



*Nothing is more likely to undermine
IT strategic planning than poor knowledge of
competitors' computing practices.*

CEO AND CIO Perspectives ON Competitive Intelligence

Competitive intelligence (CI), also known as business intelligence, is both a process and a product. As a process, CI is the set of legal and ethical methods a company uses to harness information that helps it achieve success in a global environment. As a product, CI is information about competitors' activities from public and private sources, and its scope is the present and future behavior of competitors, suppliers, customers, technologies, acquisitions, markets, products and services, and the general business environment.

Tyson [12] presented CI as a group of varied intelligence activities, shown in Table 1.

As Table 1 shows, there is much more to competitive intelligence than just market research. The word *assessment* suggests an ongoing process using a variety of information streams and data gathering techniques including psychological profiling and

new technology evaluation. This process helps decision makers better understand the development of their industry, the behavior and capabilities of their competitors, and what is necessary to develop or maintain competitive advantage.

Table 1. Perceived importance of CI.	
Customers	Needs; preferences; satisfaction level
Competitors	Current; potential; threat assessment
Markets	Current; potential; niche assessment
Products	Research and development
Environment	Domestic and international regulation
Technologies	Innovations; risk assessment
Acquisitions	Opportunity or threat assessment
Alliances	Changes in competitive mix
Suppliers	Materials shortages; reliability assessment

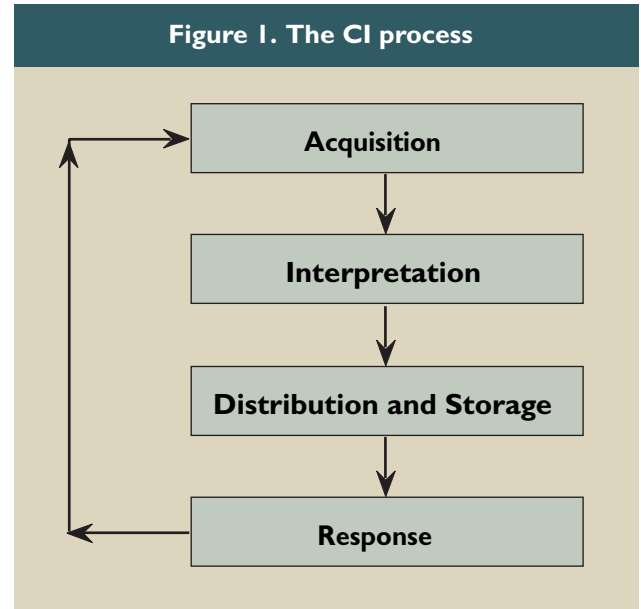
Table 2. Perceived importance of CI.		
	Mean	(SD)
Overall	2.96	0.63
CI-Active CEOs	3.21	0.54
CI-Active CIOs	2.96	0.57
Non-Active CEOs	2.75	0.50
Non-Active CIOs	2.53	0.69

In today's dynamic markets, CI has become an important source of information about the business environment. Major companies, such as General Motors, Eastman Kodak, and British Petroleum, have organized formal CI units [5]. One recent estimate places the global worth of the CI industry at more than \$100 billion [8], exploding from more than \$1 billion in 1988 [7]. The Society of Competitive Intelligence Professionals (SCIP) has grown in 10 years from 8 members to over 4,000 worldwide, and its Web site receives over 23,000 hits per week [10]. The industry is likely to continue to expand, as the need for CI of all types increases within the current environment of rapid changes in organizational structures and operations.

The growth of CI has important implications for both the management and operation of IT units, as IT resources are called upon to support CI activities elsewhere within organizations. Moreover, IT units themselves benefit from conducting their own CI efforts. Despite the critical nature of CI, however, little research has been conducted from an IT viewpoint about management activities regarding CI. This article presents the results of a survey of the attitudes and practices of CEOs and CIOs regarding CI. This study shows that, although competitive intelligence is important to CEOs, firms tend to underinvest in it and that therefore the IT function is not playing as active a role as it might.

Background

Figure 1 depicts the general process of competitive intelligence. Prescott [7] states that the goal of CI is



to provide answers for problems such as who are one's competitors and how to achieve a competitive advantage. In addition, he says, determining the characteristics of a company's industry, its competitors' current positions, and their likely future moves are also important tasks for CI.

