

Handbook of Public Information Systems

G. David Garson, Editor

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Introduction

An Introduction to Public Information Systems (by G. David Garson)

Graduate Education in Information Technology in the Public Sector: The Need and the Response (by Mary Maureen Brown, Jeffrey L. Brudney, William L. Waugh, Jr., and Ronald John Hy,)

In 1986, the National Association of Schools of Public Affairs and Administration (NASPAA) published recommendations on information system instruction in departments of public administration. A decade later, the passage of the Clinger-Cohen Act of 1996 (CCA) by Congress ushered in sweeping reforms in information management in the federal government. This chapter examines the extent to which graduate programs in public administration prepare students for the challenges they will face in utilizing and managing information resources in government. The chapter first reviews the investment of government in information technology (IT) and the need for graduate education in this field. It then reports on the results of a survey of 106 schools and departments of public administration concerning IT issues. Extensive analysis of these data strongly suggest that if governments are to achieve the benefits of contemporary advances in IT, schools and departments of public administration must re-examine their current approaches and methods for instruction in the management and application of computing.

Background

The Legislative Foundation of Information Access Policy: Balancing Access Against Privacy and Confidentiality (by Harry Hammitt)

The Freedom of Information Act is the cornerstone of federal access policy. Its history stretches back to the early 1950s, though Congress did not pass the statute

until 1966. The statute has been amended substantially on three subsequent occasions, most recently in 1996. The right of access is threatened by concerns about privacy and confidentiality, which have grown stronger in recent years. However, the FOIA remains a solid foundation to support future enhancements in access policy.

The Emergence of Federal Information Policy in the 1980s and 1990s (by Jeremy R.T. Lewis).

Utilizing a public policy process approach, this chapter explores the similarities of policy cycles involving the repeated reform of federal information laws from the 1946 Administrative Procedures Act to the present. A variety of information laws and leading case decisions are considered as part of an emergent 1990s federal information policy.

Information Technology, Public Policy and Canadian Governance: Partnerships and Predicaments (by Gilles Paquet and Jeffrey Roy)

This chapter examines the strategic and political context shaping the role of information technology (IT) in Canadian government. We explore different dimensions to the link between IT and public administration, drawing on both the rising interest in the new public management (NPM) and new governance models based on a re-configuration of traditional organizational architectures, private or public, in which information technologies play a determinant role. Our underlying purpose, however, is first to expose the main political and bureaucratic forces that have shaped the adaptation and implementation of IT in the Canadian state - and secondly, to review the Canadian public sector's main actions to date on these fronts. The resulting trends, in Canada and elsewhere, point to both new partnerships and predicaments. The growing importance of IT, and their solution providers, as well as the pressures for multi-stakeholder responses to the information age, has meant that private-public collaboration has become increasingly common and critical. Accordingly, the effectiveness of this collaboration is a key determinant in the adoption and deployment of IT within the public sector, as well as the forging of new private-public governance models. The resulting predicaments stem from the pressures on governments to embrace models of NPM, requiring organizational innovation; but these pressures, in turn, mean that traditional controls and decision-making processes are no longer relevant. In many cases, traditional processes become blockages. Within the Canadian context, the main findings of this chapter can be summarized in the following manner: i) new information and communication

technologies are inspiring radical changes to traditional governance models in all sectors; ii) notwithstanding the specificities of government, IT-driven reforms, within a NPM context imply a strong need to rethink traditional, Westminster-style, parliamentary systems of accountability, control and delivery; iii) despite important and growing resource allocations, the Canadian experience illustrates resistance to change, and an under-utilization of new technological capacities; and iv) critical events and emerging challenges, such as the Year 2000 computer crisis and the lure of virtual governance, are bound to demonstrate that this gradual and cautious path is not sustainable.

Is Technological Progress Social Progress? (by Sonal J. Seneviratne)

The last two decades of the 20th Century have been characterized by rapid, technologically based changes, particularly those brought about by advances in computer and communications technology. As we approach the next millennium, the question on many minds is whether technological progress has led to social progress. What has always made technological change important to humanity is the fact that it serves as an agent to social change. This chapter examines the social impact of information and communications technologies with respect to indicators of social change such as quality of life, leisure, health, employment trends and economic change. Having argued that technological progress does not always lead to social progress, the essay discusses the role of public administration in facilitating relationship between technological and social progress, firstly by its own use of information technology and, secondly by its influence through the enacting of public policy.

