Computers and Congress

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INTRODUCTION
The Institute of Management Sciences (TIMS) and the Washington Operations Research Council (WORC) co-sponsored two meetings in the early months of 1968 in the Rayburn Building on Capitol Hill. In these meetings, these professional associations held what was probably the first dialogue between the Management Science community and Representatives of the U. S. Congress. The Representatives were Congressman Robert McClory of Illinois and Congressman F. Bradford Morse of Massachusetts.

The purpose of these meetings was to search for areas where Management Science techniques could come to the aid of the Legislative Branch of the Federal Government. Neither the members of the House of Representatives, who were the guest speakers at the meetings, nor discussants, nor the members of the audience had any recourse but to say, "YES! Management Science Techniques can help Congress!" But as suggested by Congressman Morse, the Management Science community must make the management science terminology more "fashionable" so the members of Congress will add it to their vocabularies, and must also "sell" Congress on the great potentials of Management Science technology.

Background
Congressional record

There have been several articles in the Congressional Record regarding ADP assistance to Congress. One article appeared on October 19, 1966. This was the introduction of a bill by Congressman McClory of Illinois. The bill authorizes the Legislative Reference Service of the Library of Congress to make use of automatic data processing techniques and equipment in the performance of its function in support of the Congress. Congressman McClory noted the growing dilemma of Congressmen and their staffs to screen, sift and extract significant information from the ever increasing volume of data they receive.

Some of the very basic information that the Congressmen must know includes: status of current bills, legislative history of bills, schedule of committee hearings, budgetary data and facts and figures regarding everything from information about his constituents to information about unidentified flying objects.

Another article appeared in the January 30, 1967 Congressional Record. In this article Congressman McClory introduced an abridged version of a study prepared by the Legislative Reference Service of the Library of Congress. The study was a review of various ways in which computers might be used to aid the Congress, Congress as a unit, each chamber of Congress, the committees of Congress, and the individual Congressmen.

The third article in the Congressional Record was introduced by Congressman Tom Railsback on January 29, 1968. The article is Congressman McClory's speech to the joint TIMS/ORSA meeting on January 17, 1968. In his speech Congressman McClory reviewed the need for ADP equipment to aid Congress. He also described a recently installed on-line terminal system which was installed in the American Law Division of the Legislative Reference Service of the Library of Congress. These terminals enable the Legislative Reference Service to store on magnetic tape descriptions of all bills and resolutions introduced in the 90th Congress. This data will be used to compile and list the "Digest of Public Bills". Eventually the system will enable a Congressman to retrieve any bill by number, title or word descriptors. When we realize that 26,000 bills and resolutions were introduced in the 89th Congress, we can begin to see one small area where Congress can be aided by ADP.

In his speech Congressman McClory reviewed his statement which he inserted in the October 19, 1966
Congressman McCloy mentioned in his speech a fact that was surprising to me. He noted that Congress in 1967 appropriated over $1.2 billion for the 3,000 computers in use by the departments of the executive branch of the federal government. However, the Congress has refused to appropriate one-thousandth of that figure to equip itself with an ADP capability.

Studies of Congress

There have been several studies and books regarding Congress and Congressional reforms. I will discuss only those areas regarding ADP. The studies are: the Arthur D. Little Study that was sponsored by the National Broadcasting Company, the results of which were made into a television Special, the Twelve Studies of the Organization of Congress conducted under the auspices of the American Enterprise Institute for Public Policy Research; the Dartmouth College study, which was directed only to the House of Representatives. We Propose: A Modern Congress, which is a series of articles by members of Congress; and the Report of the 1965 Joint Committee on the Organization of the Congress, which is now represented in bills before the Senate and the House.

