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Characteristics of Managerial Resistance to Library Management Information Systems

Most of the presentations given at this clinic have made two assumptions: that library managers understand the functioning and capabilities of automated systems; and, given that they understand the system, that they will utilize the information generated by these systems. These may not always be valid assumptions. To illustrate this fact, several years ago I was asked to be a member of a library systems study team. As part of my duties during the course of that study, I analyzed the patterns of questions that had been asked hourly at the main reference desk for the previous years. After considerably torturing the data, I developed a prediction model that was intended to serve as a guide for adequately staffing the reference desk at any particular time. The lengthy report I submitted contained graphs, tables and explanations of the entire process. The pride of this report was a day-by-day weighted listing of reference activity gauged by the time of the academic year. About three weeks after I submitted this portion of the study to the library director, he asked me to come back for a conference. As I walked into his office, he had my three foot long day-by-day graph layed out on the table, studying it intently. The director was repeatedly saying, "Beautiful, just beautiful." Then he looked up at me, smiled, and said, "But what does it mean?" After attempting to explain the significance of the report, I had the feeling that he still thought it looked pretty, but had no real meaning.

The point of this story is that management information systems are worthless if the manager either does not understand the information, or refuses to use the information. This is particularly relevant since for the past decade libraries have shown a determined interest in the prospects of automating various clerical processes. Only recently has this interest
began to include management processes as being applicable to library automation. In a recent issue of *College & Research Libraries*, Robert S. Runyon suggested that library management is now ripe for automated administrative information gathering systems.¹

Runyon is no doubt correct in his belief that the library management profession will be examining the concept of management information systems (MIS) more closely in the future. However, his thinking is based on the assumption that library managers will use the systems once they are available. This paper is founded on the premise that in most libraries the current information that is derived from automated systems is a nonutilized or underutilized commodity in the management process. The purpose of this study is to examine the characteristics of this failure to use management information. This examination will consist of three major sections:

1. An examination of how the library as an organization has been responding to a changing environment, both externally and internally.
2. An investigation of the causes of the nonuse of information derived from automated systems in the decision-making process.
3. An analysis of the rationale for using this kind of information in the management process.

**Organizational Reaction to External and Internal Stimuli**

Most libraries have a problem keeping their clients totally satisfied with the service their organization provides. One almost comes to expect the regular grilling in the newspapers over what the libraries are, or are not, doing to our unsuspecting public. Further, the litany of internal employee problems has become as common as news of another budget cut. The library in today's environment faces what those in management circles might call a marketing problem.

Most marketing problems are really exchange problems. A diagram of the exchange process is given in figure 1. For example, if you go to eat in a university cafeteria the obvious exchange would be the cost of less personalized service and uncomfortable seating for the benefits of fast service and no tipping.

**External Stimuli**

On the external exchange level, organizations can be seen, in a naturalistic sense, as having a symbiotic relationship with the community they serve. Each element—the organization and the community—have a mutually beneficial effect. The organization provides a service needed by the community, and in return the community supports the organization. The
problem is that this relationship is not static. As the environment changes, both the community and organizational needs change. When the service needs of the community either outpace the ability of the organization, or when the service needs of the community cannot be fulfilled by the organization, we perceive what Miriam A. Drake has termed performance gaps.²

The first symptom of a performance gap is an organizational version of stress. Miller has suggested that stress occurs in an individual when either there is a lack of some essential input, or when an excess of input floods the system.³ Meier has taken this concept a step further by suggesting that the same kind of stress experienced by individuals can affect organizations. Meier postulates that as the imbalances that occur between the demand for an organization's services and that organization's ability to deliver those services increases, the amount of stress on the organization
will increase. As the imbalance grows more severe, the organization experiences the equivalent of a nervous breakdown. The organization simply stops functioning. This phenomenon is illustrated in figure 2.

Figure 2. Example of the Affects of Stress on an Organization as Demand Increases (Modified from Meier, Richard L. "Information Input Overload: Features of Growth in Communications-Oriented Institutions. In Mathematical Explorations in Behavioral Science, edited by Fred Massarik and Philburn Ratoosh, p. 268. Homewood, Ill.: Dorsey Press, 1965.)
For example, those of you who are familiar with academic libraries may recognize this kind of deterioration occurring during the weeks preceding final examinations. As the demand for services of the academic library increases, it is met with increased performance from the library's staff. However, the situation reaches the point where the staff is performing at its maximum level while the demand for service continues to increase. This is typified by overcrowded study areas and long lines at the circulation and reference desk. The staff quickly discovers that no matter how hard or how fast they work, their efforts will not keep up with demand. It is at this point that the organization gives up trying to keep pace with demand; the staff either sets its own performance pace regardless of the demand, or begins a policy of high absenteeism in an attempt to ignore the demand.

