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AUTOMATING A SERVICE
BUREAUCRACY: THE RIVERVILLE SOCIAL
SERVICES INFORMATION AND
REFERRAL SYSTEM

by
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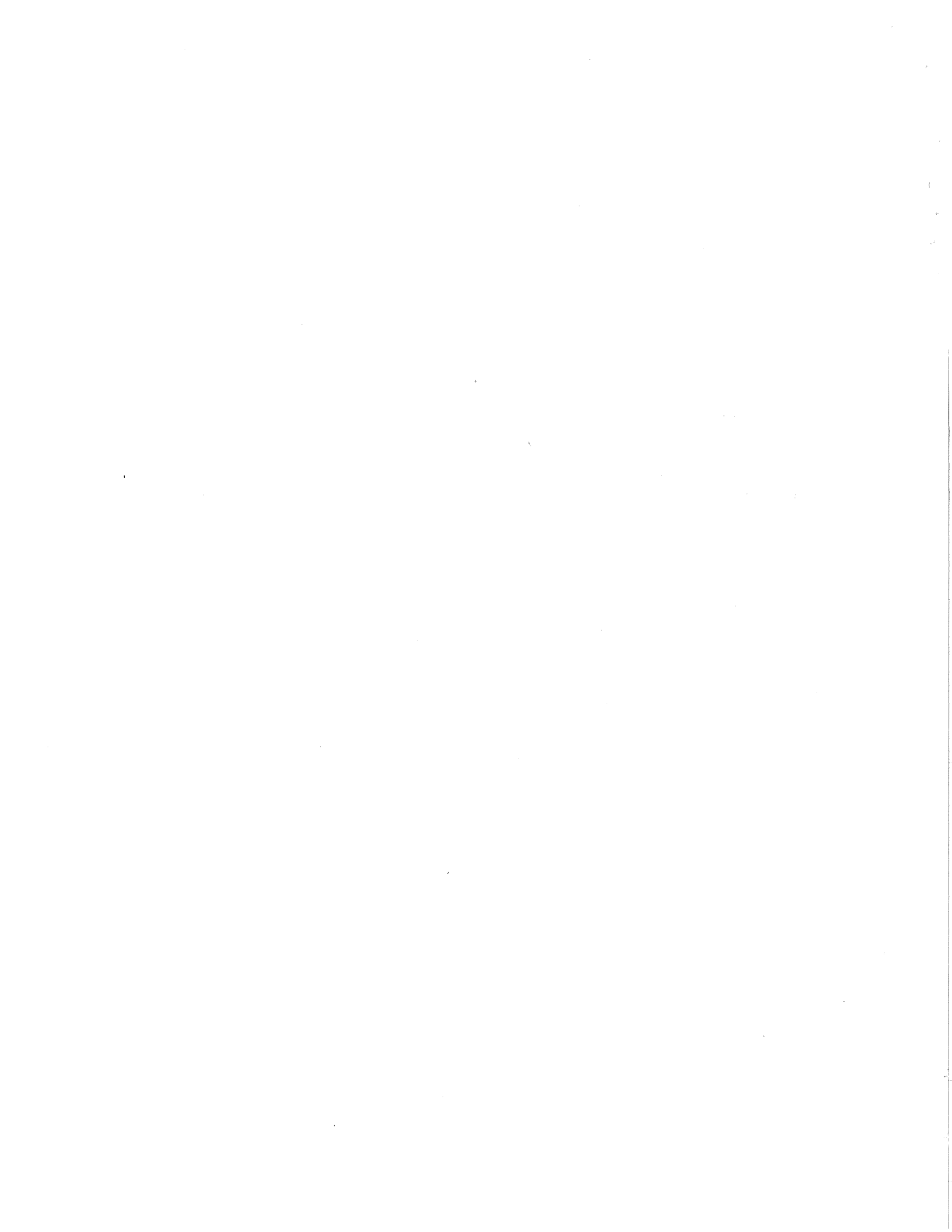
The Urban Information Systems Project at the University of California, Irvine is conducting several nation-wide studies to provide policy-relevant understanding to help guide the effective use of computer technology in local governments. During the first year of the project we undertook several exploratory case studies to articulate the salient issues surrounding particular information systems in local governments. While these studies were undertaken primarily to help refine the more systematic and comprehensive project studies, they also provide analytic and narrative accounts of independent value. This report describes some of the administrative issues that may arise in developing and operating an information system designed to help coordinate a disparate array of welfare agencies.

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1. Introduction

During the last decade, welfare agencies in the United States have experimented with a variety of political and administrative reforms. Many of the political reforms, such as developing citizens advisory boards, have received substantial attention while many of the administrative reforms have been less glamorous and less studied. Nevertheless, while many of the political reforms initiated in the 60s have proven weak and been abandoned, many of the administrative strategies, such as decentralizing offices and using computer-based information systems still persevere in the 70s. This paper articulates some of the issues that arise when a diverse array of welfare agencies attempt to coordinate their activities with an automated information system.

This paper describes the health and welfare information and referral system in Riverville. The system has received considerable press coverage since 1970 as an example of how an automated information system may help increase the efficiency and improve the quality of service of a highly decentralized urban welfare system. It is one of the very few automated systems that was designed and implemented to keep track of the kinds of service suggested for and received by individual clients.

Similar automated systems are reported to be under development in Contra Costa County, California; Hidalgo County, Texas, Chatanoga, Louisville, and Des Moines.

Several states, including Georgia, Maine, Arizona, Florida, Connecticut, and South Dakota are reported to be actively planning and developing such information and referral systems for their state welfare departments. However, the Riverville system is the most completely implemented system in the country, serving as a prototype for these other systems. Thus, the impacts of the Riverville system on its welfare agencies and the issues that arise in understanding its role in agency operations provide an empirical basis for predicting the likely impacts of these other systems on the operations of welfare agencies.

