Federal Probation

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It is the mission of the Federal Bureau of Prisons to protect society by confining offenders in the controlled environments of prison and community-based facilities that are safe, humane, and appropriately secure, and that provide work and other self-improvement opportunities to assist offenders in becoming law-abiding citizens.

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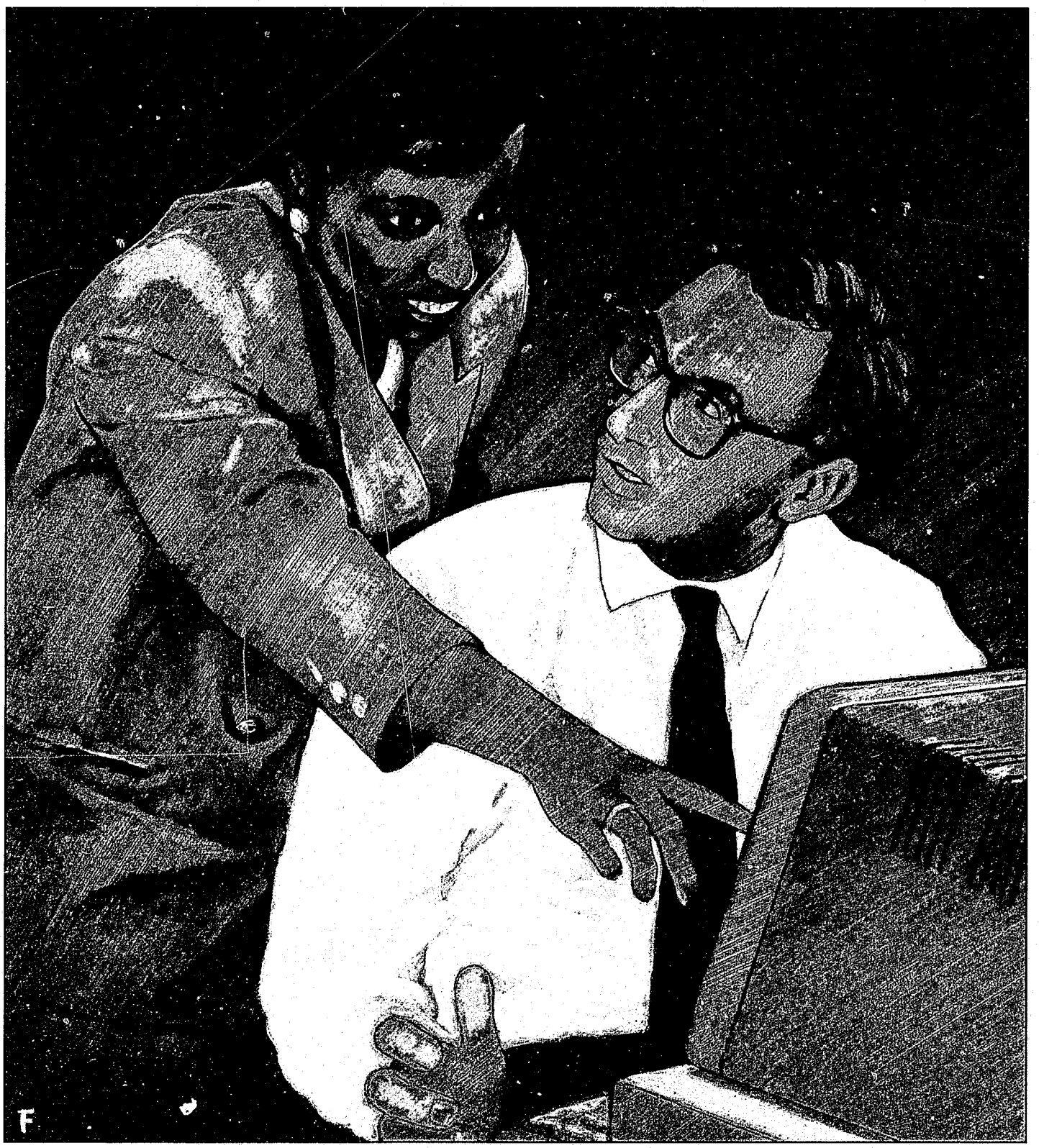

Implementing Key Indicators

Adopting innovation in the BOP

Evan Gilman

This article discusses the process by which innovations are implemented in organizations, using as an example the Bureau of Prisons' Key Indicators/ Strategic Support System (KI/SSS), a personal computer-based information system that has recently been added to the agency's repertory of management tools.