CI supports the information needs of organizations in a variety of ways. Purser and Passmore [9] argue that because today's firms operate within a turbulent environment created by technological, economic, and social change, they must devote a significant proportion of their resources to apprehending, thinking, learning, and innovating—the basic elements of knowledge work.

One form of knowledge work is scanning the environment for threats and opportunities. El Sawy [4] observes that top executives spend a large portion of their time scanning for strategic information, and his study sample of 37 CEOs relied far more on external than internal information sources in their efforts. Huber [6], noting that all organizations scan external environmental sources in some manner and to some degree, writes that the challenge is to find problems and opportunities in time to respond with maximum effectiveness. CI, with its multidimensional focus on the business environment, is an important weapon in the scanning effort.

Competitive intelligence and IT. Historically, companies have usually applied CI to the information and business planning needs of non-IT business units. Companies have also used CI in their strategic planning process. On the other hand, considerable information required for CI is in text form, demand-

Table 3. General opinions about CI.

	Overall Mean	SD	CEO Mean	SD	CIO Mean	SD	CI- Active Mean	SD	Non- CI Active Mean	SD
Our IT function already has enough information to support its decision-making without using CI.	1.84	0.64	1.73	0.53	1.84	0.78	1.73	0.60	2.00	0.90
CI uses time and resources better spent elsewhere.	1.89	0.68	1.78	0.57	1.82	0.88	1.69	0.56	2.15	1.15
Most CI can be collected through publicly available sources.	2.49	0.71	2.40	0.71	2.46	0.85	2.46	0.71	2.36	1.03
CI use tends to be a defensive rather than an offensive process.	2.06	0.70	1.96	0.70	1.95	0.90	2.01	0.69	1.79	1.14
CI is more useful in supporting decisions that have already been made than in making decisions.	1.94	0.63	1.86	0.62	1.88	0.78	1.89	0.61	1.79	0.99
Our IT function needs CI as an input to its planning function.	3.20	0.60	3.22	0.79	2.91	0.99	3.28	0.68	2.27	1.15
Values ranged from "Strongly Disagree" (1) to "Strongly Agree" (4), plus "Don't Know"										

ing effective methods for full-text entry, storage, search, and retrieval. Requests for IT technical support, therefore, center on database systems, groupware (such as Lotus Notes), and email [2], as well as Web services.

In addition, IT management itself can benefit from using CI in planning activities. Managing IT in an era of dynamically changing computer technologies demands credible, reliable information. This is particularly important because information technologies can have significant, long-term effects,

forcing a careful trade-off between benefits and costs. For example, if competitors had been gathering information on Federal Express years ago and if they had discovered its efforts in centralized dispatch systems for overnight delivery, they would not have been surprised by FedEx's strategic moves [2].

Ashton, Johnson, and Stacey [1] believe that using CI for tracking science and technology developments is very helpful to organizations for several reasons. It gives direction to research and development (R&D) programs or supports a decision to

Figure 2. How much CI involvement should the IT function have?

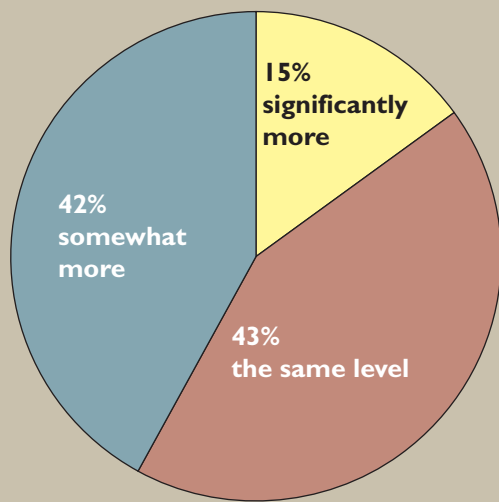
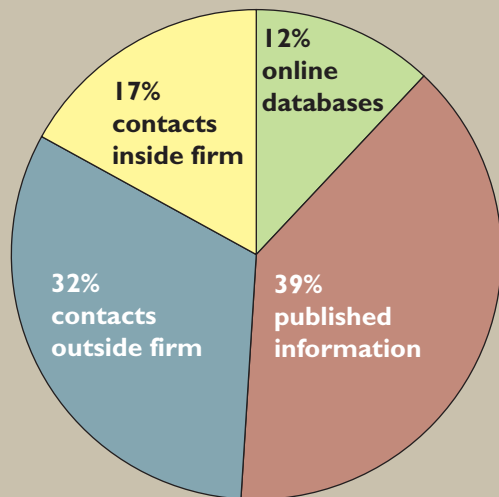


