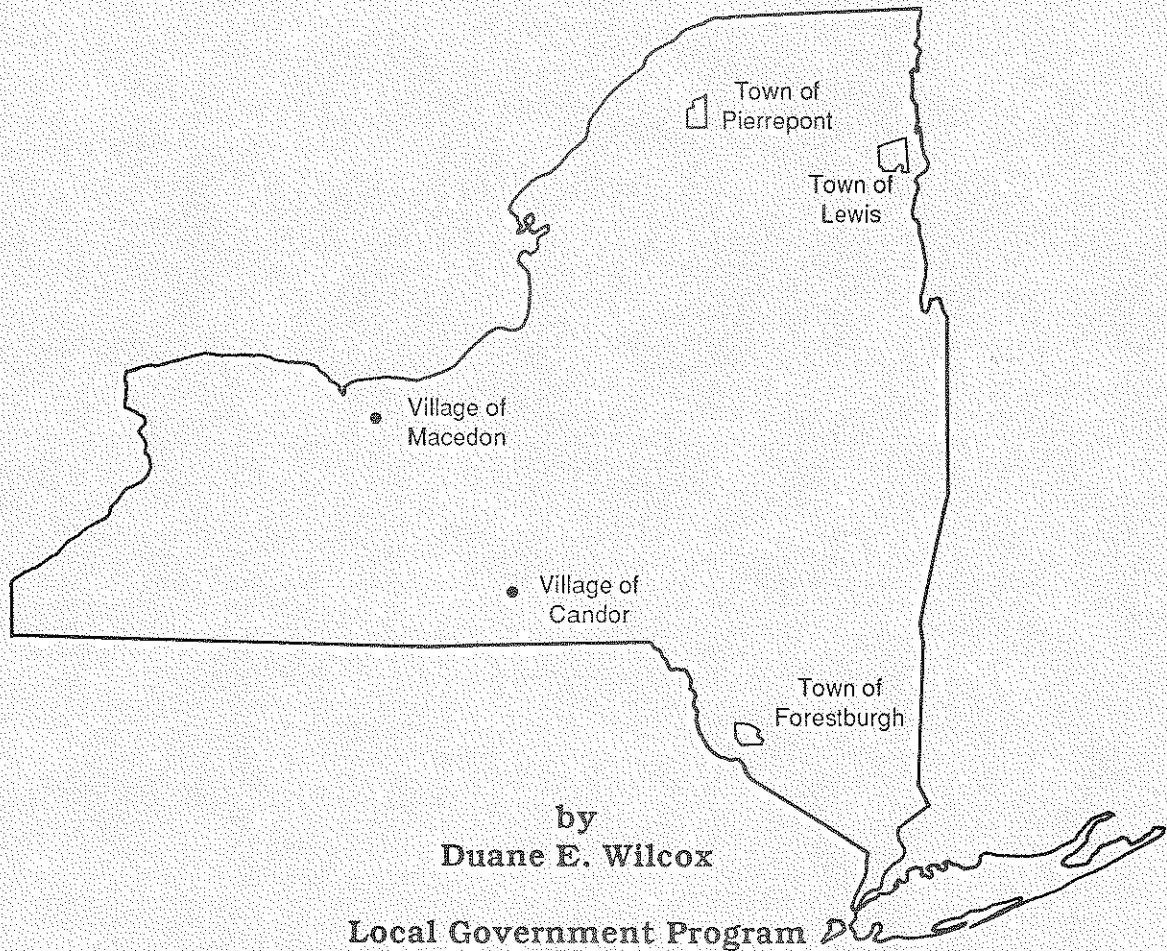


MICROCOMPUTERS AND SMALL LOCAL GOVERNMENTS IN NEW YORK: FIVE CASE STUDIES

Executive Summary



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This executive summary provides major points from five case studies of microcomputer acquisition and use by two small villages and three small towns in New York. To gain the most from this research, local officials and other interested parties should obtain and read the actual case studies. They appear in A.E. Research 89-4, Microcomputers and Small Local Governments in New York: Five Case Studies. Copies may be obtained by writing to:

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I. THE NEED FOR THE STUDY

In 1988 the Cornell University Local Government Program undertook five case studies of microcomputer acquisition and use by three small towns and two small villages in New York State. This report provides a summary of major points from the complete report.

The impetus for these case studies was a survey of town microcomputer use undertaken by the Local Government Program in late 1985 and early 1986. This study indicated that not only were small towns making limited use of microcomputer technology, but that they lagged far behind large towns in doing so. A reasonable assumption is that a similar survey of villages would have found the same general pattern.

Why was this occurring? The researchers' conclusion was that if properly selected, introduced, and used, microcomputer technology should prove cost-effective for the great majority of New York's small local governments. Thus, the most likely explanation seemed to be that, compared to the officials of large local governments, those of small jurisdictions were much less familiar with the technology in general and much less certain how to properly select, introduce, and use it in particular. In good part, this could be because most local governments with small populations are in rural areas; the opportunities for local government officials to become familiar with the technology have probably been much greater in urban and suburban areas.

