AUTOMATION AND ITS COMMUNICATIONS VACUUM

Jack Stanton, Arizona Highway Department

The "technical revolution" has produced concepts that are difficult to communicate clearly. The field of data processing/automation is certainly no exception in this respect. Colloquialisms peculiar to the data processing field have hindered effective communication between data processing personnel and management. In most instances, computer personnel sincerely try to communicate and provide the service function they represent, but many times they lose their audience because of the terminology they use.

Language is not the only barrier to effective communication among highway personnel. The complexities of modern highway business demands up-to-date information, and major resource commitments must be made to develop on-line, data-oriented information systems. We no longer can think in terms of the "payroll system" or the "federal-aid system." They all should be incorporated in a total financial segment of a management information system (MIS).

Another problem to be solved if automation is to be developed properly to serve the total needs of highway organizations regards the interdisciplinary confrontations experienced when developing an information system. Because the computer hardware capabilities have virtually removed the limitations of distance and time, we can no longer justify what I call "technical islands" of systems development. All organizational units must now gain an understanding of one another's responsibilities and how their efforts contribute toward the total goals and performance of the organization.

Another contributing factor to the communications vacuum is that too often the user (including management) does not exercise his responsibilities. In the early stages of automation, data processing personnel were eager to serve and accepted some functions that can only properly be executed by the user. In many respects this has not changed, especially in such areas as control, balancing, documentation, report format determination, and report distribution. Data processing personnel cannot serve as management and must not try to do so.

The belief that only the programmer can understand computer capability must also be overcome. Details of programming techniques are not required of the user, but a basic understanding of how an automated system is built and functions is essential.

How can this apparent overall communications problem be solved? We should start by removing the "magic" from how automated systems really work. Then, on a case-by-case basis, we should determine whether automation is appropriate and can truly solve the problem. Problems caused by improper supervision or bad manual systems design can many times be solved by methods other than automation.

The requirements for doing business today are many and require a multidiscipline approach to solving information problems. The formation of project teams that are composed of management analysts, systems analysts, and programmers seem to be one practical solution. Implied in this approach is the policy that the systems to be automated should have goals and objectives. If one cannot specifically define a problem and the proposed solution, chances are the solution is not sound and will fail. Thorough study and planning are essential; one must establish the number of people and amount of funds needed to do a pilot study in which simulation models are used to verify the paper plan. Too often we move directly from the paper design to the real world without making a pilot study.

There should be a top management advisory group that reviews the automation project requests, helps assign priorities for development, and endorses the commitment

of resources to accomplish the tasks. This should not be a rubber-stamp committee but rather one that represents the total interests of the organization. Many times it is at this level that the interrelationships of proposed changes can become more clearly defined. After implementation of any new system, a follow-up review or audit should be performed to see whether the system is performing as planned.

Finally, the importance of using computers correctly must be transmitted to all levels. As we commit more and more work to automation processes, we become more dependent on them for survival.