Using Data and Information to Achieve Excellence

CHAPTER 7

CHAPTER OUTLINE

- The Importance of Information
- The Quality of Information
- Types of Data and Information Needed in Organizations
- Developing Integrated Information Systems
- Steps to Developing an Integrated Management Information System

CHAPTER OBJECTIVES

Upon completion of this chapter, the reader should be able to:

- Identify the types of data and information needed by constituents outside the organization.
- Explain how data and information are used within the organization for planning, operations, human resources, technical resources, and financial planning purposes.
- Discuss the steps to developing an integrated management information system.
- Give examples of how data and information can be used for program and organizational improvement.

Assumptions

- That well-run organizations base their planning, decision making, and actions on data and information to the greatest extent possible.
- That an agency’s management information system should focus on its own information needs, especially its performance guidance system’s needs, and that the requirements of external sources should be incorporated into the system after the agency’s needs have been addressed.
- That data and information are essential to continuous quality improvement in programs and services.
The Importance of Information

We are constantly reminded by various media sources that we live in what observers refer to as the information age. With widespread use of computers, even very small organizations can build and maintain a database that will serve a variety of purposes. Data and information that have for years been available only to highly specialized technical personnel are now readily available to anyone with access to an agency’s database, a local area network, or the Internet.

For over a century people who worked for and managed human service agencies have focused their data collection efforts on the helping process rather than client outcomes, simply because no data or information were available on the results of the helping process. Now, thanks to advances in technology, professionals in the human services find themselves in an era in which it is possible to identify expected outcomes for cases assigned to workers, to track effort and resources invested in each case, and to determine whether expected outcomes were achieved. By aggregating data available across many cases, it is possible to develop working hypotheses about the most efficient and effective ways to help people in need.

Over time, when enough data and information have been compiled so that intervention techniques can be refined and streamlined, this new knowledge will revolutionize the ways in which helping professionals are educated and the ways in which they practice. In the meantime, it is incumbent upon managers and administrators to ensure that information systems are designed in a way that will yield useful information.

The Quality of Information

In approaching the task of designing a management information system for an organization, managers and administrators find that there are many challenges and risks. The greatest risk is that information produced will not be useful for either knowledge building or for decision making. Computers are capable of producing a tremendous volume of data, but stacks of printouts that collect dust are testimony to the fact that not all data are useful. Early experiences with computers often revealed that funding sources were more concerned with tracking dollars than they were with tracking the quality or effectiveness of service.

Kettner and Martin (1998) point out that the introduction of purchase of service contracting (POSC) brought with it some practices that had a powerful influence on how data collection systems were designed. The era of widespread contracting for social services began in the late 1960s. The emphasis in data collection requirements established by the federal government has changed over the years, as follows:

- In the earliest years of POSC (1968–1979) the focus was on fiscal accountability. An American Public Welfare Association study attributed this financial orientation to reporting demands established by the federal government (Slack, 1979). The study pointed out that “concentration at the highest federal levels on financial management and efficiency [have resulted in] . . . a relatively weaker focus on quality, adequacy and effects of services” (p. 30).
- From 1980 to 1990 state public social service agencies began to assert their authority and attempted to get control of the statewide human services system. The majority of
services delivered during this period were contracted out to private nonprofit or for-profit agencies. Data collection increasingly focused on service provision data. This included tracking service type, units of service provided, and other resources expended in the helping process. The emphasis on accountability for programs and services influenced social service agency managers to redesign their data collection systems to track details associated with service provision.

Since the early 1990s, as a result of a number of congressional and executive initiatives at the federal level, the emphasis in accountability has been on organizational and program performance. For social service agencies, this means finding ways to track client outcomes and to report on such dimensions as efficiency, effectiveness, quality, and productivity.

This three-decade progression in terms of data collection and reporting can provide some important lessons to those responsible for designing management information systems in the early decades of the twenty-first century. Probably the most important lesson is that the local agency must determine its own information needs. Systems should not be designed solely to meet the needs of the funding source. Multiple funding sources are very common in contemporary practice—the rule rather than the exception. An agency may have as many as ten or even twenty different funding sources. Some have attempted to design a mini-information system to fit the needs of each funding source. Needless to say, this is highly inefficient and rarely yields information useful to the agency itself. A more efficient and effective system can be created if the designer will incorporate the needs of both external stakeholders as well as internal units into a single system. In the following sections we will explore ways that this undertaking can be accomplished.

Types of Data and Information Needed in Organizations

Chapter 3 looked at the organization as a system and attempted to explain why it is so important to organizational integrity that decisions be made and work be done not in isolation but with consideration of the impact on the entire system and each of its subsystems. Decisions to expand or reduce services, to hire or lay off staff, to seek out new revenue sources or reduce sources of funding all impact many parts of the organization. The time may come when some of these actions must be taken, even though they may have an adverse impact on one or more units within the organization. Management should ensure, however, that the best data and information are available for decision making so that the impact of changes can be anticipated to the greatest extent possible.

External Data and Information Considerations

In exploring the external environment or task environment in Chapter 3, external factors were examined in terms of (1) economic, (2) sociological, (3) political, and (4) technological environments. Each of these domains should be reconsidered when exploring the
need for information. The economic domain is made up of funding sources, contributors, referral sources, consumers, and competitors. What questions must the organization be able to answer to maximize its effectiveness in relation to each of these entities? The sociological domain includes consideration relative to the community and larger political subdivisions within which the agency functions. Developing a profile of people, problems, needs, strengths, and opportunities will require regular data collection, aggregation, and reporting. The political domain includes regulatory and accrediting bodies, including the agency’s board of directors. What concerns will be raised by these bodies in the future? What information will be needed to address these concerns? Finally, the technological domain encompasses all the areas of professional and technical advancement that must be monitored to ensure that the agency remains on the cutting edge as new developments and innovations emerge. Each of these four domains must be tracked in some way and questions anticipated so that the agency will have the necessary data and information when they are needed and expected.

## CONSIDERATIONS

### For External Data and Information Needs

| Economic: | What information is needed and expected from funding sources, contributors, referral sources, and consumers? What does the agency need to know about its competitors? |
| Sociological: | What types of people live in the community in terms of basic demographics such as age, ethnic group, gender, socioeconomic status, and other factors? What types of problems, needs, strengths, and opportunities exist in the community? |
| Political: | What are the data and information expectations from regulatory bodies, accrediting organizations, or the board of directors? |
| Technological: | What technological and professional advancements should the agency track and how can innovations be incorporated into the service delivery system? |

### Internal Data and Information Considerations

For uses internal to the organization, data and information will be generated for administrators and managers, supervisors and workers. Chapter 3 identified the important internal components as (1) organizational purpose, mission, and philosophy, (2) organizational planning, (3) organizational operations, (4) human resources, (5) technological resources, and (6) financial resources. These organizational components also provide a useful framework for identifying and organizing data and information considerations. Revisiting organizational mission, purpose, and philosophy serves as a reminder that there is a long-range vision around which the organization has been structured, and it is important to develop
indicators that will help decision makers understand how the agency and its programs are progressing toward that vision. The organizational planning framework is of vital importance to the design of the management information system. Review of plans will reveal strategic, long-term, and program-planning goals, objectives, and activities. If these plans are well designed, they should contribute to moving the agency toward its mission and purpose, and they should also suggest the types of data and information that will be needed to determine if these plans are on track. A review of organizational operations will be useful in understanding where the departments, divisions, or units are in relation to established expectations. Indicators that measure efforts and accomplishments should be incorporated into the information system. Questions about the optimum utilization of human resources will suggest a number of data needs about such factors as qualifications of staff, employment, performance evaluation, and training information. A systematic review of technological resources will suggest the types of information needed to stay current in areas of vital importance to agency functioning. Financial data and information will be tracked with the budget, to be covered in Chapter 8.

