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Ida R. Hoos

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UNIVERSITY OF CALIFORNIA, BERKELEY

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INFORMATION SYSTEMS AND PUBLIC PLANNING

Introduction

There is an unmistakable tendency on the part of public planners from county to federal levels to assume that, since their mandate is to "plan rationally", the first and primary need, in order to discharge this obligation, is a management information system. Implicit in this persuasion is a set of apriorities: (1) if public planners had more information, they would make better plans, perhaps arrive at better decisions; (2) more and faster--moving information would improve the efficiency of governmental operations; (3) greater efficiency would better serve the needs of the community in particular and society at large; and (4) the design of information systems is a highly technical matter and best assigned to an "information expert," whose movable talent is almost universally applicable. In other words, "Know one system and you know them all." Thanks to the cult surrounding information systems, critical inquiry into these assumptions amounts to a kind of heresy, but it is important that we examine them and review them as practiced lest the new mythology so dominate the social planning scene that only the voice of the devotees will be heard.

So as to provide the perspective for our scrutiny of these four apriorisms, we shall find it useful to analyze the principal elements with which they are concerned: (1) information; (2) system; (3) the information system. This step is necessary and proper because, while there is no gainsaying the fact that a body of organized information is essential to any systematic, analytic process, we encounter great confusion as between quantity and quality, between the necessary and the busy.

Information

Information, data, and, especially in military parlance, intelligence

are terms often used interchangeably and frequently equated with facts and even knowledge. As such, they enjoy immediate acceptance in the public mind. Perhaps this is due to a historically-derived reverence for knowledge that can be traced back to Plato or earlier. Whether or not attributable to a cultural heritage, we in the computerized age show an enormous respect for data. In fact, the very concept "data bank" is permeated with virtue. Associated with the values of the Protestant Ethic, the notion not only conjures up the bright, lively, and good things associated with banking generally, --saving, interest, etc.-- but it replaces the dreary and dusty archive, the dead record office. The allure of a bankful of data, available on command, is practically irresistible to the public administrator. The data base is regarded as the keystone of the art of planning and the arch of learning as well. The current generation of graduate students in almost every academic discipline are card-carriers of the new genre. They can be seen on every college campus, the huge stack of IBM cards their project, the computer their hope for making sense out of and finding a hypothesis in the morass of material. No matter what their field or their topic, they first sally forth to gather data. In much the same fashion, the professional planner, whether in the employ of the CIA, the NEA, or the BSA*, whether dealing with pacification in Vietnam, education in the ghetto, or crime in the streets, whatever else he accomplishes, energetically collects data.

At this point, it might be well to underscore an interesting etymological anomaly. Datum, by origin, is something given. Data, the term now so familiar, is the plural form; but as conceived at present, it is something gotten. Recognized as such, however, data are not automatically imbued with the qualities of accuracy and objectivity. In fact, the very opposite may be

* Central Intelligence Agency, National Education Association, Boy Scouts of America.

closer to the truth. The aggregation, selection, and organization of data are all part of a value-laden, mission-oriented process that renders absurd the notion that any information is "neutral". If this were so, it would probably be so vacuous as to be worthless, anyway. What is valid information for or from a politician running for office, a public relations spokesman for the military, or a cigarette manufacturer pushing his product is a matter for wide interpretation. Separated from derivation, the context in which used, and the conclusions derived from manipulation, data is an empty concept. In operation, we shall see later, it is often fallacious and dangerous besides. Pirandello put the matter very nicely when he had one of his characters say, "A fact is like a sack; it won't stand up unless you put something in it." The relativistic nature of veracity in information comes through clearly in a well-known French adage: "Verité à ce côté-ci des Alpes, mensonge delà".*

C. West Churchman, in a penetrating discussion of the social significance of computer technology, suggests that, in the context of social policy, there may be no such thing as accurate or objective information. "Instead, so-called 'information' is simply one kind of incentive, which can be used by one person or group to influence the behavior of another person or group. It is, in fact, a commodity with its own price, a commodity that serves the purpose of shaping social action."¹

System

The second element requiring analysis in our disquisition on the information system is that of system. This term is a coverall, and, not surprisingly, generous in scope, loose in dimensions, and imprecise in meaning.

*"Truth on this side of the Alps, lies on the other."

¹ C. West Churchman, "Real Time Systems and Public Information," Fall Joint Computer Conference, 1968, p. 1467.

In quest of elucidation, I turned to the Webster International Dictionary and, at the risk of appearing pedantic, present my findings:

Meaning number one is "an aggregation or assemblage of objects united by some form of regular interaction or independence; a group of diverse units so combined by nature or art as to form an integral whole, to function, operate or move in unison, and, often, in obedience to some form of control; an organic or organized whole." The second meaning is brief and to the point: "the universe; the entire known world." Number three, a bit less comprehensive, shifts attention to the nonmaterial: "an organized or methodically arranged set of ideas; a complete exhibition of essential principles or facts, arranged in a rational dependence or connection," hence number four: "a hypothesis; a formulated theory." Number five suggests structure: "a formal scheme or method governing organization, arrangement, etc. of objects or material, or a mode of procedure; a definite or set plan of ordering, operating, or proceeding; a method of classification, codification, etc." Number six develops the same notion further, into "regular method or order; formal arrangement, orderliness." Meanings numbered eight through fifteen are specialized and run from anatomical through legal to zoological. Number seven is exceptional and worthy of sober contemplation: "the combination of a political machine with big financial or industrial interests for the purpose of corruptly influencing a government."²