In addition, the Riverville case may help highlight the ways in which local government agencies use computer systems to support direct services to citizens. Most local government computing supports indirect services such as accounting, equipment inventories, or planning analyses. They directly benefit the citizenry only insofar as they render government operations cheaper, smoother, or "more effective." On those relatively few occasions that citizens come into contact with a computer system, it is often to pay a bill or to be located for an arrest warrant. Computing is rarely proclaimed to serve citizens directly.

Lastly, the case of Riverville may help inform us more carefully of the role shared formal records play in helping integrate similar functions across organizational boundaries. Such concerns have been the focus of three contemporary

groups. First, some contemporary organizational theorists [10,18] argue that organizational activity follows the flow of information and ipso facto the movement of information across organizational boundaries helps integrate administratively distinct units. Secondly, a bevy of public administration theorists and practitioners have begun to implement shared record systems bases that cross agency boundaries in several American cities [15]. Finally, integrating social service agencies in particular has been the concern of certain professionals who work in such settings [1]. Members of each of these groups view the problems of coordinating organizational units as a major practical and theoretical issue. Each of these groups views strategies of sharing information as an instrument that would enhance coordination. Thus, each group would expect the automated information system described here to enhance the coordination and thus the quality of welfare services provided in Riverville.

Riverville's information and referral system received a number of glowing accounts [4,6,7,12,12,21] in professional and popular magazines. We began our study to find answers to the following questions:

1. How do automated information systems help "integrate" decentralized organizations ?
2. How can automated information systems influence the provision of a set of social services directly to a group of people ?

3. What kinds of information must a case following information system contain to be of genuine use to case workers and intake workers ?
4. What relationship would there be between the publicized and actual characteristics of such a system ?

This paper is based on field work in Riverville conducted in the Fall, 1974. I consulted with both city employees and social workers in non-municipal agencies about the operation and utility of the information and referral system. This study was enhanced by the cooperation of the municipal staff and their assistance in setting up interviews and providing relevant documents [N1].

This paper provides a sketch of the Riverville welfare system and describes how the municipal information and referral system operates in that context. Then the official design goals of the automated information system are contrasted with its actual performance.

II. The Social Service "System" in Riverville

Riverville is an industrial town of 170,000 which serves as a regional center for several rural counties. Approximately 20% of the families live below poverty level. The median family income is \$7200 and 36% of the population is Black: The needy, Black and white are served by approximately 150 private, city, county, state and federal

agencies. These agencies cover a variety of geographical areas within and around Riverville. Some agencies focus on a neighborhood, others on a sector of the city, and still others accept clients who reside anywhere in the city. These agencies provide a variety of health and welfare services such as emergency rent, unemployment monies, medical and dental care, day care for children, job counselling and training, and foster homes. These agencies serve a number of groups: anybody (foster homes), the poor (e.g., Riverville Bureau of Relief); members of a particular religious or ethnic group (Jewish Welfare Federation); etc.

In November 1966, Riverville was notified by Housing and Urban Development that it had been selected as a participant in the Pilot Neighborhood Service Program. This grant was to subsidize outstanding examples of neighborhood service centers in specific geographic areas. In March, 1967, Riverville Progress Inc. was chartered by the state. Its board of directors was composed of the executive heads of the major public and private agencies in the city.

As late as 1966 there was little administrative coordination among these various agencies. Community Action Agency supported three neighborhood service centers which housed both information and referral offices and some service agencies which were partially funded by the city. The city government partly or wholly subsidized thirty five agencies which were clustered under several administrative umbrellas

including Model Cities and Community Action Agency. Each agency maintained its own intake forms, reporting conventions, and record-keeping systems. This pattern of multiple agencies serving similar groups of people with related needs prevails in most American cities.

Riverville Progress served as a forum for the staff of various agencies to foster coordination among their activities. The staff of the neighborhood service centers advocated an automated information system as a common management tool. They wanted up-to-date information on services they were rendering and the needs of the people they served. They also wanted to increase their capacity to plan and schedule additional services where there was a demonstrated need. They wanted to coordinate their efforts with other agencies providing similar services, and, they wanted more hard data about the needs of individual clients. Riverville Progress served as an institutional basis for promoting an automated information system to be used by community supported welfare agencies. In the late 60's a modest "batch" system was initiated and used by some of the agencies in Riverville and in 13 rural counties in the surrounding area.

A new mayor was elected in 1971, and he had a difficult time learning how much city funds were spent for which services and who was being served. For example, the city was spending \$10,000 per year on rat control. The workload for

this program was monitored by the automated record-keeping system by treating "rats killed" like "clients served". When the mayor received a "workload report" showing that during the past year, a total of 300 rats had been exterminated, he was stunned and commented dryly, "I thought steak was expensive!". This incident illustrated the utility of some frequently provided measure of an agency's workload to him. At first, he supported and advocated an on-line real-time reporting system. He hoped that frequent and accurate reporting would help his staff manage the diverse and complex array of welfare programs supported by the city. The development of such a system had just begun with seed money from the Community Action Agency. (Details of the system development are described below in Sections IV and V.)

However, information alone was insufficient. To further improve the control of social services he consolidated 35 of the 36 city-supported agencies into a new "Human Services Division" in December 1972. These included the programs funded through Model Cities, Community Action Project, and concentrated reemployment. These agencies which were consolidated and moved under the jurisdiction of the mayor's office became the primary users of the Riverville's automated information and referral system.

