

INFORMATION PROFESSIONS

The Chief Information Officer: Rise and Fall?

The Chief Information Officer (CIO) has become a highly placed executive in some larger organizations, both public and private. It seems ironic, however, that CIOs and records managers—both denizens of the growing information management field—seem to know so little of each other. This article analyzes some of the complex issues which surround—and sometimes obscure—the CIO position. Based on this analysis, records managers may wish to rethink any aspirations they may have toward this lofty, but increasingly beleaguered, post.

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The Chief Information Officer (CIO) is a relatively new and often controversial position in the business environment. In those organizations which employ CIOs, the positions are highly placed and filled by well-compensated senior managers. As practitioners in a significant information discipline themselves, records managers might well be interested in and, perhaps, concerned about the CIO's roles in the information-management arena. They might also wonder how that position's scope and duties might affect the records manager's functions and future. Is the CIO, for example, really in charge—or likely to be—of all information resources in larger organizations? To what degree is this role an encroachment into the records manager's domain? To what extent might it be a partnership in the making? Is the "CIO" really little more than a "promoted" Management Information Systems (MIS) director, a highly paid technocrat with a new title? Does the

CIO help organizations reduce costs and improve productivity through the use of information technology? How is this role different from that of the records manager? Does the CIO help the company compete by optimizing uses of information systems (IS) as strategic weapons?

If CIOs are successful in these areas, why is the position so frequently maligned? Why do so many larger organizations forgo the services of a CIO—or drop the use of one after an initial hire? Should records managers be concerned about the rising and falling stock of the CIO? Does a series of mixed reviews for this information technology (IT) chieftain hint at an improved organizational positioning for the records manager, whose own technological savvy is developing?

While one would assume a great interest on the part of records managers in addressing these questions about the CIO, the records management literature on this topic is virtually silent.¹ As strange as this near void might seem, just as perplexing is that fact that the term "records management" is practically

unknown in the CIO literature. Because the CIO concept has such potential importance for the records management community, we believe that a better understanding by records managers of the trials and triumphs of this position is needed.

DEFINITION, BACKGROUND, AND THE RECORDS MANAGEMENT CONNECTION

As coined by Synnott and Gruber in 1981, the term "CIO" identifies the "senior executive responsible for establishing corporate information policy, standards, and management control over all information resources."² The emergence of Synnott and Gruber's definition coincided with the shift in computer usage from accounting (data) to more creative (information) work.³ This was a fortuitous coincidence because the responsibilities of and need for the CIO, as later inventoried by Stephens, could not have emerged without this shift in computer work. Stephens sees among the CIO's creative tasks the development of information resources (IR) policy, strategic planning for IR, coordina-

tion of IT, educating management on IT, and environmental scanning.⁴ Stephens' study, however, adds that unlike the MIS chief, the CIO is not bound to a single functional area.⁵ Boyle and Burbridge add that the CIO is more than just the top IT manager because the CIO has authority to initiate corporate change as the executive with "broad" responsibility for IT.⁶ Given this new plateau of responsibility for organizational computing, it is easy to see why the CIO position has brought with it advanced requirements in education and experience, has attained an exalted status, and has unofficially been labeled the "computer czar."⁷ (In fact, the typical CIO does have an advanced degree in Computer Science or a Master's in Business Administration—or both.⁸)

Much is made of a related CIO responsibility: developing information management (IM) policy and setting related administrative guidelines for the organization. Pember-ton, for example, suggests that whether a "business" is a "government agency, a for-profit company, or a non-profit organization, it needs an upper-level manager in charge of information resources."⁹ In describing the CIO as a type of architect, Miller says the CIO's job is to translate the overall organizational plan into an architecture that best uses technological opportunities.¹⁰ Terese Welter sees this change in how information is viewed and used in another way: the main reason for the creation of CIOs in the 1980s was that information came to be viewed as a hub, not a spoke. That is, with the proliferation of computing, data processing moved from being a company support tool to being a pervasive corporate asset.¹¹ In her examination of three individuals serving in the CIO role for their respective companies, Welter observes that the two primary CIO functions are: (1) to keep abreast of technological applications and (2) to exert a company-wide influence, if not direct power.¹² An actual CIO who reflects her observations regarding CIO power is the Vice President for Corporate Administration [i.e., CIO] at Aetna Life, who calls himself "the senior executive in charge ... of synergism." This self-assessment stresses the point that the CIO may

not make the big decisions—but definitely influences them.¹³

From the records manager's point of view, what does the emphasis on the CIO's IM responsibility mean? The *Job Descriptions* directory issued by ARMA International puts the CIO at the top of the IM hierarchy: [the CIO] "has organization-wide responsibility for the use and management of information, technology, and administrative services."¹⁴ This job description goes beyond a mere technological role by highlighting as a position requirement the ability to "analyze overall business and financial strategies and objectives in order to provide services, technology, and support."¹⁵ Despite the top honor held by the CIO position in the *Job Guidelines*, how many records and information managers report to the Chief **Information** Officer in their organization rather than to a lower and more traditional level such as the head of administrative services? How many records managers have themselves achieved the CIO rank? If the CIO is really in charge of information, not merely computers, then how much insight does he/she have into records management, archives management, and the corporate or technical library, which are unquestionably centers of information resources management?