By documenting the innovation process, I hope to provide a framework to help individuals involved in developing, promoting, and using Key Indicators to understand and better adjust to the personal and organizational changes that can result from the introduction and use of this (or any other) innovation. In this way, staff can examine their own views and experiences to understand the challenges they may face when accepting and using innovations.

The first section of this article provides some background about the Key Indicators system. The second section will cover, in detail, the innovation-adoption process. To describe the process involved in accepting and using Key Indicators, I will review the four stages of the innovation-adoption process and the roles and motivations of the various participants in this process (e.g., system developers, system marketers and distributors, and system users). In addition, I will outline the factors that influence the adoption process, such as the characteristics of the potential users. These issues have been the subject of a great deal of research and will be discussed in this paper in terms of a model described in the book *Diffusion of Innovations* (1983), by Everett M. Rogers, a scholar in the field of innovation. Finally, I will discuss how Key Indicators information can be integrated into the Bureau's decisionmaking process.

The Key Indicators system could have a major impact on the management of the agency because it provides comprehensive, historical, and up-to-date information on key aspects of agency operations.

Background

The Key Indicators/Strategic Support System is a PC-based management information tool developed by the Bureau's Office of Research and Evaluation (the section within the agency responsible for conducting research studies, developing and maintaining PC-based information systems, producing and distributing reports, and responding to information requests). The Key Indicators system could have a major impact on the management of the agency because it provides comprehensive, historical, and up-to-date information on key aspects of agency operations—information vital to making decisions for strategic and operational planning, monitoring, and assessment.

All information in the system comes from existing mainframe and other local data bases. Information is available by institution, security level, and region, and for the Bureau overall on:

- **Inmates** *–from the SENTRY and Correctional Services data bases*
  Inmate information covers such areas as population totals, demographic characteristics, misconduct records, and educational participation.
- **Staff** *–from the JUNIPER data base*
  Staff information includes such areas as demographics, correctional officer turnover, performance appraisal ratings, and prison social climate survey results. (The social climate survey is administered annually to a representative sample of staff in all Bureau institutions to gather information about employees' perceptions of their job, place of work, and the agency in general.)
- **Finances** *–from the Financial Management data base*
  Financial management information consists of breakdowns of obligations and expenditures, staff overtime charges, and outside medical charges.

Key Indicators presents information in tabular form, with counts and percentages, and as graphs that help to depict trends in particular areas (e.g., inmate completion of education courses). While the system allows the user to obtain information directly from the computer screen, paper copies of all reports and graphs are easily produced.

The director of the Bureau of Prisons expects all chief executive officers to purchase the equipment necessary to run Key Indicators. To date, 87 percent of the institutions have purchased the equipment, up from 40 percent as of August 1990. In the headquarters office, the director, each assistant director, and a growing number of branch chiefs have at least one PC workstation that can support Key Indicators. All regional offices also have at least one workstation. Efforts continue to train staff throughout the Bureau on how to use the system and integrate its information into planning and evaluation efforts.

The innovation-adoption process

According to Rogers, the innovation-adoption process begins with a person who either recognizes or foresees a problem and who develops an innovation in response to that need. Once this "developer" produces the innovation, the next step is to introduce it to the potential users, or "adopters." In the case of Key Indicators, the users, or adopters, are Bureau managers. The period during which a growing number of users adopts the innovation is known as the "diffusion stage" of the innovation-adoption process. At this stage, potential adopters will either reject the innovation or adopt and implement it in whole or in part. If the innovation is successfully adopted and implemented, it becomes a routine, accepted, part of the adopter's behavior—and thus part of an organization's operations (Havelock, 1976). (See Figure 1.)

