

## CHAPTER 12

# **The Politics of Information Systems**

Rational Designs and  
Organizational Realities

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Conventional wisdom has long suggested that there is no resource more critical to an organization than timely, accurate information relevant to organizational decisions. Because of this presumption, effective information management—development of appropriate systems for production and movement of information within organizations—is seen as critical to organizational goals.

Information management has two interrelated aspects: information production and information flow. By “information production” we mean the processes through which organizations gather and organize data. The production of information is itself a complex process that involves both methodology (procedures used in rendering reality in ways useful to the organization) and judgment (decisions about what information to obtain and how to use it). By “information flow” we mean the movement of information from one system component to another. System components could be individuals, computers, departments, or libraries. As information flows, it passes through a chain of agents who have the ability to alter, suppress, or elaborate it as it is passed on.

By their very nature, information production and flow are political processes. They are political in two senses: First, they are imbued with political implications. Since decisions are made on the basis of the relevant information, or at least are held accountable to relevant information, the amount and type of information available to decision makers is conse-

quential. The ability to control information is thus a key aspect of organizational power.

Second, information production and flow are political because they reflect the political structure of an organization. They require the participation of organizational members, whose collective decisions contribute to the overall information system of the organization. Organizational policy makers may wish to have a certain type or amount of information, but ultimately all knowledge workers in the organization control whether or not that information will be provided in the way the policy maker wishes. Changing the information environment requires active, political management to mobilize collective action toward organizational goals.

In this chapter we discuss the politics of information management in a public works department. Our case study examines the reasons for the lack of adoption of an integrated information system that has been introduced in the department. Our analysis reveals that individuals' political considerations explain their lack of interest in contributing—comprehensively and accurately—to an integrated information system that was rationally designed to serve their collective good. In the two major sections of the chapter we first describe the organization and its context and then discuss the integrated information system and its appropriation by the organization. Our description of the organization and its information systems and needs is based on detailed field notes made by Noshir S. Contractor, Barbara J. O'Keefe, Patricia Jones, and Greta Chin during repeated visits to the organization and on surveys of employee perceptions of their organizational information systems.

## THE ORGANIZATION AND ITS INFORMATION SYSTEMS

We are part of a research team conducting an information technology demonstration and assessment in the Directorate of Public Works (DPW) at a large military installation in the southern United States (which we will refer to as “the Fort”). The information technology demonstration will create a computer-based “workbench” of tools that will help in scheduling, tracking, and planning the maintenance activities of the DPW. As part of this project, we have been involved in detailed quantitative and qualitative assessments of the organization and its information needs.

### The DPW and Its Structure

The Fort is a large installation with a complex mission involving both training and specialized missions in the areas of intelligence and communications. Over 12,000 military personnel have been assigned to the Fort,

and approximately 4,000 civilian employees and contractors work at the Fort. The great majority of these workers and their families live in nearby communities. The Fort also supports a large community of military retirees (10,500) and their families (17,000).

The Fort is situated on a 56,000-acre preserve near a small city, with which it shares an increasing number of services and resources. The Fort itself is highly analogous to a city of about 40,000 people: It has diverse types of housing; services such as fire and police protection, hospitals, schools, and libraries; and retail and commercial businesses. The Fort's infrastructure includes nearly 10 million square feet of space in buildings, 170 miles of roads, 6 miles of railroad track, and the complete complement of utilities (water, power, sewage, gas, and electricity).

The DPW is responsible for maintaining the entire infrastructure of the Fort. The activities of the DPW include both development and maintenance of the Fort's real property, civil services, and utilities. Much of the work done by the DPW involves routine and critical maintenance of existing facilities, although the DPW is also involved in design and construction of new facilities.

Many of the responsibilities of the DPW are carried out in partnership with the Army Corps of Engineers (“the Corps”) and the civilian base contractor. For large construction projects, the Corps is involved in both the design of the project and in supervision of the contracting and construction process. For many routine maintenance activities, work is passed on to the civilian base contractor. For example, if the heating system in a building malfunctions, the problem is reported to the relevant civilian contractor, who dispatches workers to repair it.

The DPW has been undergoing a period of downsizing and reorganization. At the time we entered the organization, it had two major groups of departments, each of which was headed by a chief who reported to the division chief of the DPW (“the director”). The director reports to a lieutenant colonel, who in turn reports to the base commander.

### Engineering Plans and Services

The first group of departments, “Engineering Plans and Services (EPS),” is responsible for master planning, design, and construction of the Fort infrastructure. EPS works collaboratively with the Army Corps of Engineers. For large projects (over \$300,000 for new construction or over \$2 million for repairs), EPS does the initial planning, but the Corps is responsible for design and construction. Very small projects (under \$25,000) are assigned to the base contractor. A different contractor is assigned construction projects of \$25,000–\$125,000. Any project budgeted for more than \$125,000 that is not assigned to the Corps is managed by EPS. EPS develops the de-

sign and solicits bids from contractors for the project. Consistent with these activities, the personnel of EPS consists primarily of planners and engineers. It is headed by a division chief, includes a master planner, civil and mechanical engineers, and design technicians.

#### *Facilities Management*

The second group of departments, the Facilities Management branch (FM), is responsible for management of real property (buildings), including management of utilities services. FM is responsible for evaluating, assigning, and decommissioning space across the Fort. Until recently, FM served as the recipient of all work requests (many of which are now routed directly to the base contractor). It still retains responsibility for evaluating work requests, routing them, and monitoring compliance with requirements and contracts. Consistent with these responsibilities, FM is supervised by a division chief and includes managers, sales agents, military space consultants, energy systems managers, and work reception clerks as well as engineers and technicians.

#### *Reorganization and Downsizing*

An additional group of departments concerned with Environmental Services and Public Safety has been moved into and out of the DPW several times over the past 6 months. This reorganization, combined with personnel losses associated with downsizing, has produced a good dent of instability in the DPW staff. The number of employees of the DPW has fluctuated from over 70 to fewer than 60 during the time we have been observing the DPW.

