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ABSTRACT

The proceedings of the Fourth Conference of the Intergovernmental Council for ADP-ICA, are contained in this, the 7th issue of the ICA-Information, the Council's official publication. The proceedings include the edited minutes of the sessions, which covered the following topics: Management information systems for the government, Policy considerations in the use of ADP in the Federal Government; ADP for legislature, computer technology and the legislative process, the role of ADP in government, U.S. General Accounting office activities in connection with the Federal Government ADP program, government procurement policy and implementation, and ADP procurement in the United States Government. A summary of the sessions on Council affairs as well as on the ICA working-groups is contained in Circular Letter No. 15, presented as Annex I. Annex II is the full list of participants in the Conference sessions and in the official receptions. (AB)

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of the Fourth ICA Conference, Washington D.C.

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I N T R O D U C T I O N

The proceedings of the Fourth Conference of the Intergovernmental Council for ADP - ICA, which took place in Washington D.C. from the 11th to the 13th of November, 1970, are contained in this, the 7th issue of the ICA-Information, the Council's official publication. The proceedings include the edited minutes of the sessions, as shown in the list of contents.

A summary of the sessions on Council affairs as well as on the ICA working-groups was contained in Circular Letter No. 15, which was sent out in February 1971. In order to give a complete picture of the Conference, Circular Letter No. 15 is contained in this publication as Annex I. Annex II is the full list of participants in the Conference sessions and in the official receptions.

The Fourth ICA Conference was highlightened by the fact that the subjects presented and discussed were drawn from the rich experience of the Government of the country leading in computer utilisation, the United States of America. Participants were given a clear picture of the state-of-art on problems of the utmost concern to all of us. Our host, Dr. H.R.J. Grosch, was able to enlist the speakers from among the top-experts on each of the topics and the Council's sincere appreciation goes to him as well as to these personalities, and last not least to the sessions' chairmen who so ably guided the discussions which were always frank and to the point.

It is our conviction that the proceedings of this our Fourth Conference will constitute an important and meaningful contribution to the intellectual effort demanded constantly from the governmental authorities on Informatics.

Additional copies of the ICA-Information No. 7 as well as of previous issues may be obtained through the ICA's national representative or directly from the Secretariat. A list of contents of previous issues of the ICA-Information is included as Annex III.

Jerusalem, April 1971

Session I - Chairman Mr. W.R. Atkinson, United Kingdom.

MANAGEMENT INFORMATION SYSTEMS FOR THE GOVERNMENT.

Key-address by Mr. J.F. Cunningham, Office of Management and Budget, U.S.A.

POLICY CONSIDERATIONS IN THE USE OF ADP IN THE FEDERAL GOVERNMENT.

Mr. Atkinson: opened the first session of the Conference. He conveyed the good wishes of Jack Tiffin. Mr. Atkinson said that he believed that ICA had an important part to play, and he hoped that the interchange of ideas that took place would contribute to solid practical achievement in member countries.

Mr. Atkinson suggested that the topic of Management Information Systems was one on which it was difficult to get a firm and realistic grasp. Managers had of course always required information at strategic, tactical and operational levels in order to organize, direct, control and coordinate their functions. Scale itself made this a difficult process in the Government context. But the real trouble in considering practical ways towards the development of large scale integrated management information systems, was that there was a great deal of theorizing and not all that much positive progress. Achievement always seemed one step ahead. People confused their tenses and spoke of the future as the present. There was a clear need for practical guidance; and he hoped that the session would help in charting the way ahead. He proposed that an attempt should be made to analyse the progress made in member countries; to assess realistic prospects; and to distinguish the ways in which practical goals might be achieved.

Mr. Atkinson introduced Mr. Cunningham who was to speak on the policy considerations in the use of ADP in the Federal Government. Mr. Cunningham was the deputy director of the General Government Management Division in the Office of Management and Budget; the chief of ADP Management staff; and the man responsible for ADP policy under the Brooks Bill. ICA was fortunate in having so distinguished a speaker to initiate its discussion on Management Information Systems for Government.

Mr. Cunningham: gave a brief description of the organization of Federal Government within the USA and, with the aid of slides, went on to describe the extent of computer growth throughout the United States.

From the initial two machines installed in 1950, until June 1970 when the total had reached 5277, representing 8% of the national total, there had been a steady rise in the numbers of computers installed in US Government. The curtailment of national programmes, e.g. NASA, and the consolidation of some major functions in the Department of Defence, was, however, expected to lead to a decrease in 1971. Some 65% of the Federal computers had been purchased. It had been found, especially in the early days, that the commitment in terms of administration practice, programmes etc. rarely enabled computers to be changed in step with the rapidly changing technology. The number of staff connected with computers, including those performing routine administrative functions, totalled approximately 180,000, 20% of whom were involved in key punching.

Nine per cent of US Government computers cost upward of 1.5 million dollars; and 14% between this figure and 750 thousand dollars. The capital value at purchase price of all Government computers was 2.3 thousand million dollars. 26% by number were supplied by IBM, but this figure rose when the dollar value was considered. The Digital Equipment Corporation, a company which did not exist until 1964, had 9% of the Federal Government computers by number, but these represented a much less figure by dollar value as they were small machines.

There was a serious lack of Management Information on Computer Systems in the US; it was ironic that an industry, supposedly devoted to solving other people's information problems, should lack much of the information necessary to understand its own. For example information which gave a picture of the technical characteristics of the computer or computer utilisation so that the need and impact of proposed standards for the technology could be evaluated on a national scale. Information on performance characteristics to enable managers to begin to evaluate the returns from their investments on a broad scale was also needed.

In the Federal Government an attempt was being made to expand a Management Information System which had been in existence for the past three years. If successful the experience could possibly be related to the national picture; although the alleged lack of profit motive in Government would cause some disagree.

Mr. Cunningham went on to say that he was a member of the Executive Council of the Society for Management Information Systems which had been formed in 1969 and consisted of the Information Systems Managers of both Government agencies, and private companies. Its purpose was to provide a forum for the interchange of ideas about common MIS problems. One of its first tasks was to circulate a questionnaire throughout the community asking for definitions of a management information system, a statement of the major problems of MIS, and suggestions for the most important research project that ought to be undertaken in response to an identified problem.

In defining MIS 60% of the respondents made reference to decision making in some form. Two basic problems in the development of MIS were identified: the failure of top management to realize the power of well developed MI Systems and its reluctance to identify itself with development and implementation; and the development of better methods for determing what information was needed and what techniques could be used in developing and implementing systems. The Society had singled out the second problem as the subject of a research project that could be undertaken by the Society most beneficially as a service to the community. Significantly, respondents placed the computer as a powerful tool in serving MIS only insofar as the requirements of MIS demanded its use.

Mr. Cunningham felt that it was paradoxical, having circularized this group, to find a desire to disregard the notion that a study of what was needed was a prerequisite to the selection and acquisition of a computer. Systems were not exploited to their full: indeed six years after the introduction of the IBM 360 it was estimated that 60% of the users were still emulating the second generation computer. Objectors pointed to the inordinate delay caused by defining sophisticated systems requirements, to the greater number of changes which occurred during this period, to the lengthy process of selecting and procuring a computer, and to the time required to prepare and install it. They asked why endless months should be spent on the process only to wind up with a new machine whose selection was based on a severely outdated system specification.

The answer was to find better methods for defining and designing information within an acceptable time frame. A critical look should be taken at computer selection policies, at methods geared to open competition, and at the preparation of expensive responses to offers to bid. Better methods needed to be found to transfer experience from one situation

to another. Technological advances might require the adjustment of general policies to exploit their advantages. At the first meeting of the Society for Management Information Systems the consensus arrived at was that there was a need for interaction between the kind of management using its own existing informational base, and the management potential of the information technology era. This led to the theme of the second conference, the interaction of intuition and information in the management process. Those managers who questioned the use of the computer, and the notion that information systems started with the computer, were referred to as intuitive managers. These people had experience in dealing with the subject, and there was some value in their experience that was not necessarily associated with, or represented by, the qualification of information in an information system. For a time in this century the domination of the intuitive manager had been threatened by the information manager but now a marriage of necessity was in prospect with, perhaps, the intuitive manager holding the determinative role unless the manager of information went beyond his own expertise to discover, intimately, the clientele and the purpose which he served. In Government it seemed that the greatest successes occurred in those areas where the information system manager functioned as an integral member of the management team.

The Chairman thanked Mr. Cunningham for a crisp and invigorating start to the proceedings, and said that the vital need had clearly been brought out for interaction between the information manager and the intuitive manager in getting information systems to be accepted in principle, and then implemented successfully in practice.

As no questions were immediately forthcoming Mr. Atkinson went on to describe how information systems had developed in the United Kingdom. He said that in the commercial sector information systems seemed to have been developed initially from an operational system. An interactive process involving the managers and the computer specialists then led to provision for an increasingly sophisticated offtake of information to assist managers in their decision taking. This seemed a practical way of developing. But the more an organization became multifunctional in its operations, the greater the difficulty there seemed to be in developing a fully integrated management system. This was a matter of particular difficulty to government because of its manifold functions. He said that in the United Kingdom development was in its early stages, being carried out only within very limited fields and on a very limited basis. Mr. Atkinson felt it would be of particular help to know how

strategy evolved and had been implemented in the United States. He invited Mr. Cunningham's comments.

Mr. Cunningham said that information technology and decision making concepts were currently used by many agencies; they were doing the same kind of things that they did by intuition 10 to 15 years ago, but with a degree of scientific precision and at a far greater response rate. Within some agencies techniques of integration had been stimulated by performance budgeting, by relating the expenditures to the purposes for which they were going to be served. In doing so alternative action considerations were involved. Very little of the initial input data that went into any of the decision models that were used was introduced automatically. It was evaluated, rather than stipulated, information.

He went on to say that in developing a programme many alternatives were devised within the agency through simulation and modelling techniques. The review process of Federal programmes and funds involved a review of the same, and similar programmes. The 1972 budget, now under construction, was computer based. The computer was used in solving the decision process at the substantive, rather than at the political level. Within the Executive Branch of Government (3.5 million people plus the military) processes were generally, but not universally, highly automated at the departmental level. It was difficult to inject new techniques into long standing departments; and equally there were difficulties in permitting the development of a tradition of intuition into departments which were relatively new. The Congress, however, had done little to up-date itself with regard to MIS although a working group was at present studying the subject.

Mr. Atkinson said that in the United Kingdom one of the main difficulties was getting senior managers to specify the information they required so that provision could be built into systems and data banks for producing the information which the managers might require to carry out their functions more effectively. He asked whether any other member present would like to elaborate on his country's experience in the development of management information systems.

CANADA (Dr. Pajor) said that in his experience, to have a really successful management information system, it was necessary to establish clear responsibility for the different stages of development. In the planning stage the prime responsibility should be assigned to the manager or the user, with involvement from those concerned with research and systems. The second stage, the definition of management requirements, should also be the responsibility of management, again with systems support; but the project should not continue beyond this point unless and until management had fully analysed its requirements.

The following stage development was the prime responsibility of systems personnel with support from management.

He went on to say that implementation should be the responsibility of the manager, or the future user; and that post implementation or audit criteria should be established. This latter facility was not common in Canadian Government systems; and its absence made systems evaluation difficult. The final stage, operation, was, together with post implementation audit, the manager's responsibility.

Dr. Pajor concluded by suggesting that the described assignment of responsibilities might be the answer to the difficulty of finding people with overall expertise in hardware, software and user requirements.

The Chairman in thanking Dr. Pajor said that the theme which, once again, seemed to emerge from his remarks was the need to bring the manager and the information manager into close contact at the beginning. This interaction was needed to establish the groundwork for the system to be developed.

The Chairman went on to ask Mr. Cunningham whether he saw the information system as part of the operational process, or as something free standing. He thought that this was basic to much of the strategy about which they had been talking during the morning.

Mr. Cunningham in reply said that if a management information system did not involve itself in the operational function it must fail. The operation was becoming dependent more and more on information which could not be processed except by the computer.

The Chairman in bringing the session to a close said that it emerged clearly from what Mr. Cunningham and Dr. Pajor had said that the process of developing effective management information systems was one which must involve the computer information manager in close and continuous contact with senior management. There was no doubt that the development of Management Information Systems, or Management Decision Systems, would present central government with a challenge over the next few years. This must lead to a fundamental reappraisal of the management process and to a close consideration of what was wanted, and why it was wanted. There would be a great increase in the application of the new mathematical techniques; but it must not be forgotten, however, that although the computer was capable of providing vast stores of information and powerful processing facilities, it was a means and not the end.

He suggested that MIS would come in all shapes and sizes, and that each would be tailored to its own environment. It seemed unlikely that, in the circumstances of government, there would ever be one single, total, integrated information system.

Session II - Chairman Mr. H.G. Merk, Federal Republic of Germany.

ADP FOR LEGISLATURE.

Key-address by Mr. R.L. Chartrand, Legislative Reference Service, Library of Congress, USA.

COMPUTER TECHNOLOGY AND THE LEGISLATIVE PROCESS.

Chairman, Mr. Merk: Gentlemen, we should go on with our Conference. We are at the Second Session now: ADP for Legislature.

The subject we are addressing now is part of what we heard this morning - the problem of getting the right information at the right time, in the right form. This is a problem for any legislative body, perhaps an even more urgent problem in that field than in others. Modern life with its complicated aspects requires modern laws and regulations and, whether we like it or not, even more regulations.

As Mr. Chartrand pointed out in the reprint booklet* which has been made available to all participants, such questions as tax reform, pollution control, and social reforms, for example, demand an overwhelming command of facts and specific information. On the other hand, the required information in all its possible forms threatens to suffocate the ones who are to be informed; thus the task is a matter of information selection as well.

I am quite sure that all member countries of ICA have the same or similar problems, so it will be most interesting for all of us to learn how these problems are tackled in the United States legislature. Mr. Chartrand, please.

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*Congress: The Three-Dimensional Chessboard (a reprint from the Rutgers Journal of Computers and the Law, Vol. 1, Spring 1970). Author: R.L. Chartrand.

Mr. Chartrand: Ladies and gentlemen, it would be a distinct understatement on my part if I were to say anything other than that I am delighted to be here. I have had the opportunity, in the work that I do with the United States Congress, to visit with representatives from virtually all of the countries represented here. This has been, I hope, a mutually enriching experience. We need to exchange information on much of what we are doing in our national legislatures. There are common problems which we all share. It is also, I think accurate to say that there is something inherent in the nature of legislatures themselves that often stands as an impediment to change. Many of the legislatures have been in existence for quite some time. It is not too many years in the future before our own country will be looking at the 200th anniversary of its founding. I think, then, that it is significant, when we stand back and look at many of the changes that have taken place in this nation, that essentially the same legislating body is responsible for performing its governing functions.

I don't often start a talk with what amounts to - let us say - a pontificating type of quote, but there was a fine statement made many years ago by Edmund Burke, the great English statesman and writer, that I would like to simply quote and then use, if I may, as a point of departure:

"The nature of man is intricate. The objects of society are of the greatest possible complexity and therefore no simple disposition or direction of power can be suitable either to man's nature or to the quality of his affairs". I think it is a timely quotation because today, at least in our country and probably in many other countries, the roles of the governing groups - the executive branch, the legislative branch, and in many cases the judicial branch - are being looked at very thoughtfully. There is a challenge put forth today by many groups in our society, as to whether or not the present forces in government are really ready to or capable of handling the problems of our times - and I am speaking both of domestic and international problems.