Purveyors of the systems approach, for all their pretentious claim to precision, have so far failed to reveal which of the above definitions they espouse as the object of their attention. Judging by their unanimous predilection for the plural form, i.e. the systems approach, we can only infer

² Webster's New International Dictionary, Second Edition Unabridged, 1935.

that they mean to embrace all of the meanings, with the possible exception of number seven! Lack of a firm definition leads eventually to the kind of situation tellingly expressed in the dialogue between Humpty-Dumpty and Alice:

"When I use a word," Humpty-Dumpty said, in a rather scornful tone, "it means just what I choose it to mean--neither more nor less."

"The question is," said Alice, "whether you can make words mean so many different things."

"The question is," said Humpty-Dumpty, "which is to be master, that's all."³

In a remarkable display of solipsism, persons engaged in the analysis, design, and engineering of systems are inclined to reify their own conception. Thus, the system is what they say it is. This they study, this they manipulate. And by so doing, they define and delimit other systems, for these can only "interface with" and are not a part of the first system. Paradoxically, absence of clear articulation as to what a system is allows, at one and the same time, for both arbitrary eclecticism and broad inclusiveness. Already demonstrated as any one man's conception, a system, in the broad view, is "a set of parts coordinated to accomplish a set of goals."⁴ Thus, the term system is used freely in matters animal, vegetable, and mineral, in the inner city and in outer space. One cannot but regard as unfortunate the semantic impoverishment that allows reliance on the same terminology for, say, nuclear weaponry and elementary education, for it has led to the assumption that systems design, engineering, and analysis as practiced in the first can be meaningfully

³ Lewis Carroll, Through the Looking Glass, New York, Random House, Special Edition, 1946, p. 94.

⁴ C. W. Churchman, The Systems Approach, New York, Delacorte Press, 1968, p. 29.

and appropriately applied in the second. Since any system fits the description, then they are alike and, therefore, amenable to the same treatment. The next step in this fallacious logic is that the person who is expert in one system is expert in them all. In practice, there is just about as much justification for committing society's malfunctioning systems to the care of a "systems expert" as to call upon a hydraulic engineer to cure an ailing heart merely because that organ is essentially a pumping system!

The Information System

Having learned that information means less than it says and system is an amorphous term, we find, like Alice in Wonderland, that the situation gets "curiouser and curiouser" when the two are joined together. The information system emerges as a tidy and finite entity, a commodity for sale by hardware and software merchants, the sine qua non of planners, business executives, and public administrators. Representing a fusing of computer technology and management science, the information system has gained prestige beyond its accomplishments even in the business world, where it was spawned. Disenchantment is being voiced in such hitherto enthusiastic columns as those of Fortune, where a recent article⁵ describes the "misguided euphoria" about computer installations and underscores the confusion as to just what constitutes and what is the purpose of an information system. A survey reported in Dun's Review⁶ provides details on specific shortcomings. Systems reviewed were found to inundate managers with useless information, the plethora of which obscured what might have been important. Managers could not specify nor could the information systems supply just what was needed. Thus, the \$1 billion spent

5 Tom Alexander, "Computers Can't Solve Everything," Fortune, October, 1969, pp. 126-129, 168, 171.

6 Arlene Hershman, "A Mess in MIS?" Dun's Review, 91, No. 1, January, 1968, pp. 26-27, 85-87.

by U. S. industry on management information systems seemed able neither to equip managers to make better decisions nor to find justification in salubrious effects on profits. For all the touted "efficiency" as an adjunct to record-keeping, information systems do not provide an accounting of these items, so crucial not only to the organization paying for the sophisticated technology but also and especially to the computer industry and purveyors of software in substantiation for claims made for their products. As to precise quantification of the monetary advantages of additional information, there appears to be little success. At the September 1969 international conference on mechanized information storage and retrieval, the principal theme being the calculation of the cost/effectiveness of information systems, one speaker⁷ demonstrated how cost estimates of the user-time search could shift the cost appraisal of the system in favor of computerization.

The message of a computer expert to his professional colleagues summarizes his educated opinion of the experience of the business world thus far: "In the category of overambitious efforts, I would put most of the totally integrated management information systems. The explicit objectives of many such systems currently being proposed, if one is to believe the trade journals, border on the preposterous, notwithstanding our advanced technology. Such efforts will fizzle because the likelihood of real achievement is nil."⁸

Of the eudaemonia* of public planners who have discovered the information system and, therefore, think they can now proceed "rationally", we shall

7 H. F. Dammers (Shell Research, Ltd.) as quoted in "Easing the Search," Nature, Volume 223, September 20, 1969, p. 1205.

