A CEO's-Eye View of the IT Function:

Introduction

Information technology has become an increasingly important component of both daily operations and strategic initiatives in many industries. Classical roles for IT include providing desktop tools for personal productivity applications and access to corporate financial and sales data. High technology industries make additional demands on information technology, such as increased communication requirements due to geographically dispersed manufacturing facilities and the need for prompt access to process control data.

As the breadth of IT's impact on the organization has been growing, there has been a corresponding rise of the position of the senior IT executive in the corporate hierarchy. By 1989 more than a third of American senior IT executives reported to the CEO (Hayley 1989). However, recent newspaper accounts and anecdotal evidence indicates that this trend may be reversing.

The potential conflict between increasing use of information technologies and decreasing stature of the executive responsible for managing that growth led us to examine the views held by chief executive officers (CEOs) about IT and senior IT executives. This article provides insights about what CEOs expect of the CIO and the IT function, drawing on interviews with CEOs of high technology companies located in Silicon Valley. Actions by senior IT executives to more closely align their behaviors with those expected by CEOs are offered. Although our discussion is aimed at CIOs or other senior IT executives, the recommendations are of value to all managers within the IT function.

Related Research

Only a handful of studies have been conducted into the relationship between CEOs and CIOs. The most relevant looks at CEO/CIO pairs in 14 large organizations based in the United Kingdom (Feeney, Edwards, and Simpson 1992). This research suggests three broad sets of attributes of "excellent" CEO/CIO relationships:

- *CEO attributes* - general management or marketing background, change-oriented leadership, attended IT "awareness" seminars, experienced IT project success, perceives IT as critical to the business, positions IT as agent of business transformation.
- *Organizational attributes* - personal/informal executive style, executive workshops on strategic issues, CIO accepted into executive team.
- *CIO attributes* - analyst background and orientation, promotes IT as agent of business transformation, contributes beyond IT function, accurate perception of CEO views on business and IT, integrates IT with business planning, stresses consultative leadership and creativity.

Of these attributes, a "shared vision of the role of IT as an agent of transformation" is singled out as the major determiner of successful relationships (Feeney, Edwards, and Simpson 1992).

Building on this and other work to describe behavior and characteristics of CIOs who "add value" to an organization, Earl and Feeny (1994) postulate that CEO behavior critical to setting the stage for such a value-adding CIO is to:

- Position IT and the CIO as agents of change.
- Focus on achieving effectiveness, not efficiency, from IT.
- Institutionalize business values for IT.
- Build an executive team that includes the CIO.
- Manage IT as integral, not as adjunct, to the business.

Watson (1990) studied 43 Australian IT managers and looked at how their communication patterns around key business issues affected their relationship with the CEO. He concludes that of five key issues (IT strategic planning, human resources in IT, developing an information architecture, aligning the IT organization with the enterprise, and more effective software development) only IT strategic planning is affected by the mode and frequency of communication with the CEO.

Jarvenpaa and Ives (1991) surveyed 55 U.S. firms about CEO support for IT. They determined that CEO involvement with IT (positive perceptions and attitudes concerning IT) was more strongly associated with a firm's "progressive" use of IT than CEO participation in IT (substantive personal intervention in the management of IT). They also found some support for the conjecture that young, highly educated CEO's from "output functions" (e.g., marketing, sales, and R&D), with short tenure in both the CEO position and with the firm, were most likely to have highly positive perceptions of IT.

Stephens (1995) conducted a detailed study of the work week of five "successful" CIOs in very large organizations. She provides a mass of information about time allocation, types and locations of activities, participants in interactions, and managerial roles assumed by CIOs. For our purposes, comparison of her results with those of similar studies conducted by Ives and Olson (1981) of six MIS managers and by Mintzberg (1975) of five CEOs is illuminating. Stephens' CIOs consistently demonstrated behavior patterns much more aligned with those of Mintzberg's CEOs than with those of Ives and Olson's MIS managers. This suggests that the CIO role is more *executive* management than *operational* management.

Activities

Our own substantial experience in the IT and management areas (including senior marketing positions for computer vendors, research on corporate executive management, time as a university CIO, and consulting) and rich conversations with a number of CIOs led us to believe that CEOs viewed IT differently than they did other functional areas of a company, and that senior IT executives were viewed differently than their peers in other

functional areas. We wanted to explore these issues in discussions with CEOs about the role of and performance of the senior IT executive within a company, the relationship between the CEO and the senior IT executive, and the CEO's opinion about the skills essential for success (in both the CEO and CIO roles).

