
A Review of Issues Related to Gathering and Assessing Competitive Intelligence

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INTRODUCTION

There are three main streams of intelligence activity (Prescott, 1995): Military intelligence; national security as a policy issue; and business intelligence. This paper will deal with the latter, which is commonly called competitive intelligence (CI).

Businesses and CI Today

Although it seems obvious that CI is critical to a firm's survival, in these days of cost cutting and competition from foreign companies, there are still a large number of companies that have not installed a formal competitive intelligence unit. The Futures group, a management consulting firm based in Conn., recently surveyed 103 large and mid-sized U.S. corporations. Only 75% of the respondents, with more than \$1 billion in revenues, said they had a formal organized approach to feed critical information to decisions makers. Half the companies that did not have a formal organized approach did not believe the competition was spying on them and didn't want intelligence of any kind (Ettorre, 1995).

Yet, a survey of 246 companies by Heffernan and Swartwood (1/93) found that misappropriation attempts have had a significant impact on U.S. Industry. In their 1992 assessment, 32 respondents provided exact figures on their company's losses due to competitive intelligence activities. These respondents indicated that their companies had lost a combined \$1.8 billion due to the incidents against their companies. Only 17 said there was no resource impact on their company.

When Heffernan and Swartwood averaged the reported losses of the rest of the respondents, their analysis

indicated that large firms (with annual revenues of more than \$500 million) lost an average of \$7.45 million; and mid-size companies (\$51 million to \$500 million) lost more than twice as much, or an average of \$15.5 million, because of competitive intelligence related activities against their operations.

Competitive intelligence activities by competitors can also impact other company resources. For example, they can result in (Heffernan and Swartwood, 1/93) in:

- Increased administrative costs
- Increased legal activities
- Loss of Market share
- Increased security costs
- Embarrassments to the company

CI Versus Espionage

Competitive intelligence is often confused with business espionage, but these concepts are actually quite different. Competitive intelligence is a process of knowing what the competition is up to and staying one step ahead of them, by gathering actionable information about competitors and, ideally, applying it to short and long-term strategic planning (Ettorre, 1995).

However, the real distinction between CI and espionage is that CI involves the ethical and legal gathering of information, the majority of which is readily available. It is quite different from business espionage, which is backroom, cloak and dagger operations, that are illegal (Caudron, 1994). Corporate intelligence becomes illegal

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espionage when it involves the theft of proprietary materials or trade secrets.

It seems that with the amount of data available today, there would not be a need for a competitor to engage in illegal, covert, or espionage actions. However, some recent cases of industrial espionage indicate that this is not the case. For example in 1991 alone, the following cases of espionage were detected (Barndt, 1994, p.62-63):

- French intelligence agents working undercover as staff in the Nikko Hotel, Paris, broke into two rooms of visiting executives of the National Cash Register Co., making off with two lap-top computers believed to contain valuable corporate secrets.
- After losing a major contract to a European competitor, a large American electronics firm examining the winning bid found an exact copy of its pricing proposal and realized that its communications were being intercepted by a foreign intelligence service that supplied the information to the competitor.
- Two men were spotted stealing bags of trash from outside the home of a U.S. computer executive in Houston in a search for corporate secrets. One of the men was the French consul in Houston.
- A U.S. company found that Salvadoran workers recruited by a foreign spy service had planted electronic transmitters on computer keyboards to obtain company secrets.
- Intelligence-gathering ships of the former Soviet navy have turned their electronic ears on the telephone conversations of American businessmen to obtain economic intelligence.

Thus it is clear that espionage is still an issue. However, it is important that businesses remember that espionage is illegal. Today, more than ever, it is important that companies have a clear understanding of the difference between gathering competitive intelligence and espionage, as President Clinton signed legislation on October 11, 1996, that makes industrial espionage a federal crime carrying penalties of up to 15 years and \$10 million in fines (Crock, Weber, Melcher, and Himelstein, 10/28/96).