The common thread running through all the studies is the problem of obtaining timely, accurate, complete and relevant information for decision making. During the Dartmouth study, four out of five Congressmen said that the lack of information and complexity of decision making were the major problems preventing Congress from performing more effectively. This is true for the individual Congressman as well as for the Committees of Congress. The Dartmouth study was in the form of 32 reform proposals drawn up by the study team. The proposals were developed after a search of the extensive literature written about the Congress. The team members then asked a total of 116 members of Congress what their thoughts were regarding the 32 proposals.

The need for better information was also mentioned in the Report of the 1965 Joint Committee on the Organization of the Congress. The report urged the use of automatic data processing to provide expanded budget information to members of Congress to aid in Congressional fiscal control and budget evaluation. The result of this report has been formed into bills now pending in Congress. I will discuss this pending legislation in a later section. This report was an internal study of Congress. The study was co-chaired by Senator Mike Monroney and Representative Ray Madden.

The need for a computer to better analyze the budget, as well as the hundreds of other subjects, is also mentioned by David Brinkley, the NBC correspondent, in the introduction of the book, "Congress Needs Help." One of the findings by the Arthur D. Little study team was that Congress does not take advantage of automatic data processing equipment to facilitate its work. Because of the massive volume of data input to Congressmen and Committees, it is only natural to turn to high speed, large capacity computers. The conclusions and recommendations of the study call for the use of the computer to manipulate the data into usable information.

The American Enterprise Institute for Public Policy Research is a nonpartisan research and educational organization. The purpose of AEI is to assist legislators and educators with studies of current issues of national significance. AEI compiled twelve studies of the Organization of Congress into the book, "Congress: The First Branch of Government."

In the study, Availability of Information for Congressional Operations, it was found that the complexity of decision making and the lack of information are the difficulties that were most frequently cited by the Members of Congress. In the study, the Committees in a Revitalized Congress, it was noted that the information problem is not one of scarcity of information, but an abundance of information, most of which remains unassimilated and undigested. The study, Information Systems for Congress, advocates the development of automated information processing systems to provide the information for legislative decision making.

ADP applications to Congress

Before we discuss how ADP can be applied to Congress, let us first categorize the working parts of Congress. The functional areas of Congress can be divided into five parts:

1. Congress as a Unit
2. Each Chamber of Congress
3. Committees of Congress
4. Individual Congressmen
5. Political Parties

Within some of the functional areas there are two kinds of information that is required: legislative information and administrative information.

The legislative information can be divided into information for current problems and information that could be relevant to future areas of concern.
The legislative information applicable to current problems and the legislative information being compiled for future matters can be divided and ordered by subject.

Let us now look more closely at the functional areas of Congress and begin to determine their information needs.6

Congress as a unit

This includes both Houses of Congress. Certain kinds of information is relevant to both the House of Representatives and the Senate. A centralized data bank should provide:

a. Legislative Information
   1. Status of Pending Legislation. Considering that there are about 26,000 bills and resolutions submitted for action in each Congress, we can see that there is a need for a central file of this legislation. At this time there is no one place where a Congressman can easily find information regarding pending legislation.

   A Congressman should be able to have access to a centralized file of all legislation introduced into either House of Congress. He should be able to search for this information by the number assigned to the bill or resolution, or by subject. To go one step further, each Congressman could have his "interest profile" stored in the computer system and have this "interest profile" automatically search each piece of proposed legislation that enters the data bank. The "interest profile" would represent the personal interest of each Congressman. When the key words of the "interest profile" would match with the key words of the bill or resolution, an abstract of the bill or resolution would automatically be sent to the Congressman as a printout or output on his own terminal in his office. Included with each bill or resolution should be pertinent information such as the name and number of the bill, the sponsor, the content of the bill, related bills in the House or Senate, past legislation regarding both bills and laws germane to the current bill, and status of action on the bill.