We contacted six CEOs about this inquiry and each agreed to be interviewed, suggesting that these questions are also of importance to them. These CEOs represented a cross sample of high technology companies from software to hardware, telecommunications to manufacturing, as well as large and small size. All did business internationally and have revenues ranging between $80 million and $5 billion. Three of the companies had revenues above one billion dollars. In four of the six companies the senior IT executive reports to the CEO and is a member of the management team. In the other two companies, the senior IT executive is not a regular member of the management team and reports to the CFO or COO. Our interviews were conducted at each company's headquarters, tape recorded, and transcribed. Transcriptions were returned to the CEOs for possible further elaboration and/or clarification. Interviews averaged over 90 minutes in length.

Five of the CEOs had begun their careers in an engineering or scientific position; the other came from a finance background. Their experience within high technology companies ranged from 20 to more than 30 years, and they had been with their current companies for periods ranging from three to 38 years. Over their careers, each CEO had started with specialized functions, moved into sales or marketing positions, then into general management positions before becoming CEOs. All six CEOs fit Jarvenpaa and Ives' (1991) description of "involved" executives, and had created an environment that meshed well with Earl and Feeny's (1994) recommendations.

Interview Results

These CEOs were unanimously convinced that IT was critical to the success of their companies. As one said, "It's like air. It's everywhere and you can't live without it."

There was less agreement, however, about the difficulty of measuring the contribution of IT to the organization. Half of the CEOs felt IT's contribution was more difficult to measure compared to sales or manufacturing, where quantifiable data were available regularly and performance expectations could be precisely established. Those that felt it was not more difficult to measure often quoted personal satisfaction or the satisfaction of business unit managers as important evaluation mechanisms.

Four CEOs pointed out that CIOs had the opportunity for broader interaction across their company than most other functional area executives, due to the widespread application of information technology. The other two CEOs noted that, in their companies, there was an "open shop" attitude and *all* executives were encouraged to interact as broadly as necessary to perform their jobs, and that the breadth of involvement varied more over time than it did across function.

Despite this opportunity for widespread interaction within the company, CIOs do not always display an understanding of critical business issues. Two CEOs strongly emphasized this point, clarifying that what was really missing in CIOs was an understanding of the critical factors involved in *running* a line operation. Three CEOs had observed similar behavior in their CIOs, but believed that it was a matter of personal choice, since CIOs "have a mandate and really should be looking at all functions to understand all those things." The sixth CEO commented that in his company CIOs had always been selected from line management for their understanding of business issues, rather than coming from within the IT function.

These responses were somewhat surprising, indicating that CEOs had a greater appreciation and understanding of IT than we expected. But what was more surprising were CEOs' comments about the skills CIOs needed to succeed, and whether CIOs actually possessed these necessary skills. Equally intriguing was

the relationship between the skill set CEOs' considered essential to success as a CIO and those they considered essential to succeed as a CEO.

The skills needed to succeed as a CEO, around which there was considerable agreement, were these:

- *General management* - understands the business, understands the markets for the company's products, organizational development abilities, and a broad background in various facets of those activities essential to the company's success.
- *Strategic sense* - a "big picture" view of the organization, the ability to synthesize, calculated risk-taking.
- *Interpersonal skills* - communication, education, salesmanship, recruiting/hiring/growing staff, leadership.

The skills they felt were needed by a successful CIO were virtually *identical* to those for being an effective CEO. The only addition was an understanding of information technology at an architectural level, and an awareness of developing technologies that might be valuable to the company.

Other than technical knowledge, unfortunately, CEOs did not believe that senior IT executives demonstrated many of these essential characteristics. As one CEO explained,

"I felt pretty good with the technical skills that we had, but not very good with the general management skills of our MIS person - communication skills, organizational development skills, strategic business skills - I just didn't feel very good about those."

Furthermore, CEOs generally believed that senior IT executives did not exploit the opportunities that were available to them to gain these skills, particularly a broad, general understanding of the business. They felt this left most IT executives with inadequate interpersonal skills.

What Can CIOs Do About These Perceptions?