Purpose of this Paper

CI is an evolving field that has not had a lot of attention devoted to it by the academic field. As a result, there is no real theoretical basis for CI and most of the writings in the field are by experts. According to Prescott (1995, p. 87) "one reason why CI has not gained more attention in academics is the lack of a theoretical framework. Given the promotion requirement of most schools, publication in a select set of journals is required. Those journals require theoretical frameworks. When a theoretical framework is developed, that is subject to empirical testing, academics will flock to the field".

In spite of the lack of academic attention, there is much to be learned about competitive intelligence. The purpose of this paper is to provide an understanding of competitive intelligence by: (1) providing an overview of the background and importance of CI, (2) reviewing methods for acquiring and analyzing CI, (3) reviewing security issues related to CI, and (4) providing an assessment of the implications of CI.

IMPORTANCE & BACKGROUND OF CI

Competitive intelligence systems serve four primary functions (Caudron, 1994): (1) support for strategic decision-making, (2) early warning of opportunities and threats, (3) competitor assessment and tracking, and (4) support for strategic planning and implementation.

Competitive intelligence is important to the firm because it makes effective decision making possible, so that a company's management can make smarter decisions than its competitors. It also helps management develop a higher awareness of competitive threats and opportunities.

The following sections will provide an overview of the evolution and growth of competitive intelligence, the types of CI, stages in the development of CI, usefulness of CI, and financial impact of CI losses.

Evolution/Growth of CI

There has been a significant growth in competitive intelligence related activities both within and outside of the U.S. According to Heffernan and Swartwood (1/93), the U.S. the per month incidence of business information loss has risen 200% since 1985. They also noted that foreign involvement is up even more as it has increased nearly fourfold since 1985. The importance and escalation of competitive intelligence activities outside of the U.S. is evidenced by such activities as (Parker, 4/94): (1) The KGB's establishment of a service that sells economic information to companies engaged in foreign trade; and (2) The gathering and analyzing of intelligence for Japanese industrial conglomerates by Japan's Ministry of International Trade and Industry (MITI). Prescott (1995, p. 74), attributes this growth to three basic assumptions:

- Managers believe that competitive intelligence is one piece of a puzzle, which when constructed, leads to sustainable competitive advantage. Managers increasingly believe that a clear understanding of the competitive landscape is necessary for the design and implementation of strategy.
- A methodology exists for doing and managing CI that produces meaningful intelligence. It is important to distinguish the doing of intelligence from its management. The doing of CI relates to the process of planning a study, collecting data, transforming data into intelligence, presenting and disseminating implications, and evaluating the effectiveness of the project. The management of CI involves the mission and structure of the CI unit

and the characteristics of individuals assigned to the unit. The management of CI is less well developed than its counter part "doing".

- Intelligence can impact the decision making process. However, to date, there has been little effort to investigate systematically the impact of CI on the decision-making process and firm outcomes.

Types of CI

Cartwright, Boughton, and Miller (1995) separates CI activities into four broad categories: (1) Ad hoc, (2) continuous comprehensive, (3) continuous focused, and (4) project based. Ad hoc CI analysis is performed on an as requested basis in anticipation of, or in response to, an event in the market place. Outputs of an ad hoc CI analysis are one-time in nature and focuses on a competitor, or competitive product. Activities may be focused on a competitive event that has occurred or a competitive event that is anticipated to impact the firm or its operations. Ad hoc CI does not necessarily require the existence of a formal CI function within the firm.

Continuous-comprehensive competitive analysis is performed on an on-going basis by a formal CI staff to investigate broad competitive forces shaping the industry. Assessments of competitors, the industry, technologies, and other major industry factors are the outputs of continuous comprehensive competitive analyses.

Continuous-focused competitive analysis is performed on an on-going basis by a formal CI staff. Its purpose is to investigate specific competitive issues defined by key strategic decision makers. Assessments of specific competitors, specific industry and technological issues, and other major factors, as guided by the strategic decision makers, are the outputs of the continuous-focused competitive analysis. In contrast to continuous comprehensive, this approach is narrowly defined and concentrated around a few issues of strategic importance.

The final method, project based CI, is performed by a project team specifically to understand how competitors may influence the success of a given project. The focus is on the competitors' relevance to the specific project. The output from this method is an assessment of the strengths and weaknesses of competitors vis-à-vis the project being evaluated.