With a goal of providing records managers additional insight into the value—and viability—of the CIO position, we provide some discussion of the complex and often ambiguous issues of identity, roles, and influence that surround the CIO. We suggest, too, some indicators of where CIOs have been successful and where they have failed. We will also question some of the more precarious premises under which the CIO is forced to operate. Finally, we will note the rise of a new—and possibly competing—type of information executive in the corporate community. Ultimately, the future of many current records managers may depend upon how well they understand the evolving information needs of and politics in organizations, which continue in a mode of turbulent change (e.g., downsizing) **and**, perhaps most importantly, with which of a number of information executives they might best align themselves.

WAVES OF CHANGE— FLOOD TIDE, EBB TIDE

The influence of the CIO position—and the proactive technological know-how that accompanies it—is the historical rationale behind the creation of CIOs. Strassmann emphasizes that the worst idea a Chief Executive Officer (CEO) could have is to hire a CIO with the notion of delegating IT responsibility to the "information expert."¹⁶ The reason this is a bad idea is that it is an "abdication of essential [CEO] powers." This problem is compounded by the CIO's nebulous role of making information systems efficient and effective, an evolution from the earlier role of deciding specifically where and how to apply these systems.¹⁷ This CIO role, that of IT advisor rather than IT decision maker, is a new one in the relatively brief history of this position. During the post-Synnott build up in the mid- to late-1980s, corporations hired CIOs with a fad-like zeal. Indeed, the in-search-of/passion-for excellence guru himself, Tom Peters, indicated that the CIO phenomenon was, in fact, a fad, that it was an excuse to pin a fancy title and high salary on the same MIS directors already in place in most companies.¹⁸ This (and other reasons covered under "CIO Failures," which follows) led to the backlash against CIOs that occurred toward the end of the 1980s and early 1990s.

Boyle and Burbridge's assessment (1991) stresses a more rational and broader approach. They find that the CIO idea should not necessarily be dismissed, but neither should companies feel compelled to routinely hire and keep CIOs.¹⁹ Instead, they stress the importance of organizations assessing the actual need for a CIO based on strategic, organizational, and environmental factors (discussed in detail later). At about this same period of ebb tide for the CIO, Rothfeder and Driscoll admit that it has become a perilous job, one which seemed to have a bright future only a decade earlier.²⁰

Stephens' larger study (1995), however, emphasizes that the four main reasons for the creation of the CIO role have not changed: corporate survival, restructuring, competitive advantage, and the "new paradigm" are still the drivers.²¹

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The “new paradigm” refers in this case to the presence or absence of a CIO within an organization as “a leading indicant” of how effectively that corporation is riding Alvin Toffler’s third wave of change.²² Reflecting on this inexorable force of change, Stephens later ties in the “restructuring” concept by noting that internally the CIO is—or should be—a key player in companies’ transitions from large, centralized hierarchies to the smaller, decentralized, “flat” organizations better positioned to compete.²³

Boyle and Burbridge point out that although IT restructuring is new, “[c]orporate structures have always been defined by information flows. The only recent change is that these flows have been automated and now make up a greater share of the value most companies add directly to their products and services.”²⁴ An advantage to this change is that companies can now use IT to integrate their operations with those of their field salesmen, suppliers, and customers—even their engineering staffs and customers’ customers—because IT has finally gotten fast, powerful, portable and inexpensive enough.²⁵

A central problem now, however, is keeping up with this technological revolution. With new technologies constantly being introduced and improved on, companies can easily go into “technology overload.” Boyle and Burbridge quote a U.S. Chamber of Commerce finding that “investment in information technology now [1991] constitutes 50% of all US capital investment and is increasing at a rate of 15% annually.”²⁶ Along with this growth came a heightened interest in and appreciation of the value of information. This, in turn, increased corporate interest in managing information. Borbely points out, however, that information is a very difficult resource to value and to manage.²⁷ Further complicating this difficulty in managing IT is that the shift from mainframes to personal computers has dramatically local-

ized the once-centralized control that MIS managers had over corporate computing.²⁸ Yet another entangling factor in this equation is the reality that many more managers are now involved in technological decision making and activities.

This increasingly complex and changing face of IT has been a primary driver for creating the CIO position. Welter, however, quotes the president of one company who inserts a note of caution and cites an important preliminary step to creating the CIO slot: “executives must figure out ... why their IS organization isn’t working before they think of establishing a CIO position.”²⁹ Many companies felt forced to prepare the way for the CIO, though not merely as a fad as Peters predicted. Technology’s growth compelled some companies to place in their boardrooms a long-term information strategist, one who reports to the CEO (or president, or other ranking company officer) and oversees the company’s technology, data processing, office systems, and telecommunications planning.³⁰

CIO: ACCOUNTABILITY, ROLES, AND RESPONSIBILITIES

The issue of who supervises the CIO is worth consideration both for its historical and political contexts. In the 1950s, when the person in charge of information systems ran the mainframe room—often the same MIS chief who sometimes evolved into the CIO—he or she (though not very often “she”) reported to the Chief Financial Officer (CFO).³¹ This arrangement made sense because the mainframe’s primary task was number crunching relative to accounting and payroll functions. Over the years, however, the MIS chief’s job has matured as the organization’s view of information has, and it seems only natural that this discipline would seek equal status as the fifth corporate function, added to the traditional functions of marketing, manufacturing, personnel, and operations.³²

