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MICROCOMPUTERS AND SMALL AND RURAL LOCAL GOVERNMENTS

Final Report
to the
W.K. Kellogg Foundation

By Donald F. Norris

October, 1984



Center for Applied Urban Research
University of Nebraska at Omaha



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Introduction

On June 17, 1982, the Center for Applied Urban Research at the University of Nebraska at Omaha received an award of \$72,212 from the W.K. Kellogg Foundation to conduct a training and technical assistance program in microcomputers and small and rural local governments. The overall purpose of this project was to enhance the management capabilities of these governments through the use of computers. The following is a brief report on the activities undertaken during the second year of the project.

Completion of Activities

The second year of the project witnessed the completion of several major activities that were initiated during the first year. These included:

- * Microcomputers and Local Governments: A Handbook. This is a 103-page handbook written exclusively for local government officials and personnel to acquaint them with microcomputers and to provide standard documents and a methodology for acquisition of these systems. The Instructor's Manual was also developed for use by persons conducting the training workshops.
- * The Personal Touch: Microcomputers and Local Governments. This is a 20-minute film (and videotape) on the acquisition and use of

microcomputers in local governments. It was produced for use in training workshops and in brief presentations to governmental officials and personnel.

- * Demonstration projects in small, rural governments. The three demonstration projects initiated in the first year were completed. The Appendix contains summaries of these projects. Experience gained helped in the development of the handbook, standard documents, and film.
- * Training workshops. Using the handbook, instructor's manual, and film, workshops were held in Denver, CO (for the American Society for Public Administration annual conference) and in Omaha and North Platte, NE (for local officials from Nebraska and surrounding states).
- * Advisory committee. The final meeting of the project advisory committee was held in Omaha when members reviewed project activities and discussed various issues surrounding the acquisition and use of microcomputers in local governments.

Additional Items

- * An article reporting data from the survey entitled Computers and Small Local Governments (CAUR, 1983) was published in the January/February issue of Public Administration Review.
- * A proposal has been submitted to a federal government foundation to study the adoption and use of microcomputers in small police agencies.
- * Owing in part to this project, CAUR has been asked by several small Nebraska local governments to assist in computer system procurements.

Dissemination

The principal activities undertaken to disseminate the results of this project have included:

- * News releases have been distributed to numerous publications in the fields of local government, public administration, and data processing.
- * An article on the project has been written for publication in Government Data Systems, and another article has been published in the GAO publication, Federal Government Software Exchange.
- * All advisory committee members received copies of the videotape, handbook, and instructor's manual. Also more than 40 copies of the handbook have been distributed to public administration practitioners, researchers, and teachers around the country, and an additional 40 copies of the handbook, 20 instructor's manuals, three copies of the film, and 15 videotapes have been sold or otherwise distributed as the result of requests received by CAUR. Also, over 75 copies of the handbook were provided to participants at the three workshops.
- * A request for additional funding from the W.K. Kellogg Foundation was submitted (and approved) to continue dissemination efforts in 1984 and 1985.

Conclusion

Briefly stated, the project has been successfully completed. Promised products were developed and are in the process of being disseminated. The Center for Applied Urban Research has enhanced its capacity to assist small and rural local governments, and a model for delivery of technical assistance regarding microcomputers has been developed, tested, and is fully transferable for use by local governments and technical assistance providers in other states.

Future Plans

With the approval by the W.K. Kellogg Foundation of CAUR's request for support for additional dissemination efforts, the following activities will be undertaken during the 15 months beginning September 1, 1984.

- * Conduct ten (10) training workshops for local governmental personnel under the auspices of various local government organizations and associations, using the film, handbook, and instructor's manual.
- * Conduct one meeting of the project advisory committee for the purposes of continuing the dialogue among committee members on the subject of microcomputers and local government and also to train advisory committee members to become trainers using the handbook, instructor's manual, and videotape.
- * Conduct ten (10) case studies of small local governments using microcomputers and, as appropriate, incorporate the findings of these studies in the handbook and training program and endeavor to disseminate these findings through their publication.

Budget Narrative

Actual expenditures differed from budgeted amounts in the following areas: personnel costs were \$303.98 above the budget estimate; travel, subsistence, and advisory committee costs were \$247.54 over budget; printing and mailing costs (largely as the result of the cost of printing the handbook and instructor's manual) exceeded the budget by \$983.28; and office costs were \$398.52 more than the budgeted amount. However, the cost of producing the film and videotape was under budget by \$1,933.32. Thus, the aggregate expenditures of \$46,805.77 for the second year of this project balanced with the aggregate budgeted sum of \$46,805.77. (See attached budget report form.)

