PROBLEMS OF INFORMATION SYSTEMS IN STATE GOVERNMENTS

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DEVELOPMENT OF STATE GOVERNMENT INFORMATION STRUCTURE

The Cause of the Information Structure

Like all forms of government organization, the structure of state government organization has evolved over the years, responding to the new demands of the people served. Because the structure has had to adapt to these demands, generally there has been a piecemeal development, and it has been virtually impossible at most times for the structure to evolve according to any long-term plan. Of course, periodically there have been comprehensive investigations into the structure at any given time, but these in general have not resulted in massive reorganizations.

The easiest way to respond to a new demand for services is to create a special organization whose function is solely to administer to that demand. This has the advantage of giving the new function emphasis, making it clearly visible, and pinpointing the responsibility. Very often, therefore, new agencies have been created in response to demands for these services. If one were to look at the organization chart of practically any state government one would find departments such as Mental Health, Welfare, Motor Vehicles, Commerce, etc.—functions which usually did not exist 50 years ago. And these are clearly labeled as separate departments. In addition, there is usually a proliferation of committees, commissions, authorities, and other groups of a temporary or permanent nature which reflect new and pressing demands for services.

The Response of State Governments

The response of the newly created organizations in terms of information has been simply to request new information! It is a cliché that information is the lifeblood of an organization, and there is no doubt that the creation of a new agency, usually in response to some crisis demand, leads to a request for new information quickly. This traditionally has had the following effects:

1. Duplication of Information. Although the new agency may be aware that the information it needs is available in another government agency, it does not get it from this other agency for two basic reasons. One is that the information is not in the actual format required. And the other is that the information may not even be immediately accessible without cutting through masses of bureaucratic red tape. For these reasons, the new agency prefers to get its own information.
2. Increasing Requirements at the Source of Information. Because the new agency makes pressing demands for information in order to provide the services, it goes immediately to the source of the information and requests this source to cooperate. Even though the source is providing the same or virtually the same information to another agency, it has very little choice other than to provide the information as requested. This, of course, is very unsatisfactory and creates resentment at the source of information—the taxpayer, other governmental organizations, or private industry.

3. Increasing Difficulty in Relating Information Concerning the Entity. Because the source of information has given the same information to two or more agencies, it now becomes increasingly difficult for these agencies to relate information concerning the same entity. Had the information been sent only once, then of course this difficulty could have been avoided. Unfortunately this is not the way matters develop. Therefore, we arrive at a situation where essentially the same information is available in several agencies of government, derived from the same source, possibly in different reporting periods, and probably in different formats, so that it is almost unrecognizable as the same information when it is received and processed by the receiving agencies.

4. Increasing Cost of Information. Since the information is generated several times from the same source, and is processed by several agencies, obviously the cost of that information is much higher than it need be. Moreover, because the information is now stored in incompatible formats, another cost is added: the cost of reconciliation.

Recent Examples of New Demands for Service

We are all aware of the problems of our growing urbanization, the dynamic growth of our economy, and the realization of the goals of equal opportunity. When state governments act to solve or alleviate these problems we see the growth of new functional agencies. These are concerned with law enforcement, economic opportunity, unemployment, education, health, urban redevelopment, and statewide economic planning. All of these in turn create problems of how and where to find new revenues.

They also create problems of how and where to find the required information.

FEDERAL-STATE-LOCAL GOVERNMENT INFORMATION RELATIONSHIPS

The demands of the federal government for information constitute a growing problem for the states. It is interesting to note the reasons for these demands. Historically the federal government has been primarily concerned with fiscal accountability, as one of the tunes called by the federal piper in return for federal funds. Secondly, and more importantly today, information from the states reports to the federal government the progress of application areas and programs for which it has responsibility or for which it shares responsibility with the state government. Thirdly there is a mutual interest shared by the federal government and by the state government in having the federal government collect information from all states and then disseminate it.

If we were to examine the various federal programs, we would note that they had grown up in piecemeal fashion, so that they have established their own reporting requirements with the corresponding state and local government agencies. This in turn means that much information is sent by the state to the federal government without its being related to the needs of other state agencies.

Some examples of federal programs which are having a major impact on state information collection follow:

1. Education. The Office of Education has developed a “basic educational data system” (BEDS) which is aimed at collecting source data from the records of educational agencies and institutions. This information will flow to the state departments of education and from there to the Office of Education in machine-readable form. The BEDS system will contain basic data in all five areas of staff, instruction, pupils, finance, and facilities. It will furthermore be compatible, collected at the same time, and therefore most useful to the federal and state authorities.

2. Public Health. A very considerable amount of information is reported on vital statistics, these records being created in about 30,000 local offices and passing usually through the state health departments. Practically the whole burden of maintaining the vital statistics system is borne by the states—an example of cooperation rather than compulsion in federal reporting.