Thus, between 1966 and 1974 two different but compatible strategies were employed to integrate social service agencies in Riverville. A "technical strategy" utilized an automated

information system which would track the path of particular clients through the maze of public and private agencies. An "administrative strategy" consolidated all but one of the city supported agencies into a common administrative unit.

The intake and referral offices within each of the neighborhood service centers form a hub in the municipal welfare system. First, they register each new client in the automated information system (JMIS), and secondly they refer the client to appropriate agencies in Riverville. However, most of these clients that apply at the neighborhood centers are referred to agencies within the Riverville Human Services Division.

In 1974 the city of Riverville supported five neighborhood centers located in the poorer districts of the city. In principle, any person seeking social services could apply through an intake center and be referred to the relevant agencies. In fact, the pattern of entries is more complicated. Clients may apply directly to any agency they desire. Most of the applicants to the private agencies, the county health department and a Riverville branch of the State Department of Welfare apply directly to those agencies. On the other hand, most of the clients for the city's Human Services Division apply at the neighborhood centers. In addition, people who apply directly to any of the agencies within the Human Services Division are entered on JMIS.

When a person applies for assistance at one of the neighborhood service centers, she or he is:

1. registered;
2. checked to see which programs she or he is eligible for (e.g. Aid for Dependent Children);
3. advised about which agencies may provide the services she or he needs;
4. given a plan which lists all the agencies and services she or he has been set up for.

The neighborhood service centers emphasize family services. Thus, the caseworkers at the neighborhood service centers are disposed to providing assistance to all members of a household rather than only to the person who applies for aid. In principle, this means that when a head of household applies for emergency fuel and rent aid, the health of the dependents would be checked. If they needed a medical examination, that too would be part of the services provided [2].

III. The Urban Management Information System (UMIS)

The current version of JMIS stores a set of records on each client which include both personal information (e.g., age) and the variety of services to which he has been referred and the actual services he has received. Data is entered and retrieved on-line through terminals located in three of the five neighborhood service centers [N2].

The current systems are funded by a \$200,000 per year Department of Health, Education and Welfare grant which began in 1971 and extended until in June, 1975. UMIS is now supported by the using agencies. Of the \$200,000, approximately half is spent on staff, and the remainder is devoted to computer support. UMIS runs on the city's large, late model Datawirl computer (V3) .

Datawirl provided some technical assistance at the start of the program and assisted in training municipal staff. Currently, UMIS development is wholly in the hands of Riverville staff. At the time of this site visit, UMIS was in a late stage of development and had apparently been stable for some time.

IV. Research Strategy

There are several plausible frameworks for studying a project like UMIS. One might study each of the issues highlighted in this narrative over a period of time which starts before UMIS' implementation. One may attempt to use regularly kept records as a source of data for such analyses. A second approach might contrast the municipal welfare system in Riverville with the welfare system in a similar city which has not attempted (similar) automation [9]. Finally, one may contrast the patterns of welfare administration in Riverville

with the expected patterns that are described in the various project documents.

Each approach provides a different kind of understanding. The longitudinal study emphasizes changes in Riverville's welfare administration that might be attributed to UMIS. Of course, such interpretations are tenuous, since other changes have taken place as well. A new mayor was elected, he consolidated the municipally supported welfare agencies, and many of the federally sponsored programs which supported welfare agencies in Riverville have been cut at the Federal level. Some of these problems of analysis could be simplified by contrasting Riverville with a similar city which has undergone similar changes. Such an analysis encounters other problems. For instance, differences between the administration of welfare in Riverville and the other city might not be due simply to UMIS, but to some other uncontrolled factor such as the nature of the local economy or attitudes of key agency staff.

The kind of analysis employed here is much weaker. Since we studied only Riverville at one point in time, we have had to use the project documents and staff attitudes as a baseline for comparison. This analysis thus suffers from a key structural weakness: for ambitious projects like UMIS, the initial hopes often exceed the actual gains. In addition, the goals publicized to a wider public stress the ideals rather than the difficulties in administrative and political

implementation which are faced by the associated staff. Thus, the actual delivery often appears less than the promise. The reader should bear these caveats in mind while considering this analysis.

v. UMIS Design Goals

The UMIS project documents [3,4,12,21] report a set of design goals which are supposed to help increase the "effective delivery of community services". They articulate some of the themes which appear in this report. These goals include:

1. Provide baseline information about the needs of people
2. Provide for and monitor the sequencing or scheduling of (social) services on an orderly basis
3. Track individuals and families through the service system to insure they received services as planned.
4. Provide information for management decisions about the amount of services individuals and families have received and their progress in breaking out of the cycle of poverty. [N4]
5. Eliminate duplicate records [N5]
6. Increase the control over welfare funds [No]
7. Automate follow-up to keep people from "getting lost"
8. Evaluate the social service programs [12]
9. Eliminate duplicate services [3].

Unfortunately, I was unable to locate any staff reports which describe the state of affairs in each of these areas prior to UMIS. Nor could I locate an articulation of the specific levels of achievement to which the UMIS staff could or should aspire. For example, one might expect to find a paper-flow analysis which identified a specific load of duplicate paperwork. Or, one might expect an account of how programs are currently evaluated and how particular kinds of new information might alter the criteria used or the style of using them. The absence of such specific goals changes the meaning of these themes. It makes them more of a rhetorical rallying point than a statement of expected performance. This point will be elaborated in the concluding section.

VI. Actual UMIS Operation

A. which agencies use UMIS

Approximately 150 agencies are listed in a printed catalogue of agencies to which clients who approach a Riverville neighborhood service center for assistance may apply. These agencies participate at different levels in UMIS.