Organizational Research

The Politics of Public Sector Information Systems (by Chris Bellamy)

A common feature of 1990s strategies for 're-engineering' government with information and communication technologies is the assumption that electronic networking could create new flexibilities in the ways that information is captured and deployed. This chapter explores critically this questionable assumption. By focusing attention away from the wires to the information that is carried on them, it argues that information should not be regarded as an infinitely flexible resource, but rather as a phenomenon that is deeply imbued with organizational politics. Using an analysis drawn mainly from the 'new institutionalism', it identifies three important ways in which information is implicated in processes of continuity and change in

governmental institutions. It then deploys a study of a particularly complex sector of British government--the criminal justice system--to explore the politics of public information systems.

The Need for Strategic Information Systems Planning when Contracting-out and Privatizing Public Sector Functions (by Steven Cohen and William Eimicke)

This chapter discusses performance management under conditions of contracting out public services. Efforts to reduce the cost, and increase the efficiency and effectiveness of government have led to an increase in the contracting out of public service provision to non--government organizations. Rather than needing to manage the process of service delivery themselves, government agencies must instead now learn to manage and coordinate a network of contractors providing services to the public. Performance measurement is a useful tool in the management of contractors. A number of government agencies have used performance--based contracting or incentive programs to manage their contractors. However, the effective use of performance information requires careful development and implementation. The increase in sophistication and availability of information technologies (IT) has made the collection and reporting of performance measures more feasible. However, such technologies bring with them their own issues of cost, compatibility, confidentiality, and expertise. Further, a computer system cannot substitute for the careful development of performance measures relevant to the agency, its mission, and its contractors? resources and abilities. To further illustrate the issues raised in this chapter, two case studies are presented exploring government efforts to use performance measurement in the management of contractors. It is concluded that the use of performance measurement will increase in government agencies as the availability of affordable, useful information systems increases.

Technology Launch in Government: The Human Factor (by Dahlia Bradshaw Lynn)

Information technologies increasingly serve as powerful tools for government and other public sector organizations. Municipal, state and federal agencies rush headlong to implement new management information systems designed to substantially increase effectiveness and efficiency in the delivery of public services, the management of critical information sources for decision making and the formulation of public policy. While significant attention is paid to the design and implementation phases of launching new technology, these systems also require new policies and procedures for managing and disseminating information and knowledge. Public sector employees caught in such new technology are often

involved in massive organizational change initiated by the adoption of these new information management approaches. Importantly, the reluctance of employees to embrace new technology is also resistance to organizational change. Failure on the part of public managers to address the human side of technology launch and the transformational impact of information systems on the nature of work within the organization place the adaptation of such technology at risk. This chapter examines technological innovation and public sector management from the aspects of organizational change, the impact of technology launch and employee resistance, and strategies for increasing the success of new technology launches through well-planned, comprehensive organizational change strategies recognizing the nature of work transformation prior, during and after a technology launch.

A Core-Periphery Approach to Centralization/Decentralization Issues in Public Information Systems (by Richard Heeks)

In dealing with information systems, public sector organizations have to cover eight main areas of responsibility: information systems planning, organizational structures and staffing, data management, computing and data management architecture, information systems development, information technology acquisition, training, and technical support. Adopting a centralized approach to these responsibilities can bring efficiency benefits, but requires some severe constraints to be overcome. Adopting a decentralized approach can help spread computing in the organization, but is often wasteful. A 'core-periphery' approach to public information systems, combining both central and local action, is therefore recommended as being most effective. Details of such an approach are described within the chapter.

The Impact of IT Investment on Organization Performance in the Public Sector (by Pamela Hammers Specht)

The spectacular growth of public investment in IT reflects an enormous potential for improving the performance of public organizations. However, the large investment made in IT puts increasing pressure on organizations to justify the outlay by quantifying the value of IT. The importance of IT investment to organization performance has been recognized, but studies have been fragmented, individual company and private sector oriented, and focused narrowly on one or two methods of measuring only one type of performance. This chapter presents guidelines for public organization managers, based on a thorough literature review. The measurement issue is complex, and thusly managers need to measure IT performance and its impact on business unit performance and organization

performance. Each type of performance has numerous possible measures, which are discussed. Finally, a discussion is presented of the importance of linking IT investment effectiveness to the implementation of strategic plans.