Cartwright et al. (1995) conducted a survey of 428 firms that are members of the Society of Competitive Intelligence Professionals to determine the usage of the various methods within the member firms. Their findings indicated that although "ad-hoc" is the most commonly used form of CI program (ad hoc was used by 87.8% of the firms), many firms use multiple types of CI. For example, 29% of the firms they sampled indicated that they make use of all four types of CI, whereas only 24% said that they use only one type of CI.

Stages in Development of CI

According to Prescott (1995), the field of competitive

intelligence has passed through three stages of development: The first stage of development focused on competitive intelligence gathering (1960's and 1970's). During this period, CI gathering activities were informal and tactical, and there was little or no analysis of the data collected. CI also received very little top management attention and there was only a small link to decision making. The principal location of CI personnel was in the library or marketing departments.

The second stage of the development of CI consisted of industry and competitor analysis (1980's). During this stage of development, formal CI units began to emerge and CI personnel switched from being part of a library/marketing function to being part of a planning/marketing function. The orientation of CI activities remained tactical and were limited to quantitative analysis of data. This was also the period during which the spy image evolved for CI.

CI is currently in its third stage of development. This period is referred to as competitive intelligence for strategic decisions making and began in the 1990's. This stage has seen CI move to be a formal unit with CI personnel being located in marketing, planning, and CI units. The orientation of CI activities has also switched from being tactical to mixed, with both a quantitative and qualitative orientation. It has also began to receive moderate attention from top management and develop a stronger link to the decision making process.

Although CI has evolved into an essential part of the foundation on which tactics and strategies are starting to be built, assessed, and modified, many firms are just starting to break the surface of CI.

Usefulness of CI

In an effort to get an indication of just how useful management finds the information generated by competitive units, Cartwright et al. (1995) conducted a survey of members of the Society of CI professionals. Their findings indicated that on a seven point scale, the overall rating for CI usefulness in making strategic decisions was 5.88. The most useful form of competitive intelligence was project based CI. Other findings resulting from Cartwright et al.'s study include (p.428-429):

- The usefulness of competitive intelligence is directly related to the "use situation". Specific action-oriented applications, such as project-based, will be more useful to decision makers across strategic orientations.
- The usefulness of competitive intelligence produced by formal competitive intelligence systems is directly related to the strategic orientation of the firm.
- The greater the perceived technical adequacy of CI, by decision makers, the greater the perceived usefulness of CI.
- The greater the perceived actionability of the CI, by decisions makers, the greater the perceived use-

fulness of the CI.

- The perceived surprise level of the CI by decision makers does not impact the perceived usefulness of the CI.

They also found that the greater the degree of perceived interaction between key decision makers and the CI unit, the greater the perceived usefulness of CI.

ACQUIRING AND ANALYZING COMPETITIVE INTELLIGENCE

The intelligence cycle consists of collecting and compiling the data, cataloging the data, analysis of the data, and communication of the data (Sammon, 1984). However, before discussing this area, it will help to have an understanding of the difference between intelligence and information. Sammon (1984, p. 91) makes the following distinction:

Information is the raw material of the intelligence process. It is unevaluated, unanalyzed data derived from every possible source of information, such as financial statements, trade show gossip, union news letters, market place rumors, product brochures, executive speeches, and so on. The bits and pieces of competitor information that flow by in a constant stream may be true, false, relevant or irrelevant, confirmed or unconfirmed, positive or negative, deceptive or insightful. In its undigested state, the voluminous competitor information may be vaguely interesting and occasionally intriguing, but however glittering it is, it is essentially an unusable and potentially dangerous resource. Intelligence is the analytical process that transforms disaggregated competitor data into relevant, accurate, and usable knowledge about competitors' position, performance, capabilities, and intentions.

In the sections that follow, we discuss some general rules for directing the intelligence function. We also discuss some of the techniques that can be used to acquire and analyze competitive intelligence. This subject has been divided into the following sections to facilitate the discussion: (1) directing CI activities; (2) collecting information; (3) analyzing CI; and (4) disseminating CI.