#### *Information Production and Flow in the DPW*

Discussions with DPW about their information and technology needs began in November 1994 at a workshop held at the Fort. In a series of meetings with DPW managers and planners, we learned about their perspectives on their goals and problems. In a subsequent workshop held in Champaign, Illinois, in December 1994, a group of employees from the DPW further discussed their perceived needs with our research team and with representatives from the Corps' Construction Engineering Research Laboratory (CERL) software design teams.

One perceived need that emerged early in our discussions with the DPW was for accurate, credible information about the status of installation facilities. In fact, virtually every supervisor and employee criticized

the current system for generating and sharing information about the status of Fort facilities. Members of the DPW were critical both of the production of information about installation status and of its transformation as it flowed through the organization.

#### *Production of Installation Status Reports*

The DPW is involved in a continuous process of assessing the state of the facilities and judging whether the facilities are "mission ready." Mission readiness refers to the ability of the Fort to perform its assigned military functions. So, for example, if the Fort is unable to house all the soldiers and their families who are assigned to the base for training, the Fort is clearly not mission ready. If the road or railroad track systems are in such disrepair that they hamper troop movement, the Fort cannot satisfactorily perform its mission.

The Installation Status Report (ISR) is used to evaluate the state of each element of the infrastructure at the Fort. It is modeled on the Unit Status Report, a system used to evaluate the mission readiness of military units throughout the Army. As with the Unit Status Report, the ISR involves a decision about whether any part of the installation is mission ready using a "red amber green" scale: A facility judged red is not able to support its mission, a facility judged amber has limitations or defects that could impair its mission, and a facility judged green is fully capable of supporting its mission.

The evaluation of a facility is guided by an extremely detailed set of procedures provided by the Army. For example, in evaluating the site and grounds around a building, they are rated red if lighting is damaged or inadequate, if sidewalks are in disrepair or not installed or if walkways from parking lot to building are missing, if no provision is made for the handicapped, or if it is impacted by surrounding incompatible activities; amber if utility services are damaged, if site lighting is provided in only some areas, if sidewalks are cracked, if only gravel surfaces the walkways, if only some provision is made for the handicapped, or if surrounding activities have a minor impact on the facility; or green if utility services and equipment are adequate, if site lighting is adequate, if sidewalks and walkways are paved and in good repair, if the site is handicapped accessible, and if it is surrounded by mission-compatible activities. These criteria (as well as those used for each element of the infrastructure) are explained and illustrated in detailed brochures published by the Army.

The ISR for a facility is completed not by members of the EPS but by other personnel designated to inspect a given facility. These individuals may be in command of units assigned to use a given facility (e.g., the

sergeant whose command is housed in a particular barracks). They are generally perceived by the EPS staff as lacking the technical qualifications required to make an accurate judgment about the status of a facility.

Moreover, because ISRs are used to guide decisions about maintenance, EPS staff often question their honesty. To be a realistic candidate for repair or renovation, a facility must be rated red or amber. Those who complete ISRs know that the way to establish the need for a project is to indicate that a needed facility is red-not mission ready. EPS staff express the view that many of those who complete ISRs offer ratings that express their own sense of the importance of a repair or renovation rather than an accurate judgment about the state of the facility. In particular, they suspect that raters underestimate mission readiness to justify projects they have proposed.

However, too many red facilities make a fort look like a good candidate for closure. Particularly in the current political and economic climate, a base commander cannot tolerate too many red ratings. A fort needs to be basically mission ready. This leads staff from the EPS to worry that ratings are also distorted from the top as the base commander juggles the ISR ratings to ensure that the overall impression given by the Fort is appropriate. This concern about the quality of ISR information is aggravated by the fact that the base commander has the ability and authority to change any ISR rating at any time. One story told in one of our meetings by the EPS staff seemed to encapsulate all their suspicions about ISRs: A training course had been given to Army managers on the ISR system, and one topic discussed explicitly at the training course was the implications of ISRs for Department of Defense decisions about appropriations. EPS staff reported their interpretation of this discussion: The Fort's management personnel were being told by the Army trainers to manipulate ISRs strategically.

At the same time, the director and staff involved in long-term planning repeatedly emphasized that evaluations of installation status are critical for long-term planning and decision making. This creates a very deep ambivalence about ISRs: On the one hand, the DPW staff members believe that accurate ISRs are critical for their own infrastructure maintenance activities, but on the other hand, they have little confidence in the quality of ISR ratings.

#### *Now of Information about Installation Status*

To aid in assessing the mission readiness of its facilities, the U.S. Army has developed a computer-based system, Integrated Facilities System Micro (IFS-M), in which all its real property is recorded and evaluated. IFS-M, developed in the early 1990s, was an extension of an earlier system, IFS, that was developed in the late 1960s. IFS-M is a technology developed for

the U.S. Army; IFS-M databases are maintained by individual installations but are used not only by that installation but also by the Department of Defense to study and evaluate facilities.

IFS-M is a computer program that automates record keeping associated with infrastructure maintenance. It stores and tracks information in 11 key areas: real property, customer coordination, projects, job costs, work estimating, contract administration, tracking requirements, supplies, scheduling, employee data, and equipment. Theoretically, IFS-M has the capability of providing an integrated picture of the Fort infrastructure, the DPW, and DPW projects (past, current, and projected).

Such an integrated representation of the Fort would be a tremendous boon to planners and decision makers, both inside the DPW and in command. In our conversations with the director of the DPW, the division chiefs, and staff responsible for planning, inventory, and tracking, it was repeatedly emphasized that IFS-M has the potential to transform the way work is done in the DPW.

However, the IFS-M program is the subject of a number of contradictory beliefs and practices within the DPW. As we show in the next section, IFS-M is a system that works better than employees of the DPW think (particularly those in management), and the perception of its weaknesses may be better understood as the product of political needs than of intrinsic defects in the technology.

#### ANALYSIS OF INFORMATION PRODUCTION AND FLOW AT THE FORT

The IFS-M system is intended to meet the needs of the DPW for an integrated representation of infrastructure and maintenance activities at the Fort. In terms of the organization's goals, it is clearly desirable for each individual to collaborate in maintaining the IFS-M database and ensuring that it is as accurate as possible. In this section we discuss the reasons why the employees of the DPW have made what appears to be an irrational collective decision to ignore the IFS-M system.

