

Government Information Technology and Growth Management

By: Dr. Craig E. Reese, Professor of Accounting and Taxation, St. Thomas University and Dr. Keith G. Baker, President, Growth Management Services Institute

Governments at all levels are confronted by increasing pressure to utilize information technology more effectively in the quest for more efficient operations. Political and economic limits on tax revenue increases mean continued purchase of computer hardware and software is in jeopardy. There is no doubt that increased computer use through application to additional tasks--both existing and prospective--will occur. If each extension of computer use is treated as a discrete, unique decision, the demand for computer hardware and software will be greater than if such decisions are treated as part of a continuous, integrative process.

To achieve efficient operations and cost-effective programs and services, government must capitalize on emerging information technology, e.g., geographic information systems (GIS) technology applied to the Florida growth management process. Unfortunately, most state agencies and local governments lack the wealth of financial and technical resources which large corporations can command. Nonetheless, subnational government units must still consummate information-technology decisions with the resources at their disposal without distracting government administrators and their staff from their responsibility to administer programs and provide services to the public.

Many state agencies and local governments have a great deal of difficulty adapting existing hardware and software systems to the evolving demands of providing government services and administering public programs. Furthermore, there are proprietary jealousies and valid concerns about limitations on access to information technology when it is shared. This discourages agencies and governments from integrating information technology and coordinating the acquisition.

In the past two decades, many Florida state agencies and local governments have had the wherewithal to acquire computer systems. Some of these systems are now obsolete or inefficient. Other agencies and governments have not realized the increased productivity and reduced costs from their investments in large computer systems over the past decade. During the 1980s, state agencies and local governments invested heavily in microcomputers many of which have not been effectively integrated with their large computer systems.

To compound the problem, the decision to integrate computer systems increases the uncertainty about how best to adapt and apply the continual flow of innovative technology. That is, how does a state agency or local government best integrate the new technology into the existing computer system?

For many agency and government administrators, these problems have contributed to the feeling of having surrendered to information technology. That is, the "tail" (technology) is "wagging the dog" (agency or government).

In most state agencies and local governments, there are only a few layers of administration. Most agency and government administrators are preoccupied with providing services or operating programs and they do not have the time or expertise to plan and implement an information system restructuring.

For example, large computer systems purchased in the late 1970s or early 1980s were often coincident with the original computerization of the agency or government. As noted, the decision was treated as being discrete and unique; therefore, the acquisition usually included proprietary hardware and tailored software packages. The initial goal of computerization was often automation of finance and accounting, rather than database management, word processing, data analysis, scheduling, etc. As the state's population grew more than two-fold, state branch offices proliferated outside of Tallahassee. The size of state agencies and most local governments grew dramatically and the clients served increased commensurately.

As the volume and nature of their information processing activity has changed, so has the demand for more comprehensive and integrated information technology in state agencies and local governments. In the short term, the use of information technology for functions other than finance and accounting has been handled by acquisition of microcomputer technology.

To capitalize on emerging information technology, each state agency or local government must develop a plan, involve key users in the planning process and ensure the support of senior administrators at the agency local or government. Without senior administrators' support, an information technology restructuring or expansion project has little chance of success.

For most state agencies and local governments, a complete understanding of the agency's or government's operating environment, especially the activities critical to its programs or services and the information systems necessary for their support is a prerequisite to planning. Through agency or local government systems analysis, variations in operating activities and their degree of importance can be considered by planners in the context both of proprietary hardware and software available for acquisition, and of existing agency or government information technology. Ensuring the support of senior administrators and including users in the planning process leads to optimal solutions insofar as management (administrators) and users (public employees and citizens) often have different interests and responsibilities or rights.

Information technology should be built from a foundation of strength. Thus, an agency or government should construct an information infrastructure which focuses on the most critical agency or government functions first. The alternative is what has evolved today--fragmented systems which the information resource management strategist attempts to link effectively.

If client processing is the critical activity, e.g., the Department of Health and Rehabilitative Services (HRS), a database management system for client files should be established first. Many state agency and local government activities which have been processed manually for years should continue as such until they can be automated effectively within the existing information processing infrastructure.

Ignoring the planning process may result in a great deal of dissatisfaction with an agency's or government's information system. In an autocratic environment where senior administrators decide to automate, users may not be satisfied with the results. Conversely, senior administrators may not be satisfied with an information system designed only for users. Notwithstanding all the possible reasons for information systems' failure, the absence of a consensus, agency or government-wide strategy based on a needs assessment almost guarantees the failure of any information resource management (IRM) plan.

The structure of the planning process is critical to developing an IRM plan in a timely and cost-effective manner. Because information technology is changing rapidly and each agency's or government's activities encompass a variety of functional disciplines, discovering the experienced, technically competent, in-house staff members who together would possess a complete set of skills necessary for IRM planning is problematic. Consequently, IRM consultants often must be engaged to provide project management and technical assistance for a specified period. Through the partnership of consultants and agency or government personnel, an objective review of agency or government activities (i.e., a systems analysis) would be conducted before recommendations for operational and organizational changes were made.