Used as an indicator, reporting relationships suggest that information has not yet truly achieved the desired status as a corporate asset. Strassmann, for example, polled 350 firms, of which only 5 percent have their information systems

function report to a CEO.³³ Boardroom status for the CIO is as yet nowhere equal to that of those who control the finances, operations, or personnel even when relatively old numbers are compared with absolutely old data. Stephens contrasts 1988 with 1968, stating that 80 percent of “top IS managers” reported being within two levels of the CEO in 1988; this percentage was 44 percent twenty years earlier (1968). In 1988, 27 percent of senior IS managers for “Fortune 100” companies reported directly to the CEO; this figure was only 12 percent in 1968.³⁴ However, using the 1988 period and the “Fortune 100” as the modern measure is misleading since CIO usage peaked at about this time, and the largest 100 companies in the U.S. are more likely than others to have a senior person in charge of information management. Only two years later (1990), in a survey of 300 individuals in the CIO position, Rothfeder and Driscoll reported that a mere 8 percent were directly supervised by the CEO or company president.³⁵ Lack of proximity to the top executive, however, may not be all bad, as Boyle and Burbridge indicate. It could be that a CEO not comfortable with technology may have the CIO report to the CFO or the Chief Operating Officer (COO).³⁶ Distance, then, from the CEO is not necessarily problematic—but very likely it is. Boyle and Burbridge, for example, cite a 1987 study in which 70 percent of CEOs said they expect IS to provide competitive advantage; however, only 39 percent said their company’s senior IS manager was actually meeting this need.³⁷ This disconnect between CEO expectation and CIO performance may, in some cases, prove fatal.

The CIOs’ visibility dilemma is twofold. The commodity they control for the organization is not as quantifiable as the financial resource—or even those of operations or of personnel. Any money CIOs save the company is usually derived from cost avoidance measures, and these may prove to be merely one-time savings. Another difficulty is that CIOs are not practiced in trumpeting the value of information management to those who never

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give it much thought. This two-sided dilemma will be addressed again, but for now—looking at the CIO from the CEO's perspective—it is easy to see why the top information executive is not a top corporate player: CIOs do not bring in capital; they spend it! As advisors (staff function), they lack line authority and the power and prestige that accompany it. And, as Strassmann points out, unlike the CEO and the CFO, the CIO has no financial responsibility to shareholders.³⁸

Even so, Welter says of the three CIOs on which her study focused, each was in the position because upper management had had the vision to harness IS as an asset.³⁹ Her use of past tense here is telling, recalling that corporate president who said that a company must figure out why its IS is **not** working **before** hiring a CIO to fix it. This makes it even clearer that the CIO's relationship with top management is vital not only to the company's success—but to the CIO's as well. Bock et al predict that despite the earlier indications of fadishness, the CIO will not fade away soon; in fact, he presumes the position will last as long as top executives are not computer literate. His hope is that by the time they are, widespread use of computers for competitive advantage will drive CEOs to want a "trusted peer" in the CIO position.⁴⁰ For the present, though, the commentators admit that support from the CEO is the CIO's best guarantee of staying power. If the CEO does not feel the need for this function, the CIO will not last.⁴¹

Nearly as important as who the CIO reports to is the support he or she receives from the board. "As an officer and decision maker of the organization, frequent contact is made with senior officers, divisional/department management, and outside sources to assist in completing strategic goals."⁴² That is, the CIO's main contacts are top management and business manager clients. One of the CIOs in Stephen's work calls himself "a scribe for the

senior seven."⁴³ While this self-deprecating sobriquet shows that the CIO may be in the thick of boardroom discussions, it also indicates, at best, his new-kid-on-the-block status. Rothfeder and Driscoll paint an even more depressing reality with their study, which shows that only 2 percent of CIOs are on their corporate board and only 40 percent are even on a senior management committee.⁴⁴

This absence of status as a top insider harms in two ways: peer support and communication. First, CIOs cannot thrive without the support of the vice presidents and their peers in other areas because without that support they cannot succeed in the crucial role of keeping those with customer contacts informed.⁴⁵ Of course, the reality is not that the corporation is not keeping informed, but that it is getting its information directly, rather than in a coordinated manner through the IT staff. Speaking to this problem, Boyle and Burbridge suggest that the proliferation of personal computers is a *de facto* decentralization of information systems. They support this claim based on findings that show that IS expenditures **outside** of the central IS budget are as large as those within it.⁴⁶ This, of course, could be a positive indicator since information technology is best served by an open and "enabling infrastructure."⁴⁷ What is more likely, however, is that IT is not getting the same management attention as do the company's finances, human resources, and operations under the possibly misguided belief that "anyone can figure it out." It is here that a communication gap between the IS professionals and the business managers can hurt the company even more than the CIO's lack of peer support. Since top managers are business-minded first, they may not recognize what they do not know about how effectively IT might be applied.⁴⁸

This is not to say that the days when the MIS chief had a monopoly over IT use were necessarily better or that business managers now are merely information-seeking amateurs. In fact, "as younger people move in, people who are more comfortable with new technology, IS is understood to be much more than just another way to spend money."⁴⁹

At the same time, though, information resources keep evolving and are becoming as complex as other formal, distinct business undertakings such as personnel and marketing.⁵⁰ While this rising complexity should be enough to keep business professionals on edge about using the technology, it does not change the fact that senior executives are concerned about improving the company's return on large-scale IT investments.⁵¹ Indeed, the increasing sophistication and power of technology encourages this expectation. However, this bottom line thinking has not translated into consideration of a CIO on the same level as a CFO or Chief Legal Officer.⁵² The two main obstacles to this happening for the CIO appear to be based upon a fear from peers about one person "controlling the information" and upon an increasing resistance from all sides about creating yet another layer of management—especially in an era of corporate flattening.⁵³