Now when we talk about the Congress (and I will spend most of my time today speaking about our Federal Congress) we are focussing on a group that is looked at variously with whimsy, with sustained criticism, with admiration in some quarters, with simply nothing more than despair by other people. I think that as a political scientist, I look at Congress through a prism; each time that I turn that prism I see something just

a little bit differently. This is hardly a profound statement on my part, but one of the things that I try to say in the monography that you received is that it is not possible, nor is it really fair, to try to look at any such governmental structure - whether it is our Congress or one of your parliaments - in one or two dimensions. So I chose the title for that particular piece simply because I do indeed look at our Congress as a "three-dimensional chessboard." I see it as a group that functions concurrently at the chamber level, at the committee level, and at the individual member level.

Some of the people that look at Congress, and this unfortunately may include from time to time the majority of the American citizenry, tend to enjoy the foibles of the Congress more than they do the hard work. Quite recently I was drawn to a statement by Noel Coward, who is now at the point where reminiscing is a favorite pastime, and he was referring to his play, 'Private Lives', a long time classic of the English and American stage. He said that 'Private Lives' had been described by its critics as "tenuous, thin, brittle, gossamer, irridescent and delightfully daring". I draw an analogy here, because I think that a lot of people think of the congressional functionary in this light. Noel Coward goes on to say, and again I am afraid that the analogy is sometimes accurate in terms of what some people think of Congress: "...all of which connotes in the public mind cocktails, gay repartee and irreverent allusions to irresponsible conduct". Unfortunately we have journalists that tend to magnify this particular view of what congressmen or parliamentarians do in their workaday life and in their spare time.

My observation is somewhat different. I think that the Congress probably is one of the hardest working groups that has ever been brought together. The late President John Kennedy, in quoting Will Rogers, pointed out quite rightfully, I think, that "it is not the original investment in a Congressman that counts, it is the upkeep." Every time that the Congress chooses to vote itself a raise, or to increase its staff (or any of the other emoluments of the office) there is the inevitable public reaction. My own personal attitude is that they need all the help they can get.

Let me give you one or two statistics that might be of some interest to you, because I think you might find parallels in your own situation. When our country was founded, congressmen represented districts which included on the average 30,000 constituents. Today the congressman represents an

average number of 475,000 persons! Stop for a moment and think of yourselves in that position, attempting to satisfy - and here I am speaking of the third facet of congressional activity - that number of people, most of whom you never get to meet, few of whom you hear from, and unfortunately the number that you hear from usually includes a great many that you would rather not hear from. In addition, the tremendous mobility of the population causes significant problems.

One friend of mine, John Tunney, who recently was elected to the United States Senate from the State of California, was telling me that his former congressional (38th, Calif.) district increased between 1960 and 1968 from 360,000 persons to 620,000 persons. This type of growth leads to a situation which Senator Tunney described on one occasion: "It was not just a question of knowing what the people wanted and needed - I didn't even know who was out there." All too often members do not even know which groups are represented because many of our data collecting mechanisms unfortunately seem to lag a number of years behind the actual situation. The 1970 census represents a tremendous effort to collect information on roughly 200 million citizens and to put these data into a form which will be useful, within some reasonable time frame, to responsible Federal, State and local agencies and special programs. I think we can all admit that the problem in that particular case is not just the collection function per se, which is one thing we seem to have mastered reasonably well, but placing this information in a form and indexing it in such a way that we can use it.

The biggest problem that the individual Congressman faces can be expressed in one word, and that is 'time'. This is the inescapable problem that really gives him the most difficulty - time to weigh alternatives, establish priorities, and render decisions. I don't care what the resources of the individual man might be, it is a problem even for wealthy men who are elected to our Congress and who have large staffs. For example, the late Senator Robert Kennedy had a staff of 84 full- and part-time people. Senator Birch Bayh of Indiana, one of the very active younger Senators, has a staff in excess of 60 people. Most of the congressmen however, are restricted to roughly a dozen staff people, professional and clerical. But it seems that regardless of the size of staff, the squeeze on time - the need for better information, for selective information retrieval - is the greatest problem that is faced. In my discussions with gentlemen from other countries, and I think in particular of visits that I have had in the last

year from key representatives from Japan, West Germany, Sweden, England, and Italy, it was always the same problem: How do we find the time? How can I orient my staff to use those resources and techniques that allow it to function more effectively?

I realize that I am not saying anything here that you don't know - I am simply trying to express the conditions of the environment in which our congressmen function, and comment upon what we are going to try to do about it. We have the need to institute better channels for exchange of information between our legislative and executive branches. This is on a lateral level. We also have a need for the vertical exchange of information between the Federal, state, and local governments. This is becoming an increasing problem, and I will talk a bit more about it later.

The three levels of congressional functioning mentioned previously are worth amplifying upon. I would like to give a few examples, if I may, of some of the areas where we are now working to apply computer, systems analysis, and microform techniques in the handling of various kinds of data. One of the most important activities involves the handling of what we have chosen to call "Legislative Transaction Information." This simply means the capturing, storage and selective use of information on the content of bills and resolutions, their status as they move through the legislative process, the amendments (in committee or on the floor) that are made to these bills, and the various conference proceedings when bills are advanced far enough so that both chambers have to consider them.

In recent years we typically have had to work with nearly 30,000 bills and resolutions per Congress, that is, in a two-year period. While this may seem a fantastic number, it should be remembered that one or two states in our Union, such as New York, handle a comparable number of bills. To have fairly quick access to information on any given bill, where it stands and what committee action has been taken, which hearings have been held and which reports have been printed, is the single most important need of our Congress, as the congressmen themselves see it.

Let me go back for one moment and say that in a great many cases even the most learned staff members do not really know what it is that they are going to be asked to come up with. I think all of you can appreciate this - they cannot always anticipate their information needs. This is one of the problems that we face every day, in the Congressional Research Service, of which I am a member. If we could anticipate even 10 percent better, how much more effective we could be.

I was told two days ago by our Assistant Director that this year our small research service, with a staff of 350 people, will receive something in excess of 173,000 inquiries for information from the Congress. Four and a half years ago when I joined the service the figure was 116,000. Thus in less than five years, the flow of information as recorded formally has gone up almost 60,000 inquiries!

Now, this simply reflects the desperate information needs of congressional committees, the members and their constituents. About 45 percent of these requests originate with constituents but come to us via a member of Congress. These requests range from the absolutely trivial (and sometimes idiotic) to significant requests that may require one man-year of effort! We turn out a tremendous number of major studies for the Congress, and we try to budget the time of our specialists in order to respond to these requests. These larger requests of course have to be negotiated, not surprisingly - we don't have unlimited people and we certainly don't have unlimited money. So the problem of how to provide the information support necessary and in what ways to possibly improve, even by a tiny fraction, the performance of the people that support Congress, is the heart of the matter.

Congressmen have said essentially: if you could improve the function of my office by 2 percent I would be delighted. Now no one is thinking in terms of 2 percent necessarily, but we feel that if we can adopt a modular approach to improvement, then perhaps we are following the right course of action.

I've talked about the importance attached to Legislative Transaction Information. Let me give an example of another area of our effort. In our country many billions of dollars are made available by the Federal government to state and local governments, and in some cases private groups, in the form of grants-in-aid, contracts, and loans. We call this

"Federal Assistance Information". The monitoring of these expenditures is something that we have not even begun to master. We do have a catalog of such programs which is available and may be of some value to you in your own nations. The Office of Management and Budget, of which Mr. Cunningham is a representative, has taken the responsibility for producing in looseleaf form the Federal Assistance Catalog, previously produced by the Office of Economic Opportunity, which is the best collection of information on these various programs.

As a Congressman, I need to know several things: which programs exist, how much money is available in the programs - not just in a gross sense but how much money could I get for my district, for my people? Next, how do my people qualify for these programs? There are all kinds of problems in qualifying: which form to use, how is the proposal written, what should be stressed, which office is it sent to, is the proposal too late, has all the money been spent? I know of a number of cases that members have mentioned to me where a major proposal effort has been sent in to a given governmental agency, only to discover all of the money for that particular fiscal year had been allocated some six months before. This is bad for good relationships! And when a man is standing for election every two years as in the case of our congressmen in the lower chamber, disgruntled people do not need a very long memory to vent their displeasure on the incumbent. I am putting all this in very political terms but I think that you can appreciate the situation.

In other words, if Congress is a mirror of society, it is also the type of vehicle that is very much open to censure and ... retribution. People, if they are unhappy, can make their will known. We just went through an exercise in this country a week or so ago and everyone is now pointing two years hence to our next general election. With this frequency, so far as the Congress is concerned, one third of our Senate and all of the House of Representatives are taken to task, if you will, for the level of service which they are able to provide their constituents.

Now let me touch on a third major requirement for information, that of budgetary and fiscal data. There is a distinct need within the Congress, a need that has been expressed a number of times, for better narrative and statistical financial information that often exists but simply is not structured in a way which the Congressman can understand. One possible

solution is to orient and educate the Congressman and his staff so they understand what is available, a task in some cases not very easily accomplished. The other alternative is to place in the most clear, succinct form those data which are meaningful to the committees and the members of Congress and which they must have as they perform their part of the authorization and appropriation cycle.

We have in this country a fairly well known fiscal system called "Planning-Programming-Budgeting System" or "PPBS". It used to be, when I spoke to a group of civil servants responsible for fiscal and budgetary affairs and I talked about PPB, that the audience reaction was decidedly mixed between deploring the new system and thinking that perhaps there were some things in its favor. Well, time usually works on the side of something like Planning-Programming-Budgeting and I think it would be fair to say that it is relatively more accepted now. This new system allows, or forces, a more structured look into the future, and this capability for enhanced planning, programming and budgeting, combined with the use of computers in handling many of these data, is now accepted as fairly commonplace within the executive branch of our government. But I am afraid that in the legislative branch there has not been much change in the status quo, nor much of an increase in the perception of what PPB can mean to the Congress as it sits down and looks at the budget that is presented to it each year.

There is - what is the phrase they used to use way back in Louis Johnson's time? - "militant resistance" in a great many key quarters to any new crusade, or device, or technology such as planning, programming, budgeting. Of course I cannot speak for the other nations represented here, but I daresay change is not taken easily anywhere. It is a little like a statement that James Thurber made - he ranks as one of our most beloved humorist writers and holds a special spot in the affections of many Americans - when he commented that "the old-fashioned girl yielded to a man's embraces as if she were slowly lowering herself into a tub of cold water?" This is much the way many governmental congressional elements seem to be adapting themselves to computer technology and the "systems approach" and all the changes which ensue, and not being sure whether to like it or not.

Now what I would like to do at this point, having talked about three major areas of effort, is to go back in time and relate to you, in terms of computer technology and ressional awareness of it, what has taken place.

In 1966 a handful of individual members of Congress showed the first signs of paying some attention to this particular problem. Their reaction to the situation, knowing full well the ground rules of their own institution, was that they would introduce a bill into Congress to have a computer facility established for the exclusive use of members and committees. This could be located in the Library of Congress, it might be in the General Accounting Office, or it might be under the control of one of the chambers. At that time the only computer in the entire legislative branch was a small unit being used for payroll purposes in the Library of Congress - that was four years ago. I'll talk about the present in just a moment.

Needless to say, none of the bills was acted upon but in our society, at least, it takes a while for the groundswell to be noticed. We started to interest some of the members in appearing at seminars and symposia, and those with a genuine interest were asked to give speeches to professional groups. Gradually we gathered a cadre of 20 or 25 Senators and House members who began to evince an increased understanding of the potential of computer technology.

Perhaps I seem to be standing here like the old man of the sea at this point, but it seems to me that we have come a long way and found that these people really wanted to do something. They recognized that if they waited for the same level of awareness to be developed by enough colleagues to, let's say, pass a bill, we might well wait until the year 2000. Their interest and their concern were manifested in another way in that they saw that these new tools and techniques could be used in some of the problem areas confronting society - environmental pollution, transportation, housing, education, welfare. I don't think there is an individual here that does not find comparable problems for the most part in his own country. But the existence of these problems, and the fact that current institutions and laws and procedures are not coping with them, was a major prod to our congressmen and their staff aides to start asking for studies and reports that could tell them whether or not there were other than traditional avenues open to them in actually coping with these problems. Nobody was looking for a magical solution. Let me mention several of the studies that were performed, because they might be of interest as examples of the official concern on the part of committees or subcommittees in our Congress, and also of individual members.

One report of particular concern is a booklength study called 'Systems Technology Applied to Social and Community Problems'.(1) This was prepared about a year ago and has been of considerable value and interest to people in many segments of our society. A second area of concern has been the protection of the privacy of the individual. Extensive hearings have been held on the questions of computers and privacy, and a paper was prepared on the role of a Federal Data Center.(2).

A third area that might not be a problem in all countries but was very much a problem here, involved the survival of the small businessman. About 50,000 new businesses are started every year in our country, but the attrition rate is quite high. How does the small businessman cope with his established competitor at his own level, much less with the large industries? This is a very significant problem, so a short booklength study was prepared called "Automatic Data Processing and the Small Businessman".(3)

Yet another area: there was a feeling on the part of many members which I alluded to briefly a few moments ago, that they needed to understand something about Planning, Programming, Budgeting, so an introductory study (4) was prepared for the Congress.

Gradually there developed an understanding that the computer was not just the "magic machine" that the congressmen were reading about in their homes if they picked up 'Fortune Magazine', or one of the technical journals, or a news feature in the daily press.

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(1) Originally published as a Senate committee print; now available from Spartan Books (New York, 1971, 478p.). Author: R.L. Chartrand.

(2) "The Federal Data Center: Proposals and Reactions", by R.L. Chartrand in Law and Computer Technology, Vol. 1, No. 10, Oct. 1968)

(3) Published as Senate Document No. 82 in 1968. Author: R.L. Chartrand.

(4) "The Origins of the Federal Planning-Programming-Budgeting System (PPBS)", a 1968 Legislative Reference Service Report by R.L. Chartrand.

The need was for reports that were short enough that these men would take the time to read them. If anything is longer than a few pages there is scarcely a congressman who is even going to pick it up. There may be one or two isolated staff people who may read a detailed study, but mostly we are trying to encapsulate the basic issues and the recommendations for the busy reader. If we accomplished nothing but this I think we would be doing very well.

Now I would like to bring to your attention two major activities, both of which have come to a fuller degree of fruition since I prepared the short piece that was distributed to you. The first activity is this. About 11 days ago the President of the United States signed into law the Legislative Reorganization Act of 1970 (Public Law 91-510). This is an Act that provides for - and I am using my words very accurately and very carefully - the most modest improvements in certain of the functions of our national Congress. There had not been a legislative reorganization act since 1946. The Congress has agonized since 1965 over whether or not it would dare make any changes in itself. But now we have a mandate which allows improvements in certain key areas. Should any of you be interested, by the way, I would be delighted to provide copies of the Reorganization Act.

Let me talk of three or four areas that would be of concern here. First, the Congressional Research Service, formerly the Legislative Reference Service, of the Library of Congress, will be considerably enhanced in size and in areas of responsibility. In particular, this group is going to be responsible for supporting directly the 54 committees of the Senate and the House of Representatives in the areas of policy analysis and program analysis. I won't go into this at great length but if you think for a moment about the policy considerations and, looking ahead, try to anticipate the needs of the members and of the committees in the various policy areas confronting this nation - and this would be true, I think, in any nation - it is quite an assignment.

Secondly, in order to help keep track of what is going on in a current Congress and tie this historically to what has gone on, we have a responsibility for the preparation (upon request) of "legislative histories". I hardly have to say that if you look at an area, whether it be civil rights or urban planning or gun control or any issue you want to name, and talk about preparing useful legislative histories in each of these areas, you can see what is required here in

the way of data files and the ability to organize, manipulate and use these particular kinds of data. We are not just talking about statistical data, but also about analytical commentary prepared by knowledgeable people and, obviously, an interpretation of this analysis for the purposes of the individual users. This is quite an order!

Another major area provided for in this new public law is in the area of handling budgetary and fiscal data. This of course involves the Department of the Treasury, the Office of Management and Budget, and the General Accounting Office. These three groups will have a great deal more to say to each other than they are now saying. There will be, over a period of time, an adjustment in the relationships between these three groups.