The team of consultants and agency or government personnel would analyze automated and manual systems which support both general government services and specific government programs. Through this systems analysis exercise, requirements for effective and efficient delivery of government services and programs would be delineated in the context of the agency's or government's existing automated and manual systems. After evaluating the quality, utility, accuracy, and operating costs of the existing systems, the team would determine feasible solutions to major problems delineated through systems analysis and evaluation. Then the question of what additional computer hardware and software would be needed to implement the feasible solutions previously delineated becomes the team's primary concern.

During the 1980s, hardware options grew and computing costs declined. In the 1990s, the variety of hardware options continues to grow and the cost of computing continues to decline rapidly. Thus, the focus of IRM planning in the 1990s is on selection or development of the appropriate software for each feasible solution. The alternatives are custom software development, modifying a software package, enhancing an existing software program or out-sourcing, i.e., contracting with another public or private sector entity to provide information technology services. Where appropriate, computer aided software engineering (CASE tools) should be used to reverse engineer software and computer code and thereby avoid costly software/hardware acquisitions. Nonetheless, in many cases, additional computer software/hardware will have to be acquired not only to replace aging and/or obsolete facilities, but also to process the increased volume of outputs that ensues from expanding the scope of automation as well as the unavoidable growth in programs, services and populations.

If IRM planning is well done, acquisitions of additional hardware and software should also enable the integration of databases within and between state agencies as well as within and between local governments (at least within the same regional planning council area). The continuing saga of the malfunctioning \$100 million HRS computer system, which was supposed to integrate various programmatic databases within Florida's largest state agency and among its various offices throughout the state, is an example of how important effective IRM planning is to efficient government operations. At the local government level, preliminary results of a Florida Advisory Council on Intergovernmental Relations study on the acquisition and use of GIS technology suggests that some state agencies (e.g., regional water management districts) and larger local governments (counties and municipalities) are acquiring, but generally not sharing, the technology which can be so useful in implementing growth management in Florida.

Several urban counties (Broward, Dade, Palm Beach and Pinellas) include 25 or more municipalities, many of which have little business property and a population of 15,000 or less. Thus, the sharing of information technology among the smaller municipalities in those urban counties is not only cost-effective, but also necessary if the benefits of such technology are to reach those smaller municipalities. Intergovernmental contracting for public services is already commonplace, e.g., a county sheriff's office/department contracting with smaller municipalities to provide public security (police) services for an annual fee.

The regional planning councils (RPCs) would seem to be the appropriate public entity to advocate and facilitate the establishment of information technology-sharing arrangements. A county or large city should establish an expandable information storage and processing facility for spatial data, e.g., a full-service GIS facility, then sell a portion of the facility's capacity to smaller municipalities.

If such a facility had existed at the South Florida RPC before Hurricane Andrew, the short-term recovery and longer-term redevelopment of South Dade County would have been managed more effectively. The South Florida RPC has not advocated coordination or facilitated creation of a multi-jurisdictional GIS facility providing comprehensive coverage in its service area, despite the fact that Broward or Dade counties acquired GIS technology before Hurricane Andrew. Palm Beach County was in the process of developing a comprehensive post disaster redevelopment plan incorporating GIS technology for hazards vulnerability analysis purposes, but it too was not fully integrated for planning coordination purposes with county municipalities or with the Treasure Coast RPC.

About the Authors

Dr. Craig E. Reese received his Ph.D. from the University of Texas in 1979. During his 20-year academic career, Dr. Reese's primary teaching interests have been in taxation, auditing and governmental, not-for-profit accounting. Dr. Reese has also demonstrated admirable scholarship, publishing two books, five monographs, and 25 articles, while focusing on sales and use taxation and natural resource taxes. Dr. Reese is a member of the American Accounting/Taxation Association, the National Tax Association-Tax Institute of America and the Policy Studies Organization to name a few.

Dr. Keith Baker received his Ph.D. from the University of California in 1974 and has extensive experience as a government practitioner and consultant. He specializes in higher education as well as administration and public service in the areas of public policy and planning, growth management, urban and economic development and geographic information systems technology. Dr. Baker is past president of the Public Administration SIG of the Urban and Regional Information Systems Association (URISA) and is co-founder and past president of the Florida URISA chapter.

Editors: Catherine M. Haagenson and Bob Stiff.
Dr. Neil S. Crispo, Director, Research and Operations.
Dominic M. Calabro, President and CEO.
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1114 Thomasville Road
P.O. Box 10209
Tallahassee, FL 32302
Phone: (904) 222-5052
Fax: (904) 222-7476

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