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## Editor's Comments

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# Transformed Information Systems Management

Information systems management has been, or currently is, a career choice for many of our subscribers and a subject of considerable interest to many of those that aren't. With so many experts in our audience, I approach this essay with some trepidation, particularly given that my predecessor, Jim Emery, editorialized on a similar topic just 18 months ago.<sup>1</sup> Nevertheless, I have long been a curious observer of the roles and responsibilities of the senior information systems executive, and addressed the topic some years ago in the *Quarterly*.<sup>2</sup> Based on contacts with information systems managers over the years it is apparent to me that we are now in a period of unparalleled transformation of information management. To help us better understand this transformation, we present in this issue two articles that look squarely at the role of the information systems executive. A third article provides a fascinating look at the relationship between the senior information systems executive and the CEO. Still another article, co-authored by a senior information systems executive, illustrates IT management's new role in helping to transform Corning Glass' information systems division toward quality and team-based management.

Some contend that IT must be managed as a business within a business. But would anyone ever willfully design a firm that is so complex? Services range from software selection, systems development, and maintenance on one hand to online access, data storage, and communication networks on the other. In between are information centers, group decision support facilities, emerging technology centers, and consulting services. Some of these products must be accessible in a fraction of a second with near perfect reliability, while others gestate over several years of evolutionary development, renegotiation, and missed deadlines. The customer set is equally varied both in its understanding of technology and in its enthusiasm for IT-based solutions. The single supposed area of commonality, the information technology itself, is remarkable for its diversity, speed of obsolescence, rapidly changing economics, and the vendors' skill in unrealistically elevating customer expectations.

This complexity fosters a variety of nightmares. Irwin Sitkin recently asked 20 information systems executives to identify their biggest problems.<sup>3</sup> My reanalysis of these problems produced a list of over 60 "migraines." Among those identified were the familiar issues of managing the expectations of clients, allocating IT resources, revitalizing legacy systems, and trying to open up the systems development bottleneck. But there were also the newer challenges of living within flat or declining budgets, giving up power to self-managing work teams, reskilling the IS work force, fighting off the advances of outsourcers, or migrating toward client server technologies.

There is a tendency, I fear, to blame the lack of obvious solutions and the continued turmoil in information management on failures in management, scholarship, or both. Although there is ample room for improvement in either area, we can neither escape nor forget that the turmoil we are all embroiled in is economically driven. Both the form and function of information systems within the organization has been and will continue to be redrawn by dramatic changes in the economics of the underlying technology. The economic advantage of software packages relative to made-to-order software and the migration

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<sup>1</sup> Emery, J.C. "Editor's Comments: What Role for the CIO?" *MIS Quarterly* (15:2), June 1991, pp. vii-ix.

<sup>2</sup> Ives, B. and Olson, M.H. "Manager or Technician? The Nature of the Information Manager's Job," *MIS Quarterly* (5:4), December 1981, pp. 49-63.

<sup>3</sup> Sitkin, I. "IS Executive Interview Series," Institute for Information Studies, Northern Telecom, in Association with the Aspen Institute, 1992.

of economies of scale advantages from mainframes to microcomputers has fundamentally reshaped the IT landscape over the last decade. That landscape will continue to change for the foreseeable future as, for instance, multi-media, pen-based, and cellular technologies all piggyback on the economies of scale that will be realized through mass market consumer applications.

As the minicomputer manufacturers found themselves squeezed between micro and supercomputer manufacturers, so too will internal information systems suppliers continue to be squeezed between end users and external IT providers. Client server technology, workstations, open system, local area networks, easy-to-use graphical user interfaces, and internal and external data warehouses will feast on those situations requiring rapid development of flexible and effective solutions. Outsourcers, package and turnkey providers, and consulting firms will meanwhile be biting away at those applications where efficiency, adherence to standards, economies of scale, or special technical expertise take center stage. The underlying economics inexorably and continually change the ground rules. Thus, the transformation will continue despite the best intentions, or the best interests, of information systems executives and scholars.