3. Criminal Information. Since 1930, when the Uniform Crime Reporting Program was instituted, a
considerable amount of information on criminals and criminal activity has been collected by the FBI. Again this very successful program has been maintained on a voluntary basis. Beginning in 1967, the National Criminal Information Center in Washington will receive information from cooperating state and local governments concerning stolen vehicles, certain stolen property, and extraditable warrants for wanted persons. The information will be sent in machine-readable form via communication facilities. Any cooperating government can then inquire of the file.

The above are only a few of the many applications areas with which federal and state governments are concerned. Obviously such new major federal programs as pollution control and medicare will have and are having equally significant effects. The major deterrent to the flow of information from the local to the state and from the state to the federal level is simply the incompatibility of the data. In other words, the same data in many application areas are coded differently by local governments, states (and even by different agencies within the same state), and by the federal government.

Thus, there is a need for the standardization of data elements and their codes before an efficient information flow can take place among the different levels of government. This problem is being now widely discussed, and in a few instances some government jurisdictions are taking action. For example, the Tri-State Transportation Commission (which is financed by the three states of New York, New Jersey and Connecticut, the Bureau of Public Roads and the Department of HUD) is responsible for transportation planning in the New York City conurbation. It spent a great amount of time developing a land use code, a geographic location code, and other codes, simply because there were no standard codes available.

There are some helpful signs for tackling this most significant problem:

1. The February 1966 National Conference on Comparative Statistics, which was held in Washington and attended by government officials from all levels of government, discussed this major problem.

2. The Council of State Governments’ Committee on Automation, Technology and Data Processing has been well aware of the problem and has given its support to the American Standards Association’s efforts in the standardization of data elements and their codes. It has also given its endorsement to the establishment of a joint data processing center in Des Moines, Iowa, which would process local, state and federal data; part of this effort would, of course, be concerned with data standardization.

3. GSA is currently considering a proposal to establish a joint local-state-federal data processing center.

4. There is a bill (S. 561) that has passed the Senate and gives all federal agencies, rather than only a few, at present, authority to cooperate with state and local governments on technical matters, including data processing.

5. The Conference of Governors has recommended that central statistical offices be established in each state. New York State has had such an office for two years, and it has made a complete inventory of statistical series maintained by the various state agencies.

Of course, while the federal government must take the lead in the national programs, the state governments should similarly take the lead in educating and assisting the local governments. The present state-local situation is similar to that existing at the federal level where we have noted a piecemeal approach. Presently, most state governments, which are doing anything about assisting their local governments, are using a rather fragmented approach which concentrates on the mechanization of specific functions. This makes it difficult for a municipality to consider the use of one computer for all functions, as against several computers or the use of service bureaus, and tends to inhibit the design of “total” systems. Moreover, the regional concept of providing cooperative data processing services cannot be given proper consideration if a piecemeal approach is followed.

Presently in New York State there are five or six state agencies which are all concerned with giving consulting advice on data processing to local governments. Recently we have coordinated these ap-
proaches by establishing a Joint State-Local Automation Planning Council, composed of senior officials from state and local governments. It is developing a comprehensive program in functional areas (such as welfare and education) and planning for the establishment of regional computer centers and the provision of expert advice in technical data processing areas.

California has taken a similar approach using the concept of an "information central" connecting all state and local government computer installations. Of course, for the local jurisdictions to be able to talk to any state agency computer via the information central, standardization on data elements is essential.

CENTRAL CONTROL OF INFORMATION SYSTEMS DEVELOPMENT IN STATE GOVERNMENTS

Because of the foregoing discussion concerning the development of state government information structure, the impact of the federal demands, and the work of the states with their local governments, it is obvious that there is a very large investment currently in state data processing. About two years ago I estimated that all the states together were spending $25 million on computer rental, and, when the costs of associated peripheral equipment and personnel were added, the figure was between $80 and $100 million annually for data processing activities. The figure today is probably between $120 and $160 million.

In order to control these investments many states have adopted very positive programs by establishing a central agency. In New York State for example the Division of the Budget has developed this control and guidance along several lines to assist line departments in all aspects of computer acquisition and use—for example, in the areas of information studies, issuance of specifications, realistic evaluation procedures, monitoring installations, development of a central computer, etc. Similar developments have taken place in such states as Texas, Hawaii, Michigan, Wisconsin, and Ohio, and we have already mentioned the work of California, which is now proceeding apace.

In our own state, we have recently developed a statewide master plan for data processing development, which includes a data element inventory for all-important master files, either mechanized or not, throughout the state. This inventory will be circulated to all potential users, and we shall soon be implementing a much more effective interagency use of data with the accompanying standardization of data which this entails. The plan also encompasses the development of new computer applications for the next five years for state departments, and as such plots out their development in the data processing area.

It is hoped that with such developments as these by leading states in the country, and with the leadership provided by the federal authorities, we shall within the next decade approach a position where the important data which flows among governments will have been standardized, and we will at last be in a position to "talk" to one another by computers—as has been the dream of practitioners for the last decade.