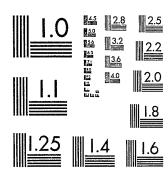
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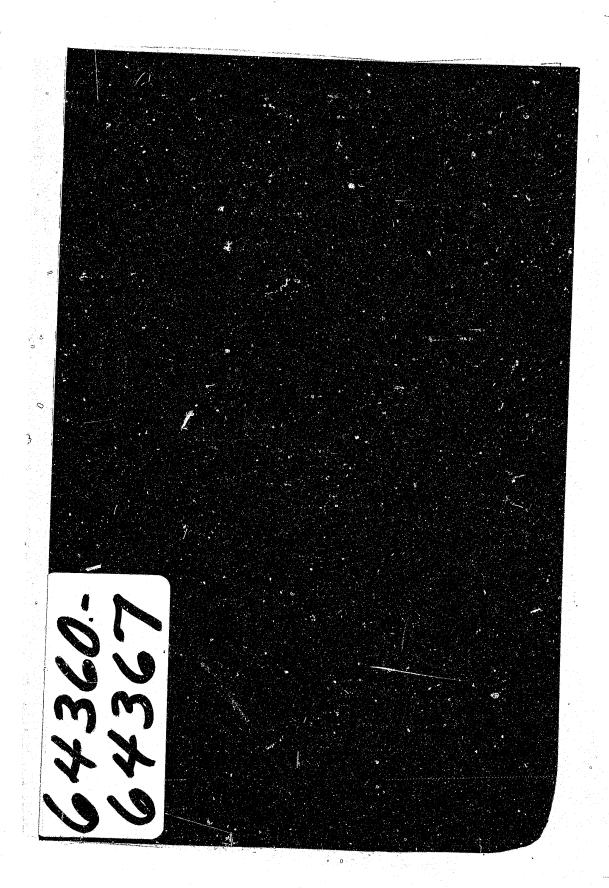
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# Management Information Systems in the Drug Field

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# 4. People and Data Systems Some Issues of Integration

George De Leon, Ph.D.

#### INTRODUCTION

Both management information and evaluation data systems utilize quantitative information for monitoring program operations or assessing program effectiveness; they converge in a common aim—to help organizations clarify and achieve their goals and efficiently deliver the promised services. Often such data systems are not viewed positively by treatment people. Rather than technological extensions that facilitate human services, they are seen as remote substitutions for face—to—face interaction. Thus human factors must be considered in implementing information capabilities. This chapter discusses some issues and strategies for integrating treatment program people with data systems.

## MANAGEMENT INFORMATION AND EVALUATION

Important distinctions exist between research, evaluation, and management information. Each refers to a process of posing questions, gathering information, reviewing the implications of the data, and acting on these implications. Often, these endeavors rely on the same data base but there are important differences in the questions addressed, the depth of the data resourced, and the strategies employed toward resolution.

Research is a generic term that refers to a search for basic mechanisms. Frequently it involves experimentation and the intervention with a process by which to manipulate putative variables in order to shed light on the how or why of that process. Little experimentation occurs in drug treatment modalities because of a reluctance to tamper with the treatment process and because of ethical and legal considerations involved in manipulating people.

Evaluation is also a generic term that encompasses the several levels of inquiry which assess the value or validity of a program's treatment effort. Five levels are described below: the first two are the primary although not exclusive domain of management information systems. The last three levels usually require a more extensive data system.

#### **Demonstration Evaluation**

Is a model, treatment, or program feasible? A new program should be described in terms of its purpose and conditions of operation; how or why the program works is secondary. If the program is assembled and the conditions of operations met within suitable limits, the demonstration is evaluated as successful.

#### **Operations Evaluation**

Is a program honestly and efficiently operating according to its blueprint? Questions here pertain to the adequacy of staff, space, and equipment; sophistication of procedures, recordkeeping, fiscal administration, and management; and sufficiency of services provided. This type of "nuts and bolts" evaluation assumes that integrity of operations is necessary for achieving program goals.

#### **Process Evaluation**

How does the treatment work? Process questions ask about the relationship between client change and treatment components. In the therapeutic community, for example, the encounter group is a treatment component assumed to facilitate awareness and learning. Does it? Similarly, the psychological mechanism of identification is assured to mediate the influence of role models upon clients. Does it?