It is clear that the characteristics CEOs valued in a CIO were essentially the same characteristics that the CEOs felt they themselves needed to demonstrate leavened with enough understanding of IT to successfully use IT to solve business problems. They expect CIOs to demonstrate these characteristics and to exploit the relatively unique opportunities afforded by managing an organization whose contributions and involvement span the company. That this didn't happen, or wasn't happening, was of grave concern to each of them.

Distilling the results from our interviews and relevant research, we believe there are six initiatives a CIO *must* pursue to be successful in the eyes of these CEOs and their like-minded colleagues. These initiatives are:

- Developing a "big picture" perspective
- Enhancing interpersonal skills
- Raising awareness of the value of IT
- Reporting results
- Establishing relationships and increasing visibility
- Becoming a change agent

In the next section we look at each of these initiatives in greater detail and explore how senior IT executives can work to meet the expectations that CEO's have.

Developing a "Big Picture" Perspective

Synthesis, adopting a general manager's perspective and strategic skills, all involve holistic view of the world and the relationship of parts to a greater whole. In addition to the CEOs' personal feelings that these skills are necessary for success, there appears to be good empirical evidence as well. A classic series of longitudinal studies on career advancement (Clark and Clark 1994) identified only two predictors of whether a new hire would someday move to the top of the organization. One of those indicators of success was that the employee always had a bigger picture perspective than that demanded by their immediate position, trying to understand how their role fit into the larger context and how they could impact the larger system.

The power of a holistic perspective is expressed quite poetically by Philip Mirvis in describing two leaders:

"I depict these two leaders' world views as holistic - a complex and enlarged view of reality where mutual and reciprocal causation governs relationships between systemic elements. Rather than seeing organizations as comprised of parts of a machine, those who hold to this perspective see elements like strings on a harp. This world view forms the basis for a synergistic view of organization---where the whole is more than the sum of the parts---and allows people to imagine new possibilities for themselves and their companies." (Mervis 1992)

A big picture perspective is the opposite of being dragged down into technical detail. As one CEO commented:

"I see the traditional MIS person getting lost in the forest of technical stuff and using a jargon that is tough for other people to understand. I've watched that now for a number of years here, where it's difficult for, at least it was in our case, our MIS Director to kind of step back and say, 'This is the big picture. Let's try to get an agreement on that, then I'll go and worry about the small stuff.' We seem to immediately jump down to the smaller technical things."

The ability to engage in systems thinking is a related holistic skill. Paradoxically, the IS organization, who by title if nothing else, should understand systems thinking, understands it very poorly. In a recent training program that we conducted for over 200 information systems professionals, only two people from this group were able to adequately define the term "system."

Are IT professionals, who are predominantly task and problem-oriented, detailed, analytical, and deductive *capable* of moving to the opposite end of the spectrum? Our experience suggests that it is possible. Indeed, many of the CEOs we interviewed had been educated as engineers and had acquired their general management skills as they rose through the ranks of the organization. Perhaps, therefore, IT executives can follow a similar path and develop their general management skills by rotating through various cross- functional responsibilities on their way up the corporate ladder.

CEOs believe IT executives are very well positioned to understand the overall business and the linkages and interrelationships between businesses. In general, however, CEOs did not feel that CIOs exploited this capability. As one CEO related, "You (IT executives) have the opportunity to understand everybody's role but you fail to make the most of it."

When asked if CIOs have the opportunity to understand the business as well or better than anybody else, the reply was generally "Oh, yes!" or "I would say better. They have the opportunity. Whether they choose to or not, because remember we got personality ... they'll tend to be more introspective than extroverted, then they will self-select and close off a huge number of opportunities to really know what's going on." Here's how another CEO explained this potential opportunity:

"A bright, observant executive in that role has got to be learning more and having a broader understanding of the business than somebody who's just focused on one of the more line-oriented functions, stove-pipe, line- oriented functions."

Marrying this observation to the need for a broader perspective, this same CEO later commented:

"He loves the technology. He's already upset that he's not spending his day doing Unix coding, and so my guess is why a lot of CEOs might have that belief is because a lot of

CIOs haven't let go of the technical specialty of being an IS guy as opposed to leaving that and becoming a corporate executive, who by the way, has some license and some need to really understand all the different functions of the company."

It would appear that the "IT ground" is itself a fertile ground for IT executives to start the holistic development process.

