

Developments in Business Simulation & Experiential Exercises, Volume 8, 1981

THE CASE STUDY AS A TOOL FOR ORGANIZATIONAL CHANGE: APPLYING THE STEEL AX TO THE DESIGNERS OF MANAGEMENT INFORMATION SYSTEMS

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ABSTRACT

While in modern organizational life much effort is expended in the design and implementation of computerized management information systems, there is much evidence to suggest that the process of implementation seldom goes smoothly. The problem is a natural target for the concepts and techniques from the field of organizational development. However, given the rational paradigm of systems designers, it is very difficult for practitioners of organization development, who employ an entirely different paradigm, to even initiate a relationship. In this paper an experiential technique is proposed for solving the communication problem.

THE GENERAL PROBLEM: HIGH COSTS AND MISSED OPPORTUNITIES

In modern organizational life there are few activities that have increased in importance as much as information processing. It has been suggested that over half of all person hours are expended in this activity as compared with an estimated 5 percent century ago (Porat, 1977). Naturally, information processing is a prime target area for productivity improvement, and nearly all large organizations have become concerned with the adoption and implementation of computerized information systems. Unfortunately, productivity gains have not always followed the adoption of such automated systems. For example, the government of the United States is the largest user of computers in the world, spending over \$10 billion annually on computer systems. While its inventory grew from 2 computers in 1950 to almost 10,000 in 1976, a government accounting office audit of computer installations revealed a pattern of underutilization, poor design, excessive costs and misapplication of computer resources (GAO, 1976). Such problems are not limited to the public sector. Nearly all large organizations have experienced some level of difficulty and disillusionment in the implementation of computerized information systems.

The problems resulting from implementation are reflected in both human and financial terms. For example, several years ago, the author reported on a case in which two years of time and several hundred thousand dollars were virtually lost because of problems in implementing a management information system (Quinn, 1976). While people may tend to think that such stories are extreme and unique, the literature suggests that the problems are legion (Kraut, 1962; Myers, 1967; Reif, 1968; Whisler, 1970; Kanter, 1972; Quinn, 1976; Robey, 1977; Quinn and Whorton, 1980).

The issue certainly has not gone unnoticed by people in the MIS field. In the literature there have been a number of attempts to advise practitioners on how to implement a change in information technology (Coleman and Riley, 1973: Part V). Yet, despite the collected wisdom that is available practitioners continue to have difficulty in making changes that often hold great potential for the improvement of the organization. For example, Whisler (1970) has stated: In most organizations, it is very easy to find people aware of

potential computer applications that are both technologically feasible and economically desirable, but are stalled by organizational resistance." The fact is that a new development in information processing may meet the rational constraints of technology and economics but, if it is received negatively by elements of the human system, it may be delayed or never implemented at all.

The importance of understanding the impacts of computerization on the human system seems obvious. Yet, it also seems that those practitioners who are best able to see potential MIS applications, are also those who are least sensitive to the impacts of computerization on the human system. They are inevitably surprised by resistance and overall failure that sometimes follows such resistance. After many discussions with such practitioners, the author feels that a great part of the problem is attributable to beliefs about the nature of organizations and the inability to entertain alternatives to the rational view of organizations.

In order to understand some of the alternative ways of seeing organizations we might examine Figure 1. Figure 1 is an empirically derived representation of the values and concepts that underly the literature on organizational analysis (Quinn and Rohrbaugh, 1980). At the most general level we find the rational and natural system models. While the rational model is oriented toward such values as integration, formalization and control, the natural system model is oriented towards differentiation, spontaneity and flexibility. At the next level of generality there are four less general models. The rational goal model and internal process model are subsets of the rational model. While the rational goal model has more of an external-organization focus, the internal process model has more of an internal-people focus. The open system model and the human relations model are subsets of the natural system model. While the open system model has more an external organization focus, the human relations model has more an internal-people focus.

Figure 1 Goes About Here

At the next level of generality there are eight conceptual orientations, two orientations for each of the above mentioned models. The values that differentiate between orientations at this level are a focus on means versus a focus on ends. For example, in the internal process model control and stability are more associated with outcomes, while information management-communication are more associated with means to such ends. The final column is labeled evaluative orientation. By this we mean the specific-organizational characteristics upon which an analyst may choose to focus.