This reasoning led to a decision to develop case studies that would help officials of small local governments learn more about the benefits and costs of microcomputer technology and how to properly select, introduce, and use it. Case studies seemed to be an appropriate way to pursue this educational goal because one of the preferred learning methods of local government officials is to investigate relevant experiences of other local officials. Case studies enable many local officials to learn in this fashion if they provide thorough descriptions of the experiences of other local officials in typical circumstances who tackled a problem facing many local governments.

II. SELECTING CASE-STUDY JURISDICTIONS AND DEVELOPING THE STUDIES

An initial decision in the research process was to do case studies of two villages and three towns. These types of jurisdictions were selected because the overwhelming majority of New York's small general-purpose local governments are towns and villages. Time was available to do five case studies. Studying two villages and three towns seemed appropriate simply because this would provide a ratio of village case studies to town case studies (2:3) roughly equivalent to the ratio of total villages to total towns (559:932).

Five criteria were used to select the two villages and three towns for the case studies:

Population rankings below the 1980 town and village median populations. -- The median populations in 1980 for villages and towns were 1,698 and 2,637, respectively.

Town and village ownership of microcomputer systems. -- The 1985-1986 survey of town microcomputer use indicated that the great majority of microcomputer systems used for town purposes were owned by towns. Thus, it seemed likely that studying jurisdictions in which the microcomputers being used were owned by them would be most useful to officials of other jurisdictions.

No evidence of special advantages in acquiring and initiating use of microcomputer technology. -- The educational value of the case studies would be seriously diminished if they prompted reactions from readers such as "No wonder they succeeded -- look at the special advantages they had!" Therefore, it seemed appropriate to choose jurisdictions that were not favored in some unusual way.

Significant use of the microcomputer system. -- It was presumed that local officials would find the case studies more useful if each jurisdiction studied was using microcomputer technology for a significant number of applications. A "significant number," it was decided, meant seven or more applications. At least two of them had to be major applications, such as water billing and maintenance of the general ledger.

Successful use of microcomputer technology. -- Valuable lessons can be learned from case studies of unsuccessful efforts by small local governments to use microcomputer technology. But it seemed very likely that more numerous and more valuable lessons could be learned from case studies of jurisdictions whose officials were convinced they were using the technology successfully.

After a number of information sources were used to identify jurisdictions that might meet the above criteria, a brief

telephone interview was conducted with the principal microcomputer operator in each of these jurisdictions. The interviews established whether the jurisdiction did in fact meet all of the criteria stated above and, if so, the operator's willingness to cooperate in a case study. After these interviews, the most promising jurisdictions were chosen for the case studies.

A two-to-three hour interview with each principal operator was then used to gather information for writing a case study. Two questionnaires were used for these interviews. After an interview, a draft of the case study was developed and sent to the interviewee for review.

The final steps involved a telephone call to the interviewee to identify changes that needed to be made to produce an accurate case study and the revision of the first draft to incorporate these changes.

III. SUMMARY POINTS

By themselves five case studies do not provide evidence of widespread patterns. But pointing out the commonalities in the five experiences and commenting on them should help local government officials who want to try to learn from the relevant experiences of other jurisdictions.

There were four common elements in the experiences of the five jurisdictions in acquiring microcomputer technology. One was a methodical gathering and evaluation of relevant information on microcomputer technology in general and specific hardware and software products in particular. A second common element was general conformance with the steps usually found in different versions of the recommended process for acquiring a microcomputer system. In greatly simplified terms, this process involves choosing the tasks to be computerized, choosing the software to do these tasks, and then selecting the hardware that will run this software. A third common element was individual leadership, that is, the willingness of an individual to seek out and evaluate relevant information, report to others, ask for their advice and decisions, and, in general, keep the acquisition process moving forward. The final common element was overall satisfaction with the decisions made during the acquisition process.

All five jurisdictions were using IBM PC and IBM PC-compatible microcomputers. Previous research had found that these types of machines were the most widely used by New York local governments.

Although occasional difficulties had been experienced, on the whole, the five jurisdictions had found their microcomputer hardware to be quite reliable. The repair needs that they had experienced seemed to support the conclusion reached by other researchers that hardware maintenance contracts are not generally a wise use of local government funds.

Two different strategies were followed by these jurisdictions in choosing their software, but with comparable results in terms of satisfied users. Three jurisdictions purchased various products from different developers that were not specifically designed to work together. Two of them used the great bulk of their expenditures for software to acquire integrated financial-management software packages designed specifically for use by New York general-purpose local governments. The latter approach tends to result in much higher software costs. The two jurisdictions that followed this approach were also expending funds annually for software support agreements with the vendors of the integrated software packages. Despite using these two contracting strategies, all five interviewees chose either four or five for their software on a five-point satisfaction rating scale on which five was the highest rating.

These comparable ratings suggest that either strategy can produce satisfactory results. While choosing the integrated financial-management software developed specifically for New York local governments usually results in much higher software costs, a much more valuable quantity of benefits may justify the higher costs. Of course, if not carefully implemented, either strategy may produce unsatisfactory results.

