ELEVATING THE TOP IS POSITION TO CIO

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ABSTRACT
Successful transition to the CIO position requires a clear vision of where one is going and a transition plan to get there. Some firms have experienced difficulty in establishing the CIO function. This has happened primarily of the fast evolution of the CIO role. In order to investigate this evolution, the authors conducted a study of how CIOs allocated their time in the job which qualified them for promotion to CIO. The survey results showed strong priorities on human resource management and peer interaction activities. Strong statistical interactions were found to exist between many of the activities CIOs identified for successful promotion.

BACKGROUND
A 1986 DPMA survey of 1,000 IS executives (weighted toward large and medium corporations) revealed that only fifteen percent report to the president or CEO. Fifty percent report to the VP/Director of Finance. Ten percent report to a general manager [1].

The CIO reports to the CEO; however, that result is caused not by a change in functions so much as a change in top management's philosophy concerning resources. In earlier years, management considered its primary resources as capital and personnel. It now considers information as equally important. In an era where size and complexity have increased, where competitive sophistication has expanded and where pace of change is accelerated, the CIO manages information resources as a vital corporate asset.

ANALOGY TO THE CFO
The job of the CIO is analogous to that of the Chief Financial Officer. The CFO position was initiated for one or both of two reasons: (1) the top financial position was that of controller and there was a need to expand that function to one responsible for both the acquisition and stewardship of capital, (2) there was a need for a corporate chief, senior to the financial officers at the various divisions or subsidiaries.

The second reason has seldom been the reason for establishing a CIO position. When a corporation has IS directors in divisions or subsidiaries and needs a senior position at the corporate office, it typically titles that position Senior VP of IS. The principal reason for establishing the position of CIO is an expansion in responsibilities, similar to expanding the controller's job to CFO.

The principal role of the IS Vice President has been collection, processing, storage, and reporting of data and information. Those functions are still vital to the company. However, under the CIO concept, there are two additional functions: (1) insuring that the company systems undergird the objectives of the firm and (2) leveraging information technology to enable the company to increase market niche, sales, and profitability.

"Many companies have appointed a CIO to manage every aspect of information, including acquisition, storage, retrieval, distribution, and general use of data. The CIO should be involved in developing the strategic operations of the company in order to identify information technologies that serve long- and short-term business goals" [2]. The CIO facilitates change by integrating information technologies throughout the organization. The CIO develops an information policy and sets standards for items related to information management, such as security and vendor selection.

PROBLEMS WITH CIO FUNCTION
Some corporations have experienced difficulty in installing the CIO function. When the following problems are anticipated and resolved, the function not only operates smoothly but provides the corporation with a major competitive advantage.

Problem 1 - Change in Title Without Change in Function. Some companies have merely given the top Information Systems person a new title. Unless the full set of functions described previously are included, the company experiences suboptimal results. Tom Peters comments that some companies are adding CIOs in "fad-like fashion" by merely appending a new title to the IS V.P.

Problem 2 - Creating a Technology Czar. Other executives often believe the CIO is trying to take over information resources under their control rather than being a custodian of the information.

Problem 3 - Inadequate Allocation of CIO's Priorities. The three principal roles of the CIO are planning, coordination, and orchestration, explained below. When these three activities are not the CIO's top priorities, the results are suboptimal.

Problem 4 - Selecting Wrong Person for the CIO Job. The CIO should be a technology "generalist" not a specialist, a person who can effectively bridge the gap between top management and technicians while applying technology to the solution of business problems and the promotion of competitive advantage.
SURVEY OF CIOs

The management literature is rich with reports of studies attempting to identify the traits of a good leader. The studies are referred to as traitist studies; however, the results are largely inconclusive. Experience, education, and the corporate environment varies greatly among successful leaders. Rather than attempt to profile the characteristics of the successful leader, better insight has been gained by studying how these leaders spend their time—what activities are given priority among the many competing factors.

To assist persons aspiring to the CIO position, the authors conducted a study of CIOs to determine how they allocated their time. It was not a study of how they allocated their time once they acquired the position, but how they had allocated their time in the job which qualified them for promotion to CIO.

Our goal was to obtain data from 35 CIOs, so the survey was highly targeted. Each CIO was sent a personal letter explaining the purpose of this study and a two page in-depth survey form. We received a 90 percent response rate, as 31 CIOs agreed to participate. Nine industries were represented. As expected from the experience from traitist studies, the individual characteristics of these persons varied significantly, with respect to age, type of education, and technical versus general management experience. They had many more commonalities in the way they allocated their time prior to being promoted to CIO than in personal characteristics.

All 31 of the respondents have one characteristic in common—none were selected from outside the firm. The research sample was purposely limited to those leaders who had been promoted to CIO from the IS area. Therefore, the results which follow should be of considerable value to IS managers aspiring to the CIO position. A similar study is planned of persons who were promoted to CIO from other management positions in the company.