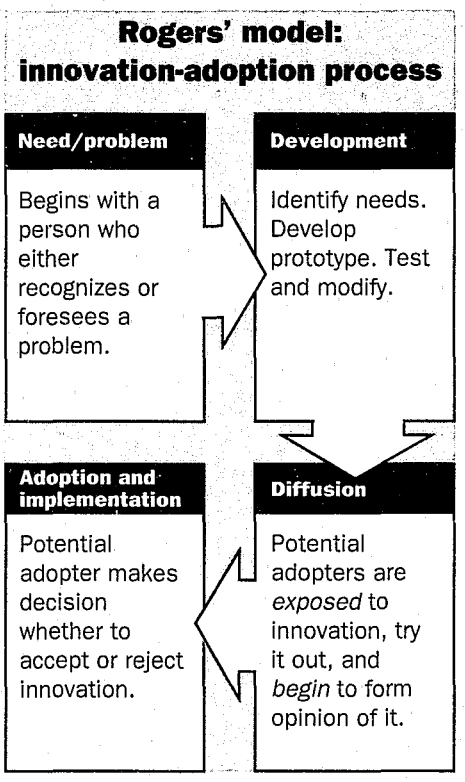

Figure 1

While it is true that all chief executive officers have been mandated to purchase the equipment necessary to run Key Indicators, this does not mean that the innovation will be successfully integrated into the Bureau's operations. For this to happen, individuals must progress through the innovation-adoption process that is the topic of this article.

Development

Historically, one of the most formidable challenges confronting Bureau managers has been simply to obtain sufficient, relevant information on which to base decisions. Typically, they accomplished this by relying on information that had been generated through routine reports and ad hoc requests, which were not necessarily available in a timely manner, and did not always provide answers to the questions asked. Further, as the Bureau has grown, so too has the amount of information compiled. Sorting through the massive amount of existing information to find what is relevant has become a real challenge. Recognizing these circumstances, developers proceeded to create an information system that met the agency's needs.

Initially, the decision about what information to include in the system was made by the Bureau's executive staff (composed of the director, assistant directors, general counsel, and regional directors). All data come from existing automated data bases, originally developed to satisfy day-to-day operational needs. Thus, the information used in the Key Indicators system is actually a byproduct of previous information collection efforts. The premiere feature of Key Indicators is that it integrates information from many different sources, making it easily accessible to all managers, without requiring any additional work assembling and automating information solely for the purpose of Key Indicators.

The Key Indicators concept was first proposed in 1983 (Saylor, 1983), intensive design and development efforts were initiated in 1986, and the first prototype was distributed during 1988 and 1989 to a limited number of users for testing and subsequent modification. Based on favorable testing of Key Indicators, the Bureau's executive staff made the decision to begin distributing (or, in Rogers' terminology, "diffusing") the system nationwide. At this point in the innovation process, the developers (Office of Research staff) began to work closely with those responsible for implementing the system, the "change

agents." The change agents are those Bureau staff who introduce the potential adopters (i.e., Bureau managers) to the system and help to convince them to incorporate Key Indicators into their planning and evaluation efforts (Rogers, 1983).

In particular, the developers worked primarily with institutional executive staff (wardens, associate wardens, and executive assistants) and the Program Review Division (staff responsible for assessing and evaluating all Bureau operations and internal review activities) to facilitate the introduction of Key Indicators into the Bureau's style of information retrieval and decisionmaking.

The diffusion process

The first staff to actually use Key Indicators—the initial adopters—were the director, assistant directors, regional directors, some headquarters branch chiefs, and the nine wardens at pilot sites who had been exposed to the concept either at conferences or Wardens Advisory Group (WAG) meetings (special task forces established to consider various correctional management issues) and who had indicated an early interest in pursuing the technology. In deciding that they would like to try it out, these managers invested time and energy in learning about Key Indicators, understanding how they could benefit from it, and discovering who else was involved in creating, diffusing, and using it. In deciding whether to adopt the innovation, these individuals, and, in fact, all individuals, typically progress through four phases: knowledge, persuasion, decision, and implementation (Rogers, 1983). (See Figure 2.)