Much of this fear and resistance stems from the early years of MIS when these employees—and their machines—were literally and figuratively separate from the business functions they supported. Many sources state emphatically that the successful CIO today must be a business person first. Stephens adds that the CIO must maintain an overall view of business needs, be able to cross departmental bounds, be able to innovate, and communicate.⁵⁴ One subject she interviewed, the Vice President for Information and Management Systems of a lighting company, put it this way: "We're about lighting, not about computers."⁵⁵ Rothfeder and Driscoll modify this view only slightly by saying that information equipment is a commodity like any other in the organization. To address and overcome these issues, the CIO must prove he or she can use IT strategically.⁵⁶ Strassmann adds that even in the early days, the best MIS directors learned to respond to customers rather than sit on their monopolies.⁵⁷ Now that the CIOs no longer have information monopolies, this customer service mandate even more so is just smart business.

This phenomenon of transcending technology is supported by the findings of a survey, cited by Strassmann, in which of 236 businesses,

two-thirds of the top IT posts went to people with purely business backgrounds and only one-third to those with computing backgrounds. Even more telling for the modern CIO, a version of the same poll given years earlier found the result to be half and half.⁵⁸ Even so, the banking giant Citicorp made John Reed, an information technology expert, their CEO. Boyle and Burbridge, however, see this unusual event as an implicit acknowledgment that fundamentally the bank sells information, not merely financial services.⁵⁹

Strassmann lists as one of the top CIO responsibilities the assessment of how well the company's IM plans are aligned with its business plans.⁶⁰ His point is that the CIO should not merely promote technology for technology's sake but focus on contributing to the way the corporation operates. Many commentators emphasize how a CIO is in an excellent position to impact business operations positively. Pemberton echoes Strassmann's notion in stating the CIO must straddle the separate worlds of business and technology, aligning the two.⁶¹ He points to the broad range of information services the CIO—or someone in a similar role—should be supervising: records management, office systems, data processing, telecommunications, corporate libraries, and others.⁶² Miller continues this litany of roles in his description of the CIO as "facility or resource manager" with responsibility for managing the computer center, supporting software systems, managing staff development, managing the budget, and, of course, handling crisis management.⁶³

All sources make clear that although technical skills are important to the job, managerial skills are paramount. Borbely states that although the CIO is both a manager and technician, he or she is not only more of a manager, but a manager **first**, then an IT specialist.⁶⁴ Bock et al offer more pragmatic reasons—based on recent history—why this is a good attitude to adopt. The authors point out that in the early 1980s, when the personal computer was just taking off, computing expenditures in corporations rose an average of 18% a year. However, as early as the mid-1980s this expense dropped to 9%. With this, the CIO's role shifted to one more in line with

that of peers: cut the budget and impact the bottom line.⁶⁵ This step was not as easy as it sounds since the next step technology-wise was that of integrating the computers through networking.⁶⁶ Here is where the "straddling both worlds" fits in: CIOs had to show that the improved monitoring and control of production levels would more than offset the costs required for the hardware and training necessary to make computer networking successful. (Then as now, senior managers expect value to exceed costs.)

This expectation of value addition is also where the CIO-as-manager, rather than CIO-as-"techie," applies. As one MIS researcher put it, "[CIOs] should speak enough computer-ese to be snow-proof with subordinates,"⁶⁷ but, as Bock et al point out, CIOs should be more interested in **what** works—the manager's concern—than **how** it works—the technologist's interest. They may know the technology, but, more importantly, they must know how to manage—add value to—their piece of the business. One CIO, when it was pointed out that he had no computer in his office, replied that he does not need the tool day to day because he deals primarily with people.⁶⁸ This emphasis on awareness, organizational communication, and human resources should be the case for any senior manager—including the CIO.

Boyle and Burbridge emphasize this supremacy of people skills over technology skills by giving people-oriented "charisma" its own section in their essay. They stress that personality and management style have more impact on a CIO's success than the strategic, organizational, and environmental factors that form the bulk of their study.⁶⁹ This is so because a CIO needs to win support for IS. Rothfeder and Driscoll hint that an effective personality may offset weak positioning among peers: "[W]ithout a secure power base, even a visionary CIO is likely to lose the political struggle with other executives."⁷⁰ That is, when the "old-liners" clash with the CIO, it is an easy bet who will lose. This is why charisma ranks equally with technical skills, if not managerial skills. In fact, Miller says "the selection of a CIO is usually based on his or her decision-making and interpersonal skills."⁷¹

This may sound biased, or at least unclear, but this hiring decision makes sense when considering the CIO's unofficial duties as diplomat, protocol officer, and influencer of the company's public image.⁷²

This is not to say that business, managerial, and technical skills are not important. They are, but typically there is an MIS chief—whatever this function may be called in a specific organization—who usually reports to the CIO in companies that have both. While the MIS chief is there to worry about the technical aspects, the CIO is more concerned with the strategic uses of IS.⁷³ The belief that MIS directors will not become extinct is supported this way: "While the Chief Information Officer is the captain of the ship, there's a [continuing] need for a person in charge of the engine room."⁷⁴

Yet, continuing the nautical analogy, the IT "ship" is not the only one in the fleet that makes up the corporation. The skippers of the older, bigger ships (e.g., finance, human resources) have a difficult time seeing the need for (or otherwise understanding) this potentially troublesome newcomer. The fleet admiral often is not sold on the need for the *USS CIO* either, and this failure can be the most critical.