Several* agencies are "fully on" JMIS. They use the UMIS intake form for their clients and regularly receive various management reports from JMIS on a regular basis. The agencies within the city Human Services Department are in this class, and they may be viewed as the primary organizational beneficiaries of UMIS. Another 25 agencies are "partially on" UMIS. These agencies do not use the UMIS intake form for all their clients, but they do cooperate with the neighborhood service centers by returning an "outreach form" which is sent to each agency to which a client is referred. In return these agencies receive some statistical reports describing the clients referred to them by the neighborhood service centers.

Some agencies are "not on" JMIS. These agencies will not routinely fill out the "outreach form" used by the neighborhood service centers. For example, the State Department of Public Welfare which receives approximately 20% of the referrals made by the neighborhood service centers doesn't participate on JMIS. In addition, the county Department of Health which also receives a substantial number of referrals also refuses to participate in UMIS. Both these agencies have their own automated information systems and apparently gain little or no additional information of social

* The official UMIS reports list 35 agencies as "fully participating." However, most of these were bureaus within the Riverdale Department of Human Resources which were once independent agencies. Some of the staff in these bureaus resented this record keeping practice which made JMIS look more highly utilized at the expense of a unified denotation of the municipal agencies.

value from the UMIS project.

Further, some agency managers are unwilling to invest the necessary staff time to harvest a crop of UMIS reports. According to the director of the neighborhood service centers,

"If an agency doesn't need the information to justify what they're doing or perhaps they don't have to justify what they're doing, then they don't have any need for the kind of information I need...The kinds of agencies that have to have some kind of justification are primarily those that are spending the taxpayer's dollar."

Small private agencies seem unattracted to UMIS. One municipal manager commented,

"Many people consider the computer above them, a "brain center" or something...not simply an accounting apparatus. It frightens people. It frightens smaller agencies because they're operated by volunteers. They often don't have a lot of skilled people on their staffs. They don't have the time, they feel, to complete the paperwork."

In addition, small agencies usually serve many, possibly several hundred people a year. For this size of client populations, manual record keeping systems may be quite adequate.

Finally, some agencies are not actively involved with UMIS since they receive no referrals from the neighborhood service center. For example, the Jewish Welfare Federation handles social services in a relatively affluent Jewish community of approximately 2000 people. There are three synagogues in Riverville, and the Jewish community is a rather closely knit group. For example, the Jewish Welfare Federation supports six people in old age homes. It has

regularly travels to the major agencies and collects these forms for keypunching. Since some agencies, such as the State Department of Public Welfare, refuse to fill out the outreach form, clients referred to them are followed up by telephone.

Each agency worker who provides a service (e.g. medical exam, counseling, travel...) to a client is supposed to fill out a "worker contact card" which lists the client's name, ID number, date, worker ID number, and a code for the service rendered. This provides the primary data source for tracking the client's subsequent activity through UMIS.

In principle, each client should be tracked from the time he enters one of the agencies "fully on" UMIS through the time he no longer needs publicly supported social services. In that case, UMIS could document skeletal profiles of each client who has continuing contact with the public agencies in Riverville. In fact, the tracking and followup are incomplete.

When a person seeks emergency aid, all members of the household are entered in emergency status. Thus, if a head of household needs emergency medical care which she or he can not afford and is eligible for, all the children are also listed in "emergency level I". After the medical care is provided, the head of household is listed as having consumed the relevant services. But the records of the dependents are not updated.

The UMIS staff is aware of this problem which arises from the recordkeeping conventions and agency follow-up procedures. However, it is important to note that this problem complicates any evaluation of UMIS effectiveness based upon counting individuals in various levels service over various periods of time.

Other people may be "lost" through their own desires or through bureaucratic whimsey. Some people accept emergency aid and don't return for further assistance. They may not need or want further assistance. Again, their files on UMIS aren't updated with their intentions, needs, or wants.

Some people are "lost" because of the followup policies of the neighborhood service centers. An example is illustrated by the following case: a family was referred to the AAA agency for emergency assistance with housing, and day care. This agency is supported by a church and serves a distinct geographic region of about 15 square blocks. At the time the family was referred to AAA, it lived in this well defined area. However, the AAA agency was able to find suitable housing for the needy family outside of this area. After the family was relocated, it returned to the AAA caseworker with whom it had developed some rapport for further assistance. He couldn't provide it since the family was no longer living in the area served by the AAA agency. When he attempted to get another referral for them from the neighborhood service center, he was told that since the family

was helped by a community agency, they were satisfied that the case was being handled and wouldn't find a new referral. The case was "out of their hands." At the time of my visit, this family was still returning to the AAA agency and their plight was unresolved. I am not sure how common such cases are, but their occurrence confounds the case tracking utility of JMIS.

D. Utility of UMIS to Managers

UMIS was developed primarily as an aid in welfare administration and management. Each agency which participates in UMIS receives a bundle of monthly reports which include:

1. The total number of services provided by the agency that month plus the year-to-date totals;
2. Breakdowns of the client population receiving each service by race, age, sex, employment, source of income, geographic area, and number in household.
3. A breakdown of services provided by each case worker in the agency. It includes the worker's ID number, the total number of clients served that month, the total number of new clients, and the total number of each service provided by the worker.

Most of these reports provide new data or old data more systematically than was available prior to JMIS. Many American welfare agencies rely upon hand tallies or spot surveys to account for their monthly caseloads and volume of specific services provided. While it is possible in principle to manually produce the kind of data which is available in these reports, it would consume a large number of clerical

hours staff to provide it for each agency on a regular basis. Few agencies can afford to relegate much staff time to such "intelligence gathering" operations. Thus UMIS provides the agency heads that receive these reports with a kind of information that was defacto unavailable in such a comprehensive manner. In addition, some of these reports are formatted so that they can be easily incorporated into the monthly reports that agencies which receive federal funds send their sponsors. Prior to UMIS, several clerks spent three to four days per month simply collating the minimal information for the required reports. On the other hand, since these counts apply only to those persons who are entered on UMIS, they do not provide complete statistics for those agencies which are "partially on" UMIS.