8 George Glaser, "Computers in the World of Real People," Datamation, December, 1968, p. 55.

* This term is Aristotle's conception of human felicity, a life of activity in accordance with reason.

speak later. For now, it is important to report the extent to which imprecision about what an information system is and what it is supposed to do prevails as much in the social arena as in that of business affairs. Unfortunately, the confusion is only compounded when one examines the information systems proposed and designed for public use. There are, on the one hand, information systems that are supposed to help managers manage information. Such, for example, is the California Statewide Information System: "The Statewide Information System has the basic objectives of promoting maximum utilization of acquired information."⁹ There are, on the other hand, information systems that are apparently supposed to help managers manage. What starts out as the management of information becomes management by information. An example of this conception of an information center is to be seen in a proposed system for the Nassau County (New York) Department of Welfare. The project was specifically intended to:

- "(1) establish Welfare Department goals and objectives;
- (2) define information requirements and managerial techniques;
- (3) establish information acquisition requirements;
- (4) establish information distribution requirements;
- (5) develop information feedback techniques;
- (6) develop decision-making techniques; and
- (7) develop computerized information system."

The ultimate objective was stated as: "to aid the Welfare Department in optimizing programs, services, and resources to satisfy community needs."¹⁰

⁹ Lockheed Missiles & Space Company, California Statewide Information System Study, Final Report, Y-82-65-5, 30 July 1965, 5-3.

¹⁰ Sperry Gyroscope Company, A Proposed Demonstration Project for a Nassau County Welfare Information Center, Sperry Publication No. GJ-2232-1116, May, 1966, p.v.

A more recent study¹¹ of Nassau County's recipients of public assistance, with annual family incomes under \$5,000, found them trapped by inadequate transportation facilities in pockets remote from jobs and handicapped by poor health, education, and vocational skills. If a welfare department were truly committed to "optimizing programs, services, and resources to satisfy community needs," there seem to be better ways to achieve these objectives than through information channels.

A \$225,000 welfare study in California concentrated on the Aid to Families with Dependent Children portion of the system "because it offers some hope of reduction using the techniques of systems analysis."¹² Tabulated as problems within the current information processing system were the following:

- "(1) lack of compatible state and county information systems;
- (2) slow and inflexible reaction to program changes;
- (3) lack of uniformity in procedures;
- (4) inconsistency in the welfare service;
- (5) lack of sensitivity to the results of service rendered;
- (6) lack of sensitivity to the recipient's career activity;
- (7) lack of sensitivity to administrative effectiveness;
- (8) lack of sensitivity to the social worker's effectiveness;
- (9) propensity of all case information to loss;
- (10) lack of sufficient feedback information;
- (11) wasteful filing;
- (12) non-essential duplication of information;

11 "Poverty in Spread City-Study of Constraints on the Poor of Nassau County," a study released on November 10, 1969, and conducted for the Nassau County Planning Commission under a grant from the U. S. Office of Economic Opportunity.

12 Space-General Corporation, Systems Management Analysis of the California Welfare System, SGC 1048R 9, March 15, 1967, p. 1.

- (13) inadequate to meet research needs;
- (14) too slow for routine clerical requirements such as determination of eligibility;
- (15) duplication in data processing efforts;
- (16) difficult to retrieve information; and
- (17) many small counties cannot afford ADP."¹³

Juxtaposed against this table of particular deficiencies, as though the proposed information system would correct the failures and shortcomings of the entire system of welfare and possibly reduce dependency, was the following set of "design goals" for the information system study:

- (1) to increase the flow of information in order to promote better service and management control at all levels;
- (2) to minimize administrative cost and improve efficiency;
- (3) to provide research and statistical data for State planning and program evaluation purposes;
- (4) to provide inquiry service for questions which cannot now be anticipated;
- (5) to provide fiscal data for State planning and evaluation purposes;
- (6) to provide a system sufficiently flexible to accommodate changes in needs, volume, policy, and/or data demands; and
- (7) to reduce the cost of operations below that of the present information system."¹⁴

Review of these and countless other information systems designs, of which they are typical, indicates that the approach is deceptively analytic; the seductive ring of structure proves to be hollow, however, when one probes the items for substance or content. There is no gainsaying the fact that problems

¹³ Ibid., p. 4-2

¹⁴ Ibid., pp. 4-2, 4-3.

exist in current practices, but the criticisms do not stem from any "technical analysis". They merely reflect opinions gleaned from interviews with welfare personnel and others. There are no new insights here, the traditional bureaucratic complaints are merely being used as a springboard for the campaign to sell a new system. That it will overcome present deficiencies is highly problematical; in fact, it could create more trouble than it eliminates.

Notwithstanding the enticement of electronic technology and speed-of-light transmission of data, fundamental questions still remain as to the appropriateness and relevance as well as the uses to which the information will be put. Information systems have gained ready acceptance in the innocent cloak of being the first and necessary step in the direction of rational planning. But herein lies one of the most serious dangers of information systems. Just because they may, indeed, become the basis for planning, now and in the future, the way in which they are conceived, for what purpose, and by whom remain crucial matters, unsatisfied, and usually ignored by technically-oriented designers. Insensitivity to or lack of knowledge about the substantive issues are often washed out of sight in the deluge of detail enthusiastically captured.

This is illustrated in a proposed welfare information system,¹⁵ which would yield routine facts about age, sex, address, etc., and then respond to "special inquiries". It could tabulate the number of cases in which the mother (unwed) was of a particular ethnic minority, with four children under the age of six, known to have a mental history, with a police record. And, like the sorcerer's apprentice, it could keep on pouring out information, --that the area in which the family lives has x number of substandard dwellings, y number of known drug addicts, and is z miles from the nearest police station. Never is it made clear how this cornucopia will "reduce the cost of operation below that of the present information system" (Item 7 above).