A rational model would imply that an information system must be designed on the basis of matching information-processing requirements with information processing capabilities. While earlier models (Galbraith, 1973; Tushman & Nadler, 1975) assessed information-processing requirements on the basis of reducing uncertainty, more recent models (Daft & Lengel, 1986) have suggested that information-processing requirements be examined in terms of reducing both equivocality and uncertainty. Equivocality is reduced when information is processed to help identify the relevant questions that must be examined by the organization. Uncertainty is

reduced when information is processed to answer these questions. According to this extended model, the design of an information system requires matching information processing capabilities that take into account the different needs of uncertainty and equivocality reduction.

Daft and Lengel (1986) describe information-processing capabilities in general, and equivocality reduction in particular, in terms of a medium's richness. The richness of a medium is judged on its capability to change understanding rather than simply convey information. Changing understanding often implies overcoming different frames of reference, clarifying ambiguous issues, and constructing (or enacting) a common frame of reference. Daft and Lengel suggest that rich media (1) have the capacity for immediate feedback, (2) convey multiple cues, (3) employ a larger number of channels, (4) offer personalization, and (5) offer language variety. In general, richer media (such as face-to-face communication, which allows a greater number of cues and feedback than, e.g., e-mail) are more appropriate to reduce equivocality, while leaner media (such as text-based computer-mediated communication) are better suited for the reduction of uncertainty.

According to the information-processing theory outlined above, the design of the IFS-M's information-processing capabilities should be evaluated in terms of its ability to match the information-processing requirements of those involved in the maintenance of the Fort. The system, and its supporting documentation, are explicitly designed on the assumption that the maintenance of the Fort is a routine, structured, scientifically driven set of tasks and decisions that do not entail the reduction of equivocality. As described in the previous section, decisions to carry out construction or maintenance tasks are made on the basis of information collected in response to a well-defined set of questions and criteria. Likewise, decisions to evaluate the "readiness" of specific fixtures or of the Fort in general are also made on the basis of preordained questions and criteria. Further, the criteria used to make these decisions do not change over time. Hence IFS-M, an information-processing system using lean computer-based media, offers capabilities that are commensurate with the uncertainty-reducing information-processing requirements of the Fort.

However, our interviews at the Fort indicate that IFS-M is only used by seven out of the 65 employees in DPW. According to IFS-M documentation and the IFS-M system manager, it is designed to be used by at least 40 of the 65 employees in the DPW. Clearly IFS-M has not been successfully adopted at the Fort.

In our preliminary interviews, the managers at DPW were very outspoken in their criticisms of IFS-M. Their criticisms fell into three categories: incomplete and inaccurate information, lack of adequate computer hardware, and poorly designed software. First, managers mentioned that

the system was not being used because employees were too busy with ongoing tasks to enter existing data into the system. Further, they observed, the information that was in IFS-M was not accurate. If IFS-M was current and accurate, they implied, they would have an incentive to use the system. Second, managers noted that their offices did not have the requisite computers and computer connections to be able to access and use IFS-M. If the employees were provided with better computers and dedicated computer connections to IFS-M, they would use the system. Third, managers expressed frustration with IFS-M's lack of user-friendliness. The system, they pointed out, required employees to navigate through a myriad of menus before they could access, enter, or retrieve relevant information.

Following our preliminary interviews with the DPW management, we conducted additional in-person surveys and interviews to identify the determinants of employees' attitudes toward and their use of IFS-M. Interviews with the seven users of IFS-M and the IFS-M's system manager revealed that the IFS-M data were not as incomplete and inaccurate as suggested by other employees. In fact, the production controller, who manages the routing of work-request forms, spent as much as 30 hours each week dutifully entering and updating all the work-request forms into IFS-M. Ideally, this information should be entered by the various employees as part of their workflow. Instead, the employees enter the information on a hard copy version of the forms, and this information is then sent back to the production controller for entry into the system. When DPW employees need information on the status of a work request, they contact the production controller, who then prints out a report or requests the system manager to prepare the report. As a result, the storage and retrieval of information in IFS-M is not, as intended, articulated as part of the workflow at the DPW. Instead it is conducted as a separate chore, distinct from the DPW's workflow. To validate their claim that the information is current and accurate, the production controller and the system manager pointed out that all of the information used by the outside contractors, who execute the engineering and maintenance tasks, comes directly from the IFS-M database. When asked to explain employees' claims that the IFS-M database was not current and accurate, the system manager replied, "Well, if they were to log on to IFS-M, they would see that is not the case." Clearly the lack of IFS-M adoption at the Fort was not simply a matter of incomplete or inaccurate information on the system.

The employees had also noted that a lack of computing and communication hardware prevented them from using IFS-M. This claim, too, was disputed upon closer examination. The IFS-M software resides on a mini-computer and employees use their computers as terminals to connect to the software. Hence in order to run IFS-M, employees' desktop computers do not need to be state-of-the-art machines. In fact, frequent users of IFS-

M often had older desktop computers. Most employees at the DPW had access to a computer that was capable of connecting to IFS-M. There were several instances in which computers in employees' offices had been hooked up to IFS-M and the software had been tested. These employees, including some who were in management, did not use IFS-M even after they had received training. One member of the management, who ideally should use the system every day, complained that he did not use it because each time he tried, the system notified him that his password had expired. For security reasons, the system sends this notification if the user has not logged on for 8 weeks! It takes one phone call, and a couple of minutes, for the system manager to reopen the account. Some employees had physically disconnected the communication cable from their computer. These observations indicate that the lack of computing and communication hardware was not as serious an obstacle as we were initially led to believe.