   2. Lobbyist Activity Information. Lobbyists are one of the prime sources of information for Congressmen. All lobbyists are required to register either with the Clerk of the House or the Secretary of the Senate. These lists are then published each quarter in the Congressional Record. However, they do not provide much information to the members of Congress. To assist the members of Congress it would be beneficial to record all lobbyists and related information in a central data bank. A Congressman should be able to search a data base through a remote terminal to determine if an individual is a registered lobbyist, his employer, the legislation he is concerned with, total sum of contributions he receives and the source, his past history and technical background, including his speeches and publications or editorials.

b. Access to the Legislative Reference Service. The ability of being able to access the Library of Congress' imaginary computerized data banks through the Legislative Reference Service (LRS) is potentially a very powerful tool. The Library of Congress is a vast storehouse of information. While the potential is great, the implementing of the system will not be easy.

   However, to review a point raised in the TIMS/WORC meeting, the American Law Division of the Legislative Reference Service of the Library of Congress has installed on-line terminals which enable LRS to enter and store on magnetic tape descriptions of all bills and resolutions introduced into Congress. Eventually a Congressman will be able to recall a bill by number, title or word description.

   4. Legal Information. The University of Pittsburgh Health Law Center has recorded on magnetic tape the entire U.S. Code of Laws. It is possible to search the tape and select all the laws within a given subject and also it is possible to find laws pertaining to a particular subject but entered under different headings. Included in this system are the complete codes of several states, the U.S. Supreme Court Decisions since 1950, the Internal Revenue Code and Regulations, as well as other legislative and court information.

   Other legal information now in ADP form includes the Department of Defense sponsored Project LITE (Legal Information Through Electronics), legal information in several other Executive Branch agencies, and other legal information held by states,
private organizations and several U.S. universities.

b. Administrative Information

1. Index-Catalog of Congressional Documents.
   This could include all the Congressional documents published in either House of Congress. An example could be a listing by subject or related category of all the published committee hearings.
2. Congressional Employee Payroll.
3. Legislative Telephone Directory.

Each chamber of Congress

The information required here would be relevant either to the members of the House or Senate, but not to both.

a. Legislative Information

1. Location of Bills. A Congressman in the House or Senate should be able to locate a bill that was introduced in his Chamber and also the status of the bill. He should be able to find out the history of action taken on the bill, whether it is in Committee or not, amendments to the bill, Committee votes, floor votes, scheduling for future action, and sponsors of the bill.
   The bill should be able to be retrieved by bill number, sponsor or subject.
2. Vote Information. When the voting bell sounds in a Congressman's office, he must go immediately to his chamber to vote on a subject about which he may know very little. Currently the chamber based information regarding a vote usually comes from a colleague on the floor who knows something about the subject or else by the doorkeeper. With a terminal in his office, the Congressman could be able to get an abstract of the bill on which he is being mustered to vote. This could give the bill number, sponsor and legislative history, and pro and con arguments.
3. Automated Voting. Automated voting is now done in several foreign countries and in some of our states. However, automated voting is more a political problem than a technical problem. I will not summarize the pro's and con's, but merely say that it is technically very feasible.

Committees of Congress

The Committees of the House and Senate conduct the bulk of the legislative work in Congress.

a. Legislative Information

1. History of Committee Action. Each Committee should have a history of all the bills that fall within its jurisdiction. The bills should be sorted by subject and should include related information such as the sponsor, the Congress in which they were introduced, the bill's provisions, whether or not any hearings were held, record of information supporting or opposing the bill, action by the other chamber on similar bill or bills and whether the bill becomes law.
2. Appropriation Information. This is the area in which there is the greatest need for an information system. There is no lacking of appropriation data for both current and past expenditures. However, correlating this data into usable information is still a problem. This is not only true for the budget review within a single committee, but there is also a great need to have a cross-committee review of the budget. What is assigned to one committee can be directly related to a matter in another committee. The introduction of the Planning-Programming-Budgeting System (PPBS) may provide the government with an added impetus to convince the Congress that a computer could be used as a tool to aid in the review of the budget. The appropriation information should include statistics on past and projected budgetary expenditures for each agency of government. The information should include all appropriation pending for an entire program and not just the funding for the individual segments.
   Unfortunately, getting an across-the-board review of the budget is another area where the political problems of developing such a system are equal in scope to the technical problems.
3. Congressional Overview. One of the prime functions of Congress is to overview executive agencies. For example, Congressional overview of the Space program is a function of the Senate Committee on Aeronautical and Space Sciences and the House Committee on Science and Aeronautics. These committees should have the information to examine appropriations for the Space program and to correlate planned events and
proposed expenses with historically related data.