#### Outcome Evaluation (immediate)

Is a treatment program effective? Does it reach the goals that relate to its purposes? While operations evaluation monitors the integrity of service provisions, and process studies explore how treatment works, outcome evaluation assesses achievement of goals. Treatment goals may include client changes during and at the termination of treatment stated in terms of drug abstinence, legal drug maintenance, increased employment, reductions in antisocial activity, or positive psychological change. Client outcome status obviously relates to treatment goals as reflected in the labels "graduate", "dropout", "complete," and "expelled."

#### Outcome Evaluation (Long-Term)

If a treatment goal is achieved, how enduring or stable is that outcome? Long-term evaluation focuses upon relapse or, conversely, the stability of treatment effects. Followup studies assess client status at some postprogram period in comparison to an earlier status. Comparative outcome evaluation assesses the relative effectiveness and cost-effectiveness of different modalities assumed to be treating the same problem and similar clients.

### WHY DO PROGRAMS NEED DATA SYSTEMS FOR SELF-EVALUATION?

Publicly funded programs with an information processing capacity contain a key mechanism for survival. As businesses, they must demonstrate cost-effectiveness and maintain good public relations. Program-based information can provide accurate pictures concerning effectiveness and cost-effectiveness at the local and State levels which are often the general repositories for funding.

#### Accountability

Regardless of the requirements for public accountability imposed from outside, drug programs can benefit from monitoring their own daily internal operations. While maintaining an orderly house is desirable in its own right, discrepancies between proposed and actual operations weaken effectiveness. For example, two clinical directors trying to do the work of five lessens the overall impact and ultimately reduces the number of program successes.

Actually, accountability of internal operations is a reflection of the integrity of the program's personnel who after all are the significant mediators of positive therapeutic change. Well intentioned but overburdened staff have a particularly raw sensitivity to administrative pressures. Sensing danger from outside evaluators and board members, program directors feel compelled to hide or distort matters of recordkeeping, understaffing, census, and treatment and management failures. Although rationalized in terms of program survival or commitment to the disadvantaged, these nondisclosures are nevertheless deceptions which are potentially harmful. Absolute honesty and total respect for role models are essentials in the treatment process especially in residential settings. Cumulating increments of deception affect staff morale insidiously and reinforce the residents' characteristic mistrust of the "system." Although these effects are not directly expressed, their covert contribution to staff turnover and "split rates" should not be ignored.

#### **Quality of Care**

Self-evaluation is necessary to improve the quality of care. Clients differ as to their attraction and adjustment to the various treatment modalities, and data which identify such differences improve screening techniques and facilitate successful referral to other treatments. The identification of client differences permits a direct assessment of the match between client and program and aids in optimal treatment. Further, reliable client social-psychological profiles provide an empirical basis for improving client management and treatment. For example, differences between the psychological and behavioral difficulties of hardcore narcotic addicts and polydrug abusers compel variations in treatment plan and in staff assessment.

The capability for self-evaluation guides changes in staffing patterns and clarifies treatment philosophies and program goals. For example, differential retention rates may compel programs to reexamine the reality of their treatment goals, to limit the universality of their treatment outreach, and to review the relative contribution of degreed and nondegreed professionals.

Staff education is a critical but indirect dividend of self-evaluation. Data invariably stimulate staff to communicate, conceptualize, self-examine, and read. This effect is particularly beneficial for paraprofessional staff who are too busy working in the clinical-management "trenches" and are usually not inclined to interpret their own work. Self-evaluation activities generate a steady flow of input that broadens their perspective.

Finally, self-evaluation can help all members of the program staff function better as a team. Traditionally, there has been a perceived gap between clinical and management efforts in human services. Training program people in self-evaluation develops rapport between clinical and nonclinical staff and between professional and paraprofessionals. Teaching staff members to objectify work is an implicit goal of any self-evaluation effort, and this process enhances communication. Feedback between the various staff groups will improve skills at all levels and shape achievable goals.

#### IMPLEMENTING EVALUATION CAPABILITY

Evaluation systems can be designed, implemented, and operated in several ways:

- By external professionals
- By lay treatment center staff using manuals developed by outside experts
- By systems/evaluation professionals employed to train the treatment center staff

Each alternative has its advantages and each creates its own problems.