Figure 3. CI sources used for IT.



terminate a particular R&D program. CI also helps firms identify opportunities for investing in or commercializing a new technology and helps them incorporate new technologies into their own products. Ashton, Johnson, and Stacey conclude that such tracking helps identify potential technology-based or augmented threats to market share and identify possible partners for collaborative R&D efforts.

CI also can play a role in the development and operation of strategic information systems (SIS). Cervený, Pegels, and Sanders [3] believe that one of IT's contributions to SIS is identifying new business opportunities and horizons. Their job description of an SIS project manager includes investigating inter-company relationships and competitive forces, iden-

tifying potential IT applications that could result in new or differentiated products or services, and monitoring emergent IT for better problem-solving or competitive-advantage tools. All these activities can benefit from the use of CI.

IT plays a significant role in organization-wide CI processes. Unfortunately, IT units have been slow to recognize the importance of CI-oriented applications [2]. Moreover, CI professionals have great concerns about data access and security.

Survey Results

The purpose of our study was to measure the current state of competitive intelligence activities from the perspective of CIOs and CEOs. The project team mailed questionnaires to CIOs and CEOs drawn from 550 firms in the U.S. (see the sidebar "Research Methodology"). The return sample consisted of 55 CEOs and 82 CIOs. A total of 104 respondents came from CI-active firms, whereas 33 respondents reported no CI activity at their companies. The significantly lower response rate from executives with firms not active in CI was understandable, given that this survey's topic would likely be of less interest to them. The higher response rate from executives with CI-active firms was similarly anticipated. Mean company size was \$9.25 billion in annual sales. Fifty-two percent reported less than 10% of their annual sales come from abroad; another 20% reported foreign sales comprise between 11% and 30% of their totals. There were no significant differences in responses between the 17 industry categories.

Attitudes toward competitive intelligence. Table 2 shows the CEOs' and CIOs' perceived importance of CI. All the participants evaluated CI's importance using a five-point Likert scale. Most respondents believed CI to be at least somewhat important. The CEOs who reported CI activity valued CI the most, whereas the CIOs who reported no CI activity considered CI to be of the least importance. Values ranged from "extremely important" (4) to "not important" (1). The question was asked of all respondents.

Table 3 presents the responses of all participants to six opinions concerning the nature and relevance of CI. Most respondents believed that spending time and resources on CI activities is appropriate and that their firm's IT function could benefit from using CI. Many respondents questioned whether publicly available sources are sufficient for gathering CI, and many questioned whether CI is more useful for defensive or offensive purposes. Most believed CI to be more useful in supporting the decision-making

process than in defending decisions already made. Most believed their IT departments need CI as an input to their planning activities. CEOs tended to be more positive about CI's value than CIOs, especially regarding using CI for the IT function. In contrast to the respondents from CI-active firms, non-CI-active respondents believed more strongly in the value of private CI resources, in using CI offensively as well as defensively, and in using CI for decision support as well as decision justification.

All CEOs and CIOs who did not report CI activity were asked why they did not have an active CI program. The major reasons given were that they did not have the budget or the resources needed for CI, or that they had never given serious thought to using CI. Other reasons were that they were familiar with CI but believed that the costs would exceed the benefits, or that they were concerned about possible legal or ethical effects, or both. An interesting observation is that previous bad experience with CI was not a significant reason given by the respondents.

Table 4. Nature of IT support provided for CI activities.