1. Decision-making

During this site visit, I found one manager who uses UMIS reports to help allocate scarce resources to those most in need.

The Riverville Department of Human Services includes a transportation division which shuttles the poor from home to various agencies (e.g., a hospital). Each trip is recorded as a unit of service provided to the client. One report received by the director of transportation is a crosstab of his minibuses destinations by the number of people in each family

income level who travelled there in the previous month. Since transportation resources are limited, he uses that tabulation to identify those destinations most frequently travelled by the poorest clients. Clients call in a day in advance to request a trip, and as the minibuses are committed, the clerks become more selective in allowing new riders. Apparently the listing of destinations by the income group served provides an important criterion for deciding which trips requests the agency will honor.

2. Workload Monitoring

The head of each agency which is participating in UMIS receives the monthly workload statistics which were mentioned above. In one of the neighborhood service centers, the caseloads* of each counsellor were posted in one of the corridors, outside the stream of public traffic.

In addition, these reports are passed on to the managers of each of the neighborhood service centers. According to one center director,

"The reports are a 'management apparatus'. I can determine what's average for workers. And I can see if each counsellor is doing his share. If someone's workload is very low, I look into it to see if they were on vacation or if they had some other responsibilities. And it generates good healthy competition. I would

* Since each counsellor can label his/her activities with a variety of service codes(e.g. counselling, referral, intake, etc) that may require different amounts of time and effort, equal work is not reflected in simply providing a greater total number of services.

prefer that the competition be on services, but it usually takes place on clients (seen)."

E. Utility of UMIS to Caseworkers

During my site visit in Riverville, the caseworkers I interviewed were primarily situated in private agencies. In principle they can access a client's file from UMIS by calling the UMIS office. The clerks who are responsible for entering data also respond to such telephone inquiries. In fact, it seems that such inquiries are infrequent. Agencies which are "partially on" UMIS maintain their own records, including their own intake forms. And the work done by the staff of various agencies is sufficiently specialized that the skeletal details in the client record are largely worthless for day-to-day use. Each record of a service rendered just names the service, e.g., counselling, senior service group activity, etc. A caseworker needs to know the focus and outcome of the counselling session or the nature of the group activity. This information is best obtained from the client directly.

F. Issues in Decision-making

1. Data Accuracy

The head of one agency which is "partially on" UMIS was especially concerned about the inaccuracy of some of the data she received. Several days prior to my visit she received a referral for an AFDC family with an unemployed head of household that was reported to be receiving an \$11,400 per income !! In addition, she claimed that on one occasion her staff workload form listed her typist as performing several intake sessions. When she checked the source of that report, she found that one of the staff at the neighborhood service center was rushed to fill out a set of contact forms and simply filled in a random set of worker numbers just to get the reports in.

I have no way of knowing how common or exceptional these two incidences are. In a system of this sort with no routine auditing procedures, it would not be unreasonable for 5-10% of the data entered to have some error[N5]. This excludes a larger source of error due to peoples' changes of address, financial status, etc., which may go unreported and unchanged.

According to the UMIS staff, there is some problem in getting and keeping skilled and trained data entry clerks. Since the UMIS funding is "soft" and about to expire, staffers who are seeking more secure positions are leaving when they can. This turnover could exacerbate the problems of ensuring that the data entered into UMIS is completely accurate.

In the late 60's and early 70's, clerical jobs at the neighborhood service centers were used to train unskilled workers in typing skills. At that time, data entry was used as a training ground and when clerks became skilled, other jobs were sought for them. Employing area residents in community action programs was one effective welfare reform of the 60's which was mandated for certain federal programs such as Model Cities [22]. In Riverville, ironically, the use of UMIS as a training medium compromised the accuracy of some (unknown fraction) of the client data. Here is one subtle conflict between a populist reform strategy and an administrative reform strategy [16].

Occasionally, some case workers will notice that they're not receiving adequate credit for their case loads. If they attempt to rectify their records, they sometimes learn that they were miscoding their contact cards or not submitting them properly. On these uncommon occasions, some erroneous data is corrected. On the other hand, one manager commented,

"When we had a manual system, we had to rely upon 50 or 60 people to maintain and collate their own records. It's hard to see how returning to that state of affairs would be an improvement."

Agencies which do not report their workloads for a month or two provide a second systematic source of inaccurate data. In this case, client records are likely to be incomplete. Agencies which are "partially on" UMIS and outside the control

of city hall occasionally place filling out the UMIS reports as a low priority activity when they're short of staff*. For municipally supported agencies, the UMIS staff have some clout in getting compliance due to their support from city hall. But relations with other agencies are more delicate since their participation is optional and the commitment of some is problematic. In such situations, the UMIS staff have to encourage goodwill since threatening to withdraw service would undermine the development of a "comprehensive" system. Since different agencies have failed to report their activities on occasion over the last several years, the data has "gaps" which would at least diminish its utility for studying certain welfare programs in Riverville.

Collecting accurate and relevant data is a problem for any recordkeeping system. UMIS may support a more accurate recordkeeping system for its users in Riverville. Unfortunately, it's almost impossible to document the improvement.