Mitigating the Risk of Information Technology Initiatives: Best Practices and Points of Failure for the Public Sector (by Mary Maureen Brown)

As the current century comes to a close, information technology has become the vehicle from which accurate, reliable, and timely information is produced for identifying objectives, improving productivity, and facilitating service delivery. Despite tremendous technical achievements, overall, little progress has been made in how to implement systems successfully. To reduce the rising stem of information technology setbacks and failures, risk assessment and management strategies are gaining the attention of managers and researchers alike. This chapter focuses on managing the risks associated with information technology adoption and provides a systematic approach to assessing and managing the risks associated with technology adoption.

Intergovernmental Cooperation in the Development and Use of Information Systems (by Nada D. Harris)

New imperatives and devolution trends are shifting responsibility for delivery of services from federal agencies to state, local and tribal government organizations. At the same time, information systems are being transformed by access-enhancing technology. Amidst all the changes, the multiple levels of government are re-examining their roles and relationships with each other. This chapter provides an overview of the driving forces behind these trends and examines the information systems issues pertinent to enhanced cooperation among federal, state, local and tribal governments.

Webbing Governance: National Differences in Constructing the Face of Public Organizations (by Chris Demchak, Christian Friis, and Todd M. La Porte)

The foundations for governance in an information age are developing through "inter-, extra- or intra- nets" as the World Wide Web increasingly becomes the principal electronic public gateways into government organizations. For public managers, however, there are few standards to guide their developing electronic operations. This chapter reviews the relevant literature on public openness and network technologies and presents a website attribute tool designed by the

Cyberspace Policy Research Group (CyPRG) in a National Science Foundation project to evaluate public sites for openness (transparency and accessibility). Using data from several years of research into the development of national level government websites across 192 countries and 26 sectors, the chapter reviews the literature on openness, demonstrates the application of the evaluation tool, discusses the global data with some findings, and posits hypotheses for future testing. In creating a global database charting how government web operations are initiated and conducted, we study the early development of web use, the developing evolutionary paths of organizational and policy implications for openness and effectiveness, and ongoing adaptations across cultures, sectors, and specific conditions. Openness via the World Wide Web may be a new measure of organizational behavior, as it taps a range of activities in fine-grained detail that are difficult to study comprehensively but that critically relate to democratic accountability and responsiveness.

Policy Issues

Electronic Access to Public Records (by Jeremy R.T. Lewis).

An examination of issues involved in the 1990s shift from release of public documents to the release of electronic resources via electronic means. The causes and consequences of the Electronic Freedom of Information Act. Exploration of case studies at several federal agencies to analyze the difficulties and successes of implementing electronic processing of requested records, and online dissemination of databases.

Intellectual Property for Public Managers (by Roland J. Cole and Eric Broucek)

This chapter starts with a discussion of the importance of intellectual property (AIP@). It then sets forth a bit of its history. Next, it describes the four major types of intellectual property. It then discusses the special rules surrounding the federal government=s acquisition and creation of intellectual property, then the role of the states (in this context, local governments are similar to states). Finally, it concludes with a table summarizing some of the major points made about each type of intellectual property.

Security Issues for Automated Information Systems (by Cynthia E. Irvine)

: The growing interconnectivity of computer systems has dramatically increased the

risk of exposure or corruption of information through the exploitation of system security vulnerabilities. Many aspects of organizational operations and of the national infrastructure depend upon the correct operation of computers and networks. Security is a fundamental requirement for the health of the public enterprise, but it is often ignored. This essay will review fundamental concepts of computer security. Some of the costs and benefits of investment in security will be discussed. The notion of organizational information policy, mechanisms for its enforcement, and the value of assurance will be presented.

Citizen Participation and Direct Democracy Through Computer Networking (by Yuhang Shi and Carmine Scavo)

The emergence of computer networks as a new medium of mass communication has sparked new hopes for greater democracy. This chapter introduces students of public management to the evolution of computer network technologies and offers an in-depth discussion on how those technologies would shape our political future. In particular, it shows that the advanced computer network technologies can be used to make government more open, responsive and accountable, and to create more opportunities for citizens to participate in government. It argues that public managers should take advantage of those technologies to improve their interaction with citizens and to enhance public trust and engagement in our government. It also describes some major technical and policy issues involved in the efforts to extend democracy through computer networks. It is our view that computer networks have offered a great potential for our democratic life, but at the same time, posit a great challenge to those in the public management positions.