The Specific Problem: The World View of Systems Designers

It is not unusual for people in a given profession to share a set of values and perspectives that are very different from the values and perspectives of people in other professions. This perspective becomes their dominant social paradigm or world view. It is a mental

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FIGURE 1: ORIENTATIONS AND VALUES IN ORGANIZATIONAL ANALYSIS

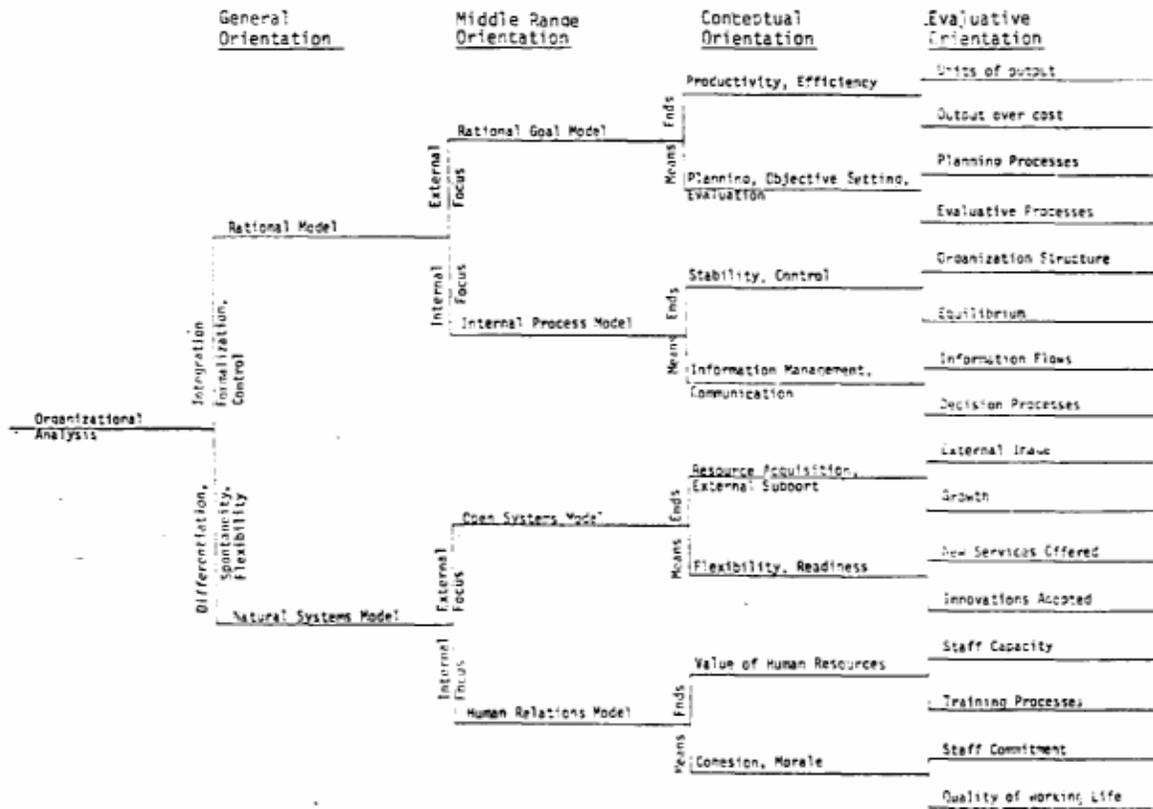


image of social reality that guides expectations in a group or society (Pirages and Ehrlich, 1974).

Since the days of Taylor and Weber analysts and planners have been encouraged to see organizations as rational, goal seeking mechanisms. This perception is so dominant that Georgiou (1973) argues that it has become a paradigm that is rejected 'only when it loses its potency following the occurrence of a quasi-religious conversion experience.' He goes on to point out the difficulties with the goal paradigm;

Organizational analysts have been unable to cope with the reality of organizations because their vision is monopolized by an image of the organization as a whole; an entity not merely greater than the sum of its parts, but so superior that it is effectively divorced from the influence of the parts. The whole is regarded not as the product of interaction between the parts, but as determining them. The organization is endowed with a personality while the individuals constituting it are de-personalized, role players in the service of the organization's goals. Although it is generally recognized that individuals participate in organizations to attain their own goals; that organizations must adapt to these ends if they are to persist; that adaptation is Continuous as organization members exploit the opportunities they find and create for increasing their rewards; this recognition nonetheless has little impact on the basic conceptualization of organizations.

Georgiou argues that organizations are more fruitfully viewed as cooperative, incentive distributing devices. They are "Market places whose structures and processes are the outcomes of the complex accommodations made by actors exchanging a variety of incentives and pursuing a diversity of goals (Georgiou, 1973)." The emphasis here is on the processes, exchanges, or transactions between the individuals and groups that make up the organization.