CIO SUCCESSES

Once the hurdle of deciding what "successful" means is vaulted, the makings of a successful CIO are not too complex to determine. Several sources suggest that when a CIO becomes CEO, the position will have arrived. (This accomplishment has occurred, however, only in the case of John Reed of Citicorp.) One other CIO did move "up" to become vice president of marketing. However, this particular CIO's background was in sales and accounting.⁷⁵ And therein lies an important clue to CIO success. Stephens paraphrases O'Riordan's six characteristics of the successful CIO as someone who:

- Is a business person,
- Can understand technology from a business perspective,
- Is able to maintain an overall view of business needs,
- Is able to cross departmental boundaries,
- Is innovative and flexible, and
- Is able to communicate well.⁷⁶

Strassmann adds that corporations may be mistaken in viewing the

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CIO's skills as too narrow and technical to qualify him (or her) for higher positions.⁷⁷ He asserts that it would be a good move for companies to use the slot as an executive development training ground. That is, fill the job internally with someone the board would consider promoting out of the position in three or four years.⁷⁸ A danger here is that the MIS chief and those at lower IS levels may get the idea that their boss is just someone passing through a revolving door job on the way to bigger, better opportunities. However, the three to four years suggested should be time enough to dispel this notion.

Prior knowledge and skills seem to play some role in the success of CIOs. The "Education/Experience" section in ARMA International's description of a CIO position indicates that a CIO should have an advanced degree in a field relevant to the business, eight or more years of management (including two as a senior manager), and background in information resource management, administrative management, and telecommunications.⁷⁹ However, requisite knowledge and experience are but parts of the equation—perhaps only small parts.

Boyle and Burbridge suggest that adaptation to the "corporate culture" has a greater effect on CIO success than even a company's need for a CIO does.⁸⁰ They float this idea by way of insisting that one of the CIO's main jobs is that of working with managers to assure common IS architecture and standards. The successful CIO is one who not only maintains intra-company compatibility but compatibility with the information technology used by customers and suppliers as well.⁸¹ Miller agrees but (surprisingly) suggests that the CIO's real problem is **not** with customers and suppliers but in marketing IS solutions to his own often-ignorant and apathetic management and employee base. Miller explains that no matter how good the technology is, if the employees reject it, it will not work. He

also notes that the opposite is true: no matter how cumbersome a technology is, if the workers want to, they can make it succeed.⁸²

Perhaps this phenomenon explains why, as Bock predicts, the most successful CIOs will come from sales and marketing and have a technology/information background as well.⁸³ He points out that teaching managers the technical side has worked better than trying to teach those technically strong the added management skills necessary to succeed.⁸⁴ Many observers also note, however, that the CIO's best chance at success depends on the CEO fostering an organization that breeds ideas (transformational managing) rather than in a scenario in which managers make safe, incremental changes (transactional managing). As one source puts it, the CIO should be not just another manager, but an entrepreneur "fundamentally altering the competitive equation by proactive, strategic use of information technology."⁸⁵

If these alterations succeed, the CIO's reward may be more work since any functional unit has an increasingly important information component. One CIO's portfolio included marketing research, the print shop, and even the mail room. Another supervised not only these last two functions but also the travel department, facilities management, personnel training, and the company's art gallery!⁸⁶ This menagerie of duties suggests a continuing CIO problem: it still lacks predictable role and scope criteria.

On a more positive note, the CIO's ultimate area of organizational improvement includes having a direct effect on external clients. Two examples of this role relate to initial improvements made by the Pillsbury CIO. He implemented closer monitoring in the food group to fill grocery store orders better and improved inventory replenishment for Burger King (which Pillsbury owns).⁸⁷ While this CIO is confident his changes will improve the bottom line in three or four years, his immediate goal was the prompt improvement of customer service.

CIO FAILURES

Some of the difficulties of the CIO must, in part, be laid at the feet of one or more faulty premises. One such assumption in some orga-

nizations would be that the only worthwhile source of information is a computer. If the CIO is, in fact, merely a chief IT officer, then he/she is—however foolishly—forced to operate under this premise and the assumptions that "all information needs are computer applications" and that "the only worthwhile information is internal and is resident on our computers." There are examples without number which daily refute such specious assumptions: the engineer who uses hard copy technical reports or patent information provided by the corporate library from external sources, the Chief Legal Officer who reviews boxes of hard-copy files from the records center in reply to a court's discovery order, the office manager who asks the records manager about retention requirements for a records series (electronic or otherwise), the marketing director who surveys turn-of-the-century catalogs from the corporate archives looking for ideas on marketing a "collectibles" line of products, or the strategic information specialist who scans the external environment to provide daily updates to senior management on the activities of competitors and rising socio-economic trends which will affect the organization.