In the 1970s and early 1980s the information systems manager was a big cowpoke perched on a small horse. That information technology horse was controlled by the reins of standards, the fence posts of a single hardware vendor policy, or the spurs of resource allocation committees. Today, there are dozens of IT mustangs within most organizations, and they are often unbridled, untamed, rapidly gaining in strength and stature, and roaming into the pastures of customers, suppliers, and other neighbors. The IT managers' reins, spurs, and fences have been replaced by the sugar of vendor discounts, high-quality information systems support, and the promise of the mutual benefits that will arise from integrated architectures, organizational learning, or economies of scale. Table 1 captures just some elements of this transformation. The monopolistic, support-oriented, production-focused IT function has, for the most part, been driven out by the free-market, strategy-oriented, marketing-focused IT function we see around us today. And, in the not too distant future, as one information systems executive predicts,<sup>4</sup> there is the possibility that "the IT function will be very much like an Alka-Seltzer tablet dropped in a glass. It will have gone away and will exist throughout the entire organization."

Managing information technology in this increasingly uncertain world requires a good view over the horizon and the flexibility to respond to new demands, new directions, and new opportunities. An excellent view of a volatile business landscape is often best provided by a mutually beneficial relationship between the information systems executive and his or her most senior customer—often the CEO or business unit head. My reanalysis of the IS executive interviews mentioned previously identified four recurring themes characterizing effective IT-related communications with the CEO. These themes include (1) linking IT to the business, (2) communicating in the language of the business, (3) demonstrating the ability to

Table 1. The Transformation of IT Management

Past	Today
Manage the Supply of IT	Manage the Demand for IT
Computers	Networks
Monopolist	Free Market
Support the Firm	Strategic Necessity
Produce	Acquire & Market
Data & Information	Skills & Knowledge
Automation	Re-engineering
Programs & Systems	Data Models & Architectures
Proprietary Systems	Open Systems

<sup>4</sup> Michael Simmons, quoted in Sitkin, I. "IS Executive Interview Series: Interview with Michael Simmons, Executive Vice-President Technology & Operations Group, Bank of Boston," Institute for Information Studies, Northern Telecom, in Association with the Aspen Institute, 1992, p. 24.

attract the commitment and partnership of other company leaders, and (4) providing education opportunities for the CEO and other senior executives. In this issue, Feeny, Edwards, and Simpson look closely at excellent and poor relationships between information systems executives and CEOs. The relationships they describe as excellent share the attributes identified above. These information systems executives were seen by their CEOs as members of the top management team and as sensitive to the needs of the business. They all shared an understanding with their CEO of the business and technology. CEOs participating in excellent relationships were also likely to have participated in education programs related to information technology.

A solid relationship with the senior management team provides an early warning system and an opportunity to influence strategy. By itself it does not, however, guarantee a responsive organization. Responsiveness will require supportive relationships with peer managers who will serve as IT project champions and sponsors. In both the Stephens, et al. and Applegate and Elam articles we see that information systems executives are spending far more time working directly with managers in other areas of the firm than were the information systems executives we observed 12 years earlier. Stephens, et al. watched information systems executives at work and report some of the specific mechanisms used to establish close ties with peer managers. A university information systems executive, for instance, worked out at the university's gym so as to "keep up his contacts." Another IS executive served as the "scribe" at strategic planning meetings. These executives downplayed their position power while building up personal credibility and influence. The title of chief information officer, a large work force, ponderous project approval processes, a failure to be proactive, and a technology mindset can all interfere with developing supportive relationships.

A network of external relationships will also benefit the information manager. Forums such as The Society for Information Management provide an opportunity to learn from other firms and industries and to quickly share advances in a rapidly changing world. Discussions with executives from major customers, suppliers, or channel partners might also pay rich dividends. So, too, we hope, will proactive participation in various university programs, advisory boards, and research projects.