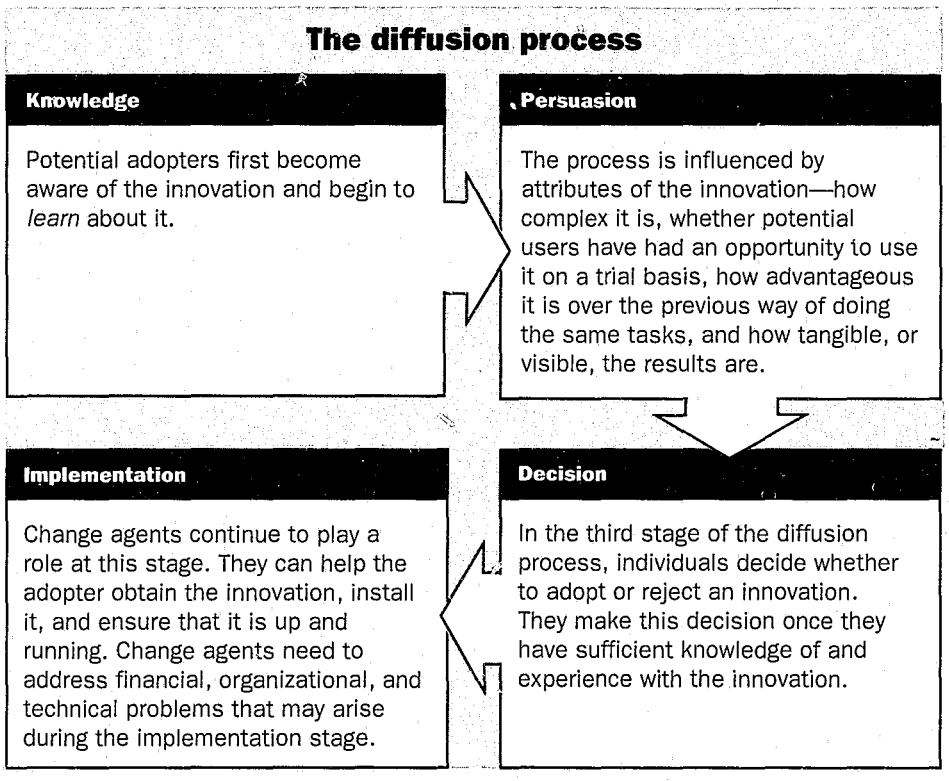

Figure 2

Knowledge

During the first phase, the knowledge phase, potential adopters first become aware of the innovation and begin to *learn* about it. It is difficult to say whether a potential adopter's need drives him or her to seek out information about the innovation or whether knowledge of the innovation creates the need for it in the potential adopter's mind. Regardless, adopters must first become aware of an innovation before they can begin to gather information about it, experiment with it, and decide whether to adopt it.

Persuasion

During the second phase, potential adopters gather more knowledge about the innovation that influences their decision on whether (and, if so, how quickly) to adopt the innovation. During this phase, adopters increase their efforts to learn about the innovation and begin to experiment with it. This process is influenced by attributes of the innovation—how complex it is, whether potential users have had an opportunity to use it on a trial basis, how advantageous it is over the previous way of doing the same tasks, and how tangible, or visible, the results are. Other factors that influence adoption include characteristics of the potential adopters and the role of the change agents.

Characteristics of adopters—Adopters can be classified according to when they first adopt a new idea. In his book, Rogers outlines five categories of

adopters: innovators, early adopters, early majority, late majority, and laggards, with the majority falling in the early and late majority categories (see Figure 3.)

A brief description of each category is provided below. These categories are meant to be illustrative; clearly, individuals adopt an innovation for different reasons. It could be their personality characteristics or management styles that influence adoption or it could be external characteristics, such as the availability of financial resources, that will be the primary determinants.