The other major activity that I would like to talk about concerns the House of Representatives' study of data processing. Because none of the bills that I mentioned earlier had any chance of going any place, some of the able members of our Congress were becoming very frustrated about what could and should be done. One of the members, a former Rhodes scholar named John Brademas of Indiana, prepared a very short, one paragraph resolution that did nothing more than call upon the Committee on House Administration to look into the matter of using data processing in some of its activities. From that humble beginning and using the power of the Speaker of the House of Representatives, the effort initiated 18 months ago has now become the most exciting happening in legislative information improvement that is in existence on the face of the earth. Today we have under contract eight companies, under the leadership of Stanford Research Institute, a non-profit organization, to look at every aspect of information needs, including computers and microform, of the House of Representatives. Let me be clear about this - the Senate of the United States is not included in this activity. Several of us have been serving as a so-called "working group", with representation from the Library of Congress, the General Accounting Office (Edward J. Mahoney serves as the chairman of our group) and the office of the Clerk of the House of Representatives (in the person of Thomas E. Ladd). The three of us hold the responsibility, if you will, for guiding this particular effort and, most importantly, reflecting the thinking of the nine members of the House Special Sub-committee on Electrical and Mechanical Office Equipment.

It is quite interesting that this was a little subcommittee that, frankly, was seldom heard of until about a year ago and now, I guess, is among the most active on Capitol Hill. Not only is it responsible for devising an information retrieval system, but must also plan the electronic voting system for possible use in the House of Representatives. Also, it is deeply involved in the creation of an addressing and mailing system using computers for the House members. I hardly have to comment as to why that capability is considered to be so important, with the 1972 election in the offing.

The working group is learning a lot about what goes into building a legislative information system. Some of us thought we knew at one time, but we have extended our horizons a great deal. I would like to point out that one way in which we did discern more clearly what was needed, was to undertake the most thorough survey of House members and staff people ever attempted in the history of the Congress. We have actually interviewed, on a face-to-face basis - using three-man teams and recording the interviews - 112 members of the House of Representatives, and covered 284 offices in all, either through questionnaires or interviews with key staff people from the member offices and committee staffs. Of course, when you talk to this many people, who have their own biases and their own experiences to reflect, not all that you get is useful nor accurate, but I think we have prepared a meaningful analysis of these comments. Again, Mr. Chairman, these are available in a report which appeared two or three weeks ago; I would be delighted to make this available to any of you who may be interested (1). The report is really a reflection of the information requirements of the House of Representatives, as seen through the eyes of the people who are in that particular chamber.

The Senate, meanwhile, has acted in the tradition of all senates: with confidence in its established procedures and prerogatives, and a conservative eye toward change. However, it has done two things which are significant:

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(1) "Second Progress Report of the House Special Subcommittee on Electrical and Mechanical Office Equipment" (published by the Government Printing Office, October 1970). The companion piece "First Progress Report" was issued in October 1969.

first, the Committee on Rules and Administration for the Senate recently created a standing Subcommittee on Computer Services; secondly, that same committee has authorized a study of the role of data processing in legislative operations. It is a very small beginning but this is the way we started two years ago in the House of Representatives. The leadership of the Senate is faced with something of a dilemma - if it does nothing it is going to be criticized and if it follows the House too closely it will be censured for doing just that. So the Senate planners will have to walk a fairly fine line, but I think it is beyond any question that it will be moving forward in the days ahead.

Now my time with you has come to an end. I would simply like to say that we have a lot to learn from each other. I am most interested in hearing from any of your people who are active in the areas discussed, not only about the progress that is being made but also about the problems being encountered. I always feel that while it is not the most pleasant experience in life, a person should profit from his mistakes. Perhaps what we are trying to do is to avoid what Ramsay MacDonald called "an attempt to clothe unreality in the garb of mathematical reality". Today we must strive to understand the changing times and to provide those modifications to our institutions and procedures that will allow us to pass on to later generations the same type of society - perhaps a better society - as the one in which we live. Thank you very much.

Chairman: Mr. Chartrand, I thank you very much for the very clear and distinct presentation which you have given us. I am sure that it is not necessary to repeat the main points of what you have said, so I shall call for discussion right away.

I do want to say this much, that if I am correct in assuming that the starting point for all countries - comparable countries - is the same, and that the problems are nearly the same, then I think that you are quite a way ahead of us. So it will be very interesting for all of us to ask questions and to compare what we have in our own countries with what you have. First, please.

Mr. Scott (Norway): Could you please give us information regarding the use of computer typesetting and, as a by-product, the text being available in machine-readable form?

Mr. Chartrand: We are doing a great deal today in trying to improve the handling of information used in the printing of various key documents through the use of computer methods. Let me talk about two or three examples, and then if you have other questions, you may wish to comment.

In October of 1967 we commenced placing in computer form, through special (ATS) typewriter terminals in the Library of Congress, the material for the Digest of Public General Bills ("Bill Digest") including short descriptions of all of the bills submitted to the Congress. These digests, for many years, were collected every two weeks and sent to our Government Printing Office, to be printed in the traditional manner using the hot-type process. Today we use the terminals to recall and edit the status and content information, which is then sent in final form for GPO publishing through photo composition procedures. Because the Government Printing Office has "LINOTRON" equipment which allows a computer tape to drive the printing machines, we soon will be in a position to produce, less expensively and more efficiently, certain recurring periodicals (such as the "Bill Digest") that come out of our group. My group also has a responsibility for the placement of these typewriter terminals in congressional committee offices (e.g., House Committee on Banking and Currency). The "legislative calendars" of these committees are entered through the terminals, can be added to and edited daily on the terminals, and finally the information is withdrawn and delivered for photo-composition reproduction, which is a great saving.

To use the "LINOTRON" device that I mentioned earlier, quite an effort is required to analyze precisely the format of the material and to enter the instruction marks which will tell the computer what to do. But once this has been done and the required computer program has been written, you can operate the device more efficiently than you could with the old process. Our Government Printing Office has prided itself for decades on being able to deliver very quickly any mass of material that is given to it either by the Congress or by the executive branch. But the load of work has reached a point now that the Government Printing Office has to send out tremendous volumes of work on a contract basis. I am told that the congressional backlog alone is 40,000 "folios", which has resulted in less timely response in publishing certain categories of materials.

The second part, I believe, of what you were asking was about optical scanning. We have not yet been doing anything in connection with the congressional project on optical scanning, although we are looking at it very carefully. We do, however, use optical scanning equipment in the Library of Congress for the handling and distribution of millions of library catalog cards. Requests for these cards come to us from all over the world, as well as from our own country. If you had any time while you were here, you could see this equipment down at the Navy Yard. It is, I think, one of the most elaborate optical scanning facilities found any place in the country.

Mr. Svenonius (Sweden): Just a simple question. You did not mention what information sources will be covered by the system?

Mr. Chartrand: The information sources for the congressional information system are very diverse, as you might imagine. We draw heavily upon the executive branch agencies and departments, but there are certain sources of information which are unique to the Congress itself and which emanate from within the Congress. We draw upon state and local governments for certain types of information. We use any of the private sector resources - universities, industries, trade associations - that are available. The problem for the most part, not surprisingly, has not been a lack of information, except in a few selected areas. Quite the contrary, we have a plethora of information and the selection of sources is one of the major focal points of our present endeavor in the House of Representatives. For example, in the field of legal information retrieval, we find certain publications produced by such well known groups as West Publishing House, which prepares headnotes on statutory material; there are indications that some of this material might have been reduced by one of the publishing houses to a microform. Then there are groups both in the private sector and government that have punched into the computer in full text, for example, all of the State statutes - this has been done by Aspen Systems Corporation, with a corpus of 210 million words - or the United States Code and the Comptroller General's decisions published since 1940, which are part of Project LITE (Legal Information Through Electronics) under the aegis of the Department of Defense. So there is not just a binary decision to be made as to whether or not we want these data or those date, but where do we get them, what do we have to pay, who is updating these data -

always a key concern - and what kind of procedures are allowable within the constraints of the functioning of the Congress that will allow us to use this information.

Mr. Wagner: When you draw information and data from the executive branch, can you arrive at some agreement as to the selectivity of information you wish to receive for the legislature, or do you have to produce programs allowing selection from the files that they have? Can you really ask for a certain format and shape of the information that you wish to draw out of the executive information pools?

Mr. Chartrand: This question cannot be answered by any short statement. There are several conditions under which information can be obtained. First of all, the executive branch departments and agencies are for the most part extremely cooperative in providing on a regular basis those printed publications or those unrestricted memoranda and reports that they know to be of interest and concern either to the Congress as a whole, to various committees - particularly the authorization committees or appropriations committees that are involved - or to the key individual members.

Secondly, there is no question but that when a member or a committee requests certain information from the executive branch that some type of effort will be made to respond. How the response comes forth may depend on the identity of that member, and the feasibility of doing what he is asking for. In many cases the information simply does not exist. Let me give you a case in point. One of the Senate committees required information regarding the impact of a grant formula change involving manpower training that was guided by these ground rules: if you change the minimum family income in the formula from $3000 to $4000 across the nation, what does this do in terms of affecting people, dollars, and programs? Since the committee staff could not provide the information, they then went to a very cooperative executive branch element that labored for a while and came back and said they could not provide it. Don't feel that the end of the story is that we provided it. Not so! But the point is that even with all good will possible, this information simply could not be collected and prepared within the time frame required.

Now the question that always comes up is this: can we use the data that is collected and formatted and stored and the products that are made possible by the executive branch?

Will they be building a bias into the information that they are preparing, or do we need to have our own separate set of statistical data? You can see that this had tremendous implications. If the decision is made to go the second route, where in the world does the Congress get the resources to collect and massage this information, and prepare the necessary reports? I am saying many things that are obvious here, but we recognize that we must try to establish the best possible relationships and establish ground rules and formal criteria that are acceptable mutually to the counterpart executive branch and legislative branch elements involved here. Otherwise we are going to have chaos.

Much of the budget summary data today has been placed in machine-readable form. The group within the Office of Management and Budget (OMB) which is responsible for the handling of these kinds of data is able to provide more than 200 separate products which reflect various aspects of budgetary data, as a result of machine operation. Obviously many of these are minor variations, but nonetheless in the last three years OMB has advanced significantly in terms of placing budgetary data into the computer and being able to process these data and prepare products for a spectrum of users.

Chairman: If there are no other questions we will conclude this very interesting discussion. We thank you very much for the answers you have given us and we thank you very much for the offer to provide us with more material. Thirdly, we thank you for the proposal to exchange experiences between our countries. I can say for myself that I will accept this offer and will tell my people when I go home. I am sure that they will contact you soon.

I ask this assembly if we should come to a decision on that point, to make it official? Do you think we should incorporate in the draft report and to come back to this in any way?

_____: It could be discussed in the business session.

Chairman: Yes, that is a good idea, we could discuss it in the business session, or maybe when we talk about working groups. Maybe we will feel it desirable to have a working group on that point.

So I conclude this morning session. We will meet again at two o'clock this afternoon.

Session III - Chairman Mr. A. Gertz, Israel.

THE ROLE OF ADP IN GOVERNMENT.

Key-address by Mr. E.J. Mahoney, General Accounting Office, USA.

U.S. GENERAL ACCOUNTING OFFICE ACTIVITIES IN CONNECTION WITH THE FEDERAL GOVERNMENT ADP PROGRAM.

Chairman: Now we are coming to our third session. First of all I would like to apologize for myself - I am a little bit tired so you can expect a very bad chairman at this meeting, but I hope Mr. Mahoney will replace my bad chairmanship.

We are coming to the subject: "The Role of ADP in Government" which is as you know the main concern of our group at all. Before I give the floor to Mr. Mahoney, I would like to say that we have plenty of time for this subject this afternoon - much more than we had in the morning - and I would like to suggest now that each of the delegates will prepare himself to make a short statement about the ADP situation in his government. So after questions and discussions, we can commence with this subject too, so you can prepare yourself during the lecture of Mr. Mahoney.

Mr. Mahoney: Thank you very much. The first thing I would like to do this afternoon is talk a little bit about the General Accounting Office as an organization because it probably is quite different than most other international auditing organizations. The Budget and Accounting Act of 1921 in the United States established not only the budgetary function in the United States but it also established an oversight responsibility - i.e. oversight in terms of providing an arrangement for overseeing the functions of Government by an organization responsible directly to Congress and the General Accounting Office was designated as such an organization.

The General Accounting Office as such has then many responsibilities of working directly as a congressional organization with the Congress as contrasted to working within the Executive Branch. We have first of all a legal responsibility - and incidentally I have some documents that I will make available through Herb Grosch and through your international organization, spelling out in more detail the role of the Office and how we try to operate. One

document deals with how we are organized and how we carry out our responsibilities under the various levels of direction of the Congress.

Turning now to the leadership of the Office - first of all, the Comptroller General is appointed for a 15-year term. He is not eligible for reappointment and he can only be replaced by impeachment proceedings of the Congress itself, so that it is a very independent kind of function that he directs and he has this opportunity then to be very objective, non-political, and non-partisan in dealing with the issues. I would like to run quickly through some of the organizational structure and some of the responsibilities to try to bring out how we operate. The ADP function is an important part of our organization. On the other hand, we do have a lot of other responsibilities, and I would like to cover some of these briefly.

The legal responsibility I mentioned earlier deals with the question of legality and appropriateness of federal expenditures from a legal standpoint and here we have two or three very key functions. These are as follows:

Legal Opinions and Legal Advice

Significant questions are regularly presented to the Comptroller General concerning the extent of authority granted by the Congress to departments and agencies and the circumstances under which public funds may be spent.

Heads of departments and agencies and disbursing and certifying officers may request the Comptroller General's decision before undertaking new programs, executing contracts, issuing regulations and certifying or disbursing public money.

> Example: The Air Force requested advice as to the propriety of acquiring electronic data processing equipment under an installment purchase plan. A review of the plan and applicable statues led GAO to conclude the plan could not be legally implemented without further legislative authority.

Similarly, Government contracting officers as well as individuals and concerns doing business with the Government

use the services of the General Accounting Office to resolve legal questions arising incident to award of Government contracts. In addition, private business concerns competing for contracts with the Government frequently appeal to the Comptroller General to have him determine whether in a particular instance there has been an illegal or improper action taken in the procurement process.

In the exercise of that function the GAO must interpret statutes, administrative regulations, judicial decisions, and sometimes the laws of other countries. The legal decisions rendered by the Comptroller General are final and conclusive on the executive branch and are controlling in audits conducted by the GAO. They are not binding, however, on the Congress or the courts.

> Example: Four companies sought a multi-million-dollar Air Force contract for advanced computer equipment. After the Air Force announced its selection, the runner-up protested the award to the Comptroller General, who upheld the protest. The Air Force then cancelled its selection and announced that it would reopen the negotiations. The resolicitation of proposals in this case resulted in a multi-million-dollar savings to the Government.

Reviews of Management Efficiency and Program Results

The primary purpose of General Accounting Office reviews is to examine how management, financial, and program responsibilities are carried out. The Comptroller General regards economical and effective management as the primary responsibility of department and agency heads. Financial responsibilities include expenditures of funds and uses of property and personnel for authorized activities.

Essentially, GAO examines how Government money is spent - the 1921 act refers to this as "the application of public funds" - and how agencies carry out the mandate of Congress.

GAO's audit approach is to review the organization, management, and controls of each agency system; identify weaknesses; report on conditions found; and recommend

improvements. Accordingly, GAO reviews selectively management activities, financial transactions, and accounts of 12 executive departments and some 60 independent agencies and commissions.