### CONSIDERATIONS

#### For Internal Data and Information Needs

**Organizational Purpose:** What factors or variables need to be tracked in order to monitor the agency’s progress toward achievement of organizational purpose? Does the mission identify the populations and expected outcomes that require data collection?

**Organizational Planning:** Strategic, long-range, and program plans specify goals and objectives that will require the use of measurement criteria to determine whether they have been achieved. What criteria are specified, and what data elements are specified or implied?

**Organizational Operations:** What performance expectations have been established for each of the departments, programs, or units within the organization? What data will be needed in order to monitor and evaluate performance against these expectations?

**Human Resources:** What reports will require data on staff qualifications, demographic characteristics, licensing, certification, staff development and training, or other staff characteristics? What data elements must be tracked in order to complete these reports?

**Technological Resources:** How can the agency remain current in the identification of developing technologies, including computer hardware and software, communications equipment, and new developments in practice models?

**Financial Resources:** How can revenues and expenditures be tracked in a way that will keep management informed about cash flow and will provide an early warning if there are any indications of financial problems during the remainder of the fiscal year?
Developing Integrated Information Systems

One of the major challenges in designing information systems is capturing enough data to answer important questions without attempting to capture so much that the result is information overload. The goal is to design a system that includes all appropriate and necessary data elements yet has the flexibility to meet the reporting needs of all constituents.

In most instances this goal can best be accomplished by constructing the management information system around a framework that includes several subsystems. The centerpiece of the system will focus on organizational operations, including data about programs and services. This system will include data about all clients served, the program(s) within which they are served, volume and type(s) of service(s) provided, and other service- and client-outcome variables. Data and information produced from this system will establish performance indicators and will answer questions about progress toward the achievement of goals and objectives. Rapp and Poertner (1992) refer to this as the performance guidance system.

Secondary systems will focus on other units within the organization that do not provide direct services. One subsystem will focus on human resources information and will contain a complete personnel file on each employee including demographics, date of employment, performance evaluation data, training and staff development data, career development data, and other relevant information. Another will focus on financial information including tracking all funding received and ensuring that specifications are followed and tracked. An accounting and bookkeeping system may be designed to track expenditures and issue payroll checks. Designing the financial resources information system will be the subject of the next chapter.

There may be other reasons to set up specialized information systems. Perhaps the agency is undertaking a major capital campaign to fund new facilities, and it is important to track donors and the funds to which their donations have been allocated. Some agencies may have such a large volunteer workforce that it warrants its own volunteer information system for training, workload assignment, or scheduling purposes. Rapp and Poertner (1992) refer to these as housekeeping systems. They exist primarily for the purpose of relieving staff of paperwork transactions and increasing the efficiency of these subunits.

Although all these ancillary or housekeeping systems are important for their own purposes, the centerpiece remains the overall organizational performance guidance system. This is the system that will aid in determining whether the organization is performing in a way that is consistent with its reason for existence (its mission). It is important that data and information on organizational performance be produced within an integrated system that is capable of yielding comparative data and information across all programs. Separate “mini-information systems” for each program, service, or funding source run the risk of fragmenting the monitoring and evaluation efforts and undermining the concept of shared vision.

Each part of the system, regardless of its ultimate purpose, must go through a series of steps designed to ensure that necessary data elements are included while, at the same time, the system remains as lean and streamlined as possible.
Steps to Developing an Integrated Management Information System

Many planners and administrators, in designing information systems, submit to the temptation to follow what appears to be a logical course of action and design or redesign their systems chronologically. What that means is that they begin at the point of asking the question “What data do we need to collect as a part of our information system?” They next move to designing or redesigning data collection forms and complete the remaining steps that follow chronologically to the final step of generating reports. This can prove to be a somewhat haphazard method for constructing a system.

For example, in a brainstorming session about data collection in a residential treatment center, staff members offered their suggestions. One person pointed out that it was important to have a complete history on both parents. Another suggested that, because so many of the children had multiple sets of parents, a history should be taken on each parent determined to be significant to the child. A third person had read a research report that concluded that the age at which a child is removed from natural parents is highly significant. Another wanted to know the ordinal position of the child in the natural family. In an attempt to accommodate a wide range of interests, the consultant designing the information system developed forms that incorporated all suggestions. The form was twelve pages long, with many items that could not be completed because there were no adults in the child’s life who could answer questions about natural parents or early childhood experiences. Furthermore, there was no consensus on how the data were to be used, other than to satisfy the curiosities of staff.

For these reasons, it makes more sense to begin at the end or output side of the information system rather than at the beginning or input side. The first steps should concentrate on determining how data will be used in final reports that will be prepared at the end of the program year. If the person or committee responsible for designing or redesigning the system can get administrators, managers, supervisors, and staff to think through the questions that need to be answered, then the rest of the process can follow logically from that framework. Kettner, Moroney, and Martin (1999) identify seven steps to be followed in designing a management information system for a single program. Although this chapter is not intended to cover the subject at the same level of technical detail, it will explore how some of the same steps and concepts can be applied to an agency-wide performance guidance system as described by Rapp and Poertner (1992). The following seven steps can be used to develop an agency-wide system:

Step 1. Identify input, throughput, output, and outcome elements for each department or program.

Step 2. Identify the questions to be answered by the management information system.

Step 3. Identify the data elements needed to answer the questions.
Step 4. Develop the tables, charts, and graphs that will display data needed for reports.
Step 5. Design data collection procedures and instruments.
Step 6. Design the data entry, processing, and reporting system.
Step 7. Run the system, compile sample data, and debug the system.

Step 1: Identifying Input, Throughput, Output, and Outcome Elements

Understanding the systems framework in which all components of the service system are captured under the headings of inputs, throughput, outputs, and outcomes is essential to setting up a management information system. This framework will be described briefly at this point, but the reader is directed to more comprehensive coverage of the topic in the reference section at the end of this chapter. The systems framework is depicted in Figure 7.1.

Identifying Inputs  The systems model roughly depicts a chronological flow of production of products or services in an organization and is used to understand how all the elements of the operation work together. Inputs represent a summary of all the raw materials and resources available to the organization at its point of origin. The point of origin, for purposes of systems analysis, is usually considered to be the beginning of the fiscal year. For most human service organizations this means July 1. For some it is October 1, in order to fit with the federal fiscal year. For some it coincides with the calendar year.

In creating an information system it can be helpful to think through the raw materials and resources that are necessary to achieve organizational and program objectives and that are available to the agency. The raw materials of human service agencies are the clients/consumers who come for service. The resources include staff, facilities, equipment, and material resources. A listing of both client data and staff data potentially useful in the system and an inventory of facilities, equipment, and material resources, such as food, clothing, or cash awards made to clients, will help in understanding the nature of the input data.

**Figure 7.1**
The Systems Framework Applied to Data Collection

![Diagram of the systems framework](image-url)
elements to be included in the information system. The following list summarizes input elements for programs, human resources, and finance:

**Program Input Elements:** Client demographic and descriptive characteristics; client social history data; client problem and strength profile; facilities, equipment, and material resources used by clients.

**Human Resources Input Elements:** Staff demographic and descriptive characteristics.

**Financial Resources Input Elements:** Line item amounts for each program.

**Identifying Throughputs** In any system, raw materials must be converted into finished products through some type of conversion process. We perhaps recognize this process more readily with the production of everyday products such as tools, equipment, or food products. Raw materials such as steel, aluminum, or rubber are fed into the front end of the production line, are melted down and poured into precast forms, cooled down, polished and refined, and come out the other end as a hammer, a chisel, or a screwdriver.