The respondents were asked to complete a survey instrument which extracted data about the importance of certain activities leading to promotion to CIO. Each activity was rated using standard five-point Likert-type scales where "5" was most important and "1" least important. Additionally, the CIO was asked to indicate the percentage of time he or she spent on each of the activities. The total time spend was required to sum to 100 percent.

Table 1 provides the results from Part 1 in the survey where the CIOs were asked to identify the priority they gave various responsibilities and to indicate the percent of time they spent on each.

The human resource management activity had the highest mean rating (4.16). This activity received the top rating of "5" by just over half of the 31 CIOs who participated in the study. Human resource management also had the highest reported percentage of time spent, 21.3 percent, where responses ranged from a low of five to a high of 50 percent.

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<thead>
<tr>
<th>Activities</th>
<th>Mean</th>
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</tr>
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<tbody>
<tr>
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Priority on Activities Leading to Promotion to CIO

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Interaction with peers concerning IS or business issues was a close second (4.10) in the mean ratings. Thirteen CIOs gave this activity the highest rating of "5." As expected, the mean percentage of time spent on this activity was quite high at 15.3 percent, ranging from zero to 40 percent.

Strategic planning was third place with a mean rating of 3.9; 22 out of 31 respondents rating this activity either a "4" or "5" in importance. However, the CIOs spent only 12.8 percent of their time on the strategic planning activity, with a range from 5 to 50 percent.

The activity concerned with discussions with subordinates was rated much lower than the first three activities; the mean was 3.31. Only four CIOs gave this activity the top rating of "5." The percentage of time spent in discussions with subordinates resulted in a mean of 4.8 percent with a much smaller range from zero percent (9 CIOs) to a maximum of 20 percent.

Technical management was fifth place in importance (3.20). Four CIOs gave this activity the highest rating while 12 rated it "4" in importance. Yet the reported time spent on this activity, 15.7 percent, was second only to human resource management and closely paralleled the peer interaction activity. The percentage of time spent on technical management ranged from a zero (2 CIOs) to 50 percent.

A significant drop in mean ratings, approximately 2.6, resulted for two activities—maintaining your knowledge of the IS field and discussions with IS executives. The mean percentages of time spent on these activities were extremely tight with the first activity ranging from a low of zero (5 CIOs) to a high of 15 percent (1 CIO). The time spent in discussions with IS executives ranged from zero (6 CIOs) to a high of only 10 percent (1 CIO). The median response for the two activities was only two percent.

Despite its low mean importance rating of 2.60, 11.5 percent of CIO time was spent in the category of miscellaneous administration. Accompanying notes indicated that control of expenses was the principal cause for the large percentage of time allocated to that activity. The high end of the range of time spent on this activity was only 35 percent.

Finally, the lowest rated activity by the respondents was vendor discussions and presentations. None of the CIOs gave this activity a rating of "5." In keeping with the last three activities, the mean range of time spent was extremely tight from zero to 15, with a median response of two percent.

Figure 1 plots the standard deviation around the mean responses for each of the activities. The activities are presented in the order of highest mean rated importance. The widest variation of standard deviation to percentage of time spent on activities occurred on subordinate discussions, followed closely by maintaining knowledge of IS field, discussions with IS executives, and vendor discussions. With each of these activities, the standard deviation exceeded the mean percentage of time. However, the largest variation occurred on the technical management activity.

Table 2 provides the results of Part 2 of the survey instrument. Participants were asked to identify the principal causes of their promotion to CIO. They started that part of the survey by summing the effect of the factors listed in Part 1.

The factors listed in Part 1 were identified as having the greatest bearing on CIO promotion, accounting for over one-third of the weighting. Personal characteristics accounted for another third. As expected, implementing applications with key impact accounted for a strong 8.4 percent of mean effect. A surprise to the authors was the low effect, only 3.1 percent, attributed to the grooming for position by their predecessor.
To analyze the frequencies identified above as important and to explore the relationships between certain activities, we conducted a series of nonparametric chi-square tests. The single sample chi-square test is one of the most frequently reported nonparametric tests in journal articles [8]. The test is used when a researcher is interested in the number of responses, objects, or people that fall in two or more categories. The goodness-of-fit statistic refers to whether a significant difference exists between an observed number and an expected number of responses occurring by chance in each category designated by the researcher.

Kerlinger [9] stated, "The chi-square crossbreak is a valuable analytic tool best utilized to study the relations between two variables which are cross-partitioned." He recommended its use with almost any kind of data both allowing the researcher to organize study results in a simple fashion and to determine the nature of the relations between the study variables. Further, he strongly suggested converting continuous variables to nominal variables in order to make use of this tool.