It is the library manager's job to ensure that this kind of breakdown does not happen in a library organization. When a performance gap begins to occur between the library and its community, the library manager must either seek a new community or alter the library to provide new services. The essential problems that the library manager must solve are: (1) to recognize that an imbalance or performance gap exists, and (2) to know what direction the organization should move to correct the imbalance. It can be suggested that the past performance record of library managers in solving these kinds of problems has been something less than totally successful.

Roger Horn has suggested that this poor performance record for libraries is attributable to what he believes to be the generally poor quality of administrators libraries attract.\(^5\) Without disclaiming that there are poor library managers in the field, or that they have committed some truly magnificent decisional blunders, one hopes that there are other reasons for this failure—other than lack of talent.

*Internal Stimuli*

Many library managers and automation specialists believe that since they do not have much contact with the general public, this exchange process really does not apply. However, in a similar way, the exchange process occurs every day within the organization. For automation specialists, the primary consumers are probably library managers; for library managers the direct consumers of their product (i.e., administrative decisions) are other librarians within their organization. The basis of the exchange for library managers are fair administrative decisions in return for organizational power and, presumably, loyalty from their employees. These intraorganizational exchanges are as important as the exchange between the organization and the ultimate user community. It could further be submitted that there has been a history of unnecessarily limited
cooperation in these intraorganizational exchanges. Automation specialists and library managers, as respective groups, have based their products on an internally-oriented viewpoint. That is, these respective groups have been so interested in the manner, the form and the process of how their products are generated that they tend to forget how the products are utilized.

Alan R. Andreasen has devised a checklist of "yes or no" questions to determine if an individual's or institution's service is too internally oriented:

1. Is customer ignorance the barrier to the success of your product? In other words, if people weren't so stupid, they would see the importance of your service.
2. Is your product inherently good?
3. Do you view the consumer as "the enemy?" If the people who use your service would just leave you alone everything would be perfect.
4. Do you see your marketing problem as changing consumer rather than changing the product?
5. Is communication the only really important marketing tool needed to push your product?
6. Do you believe consumer research isn't really necessary?
7. Do you believe consumers of your product are all the same?6

If the answer is "yes" to all or most of these questions, the institution's service is too internally oriented, and probably most librarians and libraries suffer from this malady. On the one hand the automation specialists are justifiably proud of the kind of timely information services they can provide, but consider themselves hindered by the library managers that use their product because the managers seem incapable of understanding the most basic data computations. On the other hand are the library managers who view the automation specialists as some kind of vague reincarnation of Dr. Strangelove—those who relate well to their machines, but have little grasp of the real world.

What has occurred in the case of library managers and information specialists is a failure on the part of both parties to properly understand the exchange process involved. Similarly, the automation specialist wants the benefits (i.e., a job and good facilities), without attempting to understand the kinds of services or costs that will be required. What others have called a "breakdown in communications" is what Meltzer claims is actually a loss of information.7

This internal information exchange can perhaps be best explained by use of diagrams (see figs. 3 and 4). In figure 3 one can see the familiar pattern of a typical organizational chart. However, a better way to view the communication between the various administrative levels can be seen in
CLIENT COMMUNITY

Fig. 3. Example of a Typical Organization Structure

figure 4. The manager only has direct communication with the middle managers, the middle managers directly communicate with line personnel, and line personnel with the clients. The manager has knowledge of what clients are interested in or what problems they are experiencing only as that information is filtered through the organization's line personnel, and refiltered through middle management. Concomitantly, an adminis-
The decision to change the direction of the organization goes through somewhat the same filtering process as it progresses outward from the manager; the decision at each level is filtered, interpreted and readjusted.

This situation is rather common; at each level the basic information is reformulated in terms of the individual desires and political considerations at that level. At each additional level the person who needs to make the decision only has the word of the people at the earlier level that the situation they are describing is accurate. For instance, the people at the manager or middle manager level have become desensitized to increased
budget requests because that tends to be the only kind of information they receive. Managers have found that there are very few instances where employees claim that they have too much of anything or wish to have something cut from their budget.