¹⁵ Op. cit.

If, in fact, reduction of cost of operations is the main concern, then there should be attention given to many matters besides the mere pushing of paper. And if reduction in such costs is promised, then little substantiation is to be found in the experience of the business world. Despite aggressive sales campaigns on the part of hardware and software merchants, the rosy dreams of the 1950's have faded. Clerical costs still soar, computers handle many of the pedestrian routines but at a price. Most of the paper problems plaguing management still persist and they will proliferate. Far from cutting down costs or "reducing dependency", sophisticated information systems might actually increase caseloads and costs by uncovering and bringing into the system eligible persons now outside the purview of welfare. Speeding up investigative and certifying procedures would not be a clear-cut benefit to the system of welfare.

If reducing cost of operations referred to the information system per se, then the claim was patently preposterous. The only reduction would be in unit cost of processing; but the free-flowing information would be no bargain. It would be, to pun on the language of the trade, every bit as expensive in the wider sense, as any old system. Without lowering administrative costs appreciably, the system would at best shift them, with effects on efficiency speculative, conjectural, and nebulous. Such promises as "meeting the problems of lack of sensitivity" to recipients, administrators, and social workers merely reflected the wishful thinking of all parties involved.

Fraught with great significance not so much because of poor economics but rather because of bad social ethics are the many information systems being developed as a weapon in the current war on crime. A key item in the system of criminal justice proposed for the State of California, for example, was "the development of an information system linking together various agencies

of criminal justice and being capable of evaluating program and system effectiveness through collection, storage, and processing of appropriate data."

By this point in our exposition we should not have to pause to analyze and refute the shaky foundations for the implicit promise that the information system will yield measures of program effectiveness, however conceived, and that collection, storage, and processing of appropriate data, however defined, will improve the quality of justice. Equating "criminal justice" with law enforcement, the analysts accepted as their data base crime statistics for the preceding five years, and proceeded to build all their assumptions and conclusions about crime present and future on offenders convicted in the past. Actually, such statistics related merely to concentration of law enforcement.

Reliance on arbitrarily selected figures yielded a biased picture, encouraged preoccupation with crime-prone individuals, and diverted attention from crime-making conditions and circumstances. Not the least, although little recognized, among these are the prevailing public attitudes toward law and order, detention and bail procedures, state of the court calendar, the philosophy dominating administration of penal institutions, and, especially, the local political climate. Moreover, the system left out of account organized crime in its various manifestations, including police corruption. In other words, it concentrated on the hapless and helpless, those who are least able to defend themselves.

Convicted offender records provide a poor clue to criminality; reported crime rates do little better. For example, the Crime Analysis Unit, New York City Police Department, recently reported decreases of 2.7, 4.2, and 6.8 percent in index crimes for July, August, and September respectively. At the very same time, however, a separate Police Department report revealed that arrests during the first nine months of 1969 showed a rise of 17.8 percent over the corresponding period in 1968 and that arrests on narcotics charges had increased 39.4

percent,¹⁷ The apparent contradiction was due to the fact that the Crime Analysis Unit used the seven specific categories chosen by the Federal Bureau of Investigation to represent a general level of crime activity: murder, rape, robbery, aggravated assault, burglary, larceny (\$50 and over), and motor vehicle theft. Crime, it becomes evident, is a matter of definition, institutional, cultural, legal, political, and social.

If, however, one were willing to accept the simple-minded premise that crime is that which gets punished, one could more comfortably accept the next "logical" step in the development of criminal information systems. This is the determined effort on the part of almost every police department to set up an automated file to implement the capture of criminals who, as everyone knows, are the bad guys. Police information networks, intended to aid in "law enforcement," are operating in many parts of the country, having received an enormous impetus in money and public support through the Safe Streets legislation. In California, where the recommendations of the Crime Study¹⁸ were used as endorsement, the Department of Justice paid Lockheed Missiles & Space Company \$350,000 (from a U. S. Department of Justice Office of Law Enforcement Grant) to design a system which would meet the "total information needs" of law enforcement agencies. Explicitly recognized as a main objective was "aid in detection and apprehension of criminals."¹⁹

Upon reviewing the completed system design, even some of the dedicated law enforcement officials were a bit discomfited to learn that the proposed network called for the same items of intelligence about potential jurors as

17 "Reported Crimes in City Continue Dip from Year Ago," The New York Times, October 25, 1969.

18 Op. cit.

19 Lockheed Missiles & Space Company, California Criminal Justice Information System, Preliminary System Recommendations, T-29-68-8, April 29, 1968, p. 6-1.

criminals. What this amounted to, therefore, was institutionatized Big Brotherhood of serious proportions, especially in view of the linkages with other information systems elsewhere in the country. In assuming that all the bad guys would get caught because the system would show them up to be bad, the analysts apparently forgot the message of the sergeant in The Pirates of Penzance:²⁰

'When a felon's not engaged in his employment, his employment,
Or maturing his felonious little plans, little plans,
His capacity for innocent enjoyment, cent enjoyment,
Is just as great as any honest man's.'