Today, all information professionals themselves use computers as tools, of course, but it is—and will continue to be—the information, rather than the tool, that is important. Those necessarily restricted to one set of tools by their occupational focus (i.e., computer specialists) must work from crippling assumptions, which include "ends are subordinate to means"; "tasks are secondary to tools." A preoccupation with equipment invokes The Law of the Instrument: "Give a small boy a hammer, and everything he sees needs to be nailed down!" In corporate terms, "Bring me a computer, Jones, I feel like making a decision." When a senior manager, however, is knowledgeable about and able to lead **all** types of information services and functions needed in organizations—including records management, archives, libraries, and MIS—the use of "Information" in "CIO" becomes even more credible.

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Two highly respected and senior authorities on management—Robert Anthony and Henry Mintzberg—realized years ago that there are different types of information needed at different levels in organizations for different categories of need. Some of these needs lend themselves superbly to computer processing; some do not, and this difference may strike fear in the souls of chief computing officers and developers of so-called executive information systems (EIS). In a study of general managers, for example, Mintzberg realized that the needs and activities of managers were:

fundamentally indistinguishable from their counterparts of a hundred years ago. The information they needed differed, but they sought it in the same way—by word of mouth. Their decisions concerned modern technology, but the procedures they used to make them were the same as the procedures of the nineteenth century manager ... Brevity, fragmentation, and oral communication characterize the work.⁸⁸

This realization of the divergent—rather than cookie-cutter—character of information resources means that there is a set of false assumptions under which persons must work who insist that the computer is the answer to all information needs. Among those assumptions are:

1. *Most management information needs are of an internal origin.* Were this assumption valid, accounting data and other related internal “numbers” would suffice. Mintzberg’s and other studies show, however, that “managers spend as much time [in communication] with peers and other people **outside** [emphasis supplied] of their units as they do with their own subordinates, and, surprisingly, very little time with their own superiors. ...”⁸⁹

2. *Information needed will be precise, clinically accurate, and*

without speculation or “guessing.” If this were the case, the computational and rapid updating features of computing would be highly prized by all. Mintzberg and others have found just the opposite: “managers cherish ‘soft’ information, especially gossip, hearsay, and speculation.”⁹⁰

3. *Information of value will be written down and will appear on CRT screens or on paper printed out from computers.* In contrast, Mintzberg notes that every study of managerial work, including his own, has found that “managers strongly favor oral media—namely, telephone calls and meetings.”⁹¹

4. *Information needed by managers will be aggregated, provided at precise and regular intervals, and will be of the type provided by formal management information systems.* Mintzberg finds that the manager “perpetually scans his or her environment for information, interrogates liaison contacts and subordinates, and receives unsolicited information, much of it as a result of the network of personal contacts he or she has developed.”⁹² In fact, the “strategic data bank of the organization is not in the memory of its computers so much as it is in the minds of its managers.”⁹³

While much of Mintzberg’s analysis relates to higher-level managers, the strength and consistency of his findings—and those of others—are strong enough to call into question the notion that today all information work is computer work.

With findings and insights on this topic consistently similar to those of Mintzberg, Anthony develops a clear sense of the differential characteristics of information needed and valued by those at three levels: senior management (strategic), middle management (management control), and operational management (task control level)—see Figure 1.

Like Mintzberg, Anthony found that different types of information were needed for varying purposes at different levels in an organization. That the characteristics of information needed and desired at the strategic level defy computer application raises some interesting ques-

tions about the concept of the strategic uses of information. The difficulty that CIOs have had convincing their peers—and the CEO—of the strategic uses of information may have a partial explanation in the inherent resistance of information for strategic purposes being “computerized.”

Research more recent and in greater depth than that of Mintzberg and Anthony supports their earlier findings. A project, for example, undertaken by McKinnon and Bruns and published as *The Information Mosaic* (1992), is one striking example. Like others, the authors of this study **assumed** that information and information systems revolving around accounting functions would be the most heavily used in organizations. They found, instead, that “accounting information is only a small part of the information used by most managers.”⁹⁵ This study also revealed that “the characteristics [of information needed by managers] show why managers have been slow to adopt new information technology. Personal sources are trusted; timely information in desired forms that support personal mental modes is usually easy to get; and technology is sometimes unfriendly, unreliable, and untrusted.”⁹⁶ Their publication, incidentally, nowhere mentions the CIO.

Direct use of computer-based systems by those at higher management levels is, indeed, uncertain. From surveys of Fortune 1000 companies’ CEOs, Stephens provides a statistic indicating that 58% of them do not use personal computers.⁹⁷ If the CIO’s role, in part, is to offset the CEO’s lack of knowledge about computing, this finding would seem to bode well for CIO longevity. However, alongside this CEO statistic is another which states only a fifth of CEOs see the need for IS in top management.⁹⁸ This mindset may—along with a personal lack of attention to computers—help explain the lack of interest in CIOs on the part of many CEOs and the comparatively large CIO dismissal rate that occurred around the turn of the decade.