Directing CI Activities

The directing phase of the intelligence cycle is the most important, but is the most often ignored. This phase is important because the fundamental intelligence problem is not collecting information, but rather what to collect and for what purpose. To help managers with these decisions, and provide proper direction to CI activities, there are four questions that managers should ask (Sutton, 1988, p. 6-7):

- Which current and potential competitors should be analyzed and why?
- What do we need to know about these com-

petitors and why?

- How can we learn what we need to know, what are the most useful data sources, and how can we tap into them?
- How can we analyze the data to make it relevant for decision making?

By answering the above questions and defining the company's CI needs, management should be able to avoid collecting competitor information in an aimless and unsystematic fashion. It should also help management avoid letting the collection of data take precedence over direction, and ensure there is a proper level of senior management involvement.

Collecting Information

Prior to starting the collection of information, the competitive analysis techniques to be used should be identified. There are a wide variety of competitive analysis techniques available. For example Prescott and Grant (1988) provided a list of 21 competitive analysis techniques that are available to managers. They also analyzed the techniques along a set of 11 dimensions. A listing of the techniques and their advantages and disadvantages have been included in appendix 1.

The analysis techniques selected will be greatly influenced by the category of CI activities to be performed (ad hoc, continuous comprehensive, continuous focused; and project based). However in determining which of the analysis techniques to use, management should ensure that the thrust of the information search is toward obtaining information that will, at a minimum, enable the performance of the following analyses of competitors (Caudron, 10/02/94):

- Analysis of ownership structure - to determine the structure of your competitors.
- Analysis of key indicators - to identify the competitors' industry, revenues, sales, consumers, markets, products and services, cost structures, asset composition, financial ratios, financing sources, cash flows, etc.
- Analysis of competitive position - to identify competitors' prices; costs to produce or purchase; costs to sell their products and services compared to your system; and competitors for similar products and services.
- Analysis of current strategies - to identify and analyze: (1) your competitors' current strategies and tactics; (2) why they are pursuing these strategies and tactics; and (3) the opportunities and threats presented to your company as a result of their current strategies and tactics.
- Analysis of future strategies - to develop possible scenarios, of what you believe may be your competitors' future strategies and tactics,

which they may pursue, and the possible opportunities and threats their strategies and tactics present to your company.

Once the analysis techniques that are to be used are identified, the information collection process can begin. At this point it is usually evident that collecting relevant information and finding useful sources is not nearly as large a problem as it was thought to be. The real problem is often determining the relevant mix of information sources and collection agencies that can provide the raw and unevaluated competitor information required.

While there are many sources of competitive intelligence, they can all be placed into one of the following broad categories:

- The firm's employees
- On-line sources, such as data bases and the internet
- Secondary sources, such as journals, public documents, and miscellaneous information in hard copy

The following sections summarize the sources that can be used to acquire the information needed to do the above analyses. A summary list of sources of web information and a listing of non web sources of information are provided in appendixes 2 and 3 respectively.

Employees

It is estimated that between 70% and 90% of the intelligence a company typically needs resides with employees who collect it while dealing with the company's suppliers, customers, and other industry contracts. The challenge for companies is to create a way of collecting and analyzing the useful information that resides with employees (Caudron, 10/03/94).

To successfully tap into the wealth of information that resides with employees, companies need to identify (Parker, 4/94, p. 39):

- What employees have what kind of information.
- How the organization stores and communicates competitive information.
- How the entire organization can be made aware of management's needs.
- How employees can be motivated to contribute the needed information.

After these questions are answered, the company should have a good idea of how it can capture and disseminate employee intelligence throughout the organization.

Gathering CI on-line

There are two possible sources of on-line information: (1) data base vendors, and (2) the internet. However, be-

fore you can access either of these sources of information you must be able to get "on-line". To get on line and access information electronically, you need a personal computer, a regular telephone line, special communications software such as cross talk, smartcom, or procomm, and a modem to translate computer bits and bytes coming over the phone line.

Once you have the required equipment and are ready to get on-line you must decide whether you want to use a data base vendor, the internet, or both. Appendix 4 includes a listing of the more popular data base vendors. These companies maintain a number of databases on a mainframe computer and charge a monthly user's fee and/or a fee for each minute you are connected to their mainframe. Many also charge for each article or piece of information you view or print. These electronic data bases can be used to scroll through newspapers, magazines, financial reports, and just about anything you might find at a library.