4. Subjects Under Committee Jurisdiction. Each committee is charged with maintaining an expertise in specific areas. These particular areas are defined in the “Rules of the House of Representatives” and the “Senate Manual.” The committee members should have access to significant and pertinent information relating to each of the subject areas and should have the ability to browse through this information such as we do when we look in a library's catalogs.

b. Administrative Information
A schedule of all committee meetings should be maintained to enable committee members to better plan their time. Members of the House and Senate may belong to more than one committee.

Individual Congressmen

Congressman Morse, in his discussion before the joint TIMS/WORC meeting in the Rayburn Building, said that his workload is about 75 to 80 hours per week. It would be crystal ball gazing to prophesy that computers will reduce his workload to 60 to 65 hours per week. However, there is no doubt that ADP could help Congressman Morse make more efficient use of his 75 to 80-hour work week.

a. Legislative Information
1. Personal Information. Each Congressman’s office should be equipped with an on-line system to handle his own personal information file. The system should fit the individual Congressman's needs. Each Congressman's interest as well as style of operations vary. The file could be divided between the Congressman’s special long-term interests and current legislative obligations. The long-term interests could be public works projects within his district or possibly a strong interest in a national matter such as water or air or noise pollution. The file of current legislative matters could include his voting record on a particular subject, a summary of pending legislation, a summary of his constituents' attitudes, and a recall of his public philosophy that he expressed in speeches, statements to the press and in various publications.

2. Reference File. Each Congressman must wade through a mountain of data everyday. He can scan some of the reading material, but he must read other material sentence by sentence. A Congressman should have a system that could retrieve information based on his own key words. This system could either present a listing of the relevant documents or else it could project the written page on a screen.

b. Administrative Information
1. Re-election Information. The Congressman’s prime issue is to get re-elected. A Congressman must know the total amount of campaign contributions, a list of the donors and the amounts they donated, the donors' interests, the amount spent in a re-election campaign, and the manner in which it was spent. He must also know the voting blocks within his district. These include the unions, business leaders, civic leaders and the interest groups, such as a farmer's association. The system should also be able to analyze polling data and election returns.

2. Constituent Data. Each Congressman should also have access to the names and addresses and other relevant information to each of his constituents. As you can see, this administrative information deals with a very sensitive subject. Many people feel that this would lead to the "Big Brother" state described in George Orwell's 1984. Too much information in the hands of the wrong people is bad. Too little information in the hands of the right people is bad. It would be a difficult task to justify every bit of information that went into such a data bank. However, in the near future this is precisely what must be done. Technical potential must be tempered and guided by social conscience.

Political parties

Each of the political parties has National and Congressional Committees. The Political (Party) Committees of Congress include both the House and Senate. Each of these Committees has a specific purpose and are, therefore, interested in specific information. Some of the committees for both Republicans and Democrats are the Policy Committee, Steering Committee, Personnel Committee and Campaign Committee. Information required, therefore varies from campaign information to the planning of political strategy in the House or Senate.
The National Committees could include policy information relating to party objectives and policies; information by states or areas of the country; or information by categories such as the Space program, or air or water pollution, or information on the overall policy toward cities. Other information could include the opposition party's policies and objectives and the arguments against those policies and objectives.

