Editor's Comments

What Does the CIO Need to Know About Information Technology?

I guess I'm showing my years in the MIS field. Over much of the history of the MIS profession senior professionals were accused — legitimately, for the most part — of emphasizing technology over business needs. There may still be some CIOs around who cling to this old technology bias, but you would be hard-pressed to find one among leading organizations. At any randomly selected SIM conference, for example, the topics under discussion in the meeting room and in the halls are likely to concern such matters as linking the MIS plan with strategic business needs; "bits" and "bytes" rarely can be heard (except as terms of derision).

This is no doubt a healthy sign of the growing strategic orientation of the MIS function. It's any easy decision to choose between a competent technician or a competent manager to head MIS activities. (Just for the record, I would choose the competent manager!) I would argue strongly, however, that an effective CIO needs to have sound insights about the technology. There is some danger, I think, of losing sight of this need.

The MIS profession has made impressive progress in selling senior management on the notion that information technology has a strategic role. The CIO is increasingly being brought into early discussions about many of the critical issues that face the organization. That is entirely as it should be. It is hard to see how an organization can improve its performance with respect to most of its critical success factors without exploiting information technology. Lower costs, improved quality and reliability, increased responsiveness to customer needs — you name it, information technology is likely to provide one of the most fruitful avenues for improvement. Given the startling transition from an era of information scarcity to one of abundance that has occurred over the past decade or so, it should not be at all surprising that innovative new approaches to solving business problems very often require a significant infusion of information technology.

Talk of strategic information systems doesn't come to much if we can't deliver on the promises. That's where first-rate technology enters the picture. Efforts to develop new systems often bog down because we continue to apply development methodologies of the '70s to opportunities of the '90s. Flexible and adaptive systems — a key ingredient of a viable competitive strategy — require a powerful infrastructure to support their development. Few organizations have the imagination and foresight to map out a long-term implementation strategy to meet future needs; it is much easier to invest in an enabling capability that allows the organization to exploit opportunities as they emerge.

What are the components of such an infrastructure? Surely among the most important are the following:

- A telecommunications network that provides worldwide interconnection of computers and devices at selected capacities and response times.

- A mechanism for managing and sharing data throughout the organization.

- A productive environment for developing and maintaining application programs.

- A set of standards and procedures that provide an effective envelope within which users can develop many of their own applications.

- A high-quality, trained support staff that facilitates problem solving by users.

The provision of such an infrastructure calls for a high order of technical competence. No organization can legitimately claim that it has solved all of the problems associated with such an undertaking, but some have moved quite far in the right direction.

It is interesting to observe that the articles included in this issue's special section of SIM case studies — a reasonable indicator of the state of the art in developing successful IS applications — all rely

on excellence in technology. The same can be said of almost any of the high-payoff applications that are now opening up within the MIS field. Building a strong partnership with users, for example, implies an ability on the part of the MIS organization to deliver on its promises. The use of information technology to improve organizational coordination offers one of the most exciting prospects for making a dramatic contribution to the organization's competitive posture, and it too calls for first-rate technology in communications, database management, and software development.

None of these comments necessarily speak to the opening question, what does the CIO need to know about information technology? Not too many would argue, I suppose, against the proposition that competence in applying information technology is a necessary — but clearly not sufficient — condition for building an effective information system. A more controversial issue is the extent to which success depends on the technical competence of the CIO. The CIO should be expected to provide leadership in identifying and implementing information systems that enhance the organization's ability to flourish in a tough world. Clearly this is not just a matter of understanding technology, but lack of such understanding would surely hinder the CIO's ability to provide a vision that balances business needs with practical implementation considerations.

The argument for the importance of technical skills can easily be misunderstood. Detailed programming skill is hardly a mark of a technologically competent CIO (although the chastening experience of programming provides a useful reign on one's optimism in setting implementation objectives). The really critical skill for the CIO is the ability to calibrate the technical competence of others to whom one looks for technical advice. An important related skill is the ability to assess alternative technical approaches to solving a business need. These are by no means undemanding requirements, but neither are they so impossible to satisfy that the CIO need rely solely on luck or intuition in dealing with the technical aspects of the job. The CIO may learn these skills through experience in the trenches, but it is not unreasonable to expect a bright executive without such experience to acquire the necessary technical skills through a concentrated quick study. My concern is that some senior MIS executives may feel the effort would not be worthwhile.

James C. Emery