Management information systems, public policy and social change

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I would like to address a few of my remarks to the character and implications of computer usage in government but before I do so, I might indicate that I'm with the Pennsylvania Office of State Planning and Development and my frame of reference has three outward tracks—as an urban planner, as a participant in data systems and as an official and sometimes unofficial stimulator of social change. These three biases ought to surface in the remarks I am going to make.

State governments as well as national and local ones are basically concerned with two kinds of computer uses. The first, and much less important, puts the computer to work at massaging multi-purpose information that can cover an almost infinite spectrum of urban oriented subject areas. These have come to be known as urban information systems. In theory, they can furnish the planner and decision maker with data and analyses in land use changes, population and housing shifts, economic trends, fiscal information and social statistics for a community or any group of communities.

But computer technology in government plays a much more critical role than what is inherent in the operations and outputs of such urban information systems. It is almost a truism today that no public agency, bureau, commission, board or any other unit of government can operate without some computerized control of its programs, processes and service delivery capabilities. For example, in Pennsylvania each of the 18 executive departments and most of the commissions and boards have their own data systems. Many of these, especially the larger ones, are computerized to a fairly high level of sophistication. The State Departments of Transportation, Labor and Industry, Revenue, Education and Public Welfare all have a tremendous amount of stored information and a commensurate technology to utilize that data.

This kind of operation and use of computers is associated with a relatively new breed called Management Information Systems. Its focus is the day to day, month to month control of inventory, bookkeeping, record keeping, disbursements and receipts in the myriads of government programs that interact with each other and with many recipients of public services. My concern therefore, is with the Management Information Systems that are utilized by States and municipalities throughout the country. These systems exist by virtue of controlling an inventory or a process and by sometimes delivering a service to public or private recipients.

INFORMATION SYSTEMS AS MANAGEMENT TOOLS

Now as I get into the substance of my discussion, I want to explore a number of ideas that relate more directly to the relationship of these computerized systems to the bureaucracies in which they flourish, to the formation or paralysis of public policy and to their impact on the possibilities of social change. Since these are the central themes around which our discussion will resolve, I will direct my remarks to the following points:

1. Urban data systems and management information systems are not merely respositories of facts and instructions for manipulating them. They are also collections of technologies as well and if there ever was any truth to the cliche that the "medium is the message," I am almost tempted to make the point that it is really the computer and its applications that will fashion, modify and transform our social structure and not the data that is poured into and out of it.

2. Management information systems at the State, local and national levels are used to serve management. In Pennsylvania State government as elsewhere the data systems are designed to assist in the operation of a Department's or agency's program more efficiently and perhaps more efficiently.
cheaply than would have been possible under other arrangements.

3. Management rationality and efficiency are the overriding considerations of the "worth" of such systems. Whether to design, install, enlarge, merge with other systems or evaluate, the principal factors are judged to be speed, thoroughness, cost and labor savings. These are managerial-administrative considerations and almost never socially oriented ones. They look inward to the process, not outward to the consequences.

4. The programs or process controls which are the heart of such data systems sometimes result in services to various segments of the State's population. Sometimes they do not and we will speak about both situations shortly.

5. Management information systems that typically extend such services as auto registrations, tax notifications and collections, unemployment and welfare assistance, etc., may or may not be necessary or desirable. They can, however, make little claim to generating, sustaining or otherwise influencing the direction, depth or quality of social change in the State.

6. Any data management system with the capability of mounting substantially greater research and analytic capabilities than was previously possible, can sometimes produce an innovative breakthrough, a new way of seeing and understanding the dynamics of a community. Conceivably, this might lead to important changes and realignments in our social, political and economic structures but I remain skeptical and would like to be convinced.

7. Finally, I feel that if we turned the proposition the other way around and considered the impact of currently changing social values on the information systems and their related technologies, we would get a new dimension to the problem. If the events, moods and changes that surfaced in the latter part of the 1960s mean anything for the coming decades, we can expect major incursions into the organization, content and uses or perhaps even selective abandonment of urban oriented information systems.