Reporting to the Congress

The legislative history of the Budget and Accounting Act makes it clear that one of the basic responsibilities of the Comptroller General is to report to the Congress information obtained as a result of GAO work. It states that the independent audit will...serve to inform Congress at all times as to the actual conditions surrounding the expenditure of public funds in every department of the Government.

Frequently GAO reports are used in congressional hearings. An example of this can be found in the now quite famous congressional action on the "Brooks Bill" which was enacted into law in 1965. This act provides the management direction for ADP activities in the executive branch of the U.S. Government. Since ADP resources are used in almost all federal agency programs, the GAO increasingly is involved in reviewing computer activities of executive branch agencies in relation to how these agencies carry out their program responsibilities, in their respective areas of governmental operations. GAO also reports periodically to the Congress on the trend of development and use of computer based systems on a governmentwide basis.

ADP Activities Under the Legislative Reorganization Act

I would like to turn for the moment to two distinct congressional actions which will impact ADP operations of almost all federal agencies and the GAO before I discuss GAO's overall ADP role.

One of these actions involved the passage of the Legislative Reorganization Act by the U.S. Congress about two weeks ago. The Legislative Reorganization Act, Title 2, will directly involve agency ADP operations and will directly affect the General Accounting Office. Title 2 provides for an arrangement whereby the General Accounting Office will act as the agent of the Congress in working with the Executive Branch to provide a financial management system for the government

that will be basically energized and developed and exercised within the Executive Branch but which will be responsive to needs of Congress through the participation of the General Accounting Office. Now this means that we will have a three agency effort to try to develop this system - i.e., the General Accounting Office, U.S. Treasury, and the Office of Management and Budget. One of the aims of this Title 2 is to provide a standardized classification, a standardized information and data processing system for budgetary and fiscal data for the entire government which in essence will cut across the old classifications of accounting and budgeting and PPB data and work measurement data and will give a common classification scheme for use in the government in its entirety. The theory of this would be that you would have a way not only of crosscutting across the budgetary and the accounting activities and the work measurement and PPB activities and all that, but you would have a way of cross-cutting through agencies activities to compare similar functions in different departments and in fact to identify and compare these kinds of activities across agency lines.

The establishment of such a system is no small undertaking. My best guess, while the legislation says that we will have this standard classification system developed by December 1971, is that it will take about five years. At the present time there are approximately 18 different classifications in the budgetary system alone for various purposes, various arrangements, for example, to identify trust fund expenditures from direct expenditure and so on. So there is a lot of work to be done on this system in relation to agency reporting to the Office of Management and Budget, and subsequent use of the information in the basic systems to be developed for the Congress. One possible organizational structure under this new arrangement would provide for a Director, a new director, to provide ADP support for the Congress under this plan. The system is to be a computerized system to provide computer based support to the Congress. This entire effort is not something that just recently developed, rather this program has been under consideration by the Congress since 1965 in their deliberations on congressional reorganization. Some of the major activity will take place in the Executive Branch, however an organization is needed that would provide support for the Congress. One that would provide an interface between the Congressional desires and Congressional interests with the designers of the system and the director of this activity would have in turn five branches within his organization to carry out the full intent under the

Legislative Reorganization Act; there would be a director for requirements, analysis planning, coordination and standards. Now you know from your own thinking and discussion on standards and all that happens there, that you need this kind of an organization to deal with the compatibility and standardization. Also needed is a major effort to determine requirements, a major effort to ensure that the compatibility features are arrived at to provide the planning and coordination to ensure the interfacing between the various subsystems and components of the system.

There needs to be a director for computer based technology, particularly in the area having the greatest need, the one of information retrieval, where the techniques are evolving and as fast as they are evolving they are still rather slow to respond to the multiplicity of requests that you will have in a dynamic Congress. Also, this group would work with all kinds of organizations - Executive Branch, Industry and private organizations - to be sure that the best retrieval techniques for the Congress are being employed.

Also needed is a director for the major data bases to be established across this whole spectrum. For example, in the budgetary and fiscal area involving the appropriation structure and all that goes with it, there has been discussion in the five years that reorganization legislation has been developing to consider ways of taking a magnetic tape copy of the executive budget and to not only have a budgetary tracking system that would be current and available to all of Congress, but a budgetary system which in effect will be available for special analyses to support the appropriations committees and the oversight committees of Congress.

The Congressional requirements under this activity would be to take existing budgetary and economic data and work with that primarily in special analysis work for the Congress.

Another director would be responsible for the legal and legislative activity. Some of you may have heard over a period of time of the legal retrieval system that the U.S. Government has used. At the present time this effort involves a governmentwide effort called "Project LITE" under which the Air Force has managed to acquire the data

base involving the U.S. statutes and the Comptroller General's decisions, along with other material in text form. The Comptroller General's legal decisions which are binding on the Executive Branch are now contained in this text retrieval system in the Air Force. An individual can query this system today by phrasing a question to get information out of the system as to what the Comptroller's decision has been on a specific question.

The congressional group working on legal and legislative information will have the responsibility of working with the legislative counsel of the House and the Senate where a lot of legislation is drafted. This group will also work with the Executive Branch and particularly the Department of Justice, where there is a current effort going forth in a system called JURIS. The JURIS system could in theory encompass all of the activity now going on in the Air Force LITE system in addition to other legal and legislative information. In theory, at full development it then would be available for query on a text processing basis on a governmentwide basis.

Then lastly there would be a special group to interface between the Congress and Executive to streamline the information requests by congressmen that deal directly with computer based data systems. For example, quite often the Congress wants to know where the data bases are maintained that are capable of furnishing certain kinds of financial or other management data. Eventually this group would develop a system for better organization of activity between the Legislative and Executive Branches.

In addition to the above structure, the GAO is working with the House Committee on Administration, and I would like to briefly give some of my views as to what is going on there since at the present time that activity has been supported for the most part by personnel from the General Accounting Office.

About a year and a half ago, the House Committee on Administration came to the General Accounting Office, as quite often congressional committees do, and asked: what kind of support can you give us to develop an information retrieval system for the House? The same question was asked of the Clerk of the House and the Library of Congress.

On July 1 last year all three agencies were requested to testify before the House Committee on Administration. GAO agreed to make some staff available in the interest of carrying out the Comptroller General's request that we provide all the assistance possible directly to the Congress. At that same hearing it was agreed that a plan should be developed in order to proceed almost immediately to consider how computers could be used directly by the Congress. As the Chairman of the Working Group for the Congress, I acquired 10 people, mostly from GAO, and those 10 people formed a nucleus of an organization that then started to carry out the work for the Congress under the Working Group organization comprised of representatives from GAO, Library of Congress, and Clerk of the House. This group developed the first progress report which was issued by the House Committee on Administration in October 19[illegible], covering a basic plan to be followed by the House in its development of a computer based system.

As the program emerged from a series of studies and congressional hearings, and since the Committee on House Administration was not staffed to perform the in-depth studies needed to develop a complete program or master plan for proceeding with a computer based support system, it was decided that outside contractor support would be needed to carry out the Committee assignment. Contractors have been engaged in this planning effort for about 5 or 6 months and this first preliminary planning effort is now nearing completion.

In considering the kind of system that is needed for the Congress many people and many prominent congressmen tend to think in terms of the effect of Federal Government activity on their home district. Therefore the question arises as to the possibility of designing a system based on congressional districts since they tend to think about the planning in relation to how this affects their district or their state.

The Executive Branch of the Federal Government is not geared to reporting systems, or at least very little of it is geared to reporting on a congressional district basis. This is further compounded by the fact that every time we have a census, and reapportionment, some district

boundaries change. So this poses some very difficult problems for designing of a congressional system.

I will give you my thoughts on what eventually many people hope will come out of this congressional system. Some people for some time are going to be satisfied to be able to retrieve summary data. Others, that is the real thinkers in the Congress, are concerned as far ahead as the year 2000. People thinking long-term generally are thinking in terms of an econometric modeling system as well as a system that will provide budgetary, fiscal, economic and environmental data on a congressional district basis. The thinking there involves the proposition of taking a new bill introduced into the Congress and applying the provisions of this bill for comparison against a model to see what impact this would have by district, by state, by national economy and so on.

Now I am sure everybody in this room realizes that this kind of system is 10 to 15 years away from completion, but this sort of thing needs to be kept in mind even though we are proposing to start out on a very small scale. We will go into high gear I assume, providing the funding comes.

Getting back to GAO as an oversight organization, in the early 1950's some of the congressional committees were disturbed at the cost the Government was incurring for punch card systems. The Appropriations Committee asked the General Accounting Office to look into this matter. GAO responded to this interest by carrying out some governmentwide studies of the use of punched card equipment and systems. Later the interest of the Committee centered on computer systems as computers were introduced into Government operations.

I mentioned earlier that GAO had been assisting agencies by helping to design financial systems involving computers. This involved working directly with the individual agencies during the period from about 1949 to about 1956. Somewhere in that period, probably about 1955, the GAO was asked by the Congress to look into the trend of development and use of these new expensive computers by Government agencies. For

example questions arose as to how computers were being used by the Government, what their costs were, what the future implications were, so GAO embarked on a very major study of this matter. Charles Phillips was over at the Department of Defense in a very important role in the computer area and we worked directly with his staff and with the staffs of other executive agencies on this program. It was a broad study which cut across the whole spectrum of government as to how the agencies were adopting computers and how they were controlling developments and how they were designing systems and what the full impact appeared to be.

Our first major report on this - it was a pretty large document - and it was a fairly optimistic document considering the time frame, i.e., 1958. It tended to say to the Congress that this was an important development, that while there were many problems and difficulties with it in attempting to integrate systems, or combining files to obtain the full advantage of the computer, that it had great implications for the future and that potentially it should be a great tool to help in our management and in our work in the Government. This report contrasted the big, large, single purpose kind of functions like our social security data processing activities, and those such as our treasury activities where the Government is handling millions and millions of documents on a routine basis versus the functions that eventually would lead into more of a management control type function. The 1958 report turned out to be the biggest seller in the history of the Office. We received some congressional interest; we had a great deal of interest in the Executive agencies and industry. The principal outgrowth of that 1958 report was that the House Government Operations Committee came back to us and said: Well, we like your report and we like a lot of the things you have in there, but you really did not address certain kinds of questions about whether you could in fact put together or combine logistic systems, or whether you could look to the day when the Air Force logistic system meshed with the Army system and so on.

By direction of the Committee, we went out and energized some more studies in the field and we came up with

another governmentwide ADP report in 1960. Again, it was a pretty large document which indicated that in a number of civil agencies of the Government there was in fact a form of integration of systems starting to emerge. For example, in the Veterans Administration where the Government had 5 or 6 million veterans on a veterans' benefit payment system, the keeping of those accounts on magnetic tape within the Veterans' System permitted the Treasury Department, which is the check writer for most Government activities, to then accept the magnetic tapes directly from the Veterans' Accounting System and use those same magnetic tapes over in the Treasury disbursing activities. Also, a copy of the same tapes could then go to the Accounting Office of another part of the Treasury and be used in the banking operations - in the reconciliation and checking out of the checking accounts and all that sort of thing.

So, we did hold up in that report a great deal of promise for interchange of data between systems and therefore a form of integration not by combining organizations, not by merging organizations into ever bigger facilities and trying to emerge with one big gigantic set of computers down in Washington for each department, but by finding ways of interchanging data between systems. The GAO has been in the forefront of pushing that theory ever since those days. This involves standardizing and using other ways of interchanging data including programs and including all of the things that have possible use across different agency organizations.

In that early time period, GAO began to realize that many hindrances were cropping up to prevent interchange of data and programs. It became evident that different sizes of magnetic tape and different configurations of recorded data were emanating. The Executive Branch and others began to pursue the idea of a common interchange language. Also, it just became a fact of life that if you ever eventually wanted to bring data together you had to adopt some kind of a system that standardized the way at least that you communicate the data between organizations.

The same kind of thinking emerged in the Executive Branch with regard to the data itself. The Standard Data Elements and Codes Program which by now I guess is 5 or 6 years old in the Executive, probably a little older in the Air Force - the Air Force always seemed to be moving a year to two ahead of most of the groups in Government on that kind of thing. They had a management structure which permitted them to better see how their computers were being used. In any event, a lot of these standards programs are now becoming reality to a certain extent. Even at that, I am sure that it will be 10 or 12 years in many cases before the full fruition of many of these standards efforts will be forthcoming.

In trying to answer the Committee request back there in the years of 1959, 1960, of how you interrelate computer systems across governmental boundaries, not too much has been achieved at least not to the satisfaction of many members of Congress, including Congressman Brooks. I will say this, that there is a lot more attention at the center of Government on this problem, both in the Congress and the Executive, to try and aim things in the direction of more compatibility and interchange of computer based systems.

In 1963 GAO issued a report on the subject of lease versus purchase of ADP equipment and we testified before a congressional committee on the question of ownership of equipment versus leasing. I suppose this question has been asked in countries all over the world. The question as to whether you should own the equipment, or lease it, the question of obsolescence, and so on. We worked with the Budget Bureau quite extensively on this in 1962 and 1963 and eventually concluded that there was certain kinds of equipment that we were using so extensively, primarily at least 2, 2½, 3 shifts a day and where in those days the rental charges for even shifts beyond the first shift were running at something like 40% of the base rental rate, that very rapidly you would pay out beyond the ownership cost. This aroused a considerable amount of congressional interest and

hearings were held in 1963, 1964, and 1965 by the Brooks Committee. I might say from a GAO standpoint what we had primarily in mind was to alert the Congress and the Appropriations Committees that there in fact could be economies here and that the Government should take a more aggressive posture on this issue. At that time the Government owned about 13 or 14% of the equipment, and we knew of cases where a year or little over a year's rental for equipment was higher than the ownership cost.

One of the fortunate things that happened in that period was that the Congress asked the Executive Branch to make a study of the impact of computers throughout the Executive. The present Comptroller General was then a Deputy Director of the Budget Bureau and he helped organize the effort there that looked across the whole use of ADP in Government and arrived at conclusions and recommendations for improving the posture of the Executive in the ADP area. The Bureau of the Budget also in this period moved the ADP staff up to a higher level in the organization.

Some GAO reports recommended that a high level group be established directly in the Office of the President to help coordinate and help towards planning for the entirety of computer development in Government and particularly from a long-range standpoint so as to provide better policy guidance. This has never come about - it may come about in connection with the current studies going on in the communication and computer area in which we have a major study planned.

There was some post-Brooks Bill activity on the part of GAO. We issued a report questioning the Government's posture of contracting all of its maintenance out and raised the question that in some areas it looked like maintenance could be performed in-house. GAO also a little later raised the question about the acquisition of peripheral devices from the main frame manufacturers as to whether in fact plug-to-plug devices could not be procured more cheaply for the Government, at least in our posture as it stood in 1969.

This summarizes the kinds of activity GAO carries out. Generally, these matters relate to ADP management activities across the entire Government - that is the overall governmental management functions as related to how the Bureau of the Budget, GSA, and the National Bureau of Standards activities are performed.

Current work planned under our governmentwide ADP review area includes the following three major areas. First, in the software area we are looking at two things - the duplication of effort as involved in many organizations designing systems to solve the same problem and the question of how we contract for software.

On this latter point the question emerges as to whether the Government should enter into contracts in which we agree to pay for software on the basis of a per main frame kind of arrangement such as that proposed by the International Business Machines Corporation. There are other ways of contracting for software. There are different ways of paying for software. We tend to favor paying on a use basis. In a way this is a little more equitable than having a big user pay for each piece of software across each main frame throughout the Government.

We have devoted a good deal of time to the question of performance measurement and this is a much more difficult study. We have a draft report in process. It has a number of problems with it in terms of its inclusiveness, in terms of its usefulness and trying to keep an objective frame of mind when you talk to people like Herb Grosch and others who talk in terms of users only now having achieved 10% effectiveness of performance. Emulation was widely used in the United States. In industry as well as in Government where I think the sheer events of the day forced people to take certain actions that, as many of you know, it was a question of sink or swim in some cases and the Government had to move into something that would operate in an emulation mode just to keep the place functioning, to keep it above board. So we have some problems with that report but there is a major

effort going on there to try to provide some useful information on a very difficult subject area.