Table 3 illustrates the results of the statistically significant chi-square tests, p < .10. In total, we conducted 55 tests of significance with each of the activities in Part I rated for importance. Responses were classified into two categories—high importance ratings consisted of "4" or "5" scores, while low importance ratings were comprised of "1," "2," and "3" scores. We use the term "interaction" to mean that an independent variable affects a dependent variable differently at different levels or facets of the independent variable [9].

We expected CIOs who rated human resource management as a strong activity to also strongly rate interaction with peers, discussions with subordinates and IS executives. Although we did not find strong association with any of these variables, human resource management responses were significantly related to those with technical management activity and vendor discussions. The strong interaction (p = .003) between vendor discussions and maintaining knowledge of the IS field was both predicted and seemed logical. Vendor discussions were also found to interact with discussions with IS executives (p = .013) and subordinates (p = .079).

Surprisingly, strategic planning interacted with the subordinate discussion activity (p = .053) and not to discussions with IS executives. One reason for this may have been the decentralized nature of strategic planning and decision-making in the firms we studied. Likewise, discussions with subordinates were related to discussions with IS executives (p = .079) and neither showed effect with the interaction with peers activity.

The strongest interaction existed between the activities associated with maintaining knowledge of the IS field and discussions with subordinates (p = .009). We also expected, but did not find, the maintaining IS knowledge activity to significantly relate to discussions with the IS executive.
TABLE 3
Results of the Significant Single Sample Chi-Square Tests
Relating to Priority on Activities Leading to Promotion to CIO

<table>
<thead>
<tr>
<th>First Activity</th>
<th>Second Activity</th>
<th>n</th>
<th>$\chi^2$</th>
<th>Signif</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Resource Management</td>
<td>Technical Management</td>
<td>30</td>
<td>4.05</td>
<td>.0441</td>
</tr>
<tr>
<td>Miscellaneous Administration</td>
<td>Maintaining Knowledge of IS</td>
<td>27</td>
<td>3.06</td>
<td>.0798</td>
</tr>
<tr>
<td>Strategic Planning</td>
<td>Interaction with Peers</td>
<td>28</td>
<td>3.73</td>
<td>.0533</td>
</tr>
<tr>
<td>Vendor Discussions</td>
<td>Maintaining Knowledge of IS</td>
<td>26</td>
<td>8.93</td>
<td>.0028</td>
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<tr>
<td>Vendor Discussions</td>
<td>Discussions with IS Execs</td>
<td>27</td>
<td>5.89</td>
<td>.0152</td>
</tr>
<tr>
<td>Vendor Discussions</td>
<td>Discussions w/Subordinates</td>
<td>25</td>
<td>3.17</td>
<td>.0748</td>
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<td>Discussions w/Subordinates</td>
<td>25</td>
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<td>26</td>
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The survey results are quite useful to individuals aspiring to the CIO position. Despite the very different circumstances in each company and industry, the factors that caused their promotion to CIO were quite similar.

PREPARING TO BECOME CIO

Darwin John, CIO of Scott Paper Company, lists the following strategies that the V.P. of IS should adopt to elevate his/her job to CIO:

1. Build a solid foundation of business experience and knowledge including background in other disciplines early in your career.
2. Discipline yourself to have a top management mentality that allows you to emulate the thinking of other senior executives.
3. Pursue internal networking to build alliances, establish credibility with others in the organization [10].

Because knowledge of the company is so important, insiders are often given precedence in selection of a CIO. However, that insider may not be in the IS ranks. Some companies are selecting the CIO from one of the functional areas of the firm. They are placing management ability and company vision ahead of technical knowledge as selection criteria.

However, the person holding the top IS position may still qualify for CIO, by changing some priorities to insure that management ability and company vision receive proper emphasis among the many activities on which the IS executive may spend time.

In some cases it will require some stretching on the part of the IS executive. The stretching to acquire better knowledge of the firm is not difficult; it just requires reallocation of time. The stretching to establish better rapport with peers and senior executives may be more difficult. It is not merely a matter of spending more time on the activity but also honing the skills of communication and persuasiveness.

SUMMARY

Successful transition to CIO requires a clear vision of where one is going and a transition plan to get there. The CIO's main mission (vision) is to leverage information technology as a competitive weapon. This requires strategic (value) planning and architectural (structure) planning that is, the integration of (1) business and technology through participative strategic planning and (2) the company's technology resources through technology architecture planning.

However, the traditional emphases of human resource management and interactions with peers on IS issues cannot be neglected. These factors were rated first and second respectively (by the CIOs included in the survey) of factors that led to their selection to the position. If anything was deemphasized, it was technical management, which was rated fourth. Undoubtedly, technical management was not reduced in importance in the organization; it was delegated to a greater extent. An interesting finding was the strong relationship between technical management and human resource management.

A main responsibility of the chief information officer will be to see that the organization has the wherewithal for exploiting the use of information technology. Included in this area of responsibility are strategic information systems, the use of computer and communications technology for decision support, and making effective use of new advances in the technology [6].
REFERENCES