* The UMIS staff and agency caseworkers work with different incentives and preferences. For the UMIS staff, complete and timely information is the basis of their "production." In contrast, many caseworkers would rather work directly with a client to help solve his immediate problems rather than spend time filling out forms that have a less tangible connection to the clients concerns.

b. Federal auditing

One by-product of UMIS is a set of monthly summaries which is used by the Human Services Department in Riverville for their routine reports to HEW. In addition, it appears that HEW auditors place more credence on "data which comes out of a computer" than in hand tallied counts. The director of the department of transportation described the change:

"Before, when we hand tallied the number of trips we provided the auditors tacitly assumed that we inflated the figures. Now, when I show them my computer-based counts we start our discussions by using my data as a baseline."

We have heard of similar preferences of HEW auditors for "data which comes out of a computer" in other sites (e.g., South City Department of Health) and find it a bit puzzling since hand tallied data or computer tallied data may be similarly accurate or subject to error. However, it leads managers who deal with the federal auditors to prefer their reporting systems since they apparently gain credence by simply using computer technology in their work [8].

VII. EVALUATING UMIS

UMIS is used on a regular basis by the staff of the neighborhood service centers and several agencies in Riverville. It provides skeletal information about each

client whose records are entered in the automated information system. It seems to cut duplicate records between the neighborhood service centers since three of them have on-line access to the UMIS files. However, the caseworkers in the various service-providing agencies maintain overlapping records since the information recorded in UMIS lacks sufficient detail for day to day work.

I didn't observe much confidence placed in the case-following capabilities by the UMIS staff. They tend to emphasize the management reports. Agency heads vary in their attitudes towards UMIS. For example, one found them useful to help focus his resources on a regular basis. Another claimed that he got "all the usable management information" he needed. The head of the third agency was concerned about the accuracy of the data appearing in the UMIS reports and didn't claim much utility for them.

UMIS does automate the printing of an "outreach form" and in principle this should support extensive follow-ups on each case. However, since at least 25% of the clients referred by the neighborhood service centers are sent to agencies which won't fill out the forms, follow-up requires more work with less complete results in practice than in principle.

The neighborhood service centers operate with the intention of serving poor, "multi-problem" families. The family profiles in UMIS can be used to indicate the household income of people receiving various services. The distribution

of services to various families is also recorded in UMIS. Although this latter information would appear helpful in assessing "multi-problem" family needs, it is not currently aggregated or sought.

Given some of the record keeping and follow up procedures listed above, it is hard to evaluate the impact of JMIS and the neighborhood service centers by uncritical use of the recorded information. In addition, some clients may be "lost" by their own desire or by poor follow-up procedures by the service center staff in a way that no computer magic can assuage.

In principle, UMIS is supposed to help evaluate the effectiveness of various social service programs in Riverville. At best, evaluating social services is a tricky activity. In practice, the data recorded about various clients and agencies on JMIS may be of limited utility in such evaluations. It does not appear to be designed with the intention of recording evaluation-related information. The way in which clients' final status is variously recorded confounds the use of the routinely kept data as well.

UMIS does include records of 42,000 clients who applied for welfare-based aid since 1971. Of these, approximately 13,000 are still active. It probably helps keep the records straight.

UMIS does not support billing per unit of service nor does it support any form of cost accounting. A special line item budget is run monthly for the public agencies that are "fully on" UMIS, but this budget does not appear to be linked to service delivery in any special way. Thus, the hope that UMIS would help provide special information to help control welfare costs seems unrealized at this time.

These observations are biased by the few examples of UMIS use that I saw or heard of during my visits to Riverville. Unfortunately, there is no systematic data on UMIS' patterns of use and performance which provide a context against which to assess the representativeness of the patterns I encountered. In this study I was probing to learn both the common patterns and limitations of UMIS' use. The sampling of respondents in the two day visit was sufficiently sparse to make my estimate of what is common or rare somewhat speculative.

There is simply no baseline information about the accuracy of records, amount of duplication, completeness of followup, number of "lost" clients, etc., prior to its implementation. At best, one can study trends in such indicators since UMIS was implemented in 1971. The absence of such baseline data hampers the UMIS staff's evaluation of their own work and contribution. In our research we rarely find records of the sort I am alluding to here. But none of the other information systems we have studied have included an

evaluation of their utility as a serious and formal goal.

A. Misperception of computing and the concept of "system"

UMIS is a novel system and its implementation was intended to explore the possible support that it could provide to a set of neighborhood I & R centers feeding a disorganized array of social agencies. I've tried to separate the functions of UMIS from the various agency practices.

However in some of the JMIS documents [12,20] and in discussions with the UMIS staff, UMIS and the organizational arrangements for providing social services are confounded. For example, clients are spoken of as being followed up "by the system". The Datawirl application brief [12], describes a "human services delivery system" (HSDS) which includes both the automated information system and the organizational arrangements it supports. Implicitly the (Datawirl) computer is provided with the best attributes of both. HSDS is described in part as:

1. "A system to simplify the delivery of services to the client"
2. "A recordkeeping system that reduces the clerical efforts of participating agencies"
3. "A system that in many cases attacks and systematically eliminates the cause of a person's dependency"

4. "A means of critical self-evaluation provided by management reports, both quantitative and qualitative, to enable agencies to improve their own effectiveness" [12,p.4]

This portrait depicts the computer as a "welfare machine" a record-keeping device which helps raise the expectations of the naïve and may even blur the perceptions of the staff who expound the rhetoric of "system". One agency head seemed utterly disillusioned by the discrepancy between the vision promised by the DataWirl promoters and the actual information system in use today. DataWirl flew some city staff to an insurance company outside of Washington to display advanced automation in use. "They painted a real dream world which they said could be ours" she recollects somewhat wistfully

A second kind of misperception is exemplified by the phrase "all usable management information" [4]. The head of one agency that was "fully on" UMIS described the reports he received with that phrase. However, given the gap between the kinds of information routinely produced by UMIS and the kind of cost accounting that might assist financial control, it is at best a misleading slogan.

