

June 9, 1965

MEMORANDUM FOR COMMISSIONER KEPPEL

SUBJECT: MANAGEMENT REPORTING AND INFORMATION SYSTEMS

Attached are our findings and recommendations concerning two aspects of the development, processing and reporting of information within the Office of Education. The importance of information to management cannot be understated and, in the face of the tremendous growth of agency programs, it is vital to develop, analyze, and present meaningful information in a timely and usable manner.

1. Management Reporting

The growth in the number and size of OE programs makes it essential that the Commissioner be provided, on a timely basis, significant information about the status of program implementation. This is essential for effective management--irrespective of the various statutory requirements for reports and evaluation.

Because existing reports have not been developed in a unified, consistent or digestible manner, it is clear that substantial revamping is necessary.

Toward this end, we recommend that the Office of Administration be assigned the responsibility for developing a management reports system. The role of the Office of Administration would be to assist program managers in identifying the need for internal reports and in developing and presenting appropriate information at periodic intervals. This would include procedures to review, screen and consolidate existing management reports for use within OE. It should be stressed, however, that the program managers would retain the full responsibility for explaining to the Commissioner the status of program implementation and for taking or proposing any action necessary to revise plans or improve performance.

2. Information Systems Development

As noted above, the need for timely development and analysis of large quantities of information in OE is great. Furthermore, the distinctions among management information, statistical information and program information, which may have been reasonable in the past, are becoming increasingly blurred.

In order to assure the development of comprehensive and integrated information systems for the agency (including those in support of management reporting), it will be necessary to assign agency-wide leadership to a single office. Because the NCES already has certain agency-wide statistical coordinating and data processing service functions, it would seem to provide the most effective nucleus for the enlarged responsibilities contemplated.

We recommend that the Director of the National Center for Educational Statistics be assigned the responsibility to develop for the approval of the Commissioner an over-all design for information systems and for coordinating the development and processing of information needed by all elements of OE. The system design could make provision, if appropriate, for the development of compatible elements of the total system by other units in OE.

The responsibility of the Office of Administration for providing data processing services or assistance to OE bureaus and offices, and the responsibility for clearance of forms and reports under the Federal Reports Act, should be transferred to the NCES. The existing Division of Statistical Services in the NCES should be reconstituted as a Data Processing Systems Division to assist the Director of the NCES in the performance of the above functions.

3. ADP Equipment

The problem of how and when a determination should be made as to the acquisition of ADP equipment is also discussed in the second paper. This is addressed to the long-term needs of the agency and is not intended to suggest that the immediate and urgent data processing problems presented by P.L. 89-10, or other programs, can be deferred in any way pending such decisions. Moreover, if it becomes necessary for any reason to use the assistance of other government agencies or commercial firms in meeting urgent data processing requirements, the Office of Education and the Department of Health, Education and Welfare should be prepared to do so.

Dwight A. Ink, Chairman
White House Task Force on Education

Enclosures

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INTERNAL MANAGEMENT REPORTING

I. Need for an improved management reports system in the Office of Education.

Under the present internal reporting system in the Office of Education, a great deal of financial and performance data is generated, but it is not brought to focus in a way to make it most useful for management purposes, especially at the Commissioner and Deputy Commissioner level. Generally speaking, existing reports are voluminous, poorly organized, informal, and subject to interpretation for the most part only by budget or fiscal people. They are inadequate, we feel, for the managers of programs involving expenditures approximating \$3½ billion annually, and likely to increase in the future.

As was discussed at a meeting of the Executive Group, this is an area which is in need of some prompt action to bring about, as soon as possible, a means of informing top management on a current basis as to the financial and performance status of their programs so that problems may be identified and corrective action taken as may be necessary. Steps have already been initiated in this respect.

II. Framework of an improved management reports system.

We recommend that a management reports system be developed and administered by the Office of Administration. In doing this, the Office should:

- a. Assist the managers of OE activities and subactivities, on a continuing basis, in developing the financial and performance reports which they need for their particular area of responsibility, especially in terms of comparing actual progress with the financial and operating plan as the fiscal year unfolds and currently identifying any "trouble spots" that may be developing.

