The Elevation of CIO Roles: Organizational Barriers and Organizational Enablers

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A great deal has been written about the critical importance of effective information technology (IT) management in information-intensive industries like healthcare. In fact, some have suggested that of all the attributes of IT that affect the ability to compete in the marketplace (customer-switching costs, access to capital, proprietary technology, technical IT skills, and managerial IT skills), only managerial IT skills have the potential to create sustained competitive advantage.1 This study deals with chief information officer (CIO) roles in the healthcare industry and how organizations, despite articulating an enlightened IT management vision, may be hurting themselves by placing barriers in the way of realizing that vision.

Ecology View of the Healthcare Industry

Organizational theorists long ago recognized the importance of an organization’s response to its environment in survival and competitive advancement activities.2 Borrowing from the natural sciences, the ecology view of organizations states that for any given environment there are optimal organizational characteristics or properties that lead not only to survival in that particular environment but also to the ability to thrive. Lack of fit between an organization’s characteristics or properties and its environment leads to decline, and in cases of gross misfit even death, of the organization. The environment of a predominant portion of organizations that deliver healthcare services is characterized by a high degree of turbulence and competition. Furthermore, the process of delivering healthcare services is information intensive—both because of the environmental turbulence and competition, and because the basic processes of health promotion and disease intervention are information intensive. These processes include, but are not limited to, activities associated with scheduling patient appointments; verifying patient eligibility and reimbursement capability; diagnosing illnesses; monitoring long-term health and
wellness, with regard to occupational exposure to hazards, for example; tracking reimbursements; documenting treatment; executing patient admissions, transfers, and discharges; checking for adverse drug interactions; and a host of other activities that absolutely require highly accurate and reliable information. From an ecology viewpoint, one of the organizational properties that is essential for survival and competitive advancement in an information-intensive environment is an effectively executed IT management strategy.

Role of the Healthcare CIO

With this growing awareness of the importance of IT management, many organizations have created, primarily over the past two decades, an executive position to manage IT—that of the CIO. However, the contemporary press suggests that this new executive may be experiencing some problems performing up to expectations. A sample of Computerworld and Forbes titles exemplifies the general perception that CIOs are, perhaps, underperforming: “CIOs Not up to Snuff as Active Business Leaders”;3 “Chasm Closer: The CIO/CEO Gap Still Dogs IS”;4 “Hatred: An Update (CIO-CEO Relationships).”5 The general complaints about CIOs are that many lack leadership characteristics, are not able to focus on business imperatives, and are not able to effectively communicate in business terms, which alienates them from the CEO and other top managers.6 In fact, a HIMSS publication, Guide to Effective Health Care Information Management Systems and the Role of the Chief Information Officer, points out the need for healthcare CIOs to develop these skills.7 In short, the literature is relatively united with respect to the skills that CIOs need to develop in order to be seen as effective by the other executives in an organization. What is missing from the literature is a focus on organizational enablers to help CIOs develop these skills and take on more strategic roles in the healthcare enterprise.

It has been argued that in order for CIOs to take on more strategic roles, they must first demonstrate leadership skills, interpersonal skills, and business as well as technological savvy. Others argue, conversely, that it is nearly impossible for a CIO to take on more strategic roles without first being recognized as an executive peer—a full-fledged member of the organization’s executive management team. Although this article makes no attempt at resolving this “What came first, the chicken or the egg?” debate, it does assert that both are necessary conditions in order for CIOs to fulfill more strategic, value-adding roles. This article will focus on organizational barriers and organizational enablers that affect CIO role elevation—that is, elevation to more strategic-level, as opposed to just operational-level, roles.

Focus of the Study

In this study, I investigated the impact of a number of factors related to organizational context (for example, whether or not the CIO was a member of the organization’s executive management team or committee) on CIO roles in 168
organizations engaged in the delivery of healthcare. The focal point of the research was the question of whether the presence of certain organizational enablers led to more strategic CIO roles (see Figure 1), whereas the absence of these enablers (or the presence of organizational barriers) led to more tactical or operational CIO roles. As noted earlier, theory suggests that in turbulent, information-intensive industries, CIOs should fulfill more strategic roles—above and beyond the tactical, operational level—in order for the organization to have the potential for sustained competitive advantage.