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APPENDIX

Demonstration Projects

Ashland-Greenwood Public Schools

Butler County

City of Gordon

The Ashland-Greenwood Public School District

The Ashland-Greenwood Public School District is a school system serving approximately 800 students from kindergarten through high school. The superintendent's office is housed in the elementary school building in Ashland, a community located on U.S. Route 6 in east-central Nebraska approximately 30 miles from Omaha.

The school district is governed by an elected school board and managed by an appointed superintendent. The district had been considering office automation of its administrative operations when the business manager attended a CAUR data processing workshop conducted by Dr. Donald F. Norris. Both the business manager and the superintendent were convinced of the need and value of automation for the administrative activities of the district.

The Ashland-Greenwood School District was selected to participate in the project because of its small size and rural service area, its interest, and its willingness to be a demonstration site for the project.

A study of the district's administrative data processing needs was completed in June, 1983 by the CAUR study team of Dr. Norris and Dr. David R. DiMartino. They recommended the automation of several "housekeeping" activities on a single-user microcomputer. A Request for Proposal (RFP) was developed and issued in October, 1983. Seven proposals were received and were evaluated in February, 1984. In May, 1984 hardware and software vendors were selected. Implementation of and training on the selected system were scheduled for September, 1984.

Prior to system acquisition, the school district contracted with Educational Service Unit (ESU) No. 10 in Kearney, NE for data processing for general ledger and budgetary accounting, accounts payable, vendor accounting, and payroll checks. Costs of the ESU services were increasing at a rate of 20 percent per year, and the turnaround time for reports was approximately one month (resulting in a 30- to 60-day lag in financial reporting).

Other functions were performed manually. Those included investment management, personnel record keeping, student record keeping, school census, library inventory, school lunch accounting, bus routing, and equipment management.

The study team initially estimated that the school district's administrative functions would require a single user microcomputer system with a minimum of 64K of main memory, dual floppy disk drives for data storage, a monochrome monitor and keyboard, and a single dot matrix printer. The system would include programming to accomplish financial management (including budgetary and general ledger accounting, accounts receivable, and accounts payable), payroll, personnel records, and spreadsheet functions. Functions suggested for automation in the future included student records, school census records, and school lunch accounting.

Seven vendors submitted bids in response to the district's RFP. Six of the systems proposed ranged in purchase price from \$15,195 to \$24,946, and five-year costs (purchase plus maintenance, training, and related costs) ranged from \$22,327 to \$47,891. One system was priced at \$7,225 for total five-year costs; however, this bid proved to be unrealistic and inadequate. Bids were submitted from four vendors in Nebraska (three in Omaha and one in Ashland), one in Council Bluffs, IA, one in Colorado, and one in Kansas.

Bids were reviewed for hardware and software adequacy, cost, training, maintenance coverage and terms, backup site location(s), and user satisfaction with formatting and functions. Three vendors were selected for closer examination, demonstrations were held, and selections were made.

A single vendor was determined to have superior software and software maintenance. However, the IBM hardware bid by that vendor was available to the school district at a 30 percent educational discount directly from IBM. As a result, the study team recommended purchase of the software and Tallgrass hard disk drive from the software vendor (American Fundware, Inc. of Steamboat Springs, CO); purchase of the IBM computer with 256K of main memory, a keyboard, monitor, operating system, and single floppy disk drive directly from IBM; and purchase of an Epson FX-100 dual-mode (dot matrix/correspondence quality) printer from a third, local vendor. Maintenance for the hard disk would be supplied by a fourth vendor (Xerox Americare, Omaha, NE).

Purchase agreements were executed in July, 1984, and training and system implementation were scheduled for September in order to accommodate the school district's workload.

School district personnel and the school board were cooperative throughout the project. Only one potential problem arose. The vendor that submitted the lowest bid was owned, in part, by a school board member. Evaluation showed the bid price to be unrealistic and the proposed system inadequate to the district's needs. Once these deficiencies were apparent and other proposals with realistic cost and effective systems were demonstrated, no further consideration was given to this bid.

Butler County

Butler County is located in the rural, farming country of east central Nebraska. David City, the county seat, is approximately 80 miles east of Omaha on State Route 15, three miles north of State Route 92. Butler County's 1980 population was 9,317.

The county is governed by a seven member board of supervisors who are responsible for general county policy, the county budget and financial management, and who direct those county departments not under the control of one of several independently elected county offices. The principal elected officers of concern to this project were the county clerk, treasurer, assessor, and sheriff. (The treasurer in Butler County also serves as register of deeds and election commissioner.)