Employees at the DPW had also expressed negative attitudes about the user-friendliness of the IFS-M software. Statistical analyses revealed that employees' attitudes and use of IFS-M were not associated with their computer experience, their use of other computer software, or their training with computers. Further, employees did not rate the attributes of IFS-M software significantly lower than those for commercial word processing software packages (WordPerfect and Enable), which were used by 38 DPW employees, or e-mail software (IBM's PROFS), which was used by 26 DPW employees. In fact, the employees who reported using IFS-M reported a mean satisfaction level (3.65 on a scale of 1 to 7) that was similar to those reported for the commercial software packages. These results were surprising on two counts. First, employees' perceptions of IFS-M did not reflect the few excessively negative comments we heard from DPW management in the preliminary interviews. Second, a colleague on our research team who specializes in studying and designing user interfaces notes that the user interface of IFS-M leaves much room for improvement. Unfortunately, the system manager is not very sympathetic to such criticisms. "There is no such thing as user-friendliness," she exclaims; "you have got to learn the system, and once you learn a system it becomes user-friendly. After all IFS-M is menu-based."

To summarize, our follow-up interviews and surveys failed to uphold the reasons for IFS-M's lack of adoption offered by the management during preliminary interviews. First, the IFS-M database was more current and accurate than had been suggested. Second, while the computing hardware at DPW was not state-of-the-art, most computers were capable of connecting to IFS-M. Many had been connected; however, most were rarely used, and some had been disconnected by employees. Third, frustration with the software and user interfaces, though warranted to some

extent, was neither as widespread nor particularly negative as compared to frustration with other more widely used computer software at the DPW.

The results of the statistical analysis revealed an important, and heretofore unacknowledged, determinant of employees' use of IFS-M. Employees' use of IFS-M were significantly correlated ( $r = .63$ ) with their supervisor's assessment of its utility. This finding was echoed in several unstructured interviews with IFS-M users, nonusers, and the IFS-M system manager. The DPW management at the Fort had made few gestures to signal their support for the use of IFS-M by employees. In fact, some interpreted their actions as dissuading its use. This finding is also consistent with the social information-processing perspective on new media. This research underscores the importance of social influence on organizational members' attitudes toward and use of media (Contractor, Seibold, & IJeller, 1996; Full, 1993; Rice & Aydin, 1991).

First, the management at DPW had staffed the IFS-M system support with just one employee, the system manager. At other bases using IFS-M, in CONUS (Continental U.S.), USAREUR (U.S. Army Europe), TRADOC (Training and Doctrination), and FORSCOM (U. S. Army Forces Command), there are between five and 10 employees charged with the support of IFS-M.

Second, none of the management at DPW log in to IFS-M regularly, thereby failing to serve as a model for other employees. They generally request hard copies of all work-request documents, thus discouraging employees who may want to provide them with this information electronically via IFS-M.

Third, as was evident from the preliminary interviews, they were among the most vocal critics of IFS-M.

Fourth, they helped shape and sustain an information culture that was counter to the norms implied in the design of IFS-M. In the ideal situation, employees who enter information into IFS-M can then access information from the system to help them make decisions; access provides an incentive for employees to contribute to a system that would in turn help them with their own decision making. These include decisions about work classification, prioritization, project scheduling, and contract surveillance as well as budgetary and technical issues related to the execution of the maintenance projects. However, at the Fort, the management wanted to be closely involved at all steps of the decision-making process and hence held several face-to-face meetings with their staff. As a result, employees, bereft of many of their decision-making opportunities, were not in a position where they could benefit from accessing information stored in IFS-M. The lack of this incentive further reduced their motivation to enter information into IFS-M.

The suspect validity of the management's criticisms of IFS-M suggest that either they were not aware of the current status and capabilities of IFS-M, or their criticisms were in pursuance of a second agenda. There was some evidence of this second agenda in management's response to the problems with IFS-h1. First, weaknesses in IFS-h4 were used as justification for increased staffing. Management argued that to make the IFS-M database current and accurate, additional employees would be needed—an issue that was particularly sensitive given the downsizing already discussed. Second, weaknesses in IFS-M were used as a justification for equipment requests. Management argued that to improve the information system in the DPW, funds were required to upgrade the aging, but not yet completely obsolete, computers. Hence the criticisms of IFS-M made by the management, while not necessarily accurate, were consistent with the political instincts of most management teams: arguing for increases in human and material, specifically computing, resources.

While it is evident that management at DPW did not actively encourage widespread use of IFS-M, our analysis raises two further questions. First, why did the management require the production controller and IFS-M system manager to keep the IFS-M system updated? Second, and perhaps more important, why were they less than enthusiastic in their support for the IFS-M? Our analysis suggests that these two questions are more interrelated than they might appear. In both cases, the management at DPW was responding to demands in the Fort's environment, more specifically the Department of Army's (DA's) TRADOC Command. Officials at the Fort reported directly to DA-TRADOC. DA-TRADOC was directly responsible for making budget allocations and offering high-level evaluations and recommendations on the base's mission readiness. As mentioned in a previous section, DA-TRADOC had made all budget allocations to the Fort's DPW contingent on the availability of real-property records on the IFS-M. A computer at TRADOC would dial into the IFS-M computer at the Fort once every quarter for approximately 30 minutes to access this information and update their records. In addition, the system manager at the Fort was required to send this data via computer tape to TRADOC. Hence in response to the first question we raised above, notwithstanding IFS-M's lack of adoption at the Fort, the management at DPW felt compelled to have the production controller and the system manager enter the requisite information into IFS-M.

Ironically, it is TRADOC's control over budgetary decisions that appears to have dissuaded management from encouraging widespread use of the IFS-M by DPW employees. As mentioned in an earlier section, the Fort is required to provide TRADOC with an ISR which is then used to assess the base's mission readiness. The ISR includes assessment of the infrastructure provided by "customers," the personnel who are using the vari-

ous facilities on the base. The management at DPW has reservations about the accuracy and quality of the assessment provided by customers. In particular, they feel the need to strategically manipulate the assignment of red-amber-green ratings to various elements of the Fort's infrastructure. At present, the management at DPW is able to override the customers assessment of the facilities by arguing that they have additional information that leads them to assign a different red-amber-green rating than the one suggested by the customer.

DPW management's desire and ability to strategically manipulate the findings of the ISR is key to understanding their lack of enthusiasm for widespread use of IFS-h1. As long as the information entered in IFS-M is entered and accessed by only a handful of employees, the management has two arguments that can sustain their ability to strategically manipulate the ISR. First, by citing the lack of IFS-M use by employees, management can publicly undermine the completeness and accuracy of IFS-M, thereby reducing the credibility of any information in IFS-M that may contradict their strategic interests. Second, reducing the credibility of IFS-M data and limiting the number of employees with access to IFS-M makes it easier for management to "modify" or "correct" some of the information stored in IFS-M, thereby aligning it with their strategic interests in compiling the ISR.