The main drawbacks of criminal information systems as currently conceived deserve brief review in anticipation of the next section of this paper, which will deal with social consequences of the data bank and its implications for society. Our review has shown that crime information is based on crime as measured by law enforcement activity and definition. Police "crackdowns" on prostitution or lewd movies demonstrate the first; the level of community tolerance to certain kinds of behavior governs the second. The proposed systems would provide only for the mass gathering of baseline data. With all offenders included, persons involved in brushes with the law through civil rights marches and peace demonstrations would be counted like the burglars and rapists.

For planners concerned with improving public policy vis-à-vis crime, the first set of questions to be asked is: what objectives will be served by the criminal justice information system: (1) maintain order? (2) protect society? (3) get individuals to conform? (4) increase respect for and fear of the law? (5) improve administration of the law? Then, having satisfied themselves that they can find in the system some socially healthy promise for a reduction in

20 W. S. Gilbert and Sir Arthur Sullivan, "When a Felon's not Engaged," The Pirates of Penzance.

crime, they still must face the more fundamental question about proper allocation of resources: should community money be spent on reduction of crime (assuming after the long dissertation above that we had a workable definition) or on eliminating poverty and other known and long-run determinants of many forms of crime and delinquency? Although funds for general social improvement might be more effective in stemming certain kinds of criminal activity, it is a deplorable fact of political life that public attention and support are much more readily gained for the computerized law enforcement networks.

Among the happiest of all hunting grounds for proponents of information systems are those dealing with regional land use. Attracted by large federal grants and drawn to anxious planners persuaded that a data bank is a prime necessity for their and the community's greatest good, "information experts" of all stripe busily vend their wares. And it may be noted that they meet little sales resistance. Quite the contrary. Uncertain as to goals and defensive as to bailiwick, naive about computer technology and oversold on Space Age management methods, public officials invite feasibility studies and become involved in elaborate projects. Asking the potential beneficiary of its outcome for a feasibility study is, of course, tantamount to inviting a fox into one's henhouse. Not only does his review disclose feasibility, but downright indispensability. The bureaucratic overlaps, the jurisdictional duplication, the antediluvian procedures -- all are set forth as though newly discovered. And, in neat juxtaposition is the land use information system, which, presumably, will "facilitate effective sharing of land use data between departments within a jurisdiction and between jurisdictions."²¹

The planners of one such project, for which a \$200,000 contract was

²¹ Scope, Office of Planning, Department of Finance, State of California, Third Quarter, 1966, p. 1.

awarded TRW in 1966, thought this objective could be accomplished "by first obtaining a consensus among users as to the range and type of information required, then establishing policy and standards for data exchange."²² The final report,²³ looking and sounding more like a sales brochure than the result of professional analytic effort, was an agglomeration of platitudes. For example, "Information about land is collected and used by many different organizations at many different levels, i.e.: major agencies of the federal government within the state; major agencies of the state government; counties; cities; industrial and commercial businesses; special intergovernmental organizations and districts."²⁴ Incidentally, this insight accounted for four-fifths of the text on the page. The rest of the printed matter conveyed information of similar depth. Half of the page was devoted to a pictorialized map, with delicate tracery, black dotted lines, cryptic markings, and no explanatory legend.

The final report, a document of about 23 unnumbered pages, presented at most eleven pages of text. Sample displays and printouts accounted for considerable space. Three and a half pages were simply photographs, neither particularly illustrative nor enlightening. The equivalent of more than a page was given over to decorative but not especially relevant drawings, and a full page was devoted to a gallimaufry of items -- a clock face, a field, a freeway, a female fiddling with a dial, a fisherman in a canoe, a family picnicing at the seashore, a stylized cow sculpture, an elongated raccoon, and assorted skyscrapers, all pictured on a globe. The numerals 1973 accompanied this fanciful display.

22 Ibid.

23 California Regional Land Use Information System, TRW Systems Group, no date.

24 Ibid., No page number cited here, since pages of the Report were not numbered.

It should be mentioned that the contractor supplied the California planners with a number of interim reports. These were jam-packed with heterogeneous detail. Unless they were different from most such statements, however, they were of dubious value. In many cases reviewed, reports came late, did not reflect working conferences with steering committees, and failed to answer questions or objections raised at them. Moreover, the relation between interim and final reports has been very tenuous indeed. This pattern of operation appears so frequently, and in so many different contexts that one cannot but question whether it is entirely coincidental. The interim reports too tardy to be digested for meaningful discussion, the irreversible course of action taken by the outside experts without regard to the contributions and guidance of duly appointed advisors, and the final outcome, of, at best, limited usefulness -- these were frequently observed phenomena and, in fact, were singled out as specific criticisms by Elmer Staats, Comptroller General of the United States, in a precedent-setting report.²⁵

In contrast to such banal generalizations, the report offered artificially hardened facts. For example, a page of tables showed "basic characteristics of the land data environment" in percentages:

Unfulfilled Data Needs

Federal	5%
State	20%
County	15%
City	8%
District	1%
Private	25%

Another surprisingly precise display provided a summary of "tangible cost

²⁵ Elmer B. Staats, Report to the Congress, Observations on the Administration by the Office of Civil Defense of Research Study Contracts Awarded to Hudson Institute, Inc., Report B-133209, March 25, 1968.

savings," e.g. \$803,000 in fiscal 1970. Such nicety can impress only persons totally unfamiliar with bookkeeping practices, in the public or private sector. Even the contingencies were made to sound as though exactly computed: "If participation and services rendered exceed the estimates used in this analysis, the operation costs will be correspondingly higher; however, the benefits will increase with stronger participation." Further to demonstrate the exactness of the systems team's operations and to allay any notion that the work of information-gathering is not busily done, the final report devoted a full page to a questionnaire used and half of the facing page to the following "survey facts:"

"Each questionnaire contained 412 data elements--with 10 questions about each element.