Access to the internet (world wide web) can be obtained through a local internet provider or a service such as America on-line, CompuServe, or Prodigy. Through the internet, a company can also get access to vast amounts of data. However, there is a big difference between searching on-line databases for competitive intelligence and surfing the net. According to Lunin (3/95, p. 44), the biggest difference is that with databases, which have controls and standards, you have some degree of quality assurance. Usually secondary information is based on the primary publication. Therefore, there is integrity of the information, and assurance that the data are complete, and that the data base or document is the only one in circulation. Also, the data base providers have secure firewalls. Therefore, if something is found in a commercial database, it is because more than one person thought it was of value.

There are, however, no such controls over data secured over the internet. No one ensures that the information found on the internet is accurate, and there are no assurances that the information obtained is current or valid. Therefore, extreme caution must be exercised when obtaining information over the internet. Some tips for using the internet effectively are provided in appendix 5.

It is important that users remember that there is no such thing as simply pulling information from the computer, or off the Internet. Lunin (3/95, p. 44) suggests the following steps for minimizing the cost of collecting competitive intelligence "on-line":

- Know your sources
- Take advantage of powerful system features
- Maintain a sense of scale
- Know where not to go on line
- Know when to call in an expert

Secondary/Hard Copy Sources

Some of the more well known secondary sources of data for CI are trade journals and public documents such as UCC (uniform commercial code) filings. However, there

are some lesser known secondary sources of information that a firm can use to enhance its intelligence gathering activities. These include sources such as: (1) Wall Street Transcript, which profiles a different industry each week and includes in-depth round table discussions with leading CEOs; (2) Value Line, which has monthly statistical and financial analyses of companies and industries; and (3) Gales Encyclopedia of Associations, which lists more than 87,000 trade and consumer organizations, including contact names and phone numbers. Trade shows are a particularly good source of CI information as hand outs are often available. These handouts can provide valuable insights into a company's strategy and product offerings.

Other Sources

Some other sources of information include (Parker, 4/94): (1) National Trade Data Bank CD-ROM, which is produced by the U.S. Department of Commerce and is helpful for compiling international market research; (2) National Technical Information Service; which is a federally sponsored program disseminating military, political, economic, and technical data from a host of regions to subscribers, and (3) Broadcast information service reports, which summarizes foreign television and radio broadcasts by region.

Analyzing CI

The analysis of CI consists of processing the data (information) into intelligence by evaluating and interpreting the information. Each of these phases are briefly summarized below.

Processing Data

The processing stage of intelligence gathering is the critical stage where the raw data is recorded. This part of the analysis stage is very time consuming, as the analysts must record the raw information as it is collected.

During this stage 80% of an analyst's time is typically spent recording, cataloging and filing, and only 20% is typically spent on the primary task of analyzing, reviewing, and piecing together information to get the intelligence required (Sammon, 1984).

Evaluation/Interpretation

Although the analyst performs an initial evaluation of the collected data during the processing phase, there is usually a separate formal evaluation of the information at a later stage. This evaluation is typically oriented towards the merits of the information.

After the formal evaluation of the data is completed, the data is interpreted. This is considered to be the core of the processing phase, as it is during this phase that the data is analyzed to try to determine what it all means. To do an effective job of interpreting information, the analyst that is sifting and sorting the evaluated information must have a clear understanding of the following issues (Sammon, 1984, p.130):

- Strategic objectives of the decision makers, who are the intelligence consumers.
- Character of the established intelligence requirements.
- Macro forces affecting the competitors.
- Operating characteristics of the competition.
- Main sources of comparative advantage in the industries and markets in which the competitor moves.

It is mainly through the mental processes of integrating each piece of information with all other information gathered from separate sources, that the analyst can understand the perspectives, values, and pressures that influence the behavior and form the strategic goals of a competitor's management.

Disseminating of CI

Dissemination is the final phase of the intelligence cycle. It is during this phase that the intelligence is communicated to the decision makers who need it to formulate their plans and make informed decisions.