Enhancing Interpersonal Skills

CEOs universally mentioned the importance of interpersonal communication. One noted that the CIO position is "probably the toughest communication spot in the company." Communication skills are important for ensuring that the accomplishments of IT are properly recognized. "You can produce some great results" explained several CEOs, "but if you can't explain them to people, they can't value what you've just done." Communication skills are also critical for determining needs and allocating resources. CEOs considered this a major part of the CIO's function: "They've got to find out from the other functional leaders what they want, and they've got to communicate back to them what they can get, realistically, because of either technology, costs, or time limitations."

IT executives typically understand the importance of communication. Stephens (1995) cites the finding of an Anderson Consulting survey of 120 IT executives in Fortune 500 companies that "'communication with top management, functional managers, and end users' was the most frequently cited concern (92%)." However, the CEOs we interviewed were in strong agreement that their IT executives did not perform well in this critical capacity. One said bluntly: "Straight up, he is the worst communicator of the senior level management." Other CEOs were less direct but similarly critical of CIO communication skills.

It may not come as a surprise that IT executives are not gifted communicators. After all, few have been trained or rewarded for communication ability in previous positions. Individuals who have progressed through a highly technical discipline (such as IT) are typically rewarded early in their careers solely for their technical skills. But as these same people move up the corporate hierarchy, hands-on technical skill becomes less important than the ability to attract and motivate other skilled technical people to carry out their ideas. This is why communication skills matter so much.

The fundamental communication skills are speaking and listening effectively, so one can truly understand the viewpoints and needs of those one interacts with. Earl and Feeny (1994) note that successful CIOs are "able to absorb and use the language of production or marketing and show understanding of and sensitivity to their colleague's concerns." Attending to non-verbal communication cues, such as attitude and body language, are also important to effective communications.

While communication skills are essential to effective interaction with others, there is a broader range of related interpersonal skills that CEOs felt CIOs needed in their toolkits:

- *Skills at recruiting, hiring, and managing* a staff of talented people are also essential. Certainly top quality IT people are scarce, and the ability to select and retain the best individuals is important to the success of the IT organization. But careful selection of staff becomes even more important at higher levels of IT management. CEOs recognize that being a CIO is a complex and demanding position, requiring a set of knowledge and skills difficult to find in one individual. If a CIO is lacking some essential characteristic, the CEO expects him or her to include those skills elsewhere in the IT organization: "You need to ... understand what you don't know, and then complement yourself and surround yourself with the appropriate skills," is how several CEOs put it.
- Because some of the IT executive's peers and superiors may not fully understand or be comfortable with critical technology concepts, *the ability to teach others* ways in which technology can help them achieve their goals is an important skill. Earl and Feeny (1994) noted that successful CIOs were able to "translate new ideas into pictures and understandable benefits." Here's how one CEO described this: "You've got to be an educator. You have to educate the people up and down the organization. To get any money you've got to educate me, and to get people to use it ... You can put the machines out there, and if nobody uses them, they're not worth anything." We would emphasize, as well, how important it is that CIOs educate their own staff on the relationship between technology and business issues.
- Many times, education goes hand in hand with *salesmanship* in order to convince senior managers and peers of the importance and effectiveness of IT to their own goals. Describing the sales aspect of the CIO position, one CEO said "You've got to convince people that you can really sell value and that it's worth their time dealing with you because you're going to make their job easier." Jim Barksdale, CEO of Netscape and one of the few CIOs to become CEO of a major company, emphasized this at a recent seminar: "You're more like a salesman the higher up you go in your organization. You need to sell your ideas. Great ideas unsold go nowhere." (Barksdale 1996)
- *Leadership* is another important interpersonal skill for IT executives. Many IT projects break new ground and involve a fair degree of risk. The CIO must engender trust and confidence in superiors, peers and subordinates that the effort will be worthwhile, and ultimately successful. Such trust stems from integrity, technical and business understanding, and a track record of previous success.

What can IT executives do to improve their interpersonal skills? For us, the important word is "skills." Skills are gained and improved through coaching and practice. CEOs agreed: "It's lack of coaching ... You develop skills if you have a good mentor and somebody that trains you in doing it." Even accomplished communicators can improve by modeling techniques successfully employed by others. Workshops and role-playing are important opportunities to learn skills. Individual coaching on listening, speaking without jargon, and presenting ideas from the other person's point of view can be invaluable (indeed, two of the organizations whose CEOs we interviewed were providing such professional coaching for their senior IT executive). Written follow-ups

summarizing verbal communication can help prevent misunderstandings. Continual concentration and practice are essential to improving.