"A total of 844 questionnaires were sent to agencies in state.

"A total of 554 questionnaires were completed and returned.

"The resulting information amounted to 35,000 records and about 10 million characters."

The rest of the half page was left blank.

In most land use information systems, compatibility of classification is vital to computerization. But the requirement that the data fit or be forced into fixed categories obscures important differences and nuances which may be more crucial than their similarities. Selected because they are known and machine-processable, the items passing for a data base are homogenized into isomorphous condition. As adjuncts to the planning process, information systems leave to be desired and yet to be realized most of the rosy promises of (1) better resource allocation and (2) improved efficiency in land usage. As to the former, an experienced government official observed that most pertinent decisions take place at the ballot box.²⁶ Regarding the latter, fundamental

26 Howard E. Ball (Bureau of Outdoor Recreation, U. S. Department of the Interior) comments on Ruth P. Mack and Sumner Myers, "Outdoor Recreation" in Measuring Benefits of Government Investments, Robert Dorfman, editor, Washington, D. C. The Brookings Institution, 1965, p. 101.

choice issues enter into the very conception of the term efficiency, and, according to one RAND expert, preoccupation with the analytical or managerial tools distracts attention from fundamental issues and policies which deserve study before we concern ourselves with "efficiency".²⁷ "The problem," he says, "is not absence of knowledge; it is rather that appropriate actions are constrained by political factors reflecting the anticipated reactions of various interest groups."²⁸

Information Systems and the Invasion of Privacy

Alameda County, California, has PIN, its Police Information Network; the State of California has CJIS, the California Criminal Justice Information System; the United Planning Organization, an anti-poverty agency in Washington, D. C., is developing the UPO bank, with about 81,000 individual records from local police, education, and welfare files. The New York State Identification and Intelligence System stores data in a centralized computerized facility on persons who have entered the law enforcement files of the 3,600 police, prosecutive, judicial, prison, probation, and parole agencies of New York State. Kansas City, Missouri has a "municipal regulatory system". New Haven, Connecticut is having designed for it by the International Business Machines Company a system to consolidate all of the city files on individuals into a single data pool.²⁹ "The U. S. Secret Service Liaison Guidelines," issued to all

27 James R. Schlesinger, Systems Analysis and the Political Process, Santa Monica, California, RAND paper, P-3464, June, 1967, p. 26.

28 Ibid, p. 13.

29 Testimony of Alan F. Westin, Professor of Public Law and Government, Columbia University, at Hearings on Computer Privacy, Subcommittee on Administrative Practice and Procedure of the Committee on the Judiciary, U. S. Senate Ninetieth Congress, Second Session, Part 2, February 6, 1968, Washington, D. C., U. S. Government Printing Office, 1968, pp. 279-280.

federal and local law enforcement agencies, could, if literally interpreted, yield vast amounts of "negative information" of potentially great harm to individuals.³⁰ Every military and civilian agency, every official bureau, every religious, social, and fraternal organization throughout the land is busily gathering information about people. So also are commercial organizations of diverse kinds. The Credit Data Corporation, for example, maintains personal credit files of millions of persons, nearly 70% of the U. S. population, it is estimated.³¹

The publisher of 1400 different city directories advertises that for almost 100 years it has been "in the business of keeping track of people--who and how many they are, where and how they live, where they work and what they do."³² Gathered in the course of city-wide, door-to-door canvasses conducted each year in about 7,000 American communities, the materials become the source record both for printing the directories and for preparing what is called "the Urban Information System." And this is for sale, eligible for federal funding, and available on tape for local processing or ready for merging, or cross-reference with other data stored in the company's files.³³

The systems planned and in operation are capable of providing a full dossier on any individual, with complete details on birth (place, legitimacy, etc.), color, religious and political affiliations, organization memberships, school grades, military record, criminal career, financial status, and medical

30 Richard D. Lyons, "Blacklist Study Started by Finch," The New York Times, October 10, 1969, and "Information Drive by Secret Service Could Affect Many," The New York Times, November 8, 1969.

31 Ibid. p. 279.

32 R. L. Polk & Co., Computerized Urban Information System, A Presentation of the Urban Statistical Division, January 15, 1968, p. 25.

33 Ibid., p. 3.

history. He might have had a youthful brush with the law, may have carried a protesting placard in a parade, may have had a nervous breakdown. He could have put his name to a politically-unpopular petition; he may have displayed a bumper sticker on a controversial matter. The spectre of retribution now becomes a reality. Any of these occurrences could cause him to be tabbed as a potential member of some designated "risk" group.