	Mean Percentage
Providing technical advice for evaluating hardware and/or software alternatives	48.5
Developing software systems or interfaces to support CI activities	24.7
Providing training and technical support	17.0
Other	11.3

ties. The survey asked all CEOs and CIOs reporting CI activity to describe their current administrative structure for conducting CI. The great majority of respondents did not have a formal organizational unit devoted to CI activities. Three-fourths were evenly split between having employees specifically responsible for regular, ongoing CI and operating CI on an ad-hoc, project-oriented basis. Approximately 13% of the respondents stated that their CI efforts

BOTH THE CIO AND THE CEO NEED TO UNDERSTAND THAT ACTION-ABLE, EFFECTIVE COMPETITIVE INTELLIGENCE REQUIRES A STEADY, ONGOING PROGRAM. ANYTHING LESS SHARPLY REDUCES THE USEFULNESS OF THE EFFORT.

The questionnaire asked all CEOs reporting CI activity to explain why their firms used CI. The strongest beliefs reported by CEOs were that CI helps them identify business threats and opportunities and that CI is useful in developing, implementing, or revising strategies. They also stated that CI helps them better understand their firm's performance relative to that of their competitors, but the use of CI by competitors was not a major factor in their decision to use it.

The questionnaire asked all CIOs reporting CI activity to evaluate the suitability of IT's current level of CI involvement. Figure 2 shows the desired level of involvement. Most of the respondents were evenly split between thinking that their current level of IT involvement in CI is appropriate and wanting somewhat more involvement. A smaller percentage indicated that the current level should be significantly more, but none of the CIOs indicated that they should have less involvement than at present.

Competitive intelligence practices. This section measured the nature and extent of current CI prac-

were totally informal.

The questionnaire asked all CIOs reporting CI activity to indicate the degree of IT's involvement with the overall CI effort within their companies. Forty-three percent of the respondents reported moderate to average activity, as compared to other company functions or departments, and 30% reported less activity when compared to other departments. Nine percent responded that the IT function rarely plays the leadership role for CI activity within a firm, and only 15% of the respondents indicated that IT had a heavy involvement in the firm's overall CI effort.

The questionnaire asked all CIOs reporting CI activity to allocate that effort between supporting their own function's CI needs and supporting the CI needs elsewhere within the firm. Although the assigned percentages varied considerably, the CIOs indicated that approximately 57% of the total effort supported the CI needs of other business functions or departments, and 43% supported the needs of the IT function.

The survey asked all CIOs reporting CI activity to

Figure 4. Perceived effectiveness of the firm's CI effort.

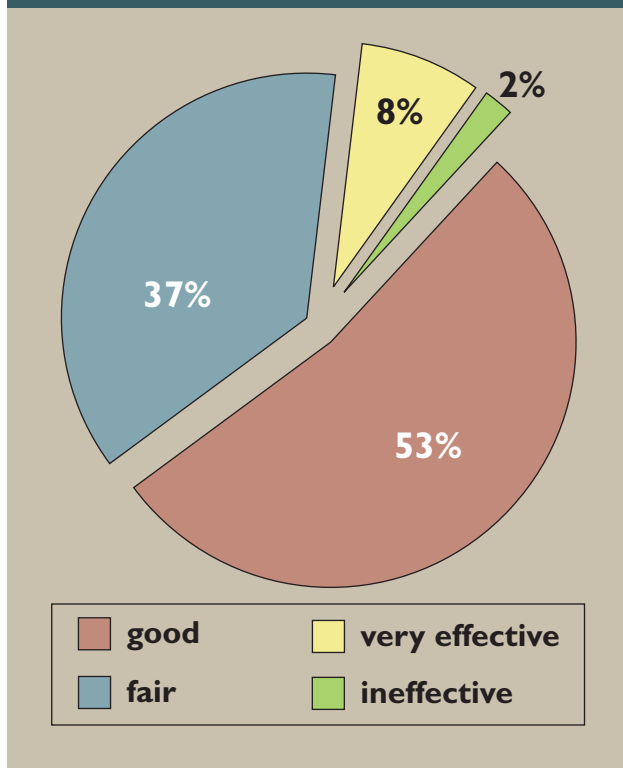


Table 5. Percentage of responsibility for CI activity.

	Mean	CI Firms	Non-CI Firms
Business function executive	43.6	41	75
Other executive (ex. Planning)	29.1	31	0
VP for marketing or sales	12.7	12	25
CFO or equivalent	7.3	8	0
COO or equivalent	7.3	8	0
CIO or equivalent	0	0	0

indicate what business functions the IT unit supported with CI. Respondents could select more than one answer. Senior management and marketing functions received the most support, followed by corporate and/or division planning. Manufacturing, finance, R&D, and legal functions each received a substantial amount of IT support.