Such reports must be concise and carefully organized so that a busy executive can grasp the significant points with a minimum of reading.

- b. Determine areas where program or activity reports are needed to enable the Commissioner and Deputy to keep abreast of events and currently informed of developing problems, or trouble spots, in programs of the Office of Education.
- c. Arrange for the receipt of these financial and performance facts from all organizational entities in OE that are necessary to prepare reports under "a" and "b", and either prepare such reports, or see that they are prepared, promptly at the close of each month.
- d. Develop such facilities, as may be appropriate (graphic or otherwise), for systematic executive review and discussion of the status of OE activities, and arrange for such reviews at periodic intervals, preferably monthly for those programs which are expanding rapidly.

- e. Ensure that periodic reports are forwarded as promptly as possible at the end of the reporting period, since the value of most operating reports declines rapidly with age.
- f. Institute a reports control procedure under which (1) proposed new periodic reports are reviewed for necessity, (2) unnecessary or marginal periodic reports are eliminated, and (3) other reports are combined or reduced in frequency or content whenever management requirements permit.

When the system proposed above is fully developed, it would be appropriate to redefine the reports review responsibility of the Office of Information (Administrative Announcement #3 of May 27, 1963), so that it would be limited to reviewing and revising reports prepared in OE for external purposes.

III. Kinds of management reports needed, and monthly executive review of program implementation.

We have not developed a list of specific reports that should be employed. As a minimum, however, there should be prepared promptly at the beginning of each month a report on program implementation which would compare actual experience against the financial and operating plan. Significant deviations from the plan should be concisely explained, including (1) the reason for the deviation and (2) what has been done, or will be done, to get back "on the track." The availability of ADP capacity to handle varied data quickly will facilitate a good reporting system.

There are different techniques for carrying out the monthly executive review of the status of program implementation, ranging from submission of brief highlight reports to top management to the outfitting of a special briefing room with visual aids, such as the one in the Veterans Administration and other agencies. The techniques to be used should be those best adapted to the personal working habits of the Commissioner and Deputy Commissioner. Some respond best to charts, others to tables. Some prefer to read, others prefer to listen. Whatever the techniques, they should be systematized.

We believe that the program managers--normally the Bureau Directors--should be responsible both for explaining the status of implementation of plans, with special emphasis on problems, and taking or proposing necessary corrective action. The Office of Administration should assist them by giving them the information they need, but there should be a full acknowledgment and acceptance of the responsibilities of the Bureaus for management, including responsibility for the financial aspects of their programs.

IV. Technical Assistance

To obtain a quick upgrading of the OX management reports and facilities, we think it would be advisable to arrange for a temporary detail of an employee who is familiar with management reporting systems. That employee's mission would be to assist the Office in developing a total management reports system along the lines described herein. We are prepared to arrange for this, if it is determined that it would be desirable.

IMPROVING THE MANAGEMENT OF INFORMATION PROCESSING SYSTEMS

I. Existing information systems assignments.

The information systems development efforts of the Office of Education are currently neither comprehensive nor integrated. According to the OE Staff Manual Guides, responsibilities have been assigned to several organizational components:

- a. The National Center for Educational Statistics (NCES) is chartered to coordinate "the program of information gathering activities within the Office of Education" (Office of Plans and Programs). Other responsibilities of the NCES include:

1. The Division of Statistical Services. "Provides technical assistance from the point of view of statistics and data processing for all surveys and other research activities conducted by the Office of Education. Develops data processing procedures and performs data processing operations....Prepares data processing specifications and computer programs; operates data processing equipment; and maintains tape and card library....Conducts training programs for Office of Education staff in fields of questionnaire design, data processing, computer programming, and computer technology."
2. The Division of Operations Analysis. "Develops and maintains a quantitative analytical model of the overall educational operation in the Nation by integrating all statistical information developed by the Center into one comprehensive structure, the principal function of which is to aid in appraising the probable outcomes of significant policy or operational changes in the United States educational system."
3. The Division of Data Sources and Standards. "Aids States, local school districts, and institutions of higher education in their development of data processing systems and fosters compatibility among these systems for efficient intercommunication of data and communication with the Office of Education."