#### CONCLUSION: EQUIVOCALITY AND UNCERTAINTY REDUCTION IN THE DPW

Of the two key functions of an information system, reducing equivocality and uncertainty, uncertainty reduction appears to be the greatest concern for the DPW. Employees of the DPW, particularly those in management, criticize the IFS-M program and ISR data primarily in terms of their ability to reduce uncertainty. The data produced through ISRs are criticized for being biased, unsystematic, incomplete, and lacking in authority. The IFS-M database is criticized for being inaccessible, inaccurate, incomplete, and difficult to use. There is a general perception, particularly among those in management positions, that the information system is not capable of providing good answers to the questions they wish to pose.

But lurking under the surface of these complaints is considerable anxiety about the equivocality of the DPW information system. Most employees feel they have little input into what questions are asked in the process of decision making. Management personnel perceive a lack of control over how information in IFS-M might be queried and used by those above them in the organizational hierarchy, and other employees are effectively barred from using the database for decision making. These anx-

ities about equivocality promote a willingness, particularly among managers in the DPW, to undermine the credibility of answers provided by their information systems. As was shown earlier, ISRS and IFS-M are better than they are perceived to be, especially in terms of uncertainty reduction.

The perceived weaknesses in the information systems have in turn become exploitable resources in the never-ending process of budget negotiation. The DPW has developed a political interest in showing that current resources are inadequate since this is the preferred argument for more resources. But in the end, undermining the information systems technologies of the DPW has not been a good strategy. Employees and software developers alike have come to have pessimistic, and often cynical, attitudes toward the possibilities for effective change. Employees point to stacks of unopened software on their desks and argue that none of these tools are really designed to meet their needs. They are unwilling to invest time in learning new ways to do their work.

At the same time, without successes to point to, the case for upgrading the systems and technologies of the DPW with new resources for information technology is weak. In fact, the most persuasive evidence for putting resources into information technology upgrades in the DPW has come from the successful experiences of other installations, where other systems worked—probably in part because of the organization's commitment to change in ways that will make the new technologies most useful.

The final question then is, How can the DPW improve its performance by the strategic use of information technologies? First, the DPW should address the issue of equivocality reduction more squarely and should consider how it can use appropriate technology to address organizational needs for setting priorities and distributing participation in decision making. The second and most critical change the organization must embrace is a commitment to use and support the technology. It is particularly important for those in management positions to become advocates for the technology and provide good models to socially influence those working under them. Finally, this commitment should be carried through by allocating resources to provide proper support for the technology. This may be more feasible as more flexible and user-friendly database technologies are developed and introduced.

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## KEY TERMS

**COMPUTER-BASED WORKBENCH:** a software program that provides a common interface and communication among a set of specialized computer programs.

**EQUIVOCALITY REDUCTION:** determining what questions must be answered to make organizational choices, enabling debate, clarification, and enactment more than simply seeking larger amounts of data.

**INFORMATION FLOW:** movement of information from one system component to another.

**INFORMATION MANAGEMENT:** development of appropriate systems for production and movement of information within organizations.

**INFORMATION PRODUCTION:** processes through which organizations gather and organize data.

**KNOWLEDGE WORKERS:** individuals whose primary organizational functions involve information management.

**RICH VERSUS LEAN MEDIA:** rich media offer greater capacity for immediate feedback, larger numbers of cues and channels, and higher levels of personalization and language variety than lean media.

**SOCIAL INFORMATION PROCESSING:** a perspective that suggests that individuals' attitudes and use of media are shaped, in part, by the information they process from their social interaction with others, including coworkers and supervisors.

**SYSTEM COMPONENT:** nodes within an organization—can be individuals, computers, departments, or databases.

**UNCERTAINTY REDUCTION:** the ability to collect and collate large amounts of information to answer questions that are important to organizational choices.

## DISCUSSION QUESTIONS

1. Select a group in which you are involved and describe it as an information system. What are the nodes in the system (people or other units that create or transmit information)? What are the information-production activities in this group? How does the information produced flow through the system?
2. Think of a situation you are facing in which you will have to make a decision. What questions will you need to answer to make that decision? What information will you need to answer these questions? How do the concepts of equivocality reduction and uncertainty reduction apply to your situation?
3. Why have employees of the DPW complained about the quality of information provided through IFS-M? Use the concepts of equivocality and uncertainty reduction to explain why they might exaggerate the defects of IFS-M.
4. How might the DPW implement the recommendations made in the conclusion of this chapter?
5. Improvements in information systems seldom are of direct benefit to the indi-



viduals who do the work of managing information within an organization. This results in a conflict between what benefits individuals and what benefits the collective organization. How does the case of IFS-M illustrate this dilemma?

6. More generally, there is often a conflict between what it seems rational for an organization to do and what can actually be accomplished within the organization. How does the case of IFS-M illustrate this conflict between rational and political models of the organization?

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## CHAPTER 13

# Information and Organizational Development

## Enhancing Reflexivity at Alexander Center

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#### INFORMATION AND ORGANIZATIONAL ADAPTATION

Leaders need information about the effectiveness of organizational messages, products, and programs to evaluate organizational performance and direct organizational adaptation. By encouraging representatives of relevant audiences to share their experiences and beliefs concerning these messages, products, and programs, leaders can identify any relevant problems and opportunities that are confronting the organization. Feedback from individuals who have unique insights into the organization, such as the people the organization serves and the people who work for the organization, is particularly useful. Relevant populations such as these have the unique ability to critically assess the quality of programs from firsthand knowledge. They also often have insights into how to improve these programs by suggesting strategies for organizational intervention and refinement. Feedback from such populations can thus enhance organizational reflexivity, enabling leaders to see the strengths and weaknesses in their organizations from the perspective of key internal and external audiences (Kreps, 1989, 1990, 1994).