- Rogers describes ***innovators*** as venturesome. They are eager to test new ideas and more willing to experience risk than others. Innovators are few in number, but play "a gatekeeping role in the flow of new ideas into a social system."

- ***Early adopters*** are generally respected individuals; they are the opinion leaders. Potential adopters look to early adopters for advice and information about the innovation. Their experiences influence later adopters' decisions.

- ***Early majority*** adopters are more deliberate in their actions. They take longer to make up their minds about an innovation but are usually willing to adopt. They serve as an important link to those who will adopt later.

- The members of the ***late majority*** are skeptical and reluctant to adopt new ideas. They typically do not adopt until most other members of the system do so. When they do, it is often out of necessity or in reaction to outside pressure.

- ***Laggards*** (not a negative, but a descriptive term) are the last of the adopters in a social system. They typically look to accomplish things along more traditional lines and seek out others with similar values. People in this category tend to look to the past, not the future.

According to Rogers, there is a positive relationship between willingness to adopt an innovation and such socioeconomic characteristics as education, social status, and social mobility. Persons who have higher education and higher social status and are upwardly mobile tend to adopt innovations earlier.

Innovativeness has also been found to be associated with such personality variables as motivation to achieve, a more favorable attitude toward change, ability to cope with uncertainty, and ability to deal with abstractions. Finally, Rogers presents evidence that innovativeness is related to communication behavior, or how potential adopters receive information about the innovation. Adoption is more likely to occur when potential adopters experience more social participation, exposure to change agents (the individuals who help "market" the innovation and who provide technical and social support to ensure its continued use), and exposure to interpersonal communication channels. Adoption also tends to occur when potential adopters are more active in seeking out information about the innovation and when they belong to social and organizational systems that provide for exchange of information, technical support, and encouragement to use the innovation.

Role of the change agent—Efforts on the part of the change agent greatly influence the success or failure of the innovation's adoption. To be effective, change agents must understand how potential adopters will perceive the innovation, and must use this knowledge to try and influence changes in attitude and behavior. By communicating and sharing information, these individuals can influence the adoption process.

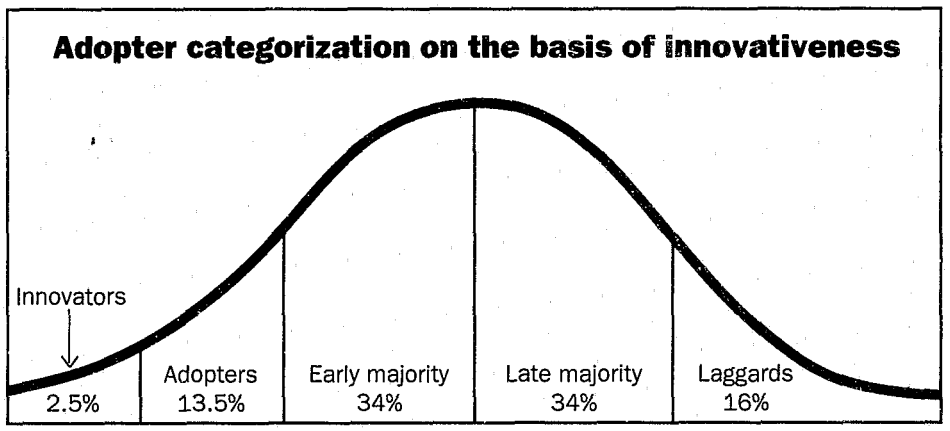

Figure 3

In the Bureau of Prisons, the primary change agents with regard to Key Indicators are the staff in the Program Review Division, particularly staff in the Program Analysis Branch, whose primary function is to promote the adoption and use of Key Indicators, and members of a joint wardens' advisory group in Key Indicators. Perhaps to a lesser extent, Office of Research and

Office of Strategic Planning staff (responsible for developing and disseminating the Bureau's goals), and field managers such as wardens, associate wardens, and executive assistants also serve as change agents.