Methodology

This study randomly surveyed HIMSS members with one of the following job titles: CIO; vice president (or senior vice president) of information systems (or information services, information management, information resources, or technology); director of information systems (or information services, information management, information resources, or technology). In addition, slight variations of the above titles, such as director of management information systems (MIS) or chief of information services, were selected for solicitation. Any surveys returned that indicated the respondent was not the most senior IT executive in the organization were removed from the sample. For example, if someone with the title director, MIS, reported to someone with the title vice president, MIS, that survey was not used in this analysis. The number of usable surveys returned as of this writing was 168 out of 642 solicited, for a response rate of 27 percent (173 total were returned, but 5 were not usable for reasons indicated above). The survey was developed via interviews with healthcare CEOs, COOs, CFOs, and CIOs, as well as from existing survey instruments.

Healthcare CIO Roles That Emerged from the Study

CIOs were asked to rate the importance of twenty-five different role items that ranged from tactical to strategic in nature (for example, keeping key systems operational, establishing electronic linkages throughout the organization, being intimately involved in business strategic planning and decisions). Using factor-analytical techniques, six overall roles emerged: classic IT support; IT contract

![Figure 1. Research Model](image)
oversight; informaticist; IT educator; integrator; and business partner or strategist.

The classic IT support role reflects the historical roots of IT. This role's focus is on providing the IT utility—the “bread-and-butter” IT functions of building the basic IT infrastructure and ensuring that key systems are operational and that the IT department is responsive to user requests. The IT contract oversight role's focus is on ensuring that contracts with outside vendors remain within scope and budget. The informaticist role's focus is on developing highly accurate and reliable metrics for determining the value of the healthcare enterprise's core processes. The IT educator role's focus is on championing computer literacy throughout the organization. The integrator role's focus is on integrating disparate departmental processes throughout the enterprise. Finally, the business partner or strategist role's focus is on developing and executing the overall strategy of the healthcare enterprise. These final two roles, the integrator and especially the business partner or strategist, are more strategic than the other roles. These are the roles that an ecology view would predict should be important in the turbulent, information-intensive healthcare industry.

**Impact of the CIO's Reporting Level on CIO Roles**

Prior research has found that the reporting level of an individual in an organization can influence perceived authority and power to influence the actions of the organization's top management team (TMT). More specifically, the CIO's rank has been found to have a significant influence on the CIO's role in the organization, suggesting that the reporting level of the CIO may be a key variable to increasing the organizational effectiveness of IT. In another study of sixty-four newly appointed CIOs, Applegate and Elam suggest how the reporting relationship phenomenon, with respect to CIOs, may work. They found that 27 percent of CIOs report directly to the CEO. Applegate and Elam argue that from this position of high rank, CIOs can directly affect the strategic direction of their organizations through increased contact with senior managers. Literature in the trade press also suggests the importance of the hierarchical level of the CIO. Monahan, writing in *Healthcare Informatics*, notes that “some of the most successful healthcare organizations in America are the ones whose CEOs and CIOs are joined at the hip.” Others suggest that effective IT leadership can only be accomplished by bringing the CIO into the senior leadership ranks. An article in *Healthcare Executive* asserts that “Where your top information technology executive ranks in the organization will determine how much influence he or she will have on the organization's success.” CIOs feel that the rank of the officer to whom they directly report impacts their relevance and importance significantly. CIOs with a direct reporting relationship to the CEO confirm that they have a greater chance to impact enterprise-wide decisions and policies than those who report to the CFO or COO and whose influ-
ence can thereby be marginalized.\textsuperscript{14} Taken together, the literature suggests that CIOs closer to the CEO in the organization’s hierarchy will enjoy greater opportunities to engage with the other members of the TMT and that this increased interaction will lead to more strategic CIO roles and, ultimately, to a greater degree of CIO effectiveness.