Other information could include administrative matters. This would include voting information such as campaign planning and funding, the names and addresses of state and local leaders, the opposition party's strong and weak areas, and the policies and political backgrounds of voting blocks possibly divided by economic strata, ethnic groups, and/or geographic areas.

Congressional committees

Any of the above-mentioned candidates for ADP applications could be discussed more deeply. However, we will discuss only the problems relating to the standing committees of the House and the Senate. There are 20 standing committees of the House of Representatives and 16 standing committees of the Senate. The Senate Manual and the Rules of the House of Representatives list the standing committees and the power and duties of each of the standing committees. The committees were last restructured in 1946 to better delineate the jurisdictional areas of each of the committees and to better parallel the executive agencies.

Whether or not this precise delineation of responsibility and attempt to parallel the executive branch is satisfactory will not be discussed in this paper. However, this situation is mentioned because it indirectly leads to an example of the problem caused by the current committee structure and how this problem could be somewhat alleviated through the use of ADP's ability to provide horizontal integration of a similar subject.

Horizontal integration with ADP

The House of Representatives has a Committee on Education and Labor. The Rules of the House of Representatives lists and defines one of the jurisdictional areas of this committee to include "Measures relating to education or labor generally." The Senate has a Committee on Labor and Public Welfare. The Senate Manual defines one of the jurisdictional areas of this committee to include "Measures relating to education, labor, or public welfare generally." Because these powers and duties are specifically listed in the rules books of both the Senate and the House, we would assume that all education matters are handled by these two committees. However, this is not the case. It is revealed in the book, "Congress Needs Help" that about thirteen different Senate Committees, fifteen House Committees, and one Joint Committee considered education bills in the 89th Congress. Congressmen would have to go to 29 different committees to get information regarding education bills in the 89th Congress. This is an excellent case for justifying a retrieval system using key words.

Currently, each of the committees has a committee calendar. The Committee on Education and Labor publishes their calendar monthly on a cumulative basis for each Congress. The calendar is organized three ways: sequentially by bill number, by author, and by subject. The committee staff updates a working copy daily with the same information they provide to the Legislative Reference Service for the Daily Digest. The Daily Digest is not cumulative.

A staff member of the Committee on Education and Labor explained that it was no trouble in his office to find information in the updated office copy of the Education and Labor Calendar regarding any education bill in that committee. However, the only way for him to get information regarding other education bills in other committees would be to look at the working copy of each committee's calendar. This would be a very time-consuming project. He said that there is a need for a Daily cumulative House Calendar that would include the status of all bills whether they are in committees or not. This House Calendar could be organized in the same manner as is the Education and Labor Calendars. He said that this House Calendar would be valuable in three ways: time saving for staff members, more rapid response of Congressmen to constituents, and more adequate voting information for Congressmen.

This would not be a complex problem to solve. The data are already there. It would be a matter of compiling the data in one location and organizing the data in an integrated data base. This situation would fit in very well with an on-line information retrieval system using key words.

History of committee action

One of the prime sources of information for committees is the committee hearing. The word for word transcriptions of hearings are published in a book form. Most of these transcriptions get to be about the size of a book. And there is more than one hearing in a committee. In the House Committee on Armed Services in the 89th Congress there were 102 printed hearings and special reports, containing 11,848 pages.
There were also 396 meetings by the full committee and its subcommittees.

It would be beneficial to have an on-line system through which summaries of these hearings could be reviewed using key words. In this manner, the members of the committee who were at the hearing could refresh their memories and new committee members or other Congressmen who were not at the hearings could get a concise, accurate review of the hearings without having to work their way through a great deal of extraneous words.

A spokesman for the Committee on Education and Labor said that the current information retrieval system is to remember what was said at the committee hearing or else to read the 300 or 500 page transcript.

Subject under committee jurisdiction

While there are many areas where ADP can assist the committees of Congress, we must not assume that all the information for any one subject will always be found in the subject file. Staff members of the Senate Aeronautical and Space Committee get bits and pieces of information from the Bureau of Census, NASA, HEW, Department of Transportation, the National Academy of Sciences, the State Department and the airplane manufacturers.