The primary role of change agents is to promote two-way communication. They must communicate sufficient information about the innovation to potential adopters while being sensitive to the latter's motivations and concerns. Change agents strive to influence the attitudes of potential adopters and to prompt them to adopt the innovation.

Once adoption has occurred, change agents must continue to encourage adopters to persevere in using the innovation, redoubling their efforts when there is a risk that adopters may stop using it. Finally, when change agents are convinced that the innovation has become a routine part of the adopter's behavior, they terminate the change agent-adopter relationship.

Success in this process has been found to be associated with the degree of contact between the change agent and potential adopters, the change agent's empathy with the client, the degree of similarity between the change agent and the adopter, the change agent's credibility (knowledge and expertness) and the amount of information communicated.

Studies have found that change agents often focus their efforts not only on individuals who are most similar to themselves but those who are the least resistant to change. Thus, innovators and change agents participating in the diffusion process must be careful to ensure equal treatment for all members of the organization so the gap between the "information-rich" and the "information-poor" does not widen.

Decision

In the third stage of the diffusion process, individuals decide whether to adopt or reject an innovation. They make this decision once they have sufficient knowledge of and experience with the innovation. A decision to adopt or not can follow the formation of both positive and negative attitudes about the innovation on the part of the individual, as Figure 4 shows.

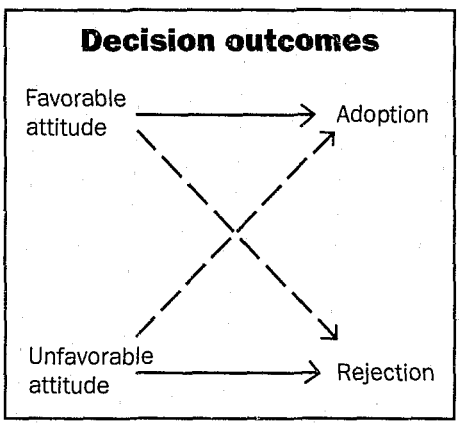

Figure 4

Adopters who form a favorable attitude toward an innovation and decide to adopt it may do so because they mentally applied the innovation to their present and anticipated needs and determined that using it was desirable. They may base their decision, wholly or partly, on the experiences of others, or they could decide that they have the financial resources. If they form a favorable attitude about the innovation but decide not to adopt it, it could be due to financial restraints or other logistical concerns (such as technical problems with the equipment or geographic isolation that could affect equipment servicing or staff training opportunities).

An unfavorable attitude about the innovation may result from a variety of circumstances. Potential adopters could determine that the innovation is not relevant or useful to them, or may foresee undesirable side effects as a result of adopting it. Perhaps they did not receive the information they needed to form a favorable attitude about the innovation, or they may lack financial resources. They may have decided that the potential benefits do not justify the cost. Any of these reasons could lead to rejection of the innovation. If adopters develop an unfavorable attitude about the innovation but adopt it anyway, it could be because they were willing to take a leap of faith or they may want to avoid future negative repercussions.

Many Bureau managers have already decided to adopt the Key Indicators system. They have developed a favorable attitude about the system, and many have purchased the hardware and installed it. However, the decision to adopt the system and even to make the financial investment—which, to some, could be viewed as proof of "successful diffusion"—is only half the battle. The real proof that the Key Indicators system is a successful innovation will be if it is actually used by Bureau managers.

Implementation

At the fourth stage of the diffusion process, the implementation stage, the intention to adopt must be translated into action; adopters must use the innovation to perform their jobs more efficiently.

Once the decision to adopt and implement an innovation has been made, attempts to procure and begin using it typically follow rather quickly. The availability of financial resources and of the innovation itself can impede or

facilitate implementation. Innovators and change agents must be sensitive to the momentum that evolves during the adoption process and must be capable of delivering the product once the adopter has decided to implement it. Likewise, the organization promoting the innovation must ensure that financial resources are available.

Change agents continue to play a role at this stage. They can help the adopter obtain the innovation, install it, and ensure that it is up and running. Change agents need to address financial, organizational, and technical problems that may arise during the implementation stage.