The format in which materials and analyses are presented to management is important. A practical way to structure the dissemination is to develop an integrated set of intelligence reports or briefs that cover the following four categories of intelligence (Sammon, 1984, p. 132):

- Net estimates of competitor strategies
- Periodic reports on competitors
- Activities and trends
- Base case intelligence research on competitors
- Spot intelligence items of interest

Sutton (1988) suggests the following ways of making information available to management: (1) occasional written reports, (2) file materials available on request, (3) periodic reports, (4) occasional presentations, (5) newsletters, (6) electronic data bases, and (7) periodic presentations. E-mail, which has become very popular since Sutton's study, would also be an excellent way of making the information available.

IMPLICATIONS

The growth of competitive intelligence activities has been fueled by the growth in computerization. The increased use of computers and the increased availability of data on-line, from data bases and the internet, have given companies the ability to access and manipulate data in volumes and at speeds that were not even dreamed of decades ago. This increased capability has also brought vast opportunities for innovation, entrepreneurship, and profit making.

Thus, the issue of competitive intelligence seems to be an area where management will be forced to place more emphasis, as global competition increases and technology

continues to advance. Doing this, however, will not be easy, and we can expect even those companies with "state of the art" CI operations to continue to struggle with some issues.

Some of the issues that will continue to be a struggle for many companies include (Gibbons & Prescott, 1996): (1) what needs to be collected, (2) who or what functions should be responsible for intelligence efforts, and (3) how do we ensure that intelligence is disseminated to appropriate managers timely. Management must realize that it is not enough to simply obtain piles of data, which is relatively easy with the internet and computer data bases. They must push to develop CI capabilities that will enable them to filter through the noise and find and analyze the relevant facts (Crock et al., 1996).

Those firms that haven't established CI functions within their companies face much bigger issues. As a first step, they must get busy and determine their intelligence needs and establish an organization for gathering competitive intelligence.

Overall, the future of CI looks very bright. Prescott (1995) sees the future of CI as being one where: (1) CI courses are taught in business schools across the world; (2) there is an integration of formal and informal CI units, (3) more emphasis is placed on qualitative analysis; (4) CI units have a direct input into the decision making processes within organizations, and (5) CI receives a high level of attention from top management.

Whether Prescott is overly optimistic about the future of CI remains to be seen. One problem with the writing in the field of CI is that very few are based on studies that have been conducted using scientific research techniques. There are, however, some exceptions. For example: (1) Cartwright (1995) used scientific methods to investigate the various forms of intelligence, and the usefulness of CI; and (2) Heffernan and Swartwood (1/93) reviewed the financial impact of CI losses and examined the methods being used to acquire competitive intelligence.

Thus, there is clearly a need for an examination, on a scientific basis, of the many principles and writings, as much of the data has not been verified through scientific methods. It is also possible that even in those cases where experiments have been performed, the experimental data may have been inadequate or the experiment may have been improperly controlled, resulting in unuseful conclusions being drawn. Some of the areas that continue to be in dire need of research are:

- Value of Competitive Intelligence - One would assume that there would be a relationship between the presence of a CI unit and company profitability. If such a relationship could be found, it would certainly give management an incentive for placing a greater degree of emphasis on establishing CI units, and staying involved with its activities.
- Importance of Management Involvement - Is assumed that there is a relationship between mana-

gerial involvement with CI activities and the strength of the CI units. Empirical testing and verification of this connection would enable a much stronger case to be presented to management, regarding the need for their involvement with and support of CI related activities.

- Sources of CI - Today, there are many sources of information, and it can be a daunting task to determine which are the most useful. A survey or investigation of the methods in use, and their frequency and usefulness, would prove to be invaluable for those companies in the process of setting up CI units, as well as those companies interested in improving the efficiency and effectiveness of their intelligence activities.
- CI Analysis Techniques - Prescott and Grant (1988) identified 21 competitive analysis techniques available to managers and analyzed the techniques along a set of 11 dimensions. Research should be conducted to rank these methods according to their usefulness.
- Dissemination of CI - The format of CI and the methods used to disseminate it are believed to be important. For example, Sammon (1984) identified several categories of intelligence that should be covered, and Sutton (1988) suggested several ways of making information available to management. However, there is no evidence that these authors' opinions were ever validated by other studies. There is also an issue of time, because there have been many technological advances since these reports were prepared.