Table 4 shows the CIOs' descriptions of the nature of the intelligence support that their function provided. Nearly half the respondents indicated that the primary form of support was giving technical advice for evaluating hardware and/or software alternatives. Developing specific CI applications was far less common. The respondents were allowed to select more than one answer.

Figure 3 shows the breakdown of sources of information used by all CIOs who reported CI activity. The respondents were asked to assign percentages that totaled 100%. Published information was cited most often (39%), and the use of online databases was cited least often (12%).

Table 5 shows the percentage of responsibility for CI activity. The respondents were allowed to select only one answer. The questionnaire asked all CEOs reporting CI activity to indicate what type of business person was primarily responsible for the firm's CI effort. CEOs not reporting CI activity were asked to specify who would be assigned this duty if the firm started a CI effort. The most frequent response given by both groups of CEOs was that a business function executive currently had or would have the responsibility. The second choice cited by CEOs reporting CI activity was some other executive, such as someone responsible for planning. The second choice cited by CEOs not reporting CI activity was a vice president for marketing or sales.

Figure 4 shows the perceived effectiveness of a firm's CI effort. The questionnaire asked all CEOs reporting CI activity to evaluate the effectiveness of their company's involvement with CI. A majority (53%) rate their CI effort as "Good," with "Fair" receiving more than a third of the remaining votes. Only 2% indicated that their firm's CI activity was ineffective.

The survey asked all CEOs reporting CI activity to indicate what change they anticipated in their company's CI efforts over the next two to three years. Approximately 14% believed that their CI effort would increase significantly. Almost 75% stated that their CI effort will show some increase. Approximately 10% anticipated that their firm's CI effort would stay at the same level, and no firm planned a decrease.

When estimating what their future CI efforts might be, CEOs and CIOs not reporting CI activity indicated overwhelmingly that they favor a less formal approach to implementing CI processes. Approximately 48% of the CEOs and CIOs responding to this question answered that they would select an ad-hoc or project-oriented approach, and approximately 38% favored a totally informal structure. Only 7%, however, anticipated having a regular, ongoing CI effort at some point in the future. Another 7% did not anticipate becoming involved in CI activities at all.

Attitudes toward the IT function. Another part of the questionnaire explored additional CEO and CIO attitudes toward and perceptions of the IT

function, to determine the effectiveness of IT support for CI. The questionnaire asked all CEOs and CIOs to describe the relationship between the firm's IT function and top management. Fifty-seven percent of the respondents perceived the IT function as being a partner in the firm's strategic planning efforts, whereas 43% described the IT function as being a cost center.

The questionnaire asked all CEOs and CIOs to evaluate the effectiveness of the company's IT function. Nearly 42% of the CIOs perceived the IT function's effectiveness as being among the best in their industry, whereas only slightly less than 24% of the CEOs perceived information technology's effectiveness as being among the best. Approximately 47% of the CEOs perceived the IT function's effectiveness as being better than average, while only 33% of the CIOs saw it the same way. Few CEOs and CIOs would say IT effectiveness is below average: 7.3% of the CEOs and 2.4% of the CIOs indicated that view.

The questionnaire asked all CEOs and CIOs to describe the CIO's role. The respondents assigned percentages to indicate an ideal mix, adding up to 100%. The CEOs stated that the CIO was 37.1% business person, 25.4% technologist, 23.4% change agent, 12.6% administrator, and 1.5% miscellaneous. The CIOs stated that the CIO was 40.7% business person, 21.7% technologist, 27% change agent, 9.8% administrator, and 0.8% other.

The Impact of Competitive Intelligence

Based on the wide spectrum of industries that replied and the positive response rate, the results of the study suggest that considerable interest in CI exists among CEOs and CIOs. The respondents indicated that CI can have both offensive and defensive uses. They believe that even though CI gathering requires the use of public and private sources of information, the benefits are worth the time and resources expended. Most CI efforts were split between using an ad-hoc, special project approach and regular, ongoing activities. The main responsibility for most firm's CI efforts rested with a business function executive or planner. The effectiveness of current CI efforts was rated as being "good to fair," which suggests a need for improvement.