The threat of cradle-to-grave surveillance was called to public attention by the Congressional hearings investigating development of a National Data Center. Because of an understandable desire to take advantage of computer technology in government record-keeping, the Bureau of the Budget, in 1961, had commissioned a special study for the centralization and computerization of the numerous personal records now scattered throughout various federal agencies. The Task Force, made up of highly respected specialists in economics, statistics, and similar fields, strongly recommended creation of this national data bank, to be given responsibility for:

- (1) Assembling in a single facility all large-scale systematic bodies of demographic, economic, and social data generated by the present data-collection or administrative processes of the Federal Government;
- (2) Integrating the data to the maximum feasible extent and in such a way as to preserve as much as possible of the original information content of the whole body of records; and
- (3) Providing ready access to the information, within the laws governing disclosure, to all users in the Government and, where appropriate, to qualified users outside the Government on suitably compensatory terms. The Center would be further charged with cooperation with state and local government agencies to assist in providing uniformity in their data bases, and to receive from them, integrate into the federally generated data stock, store, and make accessible, the further information these agencies generate.³⁴

³⁴ Carl Kaysen, Chairman, Institute for Advanced Study
 Charles C. Holt, University of Wisconsin
 Richard Holton, University of California (Berkeley)
 George Kozmetsky, University of Texas
 H. Russell Morrison, Standard Statistics Company
 Richard Ruggles, Yale University,
 "Report of the Task Force on the Storage of and Access to Government Statistics," The American Statistician, Vol. 23, No. 3, June, 1969, pp. 15-16.

Inherent in the national computerized file were threats to individual freedom and privacy, dangers so grave as to warrant serious public debate. And Senator Long and his committee conducted intensive inquiry³⁵ into all aspects of the proposed Data Center. Congressman Cornelius E. Gallagher, heading a special subcommittee on Invasion of Privacy, assembled a vast array of documents and brought together the testimony of many authorities.³⁶ Congress ruled against creating a Federal Data Center, but the gesture, however well-intentioned, was a sort of whistling in the dark. The linking together of hundreds of data banks at the various levels is bound to take place; the result will be both statistical and regulatory federal data centers. Now that we have examined many typical local data banks as to conception, design, and purpose, it should be apparent that even at the point of origin information is not necessarily reliable. Time and distance only increase the risks. The Congressional Hearings were, however, not without effect: (1) They opened to a bemused public many hitherto unknown or neglected facets of the problems generated by information in a computerized age; (2) they disenchanted a beguiled citizenry on the matter of technological locks and legal safeguards; and (3) they created a climate of intelligent concern.

As to the first and third points, which are related, the Senate Subcommittee on Administrative Practice and Procedure made formal recognition of the virtual existence of a dossier, the chairman introducing the report with the portentous words: "More than two years of hearings have shown us that perhaps one of the most subtle invasions of privacy is that which is accomplished

35 Cf. Hearings, op. cit.

36 Privacy and the National Data Bank Concept, Thirty-Fifth Report by the Committee on Government Operations, Ninetieth Congress, Second Session, August 2, 1968, Union Calendar No. 746, House Report, No. 1842, Washington, D. C., U. S. Government Printing Office, 1968.

through the use of the information which the Government maintains on American citizens."³⁷ As for item (2), a computer expert made the telling observation that all conventional computer hardware and software are designed with fast and inexpensive retrieval as a primary objective.³⁸ A greater degree of maintenance of privacy, to guard against misuse, perhaps through "inferential relational retrieval",³⁹ would be very costly as to design, construction, and consequently, price to user. Moreover, even though additional expenditure for safeguards might discourage some improper access, no system was judged to be impenetrable by powerful organizations for whom the particular mission at hand seemed worthwhile. In addition, there seems, according to authorities,⁴⁰ to be no legal protection. The law is a notorious laggard with respect to technology, and no redress is available until after damage is claimed and proven. We cannot look to the legislative system for help with respect to technology and its effects, for the legislative process needs a great deal of lead time, while technological development moves at a rapid pace. When the technology, such as the computer, the data bank, or such, is in use, vested interests influence usage. Besides the economic, there are strong political factors which affect and even impede the framing of protective statutes. And privacy still remains a nonlegal concept. "Much of the history of privacy

37 Senator Edward V. Long, Foreword, Government Dossier, (Survey of Information Contained in Government Files), Submitted by the Subcommittee on Administrative Practice and Procedure to the Committee on the Judiciary of the United States Senate, Ninetieth Congress, First Session, November, 1967.

38 Charles Fanwick, quoted in Privacy and the National Data Bank Concept, op. cit. p. 19.

39 Paul Baran, Communications, Computers and People, Santa Monica, California, The RAND Corporation, P-3235, November, 1965, p. 11.

40 Alan F. Westin, Privacy and Freedom, New York, Atheneum, 1967. Arthur R. Miller, Atlantic, November, 1967, pp. 53-57.

in the law is still ahead of us," observes the editor of Law and Contemporary Problems,⁴¹ "and its future development seems likely to have a considerably broader influence on the individual lives of citizens." Reflecting the climate of concern, the United Nations' Commission to Study the Organization of Peace, in its Eighteenth Report, recognized present and anticipated erosion of human rights through technological developments. With the proposed National Data Center as its point of departure, the Committee issued a statement worth pondering in connection with all information systems, large and small.