The basic problem with this loss of administrative information between the various organizational levels is that the decision-makers in the library have no reliable benchmark with which to gauge the importance of the request. As such, libraries rarely make informed organizational decisions to meet the needs of their clients or employees. The library must be able to legitimately view itself as a dynamic entity that can successfully react to its changing environment.

The internal exchange failure within a library can exacerbate an external exchange imbalance. For instance, if the public services staff reports to the library manager that demand for a certain subject is outstripping the collection, the library manager must decide if the information is accurate enough to warrant a change of policy. This is where information derived from automated systems could play a major role. Most automated circulation systems can generate a frequency list of circulated materials. In addition, many automated acquisition systems can produce similar frequency lists. Thereby, the library manager can use the circulation information as a benchmark of the demand for a certain subject, and the acquisition information as a gauge of how well the library is responding to the demand. The library manager can then make a rational decision on whether the demand requires an additional appropriation.

In many libraries these automated systems already exist, and in most cases a byproduct of the systems include the above mentioned report features. Unfortunately, library managers for the most part have refused to incorporate these channels into their decision-making plan. Understanding the causes of nonuse of information derived from automated systems constitutes a major dilemma for library organizations.

**Causes of Nonuse of Information Derived from Automated Systems in the Decision-Making Process**

The general causes of managerial resistance to information derived from automated systems can be loosely grouped into four categories: (1) educational deficiencies, (2) sensory and decisional deficiencies, (3) cultural deficiencies, and (4) the "priesthood effect."

**Educational Deficiencies**

Much of the blame for the failure of library managers to utilize automated data has been attributed to the inability of managers to understand the largely numerical-based format of the data, and admittedly, the
inability of software manufacturers to create formats that make this kind of data easier to understand. Shera has suggested that a sixth year of study be added to library science programs to make up for these educational deficiencies. Divilbiss goes one step further to recommend the recruitment of undergraduate science majors into the profession. He points out that many librarians not only have little previous academic training in fields that lend themselves to fully understand automated systems, but generally receive little help in this area when they reach library school. This generalization can perhaps be expected. After all, librarians are either directly involved with, or are the product of, the educational process. As such we tend to view solutions to many problems in an educational light.

Although the educational deficiencies of librarians certainly have a part to play in the nonuse of data derived from automated systems, it is probably too glib to rest the entire explanation on this factor. A strictly educational causation would lend itself to a relatively simple solution—get the necessary education through a course or two in statistics and computer science.

One of the foundations of this paper is to suggest that several other factors may be operant in any given situation, but not that all are occurring at the same time or in equal amounts.

**Sensory and Decisional Deficiencies**

The first of these factors has to do with information overload. The automated systems that library managers are—or will be—dealing with have reached a level of sophistication that they can generate mountains of data at the touch of a button. The problem comes from trying to interpret all of this information in a rational, logical manner. This may be a classic case of what Toffler referred to in *Future Shock*. There are many examples of where individuals who are faced with increasingly difficult decisional tasks will give up attempting to cope with the new stimuli. They simply quit trying to process the new information. The ability of automated systems to generate data has far outreached the library manager's ability to interpret that information and react to it in a useful way.

David Firnberg has pointed out that when faced with a frustration, like information overload, we react as any animal would when confronted with an obstacle: "the animal either lies down pretending not to notice and goes to sleep; or it rejects the situation, turns its back and walks away; or it battles and tries to master and overcome the cause of its frustration. In our reactions most of us fall into the first two categories." Unfortunately it is rather easy for information overload to occur. Both Posner and Miller have demonstrated the rather severe cognitive limitations of the human mind.

It could be argued that this is merely an extension of the argument that the solution rests in better educational training (i.e., the better the educa-
tion, the better the individual will cope with the information). Melnyk has suggested that those who have been instructed in the use of a computer facility will experience less frustration than those with no training. This would no doubt help. However, it can be suggested that the capacity of such systems would quickly outreach even the highly trained individual.

**Cultural Deficiencies**

One of the less talked about reasons for managers not using data derived from automated systems are various inherited cultural biases. One of these biases would include a basic resistance to machines of any kind, particularly machines whose functioning is difficult to understand. One remembers that during the industrial revolution in England some of the workers, the Luddites, destroyed looms. More recent examples would include the numerous instances of people punching extra holes in computer billing cards, or the individuals who input obscene entries into a national cataloging database. In fact, one of the major papers given at the 1981 ACRL National Conference was presented by Paul Lacey and was entitled "Views of a Luddite." It would probably be safe to say that the computer inspires as much distrust as any other technological innovation of our day.