#### Externally Developed and Operated Systems

Many data systems now in programs were developed and are accessed by teams external to the program. These usually large multiprogram data systems (CODAP, DARP, DAWN, NDAC) are designed to obtain and access information that addresses epidemiological and funding questions at the State and Federal level. Such systems can monitor the ebb and flow of changes from a wide perspective and are needed for making broad policy decisions.

External professional teams can also develop data systems for use by individual programs. Externally developed systems can support treatment center self-evaluation as well as accounting, scheduling, and other administrative functions.

There are some specific advantages common to both varieties of externally implemented data systems. Trained professionals can develop and operate a system, review results, and provide information in the form of reports. The economic and service advantages of this approach are obvious. Program personnel involved in the management and delivery of services are not likely to have the expertise, the motivation, or the time to carry on evaluation functions at any level. Systems developed and processed by external personnel, therefore, offer a unique professional service. They function in a consultant-advisory capacity for program administrators who are the ultimate decisionmakers. In addition, outside personnel foster both an objective and a detached perspective of clinical and management operations which are necessary for improvement and positive change. External systems reflect the strength of broad experience developed and refined from previous trial-and-error applications in other settings. Relevant information forms can be constructed, and time-tested procedures for processing and decisionmaking can be instituted. In short, individual programs need not reinvent the wheel in acquiring a systems capability.

There are, however, serious disadvantages inherent in the use of systems developed by "outsiders," particularly those that purport to serve the needs of the treatment center. No single management information system (MIS) or evaluation system will address appropriately the individual differences of programs or treatment modalities. Any system must be adapted to the unique features of the program and staff involved. Some limits of externally based data systems are:

The best example of this is the service bureau system discussed in the chapter "Automation Alternatives in the Drug Abuse Treatment Setting."

- They are designed to report "epidemiological" data on many programs and modalities and fail to provide sufficient indepth information on any single program.
- Externally developed systems can only approximate the day-to-day processes of individual programs. Continuous changes in clients and services remove external data systems from these changing activities and result in an information lag for the program and modality.
- Forms must be continually revised to be sensitive to changes "in the street." External changes may be unresponsive or sluggish and, thus, data ceases to be current and relevant.
- The useful information contained in data banks is generally not accessible to program personnel.
- External data systems are often perceived by program people as imposed burdens mandated from the outside. Frequently this results in noncooperation at the data-gathering level (and a poorer quality of data).

#### Manuals: Their Limits and Uses

While manuals have been designed to teach program personnel the essentials of management information or evaluation, they are usually researched, written, assembled, and distributed by external teams. Nevertheless manuals can be useful if they provide sound information, well-tested procedures, and intelligent formats designed with an aim toward teaching. In any developing area of human inquiry the manual or source book inevitably appears as a key instructional device with several advantages:

- Manuals contain uniform procedures that permit program personnel to learn practices and study information that can be compared with other programs.
- The written material in manuals can be studied and ultimately mastered. Thus they are extremely cost-efficient supplements to slower, more expensive teaching approaches.

However while manuals instruct, they do not motivate, and this is a serious disadvantage in drug treatment settings for several reasons. Meaningful utilization of manuals depends upon the skills, resources, schedules, and sophistication of the users. Programs are conspicuously understaffed in research and management information personnel. Clerical staff who may be competent in gathering and processing data are burdened by other chores that place management information tasks low in priority.

Program leaders must be completely committed to the values of information and evaluative systems. Manuals should be distributed to all program staff and must be supplemented with orientation by knowledgeable program directors.

Nonprogram people generally author manuals in language which is not meaningful for treatment staff. Though intended for the nonprofessionals who need it most, they often serve as training tools for graduate students and professionals. Drug-free programs in particular have fewer academics and even fewer evaluator-researchers. Guided supportive training necessarily precedes the more demanding effort required for self-instruction. Manuals therefore are more likely to be used and appreciated at a later stage of management information capability.

#### In-House Training of Self-Evaluation

The implementation and maintenance of systems depends heavily upon the day-to-day workers. All management information and evaluation systems require that data be gathered by frontline people. Moreover the quality of the data--its clarity, completeness, and consistence--is controlled by these same people. Data systems, no matter how elegant, are quite useless if the people who participate in them are not active, contributing, and receiving from the system itself.

The direct training of self-evaluation capability overcomes many of the disadvantages associated with the other alternatives. The implementation, operation, and most important, the continuing use of the system depends upon the cooperation of all treatment center staff.