With human beings, the process is a bit less obvious, yet in systems terms the same definitions apply. Raw materials in the form of people with problems or needs enter the system at the intake and screening end of the helping process. Through the provision of a mix of supportive services and participation in the helping process, the person with problems is converted into a person whose needs are met or who is capable of coping with his or her problems. This conversion process, in systems terms, is referred to as throughput.

In human services, throughput includes all the direct services provided such as counseling, case management, therapy, job training, and others, together with supportive services such as child care, transportation, food, clothing, housing, or financial assistance needed in order to achieve program and case objectives. Data associated with throughput will be necessary to reflect the types of services provided. Throughput elements for programs, human resources, and finance are summarized in the following list.

**Program Throughput Elements:** Services provided, broken down into specific tasks performed by workers; method of intervention, such as individual, group, or family treatment.

**Human Resources Throughput Elements:** Staff development and training activities completed during the year; performance appraisal data.

**Financial Resources Throughput Elements:** Identification of daily expenditures for each line item, by program.

**Identifying Outputs** As raw materials are converted, the focus shifts to the creation of finished products or completed services. Outputs in a tool manufacturing plant would be identified as the number of each product completed (usually referred to as units). Combining the number of products produced with resources expended to produce the products enables the manufacturer to know the cost of production of each unit, as illustrated here:

\[
\text{Number of widgets produced} = 1,000 \\
\text{Cost of production} = $5,000 \\
\text{Cost per unit} = \$5
\]
In human services, the output focus shifts to measurement of service provision and completion. Two types of outputs are tracked. The first type is called intermediate outputs and refers to the volume of services (units of service) provided. The second is called final outputs and refers to the completion by the client or consumer of all prescribed services (Kettner et al., 1999).

Volume of service (the intermediate output) is measured in terms of the number of units of service provided to clients. Units are defined in terms of time, episode, or material. A time unit is either the actual time spent face-to-face with a client (e.g., one hour), or a general definition that captures a range of time frames such as a child care day. A child care day may refer to a time frame such as any period of child care of six hours or more between the hours of 6 A.M. and 6 P.M. Monday through Friday.

An episode unit refers to one contact between worker and client, regardless of time frame. Group therapy sessions, for example, may cover a range of time frames from a half-hour to two and a half hours, depending on the topic and the makeup of the group. Rather than attempt to identify the number of minutes or hours a particular client attended group therapy during the course of treatment, a unit of service would simply be defined as one client attending one group session.

A material unit is a direct exchange of a tangible item such as a food basket, an article of clothing, or a direct cash donation. Material units, like time and episode units, are tracked to determine their contribution, if any, to client success in achieving program and case objectives. Examples of units of service are provided here:

- **Time Units:** One hour of counseling; one day of residential treatment
- **Episode Units:** One group session; one referral
- **Material Units:** One food basket; one cash voucher; one article of clothing

In addition to tracking the volume of services provided, service completion or final outputs are also defined and recorded for each client. Capturing data about service completion for each client presumes that the service provider has established a definition for service completion. For example, in family counseling, in order to achieve program objectives it may be necessary that couples commit themselves to completing twelve sessions. In order to provide a bit of flexibility, the definition of service completion may be stated as follows: “A service completion is defined as both participants attending at least ten of the twelve sessions, including the first and last session.” If a couple did not complete the required sessions, they would be considered dropouts for record-keeping purposes. Intermediate and final outputs for programs, human resources, and financial resources are summarized here:

<table>
<thead>
<tr>
<th>Program Output Elements</th>
<th>Intermediate</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tracking the daily provision of units of service for each client in each program</td>
<td>Tracking the number of clients who complete the program as specified in the definition of completion</td>
</tr>
</tbody>
</table>
Human Resources Output Elements

**Intermediate**
Tracking of volume of staff development and training attended

Tracking of effort toward achievement of performance goals and objectives

**Final**
Tracking the number of staff members who complete courses or achieve certificates or licenses

Tracking completion of performance goals and objectives

Financial Resources Output Elements

**Intermediate**
Tracking of daily expenditures for each line item, by program

**Final**
Periodically summarizing expenditures in relation to budgeted items

**Identifying Client Outcomes**  
The reason for existence of all human service programs is to enable clients or consumers to resolve problems and improve their quality of life. The basic design of programs and services presumes that clients or consumers are being helped to achieve some tangible results such as improving relationships and communication between spouses, overcoming an addiction, or improving parenting skills. However, it is impossible to know whether these results have been achieved unless expected results are defined in measurable terms, tracked, and recorded. When this is done, the individual client record reflects success with each case, whereas aggregated data reflect overall program success. Client outcomes can be measured in terms of (1) numeric counts, (2) use of standardized scales, (3) use of level of functioning scales, and (4) client satisfaction. Numeric counts refers to a statistic that represents the number or percentage of specified outcomes that are achieved. For example, in a program designed to help juveniles who leave the correctional system to readjust to life in the community, one measure of success would be the number of juveniles served by the program who have no subsequent arrests. This is a very general measure and fails to identify many other factors that may indicate success such as improved school attendance or a successful employment experience. Nevertheless, many funding sources specify this type of single indicator as the criterion for success.

Standardized scales are objective instruments that have been designed to measure a particular dimension of a problem, a need, a strength, a behavior, or other factor. They have been tested and are expected to yield reliable and valid results. Standardized scales have been designed to measure such factors as self-esteem, depression, knowledge, aptitude, and many other factors. Level of functioning scales are similar to standardized scales, with the exception that they are designed by staff or other experts to fit a particular program and population. These scales are used to rate clients on various dimensions that the program is designed to address. For example, a program to serve the homeless may develop a level of functioning scale that measures housing, employment skills, health and nutrition, and other such dimensions. Assessing these factors at intake and exit provides data on how much each client improved during the course of treatment.

Client satisfaction is measured by preparing a series of questions and asking respondents to indicate their reactions to each question in terms of whether they are very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied (or some similar wording).
For some types of services, such as transportation, this measure may actually be more reliable than the others mentioned (Martin, 1988). For others, such as programs to reduce child abuse or prevent teen pregnancy, client satisfaction is not as meaningful as tracking indicators of client and program success. Client outcomes are summarized in the following list for program outcome elements only. Data and information collected for such organizational components as human resources or financial resources do not typically define or use outcome indicators.

**Program Outcome Elements**

*Numeric counts* are nominal measures of client achievements (e.g., 87 percent of those in a pregnancy prevention program graduated from high school without becoming pregnant).

*Standardized scales* are objective measures developed by experts and are applicable to a specific client population, problem, or other factor (e.g., Minnesota Multiphasic Personality Inventory).

*Level of functioning scales* are objective measures developed for a specific program or service and are not necessarily validated for use outside the program (e.g., job skills, transportation, housing).

*Client satisfaction instruments* are used to determine client perceptions of various dimensions of services provided (e.g., how satisfied a client is with promptness of service, worker’s ability to understand the client’s needs, and the relevance of referrals).

**Step 2: Identifying the Questions to Be Answered by the Management Information System**

In framing the questions to be answered, a systematic approach can be achieved by exploring the information needs of both external and internal constituencies discussed earlier in this chapter.