Other areas that could be given scholarly attention include: (1) what are the methods of cataloging data in use and what can management do to improve the efficiency and effectiveness of the cataloging function; (2) how can a company improve its environmental scanning capabilities, and (3) what kinds of information are most useful to management for decision making. Thus, while the area of competitive intelligence is evolving and is expected to continue to grow, there are still many areas that need to be better understood, and even where there are writings by experts, these opinions must be viewed with a certain amount of skepticism until they are validated through scientific research techniques.

Until academics have done a thorough search for the truth, the practitioner should adopt a mental stance of an agnostic posture followed by a questioning posture, when confronted with reports or sure-fire prescriptions related to CI.

REFERENCES

- Barndt, W.D. (1994). User directed competitive intelligence: Closing the gap between supply and demand. *Quorum Books*, West Port, Conn.
- Cartwright, D.L.; Boughton, P.D. & Miller, S.W. (1995) Competitive intelligence systems: Relationships to strategic orientation and perceived usefulness. *Journal of Managerial Issues*, 7(4), 420-434.
- Caudron, S. (10/03/94). I spy, you spy. *Industry week*, p. 35-40.
- Crock, S.; Smith, G.; Weber, J., Melcher, R. And Himelstein, L. (10/28/96). They snoop to conquer. *Business Week*, p. 172-176.
- Ettorre, B. (10/95). Managing competitive intelligence. *Management Review*, p. 15-19.
- Fuld, L. (6/03/96). Beginner's guide to world-class snooping. *Forbes, ASAP*, p.90.
- Gibbons, P.T. and Prescott, J.E. (1996). Parallel competitive intelligence processes in organizations. *International Journal of Technology Management*, 11(1/2), p. 162-178.
- Heffernan, R.J. and Swartwood, D.T. (1/93). Trends in competitive intelligence. *Security Management*, P. 70-73.
- Luecal S. & Dahl, P. (1995). Gathering competitive intelligence. *Management Quarterly*, 36(3), p. 2-10.
- Lunin, L.F. (3/95). Secure and competitive intelligence on and off the Internet. *Information Today*, p. 44.
- Parker, E. (4/94). The spy fighters. *Success*, 33-39.
- Prescott, J.E. (1995). The evolution of competitive intelligence. *International Review of Strategic Management*, 6, p. 71-90.
- Prescott, J.E. & Grant, J.H. (1988). A Manager's Guide for Evaluating Competitive Analysis Techniques. *Interfaces*, 18(3), p. 10-22.
- Sammon, W.L.; Kurland, M.A. & Shitalnib, R. (1984). *Business competitor intelligence: Methods for collecting, organizing, and using information*. New York: Wiley.
- Sutton, H. (1988). Competitive Intelligence. New York: *Conference Board*, VII, 39.
- Wilder, C. And Violino, B. (8/28/95). On-Line theft. *Information Week*, p. 30-40.

APPENDIX 1

Summary of Competitive Analysis Techniques (Source = Prescott & Grant, 1988)

Technique	Cost	Sources	Advantages	Limitations
Political and country risk analysis	High	Literature Search Informants Personal Interviews	Understand other cultures or political positions and potential problem areas	Often evaluated using own norms; language problems; Data often difficult to evaluate
Industry scenarios	High	Focus groups; literature search; personal interviews	Sensitize management to the need to adapt to industry evolution	Based upon assumptions subject to change costs
Economists model of industry attractiveness	Medium	Case study; personal interviews; literature search	Structured approach to examining industries; identifies competitors; basis for other in-depth analysis	Basic assumption that economic structure of industry is root of competition; drawing of industry boundaries
BCG industry matrix	Medium	Literature search; personal interviews	Primarily a diagnostic tool for identifying profitable industry segments	Needs to be used in conjunction with other techniques such as industry analysis and CSFs
Industry segmentation	Medium	Case study; personal interviews; literature search	Identifies pockets of opportunity; identifies pockets of future profits or areas under attack	Choosing segmentation dimensions; piecemeal approach to competition
PIMS	Medium	Data bases	Flexibility of use; variety of operations	Lack of organizational variables
Technological assessment	High	Direct observation; participant observation; data bases; documents	Keep abreast of key technological drivers	Expensive; continuous, difficult process
Critical success factors	Medium	Literature search; case study	Fast, inexpensive method for focusing efforts	Often is superficial

APPENDIX 1 (cont.)