The Information Age: Which Countries Will Benefit? (by Alana Northrop and Kenneth L. Kraemer)

This chapter is based on the assumption that broader diffusion of computers leads to greater economic and social benefits for a nation state and seeks to learn the determinants of diffusion. Using a data base of 41 nations and the then colony of Hong Kong in the early 1990s, the following hypotheses are explored and found supported: (1) economically advanced nations are more likely to adopt computers, (2) nation states with more educated populations and ones with more open access to information are more likely to adopt computers, and (3) nation states that have a higher saturation of information mediums, such as televisions and telephones, are more likely to adopt computers. The paper emphasizes the key direct role that information mediums play in computer adoption over the much talked about but

mainly indirect roles of economic and social factors. For nations to leap into the Information Age they would be well advised to expose their citizens to earlier generations of mass information mediums, like televisions and telephones.

Case Studies

Cyber-Communication: Congressional Use of Information Technologies (by John Messmer, David Carreiro, and Karen A. Metivier-Carreiro)

This research examines the U.S. Congress' use of the Internet as a tool of political communication. Data were collected from content analyses of member Web sites, personal interviews with members and their staffs, and a survey of Internet Caucus liaisons. The results suggest that 1) Use of member Web sites and email places additional demands on existing staff, resources, and technical expertise. With increased use of such information technologies, Congress will need to address issues such as technical training for members of their staff. 2) Political communication across the Web is unique. There is a significantly greater emphasis upon information within Web communication than through more traditional media. 3) The Internet is shifting the focus of Congressional home styles toward expanded national constituencies at the expense of local and traditional legislative goals and motivations. The focus of representation within the advent of such electronic democracies may need to be redefined. This challenges the popular perception of the Internet as a purveyor of an enhanced style of representation through improved and expanded communication.

The Role of Computing Technology and the New York State Legislature (by Antoinette Pole)

This paper explores the role of computing technology in the New York State Legislature during the 1980s and 1990s. It looks at how technology has transformed constituency correspondence, the tracking of legislation, the process of redistricting and how policymakers and their staff use the Internet. In addition, the author assesses the level of collaboration, efficiency and acceptance toward new technologies in these areas. Overall, there is a greater degree of efficiency across the board however, acceptance of new technologies is not universal. Increased collaboration in the areas of tracking legislation and the Internet, in particular, has greatly altered policymaking..

Building Relevant Policy Data Systems for Multiple Stakeholders: The Maine Education Information Partnership (by Josephine M. LaPlante)

Following receipt of an analysis that revealed significant resource disparities across school districts (LaPlante, 1994), the Maine Legislature appropriated funds to establish an education policy institute within the state university system. The purpose of the new research center was to compile data that could be used to track local spending and support state education policy making. Debate ensued because education involves a large number and variety of stakeholders, many organizations already were compiling data, traditional measures of educational opportunity and equity had failed to identify resource disparities, and stakeholders believed that the complexity of issues facing the legislature and local school boards demanded strategic information, not simple data. A partnership was established between the state legislature, the state department of education, several units of the state university system, and various stakeholder organizations to guide the development of a user-friendly educational policy information system that would provide relevant, useful, and accurate data not only to the legislature, but also to other interested parties via the world wide web or through specialized compilations. This chapter outlines trends that are increasing the demand for and availability of data, discusses current barriers to using available data for monitoring policies and decision support, and describes the partnership approach used in Maine to close the gap between data availability and the information needs of policy makers and citizens. Although the case study focuses on education, the process followed and the design of the information partnership are relevant to many policy arenas.

Managing Government Web Services in Florida: Issues and Lessons (by David Coursey and Jennifer Killingsworth)

This essay focuses on the management problems in developing and maintaining web services through experiences in the State of Florida government, primarily three agencies representing major players in the early adoption of web technologies. Issues include personnel, innovation incentives, and political factors. Florida's experiences are compared to existing prescriptions and descriptions of practice in public information management. Findings show Florida's successful web programs are (1) more dependent on top political leaders' involvement than the public information systems literature would expect; (2) an indication of how personnel hiring difficulties can be overcome; and (3) evidence that public agencies can indeed be far more innovative and adopt technology earlier than private sector organizations, especially when political conditions are favorable.