The third major effort along that line has to do with the inter-relationship of communications and computers. Some of you may know that the recent Blue Ribbon Panel in the Department of Defense recommended that the Department combine the functions, i.e., to assign to the staff function under the Secretary of Defense to be responsible both for communications and computers. It has a lot of implications. We have been working with the Executive Office of the President, with OMB to try and sort out some of the ramifications of this entire computer/communications problem from an organizational standpoint. As a matter of fact, the Executive Office of the President, at our behest, developed a questionnaire to 10 or 12 agencies to inquire into how the agencies were managing these functions. Generally agencies provide a separate organizational structure for each function. A few agencies have one head who is responsible for both functions within the agency, but usually in those cases as a user - he is not a performer of the communication function; he is a user of communication activity and we need to separate that out.

One GAO effort in the computer field is oriented towards the auditing implications in the computer business. I have a separate staff that is concerned with that. In the audit area, we have a number of case studies under way in which we are attempting to use the computer as much as possible directly in our audit effort. That is to say a great many of our audit activities which are carried out in an agency are concerned with the substance of that function as carried out by the agency. By and large over the years even though a great deal of the function was performed by a computer, the audit activity tended to go around the computer activity instead of trying to figure out what happened in the computer environment itself. As time goes on most of us recognized the futility in this as these systems become more integrated, more comprehensive and more all encompassing. The problem becomes one of using the computer itself and tuning in directly, by using the computer to look right at the inside of the system.

Over the past several years we have performed a very major activity in this area. Some time ago we conducted a pilot review at the Veterans Administration Insurance System which is a very integrated, complex system in Philadelphia. This system handles veterans' insurance transaction processing for the whole United States Veteran System. Following that we conducted a major study at the Federal Housing Administration where their main procedures are computer based. GAO very successfully carried out an analysis of the financial side of this system which involves potential debt to the Government running to billions of dollars.

We have a very major program now going on at the Social Security Administration over in Baltimore. We are looking at their benefit payment system. The Social Security System in its entirety handles 85 billion dollars worth of transactions in a year. This represents 43 billion dollars of input and 42 billion dollars of output. It is a very large system involving about close to 60 computers many of them fairly large. There is something like 120,000 reels of magnetic tape and so on. When you go into a place like this with, I think, 7,000 computer programs, you have to be selective. We are looking at the benefit payment side of this system now in an effort to develop test procedures in this program.

In recent years, in the last year or so, we have been asked by the House Committee on Appropriations to examine into how the Executive Branch is carrying out its work in the computer area. For example, we have been asked to look very extensively at the management of the worldwide military command and control system in the Department of Defense; we have been asked to look at the Army Class One Automatic Data System in the supply and logistics area. We have a major study underway with regard to the new Air Force logistic system which is just coming up for proposals. Also, we are looking at some very major management computer system functions in the Department of Defense and some of the other major agencies.

The GAO work that is going on in these areas reflects the extensive effect that the computer is having throughout the entirety of our organization where up to even 5 years ago, or 6 years ago, I would not be in a position to make this statement. Previously, GAO had been carrying out some governmentwide studies. GAO was involved in working with the Budget Bureau or analyzing what the management implications were across the board in Government. Now in addition to the broad studies, GAO is also working through its operating divisions, i.e., the Defense Division, Civil Division, Field Operations Division, and the International Division, and all of these divisions now have their own ADP resources, to apply to Government ADP problems.

GAO does to the extent possible coordinate its ADP work with OMB and the other central ADP agencies. At times we jointly face to as many of these problems as possible.

Mr. Atkinson (U.K.): Thank you Mr. Mahoney for a most interesting discussion. Two points please. It is obvious that you are engaged in and identifying areas for development in ADP. You cited in particular the scope for integration and functioning. You also mentioned pinpointing the need for setting up standards of data elements and codes. My question is when you have done this pinpointing, illuminating particular areas, do you then hand over to somebody else to actually carry out the planning studies, or do you carry these through in any way yourself?

My second question - rather different. Are you in fact saying that you initiated to carry through efficiency audits, post-implementation reviews of the computer schemes, computer systems which operate in particular agencies?

Mr. Mahoney: Let me address the first one. I think it breaks down into two basic parts. Originally the policy issue comes up - that is a question that emerges as to whether it is desirable to proceed in a certain direction. The question of energizing the Government

in that direction is raised. In this case we work directly with the Congress, with the Budget Bureau and others to be sure that as far as possible the implications of the situation are well known and understood by all parties concerned. Then GAO attempts to develop a recommended approach in order to get the Government as a whole started towards developing policies to address the issue. For example, we might press for a standard system for data elements and codes or to have a standard approach to the interchange of data between government ADP systems.

A second part of that effort involves the responsibilities of GAO for oversight of Government operations where we attempt to determine whether in fact the Government is making progress toward achieving the stated desirable objectives, i.e., assuming that it has been settled between all of us - the Congress and the Budget Bureau and other Government agencies - that it is desirable. For example, right now in the data elements and codes area, we have a program undersay to review the impact of this program on agency ADP systems. Previously, Budget Bureau directives states that in fact the Government will have a standard data elements and codes systems and in fact it will operate in a certain way. Our people in GAO will be delegated the responsibility of looking into this to see if in fact this program is moving, if in fact it is being adopted by the agencies and where and how it is working. Now, you are not always in a position when you start this kind of work of coming up with a clearcut answer because sometimes these are very difficult propositions which cut across the entirety of government. What happened in this particular case - we had a small staff working on this in one of our field offices. About 10 days ago they came to me with the conclusion that there is a possibility that the Government program in its entirety is approaching this problem from the wrong standpoint. So, in a case like that, the GAO central office will ask this task force to develop a think paper in terms of what the issues are and the potential arguments on both sides of this problem. This document will be used by GAO to start considering, and then in turn to get back perhaps with higher level officials at the executive agency level to further consider this.

This is the kind of thing that happens quite often. It may never be reflected in a report to the Congress, but it offers information to alert us to the fact that here is a problem that perhaps can be tackled from a different angle or a different perspective, and we try to do it.

Did I get both parts of your question?

Mr. Atkinson: Certainly the first part. May I just press you? Is it left to somebody else to take up your suggestions?

Mr. Mahoney: Yes, we are not an action agency at all - we are in the Legislative Branch. We make the suggestions to the Executive and then we follow up our recommendations to see how they are being carried out. The only recourse we would have would be to ask the Congress itself, if we were dissatisfied, to energize the Executive Branch. But the action has to be directly by the Executive in every case.

_____: You mentioned quite a lot of single information systems. Is there any plan to combine this single information system in an overall system?

Mr. Mahoney: If you are talking about the systems for the Congress, yes. Quite often the idea being behind the planning and thinking is to have as much as possible the systems compatible and standardized so they can stand on their own, and yet be responsive to both the Executive and the Legislative, to the extent we can do that. The argument has been made that the Executive provides systems primarily to take care of their own needs and to provide only information for their own use. Congress wants to be sure that they have the capability to use the basic data but then to analyze it in their own particular way.

This systems design problem is a sticky one, and it has a long history of individual development in individual agencies. For example, each agency and sometimes each bureau within an agency, started out by designing individual systems to satisfy the needs of their own organization. These became isolated little islands of

development within small organizations and after a period of time the higher levels of Government started programs for broader systems development. For example, our Department of Agriculture, in the early days several of the Bureaus developed their own payroll system and eventually over a period of time the Department decided to plan for one system for the whole Department.

In the Post Office Department they started out with a regional complex - a payroll system for each of 15 different regions and then to the next cycle - they narrowed it down and set up 5 centers, and now I think they are down to three centers. That kind of thing has been going on over many years. However, there are enough peculiarities in individual agencies such as reflected in the postal pay system as contrasted to the civil servant normal classified pay system to at least for the time being to operate separate and individual systems to serve the peculiar needs of these organizations. These things mitigate against one standard system for the whole Government.

Some people talk quite glibly about the idea of having one logistic system for the entirety of Government, a national logistic system. This has been under consideration for about 20 years. It probably would take another 20 years to develop the concepts and the planning and the thinking if in fact we could ever do it. Chances are you will keep improving these large systems and somehow you will use more of the data from some of the subsystems over to the other subsystems. This looks to us like an evolutionary approach is needed here. Once in a while somebody wants to combine everything and it never quite gets off the ground because the planning takes too long.

This morning the point was made that the idea behind the congressional legislative computer system is one in which we would like to have one master plan to carry out the whole activity. But, we are faced with the reality of being able to produce something useful within a fairly reasonable period of time. So we are going to take a few of the major subsystems of that

system in full realization that these subsystems will relate to each other eventually and take those and start energizing the parts that we can reasonably get a hold on. The thing is that some of these systems are open ended and the full objective may never be completely fulfilled. A good example of such a system might be a bill tracking system where you keep track of all of the activities about the legislation; where it stands; and the issues involved. What you get involved with eventually is an almost endless amount of information. Included would be information on the stance of the Executive Branch. Have they issued directives on it? Do they have directives in the mill that will change the picture? Also, you need to include local and national information such as - what are the political analysts across the country saying about it, and what are the voters' opinions back home, and so on.

As you try to accumulate enough information behind these issues and build a system to answer your objectives you begin to think in terms of how you can gather all kinds of information to make the system a complete system to serve all congressional needs. This leads in consideration of how to make use of other automated systems being developed in Government and the public sector. For example, at the New York Times they are attempting to mechanize through microfilm and computer technology the classification and retrieval of information that would then be available very quickly. It turns out that this would be a very desirable thing to have in the history part of the computer system. The history part of this computer system for the Congress will probably be in the Library of Congress, the operational part will probably be in the House itself. Related to this arrangement is the question of how the system should interact between the history part and the operational part. This is where standardization and compatibility become all important.

Mr. Henderson (Canada): In Canada we solved our logistics problem by unifying the military services and we now call admirals 'General', much to the consternation of the admirals!

Is there the possibility of a conflict between your apparent design responsibilities in some areas and if so, does this not conflict with your legal responsibility to audit the efficiency of systems and so on? Are there at times conflicts?

Mr. Mahoney: We have this quite often. The way we try to resolve it in the first place is in coordinating our planning efforts between our accounting systems group and our audit group. In addition, all the reports to be issued to the Congress are subjected to two major reviews. One is a policy review in which the policy review attempts to be sure that the things covered in this document are consistent with the policy positions that we have taken and the posture we have adopted over the years. The legal review goes through our General Counsel's office to review all of the legal ramifications of it in terms of the possible conflicts there. You are right, very often we find we have a very difficult sorting out to do.

On the other hand our work directly for the Congress, where we are designing systems for the Congress, is an entirely different kettle of fish - this is a case where we are just being borrowed, to help the Congress achieve this end and my own view of it is that in future years that the Congress itself will have its own direct organization to interface with the Executive Branch on this. There was a proposal in the Reorganization Bill to have for example a joint committee on data processing for the Congress which would consist of six Senators and six Representatives. This feature of the Bill would have set up a permanent staff for the Congress directly to carry out the function that we are now attempting to carry out through these various efforts I have mentioned earlier. This part of the Bill was knocked out on the floor of the House of Representatives. So there is conflict there, but there is a lot of feeling that eventually the Congress will establish their own data processing group.

Chairman: I thank you very much Mr. Mahoney for your very interesting lecture. Now we will have a coffee break and we start again at 4 o'clock. I hope you will remain with us for maybe further questions or discussions.

(End of Tape 1)

Tape 2/Side 2

Chairman: I thought that we would be able to ask some additional questions to Mr. Mahoney, but he left, so we will have to continue.

We had today two lecturers, Mr. Cunningham and Mr. Mahoney who have given us a quite comprehensive picture about the ADP policy and procedures in the USA Government. As I said before, it would be worthwhile if delegates would make some comments or describe the state of the art in their governments.

I would suggest that if our colleagues from Canada would be ready, since they are new in this forum, to give us a short description of the procedures or the organization of the Canadian Government ADP.

Mr. Henderson: Let me be clear what it is you would like, Mr. Gertz. The organization to foster the development of data processing within the Canadian Federal Government, or to foster computing at large in Canada?

Chairman: I am speaking about the Canadian Federal Government.

Mr. Henderson: I wish I had my slides and blackboard. Alright, at the senior level within the Canadian Federal Government, we have an organization called the Treasury Board. Very generally, the Treasury Board fulfills a function similar to that performed by the US Office of Management and Budgets. The Treasury Board is a separate department of government and by department here, I mean a Ministry. It has its own Minister who is called the President of the Treasury Board and he is also a member of the Federal Cabinet. The senior official in the Treasury Board is called the Secretary of the Treasury Board and he is one of the most influential permanent public servants within the Canadian Federal Government. He is supported now by four Deputy Secretaries. Their responsibilities cover Personnel, Programmes, Administration and Planning. The Deputy Secretary for Personnel is responsible for

the development of personnel policies which apply to all Federal Government departments and they are organized on an objective basis, i.e. they are broken down into compensation, work terms and conditions, and so on.

We have collective bargaining within the Canadian Public Service and for purposes of negotiating contracts with the unions, it is the Treasury Board that is deemed to be the employer for this purpose, and that function is exercised by the Deputy Secretary for Personnel.

There is a new organization that is called Planning that is also headed by a Deputy Secretary and he is responsible very generally for the development of programmes related to the determination of measures of efficiency and effectiveness of various operations within the Canadian Public Service. I am not too clear on what the distinction between efficiency and effectiveness is for this particular purpose. The most important Branch of the Treasury Board is the Program Branch and very generally they are responsible for negotiating with departments to determine the level of spending authority for the department, the manpower staff limitations in terms of man years, and generally has the responsibility for approving the major developmental and continuing programmes for each department and agency.

The fourth Agency is new and called Administration, and also is headed by a Deputy Secretary. Their responsibilities include the development of policies related to general improvement of the managerial and administrative practices within the Public Service.

One of the organizations that reports to the Deputy Secretary of Administration is an organization responsible for the development of data processing policy within the Federal Government. This is a very small agency, it consists of only two or three people. In fact it has been in existence only since about 1965. Very generally, their responsibilities are to develop policies related to the conduct of feasibility studies within the Public Service, generally how these studies will be conducted, the development of policies with respect to tendering for data processing equipment,

for contracting for data processing equipment, and the development of general personnel policy to ensure a continuing supply of trained people.

Mr. Guzman: How do you ensure a continuing supply of trained people?

Mr. Henderson: Well it is something that we have not done very well in the past. There is no Federal training programme conducted by any central agency within the Federal Public Service. At the moment, the training and development is a departmental matter - they are responsible now for their own training programmes. In very large departments they have a separate staff devoted to this purpose, but generally the medium or small departments continue to rely on the suppliers for training. What is being developed now is a new approach to training which will lead to the establishment of a central training facility likely administered by the Public Service Commission which is the organization charged with hiring of all public servants. Through one of the senior organizations within the Public Service Commission called Manpower, Development and Training - something like that - it is being anticipated that this organization will develop and operate those training programmes that are of a general nature and which would be useful to all departments and agencies. This would in no way I think restrict the individual departments from maintaining their own training programmes to cover those training aspects that are peculiar to their own particular equipment and operating responsibilities.

We have not been very successful in developing contractual terms and conditions. There is no central agency responsible for central procurement within the Canadian Federal Service, even though we do operate an organization that is responsible for the procurement of common items of supply on a centralized basis. This has not yet been extended to computers. Whether it will in the future or not, I don't know. We have considered developing standard contractual terms and conditions. There are two points of view on this: one is that if you rigidly specify to a supplier, terms and conditions in a very detailed manner, that this reduces some of

the flexibility that we are able to exploit now in less formalized negotiations. Also, we have examined such things as standard penalty clauses and so on, but we have generally found this not to be too effective. What we will develop in this area, I really don't know.