### THE ORGANIZATIONAL DEVELOPMENT PROGRAM

An applied field study was conducted to gather information about public perceptions and attitudes toward an urban residential adolescent substance abuse rehabilitation center (the pseudonym "Alexander Center" will be used here in place of the real name of this rehabilitation center to preserve confidentiality). Alexander Center is a long-term healthcare treatment organization dedicated to helping troubled youths break their addictions to drugs and alcohol. Youths who are identified as substance abusers are referred to rehabilitation centers, such as Alexander Center, for treatment, often by the juvenile court system. Admittance to Alexander Center means that the youths actually move in to the center and live there as residents, where they participate in individual and group counseling sessions and are taught life skills to help them resist substance abuse. Alexander Center also provides follow-up and aftercare counseling and support services for youths who have completed the residential treatment program. Alexander Center has an excellent record for helping troubled youths break their addictions and resist substance abuse.

This organizational development study was designed to help Alexander Center meet community members needs for substance abuse rehabilitation services at a time when reports of adolescent substance abuse within the surrounding geographic area indicated that this problem was at an extremely high level. A primary goal of Alexander Center is to provide needed treatment to as many of the adolescent substance abusers who were not being served as adequately as they possibly could. The data gathered in this study were needed to help Alexander Center examine the reasons why these adolescents were not receiving treatment, as well as to identify strategies for increasing public acceptance, support, and utilization of their health promotion programs.

### PARENTS AS A RELEVANT SOURCE OF INFORMATION

It was determined through analysis of archival records that the parents of adolescent substance abusers were the primary decision makers for enrolling clients for treatment in residential care facilities like Alexander Center. Parents served as boundary spanners, connecting adolescent substance abusers to the Alexander Center. Therefore parents of adolescents were identified as the population to be studied in this organizational development effort. Three different relevant groups of parents were selected for participation in this organizational development program: (1) parents with children who had already completed treatment at Alexander Center, (2) parents with children who were currently in treatment at Alexander

Center, and (3) representative parents with children who were within the potential age range and geographic region served by Alexander Center.

Focus group discussions were selected as the best method for gathering relevant information from these parents. In focus group discussions a group leader (the group facilitator) poses questions about topics of research interest to group members (respondents) and encourages them to discuss the questions and elaborate on their answers (Kreps, 1994). Effectively conducted focus group discussions stimulate disclosure of relevant information by encouraging a chaining-out of shared perceptions among group members. In focus groups outspoken respondents often encourage the more timid respondents to share information. Furthermore, by observing group members' verbal and nonverbal behaviors, the group facilitator can encourage maximum participation, information sharing, and creativity, obtaining more relevant information in less time from one focus group discussion than would be possible by conducting personal interviews with each member of the group.

The focus group technique is a popular applied research method because it reveals important information about respondents' personal experiences and interpretations of reality. It also enables researchers to learn quickly and inexpensively about the needs, values, beliefs, expectations, and behaviors of specific populations (Herndon, 1993). In this study focus group participants were selected randomly from three lists of parents (sampling frames) to ensure that the groups were representative of the larger populations of parents within the community served by Alexander Center. Names from each of the three sampling frame lists were randomized systematically to create three potential sample lists, and participants were recruited over the telephone. From these lists, nine parents were recruited for each focus group.

Letters were sent out from Alexander Center to all of the parents on the original three sampling frame lists prior to recruitment to explain the organizational development project, to identify the researcher, to inform them that they might receive a recruitment call from the researcher, and to encourage their participation in this organizational development program. After the recruitment calls were made, follow-up letters were sent to all parents who had agreed to attend to confirm the day, time, and place of their focus group, as well as to encourage their actual attendance at the focus group. Additionally, the researcher called each of the parents recruited for the focus groups 2 days prior to their group meeting to remind them of the session.

Focus group discussions were held with each of the three groups of parents to identify their key experiences, ideas, and concerns about the specific programs and services at Alexander Center, as well as to explore the more general problem of adolescent substance abuse and their sources

of relevant health information about substance abuse treatment and support. The focus groups were scheduled and conducted on the same day in the same place with 90 minutes set aside for each group discussion. Each of the three focus group discussions lasted approximately one hour. To increase participation, the sessions for Group A (whose sons or daughters had completed their residential stay at Alexander Center) and Group B (whose sons or daughters were currently in residence at the center) were scheduled at times when these parents were likely to already be coming to Alexander Center. The focus group meetings were held in the conference room in the Alexander Center's main administration building. The actual size of the focus groups ranged from four to seven members, with four members (two men, two women) in Group A, six members (four men, two women) in Group B, and seven members (three men, four women) in Group C (whose sons or daughters had not been treated at the center), including the facilitator.

A general discussion guide (interview schedule) was developed to direct the focus group discussions, and minor alterations were made to adapt the topic guide to the different experiential sets of the members of the three different groups. For example, Group A was asked about their experiences with aftercare, Group B was asked about their expectations for aftercare, and Group C was asked about their knowledge about the goals of aftercare.

## RESULTS OF THE STUDY

Each group discussion was audiotaped to preserve group members' comments for later analysis. The audiotapes were then transcribed and their content was analyzed by the researcher into the following 13 primary content themes, which provided the basis for the recommendations:

1. *Motivation to seek treatment.* The most intriguing finding in this content category was that almost all of the responses to this query by members of all three groups involved confrontation themes (family crises and conflicts). It is also interesting to note how resistant the majority of parents in Group C were to seeking treatment for their children, especially in contrast to the other two groups. The theme expressed most commonly by parents in Group C was that they would not seek treatment for their children at Alexander Center, or at any other treatment facility, unless it was their very last alternative. This response suggests avoidance and denial, which is not really surprising. Since this group is the least familiar with Alexander Center and its services and is least invested in treatment (their children have probably not been diagnosed as substance abusers),

they do not want to imagine their offspring needing treatment lest those thoughts become self-fulfilling prophecies.

2. *General referral sources.* The courts were the source of general referral mentioned most frequently, which indicates that court officials must be made aware of Alexander Center and the benefits of its services. The referral source mentioned next most frequently was television advertising, which reinforces the importance of Alexander Center's using television advertising to reach potential clients.