All five case-study jurisdictions had done at least some applications development. This ranged from setting up simple word processing formats that were used many times to more complicated spreadsheet templates.

In terms of most common areas of applications, the five case-study jurisdictions echoed the findings of previous research. The great majority of the applications reported by the five jurisdictions were word processing and financial management applications undertaken by "central staff" (the town supervisor, the supervisor's bookkeeper, the village clerk-treasurer, etc.). These two areas of applications were also the most commonly reported by the local governments using microcomputers that responded to the 1985-1986 survey of town microcomputer use. Other studies provide similar findings.

Although there was considerable variability in the applications that the interviewees considered most valuable, each of them mentioned the saving of personnel time as a criterion for their choices.

All five jurisdictions completed their first useful products (for example, a budget printout) within relatively brief periods of time after acquisition of their systems. The time periods reported were one day, less than a week, one week, one month, and -- for a jurisdiction that began with a time-intensive major application -- six weeks.

None of the case-study jurisdictions hired a new person solely to be a microcomputer operator or a new person with proven skills in operating a microcomputer for this task. In all five cases, persons already elected or appointed to town and village positions became the operators.

In four of the five jurisdictions, who the operators were and what the microcomputers were used for seemed to be determined in large part by who provided leadership in the acquisition process. The lesson would appear to be that "the person who takes the initiative in pursuing microcomputer acquisition is likely to reap the benefits first."

The one common element in terms of microcomputer training was the importance of informal learning methods. The amount of formal training received by the operators varied considerably. But all of them assigned major importance to such learning methods as studying hardware and software manuals, working through software tutorials, and experimenting with the system ("trial and error").

None of the five case-study jurisdictions had a formal management policy concerning the acquisition and use of microcomputer technology. All five jurisdictions had made decisions on matters that could be covered by such a policy statement, but no one in these jurisdictions had proposed that one be adopted. Even for jurisdictions with only one microcomputer system, at least some gains would probably be achieved from formulating and abiding by a formal policy; the gains might increase significantly for a local government with a number of microcomputers.

In all five jurisdictions, the interviewees indicated that the positive effects of microcomputer use were significantly more numerous and important than the negative effects. This was indicated not only by the interviewees' general statements, but also by the particular positive and negative effects that they checked on lists of possible effects on the primary case-study questionnaire. The number of positive and negative effects -- including an "other effects" choice in each list -- were approximately equal. But the interviewees checked positive effects 75 times and negative effects only 22 times.

A reasonable argument is that those effects that were identified by all five of the interviewees are quite likely to occur in other small jurisdictions that properly select, introduce, and use microcomputer technology. Those effects were the following:

Positive effects.

Accuracy of work has increased.

Time has been saved.

Time has been saved and is used to do tasks that there was no time to do before.

It is easier to do the tasks done on the microcomputer than it was to do them manually.

Work became more enjoyable (or less tedious).

Sharing of information among officers and employees has increased.

Better information is made available for decision-making.

Decision-makers expect more and better information.

The appearance of documents has been improved.

The microcomputer operators have learned new skills.

The microcomputer operators feel more positively about their jobs.

Negative effects.

Workloads increased significantly during conversion to use of the microcomputer.

Existing personnel (rather than "extra help") handled this increased workload.

The last question of the case-study questionnaire asked the interviewees to select statements to describe the overall costs and benefits of microcomputer acquisition and use for their jurisdictions. Specifically, they were asked whether the benefits of acquiring, learning to use, and using their microcomputer systems were (1) much lower than the costs; (2) significantly lower than the costs; (3) about equal to the costs; (4) significantly greater than the costs; or (5) much greater than the costs. The previous 35 questions had engaged the interviewees in quite thorough examinations of their

jurisdictions' experiences with microcomputers. This should have prepared them to make "considered judgments" on costs and benefits in response to the last question.

Two of the interviewees chose the most positive response (the benefits were much greater than the costs), and three chose the next most positive statement (the benefits were significantly greater than the costs). These overall evaluations should be very encouraging to officials and employees in small towns and villages that are not yet using microcomputer technology, but are considering whether it would be worthwhile to do so.

IV. A CONCLUDING NOTE

While the foregoing summary of the case studies may be quite useful to local officials who are considering the purchase of an initial microcomputer system, they are urged to study the actual case studies. In terms of conveying all useful points, a summary discussion is not a complete substitute. The additional information gained from the studies themselves could prove very significant in terms of saving time and funds.

The experience of one of the case-study interviewees with the purchase of his jurisdiction's computer printer illustrates this point. He did not insist that the personnel of the computer store demonstrate that the printer he was agreeing to purchase could actually be used with his chosen computer and software to produce the types of printouts that he wanted. He is basically quite pleased with the town's microcomputer system. But despite the investment of much time on his part, he has never been able to get the printer to function in certain important ways and has concluded that at some point the printer will have to be replaced. The important lesson to be learned from this experience -- which it was not appropriate to include in the summary -- is that "Whenever possible, insist on a demonstration of hardware and software."

The title of the full report and ordering information are given on the back side of the front cover of this executive summary.

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