In this study, 26 percent of CIOs indicated that they reported directly to the CEO, 69 percent indicated that they were one level removed from the CEO, and only 5 percent indicated that they were two or more levels removed from the CEO. An analysis was undertaken to see if CIOs with a direct reporting relationship to the CEO perceived their role differently than did CIOs without a direct reporting relationship. Only the informaticist role varied substantially ($p = .005$). Specifically, CIOs with a direct reporting relationship viewed the informaticist role as more important than did CIOs without a direct reporting relationship. The importance of all other CIO roles (classic IT support, IT contract oversight, IT educator, integrator, and business partner or strategist) was not significantly different.

As CEOs continue to demand greater access to highly accurate, relevant information in an effort to optimize clinical and business outcomes, the CIO’s hierarchical proximity to the CEO is likely to increase. However, the fact that the business partner and integrator roles did not emerge as more important to CIOs with direct reporting relationships is an interesting finding—one that suggests there must be other organizational factors at work besides hierarchical proximity to the CEO. In fact, research has shown that even more important than the reporting level of the CIO is whether or not the CIO is a member of the organization’s TMT.\textsuperscript{15}

**Impact of TMT Membership on CIO Roles**

In order to achieve two-way strategic alignment of the IT unit and the rest of the enterprise, the CIO must be a member of the organization’s TMT.\textsuperscript{16} The Gartner Group posits a .9 probability that a CIO’s longevity and perceived effectiveness in healthcare organizations is dependent on acceptance as an integral part of the organization’s executive management team. Furthermore, lack of full acceptance by executive management minimizes the CIO’s influence and adversely affects the IT department’s ability to address key strategic issues.\textsuperscript{17} Membership on the TMT provides the CIO with regular opportunities to interact with other top managers. It therefore stands to reason that, through this membership, the CIO’s role should become more strategic. By virtue of membership on the TMT, the CIO is assured of interaction on the executive level, where strategic issues are debated and decided.

In this study 61 percent of CIOs indicated that they were members of their organization’s TMT, whereas 39 percent indicated that they were not. An analysis was carried out to see if CIOs perceived their roles differently based on CIO membership in the TMT. Three roles emerged as significantly different; two of
them—the business partner ($p = .044$) and the integrator ($p < .0005$)—were predicted, and one—IT contract oversight—was not. All three roles were significantly more important to CIOs who were members of the organization’s TMT than to CIOs who were not. All other roles did not differ significantly.

The fact that the more strategic roles of business partner and integrator were more important to CIOs who were part of the TMT indicates that TMT membership is a more powerful organizational tool than is reporting level in ensuring that the CIO’s focus is on strategic issues. Put another way, the ecology view of organizations and this finding suggest that CIO membership on the TMT might be a discriminating factor in healthcare organizational survival and competitive advancement.

Turning to the IT contract oversight role, the finding that it would be more important to CIOs who were members of the TMT was unexpected, especially in light of the fact that I controlled for level of IT outsourcing. Only 2 percent of healthcare organizations in the sample indicated they had totally outsourced their IT functions; 57 percent indicated they had selectively outsourced some of their IT functions while retaining others; and 41 percent indicated they had retained all of their IT functions in-house. The IT contract oversight finding can be interpreted in two ways because the level of IT outsourcing alone did not affect the importance of CIO roles across the sample. One possible interpretation is that, as more and more organizations are taking on strategic partnerships with outside vendor organizations, the potential impact of these contracting partnerships is taking on strategic proportions. The second is that the three levels of outsourcing used in the questionnaire may not be a sensitive enough scale to truly control for the effect of IT outsourcing on the relative importance of the various CIO roles.

Impact of Internal Networking on CIO Roles

The extent of a CIO’s internal networking is measured by the frequency of formal and informal interactions with the CEO and other members of the TMT. Although a higher position in the organization’s hierarchy and membership on the TMT provide the potential for increased CIO-TMT interaction, the development of networks with the other top managers in the organization that transcend these organizational structuring arrangements is also indicated in the literature. In a study of nine newly appointed CIOs from large U.S. companies, researchers found that all nine stressed the importance of networking with corporate senior executives to effectively accomplish their goals. In looking at means of developing long-term competitiveness through IT assets, Ross, Beath, and Goodhue found that what they termed “the relationship asset” was one of three key IT assets that lead to long-term competitiveness. At a U.S. insurance company, they found that limited communication between IT and business managers resulted in “less creative application of IT than the company was able to produce.” Over time, by ensuring regular interaction with the business side of the company, a
relationship of trust and mutual respect developed, which significantly improved the insurance company’s ability to implement valuable IT applications. In short, developing an extensive organizational network through interaction with the CEO and other members of the TMT is theoretically linked to more strategic CIO roles and to CIO effectiveness in fulfilling those roles.