Planning Centralized Immunization Registries: Disease Prevention, Cost Reduction, and Implications for Privacy (by Gregory Streib and Katherine G. Willoughby)

Modern federalism has shifted many responsibilities to states. In the area of health care, the development and maintenance of immunization registries provides an excellent example of a relatively new responsibility taken on by many states to support disease prevention and cost reduction. The implications of such centralized databases regarding citizen privacy are almost self-evident. That is, research shows that while citizens believe there are a number of benefits to central registries of this sort, they do have some concerns related to the confidentiality and privacy of their individual health records. Therefore, states need to reconcile the confidentiality of individual medical records with the efficacy of sharing data among health care providers. This chapter focuses on the privacy implications of state-level immunization information reporting systems and registries. The chapter illustrates the need for strategic planning regarding the development, implementation, and management of such registries to best balance the goals of confidentiality, disease prevention, and cost reduction. Some of the information reported in this case comes directly from our involvement in the development of the Georgia immunization registry as well as from our research about immunization registries nationwide.

Applications: Federal and Generic

Computer-Based Training in the Public Sector (by Genie Stowers)

This chapter focuses upon computer-based training in the public sector. It discusses the various technologies involved in computer-based training today and provides a special emphasis on online training. As technology has changed society and public sector organizations, there is an increasing need for new types of training in order to support those organizations. Computer-based training is one source of that training, since it can be provided just-in-time and allows participants to have more flexibility in their learning experiences. This chapter reviews these options, including the fast-changing online training opportunities. The existing evidence suggests most types of computer-based training are just as effective, if not more so, than traditional forms of instruction.

Guidelines for Public Sector Systems Acquisition (by Bruce Rocheleau).

The public sector acquisition of information technology (IT) has been beset by many problems including outright failures, and over-budget and ineffective systems. The process has been very slow and resulted in many protests by vendors. The chapter reviews key steps which experts say should be taken in order to have an effective acquisition system including new approaches used by Federal, state, and local governments. Attention is given to topics such as needs assessment, risk management for acquisition of IT systems, outsourcing, legal issues, software engineering, and other approaches to improving the purchasing process. The request for proposals and other methods of solicitation of projects are studied. The strengths and weaknesses of both old and new processes are reviewed.

Public Finance Management Information Systems (by John W. Swain and Jay D. White)

Public financial management involves making decisions about the finances of public organizations. Management information systems use hardware, software, and data to produce information useful for managerial decision making. Although the application of management information systems technology to public financial management appears promising, such efforts have to contend with the peculiarities of public organizations, especially as they are expressed in their most basic information systems--accounting systems. Efforts to integrate management information systems into public financial management can benefit from following, at least conceptually, a model based on private sector integration of management information systems into financial management.

Information Systems and an Interdisciplinary Budget Model (by G. B. K. de Graan)

The central theme concerns the measurement problem of performances of organisations in the context of strategic planning and management control. To quantify budgets it is recommended to apply an interdisciplinary approach. In this context two trends are of importance -- the state of the art of the management information crisis and knowledge management in both the private and public sector. In this context the state of the art of the management information crisis in the US and in Holland after the Second World War is given for both sectors. In general, the budgets in both the private and public sector have been historical oriented and based on the two dimensions of bookkeeping. The real world can be styled in a better way through using the structuring principles of other disciplines. In this way budgets become more prospective oriented and contribute to a better performance measurement for strategic planning (effectiveness indicators) and the management control process (efficiency indicators). The aim of a budget model is to structure a

model quantitatively and qualitatively, in which the parameters have been estimated with statistical methods through survey (reports) and experts or through a combination of both approaches. An illustration of an interdisciplinary budget model concerns the developed funding systems for both primary and special education in Holland.

Budgetary Analysis Using Computer Tools (by Carl Grafton and Anne Permaloff)

Public budget formulation is approached in some government venues little differently now than it was a century ago using the line item format and forecasting accomplished by simple extrapolation mixed with intuition. Even budget decision-making in this traditional mode is facilitated by computers. In other settings decision-makers are attempting to rationalize the budgeting process by using workload budgeting, program budgeting, benefit-cost analysis, policy analysis, and sophisticated forecasting techniques. Analytical budget formulation and forecasting techniques like these require computer assistance. They build upon the use of spreadsheets, statistical packages, neural network forecasting software, and other programs designed specifically for data analysis.