However, with Key Indicators, the change agents' role consists of more than just helping adopters through procurement, financial, and technical difficulties. They must continue to support managers in understanding how to incorporate Key Indicators into decisionmaking processes with regard to operational evaluation, policy formulation and assessment, and strategic planning.

The implementation phase is concluded when the innovation has become a routine part of organizational operations.

Consequences of adopting or rejecting the innovation

Finally, it is important to consider the consequences of the decision to adopt and implement or reject an innovation. Every innovation produces consequences. The consequences of the Key Indicators system will be felt by individual adopters and by the organization as a whole. It may be useful for potential adopters who are trying to decide whether to adopt and implement an innovation to evaluate not only what an innovation has to offer and how they will implement it, but what the consequences will be of adopting or rejecting it.

The desired consequence of adopting and implementing Key Indicators is that it will provide—easily and on a timely basis—high-quality information upon which managers can base informed decisions. Possible undesirable and unanticipated consequences of adopting Key Indicators are difficult to predict, but could include hardware problems, lack of technical support once the system has been implemented, and frustration in understanding how to use the data to support management analyses and decisionmaking.

For individuals choosing not to adopt and implement Key Indicators, some desirable consequences might be availability of financial resources for other institutional expenditures or avoidance of any startup problems. However, undesirable and unanticipated consequences could also result for those who reject the innovation. As Key Indicators becomes a more accepted and routine part of the Bureau management, inequalities could develop between those who use the system and those who do not. For example, those who delay adopting the system or reject it altogether may not be able to vie for resources because they lack hard data to prove their needs via information that may already be available in Key Indicators. Eventually, these individuals may lose their competitive edge due to a lack of experience using the information contained in Key Indicators.

Innovators and change agents must be sensitive to the momentum that evolves during the adoption process and must be capable of delivering the product once the adopter has decided to implement it. Likewise, the organization promoting the innovation must ensure that financial resources are available.

Integrating Key Indicators information into management decisions

The success of the Key Indicators system in the Bureau ultimately rests on the degree to which managers use it. To maximize the likelihood of using the information, they must take the time to familiarize themselves with the information available on the system and carefully plan how to integrate the information into strategic planning and evaluations.

Once the system has been implemented, one of the first challenges is simply to discover the information it contains. In taking time to work on the system, users will determine what information relates to their area(s) of responsibility. To accomplish this, most managers will have

to learn some new skills. For example, some will need basic computer skills or instruction on how to interpret and evaluate the information contained on a graph. Many will find it useful to examine their past decisionmaking styles and determine how the availability of Key Indicators could influence or change them. They may want to make some changes in how they do things. For example, they may want to alter job requirements—institutional staff who used to locally collect the information now contained in Key Indicators will be able to use their time for other tasks.

Given the availability of a wide array of information via Key Indicators, previous communication patterns may be altered. Managers will be able to inspect information about most program areas of their institution and compare their institution to any other institution, region, or security level or to the Bureau overall. This undoubtedly will change the nature and frequency of inter- and intra-institutional communication among managers. Key Indicators will promote an open system of cross-communication.

Admittedly, this could yield both positive and negative consequences. It may promote an exchange of ideas and constructive competition among managers, but a certain degree of privacy will be sacrificed. Some managers may find it threatening and unfair for some types of information about their institution to be made public. Public scrutiny can open one up to embarrassment. Potentially harmful effects can nevertheless be mediated by the users of Key Indicators. All users must be sensitive to the interpretations and conclusions they draw from the information and how they interact with other managers when discussing their findings (Havelock, 1976). Furthermore, any concerns regarding privacy (and other issues) need to be voiced to minimize potential negative consequences.

Ensuring that managers become familiar with the system can be achieved via numerous approaches. At the foundation of each approach is two-way communication between the users and the individuals promoting the system. Demonstrations and discussions on the uses of the information can continue to be provided at conferences and briefings. Formal training sessions can convey the mechanics of the system by providing the chance to practice information retrieval and its integration into the strategic planning, operational review, and institution character profile processes, for example.