A correlation analysis revealed that the level of interaction with the CEO and other members of the TMT did indeed have an impact on the relative importance of various CIO roles. As expected, the level of interaction, both formal and informal, was highly correlated with the business partner role ($p = .001$ for informal interaction, and $p = .009$ for formal interaction). This suggests that an intimate closeness to the CEO and the other members of the TMT is a necessary condition for the business partner role to emerge as an important role for healthcare CIOs. In addition, formal interaction was highly correlated with the integrator role ($p = .037$) as well as the informaticist role ($p = .049$). As expected, the lower-level tactical or operational role of classic IT support was not correlated at all with the level of interaction.

For CIOs this finding suggests that success in taking on more strategic roles requires that they network and interact often with the other members of the TMT. In fact, these findings suggest that elevation of the CIO’s role to the most strategic level, that of the business partner, requires an intimate level of internal networking. Organizations that desire to elevate the role of IT management to a more strategic level must ensure that the top executives have opportunities for interaction, especially informal interaction, with the CIO.

Interestingly, at an interpersonal level, good-quality interaction is often predicated on the participants having a common frame of reference, or mental model. One organizational factor that can contribute to increasing CIO-TMT interaction is a high degree of strategic IT knowledge on the part of the CEO and other members of the TMT. (Conversely, the level of strategic business knowledge possessed by the CIO is also important to establishing a common frame of reference. The impact of this and other characteristics of CIOs will be addressed in the second phase of this study, which is in progress at the time of this writing.)

**Impact of the TMT’s Strategic IT Knowledge on CIO Roles**

Given that roles in organizations are socially constructed, it seems logical to include a TMT’s level of comfort with its company’s CIO as a potential influence on CIO roles. It also seems logical that in situations where TMT members possess high levels of strategic IT knowledge, they will be more comfortable engaging the CIO in TMT-level discussions. By “strategic IT knowledge” I do not mean highly technical IT knowledge but, rather, macro-level knowledge about how other organizations like their own are using IT as well as about the potential and limitations of current and next-generation IT.
A correlation analysis revealed, as expected, that the level of the TMT's strategic IT knowledge was highly correlated to the business partner role ($p = .003$) and the integrator role ($p = .004$). None of the other CIO roles were significantly correlated with the TMT's level of strategic IT knowledge.

From an organizational standpoint, this suggests that the other executives of the organization should be encouraged to gain strategic IT knowledge. In order to facilitate two-way strategic alignment between the core processes of the organization and the IT function, a common frame of reference is required. This frame of reference can only come about through common knowledge, at least at a macro level. In the sample used in this study, organizations in which the CIO perceived a high level of this type of knowledge on the part of the other executive managers were also the organizations that expressed the importance of the more strategic CIO roles (that is, the business partner and integrator roles). This suggests that a working knowledge of strategic IT issues on the part of an organization's top managers goes hand in hand with the CIO's perceiving the more strategic components of the CIO function (that is, the business partner and integrator roles).

**Impact of an Organization’s Strategic Vision of IT on CIO Roles**

My own experience as a healthcare CIO for over ten years in the federal sector has shown that an organization's view of the CIO role is primarily dependent on the organization's view of IT in general—whether as a supporting tool or as a strategic weapon. Based on this view of IT, the organization's expectations of the CIO's function run a continuum from a supporting role to that of a strategic business partner (see Figure 2).

A number of contemporary management writers suggest that because of the importance of information in achieving the strategic goals of all organizations, both IT and the CIO should be elevated to a more proactive, business-focused role in organizations in the future. Recently, Schein introduced a vision scheme that has been useful in a number of IT research efforts that have used the organization's strategic vision of IT to help explain the effects of var-

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**Figure 2. Organization's View of IT**

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<th>Organization's View of IT</th>
<th>Strategic Resource</th>
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<tr>
<td>Support Function</td>
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<tr>
<td>Reactive, IT Supporting Role</td>
<td>Proactive, Strategic Business Partner</td>
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Organization's View of the CIO Role
ious relationships. Schein proposed that organizations possess one of four strategic visions of the role of IT: to automate, to informate up, to informate down, or to transform. (See Table 1 for a more complete review of Schein’s strategic vision of IT.)