Responsiveness also requires an effective mechanism for quickly meeting demand for IT-related solutions. The delays inherent in the systems development process are impediments to keeping IT aligned with the business and to building credibility. Providing rapid technical solutions to problems requires a willingness to turn quickly to external or user-driven solutions. Many information systems managers can quickly describe, though usually off the record, their "outsourcing defense," but a smaller number can delineate their "outsourcing strategy." Economics again dictate that an increasingly smaller percentage of information technology solutions will be provided through internal sources. Periodically this list, as well as the outsourcing criteria and qualified vendors, must be re-examined as prices continue to fall, systems become easier to use, and the technical and business environment changes. The increasing dependence on external suppliers will, in turn, change the requirements for internal skills. Retraining programs will be required to retool back-office systems developers as front-office business analysts or end-user consultants.

The transformation of information management must also transform information technology research and education. One advantage of boating in a turbulent stream is that you can easily identify those solid foundations that stand steady amidst the onrushing water. In the world of science, these are the disciplinary foundations into which we drive the pillars of scholarship. These pillars thereafter should serve as guides to both practice and subsequent research. But over the past decade there have been few IS disciplinary pillars that have successfully withstood the turbulence.

The search for these disciplinary pillars, so fundamental to membership in the university community and the successful navigation of promotion and tenure committees, cannot blind us to the rapid change that continues to engulf us. In no way can this be more damaging than if we fail to carefully manage the transformation of the information systems education process. As Professor Richard Watson, of the University of Georgia, recently pointed out to me, we do our undergraduate IS majors no favors if we train them for the COBOL/CICS jobs that industry is moving away from and for which there is already an excess supply of experienced talent. We must prepare them for the IT world of the future, not the

world of the past. Not only must we reshape our curriculum, but we must take a very hard look at the market we are serving. As the Alka-Seltzer tablet dissolves we will find our graduates dissipating throughout the organization. This will have implications regarding both their education, which will need to be more interdisciplinary, and for the way they seek jobs. Moreover, one common source of our inspiration—advisory boards of information systems executives—may no longer be able to provide the breadth of perspective we will require.

Information systems education can, however, help us to reshape our research agenda. Industry understands that they must now re-engineer rather than just automate outdated methods. But within the information systems research community we continue to value an extensive trail of references that often reflects outdated assumptions and yesterday's economics. We are not necessarily paving the cow path, but rather extending it. It is a rare article that explores the implications of changing economics on the central research question or that challenges the dated assumptions upon which past works might have been based. If we are to re-engineer information systems research we must spend less time pouring over the archives and more time soaking in innovative organizations. It is there, rather than in the rear view mirror, that the realities of the transformation of information management will become apparent. Fortunately, this knowledge will also better prepare us to meet our educational responsibilities and to address another market, recognized earlier in this essay: the need for executive education in information technology, a growing opportunity that business schools increasingly have abandoned to consultancies and vendors.

Information systems executives have no option but to ride an ever changing IT boat down the turbulent river of information management. Some will serve at the helm, others will tow an ineffectual but irritating anchor, and not a few will be tossed overboard. Rather than just wishing them the best of luck, the academicians among us might take a critical look at the underlying foundation of our current research traditions and then consider jumping aboard. We promise both an exciting ride and that the *Quarterly* will value the research outcomes.

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Three years ago we significantly increased the size of our editorial board with the appointment of a large and distinguished group of associate editors. With this issue those individuals rotate off the board after serving us with distinction. We are most appreciative of their effort, enthusiasm, and creativity. They include Gad Ariav, Robert Benjamin, Niels Bjørn-Andersen, Timothy Paul Cronan, Sidney Harris, Miles Kennedy, Frank Land, Hans Oppeland, Suzanne Rivard, and Frederic Withington. This issue also marks the completion of Michael Ginzberg's term as senior editor for theory and research. Mike has provided us with excellent leadership for that important department and I know that Jim Emery valued as much as I have Mike's sustained commitment to a very challenging set of responsibilities. I am delighted that we can continue drawing upon Mike's experience as he has agreed to rejoin the Editorial Board.

—Blake Ives