its information system.

### HOW STANDARDS ARE ESTABLISHED

Various engineering and nonengineering techniques are used to develop standards.

Engineering standards are based on analyzing and measuring the time a task should take to produce acceptable quality under proper working conditions. They are generally developed by using formal analytical techniques such as time study, work sampling, standard data, and predetermined time systems. Such standards are most useful for high-volume activities where detailed planning and control are desired, and are frequently used in an industrial setting. Engineering techniques may not be economically feasible for service-type activities.

Nonengineering standards are those developed without using engineering techniques, and are less reliable than engineered standards. Historical and technical estimates are the methods most commonly used to develop nonengineering standards.

Historical estimates are based on recorded data relating time expended to the work produced. A drawback to this technique is that it assumes that (1) what has happened in the past is good practice and (2) future conditions will be the same. With such standards, it is difficult to identify and accurately assign a reason for significant deviations. Thus, standards based on historical data are inherently unreliable because they are based on a "did take time," basis and "should take time" is not determined. They can, however, be quickly applied to provide extensive standards coverage.

Technical estimates are derived by breaking jobs into elements or stages and having technically qualified persons estimate how long each of the job elements should take. Estimates may be based on the judgment of one person, such as the supervisor, or developed by a panel of knowledgeable people who estimate time requirements and through discussion, reach a consensus. The job element estimates are then summed to obtain the standard time.

A disadvantage of this technique is that it relies considerably on the judgment of the person making the estimate, and as such, may vary greatly from the actual time it takes to do the job. This makes it difficult to assign causes to deviations from the standards. An advantage of technical estimates, however, is the low cost of using them to develop standards. Using technical estimates may also be the only technique available to develop standards for highly technical or irregular work, such as research or technical projects.

The staffing pattern, another technique used in work measurement, is a ratio of the number of personnel required to (1) the number of personnel supported or (2) the number of units of output. It is not considered a standard because no countable work unit is involved. When staffing patterns are used, it is difficult to determine the causes of differences from anticipated staff uses. Past relationships are accepted as sound, and there is no real way of knowing if the patterns are valid. It is a relatively quick and inexpensive way to estimate staff requirements, and sometimes may be the only method available.

The methods we described are not all inclusive. Basically, the method or combination of methods used will largely depend on the activity to be measured. The standard setter must consider the long-term benefits and costs usually associated with detailed measurement methods against the drawbacks and economies of less-precise methods.