**Identifying the Information Needs of External Constituencies**

**Economic Considerations**

- *Funding Sources.* Present and future funding is an important consideration in constructing a management information system. It is important to develop a reputation with funders for being able to produce relevant and responsive information in a timely way. Learning the information needs of funders is typically a straightforward undertaking. From each funding source a contractor can expect to receive a set of instructions specifying data, information, and reporting expectations. Types of questions from funding sources typically include the following:

  **Input Questions:** What is the demographic profile of the client population? How many unduplicated clients are being served? What types of problems and needs are clients bringing, and how many are in each category? What resources are devoted to each program and service?

  **Throughput Questions:** What services are provided? How are these services defined? What methods are used?
Output Questions: What volume of services is provided to each client? How many clients complete all of the services they need to be successful in achieving outcomes? How many drop out of the program?

Outcome Questions: How is success defined in each program? How many clients have achieved success by this definition? How many have not achieved success?

Some funding sources will not ask for this much information. Some will ask for more. This sampling is intended to provide a brief overview of the types of issues that may be raised by funding sources that have implications for the design of an information system.

Contributors. Identifying information needs for contributors is usually less complex than for funding sources. Contributors like to have assurances that their charitable donations were used efficiently and effectively and achieved their stated purposes. Although a special report may be prepared to keep contributors informed of agency activities, it is more typical that communication will be through such media as newsletters and annual reports. Types of questions may include the following:

Input Questions: What is the demographic profile of people served? How much of the resources went into direct service versus administration?

Throughput Questions: What services were provided, and in what volume?

Outcome Questions: What percentage of people served achieved successful outcomes?

Clearly the types of questions raised by contributors will vary depending on the size of the contribution and the ongoing relationship with the agency. If the contribution is a one-time donation, there may be no expectation of feedback. If a corporation sponsors an agency on a regular basis, the expectations for feedback on its return on investment will likely be greater. In any case, it is always wise to provide as much information as possible to past and potential donors for the purpose of keeping up their interest in and support for the work of the agency.

Referral Sources. The types of information needed for referral sources may differ a bit from funders and contributors. Referral sources are likely to be much more interested in the details of the service process, including types of direct and supportive services provided, methods or techniques used, qualifications of staff, or service availability. This is not to say that they are uninterested in the agency’s success rates, merely that they need to know that if they refer a client, he or she will be served in a timely fashion with services that are relevant to the problem or need. Types of questions may include the following:

Input Questions: For what types of problems and needs do you provide services? What is the demographic profile of people served? What types of special needs can be accommodated? What are the costs for each type of service?

Throughput Questions: What direct and supportive services do you provide? What is the level of intensity and volume provided, and how are decisions made about volume, intensity, type, and duration of treatment?

Output Questions: How long does it take for a client to complete the program? What constitutes completion? Is there follow-up after completion?

Outcome Questions: What are your success rates in each of your programs?
Referral sources are concerned about the best interests of their clients. In addition, in some instances referral sources will be paying for the service provided and will be held accountable by their own funding sources for the ultimate success of services received by their clients. Agencies that expect to maintain an ongoing relationship with referral sources should be prepared to provide feedback that will assure efficient, effective, and high-quality services at the lowest possible cost.

■ **Consumers.** The information needs of consumers will vary greatly, depending on the nature of a program and the relationship of the consumer to the agency. Service options in some communities may be competitive, and the consumer may want information before making a decision. Employee assistance programs sponsored by major employers are frequently designed to help employees deal with substance abuse, mental health problems, or marital discord. Some employees may be encouraged to shop around to find the services most suited to their needs. In other instances there may be only one provider. An abusing parent, for example, may be court ordered to participate in parent effectiveness training with a specifically designated provider. In any case, when consumers seek information about the agency and its programs, it is likely to be very similar to that sought by referral sources identified previously. The perspective is the same—a concern for receiving the highest-quality service in a timely manner with the best possible chance for achieving positive results at the lowest possible cost.

■ **Competitors.** In considering competitors, the issue is not what information competitors would like to have, but rather what data and information an agency should generate in order to measure its own performance against that of competitors. Competition is a relatively new phenomenon in the field of human services. Prior to widespread use of purchase of service contracting in the late 1960s, private, nonprofit agencies were funded primarily by charitable donations and served as many people as resources would allow. In the current social services environment, the majority of funding comes through competitive bidding for contracts, not unlike construction companies that bid for government contracts on roads, bridges, or buildings. So competition is a factor in agency survival in the contemporary practice environment.

It is in the interest of human service agencies to observe and study their competition in order to understand those areas in which they might have a competitive advantage. If certain competitors consistently win major government contracts, why are they so successful? Do they provide better-quality services? Are their unit costs lower than others? Are their staff more qualified? Do they market their services better? Data collection about one’s own efforts in these areas may reveal organizational weakness that can be addressed in a way that improves the agency’s competitive advantage.

**Sociological Considerations** Examining the sociological domain in terms of information needs guides the agency toward a focus on the surrounding community and larger political subdivisions (city, county) in terms of its people, problems, needs, strengths, and opportunities. Successful organizations do not simply continue business as usual indefinitely. Intelligent strategic planning requires a data- and information-gathering capacity designed to produce ongoing profiles of various community characteristics. One source of information, for example, is the U.S. Census. Regular reports are published that provide data on many demographic characteristics of all counties and cities with populations of more than 50,000. These characteristics include total population, income, ethnicity, gender, education, housing, unemployment, and many other factors useful in understanding the local
Community surveys conducted by state and local government entities or data provided by such organizations as the local chamber of commerce can also be used to help develop a community profile.

Identifying key variables and tracking them over a period of years can help an agency understand how populations, problems, and needs change over time. This information can be incorporated into strategic planning efforts to ensure that agency services remain relevant to changing needs.

Political Considerations  A number of external constituencies are required to make decisions about organizational operations and, therefore, need a regular flow of data and information. These entities include regulatory agencies, accrediting organizations, and governing boards. Each of these entities is held accountable in some way for the performance of the agency. It is not impossible, for example, that an unhappy consumer could include any or all of these entities in a court action. Therefore, it is important that the agency understand the information needs of these decision-making bodies and include them in the data collection and information system. Their focus will be on factors related to efficiency, effectiveness, productivity, and quality. For this reason, information needs will be similar to those identified previously for the funding source. However, regulations, standards, guidelines, and policies should be examined carefully to ensure that reports to these bodies will contain the necessary information in the format requested.

Technological Considerations  Finally, some systematic method for tracking technological developments will help keep the agency current on changes in the field. Efforts should be directed toward learning about successful new models of practice as well as new developments in the computer and communications industries. Systematic and formal data collection may not be necessary to compile this information. Managers, supervisors, and other staff may discover, for example, through attendance at professional conferences or review of the literature, the availability of specialized professional knowledge and skill or new software. Information about new developments should be compiled and disseminated on a regular basis. This may be accomplished through direct dissemination in memo or newsletter form, or some method may be designed to enter data and produce periodic reports on innovations.

Identifying the Information Needs of Internal Constituencies

Organizational Purpose, Mission, and Philosophy.

Basic Questions: What data and information are needed to inform the agency whether its performance is on track with its stated purpose, mission, and philosophy?

Do input data reflect resources that allow successful performance?

Are people served consistent with the mission statement?

Do throughput data indicate adequate and relevant attention to the needs of the populations served?

Do output data indicate a rate of completion that is consistent with the purpose?

Do outcome data indicate a rate of success that internal and external constituents feel is consistent with the mission and vision expectations?
Organizational Planning.

Basic Questions:
- Are there written objectives in a strategic plan, a long-range plan, or program plans?
- What data elements will be needed to determine whether or not objectives have been achieved?

Organizational Operations.