Raising Awareness of the Value of IT

Another way for the IT executive to favorably impress senior management is through the use of marketing techniques to raise awareness of IT's value.

For example, Royal Bank of Canada hosted a three day symposium for senior management to which major customers were also invited. The symposium focused on themes such as "technology means business" and "in partnership we can do it together," and provided hands-on use of technology for all participants. After this particular event, their CIO commented, "These sessions changed the profile of IS in the bank and opened up the eyes of bank executives and customers alike to what is becoming possible." (Tapscott and Caston 1993) Focusing on how CIOs can create a more favorable impression with senior management, let us look at three possible marketing programs: executive education, hands-on executive use of IT, and IT strategic planning.

Executive Education

A powerful use of executive education is in creating a "first love syndrome." Essentially, one can do this with any new strategic area that emerges rapidly, and as a result, triggers some anxiety on the part of senior managers. This anxiety usually stems from the need to be "in control" and to provide leadership to the organization, yet not understanding what opportunity or threat the new initiative represents to the organization.

A perfect example was artificial intelligence (AI) in the mid 80s. At the time, leading periodicals were hyping the value of artificial intelligence, yet no one seemed to agree on what it was, or what it could do for the organization. We took the opportunity to conduct a one day AI seminar for senior executives and were overwhelmed with the response. Fifty eight senior executives attended the seminar, with another sixty four on the wait list. This was clearly an example of senior managers seeing a simple way to educate themselves and, therefore, to deal with their anxiety about AI. As a byproduct, one can earn undying loyalty from those whom you have educated - hence, the name, "first love syndrome."

Current areas in which this might be applied are numerous. The obvious one is the Internet and the Web. But there are also electronic commerce, client-server, the extended enterprise, groupware, knowledge management, etc. Any of these can used to create a "first love syndrome." The trick for an IS organization is to present them in a way that is relevant and meaningful to an executive audience. Here's an example: Client server technology has pretty much been accepted as a viable concept. However, much confusion still exists as to its real value to an organization. This represents an opportunity for the IT organization to educate its senior management as to its true potential in putting the person, the work and the technology together in support of the organizational mission.

Hands-On Executive Use of IT

Our experience indicates the IT function has not done a good job of helping senior managers use IT effectively. In those instances where they have helped them, it has usually been on the use of IT tools, for example, teaching them to use Excel, Word, or another software package. Senior executives often need to be taught how to use IT to do their job more effectively---in other words, to rethink the executive job. A fair job of redesigning business processes has been done and these same efforts could be directed at redesigning executive processes and looking at the way that IT can make a contribution to that effort.

The executives we interviewed were hands-on IT users. This use provided them a greater appreciation of the power and value of information technology. A great opportunity is being missed to educate senior executives on the use of IT in their own personal environment, and thereby, to raise their appreciation of IT's potential for the whole organization.

The leadership to do this must come from the IT organization.

IT Strategic Planning

In our interviews we heard CEOs commenting about CIOs' needing to be more strategic. Their preference was for a CIO "who is probably 60% strategic and 40% tactical." This represents another major opportunity area for the IT organization to raise awareness of their "strategic" role in the enterprise. Currently, a major strategic theme across many companies is "focus" - the need to create a singular image of the business for both insiders, as well as, customers. IT can help with this issue.

Recently, we developed an IT strategy for a company in which there was not a clear, "focused" corporate strategy. In this particular situation, we used the Value Discipline model to help the CIO develop three alternative IT strategies---one for each of the three value disciplines of product leadership, operational excellence and customer intimacy. She subsequently presented these three alternatives to the Chief Operating Officer (COO) with significant results. The COO was very impressed by the work and remarked, "It's obvious to me that we have to get our house in order before we can ask you to be clear on your strategy. I believe the Board would find your perspective very valuable. Would you please present this same picture to them?"

Another way to involve senior management in the IT strategic planning process is by having them participate with the senior IT executive in a multiple-day offsite meeting. The agenda typically consists of a half-day business strategy discussion, spent validating and clarifying the business strategy, followed by 1.5 days spent determining the best uses of IT in support of this strategy. We have done this numerous times with often dramatic results. As one IS executive we worked with remarked after one of these sessions, "This was fantastic. Now, for the first time, I really feel we have the CEO's support."