One of the important features of a democratic government is the doctrine of the separation of powers which makes it difficult for any branch of the government to jeopardize the fundamental rights of the individuals. Certainly, at present, the multiplicity of agencies and procedures and the resulting red tape protect the individual against undue invasion of his privacy by making it more difficult for various government officials to know enough to cause real trouble. But if all the available data are integrated and stored in a computer in a way permitting instantaneous access to the record of each person, a sword of Damocles is going to hang all the time over the head of everybody. Even the best of us have done something which can be easily blown up out of proportion, or have offended somebody who would be glad to deposit a little misinformation in our file. In addition, there is always the possibility of misfiling, of mistaken identities, or pure spite and vindictiveness of casual acquaintances with warped personalities. On the other hand, it seems quite impossible to envisage a process which would purify the data in the computer through properly protected legal proceedings. Considering the effort required to check the incomplete data which are now available to various agencies, when they have to decide on the employment of persons in positions which are sensitive from the point of view of national security, one can easily see that there are not enough investigators, funds, and, in case of dispute, judges to deal even with one-hundredth of the problem. It is, therefore, doubly important to consider the advisability of the whole scheme and, in case of its execution, to provide sufficient safeguards with respect to the maximum accuracy of the data, their confidentiality, access to them, and the permissibility⁴² of their use in situations involving an invasion of individual privacy.

⁴¹ Clark C. Havighurst, Foreword, Law and Contemporary Problems, Vol. 31, No. 2, Spring, 1966, p. 251.

⁴² Commission to Study the Organization of Peace, The United Nations and Human Rights, Eighteenth Report, August, 1967, pp. 42-3.

For social scientists, who are as prone as any professionals to see the mote in their brother's eye while neglecting the beam in their own⁴³, such evidence of trained incapacity is disillusioning. Insensitivity to social consequences, in the name of operational efficiency, might have been expected from computer technologists, but for distinguished economists and statisticians to have allowed the eclipse of considerations as vital as the right to privacy served as a chastening warning: The temptations of technology may be as irresistible to the "soft" scientist as to his "hard" brother. An apologia came from the Task Force in the form of a confession of "gigantic oversight" and an attempt at explanation for it.⁴⁴ The post mortem of the Federal Data Bank came from the Chairman of the Task Force. After acknowledging that public fears were founded and, at the same time, suggesting a list of additional abuses possibly not perceived by other critics, he dismissed the idea of governmental intrusion as the "stuff of right-wing ideology." "Without decisively choosing one over the other of these ideological stances, and with full recognition that a government too feeble for the welfare of its citizens in some matters may be too strong for their comfort or even their liberty in others, it is possible to believe, as I do, that the present balance of forces in our political machinery tends to the side of healthy restraint in such matters as these."⁴⁵ This stout declaration of faith that democracy can survive and triumph über Alles is highly questionable in light of what is happening with respect to information.

Conclusion

Having reviewed the conceptions, preconceptions, and misconceptions

⁴³ Matthew, vii: 3,4,5.

⁴⁴ Edgar S. Dunn, Jr., "The Idea of a National Data Center and the Issue of Personal Privacy," The American Statistician, Vol. 21, No. 1, February, 1967, p. 22.

⁴⁵ Carl Kaysen, "Data Banks and Dossiers," The Public Interest, No. 7, Spring 1967, p. 60.

involved in information systems, with real-life experience as background and future implications as foreground, we can now reassess the assumptions listed at the beginning of this paper. The first was that if public planners had more information they would make better plans and, perhaps, arrive at better decisions. We now know that they cannot look to information systems as designed and merchandised at present to help them much. In fact, there is more likelihood that they will be inundated by an overabundance of data that will impede their efforts to understand problems in their true and dynamic dimensions. Data selected because they are machine-processable provide a shaky foundation, indeed, for community planning.

The second assumption was that more and faster-moving information would improve the efficiency of governmental operations. We now know that this, like a Sunday band in the park, sounds better than it is. On the technical side, there still remain great difficulties with storage uniformity, cross-availability of data reference items, and retrieval. If overall efficiency of agency operation encompasses dollar costs, there is no evidence that the promised economies will be realized. In fact, it could well be that, saddled with elaborate and expensive systems, government agencies will find themselves serving their information systems instead of deriving service from them. Even if there were clear-cut technical and financial advantages, the social benefits are nebulous.

The third assumption was that greater efficiency would better serve the needs of the community in particular and society at large. We now know that "efficiency" is a loaded term. Efficiency of operation could carry very high social costs if it were an instrument for centralization of control and for circumvention or stifling of democratic processes and procedures. The terms of the Faustian bargain defraud the citizen: He receives his tax bill faster,

although, despite all the claims about operating economies and efficiency, it is higher every time. But his privacy is eroded with every technological advance that is adopted, presumably, to save his money.

The final assumption is that the design of information systems is a highly technical matter and best assigned to an "information expert." We now know that information is not an entity separate and apart from a context. The selection, aggregation, and manipulation of data are matters where knowledge, not mere know-how must be applied. Insensitivity to the special problems involved, preoccupation with the mechanistic formal model, and ignorance of the stuff and substance of the real-life situation can result, if taken seriously, in designs for a fine neatly-programmed future fraught with social disaster.

With all the technologically-contrived information systems that could ever be crafted, wise and humanitarian planners will have to be aware of and take into account the economic balances of power, the sources of pressure, the political and jurisdictional realities, and the likelihood of rapid change and swift reaction as communities become more alert to their rights and responsibilities. Herein reflected are the human and social values of the society and they defy technical handling. They are incalculable, immeasurable, but all-important considerations in plans for the present and patterns for the future.