Basic Questions:
- Have input, throughput, output, and outcome data elements been defined for each program?
- Are they being recorded and entered into the system in a reliable manner?
- Is the system capable of producing the necessary monitoring and evaluation reports that will allow for measurement and comparison of program performance?

Human Resources.

Basic Questions:
- Have data elements been defined that will permit a demographic profile of the staff?
- Are elements included that will satisfy information needed by regulatory or accrediting bodies?
- Is information collected that may be useful in understanding what staff characteristics seem to contribute to successful experiences with clients (e.g., ethnicity, gender, education, experience)?

Technological Resources.

Basic Questions:
- Do staff have regular access to new and developing technology, including research findings about specialized methodologies?
- Is there some systematic method for staff to express their interest in or need for new knowledge, information, or equipment?

Financial Resources.

Basic Questions:
- Are financial resources and expenditures tracked in a manner that is useful in determining costs of services?
- Will data and information produced be useful for comparison purposes, both internally with other programs and externally with the programs of other providers?

Separating and Prioritizing Information Needs  From the foregoing examination of the information needs of external and internal constituencies, it is clear that careful design of a management information system can be a complex and time-consuming process. The sheer volume of questions and considerations raised in this chapter, however, may be deceiving for a couple of reasons. First, not all questions raised have implications...
for data collection and processing. Although all questions should be considered from the information system perspective, efficiency will require that some information needs be dealt with in other ways, such as newsletters or special reports.

Second, when considering the major information system that is central to organizational operations—the performance guidance system—a review of the information needed reveals many redundancies across all external and internal constituencies. For example, in examining input needs, many stakeholders, both internal and external, will need the same demographic information. Service efforts and accomplishments can be formatted in a way that satisfies a range of information needs. These issues will be addressed as the text moves to a discussion of identifying data elements. Each of the remaining steps necessary to building an information system will be explored in the following sections, using a job preparation and placement agency as an example.

Job Finders, Inc. Example
The agency used as an example is called Job Finders, Inc. It is an organization that came into existence shortly after welfare reform, when the Temporary Assistance to Needy Families (TANF) program replaced the Aid to Families with Dependent Children (AFDC) program. Under the new program eligibility for benefits expires after two consecutive years, and recipients are expected to be in some way engaged in education, training, or employment. Job Finders, Inc. agreed to accept TANF recipients under contract to the state public social services agency and to provide a range of employment-related services. These services include (1) intake, screening, and assessment, (2) prejob preparation, (3) case management for support services, (4) job skills training, (5) job placement, and (6) ongoing mentoring and follow-up. Clients were expected to move through the system as depicted in the flowchart in Figure 7.2.

Step 3: Identifying Data Elements Needed to Answer Questions
The input-throughput-output-outcome framework establishes the basic logic for the identification and selection of data elements. Once the logic of this framework is understood and the questions to be answered have been posed in Step 2, the next step is to identify and select specific data elements that will be used to generate the information needed to answer the questions. The Job Finders, Inc. example will be used to illustrate the types of data elements needed to guide decision making for programs and services. In the interest of limiting the focus of the remaining sections to basic concepts and issues, discussion and examples will emphasize primarily the data elements relating to programs and the performance guidance system will be covered. Data and information needs at the organizational level and at the community level will also be discussed briefly.

The following sections illustrate the types of variables that would be selected from the Job Finders, Inc. programs in order to provide data and information about program efficiency, effectiveness, quality, and productivity.
Elements Used in Monitoring, Evaluating, and Reporting on Clients and Programs

*Input Elements*  In order to ensure that all necessary information can be produced on clients served, the following client-related variables would be included in the system:

1. *Eligibility*  
   - Resident of Middletown
   - Currently receiving Temporary Assistance to Needy Families
   - Referred by state public social service agency
### Phase of Service Process

<table>
<thead>
<tr>
<th>Intake, Screening, and Assessment</th>
<th>Collection of all necessary data, information, and documentation.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Determination of eligibility and appropriateness for services.</td>
</tr>
<tr>
<td></td>
<td>Administration of assessment instruments.</td>
</tr>
</tbody>
</table>

### Definition of Unit of Service

**Prejob Preparation**

- One hour of face-to-face contact between client and intake worker = one unit (time unit).

**Case Management**

- A case manager works directly with a client and with collateral contacts in order to assist client in achieving the client’s goals and objectives designed to solve problems and meet needs.

**Definition of Unit of Service**

- One hour of effort by case manager devoted exclusively to a case, either face-to-face, collateral contact, or case recording = one unit (time unit).
- One item of in-kind assistance such as food, clothing, or cash assistance given to a client = one unit (material unit).
### Phase of Service Process Definition

**Job Skills Training**
- Classroom or on-the-job training focused on the development of job-related skills
- One hour of training provided either by a subcontractor or by an employer = one unit (time unit)

**Job Placement**
- Identification of job openings; contact by case manager with employer; interviews arranged; process continued until a job is secured
- One hour of effort by job placement worker devoted exclusively to a case, either face-to-face, collateral contact, or case recording = one unit (time unit)

**Ongoing Mentoring and Follow-Up**
- Periodic meetings with a mentor who has been trained and is matched to a client; focus of meetings is on work survival skills
- One contact between mentor and client = one unit (episode unit)

### Output Elements

In order to ensure that all necessary data and information can be compiled on units of service provided and service completions, the following definitions might be used in the Job Finders, Inc. management information system:

<table>
<thead>
<tr>
<th>Service</th>
<th>Definition of Service Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intake, Screening, and Assessment</td>
<td>Completion of all forms, submission of all required documentation, and completion of all assessment tools</td>
</tr>
<tr>
<td>Prejob Preparation</td>
<td>Attendance at a minimum of eight hours of prejob training provided by a subcontractor</td>
</tr>
<tr>
<td>Case Management</td>
<td>Keeping at least 80 percent of all appointments with the case manager and fulfilling at least 80 percent of follow-up tasks</td>
</tr>
<tr>
<td>Job Skills Training</td>
<td>Attendance at a minimum of 90 percent of all scheduled training sessions</td>
</tr>
<tr>
<td>Job Placement</td>
<td>Completion of all interviews as scheduled until successfully employed</td>
</tr>
<tr>
<td>Ongoing Mentoring and Follow-Up</td>
<td>Participation in at least 90 percent of scheduled meetings with an assigned mentor and fulfilling at least 90 percent of follow-up tasks</td>
</tr>
</tbody>
</table>

### Outcome Elements

In order to ensure that the necessary data and information can be compiled on client outcomes, the following definitions of outcomes might be used in each of the Job Finders, Inc. programs:
Chapter 7 Using Data and Information to Achieve Excellence

Outcomes Definitions

Intermediate Outcomes
- Client shall demonstrate mastery of at least ten defined prejob preparation skills as measured by pretest/posttest.
- Client shall demonstrate mastery of at least 80 percent of the content covered in job skills training as measured by posttest.
- Client shall secure employment in a position that pays above minimum wage and includes health and retirement benefits.

Final Outcome
- Client shall maintain employment in the same or higher-level job and receive positive performance appraisals for at least one year following completion of services.

Elements Used in Monitoring, Evaluating, and Reporting on Organizational Performance

In addition to the data and information needed to monitor, evaluate, and report on program performance, additional reports will need to be generated that deal with the entire organization as a unit. Some of the factors to be addressed in constructing the information system should include:

Staff Characteristics
- The human resources department will be expected to produce profiles of staff for a number of audiences, including funding sources, equal employment opportunity inquiries, and others. Demographic and descriptive variables are needed that will meet the information needs of both internal and external sources.