As communication among managers may be the most successful method for ensuring continued use of Key Indicators, formal and informal opportunities should be provided so that managers may share their experiences. One way to promote communication is through a documents area on Key Indicators that allows users to exchange ideas. Additionally, a newsletter is planned that will discuss hardware and software concerns, provide hints on using the system, and include a question-and-answer column that will feature examples of how staff have effectively used Key Indicators information. At the same time, users are encouraged to provide feedback that can contribute to future enhancements,which may contribute to a sense of ownership over the system—further enhancing its chances of success.

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Careful planning on how to integrate Key Indicators information into an office's operations is also critical to the system's success. When staff are deciding how to accomplish a particular task, such as creating a strategic plan or planning for an operational review, they should explore the information available on Key Indicators to determine whether the system contains sufficient information to help them. For example, Program Review Division staff have decided that the Key Indicators system will be one of the sources of information they will use in preparing for program reviews. (Program reviews are comprehensive examinations of a program or unit that determine compliance with laws, regulation and policy, the adequacy of controls, efficiency of operations, and

effectiveness of achieving program results.) Reviewers will use Key Indicators information, as well as other information from other sources to "flag" areas to concentrate on in upcoming reviews.

The Program Review Division will also use Key Indicators information as one of its sources of information in compiling Institution Character Profiles (ICP). (The ICP uses personal interviews of a representative sample of staff and inmates as well as record reviews and field observations to gather information about the characteristics and "climate" of a facility.) ICP team members will compare the information gathered during their institutional visits to Key Indicators data and program reviews, as well as to other locally collected information. Where there is agreement on issues among these sources, management can feel relatively confident that they have accurately assessed particular aspects of the facility.

When findings differ among the various sources, further review may be necessary to reconcile differences. Since Key Indicators provides institution and headquarters staff with equal access to information, institution staff have the advantage of being prepared for reviews because they will know what information from Key Indicators might be used to evaluate their operations.

Another example of how to plan to use Key Indicators involves monitoring progress toward strategic goals. For example, a warden has identified one of his strategic goals as reducing drug use among the inmate population. To achieve this, he has instituted new security procedures in the institution's visiting room. He can monitor and assess the impact of the new procedures by using the urinalysis information contained in Key Indicators to track progress.

For Key Indicators to achieve its fullest potential, it is important for all managers to make a personal commitment to use the system in their day-to-day decisionmaking. Upper-level managers can show their support for it by encouraging their subordinate managers to use the system routinely. For instance, upper-level managers could suggest to subordinate managers that they monitor pertinent areas on Key Indicators at set intervals, noting those that need to be considered further. These managers would then meet regularly with their superiors and discuss the implications of their findings.

These and other approaches require support and encouragement from upper-level management. Senior managers will have more success in ensuring that Key Indicators becomes well integrated into the organization if they become conversant in it. This will help to confirm, for staff, that the Key Indicators system is a useful, valid tool on which they should rely. Finally, acknowledgment and reward by managers to staff who have made the effort to learn and use Key Indicators is crucial in ensuring its continued use.

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Conclusion

It is hoped that this article has helped highlight many of the issues and considerations that play a role in the innovation-adoption process. With an understanding of the complexities of the process, the promoters of innovations can better plan on how to introduce, market, and influence their adoption. Potential adopters can see how they fit into the "big picture." Once everyone concerned possesses adequate knowledge about the innovation-adoption process, the chances of successful implementation and use of the innovation are greatly enhanced. ■

Evan Gilman is a Senior Research Analyst with the Office of Research and Evaluation, Federal Bureau of Prisons.

References

Havelock, R.G. (1976), Planning for innovation through dissemination and utilization of knowledge, Ann Arbor, Michigan: Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, The University of Michigan.

Rogers, E.M. (1983), *Diffusion of Innovations* (Third Edition), New York, The Free Press.

Saylor, W.G. (1983), *Surveying Prison Environments*, Washington, DC: Federal Bureau of Prisons.