This kind of resistance as demonstrated by managers has been the subject of a number of studies. Ennis has explored the resistance of librarians to automation. Others have attempted to identify the characteristics of those managers that are prone to resist automation efforts. A recent *Business Week* reported the results of a survey conducted by Booz, Allen and Hamilton, Inc. on this topic. It was found that older managers who had been with the same company for a long time tended to be far more resistant than younger executives who had moved from one company to another.

It is interesting to note that this is the same result postulated by Rose in 1969. Rose theorized that older managers who had a long tenure with the same company tended to be more resistant because their strength and organizational power stemmed from a superior knowledge of the current system. Since automation would disrupt that system, it posed a threat to the older executive.

De Greene has suggested that resistance to automation is not unique to the personal characteristics of managers, but it is unique how automation affects their particular positions within the organization. Managers who were favorably disposed toward automation when it meant the elimination of clerical employees, are now suddenly very resistant when managerial-level positions may be eliminated.

Aside from the the fear factor of automation, even intelligent people have a basic distrust of computer-generated data. They have a feeling that
somehow the machine has made a mistake. Thereby any decisions they would make on the basis of that data would be faulty. There are scientists who will run their calculations on the computer, and then cross-check them on their calculators just to be sure. They know that the odds against the computer making an error of that nature is astronomical, but there is a nagging doubt. The phenomenon of distrusting computer output is described by Sanders.  

A second cultural bias has to do with the nature of operating a computer. Up until a few years ago (and still in many places) one had to feed punched cards into a reader by hand in order to make the computer function. Most systems still require the operating of a typewriter-like keyboard. Many managers resist the idea of having a keyboard terminal in their office because they feel it makes them look like a secretary. One must remember that our culture is one that regards gardening for a living as a lower class activity, but gardening for a hobby is sublime. Ergo, many managers believe that any work done with their hands is simply below them on the sociocultural ladder. Fortunately this problem may be solved by voice-activated terminals.

Perhaps the most difficult cultural bias to overcome is the prevailing attitude among managers that administration is an art. An art that is simply not conducive to automated data. The environment of management philosophy has been described by Easton as a broad river valley. On one bank of the river are the managers who believe that management decisions should be made on the basis of experience, intelligence and gut instinct. On the other bank reside the managers who base judgments on decision-trees and computer-generated facts. In truth, of course, a good manager uses a combination of both experience and instinct, and performance probabilities that are suggested via automated means. The problem is basically one of ego in this case. Many managers feel that by using automated data for decisions they somehow devalue their own self-worth.

The Priesthood of Automation

When large-scale computers were just coming into the commercial marketplace, the story was told of a company (we'll call the XYZ Corporation) that had purchased one of these mainframes. The individual whom the company put in charge of this facility immediately had a multitiered glass partition installed around the machine, and established a super-clean climate-controlled environment. Within this partition workers wore head caps and booties. Of course later it was discovered that the computer did not require this kind of special care to operate properly. The operator had simply sought to increase the mystery surrounding the installation for the other members of the company. Thereby no one questioned procedures
that were obviously beyond their comprehension. This was empire building in the finest tradition.

The situation in XYZ Corporation described above may not be as farfetched as it initially sounds. White pointed out that the historian Henry Adams observed at the turn of the century that the machine had replaced the church as an institution of worship in American culture. In his time the dynamo was the extent of technological innovation. In our time the archetype of technology is the computer. If Adams is correct, the computer has all the essential elements that good religion contains. It jointly inspires fear, wonder and pride. Fear, because it is incomprehensible and unknowable to the uninitiated layman; wonder, because its operation approaches being magical; and pride, because although one cannot understand how the machine functions, he knows that it was the inspiration of others and fashioned with human hands. To extend the analogy, the initiated have a sacred language known only to themselves. One only has to listen to two computer scientists talking over a problem to recognize this fact. Last, the computer itself can be seen as an icon—a symbol of the elect. These initiated, these “elect,” are whom I refer to as the “priesthood of automation.”