Data Warehousing in Government Agencies: Conceptual and Managerial Issues (Henry Y. Zheng)

This paper introduces readers to the concept of data warehousing in government agencies. It focuses on common data usage problems encountered by public administrators in using mainframe-based transactional processing systems or divisional databases. Such problems are characterized by the incompatibility of databases due to differences in file formats, data structures, coding schemes, and data reference styles. In practice, these problems may lead to difficulties in accessing data across functional areas and in forging an integrative and comprehensive view of an agency's service delivery system. The data warehousing concept is advanced as a strategy for dealing with these problems through the development of a centralized data repository with internally consistent and relational databases from different sources. A successfully implemented data warehouse can help a public agency overcome data sharing problems, achieve a single version of organizational truth, and shorten response time to public inquires. Examples from public agencies such as public welfare and juvenile correction are used.

Micro-Simulations of Public Policies (by J. Theodore Anagnoson)

The purpose of this chapter is to introduce microsimulations of public policy to public managers. Microsimulations are models that start with a large-scale survey of the public. To the survey are added several kinds of information: data from other surveys and databases, imputations and statistical matches, program rules, and behavioral assumptions. Microsimulations are different from the usual surveys that are taught in graduate programs of public administration in that they can be used to make estimates of the number of participants in different eligibility categories and the potential costs of programs and potential policy changes to those programs. The past decade has seen the continued development of some existing microsimulations and the new development of several simulations in different countries. Issues that public managers may face when they come into contact with microsimulations are discussed, particularly the issue of institutional support for the microsimulation effort.

Applications: State and Local

Planning Digital Places: A New Approach to Community Telecommunications Planning and Deployment (by Thomas A. Horan)

This chapter provides an overview of the linkages between community design goals and information systems planning. The chapter opens with a brief review of the impact that infrastructure has on community design and function. The concept of "digital place" is introduced as an organizing construct to guide digital technology planning at the setting, community, and regional level. Four principals for guiding digital place planning are then outlined; these principles of "recombinant urban design" include the need to: 1) determine the locational impacts of digital technology (smart locations), 2) consider the creation of designs that foster sense of place and community (meaningful places), 3) integrate electronic and physical design elements (threshold connections), and 4) involve relevant stakeholders in the design process (democratic designs). Examples of these design principles are provided, along with a general planning process for involving various public (school, city, library) and private (developer, telecommunication provider) stakeholders. The chapter concludes with a discussion on the new and important role of the information systems planner in producing wired and livable communities.

Community Decision Support Systems: Managing Knowledge for Community and Economic Development (by Kate O'Dubhchair, J. K. Scott, and T. G. Johnson)

Global economic and social changes are presenting rural communities and local

governments with tremendous opportunities and challenges. Decentralization of public service programs is occurring across the world, leaving local authorities and community groups with limited resources and much more responsibility for shaping their collective futures (Johnson and Scott, 1998). A second consequence of worldwide social change affects the very institutional and administrative systems used to determine local and regional public policies. Deemed "new governance" in public administration and public policy literatures (Peters and Giere, 1998; Adshead and Quinn, 1998; Bryson and Good, 1992), this trend is leading to much more flexible means of service delivery, and a blurring of traditional boundaries between local, regional and central government agencies, and between public, private and voluntary sector organizations. Beyond decentralization and changing governmental forms and functions, interested citizens and community groups are demanding more information and input, and they are taking a much more active role in public decision processes (King, et.al, 1998). All of these developments can be translated into significant new opportunities in rural communities. However, a region's capacity to take advantage of these opportunities - and its chances to survive and thrive in the 21st century depend, in large part, on its ability to manage knowledge pertinent to sustainable development, and its commitment to broadening the public decision making process to all stakeholders

A Methodology for Evaluating the Effectiveness of the Delivery of IT Services: A Comparative Study of Six UK Local Authorities (by Les Worrall, Dan Remenyi and Arthur Money)

Evaluating and managing the effective delivery of IT services is an issue which has been brought into sharper relief recently. This has been particularly prevalent in the UK public sector where the growing emphasis on formalised client-contractor relationships, outsourcing and benchmarking (both between local authorities and between local authorities and private sector organisations) has meant that the definition of service standards and agreeing performance criteria has attracted considerable practitioner attention. This research is based on 300 interviews conducted in six UK local authorities. The investigation used both gap analysis and perceptual mapping techniques to develop an understanding of the aspects of IT service delivery that users' value most in conjunction with an assessment of how well they perceive their IT department is performing on these criteria. The paper exposes considerable differences in the relative performance of the six local authorities from both the gap analysis and the perceptual mapping elements of the investigation. The methodology is shown to provide an effective way of identifying key performance issues from the user perspective and benchmarking service performance across organisations..