3. *Alexander Center referral sources.* Radio and television advertising, as well as personal recommendations from parents who have used Alexander Center's services, were the referral sources mentioned most frequently. Media advertising was most important for the potential audience, which indicates that it is a good channel for reaching new customers (as mentioned in the discussion of the previous content category). Word-of-mouth referral from other parents was most important for the parents who had already been through the program and is a relatively inexpensive and highly trusted advertising channel. The majority of other referral sources are from area professionals (such as lawyers, judges, psychologists, and police), who should be kept up-to-date about Alexander Center and given current promotional materials.

4. *Positive impressions of and experiences with Alexander Center.* This was by far the largest and most impassioned of the 13 content categories. The data clearly indicate that Alexander Center is thought of highly and appreciated by all three groups of parents. Several of the comments can be used as testimonials or advertising copy for future promotional media. To be cautious, however, it should be noted that a selection bias may explain this finding. That is, the parents who were most supportive of Alexander Center were likely to be the ones who agreed to participate in this organizational development program, while the parents who were disenchanted with Alexander Center were likely to be unwilling to participate. (During the recruitment of participants, however, parents who mentioned being upset or unhappy with Alexander Center were strongly encouraged to attend the meeting to express their feelings and to help improve the system.) Regardless of this potential selection bias, the data generated in the focus group interview appear to be sincere and moving.

5. *Negative impressions of and experiences with Alexander Center.* There is a clear and troubling consistent pattern of negative first impressions and public images of Alexander Center that are held by all three groups of parents. These negative stereotypes identify Alexander Center as a place for delinquent children, orphans, runaway boys, bad boys, and rough kids. Furthermore, there is a penal-system, punishment image of the services provided at Alexander Center that discourages parents from sending their children there for treatment.

6. *Barriers that prevent parents from seeking treatment for their children.* The most significant barrier to seeking treatment voiced by members of all three groups, and mentioned twice as often as any other response, was denial. The second barrier mentioned most frequently was by Group C, who stated that they need to know the warning signals to determine whether their child is engaging in normal adolescent behavior or whether there really is a substance abuse problem. Providing parents with promotional materials that identify warning signs can be very powerful. In fact, immediately after the focus group meeting with Group C, the parents asked for handouts identifying the warning signs and even took some home for their friends and neighbors. Parents who want to handle the situation themselves have to recognize the severity and complexity of the problems their children may face. Guilt and parental problems with drugs and alcohol are additional barriers mentioned frequently that should be addressed in marketing themes and advertising messages. Cost issues are also of concern to parents, and information about insurance coverage might encourage parents to seek treatment when needed.

7. *Information sources to recognize the need for treatment.* School programs and parent networks are the information sources parents most want to use to help them identify their children's need for treatment. Parents want the schools and their peers to provide them with timely and honest feedback about their children's deviant behavioral patterns to help identify instances of substance abuse. Perhaps in promotional materials Alexander Center can present a community orientation to this problem, encouraging parents and neighbors to work together and help fight substance abuse by sharing relevant information. Parents should also be encouraged to initiate communication with representatives from the schools on a regular basis to find out if their children are behaving peculiarly or if teachers, administrators, or counselors suspect substance abuse.

8. *Suggestions for Alexander Center to help parents recognize the need for treatment.* Parents responded to this question with many suggestions for Alexander Center to engage in increased information-dissemination efforts. The suggestion mentioned most frequently for getting relevant information to parents was increased use of television and radio ads. (This finding is consistent with the data in content category 3, in which parents stated that television and radio advertisements were important sources of information in referring them to Alexander Center.) The respondents suggested using advertising scenarios that depict family breakdowns to attract the attention of parents. Furthermore, group members encouraged using public affairs, news, and other television and radio programs to present information about Alexander Center and its services. The suggestion mentioned next most often was for Alexander Center to work closely with educational institutions in offering lectures, courses, and other programs for

parents and children to inform and motivate them to recognize and deal with the problem of substance abuse. Another interesting suggestion was to widely disseminate promotional and informational literature (leaflets) about substance abuse and Alexander Center for parents to pick up at schools, department stores, grocery stores, businesses, medical facilities, police departments, and shopping centers.

9. *Experiences with other social services and treatment services.* Many respondents had experience with several other treatment services in the area. The organization mentioned most frequently was Family Anonymous, which was seen as a very good family resource. Affiliating with and working closely with Family Anonymous may be mutually beneficial to both organizations. In contrast, local hospitals were mentioned often but were generally disliked for their high levels of bureaucracy and their medical orientation, although parents did like one hospital's radio advertisements and half-day school program for children. Parents in Group B were very interested in proposed aftercare support groups (core groups) at the local high schools. Perhaps Alexander Center can help schools in the area get these groups started.

10. *Suggestions for family support services.* Interestingly, this category received the fewest responses, including no responses from Group C, even after probing. Perhaps parents in the potential group were so removed from facing substance abuse problems that they did not envision a need for any family support services. There was, however, interest expressed by parents in the Groups A and B to reinstate the sibling program (in which counseling was provided to brothers and sisters of the children receiving treatment) at Alexander Center. There was also strong agreement among the parents in Group A about the need for aftercare services for parents and families.

11. *Experiences with and expectations for aftercare services.* Parents generally supported the need for and the importance of aftercare services, especially parents in Group A, who are probably participating, and want to be more involved, in aftercare. Parents in Group A want Alexander Center to inform them about the attendance of their children at aftercare meetings, educate them about aftercare services, offer special aftercare sessions for parents and children, and start a parents' alumni group for peer support and future projects. Another suggestion for aftercare services was to provide children with healthy social and occupational opportunities, such as identifying safe (drug- and alcohol-free) places to go, establishing a youth center or halfway house, and helping children find jobs.