THE REACH OF MANAGEMENT INFORMATION SYSTEMS

Now before anyone hands in his union card, I would like to make it clear that while data and management information systems are rarely the catalysts for social change, they can and do penetrate to the lives of a great many people in all segments of our society. This stems directly from the operations of the record keeping and process controls that are at the very heart of the systems. At the State level of government in Pennsylvania such operations probably account for over 90 percent of all computer usage so that it would not be amiss to say that both the administrators of the information systems and the machinery itself is thoroughly committed to keeping the records and controlling the processes. For example, the State Department of Public Education receives a veritable deluge of data from the local school districts relating to almost all aspects of running an educational bureaucracy. The Department of Revenue must maintain a computerized information system for the calculation, billing, mailing, recording and analyzing of tax receipts. Similarly, the information systems of the State Department of Labor and Industry and the Department of Transportation (just to name a few of the larger operations) are deeply committed to the routinized processes of maintaining a complex unemployment insurance system in the first case and keeping auto ownership inventories, issuing licenses and recording accidents in the second.

Basically, therefore, the data systems of the State work towards the delivery of services to a wide range of individual residents as well as to local communities and to other State agencies. There are of course adjacent and parallel operations such as internal payroll, bookkeeping and property inventory and control that generally do not reach out to any segment of the population. One can easily see the counter-part of these operations at the city, county and township levels as well. This is, admittedly, a capsule version of the Pennsylvania Management Information System but I think it is important to appreciate the data areas, the kinds of controlled operations and a few examples of the services delivered before we speak about the roles, if any, that these systems play in social change.

THE LIMITING LIDS ON SOCIAL INNOVATIONS

You may have noticed that I have deliberately divorced the objectives and operation of management information systems from the larger State programs of which they are part. I admit that this is not quite fair and that such a division would be a highly artificial one so I would like to bridge the gap at this point. The State of Pennsylvania has defined eight broad, long range objectives toward which it wants to move and
had identified several hundred currently operating programs (many in the social arena) that may or may not be reinforcing these objectives. All the data systems I have been talking about live and operate in some uneasy relationship to these programs and objectives and it is these connections that I would like to discuss.

To begin with, the State information systems that keep records, control processes and deliver some services in Pennsylvania (and there are almost no other kinds) are themselves very substantial organizational entities. The investment in time, professional staff, money hardware and software and support personnel is quite considerable and this whole range of activity has gained structural and administrative solidity in the last few years. In Pennsylvania and in many other States we can speak of an information system bureaucracy that is not without substantial power and influence. Like all bureaucracies, it does not always look kindly upon change inside or outside its own domain; social, managerial or otherwise.

I have also made the point earlier that management information systems are tools to serve management which means more precisely to serve administrators and decision makers in operating programs and process as efficiently, rapidly and cheaply as possible. Now while these are the criteria that make the computer so valuable they are also the criteria that draw the administrator to the narrow focus of the procedural rationality of his program rather than towards an examination and concern with the impacts and consequences of his acts. In other words, the machine together with its operations, controls and data base induce the administrator to look inwards to the managerial objectives of his world when he should be involved with the political, social and economic meaning of what he does. We are very accustomed to visualize information systems as devices to facilitate policies and programs but it seems to me that the feedback (if you will pardon the expression) might be even more significant than the initial impulse that is, the systems themselves (singly and in concert) set the pattern, depth and range of current and future concerns of the State and many municipalities. From this point of view, the tail is very definitely wagging the dog and something is wrong.

I am not intimating that programs made effective by the use of information systems and process controls are unimportant or negative accomplishments in the State. But I am saying that the systems, controls and processes should not be the measuring rod for the social and economic interactions between the State and its residents. Nor should they be (as they almost inevitably become) the determinants that freeze public policy.

CONSTRAINTS ON PUBLIC POLICY

At this point in our discussion, I feel that we are beginning to zero in on a critical area. Almost at the outset, I made the observation that social changes among various groups and segments of our population can usually be traced to a shift in values, attitudes and aspirations that arise in these groups and the conviction that such aspirations can be realized in one's lifetime. However, to these basic stimulants I would like to add a second kind of possibility and that is the nature and scope of public policy.

Under certain circumstances, public policy can translate the values and aspirations of various groups into attainable benefits. Such policies and programs can even set off a chain reaction extending into social, political and economic areas far beyond the point of initial program impact. It is my contention that what happens to existing programs and especially the breadth and vision brought to bear by public administrators in creating new social objectives will go a long way towards making a management information system responsive to social realities. The field is wide open in health, criminal justice, education, consumer protection, public welfare, environmental improvement and others. And it is in these areas and among these kinds of public efforts that I have some qualified reasons to believe that the State may become attuned to the explosive social transformations that are sometimes above and usually just below the surface in the major urban areas of the State.