Returning to Figure 1, the argument here is that most people, and especially systems designers, use the values and concepts in the top half of the diagram to view the organizational world. Differentiation, spontaneity, and flexibility are not easily integrated into their paradigm. Seeing organizations as systems of mutually dependent relationships, where all members have some power, as a market place where actors are exchanging a variety of incentives and making numerous informal adjustments, would require stepping away from a set of cognitive structures that have taken years to develop. As Georgiou indicates it normally would require a "quasi-religious conversion to alter the paradigm.

OD and MIS: Doomed on the First Date

Given the above problem it might be expected that the literature on Management Information Systems and Organizational Development would begin to come together. On the one hand we have all the difficulties that the System Designer faces in doing diagnosis and implementation. On the other hand we have a field that specia

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lizes in diagnosis and the modification of human systems. Nevertheless, few systems' designers are even aware of the field known as organization development (OD) and few people in OD have become involved in facilitating the development and implementation of large scale computer systems.

Given such complementary needs, why do the two fields fail to come together? One answer is communication. The assumptions made by practitioners in the two fields are so contradictory that even the most basic understandings fail to emerge. For example, recently the author observed a consultant, trained in organizational development, talking with a systems designer about an implementation problem. The OD person tried to talk about system wide diagnosis, people owning diagnostic data, and participation in developing a change process. Each time the consultant finished, the systems designer would suggest that an expert be hired to come in and present a lecture on overcoming resistance to change. After an hour and a half of talking past one another, the conversation ended in complete frustration.

The scenario typifies the problem that exists. The two professions operate with entirely different paradigms. From the point of view of the organization development, how does an OD consultant communicate with a systems designer? How does one introduce a new paradigm?

Applying the Steel Ax

In considering the above questions it is clear that one thing will not work. The lecture is a loser. No matter how hard we try, we cannot talk someone into a new paradigm. This suggests that as change agents we would do well to practice what we preach. We might do well to avoid the rational empirical approach (the lecture) and try something more experiential.

Here we will consider an intervention with which the author has had considerable success. Its objective is to open the mind of the participants to a less rational model of organizations and thus make it possible to consider some alter-native approaches to the change process. The intervention follows a simple three step process.

In the first step an attempt is made to clarify the groups' existing paradigm. This is done by asking them to discuss the following questions:

What are the basic steps in designing an MIS?
What are the predictable problems?
Why do the problems occur?

Their collective answers are recorded on newsprint or a blackboard. They are allowed to elaborate the answers in any way desirable and no comments or evaluative statements are made.

In step two a very short case study, originally adapted from Sharp (1952:6992) by Roger and Shoemaker (1971:335-336) is employed. Participants are provided with the first half of the case which reads as follows:

The tribe was the Yir Yoront, who traveled in small nomadic groups over a vast territory in search of game and other food. The central tool in their culture

was the stone ax, which the Yir Yoront found indispensable in producing food, constructing shelter and obtaining warmth...

The method of study used by Sharp (1952) to investigate the Yir Yoront is that of participant observation, in which a scientist studies a culture by taking part in its everyday activities. In the 1930s -an American anthropologist was able to live with the Yir Yoront for thirteen months without seeing another white man. Because of their isolation, the natives were relatively unaffected by modern civilization until the establishment of a nearby missionary station in recent years. The missionaries distributed a great many steel axes among the Yir Yoront as gifts and as pay for work performed.

Before the days of the steel ax, the stone ax was a symbol of masculinity and of respect for elders. The men owned the stone axes, but the women and children were the principal users of these tools. The axes were borrowed from fathers, husbands, or uncles according to a system of social relationship prescribed by custom. The Yir Yoront obtained their stone ax heads in exchange for spears through bartering with other tribes, a process which took place as part of elaborate rituals at seasonal fiestas.

When the missionaries distributed the steel axes to the Yir Yoront, they hoped that a rapid improvement in living conditions would result.

When participants finish reading the first half of the case they are asked to discuss the following questions

What were the objectives of the missionaries? What assumptions did the missionaries make about the change process?
Predict what some of the outcomes of the change process will be. Give reasons for your predictions.

In the third step, after recording the answers to the above questions, the second half of the case is distributed. It reads as follows:

There was no important resistance to the shift from stone to steel axes, because the aborigines were accustomed to securing their tools through trade. Steel axes were more efficient for most tasks, and stone axes rapidly disappeared among the Yir Yoront.