Like the computer operator in the XYZ Corporation, there are many priests of automation who see this special knowledge as a way to gain power in the organization. Not only does this priesthood not educate management on the functioning of the automated system, but also make sure that management does not gain that knowledge. From this kind of activity, the priesthood can never be wrong, for their argument can always be that management simply is not intelligent enough to see the truth.

It is easy to argue that the nonuse of automated data rests solely on the head of uneducated managers. It is somewhat more frightening to believe that there could be those within the organization who would intentionally make the system difficult to understand. This is not to suggest that every automation specialist in every organization is doing this. However, it is possible that if a manager cannot get an automation specialist to give a straight answer in plain English, it might be that the person in charge of automation does not want the manager to know the answers.

Several writers have reflected on the problems of dealing with automation specialists in an organization. Donaldson, Stevens and Becket warn that the automation specialist “thinks of himself...as a computer expert, and will regard your business problems as tiresome distractions that come between him and his real vocation.” Montague has stated that libraries have brought this problem on themselves by not taking charge of technological innovation. In other words, managers have allowed automation decisions to be made by the very people who have a three-piece vested interest in the outcome.
A compromise needs to occur. The automation specialist at today's technological level can build systems that produce data that are timely and understandable. The manager must be willing to pursue the kind of training that will ensure that the data that is produced can be utilized. As Orlicky suggests, the manager must become more of a priest of automation, and the automation specialist must become more familiar with the more profane day-to-day decisions that are made within the organization.24

The Rationale for Utilizing Information Derived from Automated Systems in the Management Process

The fact is that the computer industry has been rather good at demonstrating how various systems can make cataloging easier or typists type faster, but they have been rather negligent in showing managers how they can manage better. If one looks at many of the reasons why managers resist automated systems, he will usually encounter a motivational problem. Unfortunately either managers are motivated to use automated systems or they are not. It is unfortunate because the systems designers have given library managers little reason to be motivated. The purpose of the last section of this paper is to propose a reason for managers to use automated systems.

In an article, A.B. Cherns points out that automation can be used as a management tool for either centralization of services, or for decentralization of the organization. It can make centralization easier because it promotes communication of necessary administrative information from the line operations to the decision-makers in the organization. Thereby, the administrators can make decisions that are timely and well informed. Similarly, in a decentralized organization the problem tends to be that each independent section of the organization has difficulty knowing precisely what is expected of it. The improved communication capability of automation data can allow decentralized units to react to changing environments in a clear and uniform manner.25 This paper will devote itself to centralized organizational aspects of library automation. It will be addressing particularly those who are library administrators, or those who wish to become administrators.

If one remembers the first section of this paper, the information flow from level-to-level within the organization was reviewed. It was found that one of the basic problems for the decision-maker in the organization was getting reliable information concerning the needs of the clients. There are those who would argue that this kind of problem is solved by instituting multi-level committees or quality circles where the line personnel can directly approach the manager with information. Unfortunately this still does not solve the basic deficiency, which is that the decision-maker still
does not know the actual extent of the problem or the accuracy of the information. This is perhaps where the use of automation data has its best use.

There are two essential characteristics of successful management: superior information and superior control.

**Superior Information**

With superior information-gathering via automated systems, the organization can progress from being a purely reactive entity (i.e., only responding from crisis to crisis), to being an aggressive marketing organization. Thus, the organization can respond to situations before they reach the critical stage, or a phase that is damaging to the credibility of the organization. Information derived from automated systems does not just produce quantitative data, but has the potential for a direct qualitative effect on the library. This level of information produces better decisions, and makes the organization more responsive to client needs.

**Superior Control**

There is a second reason that library managers should consider making more use of data derived from automated systems. That rationale is that with information from automated systems, the library manager can gain more control and power over his organization. One somewhat hesitates broaching the topic because speaking of “power” with today’s organizations being geared to humanistic models is considered heretical, or at least in bad taste. As a working definition I will define power as the ability to influence change in another person or group of people. In 1959 French and Raven did a good deal of basic reasearch into the types of power that can be exerted within a social organization. Their conclusion was that there are basically five types of power:

1. **Reward power.** The ability to reward an employee for correct action.
2. **Coercive power.** The ability to punish an employee for incorrect behavior.
3. **Legitimate power.** The employee believes the employer has a right to prescribe behavior.
4. **Referent power.** The ability of the employee to adjust behavior via identification with the employer.
5. **Expert power.** The employee adjusts behavior because the employer has some special knowledge.