Strategic Objectives
- Data and information are needed that reflect demographic, income, and employment trends over the next ten years at the city, county, and state levels.

Long-Range Objectives
- Data and information are needed that assess the projected need for prejob training, job skills training, and job placement over a five-year period and direct efforts toward employment markets expected within the next five years.

Elements Used in Understanding the Problems, Needs, and Strengths of the Community

Information available on community conditions varies widely, depending on a community’s interest in and capacity for surveying its population. Resources in the government documents section of a library can provide a rich source of information about a community.

Population Profile
- Data and information are needed that reveal population trends over a twenty-year period, dating from ten years in the past through ten years into the future, focusing on basic demographic variables used in the programs.

Problem Analysis/Needs Assessment
- Data and information are needed on community perceptions of problems and needs, collected through an annual survey from a random sample of the population.
Identifying appropriate and useful data and collecting these data in an efficient manner is an important step in the process of constructing an information system. However, data alone will not be useful unless elements are displayed in a manner that contributes to meaningful analysis. Single, discrete data items are relatively useless. For example, suppose the Job Finders, Inc. program reports that 166 clients were placed in jobs in the first year of operation. Does this number reflect a strong performance, a weak performance, failure, or success? With this single, discrete statistic we do not know. We must have more information.

Meaningful information is presented in the form of tables, charts, and graphs. Tables are structured in terms of columns and rows, with cells providing the data indicated by column and row headings. Tables are the simplest and most straightforward way of presenting data but not always the most easily understood by the consumer. Charts and graphs, including pie charts, bar graphs, and line graphs, present a picture that can be absorbed more quickly. They also have more visual appeal.

In developing a strategy for presentation of data and information in reports, it may be helpful to first develop tables with appropriate columns and rows. Once the data are available in this format, decisions can be made about translating information into more appealing graphic formats. But first it is critical that data be analyzed in a way that brings meaning out of otherwise unrelated elements.

In order to take on meaning, data must be presented in a way that they can be compared to other data. The comparisons can be from across a number of variables within the same program or organization, from a different period of time in the same program or organization, or from a comparable program or organization. These types of comparisons are referred to as (1) cross-sectional analysis, (2) time series analysis, and (3) comparison to other data units (Kettner, Daley, & Nichols, 1985). Comparisons can be depicted by use of tables, line graphs, bar graphs, pie charts, or combinations of graphic techniques.

Cross-sectional analysis refers to data used to depict a profile of a unit or organization using selected variables that all reflect the same time frame. For example, selected variables might be used within a particular program to depict client demographics (e.g., age, gender, ethnicity) or the types of problems and needs clients bring to the agency (e.g., marital disputes, depression, domestic violence). These types of presentations allow for comparisons across groups (e.g., comparing the number of clients ages 20 to 29 to the number of clients ages 50 to 59). Cross-sectional analysis can be useful for a number of program or organizational monitoring efforts or in producing periodic reports. It may be important to know whether the profile of people served within a program matches projections or expectations. The board will expect to be informed about whether programs and services are meeting objectives, and whether program costs and unit costs remain within budgeted allocations. Table 7.1 illustrates a cross-sectional analysis of client demographic variables within a job preparation program.

Time series analysis is a technique that is used with the same population and problem over time to reveal trends. A range of time increments can be used, depending on what is most useful, relevant, and available to the agency. If data available within the agency are used, then almost any time frame is possible, including weekly, monthly, or longer. If exter-
nal data are used, the analysis will be limited by data availability. Census data, for example, are available in ten-year increments with interim reports provided on selected variables.

Creative use of time series analysis can be very helpful in anticipating future demand for programs and services. For example, an organization might wish to monitor the number of requests for services within each of its programs on a monthly basis over a period of several years to help in long-range planning efforts. Tracking demand for service by location or by funding source can provide useful planning information. Another use might be a comparison of demand trends with client satisfaction trends. A sample graph is illustrated in Figure 7.3.

Comparison with other data units allows the analyst to select data displays that are important to the understanding of agency or program performance and to compare them to other similar agencies or programs. This comparison allows an agency to bring meaning

---

**TABLE 7.1**

Cross-Sectional Analysis of Selected Clients in the Job Finders, Inc. Program

<table>
<thead>
<tr>
<th>Type of Family</th>
<th>Percentage of Clients Assessed as Being in Crisis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current Income</td>
</tr>
<tr>
<td>Single female, no children</td>
<td>51%</td>
</tr>
<tr>
<td>Single male, no children</td>
<td>48</td>
</tr>
<tr>
<td>Single female, 1 or more children</td>
<td>67</td>
</tr>
<tr>
<td>Single male, 1 or more children</td>
<td>47</td>
</tr>
</tbody>
</table>

---

**FIGURE 7.3**

Time Series Analysis of Applications to the Job Finders, Inc. Program

![Graph showing number of applicants to the Job Finders, Inc. program, 1996–2000](image-url)
to data and information about its own performance by examining its indicators in relation to other agencies’ performances. Factors such as number of clients served, unit costs, and percentage of clients achieving success in other agencies can serve as useful benchmarks, but only if the data are comparable. For example, comparing the incidence of crime in Los Angeles to that in Great Falls, Montana, will not be particularly revealing because of the tremendous discrepancies in size and complexity between the cities. When cities or other units are similar in terms of total population and demographic breakdown, comparisons are more meaningful. One way to control for size is to report incidence per 100,000 (or other constant number) population. Likewise, when agencies or programs are compared, populations and variables should be examined to ensure comparability.

It is likely in the future that comparison with other data units will be used to compare the performance of programs across the board by funding sources. For example, if a state government is spending $20 million per year on job preparation and placement, the state may find it necessary to compare all contracting agencies to determine which ones merit renewal of their contracts and which ones should be discontinued. Comparison with other data units is depicted in Table 7.2.

In all comparisons, whether they are cross-sectional, time series, or with other data units, it is important that the comparisons be carefully examined to ensure comparability. Cross-sectional comparisons are useful only if they reflect the same type of client population during approximately the same time frame. Time series must reflect the same data unit and same data elements over different, subsequent time frames. In comparing other data units there should be some assurance that the units have the same characteristics. As funding sources increasingly require performance measures, agencies will be expected to develop indicators that reflect the status of such factors as resources, service volume provided, client outcomes, or ratios of client outcomes to full-time equivalent staff (Government Accounting Standards Board, 1993).

**Format for Reporting Data and Information to Outside Sources** Once data elements have been selected and a complete set of data displays has been prepared, a format for reporting should be designed. Rapp and Poertner (1992) suggest five principles that managers should consider:

### Table 7.2

Comparison of Job Finders, Inc. to Other Data Units

<table>
<thead>
<tr>
<th>Program</th>
<th>1997</th>
<th>1998</th>
<th>1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Finders, Inc.</td>
<td>35%</td>
<td>47%</td>
<td>53%</td>
</tr>
</tbody>
</table>
• Every report needs a standard. There should always be comparison data.
• Too much information reduces the ability to perform. Reports should be designed to be used. Clutter and information overload detract from use. Attend to simplicity of appearance.
• Aesthetics are important. Graphs and charts should be clear and easy to understand.
• Labels should be in English. Plain language and commonly understood terms should be used.
• Level of aggregation should be appropriate to the user. If a report is to be used at the worker level, the worker should be able to recognize his or her own performance in relation to that of others. (pp. 128–133)

When the types of data to be collected and the format in which data will be reported have been established, the next step in building an information system is to design data collection forms.