The Use of System Dynamics in Decision Conferencing: Implementing Welfare Reform in New York State (by John Rohrbaugh)

System dynamics is one of the model structures used repeatedly in decision conferencing over the last two decades. This type of decision model is particularly useful to teams of managers and policy makers in diagnosing structural difficulties in complex systems, so that they can develop a shared understanding of the reasons for existing problems, as well as interventions for potential remediation. This chapter illustrates the use of system dynamics in a series of decision conferences hosted by the University at Albany for policy makers in three counties of New York State and describes a computer-based "microworld" that has been developed to promote systems thinking with respect to welfare reform in other counties and other states.

Information Technology Competencies

Geographic Information Systems and the Public Manager (by David Martin)

Geographic information systems (GIS) constitutes a powerful technology that can address the information needs of public sector decision-makers and researchers. The increasing use of GIS software for public policy analysis and growing availability of geo-referenced data present numerous issues. This article surveys resources available to public sector managers to bring them up to speed with GIS, including access to geocoded data.

Use of Statistical Analysis Software in Public Management (by T. R. Carr)

This chapter reviews the role of statistics and statistical packages as a management tool in the public sector. With the need for public agencies to engage in policy analysis and program evaluations to justify continuation of current programs or the need for new program initiatives, statistical packages have become an increasingly important management tool. This chapter will explain the use of these packages in improving the quality of information available to decision-makers. Included in the chapter is a discussion of pitfalls that the manager may encounter in the utilization of statistical software programs.

Putting Your Agency on the Web (by Edward W. Christensen and John Hughes)

This chapter provides guidance to government agency administrators on how to evaluate and develop web based services utilizing the experiences of existing web-based government agency services through a web-based survey, solicitation of experiences from selected agencies and a literature review. Specific deliverables of this chapter include a guide to aligning agency objectives with web opportunities, evaluating the potential and cost of web service development and administration, and lessons from the field of what to do and not to do.

Conclusion

Governmental Information Systems and Emerging Computer Technologies (by Patricia D. Fletcher)

This chapter pursues the idea that government is information and as such, the emerging information and communications technologies (ICT) play a critical and strategic role. The notion of service to the public has been expanded through the adoption of ICT. Emerging ICT trends, e.g. , client-server architecture, EDI, Electronic Commerce, internet access to service, the use of 700/800/900 services, multi-media, and the like, at the federal level of government will be identified and their service and policy implications will be noted. The focus will be in the ICT as enablers of democracy rather than on individual federal agency applications.

Information Systems, Politics, and Government: Leading Theoretical Perspectives (by G. David Garson)

This essay focuses on recent theorists who have addressed the core concern of social science theory: the modeling of long-term trends to postdict the past and predict the future of the impact of information technology (IT) on society. Such theories are pertinent to many fields and are central to public administrationists' concern for policy development and pragmatic efforts to reconcile the potential of IT with societal needs as we enter the 21st century. The theorists discussed in this essay are grouped in four broad camps. The decentralization/democratization school emphasizes the progressive potential of information technology in government, business, education, the home, and almost all spheres of life. The dystopian school emphasizes the internal contradictions of information systems and promulgates a cautionary counter to the enthusiasm of the decentralization/democratization theorists. The third school discussed in this essay is one of the oldest and best established, that of sociotechnical systems theory, which combines elements of the

first two, but, as we shall see, at the expense of predictive theory. Fourth, the global integrationist school transcends the optimism/pessimism duality of the first two schools and is critical of both while still laying the basis for predictive theory. Theorists and writers in this school focus on the globality of worldwide information networks as a transformative socioeconomic force.

Contributors

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- **Chris Bellamy** is Professor of Public Administration at the Nottingham Trent University, UK. and Head of Graduate Studies in the Faculty of Economics and Social Sciences. She has written widely on the subject of information and communications technology in government, often in collaboration with Professor J A Taylor. Their book on *Governing in the Information Age* was published by the Open University Press in early 1998. Chris Bellamy is the chair of the UK's Joint University Council and the immediate past chair of its Public Administration Committee.
- **Eric Broucek** is an Associate with Shughart Thomson & Kilroy of Kansas City, MO. He practices primarily in the areas of Intellectual Property and Corporate Law. He is a registered Patent Attorney and a member of the Bars of Kansas and Arizona. In addition to his JD degree, he has an MBA in Finance and a BS in Biology.
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