One of the staff members believes that there is no place for a computer in a committee. The reason given is that the sources of information are too scattered and varied and too unstructured to be satisfactorily assimilated and compiled into a unified format. Much of the information is needed on an immediate basis. For example, a member of the committee requests in the morning material for a speech to be given in the afternoon. The staff members do not have the information, but they do know who to call and the right question to ask.

It is my feeling that the members of the committee staff are not afraid that the computer will replace them, but rather are wary that a computer system is not flexible or dynamic enough to receive, process and output information within the constraints imposed by the function and purpose of the committee. To an extent this is true. However, any large organization has routine input and historical data that can be structured and processed and presented in a logical and varied format. When looked at in this manner, the Senate Committee seems very similar to any organization.

ADP as a tool for committees

The staff directors and the chief clerks must be made to believe that a computer is only a tool. It does not dilute the powers of the committee members or staff directors or chief clerks. It should be made to enhance their power. It should enable them to better organize and structure the information they already have and to present the information in a timely and orderly and concise manner.

A bill to improve the operation of the legislative branch of the Federal Government

A bill to improve the operation of the Legislative Branch of the Federal Government was introduced in the House and Senate of the 90th Congress. The bill is the resulting product of the Special Committee on the Organization of the Congress. There are numerous mentions of areas where ADP can be applied to aid the Congress.

One area specifies a data processing system for budgetary and fiscal information and data. The bill states that "The Comptroller General of the United States, the Secretary of the Treasury, and the Director of the Bureau of the Budget shall develop, establish, and maintain, for use by all Federal Agencies, a standardized information and data processing system for budgetary and fiscal data." The Comptroller General is also required to specify the location and nature of data relating to various Federal agencies' programs, activities, receipts and expenditures. It is also specified that the Comptroller General establish within the General Accounting Office the data processing systems. The Comptroller General is also authorized the funds to obtain the services of individual experts and consultants for assistance.

In another part of the bill, each standing committee of the Senate or House is authorized to contract the services of consultants or organizations to make studies or advise the committee with respect to any matter within the committee's jurisdiction.

The Director of the Legislative Research Service, i.e., the bill proposes changing the name of the Legislative Reference Service to Legislative Research Service, is also authorized to procure the services of individual experts or consultants learned in particular fields of knowledge. Also in order to facilitate its performance, the Legislative Research Service may (1) prepare information for machine processing, (2) process information by machine, and (3) prepare information for presentation by machine. The Service has also authorized the funds to acquire automatic data processing equipment to implement the specified work.

The bill also would establish for the Congress an Office of Placement and Office Management which would be supervised by the House Committee on House Administration and the Senate Committee on Rules
and Administration. The Office of Placement and Office Management would maintain for the entire Congress, a list of private Management concerns capable of rendering studies regarding improving the efficiency of Congressional operations.

The Senate version of the bill also proposes the establishment of a Joint Committee on Congressional Operations. One of the functions of this Joint Committee is to make a continuing study of automatic data processing and information retrieval systems for use in the House and Senate and to recommend the implementation of these systems. To assist in this matter the Joint Committee is authorized to procure the services of consultants or organizations knowledgeable in the particular areas.

While these bills were not passed, there is general approval and intent among Congressmen to submit other bills to pursue the goal of adding automated data processing support to meet congressional needs.

CONCLUSION

I have presented to you the current thought on how ADP can aid the Congress. The needs and solutions have been mentioned by members of Congress in books and official publications of the Congress; they have been specified in a joint committee study of the Congress, and they are now documented in a bill introduced in the 91st Congress.

This bill is a door. Beyond this door is a room of boundless dimensions limited only by our imagination, technical knowhow and salesmanship. I hope I have done my part in presenting this door and a picture of what is behind the door.

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