In 1981 Yuki further delineated these power bases within organizations. Up until about twenty years ago the library manager commanded power through the first three kinds of power described earlier. The manager was invested by the institution with legitimate power of position.
Some of the rights of that position included the almost total ability to reward or punish the employees for which the manager was responsible. The library, for better or worse, was in the hands of a single individual. That was twenty years ago.

Since then, a number of factors have affected this power base of the library manager. In probably one of the most cited pieces in library literature, Downs and McAnally portrayed the problems of the academic library manager.\(^{28}\) On one hand the academic administration was limiting the resources and the privileges of the library manager, and on the other hand the library faculty were gaining more individual rights of employment. Although the library manager is still invested by the institution with the responsibility for effectively operating the organization, the institution has taken over an increasing array of budgetary decisions. One need not itemize the research on the loss of power of the library manager over library employees. The literature is packed with the joys of dealing with faculty status, collective bargaining and, of course, participative management. The library manager finds himself with the same responsibilities as twenty years ago, but without the ability to effect change either with the organization as a whole or with individual employees. In the modern library organization, rewards are given on the basis of union contract or committee judgment rather than by a decision by the library manager. Similarly, the coercive power of the library manager has been delegated to legal council and union steward. Many librarians are in one stage or another of seeing this phenomenon occur in their organization. The traditional basis for power over their organization is being eroded or is already gone.

What can the library manager do? The profession cannot throw out the unions or the committees because they are here to stay. This paper is also not suggesting that library managers give up trying to direct their organizations. What it is suggesting is that library managers must find a new basis for power to effect change. Since few of us are blessed with the charisma to lead on the power of our personality, that new power base or control must occur through superior information about the organization.

Salancik and Pfeffer have developed a model for gaining power within an organization known as the "Strategic Contingencies Model."\(^{29}\) The foundation of this model is the fact that whoever controls the resources of the organization, controls the organization. Part of the necessary resources of an organization is information. This is where the library manager can exert new power. He/she can determine that his/her office is the only central collection point for management information and can determine who, when and under what circumstances that information will be distributed. Thus the basis for power for the future library manager lies in the area of expert power. The library manager will possess unique and vital organizational data available to no one else. As Pfeffer and Salancik point
out: "It is the case that if one controls the information used in decision making, one can control the outcomes."\textsuperscript{30}

The manager can further exert control over employees by using, or withholding, information. Meltzer has suggested that the psychological need-to-know is a powerful motivating force in organizations. By withholding information the manager can actually inflict punitive control over a given employee.\textsuperscript{31}

The requirement for this kind of power rests in the ability to collect the information. This is where data gathering from automated systems is absolutely vital. Under present capabilities almost every aspect of a library operation can have an automated reporting function. As such, every library operation can have day-to-day—practically individual-by-individual—direct reporting to the library manager. There is no need for the constant filtering and refiltering of information presently available.

There are those who may think that this is too much like a chapter from 1984 or a sequence from 2001: A Space Odyssey. But like many things, data gathered from automated systems is merely a tool. How library managers use this tool is largely a matter of personal discretion. However, the use of automation as a vehicle to effect change within the library is one of the last opportunities for library managers to exert any kind of control over the direction of their organization.

Conclusion

First, this paper examined the library as a marketing entity and discovered that most libraries are internally-oriented organizations. It was proposed that this orientation was due to the inability of libraries to adequately change with the differing needs of its clients. Second, the causes of nonuse of data from automated systems by library managers for decision-making were examined. It was postulated that this nonuse was primarily due to a motivational failure on the part of library managers. Last, the reasons why library managers should utilize data derived from automated systems, both as a way of directing the entire organization to a more client-oriented position, and as a means for the library manager to gain more personal control over the library, were examined.

In the final analysis, experience and instinct will ultimately mark the best library managers. However, good decisions are not only based on instinct, but also on the ability to formulate that instinct around quality information concerning the changing environment we live in. Rose has pointed out that the modern manager needs to be cybernetic as well as literate and numerate.\textsuperscript{32} The responsibility of the library manager in today's society is more complex and difficult than ever before. While the demands on the services of the library are greater, the tools that the
manager can use to meet those demands are fewer in number and more limited in scope. One of these tools is the kind of quality information that can be derived from automated systems. In order to carry out the responsibility, to do the job he or she is being paid to do, the library manager cannot afford not to use the tools available, including administrative information from automated systems.

REFERENCES

30. Ibid., p. 270.