Reporting Results

In the previous section, we discussed the use of marketing programs in raising awareness of the value of the IT resource. It is also important to regularly and widely report the performance of the IT organization in achieving results that add value to the organization. Without such reports, senior management (and colleagues) can't be aware of the contributions of IT. As the esteemed marketing guru, Ted Levitt (1986), says:

"He'll only know when he's not getting what he bought, and that's all that's likely to count unless, in the interval, he's been made so regularly and persuasively aware of what he's been getting all along that occasional failures fade in relative importance."

There are a number of ways to report value. These can be accomplished without succumbing to the need to capture in the process a way to "blow our own horns." First, however, a baseline must be established against which results can be reported. Establishing job responsibilities and definitions of accountability, and providing performance metrics are three such techniques.

Senior management will not perceive the real value from information technology until they are conditioned to expect something different than they have in the past. Traditionally, management expectations have centered on IT as an automation tool - not as a strategic tool. One way to begin this process is by establishing performance metrics which reflect the true value of IT. Most of the CIO goal sheets that we have seen are tactical and project-oriented. For example, "Implement a single email system" or "Optimize the sales system for improved reporting." If we want senior managers to see the strategic value that IT can provide to the organization, we need to establish performance metrics that clearly measure this contribution. One example of such a metric might be: the number of IT related initiatives that come out of the corporate strategic planning process.

Monthly Reports

Once appropriate and meaningful performance metrics have been established, the work of reporting value can begin earnestly. The monthly report is a good vehicle to accomplish this. Monthly reports should focus on results, accomplishments and value-added---not tasks, projects and activities. The tendency is to report what has been done, rather than the *result* of what has been done.

A good starting point is to report on what is important to the corporation. How does the corporation measure success? CEOs say: "You have to continually have metrics that determine whether you're being effective or not, like in terms of getting productivity up, cycle time down." Reporting on IS's impact on productivity and cycle time would be very meaningful measures. A simple technique to use when writing the monthly report is to ask yourself, "So what?" For example, if IT reported that a new software package was brought up this month, ask yourself, "So what?" What will that package do for the organization? What results can be anticipated from its installation? Was there anything

meaningful about the installation itself? Was it accomplished sooner than expected? Did it cost less to implement than expected? These are the kind of information and metrics that are meaningful in a monthly report.

This was also the idea behind IBM's requirement that salespeople make a CAPS (Customer Annual Progress Summary) report to their customers. This was a formal standup presentation in which the salesperson highlighted IBM's contributions to the organization in that current year. It was usually preceded with a message something like, "Dear Customer, you spent a lot of money with us this year. We want to come in and tell you what you got in return for that investment."

This CAPS presentation was typically delivered to a senior executive (at least one level above the level that the salesman normally worked with) and would be a significant reminder of the value that IBM had provided. The dividends this pays are clear. Listen to how

the Chairman of the New England Medical Center describes this kind of information (Grossman 1995):

"The information services department prepares an annual performance report on investments and achievements and compares it with the medical center's strategic initiatives. We use this report to evaluate the degree to which our information technology infrastructure is helping us become a higher quality, more effective, and more efficient service provider."

The Use of Outsiders

It is uncomfortable for most people to laud their own praises. An effective way to communicate the value that IT and the IT organization are providing is through the use of "outsiders." These "outsiders" can be consultants, academics, writers, or even, clients. Are they "willing to go on record" and comment on the success of IT? Better yet, are they willing to document their observations in an article, newsletter entry or case study? These favorable reports can then be circulated to others in the organization and become a permanent part of the IT organization's "press kit."

Establishing Relationships and Increasing Visibility

It's difficult to be effective if no one knows who you are, what your past record has been, what your current projects are, and what you are capable of doing. Yet that's the situation in which many IT executives place themselves, focused narrowly on technology within the IT organization instead of interacting with peers and senior management company-wide and outside the organization.

The CEOs in our survey saw being visible and building relationships as both an expectation and an opportunity. They felt it was essential that the senior IT executive

spend a substantial amount of time working closely with peers across their corporation. As noted by one CEO: "You really need to span across functions because probably more than half of the success of IT is dependent on a collection of half a dozen other functions in the company ... I've told our executive staff here, 'spend half the time on your function and half the time on the whole company.'" Stephens (1995) also notes that "Alliances with internal peers was critical for CIOs," and the 50% of effort outside the IT organization mentioned above was consistent with actual time allocations in her observations of successful CIOs. Others have commented on the importance of building alliances, primarily through informal one-to-one meetings. Obviously, good interpersonal skills enhance the ability to build relationships.