- Program people are more motivated to gather and process information when they have close control over instruments, definitions, system specifications, and interpretation of data.
- People in the human-services industry trust each other more than they trust outsiders such as scientists or technicians. When program people teach other program people the why, how, and what of self-evaluation, there is a greater likelihood of acceptance.
- Once program people are trained in self-evaluation and learn how to use information for constructive change, the motivational seed is planted for catalytic efforts toward innovation and treatment change.

The most serious drawback of this approach is money. It is very time consuming and expensive to train the entire treatment center staff in self-evaluation and using data systems. The expense is however more than justified in that this training emphasizes the human factors in implementing data systems.

# IMPLEMENTING SELF-EVALUATION AND DATA SYSTEMS THROUGH TRAINING

Implementing self-evaluation and a data system is a challenging and time-consuming job. Many programs never get past first base because they fail to follow some simple guidelines during the two stages of MIS implementation: preparation and maintenance.

#### Stage 1--Preparation

Program leaders, convinced of the need for and the importance of the system, set the attitude of respect and need for self-evaluation.

- Initially, leaders should officially call meetings of all lower staff for a full discussion of a data system, its purpose, promise, relevance, calendar, staffing, paperwork, and other demands.
- These sessions must elicit the honest reactions and questions of the staff. Full education in each staff role must be offered without implying recalcitrance or incompetence.
- The unique advantage of in-house information must be stressed. Program people are best able to gather data. This in turn must be translated back into a meaning and purpose which gives their work special value.
- A special task is to allay the personal and interpersonal fears and difficulties that data systems introduce in terms of job loss, the acquisition of new skills, and competition from newer often more educated personnel.
- The staff must contribute directly to the modification of any aspect of the implementation phase. The explicit relationship between the input of work needed and the outcome product must be emphasized by teaching the staff to identify with the role of the decisionmaker. This identification process is often helped by "reverse identification": Having the decisionmaker temporarily carry out some of the tasks of lower staff, i.e., coding, "cleaning," and completion of forms. Identification fosters a cooperative rather than an imperial attitude among workers at different levels.

Whenever possible the self-evaluation operation must be separately budgeted so as not to utilize program operation or service funds. Even a small program with limited evaluation staff and modest computer costs should consider developing an independent proposal to funding sources other than those providing service-delivery money. This tactic is essential to minimize the fiscal strain between treatment and management information or research objectives. Initially a management information and/or evaluation team need not consist of more than one full-time professional and a

#### **Human Factors**

There are fundamental differences between management information and academic evaluation people, and treatment program staff. MIS and evaluation people utilize numbers, employ logical models of operation, and generate concrete products or outcomes as criteria of performance. As spectators rather than participants in service delivery, their perspective on organizational and treatment processes is problem focused and decision oriented; and finally, their vernacular is technical and different from that used by clinicians, counselors, and frontline workers.

These differences between the roles, goals, and languages of data people and those of program workers are often the basis for polarity, mutual suspicion, and organizational distance. Unfortunately the gap is even greater in human-services programs and particularly in drug treatment settings.

There is no good rule for selecting data people (or any other type, for that matter) on the basis of personality type. Rather they must be made aware that they can be perceived either negatively as intruders who are at best a necessary evil and whose work is costly and often irrelevant, or positively as helping specialists. Their personal integration with others is crucial for the acceptance and success of data-system capacity.

Integration is facilitated if data people are made aware that they often exert subtle but positive influences on clients as well as staff:

- Data people reflect a different lifestyle even though they are otherwise often similar to clients and staff. Their 9-to-5 presence tends to transmit a "normalizing" or stabilizing effect and to stimulate interactions. Mutually perceived differences between client, staff, and data people are lessened if these two groups are encouraged to talk to each other.
- Data personnel implicitly transmit a message to clients and staff that the program is self-critical and struggling to improve. This message fosters a sense of credibility which heightens the value of the program as a special endeavor.
- Specific evaluation procedures such as psychological testing move clients toward involvement and inquiry. Assessing their attitudes, intellect, and personality increases interest in themselves and in the process of change. Not infrequently

clients who have participated in research and evaluation projects request private meetings to discuss further their individual protocols.