Our procedures related to the conduct of feasibility studies are somewhat outdated at the present time. They really were developed in an era when many of the departments and agencies were examining the use of computers for the first time. Computers have been operated by most departments for some period of time and we are in a new phase which is purely an upgrading and replacement phase, and, the traditional procedures that we have used in the conduct of feasibility studies don't apply. We never did develop procedures for the conduct of feasibility studies in the scientific area - we tended to accept the weird words that scientists use and allowed them to acquire systems on rather flimsy substantiation.

I would say that our policies have not matured to a very sophisticated level up to this time, even though the first large-scale computer was installed back in July of 1959.

We have no universal standards with respect to documentation, programming languages, software specifications, and so on. This is not a notable achievement considering the number of computers we operate and considering the fact that we contribute to the work of the COBOL Sub-Committee of the US CODASYL Committee and that we have provided the only non-US representation since 1966.

In terms of the scope of the operations within the Canadian Government, the Canadian Government operates some 237 computers out of a total of 2,000 computers installed in Canada. The Canadian Government is the largest single Canadian user of computers and we are six times as large as the next largest user which is IBM Canada.

I should be glad to answer any questions.

Mr. Guzman: What is the level of utilization of computers in the Federal Government? (Typist's comment: Speaker not talking into microphone and so latter part of question not audible for transcription).

Mr. Henderson: We use computers in the ways you mentioned first, but we do not use them in the decision-making process at the present time. They are first oriented toward the operational responsibilities of the individual departments that are using them. Now we use these in various levels of sophistication, from rather menial tasks of payroll administration, but up to and including some rather sophisticated processes in military logistics, the revenue operation which has reached a high degree of sophistication and I guess the highest level of maturity is in our Canada Pension Plan Administration - that would equate very closely to the Social Security Operation in the United States. This is a highly integrated operation involving four major departments of government and this came about not by a decision at the policy level in government, but in fact by the energy and enthusiasm of people at the working level who identified the benefits that would accrue from an integrated operation which works something like this: The Organization that has the managerial responsibility for the administration of the Canada Pension Plan is the Department of National Health and Welfare, but at the time the legislation came into force in 1965, that Department had no skill or experience in the operation of electronic computers. They then turned to the Department that I represent, the Department of Supply and Services, which had used computers for some years and asked if we would develop the computer system and the accounting systems required to support the administration of this programme, which we did, but it also involved the recording of income from the working population at large. These records were available through what we call our Department of National Revenue, or the Internal Revenue Service, i.e., the Taxation Agency. The records of earnings that enter into the Canada Pension Plan Operation are provided to us on magnetic tape by the Department of National Revenue, but basic to the administration of the Plan was a universal registration scheme which

we now term a Social Insurance Number and it happened that at the time registration was required for the Social Number Operation, the Unemployment Insurance Commission which is located in a different Ministry than National Health and Welfare, also needed a new universal numbering system to replace the one that they had used for some years. They were an Organization that had offices spread throughout all of Canada. Again, the Department of National Health and Welfare did not have that administrative network throughout Canada as did the Unemployment Insurance Commission and therefore the Unemployment Insurance Commission undertook to register the population at large and provide that data to the Canada Pension Plan Administration. In return for this, they had the use of the Social Insurance Numbers.

Over this process, from 1965 to the present, I think we have reached a very high degree of sophistication in the integration of systems in a way that avoided the very difficult problems of organizational integration and I think this relates fairly well to the example used by Mr. Mahoney on his cheque issue operation and the tapes that are sent to the General Accounting Office, and so on.

Well, we can see the extension of this integration pretty clearly in the future. The thing that is interesting us most now is the interaction of computers and communications, and what we do see is the need for a data collecting system that includes a network covering all areas of operations in Canada - i.e., governmental operations in Canada - whereby data is collected at the source, converted and transmitted through some terminal facility to regional computers, regional computers acting as communication concentrators, to move the data to a central point, which is Ottawa, where the bulk of the governmental operations are performed and then passing that data to operational departments in a way that they can then process their own data. The outputs of that processing to come back into the data collecting system as a data distribution system, to then distribute the results of that output to various offices across the country.

Well again this avoids the problem of forcing organizational integration to achieve more uniformity and integration of systems in that the operations of most of the departments and agencies outside of Ottawa do not really have the volumes to support a sophisticated network on their own and therefore the development of one network to serve the needs of all government departments does not really infringe on the operating responsibility of other departments. As long as the data is provided to them, they can process it in their own way and they can have their own computers to do so as many of them have now, and it is only after their own processing that the results of their processing is re-distributed through this network.

This seems to be, as far as the internal government operations are concerned, the direction that we will be going in the very near future.

Mr. Merk: Am I correct that you have a centralized civil service administration?

Mr. Henderson: No, the Public Service Commission has the responsibility to administer what is called a Public Service Employment Act, and that sets down the rules and procedures for the hiring of all federal public servants, numbering in Canada some 270,000 people. However, while they have this responsibility, it in fact is delegated to departments for many categories of personnel, that are not in short supply. The Public Service Commission maintains a centralized control over those classes, such as computer systems administrators, that are in short supply.

Chairman: Thank you very much, Mr. Henderson. May I ask perhaps the delegate from Venezuela for a statement about the situation in his country - if you are ready.

Mr. Angeli: In my country we have 47 computer centres in the public administration. Most of them are equipped with what we call the third generation computer. We are spending now about 16½ million dollars and any department can rent equipment and make changes without the need for central approval.

In the Commission where I work - this is a Commission that is formed with a staff of people to advise the President's Office on what can be done to improve the control on the expenses on computers and the rationalization of all the expenditures within the administration. We think that there is an urgent need to have a central authority to control this. One of the responsibilities of this central authority will be to control how we spend the money on computers, as well as other items.

We have started a public school to train people within the public administration in computer matters and we are teaching computer science in one of our universities. Next year will be the first graduates to this new career. We are looking to methods of how we can standardize programmes, documentation, and how we can establish what we call a good national policy in computer matters to avoid duplication of efforts that we have experienced. We want to correct that - that is one of our goals.

Chairman: Thank you. Any questions? I understand that most of our discussions are held during the lunch-time and coffee breaks, but it cannot be recorded!

I think we have this evening this reception and I think all of us are a little bit tired. If you have nothing against it, I would suggest that we adjourn this meeting today. O.K.? Thank you very much.

Session IV - Chairman Mr. F.G. Kordes, The Netherlands.

GOVERNMENT ADP PROCUREMENT POLICY AND ITS IMPLEMENTATION

Key-address by Mr. G.W. Dodson, Jr., and staff-members of the General Services Administration, USA.

ADP PROCUREMENT IN THE UNITED STATES GOVERNMENT

Mr. Kordes introduced the session by referring to the advent of unbundling and the impact this would have on the terms, and conditions of contract. He went on to predict that the quality and capability of software would be of increasing importance during the hardware selection process. He then welcomed Mr. G.W. Dodson and his colleagues from the United States General Services Administration; and invited them to talk about ADP procurement in the US Government.

Mr. Dodson introduced Messrs. Gold, Crone and Angrist from the ADP Procurement Division of GSA. He went on to explain, from the GSA viewpoint, the relationship which existed between the Office of Management and the Budget; the National Bureau of Standards; and the GSA itself in the performance of the procurement function for the Federal Government. In 1958 the General Accounting Office, an arm of the Legislature, became concerned with the growth of ADP in the Federal Government and undertook a number of studies which pinpointed the non-economic procurement practices in Federal Government. In 1965 it recommended that procurement, management policy and inventory actions be centralized; that lease versus purchase analysis of the hardware be made at component rather than at a system level; that an up to date inventory be maintained showing spare capacity in government installations and service bureaus; and that contractor operated hardware in the Federal Government should be brought under the same management discipline.

Congressman Brooks' first Bill, introduced in 1963, contemplated the GSA as procurement overlord and

was rejected. In 1965 a second Bill was passed. This provided a management-triumphirate with policy direction and fiscal control the responsibility of the Bureau of the Budget (now Office of Management and the Budget), technical advice and data processing standards the responsibility of the National Bureau of Standards; and administration of the effective and efficient use of ADP the responsibility of GSA. Under the Act GSA is required to do nothing which would impact upon the requirements of agencies in performance of their missions: agencies have a direct right of appeal against GSA through OMB to the President. Following passage of the Bill a question arose as to whether its provisions extended beyond computer hardware to encompass software and other items essential to the efficient functioning of the hardware; a GAO decision was subsequently given that they did.

Mr. Dodson explained the organization of GSA and the manner in which it functioned in this area. It was responsible within Federal Government for the procurement of all general purpose hardware/software, supplies and maintenance, including software maintenance. GSA's authority was required for hardware purchases of 50,000 dollars and over; and for all purchases of general purpose software. Federal Supply Schedule Contracts were entered into annually with all major or original American equipment manufacturers, various other hardware manufacturers whose devices are incidental to the operation of equipment (accessorial devices) and with software vendors of general purpose packages. Between six and seven hundred million dollars worth of business would be done in the current year on Federal Supply Contracts; IBM's share being about 380 million dollars. Each contract contained a maximum order limitation in dollars (MOL): an upper limit for which that contract was valid in any one procurement. The purpose was to delineate the break point above which the Government would require discounts because of the volume of individual procurements. The MOL was administratively determined and was changed from time to time.

Should an agency wish to procure equipment in quantities above the MOL they had to obtain authority from GSA. GSA then either delegated authority to the agency to buy

the equipment or undertook the procurement for it. GSA would normally act where the procurement was not straightforward; where was any question of lack of objectivity by the requiring agency; and where GSA's negotiating expertise could lead to substantial savings for Government. Where GSA elected not to take charge of the procurement they assisted the agency at all stages. Each procurement group in GSA comprised three people: a senior ADP oriented contracting officer (group leader), a senior ADP technician, and an ADP oriented lawyer.

In May 1969 GAO decided that procuring agencies must reveal to vendors the entire method of evaluation. GSA interpreted this to mean the expression of point weights, or dollar values, for use in the evaluation process so that all tenderers could bid intelligently. This interpretation was accepted by the majority of Government agencies.

In 1967, GAO decided that where one was dealing with the evaluation of options for future requirements that vendors would offer more competitive prices if they knew that they had, subject to the annual Congressional approval of funds, a firm sale. GSA believed this to be the right approach and had adopted it, particularly in the Department of Defence. GSA also believed that an award should be made for a firm fixed price to cover the planned life of the equipment; this policy was generally acceptable to industry and had been adopted by GSA for both purchase and leasing arrangements.

Discounts for multiple year leases were beginning to be offered by the industry for Federal Supply Schedules without guarantee. These discounts took many forms, e.g. the foregoing of one month's rent at the end of two years Lease (where the minimum lease period was one year), the effect snowballing as each successive year terminated until, with the completion of four years, the last six months of the lease might be without rental charge. GSA managed the ADP fund (provided for in the Brooks Bill) which had assets of 25 million dollars and was available to all federal agencies to guarantee fixed term multiple

year leases so that even greater multiple year discounts could be secured; but to date no agency had called upon GSA to use the fund for that purpose.

Mr. Dodson then went on to explain the break down on the procurement cycle. First there was the pre-Request for Proposal (pre RFP stage) under which a feasibility study had to be performed by the agency, with GSA help as required, to prove the ADP scheme as being the least cost management alternative available to the agenc

The agency then had to provide draft specifications of its ADP requirements. GSA would assist in the definition of requirements, and preferred that they were expressed as pure data system performance requirements rather than as specific desired equipment operating characteristics.

GSA vetted all specifications to ensure that they represented the agency's reasonable requirements and were not unduly restrictive on the competition. Some form of bench mark test, normally an operation performance test sample had to be carried out prior to an award. Satisfactory performance of the bench mark test did not take the place of post delivery tests to ensure that the equipment could perform the job for which it was purchased. GSA believed that the ADP contract should be useful beyond the selection and ordering stage by incorporating realistic features which enabled the manager who had to live with the contract to ensure that the vendor made available over the life of the system the various features, software, training and maintenance etc., which did not come with the hardware feature initially delivered. GSA also insisted on selection being based on total system costing.

During procurement if any vendor fell out of consideration from a technical or cost point of view he was advised of the fact and given the opportunity to alter his proposals. He was not informed how he stood in relationship to other vendors.

Mr. Dodson went on to say that, to some extent, all data system requirements had arbitrary features. If a particular vendor offered equipment at a substantially reduced cost but which fell a little short of the stated technical requirement the agency was required to re-consider the requirement. Should the agency then find the lesser requirement acceptable all competitors were advised of the change and were given the opportunity to respond on this basis. Mr. Dodson concluded by saying that the contracting officer, when satisfied that reasonable opportunity to compete had been provided, notified vendors that on an appointed day - generally 10-15 days ahead - all negotiations would be considered closed. If after this date a vendor submitted a reduced cost offer which required no technical evaluation it could be accepted at the contracting officer's discretion.

QUESTIONS

UK (Mr. R.E. Fysden) asked about the extent to which the vendor was held responsible for the performance of the job as distinct from the technical performance of his equipment. Mr. Dodson explained that the vendor was held to have little or no responsibility for the job's success once his equipment had been tested and evaluated, generally on a representative segment of the overall application. Some agencies had required a test to cover the whole application; vendors had complained bitterly at this practice and had GSA's sympathy. This was a too expensive approach to evaluation. Mr. Gold added that where multiple procurements for standard application were envisaged a data systems test on the first installed system was made; if this failed the other procurements were not proceeded with. Provisions for refunds (credits) where the equipment, once installed, malfunctioned over a period of time were normally included in contracts. Mr. Dodson added that consequential damages suffered through not being able to operate were not recoverable.

SWEDEN (Mr. P. Svenonius) asked whether Mr. Dodson had encountered the problem of leakage of information in connection with last minute bids. Mr. Dodson said that in the past some leakages may have occurred; but since GSA had taken over responsibility for procurement there had been no problem.

ISRAEL (Mr. E. Wagner) enquired about the extent to which the procurement procedures took into account the preference of an agency for specific equipment. Mr. Dodson said the matter was normally decided by reference to cost; all significant costs were evaluated including file conversion and retraining. However, the general rule was sometimes not applied where there was a dominant vendor who might be able to perpetuate himself. Another example of exception was given by Mr. Crone who said that national security might require that no break in continuity of equipment type should occur. Mr. Dodson stated that no reliable figures were available for sole source procurements; and added that an administrative control over such procurements might be a future possibility. GSA currently saw sole source procurements only if they exceeded the MOL.

USA (Dr. Grosch) doubted whether the normal simulation and bench marking methods had any real proven accuracy, especially when evaluating competing non-existent equipment which differed in internal structure and logic. Both manufacturers and purchasers were at a similar disadvantage. These methods were, however, useful when comparing equipment of similar structure; different models in the one manufacturer's range; or the linkage of different types of peripheral to the same processor.

CANADA (Mr. G.E. Henderson) asked what process an agency had to go through in justifying its evaluation. He also asked whether an agency would prefer the slightly more costly of two proposals if it had had experience of the costlier equipment, but believed that it could exploit it to the full, possibly not at least cost. Mr. Dodson stated that GSA were attempting to publish a regulation, already in operation with the

Department of Defense, setting up rough but recognizable guide lines for the relationship between GSA and the evaluating agency. Mr. Crone added that the senior ADP technician working on a procurement team vetted the technical portion of the agency's RFP and ensured that the criteria that had been set up and the weights that were to be given were reasonable. He was also present at the bench-marking and sat with the agency technicians in making the analysis. The bulk of agencies specified off the shelf hardware so that the problems posed by Dr. Grosch were minimized. GSA insisted that the system procured was that with the lowest overall cost which met the requirement specified; preferences for costlier machinery had to be backed by sound logical argument.