Strong working relationships build respect between organizational peers and permit the honest and open face-to-face interactions necessary to quickly and effectively establish direction and deal with problems. A CEO commented about his previous senior IT executive "[he] did not have the respect of people on my staff. He would stay in his office ... the door shut and locked ... This group of people here requires in-your-face kind of managers. If you've got an issue, you show up on the step and say 'I've got an issue and what are we going to do about it?'" Comfortable and open relationships also make it possible for functional executives to approach their IT partner with concerns about proposed projects or problems with current operations in a problem-solving rather than confrontational attitude.

Close relationships with peers can also help to accomplish IT objectives. CEOs expect IT executives to develop partnerships as a prerequisite for getting projects approved. One CEO commented that it was essential that the CIO "comes to me for money *with a business unit partner*." Relationships with peers in functional units can provide the "real" information necessary for accurate IT strategic planning.

It is important to note that these relationships may be personal but they must also be professional, built on shared concerns about applying information technology to the pressing problems faced by the functional managers. John Rockart (1995) of MIT's Center for Information Systems Research has pointed out that "The companies that use IT most effectively boast ... chief information officers who have a deep understanding of the business and who are therefore capable of building strong working relationships with line management." These working relationships are important not just at the senior executive level but throughout the IT organization, and the CIO must work at getting subordinates to establish similar relationships with their peers.

The relationships are not one-sided, of course. Increasingly, functional executives are expected to understand how IT can be applied to their operations to gain greater effectiveness. Informal, trusting relationships at the senior executive level provide an opportunity for a functional executive to gain that understanding in a low pressure, low exposure situation. This also provides a perfect opportunity for CIOs to exercise their talents in education and to increase impact through influence. Jonathan Newcomb, Simon & Schuster's CEO, notes that informal forums among both employees and managers to

exchange ideas about technology use have been successful at spreading ideas through his company (Newcomb 1995).

Becoming a Change Agent

CEOs in every industry are preoccupied these days with finding ways to improve their company's positions relative to competitors. "I'm trying to look for competitive advantage out of anything I do" said one. They expected their CIOs to help them find opportunities to gain that advantage.

We've already mentioned that the CEOs believe IT is critical to the success of their companies, and that IT has broad application across the company. But much of that application is in day-to-day operations, essential to the success of the company but not often the kinds of activities that can make the major difference in competitive stance the CEOs were looking for. One noted that "it's not the little things, it's the big impact ... The big kind of differences you make relative to your competitors."

It is important that these contributions be completed quickly. As one CEO put it, "I want to be there and I want to be there first because once everybody can do it, then there's no advantage." It is also important that they be thoroughly evaluated (both technically and for business impact) and be tightly focused. CEO's were very aware of the problems of being too optimistic about technology and of trying to do too much at once. "I think a fatal flaw for a CIO, the classic one probably is to be so optimistic, to believe everything he or she reads ... A good CIO won't let you get there, won't let you do everything you'd like to do." This comment was echoed by all the CEOs we interviewed.

How can a CIO find those big impact opportunities? Some prerequisites are things we have already mentioned: a broad understanding of business issues, interpersonal skills, and relationships with peers both inside and outside the company. These characteristics allow one to recognize and sell opportunities once they're identified. But finding opportunities requires being constantly on the lookout for ways to make a difference. For IT applications, CIOs with real understanding of business issues play a critical role, because their peers in the organization often don't know what it is possible for technology to do. The CIO must be an evangelist. "I think the guys got to be a visionary, he or she's got to be a chance taker," said one CEO.

Sometimes big impact opportunities occur within a functional unit. Other times they come at the intersections of two or more functional areas. Leonard-Barton (1995) characterizes these boundaries as sources of "creative abrasion," places where poor interfaces in the flow of information between functional units hinder operational effectiveness. Established relationships with peers in those functional units allow CIOs to explore the frustrations and impediments within functional units, and to serve as a bridge across the units.

Exploring the internal corporate landscape is not CIOs' only source of ideas for improving the competitive stance of their organization. There is also a role to play as

"intelligence agent," finding innovative applications of information technology in other organizations, distilling the experience, and then applying that experience to their own company. Earl and Feeny (1994) describe this as "interpreting external IT success stories." In Stephens' (1995) study CIOs spent over 27% of their time *outside* the company.