In 1989, 13% of CIOs lost their jobs—in contrast with 9% for all top executives.⁹⁹ One reasonable interpretation of this finding is that in the information environment, only

INFORMATION FACTORS	STRATEGIC LEVEL	MANAGEMENT CONTROL LEVEL	TASK CONTROL LEVEL
Source of Information:	External	Internal	Internal
Nature of Information:	Related to the external environment	Financial core; external & internal; expected & desired results	Mostly non-monetary; actual; model of the operation
Focus:	Not hierarchical: topic under study; programmatic	Hierarchical; both programs & responsibility centers	Specific transactions
Quantity:	Much data needed for analysis; little data <i>per se</i> given to decision maker	Summaries; exceptions	Details
Accuracy:	Rough	Fairly accurate	Accurate
Time Constraints:	Speed not crucial	Speed more important than accuracy	Real time is critical
Repetitiveness:	None needed	Yes	Yes
Stored Data:	Relatively unimportant	Important	Important
Structure:	Tailor-made	Formal & informal	Systematic
Formality:	Low	High	High
Level of Summarization:	High	Moderate	Low
Currency:	Trends	Fresh/current	Current
Time Orientation:	Future	Past/current	Current

Figure 1—Anthony's Information Characteristics Table⁹⁴

significant money savings get noticed by the top executives. With CIOs in the job for five years by then, any of the major changes and achievements had run their courses already and were playing back only steady, if not flashy, dividends. One of a manager's greatest sins, conventional management wisdom tells us, is that of being boring, and one consultant explained a certain CIO's firing this way: "He hadn't hit any homeruns."¹⁰⁰ From the CEO's point of view: "What have you done for me lately?"

For those who do not get fired, Strassmann is equally unapologetic in explaining that CIOs do not advance because the COO and CEO jobs go to those who bring in the money.¹⁰¹ Rothfeder and Driscoll relate the view of the CIO role as money spending and not money making as a backlash against the early days of MIS "empire building,"

when the "computer guys" measured their success by the equipment they controlled, not their influence on the bottom line.¹⁰² Pemberton echoes this sentiment, recounting that "the self-serving nature of the senior computer executive becoming the CIO can be laid at the door of the powerful computer community."¹⁰³ He explains the notion that the CIO idea is ultimately doomed since those in the job often lack the qualities necessary to be successful. If by nature they are good at the technical IS aspects, they may, by nature, tend to be cautious, logical, and inexperienced as communicators and promoters.¹⁰⁴ This is why many sources emphasize that the CIO needs to be a business person first, then a technical support representative. However, CIOs who have a general business background may be unsuccessful at conveying the information

management function to the CEO and board. Miller admits that MIS directors promoted into the CIO slot have been a disappointment but says this is due to their not getting the time and opportunity to develop business-sense skills. He adds that this problem is further complicated by the relative newness of the whole CIO concept.¹⁰⁵

Duffy and Jeffery take the newness angle to the next step, asserting that where the CIO idea should be heading is improvement of "end user" information systems through an ongoing interchange of ideas and actions.¹⁰⁶ Bock et al agree that the CIO position has not yet matured and offer an opinion about what is holding back this maturity: "The old-line technocrats weren't concerned with holding down line costs" as they kept to the roles comfortable to them, the number-crunching, book-balancing act.¹⁰⁷ One problem

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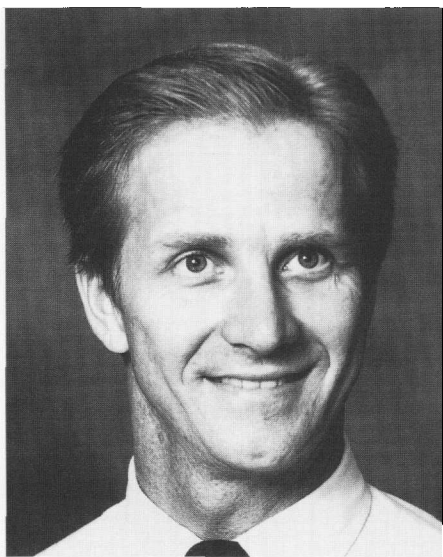
here is that no one else in the company views this role as strategically important; another problem is that this was the main reason CIOs with "business credentials" moved up to the six-figure salaries while the "old-line technocrats" were relegated to the nuts and bolts of computer management.¹⁰⁸

ANOTHER SPECIES OF INFORMATION EXECUTIVE?

As if matters were not confusing enough, new types of information executives seem destined for the management pantheon. The latest addition, one whose importance is established by Peter Drucker's widely-read discussion of knowledge-as-capital in *Post-Capitalist Society* (1993),¹⁰⁹ is the Chief Knowledge Officer (CKO). CKOs have been hired at Coca-Cola, Young and Rubicam, Burson Marseteller, Xerox, Hoffman-LaRoche, McKinsey and Co., GE Lighting, Coopers and Lybrand, and elsewhere. While the CIO "is typically interested in data, the chief knowledge officer ... must identify what corporate knowledge needs to [be] retained and built on."¹¹⁰ Overall, the CKO's focus is on developing the organization's "know-how," or its intellectual assets. This scope includes employee training to bring more knowledge value to the organization now and in the future. Further, one analyst suggests that the CKO is:

the designer, implementer, and overseer of an organization's knowledge infrastructure, including its libraries, knowledge bases, human resources (HR), computer knowledge networks, research centers, and academic relationships. The CKO will be the primary liaison between external providers of information and knowledge.¹¹¹

Among the functions of special interest to records managers is the CKO's role in optimizing "access to institutional memory ... [by devel-



