Analyzing the Evolution of End User Information Technology Performance: A Longitudinal Study of a County Budget Office

John Sacco and Darrene Hackler
George Mason University, USA

EXECUTIVE SUMMARY

This study examines how the budget office of a large county government designed and implemented end user information technology (IT) from personal computers (PCs) and local area networks (LANs) to an intranet and Web pages over a 15-year period. The initial issue was internal to the organization—moving a time-consuming budget preparation process to a smoother one, where "what if" analysis could be completed. However, more recent end user IT challenges are less internal and shaped more by the demands and expectations of parties outside of the budget office.

While the evolution of IT in this budget office was distinctive, we utilize a framework to flesh out both the unique and generalizable lessons of such IT development. A stages model from the IT literature holds promise for explaining the internal successes as well as problems that arose during implementation and transition. The stages model suggests that the proliferation of IT can be directed toward productive use by recognizing IT crises and adding management control to handle the crises. However, the stages model does not readily account for significant changes in external social facets of the techno-social environment. These changing external social facets include global competition and reinventing government. The study suggests that the stages model would benefit from incorporating social-change shocks to better understand the transitions, the nature of the stages and IT performance within each stage.

BACKGROUND

The studied county budget office serves a county that is rapidly growing with a prosperous and strong service economy base. The county's population increased from slightly more than 650,000 in 1984 to over 950,000 in 2000. In the past 30 years, it has changed from a bedroom suburb to a service and high-tech economy. During the 1980s, revenue growth doubled (see Table 1) and met most demands, but with rapid population expansion, revenue has been strained to keep up with schools, social services and other governmental needs. Thus the budget office was under great stress. Also the budget office staff, while very professional, was never large. During the period of the study, the

Table 1: County Revenues

Year	Total Revenue $ (000)
1985	958,664
1988	1,280,477
1994	1,861,560
2000	2,644,216

professional staff grew from 30 to 36, much more slowly than growth in the budget. On the surface, this small increase in staff members indicates a positive impact from the implementation and coordination of various end user IT tools. Over the years, the management information systems (MIS) and IT functions within the budget office have been formalized into a systems maintenance and applications bureau. The county also has a separate Department of Information Technology (DIT), previously called Data Processing (DP). The DP office developed traditional applications for departments, often with the assistance of outside consultants. Now, DIT has a far wider range of functions that also include public access. DIT reports to the Chief Information Officer (CIO) who is at the same top organizational level as the Chief Financial Officer (CFO). The budget office reports to that CFO, who in turn reports to an appointed County Executive. The county also has a legislative body that is the paramount elected body.

SETTING THE STAGE

Prior to the beginning of the study period in 1985, the DP office developed and guided the financial and budget preparation applications through the mainframe. These applications were the only automation tools aiding budget production. Typical of life cycle-oriented DP offices, the queue of tasks was much longer than the resources available to the DP office.

As might be expected, before the introduction of PCs, the LAN and the intranet, the process of budget preparation was a tedious and largely manual task. The budget office staff distributed budget request forms to all county agencies. Once the agencies hand-keyed the requests into the mainframe financial program, the budget office obtained mainframe printouts or sometimes typed forms of agency requests. Analysts prepared large green work sheets to analyze and document the relationship between the agency requests and executive orders. With a handwritten budget in place, it was turned over to the secretarial staff for typing. The early wordprocessors (such as Wangs) helped, but the process still culled information from many places over several weeks. Once the budget was adopted, it was again hand-keyed into the mainframe financial application so that budget execution could be monitored. Seamlessness was a dream, and transaction costs were high.

In 1985 the budget process in the county began to change when the entire professional staff received blazing 286 PCs with hard drives and a software package that included a spreadsheet, wordprocessing and database applications. Two of the budget analysts, who became the gurus in the office, were instrumental in the decision to purchase PCs for the entire professional staff, and budget office executives signed off on the decision. While some elected officials were worried that PCs might be a fad, it eventually became clear that PCs would play a major and continuing role in budgeting as well as implementing end user IT across the government.

By the late 1980s and early 1990s, top county executives, professional and elected, were more supportive of end user IT, seeing PCs and end user IT as a mark of good management. Starting in 1990, the budget office, under DP's direction, installed a LAN to connect everyone in the office.[1] In 1996 connectivity among other agencies became a reality with the introduction of an intranet. Around the same time, the budget office and county went online, beginning to build Internet Web pages for outside IT end users. The intranet and Internet Web pages gradually meshed, with some of the data from the intranet being displayed on the Web.

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