Trying to be a change agent in a company that wants to maintain the status quo is frustrating. But the pace of change is accelerating and many CEOs see IT as a critical ally in defining and implementing opportunities for competitive advantage.

Conclusions

We wanted to know more about CEO's views of IT, the relationship between CEOs and CIOs, and how IT can become a more effective force in modern corporations. We talked with CEOs, reviewed the literature, and held focus groups with many senior IT executives. We found that CEOs believe the characteristics needed to achieve success are almost identical for both CEOs and CIOs, with the addition of technical knowledge for CIOs. Moreover, except for that technical knowledge, CEOs believe that senior IT executives neither demonstrate those skills nor take advantage of unique opportunities to gain the necessary skills. Six initiatives that CIOs can pursue to address these perceived shortcomings are: develop a "big picture" perspective, enhance interpersonal skills, raise awareness of the value of IT, report results more effectively, establish relationships and increase visibility, and become a change agent. Armed with these ideas as an integral part of their repertoire of personal skills, IT managers and executives can significantly increase the role they play within corporations. In this way, they can dramatically enhance not only their personal impact but also the stature of the IT professional. Both the profession and the corporation benefit in this process.

References

J. Barksdale, "What CEOs expect of CIOs: A Personal Perspective," presented at the Second Annual Information Technology Executive Program, Santa Clara University, Santa Clara, California, April 23, 1996.

K. E. Clark and M. B. Clark, *Choosing to Lead* (Charlotte, North Carolina: Iron Gate Press, 1994).

M. J. Earl and D. F. Feeny, "Is Your CIO Adding Value?," *Sloan Management Review*, Spring 1994, pp. 11 - 20.

D. F. Feeny, B. R. Edwards, and K. M. Simpson, "Understanding the CEO/CIO Relationship," *MIS Quarterly*, December 1992, pp. 435 - 448.

J. H. Grossman, "Perspectives on 'The End of Delegation?: Information Technology and the CEO'", Harvard Business Review, September - October 1995, p. 172.

K. J. Hayley, "CIO Challenges in the Changing MIS Environment," *Journal of Information Systems Management*, Summer 1989, pp. 8 - 13.

B. Ives and M. H. Olson, "Manager or Technician" The Nature of the Information Systems Manager's Job," *MIS Quarterly*, December 1981, pp. 49 - 63.

S. L. Jarvenpaa and B. Ives, "Executive Involvement and Participation in the Management of Information Technology," *MIS Quarterly*, June 1991, pp. 205 - 227.

J. M. Kouzes and B. Z. Posner, *Credibility: How Leaders Gain and Lose It, Why People Demand It* (San Francisco, California: Jossey-Bass, 1993).

D. Leonard-Barton, *Wellsprings of Knowledge: Building and Sustaining the Sources of Innovation* (Boston, Massachusetts: Harvard Business School Press, 1995).

T. Levitt, *The Marketing Imagination* (New York, New York: Free Press, 1986).

P. H. Mervis, "Merging of Executive Heart and Mind in Crisis Management," in *Mergers and Acquisitions: Lessons from Experience*, Working Document No. 2, Centre for Organisational Studies, Foundation José M. de Anzizu, 1992.

H. Mintzberg, "The Manager's Job: Folklore and Fact," *Harvard Business Review*, July - August 1975, pp. 49 - 61.

J. Newcomb, "Perspectives on 'The End of Delegation?: Information Technology and the CEO'", Harvard Business Review, September - October 1995, p. 166.

J. F. Rockart, "Perspectives on 'The End of Delegation?: Information Technology and the CEO'", Harvard Business Review, September - October 1995, p. 168.

C. S. Stephens, *The Nature of Information Technology Managerial Work* (Westport, Connecticut: Quorum Books, 1995).

D. Tapscott and A. Caston, *Paradigm Shift: The New Promise of Information Technology* (New York, New York: McGraw-Hill, 1993).

M. Treacy and F. Wiersema, *The Discipline of Market Leaders* (Reading, Massachusetts: Addison-Wesley, 1995).

R. T. Watson, "Influences on the IS Manager's Perceptions of Key Issues: Information Scanning and the Relationship with the CEO," *MIS Quarterly*, June 1990, pp. 217 - 231.