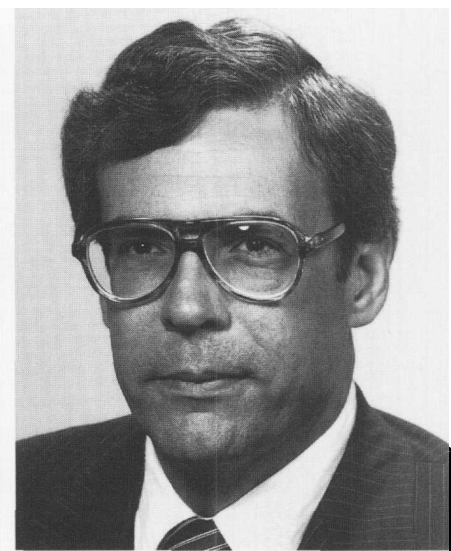
AUTHOR: Jeffrey B. Romanczuk is a research analyst at the Oak Ridge Institute for Science and Education (ORISE), a Department of Energy (DOE) contractor in Tennessee. In this capacity, he has reorganized the records management function of one DOE operations office's training division and written several procedures to guide the operations of another. Jeff also worked as production coordinator, supervising the activities of six desktop publishing specialists and archiving projects for a 130-person division. Prior to joining ORISE in 1993, Jeff served for seven years in the U.S. Air Force, as an information management officer at various locations.

Jeff has fifteen years of experience in information work, dating back to his two years as a high school English teacher in the early 1980s. He holds a Bachelor of Science degree from the Pennsylvania State University and is enrolled in the Information Sciences masters program at the University of Tennessee, Knoxville.

oping] a file of sources consulted, work done [on projects] and the outcome. The result is a handy library ... available to all employees."¹¹² While the domain of the CKO—knowledge—appears to be at a level higher, or more inclusive, than that of the CIO—data and information—it is unclear as yet what the relationships—or competition—between these two managers will be like. Will we, as one wag suggests, see this evolution of managers taken to its logical conclusion—or foolish extension—through the incarnation of a Chief Wisdom Officer?¹¹³

CONCLUSIONS

At the very least, the emergence of the CIO position is an indicator of a growing need to manage effective-



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Mike is president of and senior consultant for Information Management Associates, Inc. (IMA), of Knoxville, Tennessee. IMA has won records management needs assessment contracts for Johns Hopkins University, the University of Missouri system, and the government of Knox County, Tennessee. During 1983-85, Mike served as his university's first Records Management Officer, initiating their records retention program, campus records center, and micrographics operations.

For sixteen years, Mike's been active in ARMA International at the local, regional, and international levels. He was the first academic elected to ARMA's Board of Directors and served a two-year term (1993-95) as a Vice President (Region III). He has served on several Board committees and has been chair of ARMA's Education Committee, chair of the Industry Specific Group for Educators, and chair of the Publications and Research Development Committee. He served as President of the East Tennessee Chapter and was the Chapter Member of the Year in 1983. Currently, he is member and chair of the Joint Committee of ARMA International/Society of American Archivists.

Mike has written 55 books and essays and made 60 invited presentations in areas of information management. He is the sole two-time winner (1990 and 1995) of ARMA's Britt Literary Award for the best article in *Records Management Quarterly*. In 1987, Mike became a Contributing Editor for *Records Management Quarterly*, for which he writes "Perspectives," a column covering professional issues in information and records management.

He graduated from the University of the South (Sewanee) with a BA in 1964 and has a Master's in English, a Master's in Library and Information Science, and a Ph.D. in English.

ly the information resource, which grows both in volume and value on a daily basis. However, the problems encountered by CIOs, outlined above, suggest that the roles and scope of the CIO are, at best, imperfectly defined. We believe that an incarnation of the CIO-as-technocrat is problematic in that it creates an excessive focus on tools and thus marginalizes information—and its ultimate value. Equipment, then, rather than the information can become the central resource.

While the computer industry might like this kind of tool-over-task focus to continue indefinitely, we believe its end is near, heralded by a new generation of computer-literate managers, who themselves understand the technology, embrace it where appropriate, and are increasingly able to articulate and "sell" its value to their units. This increase in computer sophistication across the organization calls into question elements of the CIO's original value in its mid-1980s heyday and pushes the CIO role toward more nebulous, even impossibly diffuse, goals, which include the strategic uses of information, development of IR policy, and the coordination of decentralized applications of technology.

We do not question the value or importance to larger organizations of a senior manager in charge of information resources. Nor do we for a moment doubt the value of this figure's understanding of all computing areas (e.g., platforms, networks, multimedia capabilities, etc.). We believe that reason and reality, however, dictate that a person in such a position should be knowledgeable about information of all types and all origins (i.e., internal and external) and all the organizational functions and services that continue to supply, manage, and facilitate the uses of information (e.g., records management, archives, libraries).

Yet is it the entity called a "CIO" who will most effectively address all information functions and roles? Probably not. The CKO position, however, takes a more comprehensive approach, transcends the technology-centered view, better understands information and knowledge as assets, has a better chance of acceptance by other senior executives, and, at the same time, can incorpo-

rate the functions of the CIO. The emergent CKO appears to address more effectively issues of information content, meaning, and use in ways understandable to his/her board-room peers whose resources orientation seems even more compatible with the CKO than the CIO. While much remains to be seen, we believe that records managers should watch the development of the CKO with care.

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CONFERENCE CALENDAR

June 11, 1997: Philadelphia, Pennsylvania. The Liberty Bell Chapter of ARMA International will present its annual Spring Seminar featuring a two track program with Susan Diamond offering the basics in building a records program, and Tom Ruller providing the requirements for managing electronic records. Location details to follow. For more information contact Kathy Ewing at 610-359-6884 or Patricia Vickers at 215-898-9432.

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