- b. The Bureaus and Offices engage in numerous surveys and information gathering activities related to the administration of specific programs.

- c. The Office of Administration (Management Analysis Branch) is chartered to provide "staff assistance services in analysis, design, and development of the data processing systems" of the Office of Education, and devotes limited effort to assisting the Bureaus in automating their systems, and to automating selected administrative operations in such areas as personnel and property accounting. The Administrative Services Branch "Administers a records management program including the development, standardization, and improvement of necessary forms and reports..." and "Clears public-use forms and reports with the Bureau of the Budget in accordance with the Federal Reports Act." (The Division of Statistical Services of NCES "Assists in obtaining Bureau of the Budget approval of Office of Education survey questionnaires.")
- d. The Office of Federal Education Activities "Develops full information on Federal activities that affect the Nation's educational well-being; conducts surveys to measure the impact of Federal programs on education..."

This division of responsibility has been based largely on the differences which have existed in the nature and timing of information that is required for (1) administering assistance programs; (2) developing and reporting national statistics on education activities; and (3) managing the Office of Education.

Information required for administering assistance programs has been circumscribed by specific authorizing legislation and obtained from a relatively limited number of sources participating in the program. Under these circumstances, the overlap with the broader-based statistical programs, in terms of the kinds of information needed or the number and kinds of sources from which the information is obtained, could be regarded as minimal.

This situation has been changed substantially by the Elementary and Secondary Education Act and will be further changed by the pending Higher Education bill. In the future, OE will be extending assistance to virtually all school districts and educational institutions. Under these changed circumstances, the overlap is virtually complete in terms of the sources from which information will be obtained. Also, much of the information required for the development and publication of general statistics will be similar to that required for the administration of assistance programs, and vice versa.

At the present time, however, there is no provision for the effective coordination of information required for "agency management," "statistical," and "program administration" purposes. Although the Bureaus and Offices are required to clear all surveys of a "statistical" nature with the NCES, this requirement does not extend to information required for program administration. Further, the determination as to whether the information requirement is "statistical," and therefore subject to coordination by the Center, is made by the Bureaus and Offices. Finally, with respect to clearance of statistical surveys, the NCES regards its role as being limited primarily to a review for statistical adequacy.

II. Recommended improvements.

In order to achieve greater coordination and to promote the design of common (integrated) data processing systems to serve the management, program and statistical needs of the Office of Education, it is recommended that:

- a. The NCES be assigned the responsibility for coordinating the developing and processing of information needed by the Bureaus and Offices for purposes of agency management and program administration (including fiscal information).
- b. The NCES be assigned responsibility for agency-wide leadership in the design of a comprehensive and coordinated information system which will satisfy the needs of all organizational components of the Office of Education. The Assistant Commissioner for Educational Statistics would develop such a comprehensive system design for the approval of the Commissioner.
- c. The functions assigned to the Office of Administration for providing assistance to the Bureaus and Offices in the development of data processing systems and for clearance of forms and reports with the Budget Bureau under the Federal Reports Act be transferred to the NCES. An appropriate portion of the funds budgeted for the Office of Administration for data processing purposes should be transferred to the NCES to be used by the Director of the Center in the development of such additional staff and facilities which he believes appropriate in the performance of his enlarged responsibilities.
- d. The Division of Statistical Services of the NCES be reconstituted as a Data Processing Systems Division to be responsible for the functions proposed above and for providing agency-wide computer programming and information processing services in accordance with the over-all system design and plans.

These recommendations are made with the following considerations in mind:

- a. The Bureaus and Offices would retain the responsibility for determining what information is needed to perform their assigned functions in the most effective manner, and would make those requirements known to the NCES. The Center would "service" the Bureaus and Offices by developing or providing the information needed, including the performance of appropriate data processing operations. However, where Bureau and Office statements of information requirements pose problems with respect to overlap or consistency with those of other Office units, the design agent (NCES) would have authority to ensure conformity with the overall system design approved by the Commission. (These considerations would also apply to the development of statistics and other data used in the management reporting system recommended in the accompanying paper.)
- b. By centralizing the systems development responsibility within the NCES, it will be possible to coordinate the agency's information needs into an integrated system or systems, so as to (1) facilitate the gradual development of a broad data base to serve many purposes, and reduce the need for special surveys; (2) minimize the reporting burden upon those who provide information; and (3) increase the opportunity for the beneficial use of automated techniques in collecting and processing the information.
- c. In accordance with the overall system design, Bureaus and Offices could be authorized to develop and manage compatible components of the total agency system if appropriate.
- d. Centralization of the systems development function will permit greater flexibility in assigning systems personnel to special problems according to priority needs. It also offers the opportunity to upgrade the systems staff.
- e. The NCES is regarded as the logical organization to which these responsibilities should be assigned because its role as the coordinator and processor of statistical information provides an established nucleus upon which the broader systems responsibility can be built.
- f. The implementation of these recommendations is consistent with the ad hoc task force arrangement which has been established to gear-up the Office of Education for implementing the Elementary and Secondary Education Act. Under this arrangement, the Center has

responsibility for the development of the system to produce the information required to administer the act and evaluate performance and achievement.

- g. The responsibility for agency-wide assistance in the design of forms would remain in the Office of Administration.

III. Staffing for systems development.

The systems development effort should be headed within the Center by a highly-qualified person who views the information requirements in their totality and can conceptualize ways and means for best meeting these requirements using modern data processing techniques. The effort obviously must be supported by competent staff in sufficient numbers to assure that a broad-scale effort can be undertaken and sustained in full.

The NCES currently has about 11 people devoted to the development of data processing systems for statistical purposes. One person has recently been employed for the express purpose of spearheading the effort to develop a system to serve the requirements of the Elementary and Secondary Education Act. About 10 additional positions are budgeted for FY 1966, providing for a total staff of about 22 positions.

Under the recommended consolidation of functions, the staff already on-board or budgeted for the NCES would be augmented by part of the staff now budgeted for in the Office of Administration. That Office has budgeted in FY 1966 for 21 new positions to be added to the one-man staff which now exists, and for the rental of a small punched-card installation. (Consistent with the recommendations above, action to procure the punched-card equipment should be deferred until such time as the Director of the NCES has reviewed its potential uses within the framework of his new responsibilities.) The additional positions would be used to develop and operate selected punched-card applications in certain Bureaus and Offices. Two of these positions are systems analysts; the remainder are RAM project planners, RAM equipment operators and support personnel.

IV. ADP Equipment facilities.

The task of the Office of Education of compiling, producing and analysing statistical data is already a formidable one - and is growing rapidly in scope and complexity. Its importance to the

national interest demands that it be accomplished properly in timely fashion. To this end, the Office of Education should begin immediately to exert vigorous efforts in seeking ways to improve the effectiveness of its data processing operations, including the expanded use of automatic data processing techniques.

It seems quite possible that the development and improvement of information systems through the use of automatic data processing techniques will lead to the eventual establishment of an ADP equipment installation within the Office of Education. The Office now uses the central computer facility operated by the Department of Health, Education, and Welfare about 75 hours per month, in addition to extensive use of the central punched-card facility. The new emphasis that is being placed upon the development of information for program evaluation and the development of a model of the educational system in the United States, coupled with the tremendous expansion of the OE programs, add significant potential for major uses of ADP capability.

The eventual decision on this matter, however, should follow a logical sequence of events:

- a. development of a plan for meeting the information requirements of the Office of Education on a coordinated and integrated basis;
- b. determination of the need for ADP capability to carry out the plan;
- c. consideration of the most effective and economical methods of making this capability available to OE.

V. Immediate problems.

The above sequence of events should meet the general and long-term data processing requirements of OE. It should be stressed, however, that there will be a number of important--even urgent--data processing jobs to be carried out in the short-term. For example, certain information required in connection with implementation of PL 89-10 must be available by the Spring of 1966. The delays in OE and DHEW which have plagued some previous data ~~processing~~ ^{planning} operations can not be tolerated in this case. If OE and the Department encounter delays--either because of human or machine capacity or priority--ways must be found to enlist outside assistance. Ample capacity is available in the Washington area, both in other Government agencies and in commercial firms, to meet OE's needs and, if necessary, such assistance must be obtained promptly.