Almost all the CEOs reported some CI activity in their organizations. Further, 75% of them anticipated some increase in those activities. They view CI activity as an important information source for identifying business threats and opportunities. They see CI as being useful in developing, implementing, and revising business strategies. However, only about 8% of the firms report having an organizational unit devoted to CI. This disparity would seem to be goal incongruent. If the CI activity is important, then it would make sense that CI efforts would have more resources devoted to it than the study identified. It may be that the rate of return on investment for CI

Research Methodology.

The research objective of the study was to investigate the current extent of attitudes and practices among CIOs and CEOs relative to CI activities. The authors developed survey questions involving four main topics: attitudes toward CI, CI practices, attitudes toward IT (to see if any of these affected the assessment of CI value), and demographics (to investigate whether these characteristics significantly affected results). Several rounds of pilot-testing ensued, using IT executives from two different companies, plus a CI professional from yet another firm. Their feedback helped revise the questionnaire into its final form.

The survey's total sample size was 1,100, drawn from 550 firms nationwide representing 17 industry categories including petrochemical, transportation, retail, and insurance. The goal in the sample selection was to obtain responses from as many large companies nationwide as possible to repre-

sent a cross section of different industries. The individuals comprising the total sample held the titles of Chief Executive Officer (CEO) or equivalent, or Chief Information Officer (CIO) or equivalent. The survey instrument consisted of four questionnaires, organized in two sets: CEO—no CI activity; CEO—some CI activity; CIO—no CI activity; and CIO—some CI activity. Each CEO or CIO in the 1,100-person sample received a mailing which consisted of a cover letter, a one-page definition of competitive intelligence, and the appropriate set of questionnaires. Respondents were to complete either a CI-active or non-CI-active version, depending on their understanding of the working definition.

From the 1,100 surveys mailed, the project received a total of 137 valid responses, a 12.5% response rate, from companies representing all 17 industry classifications. **C**

activities is too difficult to quantify and therefore to justify. Consequently, it may be difficult for management to support the costs associated with CI efforts. This will probably be a continuing problem if the demand for CI grows as reported by the respondents. Also, if the anticipated increase in CI activities occurs, it is probable that the use of IT in those activities will need to grow in the future, thereby placing an increasing demand on the IT function and the CIO.

Interestingly, the results of this project are similar for the most part to those reported by the most important prior study of CI from an IT managerial viewpoint, namely a survey of mid- and upper-level managers sponsored by The Conference Board, Inc., a business information service for senior executives [11]. For example, those respondents indicated that CI was at least fairly important to them, that they mostly practiced ongoing CI or project-oriented CI, and that they expected their CI activity to increase in the future. They differed from the present study in believing external contacts to be their most important CI source, and in preferring a marketing or sales executive to be responsible for the CI effort.

Given the results of our study, what issues should the CIO address to become more involved with competitive intelligence? First, any CIO who believes he or she is not very knowledgeable about competitive intelligence needs to remedy this situation, and perhaps consider joining the Society of Competitive Intelligence Professionals. SCIP publishes the practitioner-oriented *Competitive Intelligence Magazine* and its many local chapters hold quarterly meetings. Second, since the survey results indicate that CEOs tend to be more CI-aware and active than CIOs, it is important for the CIO to understand the CEO's position on competitive intelligence. Third, the CIO should learn who within the organization has responsibility for CI activities and begin a working relationship with that person to improve the quality and level of IT support. Fourth, the CIO needs to explore how CI could strengthen his or her own strategic planning efforts within the IT unit, and implement an appropriate CI effort. Finally, both the CIO and the CEO need to understand that actionable, effective competitive intelligence requires a steady, ongoing program. Anything less sharply reduces the usefulness of the effort.

Competitive intelligence is a growth industry within organizations. It is becoming increasingly important for IT units to respond effectively to the needs of other business units for computer support in this area. But the results of this survey have their

greatest meaning for IT professionals. IT units need to practice CI on an ongoing basis for their own benefit. CI helps clarify the relative strengths and weaknesses of the IT infrastructure when compared with that of other firms. In an era of rapidly, and sometimes dramatically, changing information technology, CI helps identify threats and opportunities posed by those technologies. Thus CI is useful for keeping IT management informed, as well as for developing, implementing, or revising budgetary and strategic planning. **C**

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