- Weekly checks (edits) of the quality of the data that the staff is providing reinforces the need for quality data. The data-gathering staff should regularly be invited to attend and participate in meetings where decisions are made on the basis of system reports.
- Displaying the outputs of evaluations in public places in the form of easily interpreted graphs and charts will stress that the data are used on a timely basis and will let the staff know the results of their collection effort.
- The evaluation and systems staff should periodically drop in to the offices where data are being gathered to discuss problems and frustrations and to show concern for the people who support the system.
- Continuous training in the techniques of data analysis will increase staff ability to comprehend and benefit from the data they generate.

Finally, self-evaluation activities employ and train clients in such areas as interviewing, test administration, simple data analysis, and writing. These job functions enhance verbal skills, open new intellectual challenges, and offer previously unconsidered vocational options.

#### Stage 2--Maintenance

The essential mechanism for maintaining data systems is that of feedback, both immediate and programwide. While the first involves small increments of information given at frequent intervals to the data-gathering staff (and program leaders), the second involves larger and more fully developed reports delivered less frequently to the entire program. Shared elements of both include descriptions of the program populations; client change during the treatment process; success, failure, and improvement rates; and in particular, how data jibe with clinical impressions. Such feedback is often experienced as inherently interesting and is easily related to by all staff.

Changes in program policy or goals resulting from data analyses are exciting but demanding upon the program. Such changes should be introduced in small increments that can be easily installed and quickly evaluated. Immediate feedback should be built into the system from the beginning so that people cannot fail to recognize the importance of the system and their role in it.

This can be done through large programwide formal sessions which are primarily tutorial and scheduled at least three times a year. The central aim of the feedback seminar is communication

during which any stereotypes of management information, evaluation, and clinical staff can be attacked. The large seminar should be conducted in a common language and be based upon brief reports with easily understood charts and simple statements of results. These reports should routinely cite the names of helpful individuals. In addition reactions both written and oral should be requested from all personnel in the program.

Written visual reports are also tangible feedback products. These can be developed for publication or for the general program seminars.

#### A CASE STUDY

The classical therapeutic community (TC) is historically and philosophically removed from an established health-care institution. It evolved from quasireligious roots and its founders and directors are very often former addicts, alcoholics, or criminal-offender "paraprofessionals" who neither speak the language nor appreciate the rigor of behavioral science.

Establishing a data-system capability in these settings illustrates that the challenge is not of integrating people with abstract data systems but rather of training new role relations and changing interactions toward mutual support among diverse clinicians, administrators, and evaluators.

In Phoenix House, a classical TC, the strategies of integration parallel the changing focus of management needs and level of evaluation in progress. For each purpose the ingredients for maintaining integration can be identified, e.g., ongoing feedback, tangible products, and strategies for translating data into program policy.

In the early stages the management information advantages of data systems were emphasized. The first data-system team consisting of one hired professional and an assistant from the program met routinely with clinical and administrative directors. At these meetings new intake forms were developed collaboratively. The staff were encouraged to support the data gathering process and they became convinced that data from good client records and file systems would permit easy monitoring of the composition and size of the population and would help the program stay within budget and help monitor workloads and retention.

The clinical staff came to be convinced through their experience with weekly computer printouts of the help that such a data system could be in facilitating quality client care. After jotting down a number on a form or checking a box, a clinician was then free to carry on more important everyday clinical management functions. This positive "forgetting" experience tended to weaken resistance to intake and progress forms and reinforce a policy of good recordkeeping.

Data had to be translated for program relevance. Scheduled meetings focused upon issues of retention, admissions overload, "split rates," and understaffing. A bird's-eye view of program operations from the computer printout quickly clarified the "reality" of problems. Hard information often validated staff perceptions of program obstacles. Rather than being threatened, the staff could then appreciate its overextended efforts in generally underprovided conditions. Numbers actually minimized defensiveness and timewasting arguments from impressionistic disagreements. Energies were directed toward solving problems which tended to reinforce staff competency.

Two MIS products derived from this stage were financial reports and the program brochure—a 20-page monograph which described the sociodemographic composition of the program's population. The brochure was also a collaborative effort of staff and residents. Assembled with easy-to-read figures in an attractive design (by the Phoenix Graphics Department), this collective expression helped reinforce program pride, provide educational material for staff and residents, and was also a community public relations resource.