12. *Realistic expectations for treatment and outcome of treatment.* There is a dramatic difference between parents experienced with Alexander Center (Groups A and B) and the potential group of parents (C) with respect to expectations for treatment. Parents in Groups A and B were re-

alistic about not expecting miracle cures, recognizing that it is the children's responsibility to stay straight and to learn coping skills at Alexander Center. These parents even expected some relapse from their children. In contrast, several parents in the potential group were unrealistic in their expectation that treatment would cure their children so they would never desire drugs or alcohol again. These results indicate a strong need for educating parents about the nature of addiction and the realistic outcomes of treatment. On the other hand, several parents recognized the psychosocial elements of effective treatment, mentioning the role of support systems, ego-strength, withstanding pressure, and self-esteem in recovery.

13. *Suggestions for Alexander Center to improve its services.* This content category provides a good summary of the implications drawn from earlier questions, as many of the suggestions offered have been previously discussed. There is a wealth of ideas offered here that, with some refinement, can be of great benefit to Alexander Center. For example, information and social support programs are high on parents' list of suggestions. Several parents in Groups A and B suggested that Alexander Center do a better job at the Wednesday night meetings of educating parents about the potential for relapse, the signs of relapse, and how to handle it. Parents from all three groups suggested improving the alumni group so that children can keep in contact with each other to provide an ongoing support system after treatment. Several parents encouraged efforts to enhance community awareness of Alexander Center services through radio and television coverage and advertising, as well as offering a drug or alcohol abuse hotline. Information dissemination can also be enhanced by a videotape that describes Alexander Center, its treatment philosophies, and its programs (i.e., showing the facilities and the kinds of activities kids go through) for parents to view while waiting during the initial evaluation and during the first Wednesday night meeting. (Such a program may be able to get some free television airtime on public affairs programs.) They also suggested that when parents first bring their children in for treatment they should be given books and other reading material about substance abuse, treatment strategies, and family strategies to help children.

Parents in Group A desired follow-up telephone calls from Alexander Center after treatment is over to identify any problems and provide needed information or support. They suggested setting up a system whereby successful alumni of the program can work as peer counselors for current children going through the program. Parents are interested in Alexander Center helping to get their children back into school and making sure that they stay there. They want to be informed about whether their children are attending aftercare meetings. Parents also suggested that Alexander Center can provide parents with information about Family Anonymous, provide

more privacy in the basement for families meeting with their children, and take a more preventive approach with advertising, educational services, and pamphlets. Parents also would like Alexander Center to help keep costs down by encouraging insurance companies to offer more coverage for aftercare services and providing low-cost options for aftercare services.

#### CASE SUMMARY

This case illustrates how the use of focus group research can provide a wealth of information about public perceptions and attitudes toward an organization such as Alexander Center, identifying parents' concerns about adolescent substance abuse treatment and generating specific suggestions for increasing public acceptance and support for Alexander Center. The focus group interviews indicated that the public's support for Alexander Center appears to be high, although the public's image of Alexander Center is sometimes tainted by false stereotypes. Parents generally are concerned about adolescent substance abuse and indicated a clear need for more information about risks, symptoms, and services.

The data from the focus group discussions indicated that Alexander Center can attract business and community support by developing and implementing information dissemination promotional programs to meet the information needs identified by parents in this study. Many of the recommendations from this study were implemented at Alexander Center, which has helped the organization to provide the public with relevant health information, enhanced the public image of the rehabilitation center, and attracted greater public support for its programs and services. Alexander Center was also able to increase client enrollment significantly over the 6 months following the completion of this study, enabling the rehabilitation center to provide healthcare services for a larger segment of the adolescent population that was in dire need of such care.

#### KEY TERMS

**BOUNDARY SPANNERS:** individuals who connect organizations to relevant external audiences. In this case parents were boundary spanners who connected Alexander Center with adolescent substance abusers.

**CHAINING OUT:** a process in which interaction among group members is stimulated when group members express ideas and experiences that other members identify with and build upon through successive messages and replies that lead to greater levels of member identification and greater sharing of information.

**FACILITATOR:** a focus group leader who poses questions to group members, en-

courages participation of all members in group discussions, and keeps the discussions on target.

**FOCUS GROUP DISCUSSIONS:** a research method in which a group facilitator poses questions about topics of research interest to group members and encourages them to discuss the questions and elaborate on their answers.

**INTERVIEW SCHEDULE:** a list of questions that the focus group facilitator uses to guide group discussions.

**ORGANIZATIONAL ADAPTATION:** the ability of organizations to adjust to changing situations and constraints to enable survival.

**ORGANIZATIONAL REFLEXIVITY:** the ability of organizational leaders to see the internal and external state of the organization.

**RANDOM SAMPLE:** a group of research respondents selected so that each member of the population represented has an equal chance to be selected.

**SAMPLING FRAME:** a list of all potential research respondents from a specific population that is as complete as possible.

## DISCUSSION QUESTIONS

1. Why is the use of focus group discussions a particularly good method to identify organizational problems, promote organizational reflexivity, and direct organizational adaptation?
2. What do you think were the most compelling findings about parents' responses to Alexander Center? How could these findings be used to improve the center's ability to achieve its health promotion goals?
3. In future advertising and promotional efforts how can Alexander Center use the theme of family confrontation that emerged in the focus group discussions as a motivating factor in urging parents to seek treatment for troubled youths at Alexander Center?
4. How can many of the comments made by respondents concerning the parents' "motivation to seek treatment" serve as potential story lines for future advertisements, pamphlets, and public relations media?
5. Do you think it would be a good idea in future advertising to confront parents with the tendency expressed in the focus group discussions to avoid and deny their children's problems? Why or why not?
6. Do you think it would be a good idea to send lawyers and court officials up-to-date promotional materials about Alexander Center? Why or why not?
7. Is it advisable for the Alexander Center staff to keep in contact with parents who have been through the program, provide them with materials, and keep them involved with Alexander Center in advisory capacities? Why or why not?
8. How can the negative public image of Alexander Center as a prison be changed? For example, do you think promotional materials that explain the historical developments and transformations at Alexander Center, that emphasize the long history of the institution and its name recognition, and that

couple this information with knowledge of the new services and philosophy of Alexander Center would be enough to change this negative image?

9. How can Alexander Center help parents recognize warning signals that their children may be having problems with substance abuse?
10. Should follow-up studies be conducted to evaluate whether Alexander Center has overcome the problems identified by the focus group discussions? If so, what kinds of studies do you suggest?

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