Implementing a Microcomputer-Based Work Reporting and Monitoring System for Government Services: A Case Study

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Fiscal pressures and increasing calls for government accountability demand that government develop a system for productivity and costs measurement. This paper presents a case study, in a state government agency, of a microcomputer-based software system that records employee work activities and calculates the labor costs associated with those activities. The result of this implementation was the generation of a dynamic and comprehensive database of all defined employee work activities and the distribution of labor costs among the mix of employee activities. This database allows management to monitor operational efficiency and effectiveness on both an individual employee and a group basis. The paper presents actual data originating from the system implementation. Recommendations for the implementation of computer-based work reporting and monitoring systems are also presented.

Continuing fiscal pressures at all government levels in the United States have led to increasing demands for measuring government productivity, performance and costs (Epstein, 1992; Carr, 1991). Furthermore, continuing public cynicism regarding government efficiency and effectiveness demands that governments make efforts to provide an accounting of their actions and costs. Response to these demands is essential if government is to show a commitment to the accountability expected of public institutions in a democracy. The practical efforts attached to these demands require gathering information regarding both government organization outputs and the costs associated with those outputs.

Microcomputers and emerging software applications provide an expanding foundation for both measuring productivity and promoting accountability in government. This paper presents a case study of the implementation of a microcomputer-based work reporting and monitoring software system in a state government agency. The software system, entitled Virtual Management™ (VM®), was implemented in 1990. The system was designed to generate an expanding database that would serve to monitor and track employee activities, to accumulate the number of identifiable outputs or “products”, and to capture labor costs associated with employee activities and the “products” of the agency. In state government, efforts to capture costs must focus on labor costs which can range from 60%-70% of total costs (Lee, 1987).

The practical challenges driving the implementation of the information system described in this case study then were to capture relevant productivity, activity, and labor costs data while serving as a platform for agency accountability. For as one senior government manager, an initiator of the system implementation stated, “taxpayers have a right to know where their
money is going."

The Organization and the Need for System Implementation

The implementation site for the work reporting and monitoring information system was the communications division of the state of Oklahoma. The duties of this agency include telecommunications service, maintenance, and equipment installation for all state agencies in the Oklahoma capitol complex. This agency also operates and maintains the central switchboard for all state agencies within the Oklahoma City complex.

The communications division employs 15 people. Eight of these employees are technicians responsible for handling service calls from other agencies. These service calls, which are billed to other state agencies, can range from a rather simple phone installation to running new telephone lines requiring considerable time and energy. The technicians spend a considerable portion of their time outside the agency offices making their service calls.

Of the other seven agency employees, five of the employees are responsible for support and clerical functions, such as switchboard operator and the billing of service calls. The remaining two employees hold management positions and spend much of their time in operations management activities and consultations with other agencies interested in new or updated telecommunications services.

Three factors made the communications division a good candidate for the implementation of a work reporting and monitoring system. First, the communications division was mandated by the state to be a self-financed "profit-center." In government vernacular, this meant the division was mandated to bill other agencies as a means of both supporting their own budget and generating revenues designated for future statewide telecommunications updates. However, like many other government agencies, the communications division had never systematically investigated the actual costs involved in service provision. Clearly, the communications division had a stake in proper pricing for its services as a means of ensuring its mandate for revenue generation.

Second, since much of the service technicians’ time was spent at other agency locations on service calls management was often not aware of the status of particular ongoing jobs. For example, many service calls took more than 2 days with two or more employees involved. Management needed information about the status of these jobs for the purposes of planning future service calls and scheduling employees on these calls. The information system described here then was also intended to provide management daily feedback about the status of all incomplete service calls. Employees would report the status (complete or percent complete) of all work orders, and other tangible outputs, worked on during the day.

Finally, one of the difficulties of measuring performance in government organizations is defining appropriate and quantifiable measures. The communications division was a good subject for the computer-based work monitoring system because this agency produced both indirect labor and definable "products." Products such as new phone installations or new wirings would provide a readily quantifiable measure of the outputs of the agency.

Computer-based tracking of employee time, activities, and associated labor costs is currently practiced in other government organizations (OTA, 1987). For example, the U.S. Postal Service’s Management Operating Data system (MOD) requires postal employees to report their activities via an electro-magnetic card and a keypad input device, at each change of work activity (U.S. Postal Service, 1987). This technology was inappropriate for the communications division since start-up and continuous costs for systems such as MOD are far more extensive than the communications division could or wanted to incur. The intent was to implement a system that measured productivity while minimizing intrusions on operations and implementation costs.

System Implementation and Methods

Database Design

Before the information system could be implemented it was first necessary to generate an initial database. One essential element of the database was the roster of activities that each employee performed. This roster was developed via employee/management consultations. The roster of activities varied in scope and by job responsibilities. For example, all 8 technicians had the same roster which included 14 distinct activities. Clerical workers in the agency had somewhat shorter and more individualized task rosters.

Care was taken not to define an overly microscopic set of activities. Employees were not asked to specify every distinct work movement, but instead were asked to define the principal activities that comprise their work duties. The result of these consultations was a standardized set of activity naming conventions throughout the agency and a standardized set of codes defining activi-
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