In another context, this same manager remarked,

"The computer won't show how well a job is being done or how effective a program is except in numbers (of people served)."

B. Promotion of UMIS

When UMIS was first proposed in the early 70's, Dataair promoted UMIS among the city staff who were responsible for providing social services. It helped sell an electronic utopia that would diminish the problems of families on welfare in Riverville.

UMIS is the first fully operational automated information and referral system in the J.S. When the project was initiated, none of the actors could be sure exactly what outcomes to expect. Generally, the advocates expected UMIS to help streamline the administration of the diverse array of welfare programs in Riverville. By alluding to a package of plausible benefits, they hoped to capture the imagination, enthusiasm, and support of key staff in various agencies. And they were acting in a setting where some prophecies could be self-fulfilling. The more agencies that fully participated in UMIS, the greater the comprehensiveness and accuracy of the data collected, and the greater the overall utility of the administrative tool.

The real impact of UMIS has been less than what was promised. It does seem to provide useful information for some agency heads, and maintain many of the routine records kept by the neighborhood service centers. But this mundane support of recordkeeping was much less than what was promised.

According to the UMIS director, "we aren't now where DataWirl said we were in 1970. Every now and then a new article appears which describes UMIS. Some of the figures are updated, but it's the same story. We don't know who initiates them, but the story doesn't change. And we're not there yet."

Unfortunately, "the story" glosses the operational setting of the welfare agencies in Riverville. While duplicate application forms are eliminated for agencies "fully on" UMIS, each agency maintains its own case file for each client. While these separate files duplicate some information, few agencies are willing to place such data which they consider "personal and privileged" into a more public setting where they can no longer control access.

Secondly, many welfare agencies operate under administrative procedures that are initiated by federal funding. For example, AFDC applicants have to be re-examined for eligibility every six months. These "re-determinations" absorb clerical staff time which UMIS can hardly effect. After all, a "re-determination" involves checking whether the current life situation of a client (family) matches the recorded data which were originally used to determine a client's eligibility. Changes in federal guidelines concerning the frequency or detail of such "re-determinations" would have more impact on the clerical workload of those caseworkers who do such work as would any variation in the design of UMIS. "The story" neglects such sources of

paperwork or paperwork relief that influence the workload of an agency, but are outside its control [19].

Moreover, "the story" of increased administrative efficiency is unlinked to any specific performance goals. For example, the phrase "eliminate duplicate records" could be equally well satisfied by a 1% reduction as well as by a 98% reduction. None of the UMIS documents, let alone vendor application briefs or newspaper stories, provide some specific index of improvement. However, their idealistic tone implies a kind of "total efficiency". Who can (or wants to) achieve such a goal? Without specific performance goals, "success" or "failure" is in the eye of the beholder.

Similarly, "eliminating duplicate services" communicates an image of ideal efficiency. Yet it's not clear what such a phrase really implies. For example, many agencies provide "information and referral" services. Superficially, each such agency is duplicating the work of other agencies. Yet many agencies cater to specific clientele, such as runaway children or the elderly. Specialized knowledge pertinent to the needs of such groups is hard to aggregate in one "super-agency". From this point of view, apparently "duplicate services" shouldn't be consolidated without careful analysis of the service, to whom it is provided, and the effectiveness of a "centralized" alternative. In fact, the primary reduction of duplication in Riverville seems to come from impersonal services such as accounting and transportation

being shared by the agencies within the city's Department of Human Services. However, that consolidation was part of an administrative strategy rather than a by-product of JMIS.

Until "the story" is changed to include the actual interplay between a database of skeletal records and the recordkeeping practices of various welfare agencies, it's hard to see how UMIS could ever live up to its own press.

VIII. Summing the Bottom Line

UMIS has been evaluated in terms of the similarities between promise, description, and delivery. Improved welfare administration is a tremendous burden to place on an information system. Currently, the benefits of UMIS include:

1. A single intake form for the 40 agencies which are "fully on";
2. Monthly statistical summaries of client profiles and agency workloads for managers;
3. A client-tracking system that records the agency to which a person has been referred, whether he has been accepted, and the category of service(s) provided.

These features of JMIS provide direct benefits to a majority of Human Service Division clients who need not fill out duplicate application forms, to agency heads who save clerical work in filling out routine reports, and to neighborhood service center caseworkers who are following up clients.

Other impacts of UMIS are simply unclear. For example, standardizing the "units of service" was introduced to render the recordkeeping more meaningful. Yet, we don't know for example, whether and how the quality of counselling has changed after its formal record has been standardized. Other impacts, such as eliminating duplicate paperwork, take on special and limited meanings. Finally, some benefits attributed to UMIS, such as eliminating duplicate services, seem actually to accrue to the administrative strategy of consolidating disparate agencies and centralizing their support functions such as accounting, planning, and personnel.

Like any complicated technical system embedded in a complex organizational framework, UMIS is neither perfect nor flawless. Since some agencies don't wish to participate, the "integration of services" is incomplete. Some data is inaccurate. And clients may still be "lost" through their own desire or the negligence of a caseworker. In fact, the UMIS project has increased the coordination between the agencies that participate. The available data may be more accurate now than in 1969, and fewer clients may be lost through negligence or confusion. Unfortunately, there is no hard data on which to base such a conclusion.

The UMIS staff encountered several critical problems in developing their automated aid and getting a variety of agencies to adopt it. These issues include:

1. Agencies with their own automation or little need for frequent reporting and demographic analyses were unwilling to participate in UMIS;
2. Confidentiality of detailed case reports on clients lowers the utility of UMIS to caseworkers.

