A panel session—Organizational factors in the allocation of computing resources

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A POLITICAL PERSPECTIVE ON COMPUTERS IN LOCAL GOVERNMENT—William Dutton

Most people concerned with computing in complex organizations do not consider computers a subject for political analysis; but few people can maintain this view in the future. Social scientists define "politics" as the allocation of goods, services, values, and resources. Thus every organization is faced with "political" decisions when deciding whether to fund one program rather than another. From this point of view, "politics" is neither inherently "dirty" nor restricted to institutionalized procedures, such as voting, but is a common element of organizational life. Computing is a political technology because it can, and frequently is, used to effect the distribution of values among various interests. In any organization there are serious differences of opinion and interest over the adoption, support, use, and control of computer technology.

The political elements of computing can be addressed in three areas: (1) the allocation of computing resources as a means to control other related resources (e.g., staff); (2) the computer's use to effect the distribution of information, and therefore the distribution of power and control in an organization, and (3) the computer's use to reinforce an organization's political economy as reflected in the kinds of goods and services it provides. This talk draws upon data collected by the URBIS Group in several national surveys and case studies of computing in American local governments since 1974.

We have found computing to be a complex resource "package." And the allocation of the resources comprising the computing package is often a significant issue within organizations. Directly, computers constitute a resource because they bring with them differential control of their capabilities vis-a-vis other resource controllers. Indirectly, computers raise political issues because they frequently affect the relative distribution of other resources such as staff, money and status amongst organizational units.

Computing also raises political issues within organizations because of its instrumental value to different actors, particularly as a result of information that can be provided. Top decision-makers are interested in information that might help clarify choices and identify problems. Managers and supervisors are interested in operational data about those whose activities they guide and direct. In public agencies, data-dependent departments like planning seek some of their data from information-generating departments, which sometimes place proprietary rights on their data. Since computers frequently alter the content, direction, and speed of information flows, they thereby affect the relative influence of these organizational actors.

Many problems with computing are not a function of inadequate or unavailable technical or managerial solutions. Rather, they are due to differences of interest or opinion regarding potential impacts. Beliefs about the best solution vary accordingly. However, solutions to computing problems which are solely technically-based or management-based may fail because they ignore the local politics of computing. Furthermore, some problems lack solutions, even when politics is considered. Technical and managerial solutions may create politically unacceptable impacts. Or, politically attractive solutions might not align with feasible technical and managerial solutions.

These observations will be illustrated with a variety of data drawn from the URBIS studies.

SERVICE PROVIDER OR SKILL BUREAUCRACY?—THE DATA PROCESSING FUNCTION IN LOCAL GOVERNMENT—James Danziger

A straightforward interpretation of the data processing unit's function is that it is a provider of services to its clients. Increasingly, the formal information systems of many organizations is centered in EDP. Data processing is responsible for providing the local government with a set of service activities involving data: record-keeping, record-searching, printing and calculating, record restructuring, and analysis. The quality of the service hinges on the effective utilization
of hardware, software, and staff skills to the accurate, useful, and timely treatment of data. In this analytic sense, the EDP function is similar to the typing pool (although computing is far more technical): both EDP and typing involve the skillful organization of data, to facilitate their use by other organizational staff. If one were to provide a normative theory of organizational roles relating to EDP as a service provider, top managers would have the primary responsibility for deciding what EDP should do, the EDP unit would provide these data handling services, and the users of EDP services would organize them for effective utilization.

Alternatively, the EDP unit can be characterized as a "skill bureaucracy." The distinguishing feature of a skill bureaucracy is its relative monopoly on some area of technical expertise. While it does provide services, its behavior is driven by certain self-oriented values: (1) to preserve autonomy from outside control; (2) to dominate its relationship with its clients; (3) to expand its domain of activity; and (4) to be guided by its internal standards of professionalism. There is good evidence, for example, that skill bureaucracies in education and public-welfare achieve these values relative to policy-makers and to clients of their own services. Given the highly technical nature of computing and the professional concerns of computing specialists, EDP units seem particularly likely to manifest attributes of a skill bureaucracy.