Step 5: Designing Data Collection Procedures and Instruments

Earlier in this chapter, client, program, organizational, and community variables were presented and discussed. In order to build useful, informational profiles in each of these areas, data must be collected following the formats developed in earlier steps. The more traditional approach to data collection is to develop data collection forms that require paper and pencil completion. Subsequent procedures are then established for data entry and aggregation. A more efficient approach is to have workers enter data electronically directly into the system. This approach requires the development of computer screens and menus that present questions and then provide a list of options, one of which may be selected with a simple click of the mouse.

Client and program variables are used to track program and service performance on an ongoing basis. Organizational data will be used for the purpose of periodic reporting on staff demographics or on progress toward strategic or long-range objectives. Community data will be used for the purpose of environmental scanning and future strategic, long-range, or program-planning efforts.

Collecting Program Data

Program data collection forms or screens are the most detailed and extensive part of an agency’s information system. Developing information about programs requires that input, throughput, output, and outcome data be collected on each client. Efficient data collection requires careful planning. Information about clients is usually needed in some sort of chronological order. For example, the first set of questions should focus on determining eligibility for services. If a client is not eligible, it is not efficient to complete the rest of the identifying and screening information. Once eligibility is established, background social history, job history, and other factors can be compiled.

One approach to establishing a chronological order for data collection is to begin with a flowchart of the process a client goes through from entry through exit from the system (see Figure 7.2). Each of the processes in the flowchart represents a phase of client service and usually also represents one or more face-to-face contacts between worker and client. Working from this type of flowchart, those responsible for designing an information system can organize the data elements listed in the previous section of this chapter so that each element
is collected at the time it is needed. For example, the following variables are those identified earlier. For each, the data collection form is indicated, and an illustration is provided.

**Client-Related Variables**

- Eligibility factors (e.g., residence)
- Demographic or descriptive factors (e.g., age)
- Social history factors (e.g., work history)
- Client problem and strength profile

**Data Collection Form or Computer Screen**

- Intake Form/Face Sheet
- Intake Form/Face Sheet
- Screening Form
- Assessment Form

A sample intake form or face sheet is depicted in Figure 7.4.

**Service-Related Variables**

1. Type of service received
2. Volume of service received
3. Material resources received
4. Referrals to other services

**Data Collection Form or Computer Screen**

- Service Provision Form
- Service Provision Form
- Service Provision Form
- Service Provision Form

---

**FIGURE 7.4**

Example of Part of an intake Form or Face Sheet

---

<table>
<thead>
<tr>
<th>Application for Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client Identification Number</td>
</tr>
<tr>
<td>Applicant's Name</td>
</tr>
<tr>
<td>(last, first, middle initial)</td>
</tr>
<tr>
<td>Applicant's Residence</td>
</tr>
<tr>
<td>(number, street, apt.#, city, state, zip)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Ethnicity</th>
<th>Family Type</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>African American</td>
<td>Single parent/female</td>
<td>_00 to 08</td>
</tr>
<tr>
<td>Male</td>
<td>Asian American</td>
<td>Single parent/male</td>
<td>_09 to 12</td>
</tr>
<tr>
<td></td>
<td>Caucasian</td>
<td>Two-parent</td>
<td>_High school grad</td>
</tr>
<tr>
<td></td>
<td>Hispanic/Latino</td>
<td>Single person</td>
<td>_Some college</td>
</tr>
<tr>
<td></td>
<td>Native American</td>
<td>Two adults, no child</td>
<td>_College grad</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>
A sample service provision form is depicted in Figure 7.5. This form would be completed daily after each client contact has been completed. Code numbers, drawn from a code book, would be inserted into the appropriate spaces. These numbers would then be entered into the computer by a data entry person.

### Output and Data Collection Form

**Outcome Variables or Computer Screen**

1. Completion of services Service Provision Form
2. Achievement of outcomes Service Provision Form at the point of termination
3. Achievement of outcomes Service Provision Form at the point of follow-up

In a computerized system, recording output and outcome variables requires only the entering of precoded outputs and outcomes onto a form or directly into the computer. These data can either be recorded on a special form designed for the purpose of tracking outputs and outcomes, or a column on the service provision form may be used. In the example in Figure 7.5, case management milestones would correspond to phases of the helping process depicted in the flowchart (see Figure 7.2). Successful achievement of milestones could be used to track outputs, including units of service provided and completion of the full complement of prescribed services.

### Collecting Organizational Data

As discussed in Step 2, organizational data are used to address concerns related to strategic and long-range planning, to operations, human resources, technological resources, and financial resources. For example, if the strategic
plan calls for development of branch offices, identification of client population by census tract or zip code may help an agency to understand some of the problems clients face in terms of access to agency resources. Identification of a growing population of Spanish-speaking only clients could lead to planning for more bilingual workers.

Organization-wide data and information may also be used for human resources purposes. The human resources director (or business manager) may develop a database on staff for monitoring and reporting staff demographics, credentials, or other factors. Funding, regulating, and accrediting organizations may require reports on staff profiles to ensure compliance with affirmative action and equal employment opportunity laws. Some of the demographic variables that may be required include age, sex, ethnicity, education, or licenses/certificates required for technical positions. Any or all of these variables may need to be aggregated by level of staff to permit examination of demographic profiles by position.

An additional use of data might be to track the performance appraisal system. Supervisors and managers may want to find ways to correlate performance appraisal scores with staff productivity as a way of validating the scoring system. A question that should always be on the minds of supervisors and managers is the following: Are those workers who are most committed to the mission and most productive ranked among the highest, and are those known to be low or nonproductive workers ranked among the lowest in the performance appraisal system?

Some suggested items that might be used to compile an organizational report follow:

- **Strategic Planning:*** Collection of data using indicators tied to strategic goals and objectives.
  
  **Example:** Tracking of hiring patterns to determine whether the goal of increasing the number of professionally trained staff is being achieved.

- **Operations:*** Collection of data on performance measures for each program.
  
  **Example:** Mean number of units of service provided per client; number and percentage of clients completing each program; and percentage of successful outcomes.

- **Human Resources:** Collection of data to track staff credentials for accreditation purposes.
  
  **Example:** The number of counseling staff who have successfully passed the state licensing examination.

**Collecting Community Data** Community data and information are useful to an organization primarily in terms of monitoring changes and trends and ensuring that populations served and services provided are consistent with community demographic profiles and needs assessments. In most instances agencies will use data and information compiled by other sources, because it is very expensive and time consuming to conduct original studies. Many federal, state, and local government studies are available, and most can be found in the government documents section of a library. State public social service agencies and
United Way offices often collect data that can be made available in report form to local agencies. The following selected variables illustrate the types of data and information that might be collected and aggregated, using a time series analysis, in compiling community data for planning purposes.

Community Demographic Profile, 1980—2000
Community Needs, 1980 through 2000

<table>
<thead>
<tr>
<th>Age</th>
<th>Gender</th>
<th>Race/Ethnicity</th>
<th>Community Priorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 to 05</td>
<td>Female</td>
<td>African American</td>
<td>Employment</td>
</tr>
<tr>
<td>06 to 09</td>
<td>Male</td>
<td>Asian American</td>
<td>Education</td>
</tr>
<tr>
<td>10 to 19</td>
<td></td>
<td>Caucasian</td>
<td>Housing</td>
</tr>
<tr>
<td>20 to 29</td>
<td></td>
<td>Hispanic/Latino</td>
<td>Transportation</td>
</tr>
<tr>
<td>30 to 39</td>
<td></td>
<td>Native American</td>
<td>Health</td>
</tr>
<tr>
<td>Etc.</td>
<td></td>
<td>Other</td>
<td>Food and Nutrition</td>
</tr>
</tbody>
</table>

Step 6: Designing the Data Entry, Processing, and Reporting System

Developing a data-processing system in the 2000s should not be addressed without considering the state of the art of computerization. As Weinbach (1998) points out, “Computerization is no longer a choice. As human service organizations become more and more competitive, managers who resist information technology advances are likely to be left behind” (p. 295). Systems used in the 1980s and 1990s typically required data entry on paper by the worker with subsequent transfer to a data entry person who would then enter the data into the computer. These now obsolete systems have given way to direct entry by workers. Data and information about each case can be typed directly into the record. Drop-down menus can present options on each variable and require only a click to complete each item in the demographic section. Figure 7.6 illustrates the type of format that may be used for direct data entry. Simplified procedures also allow for easy aggregation of data. Having access to a computer consultant, either paid or volunteer, has become as essential to effective management as having a business manager.