This categorization of the vision of IT was found to be a powerful predictor of excellent CIO-CEO relationships. That is, when the CIO and CEO share the same strategic vision of IT in the organization, excellent relationships occur. Schein’s scheme can be thought of as a hierarchical scheme based on the level of environmental turbulence and information intensity of the business’s core processes. In this conception, the “automate” vision is well suited to stable industry environments, whereas the “transform” vision is well suited to highly turbulent, competitive industry environments.

As expected, both the business partner role ($p = .014$) and the integrator role ($p = .009$) were significantly more important to organizations that expressed a “transform” vision of IT than to those that expressed the other visions in Schein’s scheme. From an organizational standpoint, an enlightened vision of IT—a vision in which IT is seen as an organization-transforming mechanism—is associated with the more strategic CIO roles of business partner and integrator.

**Conclusion**

This study looked at how organizational contextual factors affect the importance of different CIO roles—ranging from tactical, operational-level roles to strategic, value-adding roles. Although there are still some rare exceptions in

<table>
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<tr>
<th>Strategic Vision of IT</th>
<th>Description</th>
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<tr>
<td>To automate</td>
<td>The potential of IT is cost savings or quality improvement through automation. The role of IT is to replace expensive, unreliable human labor.</td>
</tr>
<tr>
<td>To informate up</td>
<td>The potential of IT is increased managerial control of the organization. The role of IT is to provide data and transactions that allow management clearer and more organized views of the state and dynamics of the organization.</td>
</tr>
<tr>
<td>To informate down</td>
<td>The potential of IT is to empower employee-driven performance improvements. The role of IT is to provide data and transactions that yield a comprehensive picture at the “operator” level, with members of the staff gaining greater insights into their own processes.</td>
</tr>
<tr>
<td>To transform</td>
<td>The potential of IT is to transform the organization. The role of IT is to fundamentally change the organization and/or industry through healthcare products and services, often including redefinition of relationships with the organization’s customers and/or suppliers.</td>
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the healthcare industry where there is little turbulence or competition, the predominant landscape that healthcare organizations find themselves in is turbulent, competitive, and information intensive. Both the academic literature and the trade press suggest that in such an environment organizations must strive to achieve effective IT management processes above and beyond the tactical, operational level.

With the ecology assumption that environment drives organizational form and function, these results suggest that a number of organizations are, in a sense, “cutting off their nose to spite their face.” That is, they continue to cling to forms and functions of a bygone era and have not embraced the environmental absolute that dictates the importance of information and IT to survival and competitive positioning in their industry.

The CIO’s reporting relationship was found to be relatively less important in elevating IT management’s role focus to more strategic issues; membership in the organization’s TMT, however, was clearly a very important factor. In addition, the level of interaction between the CIO and the other members of the TMT, especially informal interaction, was important in fostering the strategic role of business partner. Although the hypothesis was not specifically tested in this study, it seems logical that increased levels of interaction with the CIO have the potential to lead to increased strategic IT knowledge on the part of the other members of the TMT, as well. The knowledge referred to here is knowledge about how competitors are using IT and about the potential and limitations of current and next-generation IT. This type of knowledge on the part of the other executives in the organization was an important dimension in this study in terms of elevating the importance of the CIO roles of business partner and integrator. Finally, in organizations whose strategic vision of IT was one of an organization-transforming mechanism (the vision best suited to turbulent, information-intensive environments), the more strategic CIO roles of business partner and integrator were perceived as most important.

Although these findings are preliminary, they do suggest that CIOs perceive a number of organizational barriers that keep the more strategic CIO roles of business partner and integrator in the background. Taking the impact of environmental forces that demand effective IT management in order to survive and thrive in the healthcare industry, these barriers threaten to become self-fulfilling prophecies for healthcare organizations.

References

**About the Author**

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