The concepts of service-provider and skill bureaucracy are ideal-type characterizations, and actual EDP units display some aspects of each kind of orientation. However, data drawn from surveys of computing practices in local government under the URBIS project indicates that skill-bureaucratic features are common in many American local government EDP organizations. This talk will address these alternative models of the EDP function based upon both survey data and case studies.

USEFUL APPLICATION OF POLITICS IN COMPUTING—Einar Steffereud

THE ORGANIZATIONAL ENVIRONMENT

In many large organizations computing allocations are made either by committee or by a "computing czar." While these choices seem to span the range of centralized authority through participatory decision-making, in fact they often fail to achieve the intended effects. This talk provides a framework for understanding how committees can be effectively organized to deal with different computing rationales used by operating units, and thus to act so as to sensibly distribute resources rather than simply diffuse responsibility.

Computing has assumed a central role as a major engine of production and is shared by large portions of many organizations. Despite the deployment of mimicomputers, many organizational units are becoming increasingly dependent upon shared or common computing systems (including networks). While it is common for different organizational units to develop their own rationales for action, shared data and computing resources tend to lead to smaller differences of rationale at the operating levels of large organizations.

PROBLEMS OF COMPUTER GOVERNANCE

As computing becomes more pervasive, it becomes more essential to find workable compromises between value system differences between operating departments in an organization. These negotiated compromises are essentially "political" rather than "technical" solutions. (Conflicting values cannot be forced by the authority of a computing "czar." The half-life of a computing "czar" is inversely proportional to the extent to which he assumes control of other people's resources.)

So how can the problems of computing governance by effectively resolved? An effective governance structure must aggregate the required power from operating departments. This differs from a responsibility diffusion committees which includes "representatives" from operating department who have little power to commit their departments to authoritative policies. Observations in several diverse computer using organizations indicate that user committees which fail to mirror the de facto power structure of the organization tend to be ineffective in dealing with conflicts over computing use, and fail to make "sensible" allocation decisions. With a power aggregation committee, substantial political issues can be resolved, which otherwise tend to be analyzed, debated, and avoided.

This talk illustrates several different strategies of computing governance with examples drawn from a variety of computer-using organizations.

ORGANIZATIONAL CONSIDERATIONS IN D.P. RESOURCE ALLOCATION—J. A. Sutton

Data processing resources frequently are in great demand by "user-departments" who would like to utilize those resources. When the allocation of these resources is perceived as unfair, members of user-departments may become dissatisfied with the data processing department. The frequency with which articles appear pointing out user-D.P. problems and suggesting solutions to these problems suggests dissatisfaction is widespread.

This discussion focuses on organizational mechanisms intended to provide the necessary communication and resource allocation between the Data Processing Department and departments wishing to utilize data processing services. Several mechanisms frequently proposed to facilitate interdepartmental transactions will be discussed, research results on their effectiveness will be reported, and recommendations will be made for the management of the interdepartmental interface.

Mechanisms for the management of the interface between
D.P. and user departments generally fall into two categories: (1) formalization of interfaces (e.g., establishment of a D.P. Steering Committee), and (2) decentralization of some function to the user department (e.g., location of systems analysts in the user department). Mechanisms from both of these categories are frequently intended to "increase user involvement."

Organizational behavior theory suggests that the potential for conflict at the D.P.-user department interface is great and that substantial benefits might accrue from improved integration between departments. Recent research suggests that some of the mechanisms proposed to enhance D.P.-user relations have little impact (e.g., whether the D.P. manager reports to a department head or is himself a department head has little impact on user satisfaction with D.P.). We observe that as D.P. departments grow in size, they exhibit a tendency to increase the number of formal mechanisms in place, yet evidence suggests that simply adding mechanisms has little effect on user satisfaction. However, the perceived effectiveness of many mechanisms is closely related to user satisfaction with D.P.

These results suggest that adding mechanisms intended to enhance the perception of "fair" resource allocation and to improve user satisfaction with D.P. may not serve the intended purpose. Rather, the results suggest that the quality (or perceived effectiveness) of interdepartmental integration mechanisms may be the critical issue. Hence, the efforts of the D.P. manager (and others) may be better spent at improving the effectiveness of existing mechanisms rather than putting new mechanisms in place.