![Illustration of a Format That May Be Used for Direct Data Entry into a Computer](AchievingExcellenceintheManagementofHumanServicesOrganizations.png)
Step 7: Run the System, Compile Sample Data, and Debug the System

The seventh and final step cannot be completed until appropriate software has been selected to accept data and produce the necessary reports and until data have been entered into the system. Even though data will be very limited in the early phases after the system is activated, it is advisable to run sample reports. The focus of this step is to ensure that workers are entering data in an accurate and timely manner and that the software is capable of aggregating data in the ways needed for reporting purposes. Tables, charts, and graphs produced should be shared with workers and their review and comments solicited. Workers should be viewed as full partners in the creation and implementation of this system in order to encourage maximum participation and use of available data and information. Early debugging of the system will help to build assurances that when information is needed for monitoring, evaluating, or reporting purposes it will be accurate and available in the format expected.

Using Data and Information to Ensure Organizational Consistency and Integrity

The true value of a management information system will be measured not by the volume of the data processed but by the extent to which it provides information that enables an agency to achieve and maintain excellence. The organizational planning system is designed to maintain a clear sense of vision and focus. Beginning with the mission statement, planning becomes increasingly precise by stating goals, objectives, and activities, with objectives and activities being stated at a high level of specificity. If planning at the strategic, long-range, and program levels is integrated and flows from the mission statement, these plans can be useful in establishing guidelines for the design of the management information system. With performance measurement focused on programs and services as the centerpiece, organizational-level information can be utilized to ensure that structure and functions are in harmony with and supportive of optimal performance.

Community-level information is used to ensure that the organization and its programs remain relevant to the changing environment. If the design of the management information system is guided by these priorities, it should also be able to answer questions or provide information required by its stakeholders, including funding sources. When additional questions need to be answered, the information should be produced within the framework described previously.

SUMMARY

1. The Importance of Information. Data and information are increasingly required for funding and decision making for human service organizations.

2. The Quality of Information. The demands for data and information have changed over the years. Primary consideration should be given to agency needs. External needs should be incorporated into the agency’s management information system (MIS).
3. **Types of Data and Information Needed in Organizations.** Data systems should help organizations understand the implications of decisions.

- **External Data and Information Considerations.** In constructing an MIS, planners should consider economic, sociological, political, and technical factors.

- **Internal Data and Information Considerations.** For internal use, MIS planners should consider organizational purpose, planning, operations, human resources, technical resources, and financial resources.

4. **Developing Integrated Information Systems.** There are many subsystems that should feed into the overall agency MIS.

5. **Steps to Developing an Integrated Management Information System.** Planning an MIS should follow a rational strategy to avoid information overload.

- **Step 1: Identifying Input, Throughput, Output, and Outcome Elements.** Each of these elements must be identified and defined.
  - **Identifying Inputs**
  - **Identifying Throughputs**
  - **Identifying Outputs**
  - **Identifying Client Outcomes**

- **Step 2: Identifying the Questions to Be Answered by the Management Information System.**

**Identifying the Information Needs of External Constituencies**

- **Economic Considerations.** These considerations include funders, contributors, referral sources, consumers and competitors.
- **Sociological Considerations.** These considerations include profiles of people, problems, needs, strengths, and opportunities.
- **Political Considerations.** These considerations include regulatory agencies, accrediting organizations, and governing board.
- **Technological Considerations.** These considerations include new developments in technology and professional practice.

**Identifying the Information Needs of Internal Constituencies**

- **Organizational Purpose, Mission, and Philosophy.** These factors should guide decision making about data collection.
- **Organizational Planning.** Data and information are needed to monitor implementation of plans.
- **Organizational Operations.** Monitoring and evaluation efforts require data and information.
- **Human Resources.** Reports and monitoring of compliance with plans require data and information.
- **Technological Resources.** Currency of technological resources should be tracked.
- **Financial Resources.** Tracking of financial resources is critical to monitoring organizational performance.

**Separating and Prioritizing Information Needs.** The performance guidance system is central to all data collection. Many other data and information needs can be incorporated into this system.
Step 3: Identifying Data Elements Needed to Answer Questions. Questions are answered by generating data that, when aggregated, become information.

Elements Used in Monitoring, Evaluating, and Reporting on Clients and Programs. Each element is selected based on its contribution to generating needed information.
- **Input Elements.**
- **Throughput Elements.**
- **Output Elements.**

Elements Used in Monitoring, Evaluating, and Reporting on Organizational Performance. Staff characteristics are compiled for human resources purposes. Data and information regarding strategic and long-range planning are compiled.


Step 4: Developing the Tables, Charts, and Graphs That Will Display Data Needed for Reports. Data displays include cross-sectional analysis, time series analysis, and comparison with other data units.

Format for Reporting Data and Information to Outside Sources. Reports should be designed in a way that they are easy to understand.

Step 5: Designing Data Collection Procedures and Instruments. Systems need to be designed to collect data. Manual completion of forms and direct electronic data entry are options.

Collecting Program Data. Data collection needs follow the flowchart of client services.

Collecting Organizational Data. Data are collected for either human resources, budgeting, or planning purposes.

Collecting Community Data. Community demographics and needs assessment data are collected and compiled.

Step 6: Designing the Data Entry, Processing, and Reporting System. Data are either collected on forms and entered into the system by a data entry person or are entered directly into the system by the staff who collect them.

Step 7: Run the System, Compile Sample Data, and Debug the System. Sample reports, reviewed by staff, should be helpful in making necessary changes to the MIS design.

6. Using Data and Information to Ensure Organizational Consistency and Integrity. Data and information should be used for program and organizational improvement.

**EXERCISES**

Please complete the following sections of your manual based on the content covered in Chapter 7.

Section 7: Collecting Data and Information

7.1 Philosophy. Establish agency philosophy about data and information. Why data and information need to be collected; how they will be used, and so on.
7.2 Reports. Identify the major reports that must be produced by the agency’s management information system each year. Include a brief statement of content to be included in each report.

Example:

7.2.1 Reports to funding sources.
7.2.2 Reports to regulatory bodies.
7.2.3 Report to the board.
7.2.4 Annual program summaries.

7.2.5 Annual human resources report.

REFERENCES


<table>
<thead>
<tr>
<th>Organization</th>
<th>Page 1</th>
<th>Page 2</th>
<th>Page 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Employment, Inc.</td>
<td>22</td>
<td>28</td>
<td>34</td>
</tr>
<tr>
<td>Job Training &amp; Preparation, Inc.</td>
<td>49</td>
<td>44</td>
<td>42</td>
</tr>
<tr>
<td>Employment Solutions, Inc.</td>
<td>62</td>
<td>61</td>
<td>60</td>
</tr>
</tbody>
</table>