Based upon the management information capability, several limited-process studies emerged. These required psychological data measuring client change which was an additional strain upon personnel and procedures. A programwide 2-hour tutorial seminar was utilized to discuss the purpose and demands of the expanded evaluation. Staff and residents were encouraged to criticize and question the meaning, costs, and utility of the effort. These tutorial sessions educated, permitted "ventilation," strengthened the public-speaking skills of staff and clients, and increased interest and participation. In particular, the success of the project was seen to depend upon good data obtained with honest and complete client cooperation. Another positive dividend was the full data team interacting with all other personnel.

Published articles were the main products of the process studies. These were not only useful to others in the field, but provided tangible reinforcers for those of the in-house staff involved in the effort for a year or more.

Again, the programwide seminar provided feedback to residents and staff on the results and conclusions of the studies. Percentages of dropouts, emotional changes, or the rare relapse to drug use in treatment were provocative findings stimulating reflection and self-examination. Remarkably these "unsophisticated" audiences displayed the skepticism characteristic of science. Profound questions of interpretation surfaced which led to fundamental discussions of methodology, the relevance of measuring instruments, and the validity of clinical research.

The tutorial seminar was found to be probably the single most effective means for integrating people into data systems and self-evaluation. Discussions may produce questions, disbelief, or agreement but the exchange facilitates involvement, dissolves

stereotypes, and maintains the staff involvement necessary to assure quality data. Clients and workers are more cooperative, helpful, and motivated when their interest is sustained through participating in all phases of the evaluation effort.

Currently Phoenix House is conducting large-scale studies of process and long-term outcome. These projects require an expanded evaluation staff and greater program cooperation and commitment. Indeed assessing the central question of treatment effectiveness demands special courage from program founders, directors, administrators, and staff.

To integrate outcome evaluation at the program level, discussions focused upon a balanced view of such efforts. The theme of the discussions was that the "truth" is good and it emphasized the following points:

- Programs equipped with honest success, failure, and improvement statistics can be more accountable and credible to the funding agencies;
- When programs understand which treatment works best for which clients, treatment plans can become more precise and treatment more successful. Also staff "burnout" from working with clients who do not benefit can be reduced; and
- The realistic appraisal of immediate outcome and long-term success reduces the sense of inferiority which underlies overextended claims for service. Determining the number of individuals who complete a program permits the program to assess whether it is delivering what it claims to deliver. No service is maximally effective for the entire spectrum of clients. Clarifying the long-term stablility of success allows a program to place its contribution to health-care in perspective.

The final products of the outcome effort at Phoenix have yet to emerge but already there have been notable changes in program policy and procedure. For example, the importance of measuring the client's status over time has been recognized. These studies have repeatedly shown client differences in relation to length of stay which stresses the importance of measuring "time in program" when evaluating the effectiveness of a residential treatment. More important, the findings have made clear the distinction between clinical success and statistical success. Graduation (clinical success) depends upon clinical criteria that satisfy the philosophy and experience of clinical workers. But statistical success (measurable positive change) is more frequent than graduation and indicates that program influences may be more extensive than previously thought. This finding has reinforced faith in the clinical effort and raised staff morale. Moreover criteria for graduation are changing to accommodate shorter lengths of stay and to reflect individual differences in the rate of client change.

Currently Phoenix House has established task forces to integrate the staff into a programwide self-evaluation effort. In these task forces all staff are involved in processing information, reformulating program policy, and developing special projects. Committees deliberate upon issues such as retention, special needs of minorities and women, expanding the effectiveness of community relations, and developing educational and training efforts for residents. Each group develops a position paper based upon the literature, clinical experiences, and hard data. The relevance of this model for integrating people with data systems and self-evaluation is obvious. First, data are presented and used within proper constraints and interpretations. Second, committees are a forum for exchange, homogenizing language, reinforcing mutual support, stimulating critical reflection, planning, and initiating collaborative writing.

Based upon the position papers, specific proposals for new demonstration projects emerged and task forces are now committed to evaluating all new projects. This is prima facie evidence of a change in consciousness of program people toward self-assessment and data systems. Since new projects are considered tentative and contain some risk of disrupting operations, their worth must be assessed expeditiously. In this sense, the essential lesson of data systems has been learned: new ideas and old practices must be questioned and answered.

In a larger sense, the consciousness has changed from one of program survival to thriving. A healthy program knows what it is doing, understands why it works (or does not work), and identifies for whom it works best. Management information systems are a part of this consciousness.

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