In the spring of 1983, the county clerk contacted CAUR after reading an article in the NACO (Nebraska Association of County Officials) magazine about the Kellogg supported project on microcomputers and local government. He asked if, through that project, CAUR could assist Butler County to determine its computing requirements and select a system. Butler County was chosen to participate in the project due to its small size and rural location, its interest, and its willingness to be a demonstration site.

One of the issues being examined through the demonstrations was at what point several factors including governmental size, number of functions to be automated, and number of computer users would rule out use of the then current generation of microcomputers. The study team felt that Butler County with its small population and a full panoply of county government functions would be a good site to test this question.

A second issue related to the availability of commercially supported programming on microcomputers for county (as distinct from municipal) government functions. Here again, a small county like Butler appeared to offer an excellent opportunity to test the marketplace. During the analysis of Butler County's data processing requirements, the study team found three antiquated data processing systems in use in the three principal county administrative offices. These were a Burroughs L-8000 accounting/bookkeeping machine in the assessor's office, a Burroughs L-4000 accounting/bookkeeping machine in the clerk's office, and an IBM System/32 single-user minicomputer in the treasurer's office. The county's total investment in these non-integrated stand-alone systems was almost \$89,000, and annual maintenance and programming costs were over \$12,000.

The study team recommended that the county issue an RFP for either a networked system of microcomputers or a multi-user minicomputer system to perform the basic financial management and record keeping functions of the assessor's, clerk's, and treasurer's offices in a fully integrated manner. The recommended configuration that was ultimately approved by the board was for seven CRT's or work stations (two each in the assessor's and clerk's offices and three for the treasurer). Also recommended were three small dot matrix and one system (line) printer, a single hard disk drive, a tape drive, and software for the three offices to perform the following functions: real and personal property assessment, tax billing and tax collection, accounting and distribution, motor vehicle tax assessment and collection, issuance of motor vehicle titles and registration, voter registration, special assessment billing and accounting, an integrated financial management system, payroll, and personnel management.

The RFP was released in October, 1983 and 11 proposals were received. All were for multi-user minicomputers. The results of the study team's requirements analysis for Butler County and the RFP process indicated that:

- (1) At the time this project was conducted, counties the size of Butler needing an integrated data processing system involving three offices were limited to minicomputer type hardware. Commercially supported micros with the required memory, storage, speed, and multi-user capabilities were not available, at least not in the Great Plains region of the country. (However, since the demonstration project in Butler County, microcomputer systems with these capabilities have begun to appear on the market.)
- (2) Similarly, at least in the Great Plains, software for microcomputers for county governmental functions was not then available for counties the size of Butler and with its functional requirements. The solicitation of bids was not restricted to Nebraska or even the Great Plains region. Notices of the RFP were printed in newspapers in Omaha and Lincoln, and the county sent bid solicitations to data processing companies in other parts of the country.

Because all of the bids received were for minicomputers, this report could end here as far as the demonstration part of the project is concerned, but CAUR had made a commitment to assist the county regardless of the minicomputer versus microcomputer problem. Hence, all of the proposals were evaluated, and ultimately three vendors were recommended and accepted as finalists, or so the study team thought. A fourth vendor was being considered by the county without the study team's knowledge. This vendor had no local government installations with fully developed software. In fact, the vendor

had just won its first county government bid and was beginning to develop the required software at that site. Because of these considerations, especially in comparison with other similarly priced proposals from vendors who had developed and installed software and had far more local government experience, the study team had not recommended this fourth vendor for final consideration by the county. Nevertheless, this was the vendor the county ultimately selected.

The selection of this vendor represents a case in which the advice of the technical assistance provider was not followed by the client and also one in which local politics became more relevant than technical assistance to the acquisition process. Approximately three years prior to Butler County's request for CAUR assistance, the county had gone through a data processing acquisition process only to have the result of that process vetoed by one of the county officers who did not like the selected brand of hardware. Consequently, one of the primary concerns of the county board, the other officers, and the study team was to ensure that this officer participated fully in and completely understood the current acquisition process.

Although this communication effort apparently succeeded, effective communication between the study team and the county board and a different county officer apparently failed. As the study team was to learn later, the second county officer gained county board support for the vendor that the study team had not recommended in the initial evaluation of proposals. Furthermore, this officer had invited representatives from that vendor to meet with the board and had also arranged a visit by board members to a nearby county where the vendor was installing its first local government system. Neither this officer nor the board informed the study team of their preferences or of these developments.

Hence, board selection of this vendor came as quite a surprise to the study team as well as to the three vendors that thought that they alone were under final consideration by Butler County. The object lesson here is that in computer acquisition projects with local governments, the political feasibility of computerization and/or the politics of selection of a computer system are often more important to the process than any other single factor.