UNITED NATIONS (Mr. H. Gratton) asked whether GSA had developed a package for use in situations where a government agency came new to ADP; and, if so, whether this package had been used for a developing country through the AID programme. Mr. Dodson explained that GSA did not have such a package but it offered a full service to agencies coming into ADP for the first time. In general small agencies were encouraged to use the Federal Service Bureau in lieu of having their own equipment. He suggested that the United Nations might wish to consider such a central service bureau, staffed by its own technicians, for helping emergent countries.

UNITED KINGDOM (Mr. P. Hearson) asked whether the maximum order limitation had been modified to deal with plug to plug compatible peripherals where the requirement might span several agencies. Mr. Dodson explained that the MOL for peripherals was ten or more of a particular type and model. In February 1970 OMB directed agencies to look at installed leased peripherals to determine whether they could be replaced by plug to plug compatible equipment. GSA followed up with a directive to which was attached a listing of the installed leased inventory and asked agencies to update it so that GSA would be in a position to procure centrally, in replacement, plug to plug compatible equipment. However it was found that some agencies had already conducted very successful procurements on these lines.

WEST GERMANY (Mr. H.G. Merk) asked whether a manufacturer delivering both hardware and software for an exactly defined purpose should be held responsible for the performance of the whole system. If so how did GSA tie up this policy with the move of IBM towards unbundling? Mr. Dodson said that in Federal Government procurements the vendor was penalized for failure to deliver the operating hardware and basic software, e.g. operating systems and utility routines. Generally the vendor was not held responsible for delivery of the applications software. Some agencies, especially in the Defense area, hired a prime contractor or systems integrator who assumed responsibility for ensuring that all parts of the system worked together, but this was not usual in the normal run of business type ADP applications. Mr. Angrist added that unbundling by IBM had not affected the issue as IBM had never accepted systems integration responsibility in the past, and would not accept it now within the terms of the standard hardware contract. He went on to say that a standard 30 day acceptance period was included in all GSA contracts for testing the hardware and the operating system offered. This did not apply to application programs.

The Chairman asked whether GSA had any experience of other methods of evaluation beside that of the benchmark. A GSA spokesman replied that simulation techniques were becoming more popular but, as yet, they were not properly developed and should be used only as an aid. Agencies that had used simulation as the sole means of procurement had encountered bitter opposition from companies, some of whom claimed that present simulation packages did not adequately measure the performance of their machines. Mr. Dodson added that vendors objected to the Government use of simulators operated by commercial concerns. These concerns required vendors to reveal operational factors and algorithms about their equipment; it was alleged that the information obtained was used in other simulations for other purposes.

The Chairman suggested that a progress report on unbundling might be of interest. He said that in the Netherlands IBM and Control Data had unbundled, but Siemens had not. Mr. Angrist said that in the USA, IBM, Control Data and Xerox Data Systems had unbundled, other companies had done so only in a very limited sense, perhaps because the bundled pricing policy gave them more manoeuverability. GSA had accepted the IBM unbundling policy of separately marketing applications software, training and technical assistance equably, but had been disturbed that the company reduced prices of the remaining elements by only 3%. GSA had, in fact, negotiated a reduction against rentals and maintenance charges of two months in the year equal to approximately 13.7% of each month's invoice. The systems engineering service and training were now excluded from the Federal Supply Schedule thus allowing GSA to procure these items separately; experience had shown that little of either of these services had been bought since unbundling. GSA attempted to obtain discounts on all purchases including "one-off" procurements. Government contracts generally were on more advantageous terms than those entered into with IBM by commercial companies. Purchase options of leased equipment and age depreciation on second generation equipment were significantly better. IBM System 360 equipment leased for more than one year could be purchased with additional six months rental credits given; and a plan had been agreed for the bulk purchase of IBM 1401 peripherals at very low cost to link up with the 80 IBM 1401 central processors earlier purchased at low cost. GSA had been successful in delaying IBM price increases for six months after they had been introduced outside Government. Decreases in price had similarly been back dated three months. Separately priced software was covered by the Federal Supply Contract but little experience had been gained as very little had been ordered.

CANADA (Mr. G.E. Henderson) said that when the Canadian Government attempted to negotiate favorable terms with US manufacturers they stated that they were bound by GSA contract provision, for if their prices anywhere

in the world were less than those obtained by US Government, then all equipment supplied to US Government would have to be repriced. He went on to ask whether GSA had been able to negotiate with IBM the assignment of purchase rights to a third party; and whether equipment was procured in such a way that credits in one department could automatically be claimed by another should the equipment be transferred. In reply a GSA spokesman stated that in the IBM contract with GSA there was an assignable clause which permitted a third party to buy, but only at the credits that were available to a commercial buyer. The full credits that had accrued in one location could be carried forward to another so long as the equipment remained in the Federal Government. As to reducing prices to Federal Government to the lowest charged elsewhere, this was a weak contractual clause for ADP requirements; and it would be unusual if it were ever exercised. It looked as if it were being used as an excuse.

SWEDEN (Mr. F.Svenonius) asked whether GSA had negotiated compensation with IBM to cover extra costs arising in connection with existing or ordered computers as a result of unbundling; and whether a charge had been made for services which the purchaser believed covered at the time of the original contract. A GSA spokesman explained that the Specific Contract Equipment clause, a segment in the Federal Supply Schedule, made any representation or commitment included in a proposal for a specific system binding on the contractor if an order was later issued against the Schedule. This applied to unbundling. Agencies upgrading equipment did suffer considerable loss and GSA were attempting to obtain compensation for them. Mr. Dodson added that careful contracting was the only protection against the supplier.

CANADA (Mr. G.E. Henderson) asked how GSA adjudicated failures to meet contractual obligations. Mr. Dodson replied that GSA had in their organization a Board of Contract Appeals which normally adjudicated on such matters. Appeal to the Federal Courts or GAO was also available but traditionally not used.

KOREA (Mr. H.K. Kim) asked for clarification of the interrelationship between a published NBS standard and the procurement process. Mr. Dodson explained that when a relevant standard was approved it was incorporated in a purchase specification clause; however GSA was not able to answer for the degree of implementation of standards in the agencies. Dr. Grosch added that there was no enforcement procedure to ensure that agencies adhered to NBS standards.

UK (Mr. Pysden) asked whether GSA, in procuring software centrally, had been able to get competition for its supply. If not how had it been able to satisfy itself that the price for the software was right. Mr. Dodson explained that although agencies had to approach GSA for the procurement of general purpose software, authority to procure was normally delegated back to them. GSA was considering automatic delegation of software procurement up to a dollar limit. However where several agencies needed a similar package GSA considered whether it should go out for a specific proposal, or have it put on the Federal Supply Schedule. Mr. Gold added that there were about 31 software packages already on the Federal Supply Schedule. Agencies normally received quotes from different software companies although it sometimes appeared that only one quote was seriously being considered. Where the offer was by solicitation from a software house true competition was difficult to obtain, as the house was probably well ahead of its competitors in that particular area. Mr. Gold went on to say that software marketing was complex; most software was marketed so that its use was limited to a specific installation, or even CPU within an installation. In appropriate cases GSA hoped to negotiate a purchase option to buy up all rights so that it could market the software to other agencies. So far only one package had been acquired on these terms. Mr. Dodson said that the US Government was not yet in a position to impose competititve terms on software houses.

UK (Mr. Pydsen) asked whether GSA expected to get a fixed price for maintenance throughout the whole of a systems life. The reply was in the affirmative but, as Mr. Gold added, the fixed price could encompass an annual increase. Vendor price inflation was countered by entering into the contract a proviso that the price at any point in time could not be greater than that which was then available under Federal Supply Schedule. But in any event competition at the tendering stage inhibited the vendor from setting his prices too high.

UK (Mr. Hearson) asked if GSA, in purchasing a software package for use say on 15 installations paid 15 times the normal purchase price. This was stated to be true as far as IBM was concerned; some other contracts included a discount factor for additional CPU's, other related to the use per installation.

CANADA (Mr. Henderson) asked how GSA, under their selection procedure, covered the possibility that a hardware requirement could be met by the provision of time on a Federal Service Bureau, or from surplus equipment elsewhere in Government. Mr. Dodson said that the agencies usually had prejudged their requirements before approaching GSA; the Resources Sharing Revision had to certify that the requirement could not be met from existing Federal facilities but agencies usually got their way. Very limited time was available at the Federal Service Bureau and this was a contributory factor; GSA hoped that this lack would be rectified within a few years. A questioner asked whether GSA coordinated with the local government in the procurement process. Mr. Dodson replied that there was no formal coordination, although liaison was maintained through a State and Local Government Procurement Panel. However, State and Local Government Procurement Officers appeared to make full use of Federal Supply Schedule requirements in their negotiations with vendors.

The Chairman thanked Mr. Dodson and his team for their presentation and invited delegates to consider the papers submitted by USA, UK, West Germany and the Netherlands on procurement.

RESPONSIBILITY FOR ADP PROCUREMENT POLICY.

NETHERLANDS. (The Chairman) said that in the Netherlands the Minister of the Interior had central authority for policy; his consent had to be obtained before further study was carried out and equipment selected. He had an office, and a central advisory board to help him with this duty. Each Ministry was responsible for its own projects and in the event of dispute with the Minister the Cabinet adjudicated.

SWEDEN (Mr. Svenonius) said that in his country the Office of Organization of Management procured all computer equipment for Government, including the Department of Defence, and arranged all contracts.

UK (Mr. Atkinson) explained that in the UK each Government Department had responsibility for its own data processing activities but consulted with the Civil Service Department (CSD) to ascertain whether its plans conformed to the overall Government computer strategy which had been laid down for the future development of data processing. A feasibility study was undertaken by the user department; on satisfactory conclusion of the study the Treasury, advised by CSD authorized expenditure, and CSD itself authorized the manpower for a systems study. Procurement was undertaken by the Stationery Office on behalf of all departments.

RESPONSIBILITY FOR TECHNICAL SPECIFICATION OF HARDWARE AND SOFTWARE.

NETHERLANDS (The Chairman) stated that in his country the State Business Machines Centre (part of the PTT) was the authority on ADP technical matters. It employed ADP specialists and worked in close co-operation with the responsible Ministry.

UK (Mr. Hearson) explained that in the UK engineering advice was given by the Technical Support Unit of the Department of Trade and Industry to user departments, the Civil Service Department, and the Stationery

Office. Departments were primarily responsible for specifying their requirements and designing their systems, but Specialist advice was available from the Systems and Techniques Group of CSD's Computer division. Mr. Atkinson added that under present UK Government policy software houses and consultants would, wherever possible, play an increasing part in this field, the Systems and Techniques Group would monitor their performance.

FRANCE (Mr. Hubert) said that in France as in the UK each department was responsible for its own requirements. A representative of the central agency, the Delegation à l'Informatique, was representated on the Departmental ADP committee and tried to coordinate the different procurements in each department. He investigated the possibility of common applications and common equipment between departments.

RESPONSIBILITIES OF A CENTRAL PURCHASING OFFICE.

NETHERLANDS (The Chairman) said that in the Netherlands ADP equipment was procured by the Ministry of Defense for their own use, and by the State Business Machines Center for other departments. Selected manufacturers were invited to tender on the basis of an analysis of the technical specification. Clear guidelines were laid down to determine whether equipment should be purchased or rented. Most was rented.

UK (Mr. Pysden) said that in the UK Her Majesty's Stationery Office was responsible for Government ADP procurement. At the feasibility study stage user departments supplied the Stationery Office with details of planned forward budgeting so that it could forecast Government ADP spending over the following four to five years. At the end of the design stage of the model system the user department, assisted by the Civil Service Department and the Technical Support Unit produced an operational requirement which, whenever competition was possible, was sent to all manufacturers likely to be interested. In reply each manufacturer either declined to tender or stated in

broad terms the equipment he intended to offer. Where possible not less than three firms were then selected from those showing an interest in the project, and invitations to tender were issued to them. It remained the responsibility of the user department to ensure that the configuration offered would do the work for which it was purchased subject to the equipment performing technically in accordance with the manufacturer's specification. The submitted tenders were cost evaluated, account being taken of support services and software. The Technical Support Unit supervised acceptance tests of the successful vendor's equipment after delivery. Almost all equipment was purchased.

FRANCE (Mr. Hubert) said that there was no set policy in France in regard to the purchase/lease question; each department decided for itself. The tendency was towards more renting.

WEST GERMANY (Mr. Merk) said that more than half the installations in his Government were rented.

USA (Dr. Grosch) felt that it was a particularly difficult time for purchasing. Caution needed to be exercised in loading up third generation equipment that might soon be obsolete; yet there was little evidence of the economies or workability of the promised fourth generation. He wondered whether each Government purchasing agency might investigate the possibility of a large scale rebundling whereby contractors would be sought who took full responsibility for the overall success of an application.

CANADA (Mr. Henderson) said that in Canada most recent acquisitions had been rented. Earlier large computer systems were, quite rightly, purchased but there was difficulty in obtaining funds to replace them as the budgetary system, perhaps unfairly, mitigated against purchase. The Department of Supply and Services was the computer procurement agency for both military and civilian departments.

USA (Dr. Grosch) returning to his earlier suggestion about rebundling expressed the view that countries inexperienced in computer matters might benefit most from the appointment of an overall contractor even if such a contractor had, in the early days, to be brought in from another country. Procurement policies of most countries followed the wrong order of priorities. First one had to make the most important decision, which could be contracted out; should the job be done at all? Next in importance were the overall systems decisions followed at a much less important level by such questions as the joint utilization of equipment by agencies, rent versus purchase and, least important of all, the company to buy from.

ISRAEL (Mr. E. Wagner) expressed doubts whether companies would be ready to take over responsibility for the overall system.

USA (Dr. Grosch) said that he wished to encourage the creation of new companies capable of taking over this kind of responsibility. They would preferably not be connected with hardware manufacturers: they must be large, well financed, and a counter-weight to the hardware suppliers.

SWEDEN (Mr. Svenonius) explained that in Sweden the Government administered a revolving fund which had solved the problem of deciding on rent or purchase; whichever course was chosen the agency paid a regular annual charge. This charge was sometimes smaller if the equipment was purchased. Normally equipment was purchased although some peripherals were rented. Some gain in the popularity of renting had recently occurred due, perhaps, to the change-over from 3rd to 4th generation equipment. Considerations governing the choice between rent and purchase included the length of time the system was expected to be in use, and the probability of finding a secondary user after the first user had discarded it. Technical considerations included consideration of whether the equipment was well proven, and how soon it would be replaced by similar but substantially cheaper equipment. Bench mark testing was not used at this state; and no advantage was given to Swedish computers in the procurement process.

CANADA (Mr. Henderson) expressed the view that Government departments would perhaps be unwilling to go outside Government for an overall systems controller for fear that this might be taken as a reflection on their own adequacy. Yet such a body could, by the use of the commercial profit motive, and the direct reward of exceptional staff effort, produce results impossible in bureaucratic organizations.

USA (Dr. Grosch) felt that, ideally, the controller should come from central government service; but for the reasons that Mr. Henderson had mentioned, and the political changes touched on by Mr. Atkinson, this would be particularly difficult to arrange. Therefore outside systems responsibility was the next best course to be taken, even though more expensive; it would certainly be more effective than the system used at present. Top management in Government, including Ministers, should be persuaded to recognize the growing importance of communications, computers and information technology to overall operations.

UK (Mr. Hearson) asked whether member countries had had experience in treating central processors separately from peripherals when considering the purchase/lease problem. With the development of fourth generation technology there was room for many changes in central processor design. Perhaps it might be better to hire the central processor and buy peripherals where and as one could at the most advantageous price, due regard being paid to the requirements of compatibility.