However, the steel ax contributed little to progress; to the disappointment of the missionaries, the Yir Yoront used their newfound leisure time for sleep, "An act they had thoroughly mastered." The missionaries distributed the steel axes to men, women, and children alike. In fact, the young men were more likely to adopt the new tools than were the elders, who maintained a greater distrust for the missionaries. The result was a disruption of status relations among the Yir Yoront and a revolutionary confusion of age and sex roles. Elders, once highly respected now became dependent upon women and younger men and were often forced to borrow their steel axes.

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The trading rituals of the tribe were also disorganized. Friendship ties among traders broke down, and interest in the fiestas, where the barter of stone axes for spears had formerly taken place, declined. The religious system and social structure of the "Yir Yoront became disorganized as a result of inability to adjust to the innovation. Later, the men began the practice of prostituting their daughters and wives in exchange for use of someone else's steel ax.

Once again, a set of questions are proposed:

List the outcomes of the change process. Which outcomes met the objectives of the missionaries?

How do you explain the match or mismatch between original objectives of the missionaries and the outcomes of the change process?

What are the parallels between the nature of the tribe and the nature of an organization?

How is the introduction of the steel ax like the introduction of a computerized information system?

What principles might a person learn from this case that would be useful in planning a change in the technology of an organization?

Summary:

The purpose of the above exercise is to help people see an alternative to the rational paradigm. To help them see the organization as an interpersonal marketplace where historical contracts around identity, status and information flows are invisible and unrecognized unless brought to the surface by some type of crisis such as the introduction of a management information system.

After many applications, the exercise has always been successful. Systems designers find the case easy to comprehend and the parallels to organizational life are very clear. Invariably they begin to ask questions about how to handle such problems. At that point the author usually finds it much easier to introduce the concepts and techniques of organizational development.

REFERENCES

- [1] Coleman, R.J. and Riley, M.J., MIS: Management Dimensions (San Francisco: Holden-Day, Inc., 1973).
- [2] General Accounting Office. Problems found with governmental acquisition and use of computers: From November 1965-December 1976. December, 1976.
- [3] Georgiou, P. The Goal Paradigm and Notes Towards a Counter Paradigm," Administrative Science quarterly, 18, No. 3, 1973.
- [4] Kanter, J., "Impact of Computer on the Business Organization, Data Management, April 1972.
- [5] Kraut, A.J. "How EDP is Affecting Workers and Organizations," Personnel, 39, 1962, 38-59.
- [6] Meyer, M.W., "Automation and Bureaucratic Structure," American Journal of Sociology, 1968, 230-242.
- [7] Porat, M.U. The Information Economy: Definition and Measurement. U.S. Department of Commerce, Office of Telecommunications Special Publication, May 1977, 77-112.
- [8] Pirages, D. and Ehrlich, P.R. Social Response to Environmental Imperatives. (New York: Viking, 1974).
- [9] Quinn, R.E. "Towards a Theory of Changing: A Means-ends Model of the Organizational Improvement Process," Human Relations, 31, 1978a, 395-416.
- [10] Quinn, R.E. 'Productivity and the Process of Organizational Improvement: Why We Cannot Talk to Each Other.'" Public Administration Review, 38:41-45, 1978b.
- [11] Quinn, R.E. and Cameron, K.S. Organizational Life Cycles and Criteria of Effectiveness. Paper presented at the 40th Annual Meetings of the Academy of Management, Detroit, 1980.
- [12] Quinn, R.E. and Rohrbaugh, J. Toward a General Framework for Organization Analysis: A Competing Values Approach to Organizational Effectiveness. Paper presented at the 39th Annual Meetings of the Academy of Management, Atlanta, 1979.
- [13] Quinn, R.E. and Whorton, J. Computers and Public Administration: Predicting Resistance to Change. In J. Worthley (ed.), Computers and Information Systems in Public Management. (Englewood Cliffs, N.J.: Prentice-Hall, 1980).
- [14] Reif, W.E. Computer Technology and Management Organization. (Iowa City: University of Iowa Press, 1968).
- [15] Robey, D. "Computer and Management Structure: Some Empirical Findings Reexamined," Human Relations, 30: 1977, 963-976.
- [16] Rogers, E.M. and Shoemaker, F.F. Communication of Innovations. (New York: Free Press, 1971)
- [17] Whisler, T.L. The Impact of Computers on Organization. (New York: Praeger, 1970).