However, the obstacles to this kind of sequence are formidable. To begin with, public policies, objectives and programs are heavily dependent on what the agency or the administrator is doing now and doing it with all the management tools, personnel and investments at his disposal. Realistically speaking, there is no particular reason to assume that State, city or national management people look forward to gearing themselves, their program control processes, their machines and their data to ventures that cannot be justified beyond running smooth, self-regulating and almost self-perpetuating operations.

For example, it is with considerable fear and trepidation that many administrators look upon program evaluations where the focus is on social, educational and economic consequences, ameliorations and status changes rather than what is expected and dictated by the flow processes of paper, forms and data. This feeling is especially acute when the validity of existing programs and sequenced actions are questioned and new ones might be suggested. The real threat of P.P.B. is not that cost-effectiveness studies are hard to define
and difficult to mount (all too true) but that P.P.B. insists that management and its information systems clarify and justify their efforts in terms of its impacts and consequences on all classes and categories of recipients. In the social arenas of criminal justice, poverty, education, housing and even science and technology, this begins to get close to tampering with the cement that holds the structure together and whether we call it P.P.B. or anything else it is clearly a kind of opening wedge in that direction.

Therefore, the way I see it two related things must happen. The first is a willingness for the public policy makers to realign State and local objectives and programs so that definable improvements are explicitly built into them and the second a willingness for the information systems directors to accept new standards, criteria, data and processes to make this work. It could be that the policy makers and the information directors are not always the same people with the same interests and outlooks on all issues of program and process control. Sometimes they wear the same hat and sometimes they don’t but it seems reasonable to suppose that they have been mutually reinforcing each other as long as information systems have continued to remain program and management tools. If I were to venture a guess, I would say that the policy and program makers are as much locked into the uniquely narrow perspectives of data, inventory and process control as are the information systems directors themselves.

SOME PROOF OF THE PUDDING-SOCIAL INDICATORS

My theory about management being quite allergic to social change might be reinforced by a telling fact about management and here I mean the public agencies, State, Federal and local that operate in what we have been calling the social arena. For the brutal fact of the matter is that they have shut themselves off from the data and intelligence that might tell them just a tiny bit about the social world around us. In “Towards a Social Report” of the Department of Health, Education and Welfare we are made painfully aware of the fact that “the nation has no comprehensive set of statistics reflecting social progress or retrogression. There is no government procedure for stock taking of the social health of the nation.”

Somebody has said this much better than I can and I would like to quote from Elizabeth Drew writing in a publication called “The Public Interest”:

“Those who picture Washington as one mass of files and computers containing more information than they would like will be comforted by the experiences of program-planners in attempting to evaluate on-going programs. Whatever the files and computers do contain, there is precious little in them about how many and whom the programs are reaching, and whether they are doing what they are supposed to do. If the purpose of an adult basic education program is to teach people how to read and write, the Office of Education might reasonably be expected to know how many people thereby actually learned how to read and write but it does not. . . . The Public Health Service might be expected to know whether its various health services are in fact making people healthier but it does not. The study of disease control was to have encompassed more diseases, but so little was known about the effective treatment of alcoholism and heart disease that these components had to be dropped. Those working on the income maintenance study found that the Welfare Administration could not tell them very much about the public assistance case load—who was on welfare, where did they come from, why were they on it; what they needed in order to get off.”

If this is true of the national level and with Federal programs, it is more than doubly so with the States and the localities. Our knowledge vacuum is truly an anomalous situation. It stares us in the face despite the fact (or more correctly because of the fact) that the Federal, State and local governments have amassed and computerized a vast body of statistical information necessary to run their programs and churn their processes. Paradoxically, while we are inundated in a sea of paper, ink and printouts, we cannot measure the human toll of illness, the pollution of the environment, the quality of our education and the nature of the alienation expressed in burning and looting in the ghetto, strife on the campus and crime in the city streets. From everything I have said up till now, management and its information systems want to have no part of these “social” changes except perhaps to wish that they go away.