The City of Gordon

The City of Gordon is a community of approximately 2,200 located on U.S. Route 20 in northwest Nebraska about 400 miles from Omaha. The area is devoted to ranching and, to a lesser degree, farming. The Pine Ridge Indian Reservation lies less than 20 miles to the north in South Dakota.

The city is governed by a mayor and city council and employs a city manager. The city manager and city clerk were the key personnel involved in automating office operations. The city manager became aware of CAUR's technical assistance in computers and data processing through attendance at a workshop conducted by Dr. Donald F. Norris. Gordon was selected to be a part of this project because of its small size and rural location, its interest, and its willingness to be a demonstration site for the project.

The CAUR study team conducted an assessment of the city's data processing needs in the spring of 1983. This assessment established the feasibility and cost-effectiveness of Gordon's replacing its antiquated accounting/bookkeeping machine with a microcomputer and packaged municipal software.

With city approval, the study team developed a Request for Proposal (RFP) which was issued in September, 1983. Proposals were received from 11 vendors. The study team completed an evaluation of bids in December, 1983, and the city selected hardware and software vendors in February, 1984. Implementation of the selected system began in February, and the initial training of city personnel to use the system followed.

The initial analysis of Gordon's data processing needs found that key personnel had very positive attitudes toward computerization and were anxious

to acquire a more up-to-date and effective system. Automation for Gordon at that time consisted of an antiquated Burroughs L-8000 accounting/bookkeeping machine, use of a nearby data processing service bureau, a short-term lease on an Osborne 1 transportable computer system, and a Xerox 620 memory typewriter.

The L-8000 was used to process the city's payroll checks and utility bills and for customer accounting. The service bureau was used for financial management reporting (including budgetary accounting, accounts receivable, accounts payable, and year-end auditing). The city manager was using the Osborne computer for budgeting, forecasting, and word processing. The memory typewriter was used for correspondence, reports, city council agendas and minutes, and other word processing.

The needs assessment suggested that the City of Gordon proceed with solicitations for a single microcomputer system with a minimum of 64K of memory, 5MB of hard disk storage capacity, monochrome monitor and keyboard, and printer. The system would include programming to accomplish the financial management, payroll, and utility billing functions. Future system expansion was suggested to include equipment and data base management functions. A separate microcomputer system was envisioned for the police department at some future date.

The microcomputer specifications contained in the RFP were expanded from the configuration described in the needs assessemnt to include 128K of main memory and 10MB of hard disk storage because of rapidly evolving microcomputer technology and to accommodate the city's perceived future needs.

The programming requirements specified in the RFP included an integrated financial management system (designed around a general ledger accounting system and including budgetary accounting, accounts receivable, and accounts payable subsystems), a payroll/personnel system, a utility billing and accounting system, and a spreadsheet capability.

Eleven vendors submitted bids for the Gordon microcomputer system. Purchase prices ranged from \$12,113 to \$35,825 and five-year costs (purchase plus maintenance, training, and related costs) ranged from \$15,763 to \$93,581. Prices varied widely because proposed systems ranged from single-user microcomputers to multi-user minicomputers. Bids were submitted from six vendors in Nebraska and one vendor each from South Dakota, Colorado, Wyoming, Montana, and Texas.

Bids were reviewed for hardware and software adequacy, cost, training, maintenance coverage and terms, proximity of backup site(s), and user satisfaction with formatting and functions. Three vendors were selected for closer examination, systems demonstrations were held, and a selection was made.

Hardware was purchased from the local farm co-op which offered reasonably priced hardware with good warranty and maintenance coverage and immediate local backup in case of hardware failure. However, the co-op's software was only partially developed and was untested. Software from another vendor (American Fundware, Inc., of Steamboat Springs, CO) was judged superior. Both vendors were approached and agreed to an arrangement by which the software vendor would supply all programming, together with the hard disk, and the co-op would supply the balance of the hardware, CPU, monitor, and printer.

The system acquired was an IBM-PC with 256K of main memory (up from the RFP estimate of 128K at the vendor's recommendation), monochrome monitor, Epson FX-100 printer, and 20MB Tallgrass hard disk. Aside from a minor problem involving backup of records on the hard disk (since alleviated), the city has been very pleased with the system.

Only one problem arose during this project. The city council was divided in its understanding of and support for automation. However, through close

cooperation with the city manager and his strong support for acquiring a new system, continuing communication with and presentations to the council, a highly favorable cost-benefit analysis, and the possibility of a serious breakdown of the city's existing accounting/bookkeeping machine, the council approved the new system.