SWEDEN (Mr. Svenonius) felt that the time taken to get larger systems, especially terminal oriented systems, into normal operation would in most cases justify the purchase of the main frame. Dr. Grosch felt that there should be little difficulty in deciding between purchase and rental in acquiring central processors; predictability was greatest in the area of main frame development; but new techniques might make peripherals obsolete overnight so it might be better to hire them.

UK (Mr. Hearson) commented that a large part of Government computer work involved substantial systems reorganization, and suggested that the speed of technological development was outstripping the ability of the user to reorganize so as to make best use of the new techniques.

USA (Dr. Grosch) said that in the early days circa 1955 systems were designed about every three years. By 1960, because of increased complexity in systems, rising conversion costs and the slow progress towards a machine independent language, the period between changes lengthened to four years reaching a peak of five years in 1965; by 1970 the useful cycle of replacement seemed to have dropped back to four years. Perhaps it was now being recognized more generally that reprogramming at systems level may have a payoff. He agreed with Mr. Hearson that it was an extraordinarily difficult process, and the organizational decision to grasp the nettle was extremely difficult to make.

ISRAEL (Mr. Guzman) reverted to the question of benchmark testing and suggested that it was not relevant in its accepted form to the time sharing environment. He felt that the best method of technical analysis might be the use of benchmark in which the simulation process was employed to change many of the variables.

USA (Dr. Grosch) expressed the view that all main methods of technical analysis were very difficult to apply to a time sharing system. The hardware could be metered to elucidate internal machine timings and usage; simulation could be used; and benchmark tests performed. The simulation approach was theoretically attractive but difficult to conduct; and the results were not meaningful unless physical metering was also performed. Moreover the overall efficiency of a system depended on many factors other than the usage of the central processor. Systems reliability, including crashes and data loss frequently made a sophisticated mode of operation unattractive in a real time environment.

The Chairman closed the discussion with the suggestion that delegates might find a study of the standard contracts, which several countries had submitted, profitable.

A P P E N D I X

INTERGOVERNMENTAL COUNCIL FOR ADP

THE SECRETARIAT
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CIRCULAR LETTER NO. 15

December 31, 1970

This communication contains general information on the 4th Conference of the ICA which took place at the Mayflower Hotel, Washington, D.C., from 11-13 November 1970, and the summary of the Council's sessions on ICA working-groups and Council affairs.

1. Participants and programme

a. The following countries were represented at the Conference: Canada, Chile, France, the Federal Republic of Germany, Israel, Japan, Republic of Korea, The Netherlands, Norway, Sweden, Switzerland, United Kingdom, United States of America and Venezuela. Observers on behalf of the following international organisations also participated in the meetings: United Nations, International Federation of Automatic Control - IFAC, IFIP Administrative Data Processing Group - IAG and the International Standards Organisation - ISO (List of Conference participants, see Doc. GC-52, enclosed).

b. The Conference participants were welcome by their host, Dr. H.R.J. Grosch, the outgoing Chairman of the ICA. The topics of the contents-programme were presented by senior experts from the various agencies of the US Federal Administration, directly responsible for the formulation and implementation of governmental ADP policy. The topics presented, and discussed by the Council were as follows:

(1) "Policy considerations in the use of ADP in the Federal Government", Mr. J.F. Cunningham, Office of Management and Budget, USA. The discussion was led by session-chairman Mr. W.R. Atkinson, Management Services (Computers), Civil Service Department, U.K.

(2) "Computer technology and the legislative process", Mr. R.L. Chartrand, Legislative Reference Service, Library of Congress, USA. The discussion was led by session-chairman Mr. H.D. Merk, Federal Republic of Germany.

(3) "US General Accounting Office activities in connection with the Federal Government ADP programme", Mr. E.J. Mahoney, General Accounting Office, USA. The discussion was led by session-chairman Mr. A. Gertz, Israel.

(4) "ADP procurement in the United States Government", Mr. G.W. Dodson Jr., General Service Administration, USA. The discussion was led by Mr. F.G. Kordes, The Netherlands. Messrs. E. Gold, D.A. Crone and E. Angrist from the GSA assisted Mr. Dodson in answering the many issued raised during the general discussion.

(5) Participants in the Conference paid a visit to the National Bureau of Standards, where they were introduced to the manyfold computer activities.

c. Social events, including a reception at the US Department of State, sponsored by the Associate Director, Office of Management and Budget, and the Officers of the ICA, and receptions by UNIVAC and the Control Data Corporation, were also organised for the conference participants and guests.

d. Special appreciation is due to our host's assistants Mrss. Madeline M. Henderson, Ethel Harden, Betty Anderson and Judy Lyons, who contributed by their personal effort and devotion to the success of the event.

2. Proceedings of Contents Programme

The Proceedings of the contents programme of the 4th ICA Conference will be published in the form of summarised proceedings within the frame of the "ICA-Information". The delegates from the U.K., Canada and the USA have kindly agreed to assist the Secretariat in the editing of the Proceedings.

3. ICA Working-groups - Report

At the Conference session on ICA working-groups, led by the Chairman of the Programme Committee, Mr. H.G. Merk, interim reports were given by the representatives from those countries, where the working-groups had been activated, as follows:

a. Working-group on governmental ADP policy, organisation and implementation

Mr. Atkinson presented the working-paper (Doc. GC-47), which was prepared together with Mr. J.A. Tiffin, the outgoing Vice-Chairman of the ICA. It was decided that member-countries be

called upon to submit, through the ICA Secretariat, written comments to this paper as soon as possible. The Council agreed that this document should then be worded into a final ICA document, which will be accepted by the Council as general information or "guide-lines" to its members, associates and everybody interested in it. The working-group will thereby have concluded its task.

b. Working-group on automatic population register and numbering systems

Mr. L. Tegnhed, Sweden, presented the preliminary paper on this ICA working-group. A copy of this document, which was distributed at the Conference (Doc. GC-49), as well as the summary-tables containing the information collected from the ICA member-countries in response to Mr. Merk's questionnaire (Doc. GC-50), and a paper presented by the UK, entitled "Current Position in the United Kingdom on the Possible Introduction of a Population Register"- May 1970 (Doc. GC-51) are enclosed.

Since it became apparent that the topic of population data-banks is of a character which will demand continuous attention by the ICA, it was considered practical to entrust the ICA Secretariat with continuing the work on this topic and to report periodically on progress made.

c. New ICA working-group on governmental ADP procurement policy and implementation

The Council set up this new working-group which will conduct a comparative study on procurement practices by member-countries, also utilising the material already collected on this topic, and the presentation and discussions at the Washington Conference. This working-group is composed of the representatives from the UK and the Federal Republic of Germany. A third member will be co-opted into this working-group.

A number of documents have already been prepared for this study: "Principles of Procurement for ADP Installations" by the Ministry of the Interior, the Federal Republic of Germany (Doc. GC-43), "The Procurement of Computer Systems for UK Government Departments" (Doc. GC-44), and the procurement model contracts, as contained in "ICA-Information" No. 5/6 (pp. 81-243)

4. Method of procedure by working-groups

The aims and methods of procedure of ICA working-groups were discussed in detail at the session on this subject. The following general concept about ICA working-groups and their course of action were recommended, based on the findings of an ad-hoc meeting of a number of conference participants with the Secretariat, and presented by Mr. Atkinson:

a. The subjects for ICA working-groups should be confined to issues of major importance with practical significance to member-countries, be of general character and within the area of competence to the central ADP authority in Government;

b. The decision to set up or conclude activities of a working-group rests in the Council at its Conferences;

c. Participants in working-groups are elected by the Council from among its members, taking into account the practibility of contact and cooperation - also between ICA Conferences - mainly geographical, and considerations of flexibility in travelling;

d. The aims and objectives of the working-groups should be clearly defined by a tentative listing of sub-topics of the chosen subject, by laying down the "terms of reference" of the working-group which should operate usually in two stages and on a preset time scale;

e. The first stage should be the collection and collation of information on relevant experience within ICA member-countries. This information should be gathered in a planned form, to be decided upon by the working-group, either by a structured synopsis or outline, or, for certain subjects, a suitable questionnaire would be appropriate. This information should be sent to the ICA Secretariat for technical collation and then be forwarded to the members of the working-group.

f. At the second stage, the working-group will meet in order to consider the information and to decide how to proceed: whether the combined information "per se" would be the final product of relevant value to the Council, or if a draft report should be producted for circulation to member-countries for comments.

The object would be, in each case, to produce a final paper which could form the subject of substantive discussion at the next plenary session of the Council.

5. The Report of the ICA Secretary General

Mr. Gertz presented the Report of the ICA Secretary General for the interim period January - October 1970 (Doc. GC-40*). After a brief discussion, the Report was accepted by the Council.

* This document was sent out under cover of Circular Letter No.14 of 20 October, 1970.

6. The Financial Statement and Budget Proposal for 1971

The Financial Statement (Doc. GC-45) and the Budget Proposal for the year 1971 (Doc. GC-46) were tabled by Mr. Wagner of the ICA Secretariat. The Financial Statement was approved by the Council.

The basic budget for the year 1971 has been adopted by the Council as follows:

Expenditure:

Secretary (part-time)	$3,500.-
Secretarial assistance (typing etc.)	1,500.-
Postage, telegrams, telephone	800.-
Stationary, offset, duplication etc.	500.-
Premises and maintenance, office aids	300.-
Travel expenses	2,400.-
"ICA-Information	750.-
Conference Proceedings (4th Conference)	750.-
	$10,500.-

Income estimate:

Membership-fee	$10,000.-
Embursement from sale of "ICA-Information"	500.-
	$10,500.-

Spending on items beyond the above basic budget is permissable within the scope of the Secretariat's budget proposal, provided necessary funds are obtained by additional income from membership-fees, and after consultation with the Chairman of the Council.

7. The U.N. Report on ADP for Development

The Council recalled Dr. Grosch's participation, on behalf of the ICA, on the panel of experts which met at the United Nations in February 1970, in order to prepare the draft-report on "The Application of Computer Technology for Development". The ICA's comments to the draft-report, as prepared at the meeting of the ICA officers in London (April 23, 1970) were submitted to the U.N. (Doc. IO-2). The discussion by the U.N. General Assembly of the final "Report of the Secretary General" (GE.70-11926), dated 20 May 1970, has been postponed to the Fall-session of 1971.

The report contains an annex of three appropriate professional international organisations, giving a brief description of their aims and activities: IFIP, IFAC and ICA.

The Council called upon its members to give any possible assistance in this important international effort, as individual countries as well as within the framework of the ICA.

8. Proposal for a World Conference on Informatics in Public Administration

The Secretary General pointed out that this proposal was first made during the Oslo Conference, and it was then recommended to review the proposal at a later conference and to postpone a decision until the ICA would be more consolidated for undertaking such an organisational effort. Mr. Gertz expressed the opinion that developments in governmental and public computer-usage justify the planning and preparation of such a world conference. ICA's initiative is important in this matter, and the action could, or even should be done in cooperation with other appropriate international organisations. Tentative contact for cooperation in organising such a conference were made with the Director of the IBI/ICC in Rome, and the reaction was positive. Mr. Veenhuis expressed readiness of his organisation, the IAG, to be involved in the organisation of such a world conference, a type of event where IAG has substantial experience.

The Council resolved to postpone the decision on this matter for the time being.

9. Statutes for the ICA

The ICA Secretariat tabled the second draft of the statutes or "working procedures" (Doc. GC-39). The second version incorporated the amendments as proposed by the U.K. Mr. Trieb, Switzerland, had already indicated that this document was now acceptable. Mr. Kordes, The Netherlands, had written to the Secretariat, commenting on some articles of the draft.

The Council accepted the Secretariat's view that the "statutes" were not meant to become a formal legal international convention, but rather an internal outline for the proper functioning of the ICA.

It was stressed, during the deliberations on this item, that duplication with the activities of other international organisations should be avoided; Mr. Kim, Republic of Korea, suggested that the Secretariat prepare a document comparing the scope of activities in Informatics by the major international organisations.

In view of the fact that only about half of the Council members were present at the working-session, it was decided:

a. That a voting and final decision on the statutes of the ICA should be postponed to the next conference;

b. That the Secretariat prepare a document to be presented to the next conference on aims and activities of the major international organisations in the field of Informatics, in order to clarify ICA's position with regard to possible dublication and overlappings with the Council's activities and aims, as well as for the purpose of clarifying specific areas for cooperation and coordination.

Some additional suggestions in connection with the draft statutes included:

Mr. Atkinson, U.K.: The U.K. delegation would prefer a regular annual membership-fee rather than a periodical one by members, as stated in article 13.3 of the draft. The period of three years for the service of elected ICA officers, as stated in article 7, may be too rigid.

Dr. Grosch, USA: The article 5.1 on the convening of conferences "not more than once a year and not less than once in two years" does not fit current ICA practices, when conferences are being held less than one year apart.

Mr. Hearson, U.K.: reminded the Council of the idea of "associated membership" in the ICA, which should be considered for incorporation into the statutes.

10. Selection of place and time for 5th ICA Conference

After discussing several alternatives with regard to the scheduling of the 5th Conference, it was decided to hold the next ICA Conference in Rome in October 1971, provided the Secretariat's suggestion with regard to the administrative involvement of the IBI/ICC is accepted by Prof. Bernasconi.

The representatives from Sweden and Germany proposed to be alternatively the host to the next conference, if arrangements with regard to Rome cannot be realised.

11. Programme for 5th ICA Conference

A working-session of the Programme Committee has been scheduled tentatively for April 1971. This meeting should be open to any member of the Council wishing to attend, and be scheduled at a convenient time and place for that purpose, presumably approximating a meeting on Informatics by the OECD, when and where non-European countries would also attend.

The Programme Committee should then decide, in consultation with the Seccetariat, on the topics of the agenda for the 5th ICA Conference.

A number of topics were suggested at the business session the Conference:

- Follow-up discussion on ADP procurement
- Integrated interministerial systems
- Centralisation and decentralisation
- Relations in Informatics between different levels of government
- Training and recruitment of computer manpower for the civil service
- Theories on automation problems
- Data banks and privacy

ICA members are invited to submit their views on these subjects and to put forward additional suggestions for suitable topics.

12. Election of ICA Officers and the Programme Committee

Dr. H.R.J. Grosch submitted his resignation from the Chairmanship of the Council, feeling obliged to do so in view of the changes in his spheres of activity within the Federal Government. The Council expressed appreciation for the outgoing Chairman's contribution and effective leadership during the first years of the organisation. Dr. Grosch announced that he will continue his membership in the ICA within the US delegation to the Council.

With Mr. J.A. Tiffin having left the Management Services (Computers) of the U.K. Civil Service Department, the post of ICA's Vice-Chairman had also become vacant. Though Mr. Tiffin was unable to participate in the Washington Conference, his very considerable impact on the ICA's development was often mentioned during the Conference, as well as the regret for his leaving the Council after taking up his new post with the U.K. Statistical Office.

The officers of the ICA, as elected by the Council at the Washington Conference, are:

Chairman:
Mr. W.R. Atkinson, United Kingdom

Vice-Chairman:
Mr. Jean-Michel Hubert, France

Secretary General:
Mr. A. Gertz, Israel

Chairman of the Programme Committee:
Mr. H.G. Merk, Federal Republic of Germany

Members of the Programme Committee:
Dr. Mogens D. Rømer, Denmark
Dr. Kurt Steiner, Switzerland

Yours sincerely,

A. Gertz
Secretary General

INTERGOVERNMENTAL COUNCIL FOR ADP

LIST OF PARTICIPANTS

Doc.GC-52

in the

4th CONFERENCE OF THE INTERGOVERNMENTAL COUNCIL FOR ADP - ICA

Mayflower Hotel, Washington, D.C., November 11-13, 1970

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