County and state welfare agencies are reluctant to join UMIS. While the project staff is negotiating some arrangement with the county Department of Health, they believe that the Riverville office of the State Department of Public Welfare won't participate without "a decision in the state capital." The state welfare offices maintain their own automated system, their own reporting conventions, and their own protocols. For the Riverville office to join UMIS, it would have to duplicate some of its own record-keeping, depart from the conventions accepted by the other state offices, or the entire State Department of Public Welfare would have to adopt UMIS conventions. Without some extraordinary incentives, none of these alternatives should appear attractive to the state administrators. Demands for record-keeping efficiency in Riverville propagate across the state.

Since most medium-sized and large American cities are serviced by a variety of public agencies with conflicting jurisdictional responsibilities, one would expect similar tensions to emerge in attempts at "services integration" through automating welfare referral systems. Systems advocates usually view such conflicts as petty bureaucratic conventions that impede system-wide efficiencies [14,15].

However, such perceptions are rarely supported by careful analyses to show that the proposed information system will be efficient, let alone effective, for all the parties concerned.

In Riverville, much of the "integration" and "reduction in duplication" in welfare were by-products of administrative strategies of consolidating agencies and centralizing support functions[N6]. And the commitment of some of the participants was occasionally reinforced by "leverage" from city hall. In this setting, information uncoupled with administrative authority is a weak integrator indeed. On the other hand, it does support the management of the agencies that were administratively linked.

The current version of UMIS provides a flow of management reports. Complete case profiles, which might be of utility to caseworkers, are felt to be too confidential (and space consuming) to place on line[N7]. Consequently, while the counsellors and caseworkers feed UMIS with outreach forms and worker contact cards, they get little back. Conversely, the managers harvest the crop of reports with relatively little effort. This places a disproportionate burden on lower level staff who thus tend to view the system less favorably than the managers.

In addition, there were major gaps between the idealized expectations communicated in the UMIS documents and news stories, and the kinds of benefits it could, in principle, produce.

In the last section, we described how the goals could not be met in practice. However, they served, in part, as a means for mobilizing several diverse constituencies. The poor (and often Black) were concerned with getting better service and the middle class was concerned with cutting costs through "efficient" operations. These somewhat conflicting concerns were both catered to in the various claims made on behalf of UMIS.

Nevertheless, within the JMIS framework, the following proposals would help enhance its utility to the using agencies:

1. A combination of record-keeping conventions and referral policy which allows for the variety of non-idealized ways in which clients may no longer be tracked;
2. Evaluation strategies which relate particular analyses of data stored in a case following system to different outcomes;
3. Statistics describing the needs expressed by and the variety of services provided to various client groups.

Much of this report has focussed upon the social welfare system in Riverville. In attempting to clarify what kinds of administrative support one could expect from an automated information and referral system, we had to describe the environment in which it is used. As a by-product, we have seen that UMIS is largely decoupled from the direct provision of welfare services. With clear hindsight, this is what we should have expected. After all, ideal administrative

practices can, channel the maximum available resources to the program clients. If those resources are themselves insufficient or legislated to be unavailable to particular groups in need, the locus of increasing effectiveness is no longer simply efficient administration. This is not to minimize the importance of skilled administrators. After all, given a particular set of resources, an agency that fails to channel them well can certainly hurt its public.

In the U.S., welfare applicants have often been viewed as poor in spirit as well as poor in dollars or skills. Thus through the 60's and 70's, while the total cost of welfare soared in urban centers, the allocations to individuals or families remained meager. In a time of high unemployment, the most efficient scheme for referring applicants to good job training programs is bound to fail if there are few jobs to be had for the program graduates. While administrators and caseworkers do have some control over the generosity of grants or informing only selected clients of their eligibility for particular programs, these seem to be "second order" effects(9). Since the availability of external resources and guidelines for their distribution are more likely to influence the effectiveness of welfare programs than administrative discretion, they are best viewed as part of the administrators given environment. For these reasons, we have avoided linking the effectiveness of welfare programs in Riverville with the effectiveness of UMIS. From this perspective, UMIS seems to support a more informed management in some of the city welfare

agencies, but any broader influence is simply problematic.

IX. FOOTNOTES

N1. In addition, both the current director of JMIS and his predecessor provided helpful comments on an earlier draft of this report.

N2. A variant of this system which is batch only is maintained by the UMIS staff for several counties surrounding Riverville. To avoid confusion, that system won't be elaborated in this report.

N3. DataNirl is the pseudonym of a major American computer manufacturer and software vendor.

N4. "The expressed desire of the agencies participating in the neighborhood service program in Riverville for the development of an information system. An urgent and often expressed need of all participating neighborhood service program agencies was for up-to-date information on the services they were rendering and the needs of the people they served. Moreover, agencies wanted to plan and schedule additional services where there was a demonstrated need. Others desired to relate their efforts more closely with similar agencies in terms of service. Finally, all agencies agreed they needed hard data about the future direction they should go and how they should plan to provide for the needs of people in the neighborhood service program area" [4,p.3]

At a conference devoted to automated support for service integration, the first JMIS director remarked (without specific reference to Riverville): "traditionally and in the absence of objective data community wide planning and evaluation has been performed under the most debilitating of circumstances. Spot surveys, undocumented information, task force effort, and community spokesmen with implied backing have been too prominent in the planning of community services. A computerized management information system is a needed tool in every community of the United States." [5,p.15]

"typically, social and health service agencies operate independently of one another, often keeping duplicate records on the same people..." [12;5,p.7];

"many of the computerized systems today give nothing to the worker at the point of contact with the client... that is where the system must begin" [5,p.15]



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