Summary of Competitive Analysis Techniques (Source = Prescott & Grant, 1988)

Technique	Cost	Sources	Advantages	Limitations
Strategic group analysis	Low	Literature search; personal interviews; case study	Fast, cheap, easy way to understand key competitors	Superficial; ignores firms outside industry
Value-chain analysis and field maps	High	Case study; personal interviews; literature search	Best techniques for understanding operating details of a competitor or one's self	Data often difficult to obtain; slow; expensive
Experience curve	Medium	Documents; personal interviews; direct observation	Provides an understanding of cost and thus pricing dynamics; gives a picture of whether to compete on basis of costs	Based upon history, which may not carry through to future
Stakeholder analysis and assumption surfacing and testing	Medium	Personal interviews; focus groups; literature search	Introspection; attempts to get at underlying causes of behavior	Subject to misinterpretation
Marketing signaling	Low	Documents; personal interviews; direct observation	Early warning indicator	Misinterpretation; get off on the wrong direction
Portfolio analysis	Low	Literature search; case study; personal interviews	Visual summary, requires managers to think systematically about industry and competitive position.	Superficial; assumes cash flow/profit drivers decision
Strength and weakness analysis	High	Personal interviews; direct observation; case study	Provides in-depth understanding of entire business capabilities; provides feedback for remedial action	Costly; long; cooperation of personnel essential; Hierarchical position of manager influences perception
Synergy analysis	High	Documents; case study; personal interviews	Shows COs of differentiation advantage as a result of sharing-staying power, exit decisions, response times	Data difficulties; time consuming
Financial statement analysis	Low	Documents; historical records; data bases	Fast, easy, cheap handle on financial picture	Data problems; usually limited to public corporations
Value-based planning	Medium	Historical records; data bases	Simplicity-ability to compare alternatives and competitors	Basic assumption that maximizing stock price is primary goal; Difficult to implement for individual business units of multidivision company
Management profiles	Low	Personal interviews; informants; documents	Development of management profiles and manpower (succession) charts; Managers do not always act in a rational manner	Past is good predictor of future
Reverse Engineering	Varies	Product purchasing	Best way to understand a competitor's product characteristics and costs	Can be time-consuming; may not be CSF

APPENDIX 2

Sources of Web Information About Companies (Sources = Fuld & Co., Forbes ASAP 6/03/96)

- Alta Vista* (<http://www.atlavista.digital.com>) - Powerful index tool used to locate information about products and companies. Includes full text index of Usenet newsgroup archives. Offered by Digital Equipment.
- Babson College Business Resources* (gopher://info.babson.edu:70/11/bus) - Sources and sites for information about business, international resources, entrepreneurship, market reports and government.
- CareerPath.com* (<http://www.careerpath.com>) - Newspaper employment ads from major U.S. cities. A good place to find out how the competition plans to expand.
- Deja News* (<http://www.dejanews.com>) - Search for discussion groups by keyword, personal name or discussion group name.
- The Federal Web Locator* (<http://www.law.vill.edu/Fede-agency>) - Government information compiled by the Villanova Center for Information Law and Policy. Extensive listings categorized by government branch.
- Competitive Intelligence Guide* (<http://www.fuld.com/>) - Fuld & Co.'s competitive intelligence site. Offers analytical tools, links to other intelligence sites.
- Hoover's On-line* (<http://www.hoovers.com>) - Company directory listings by company name, location, industry and sales figures. Includes links to Web sites, if available.
- Infoseek* (<http://www.infoseek.com>) - Includes Usenet newsgroups and non-Internet databases. Offers additional databases, including wire services, for a fee.
- Library of Congress Catalog* (<http://www.loc.gov>) - The ultimate library catalog. Can help locate obscure books.
- Lycos* (<http://www.lycos.com>) - One of the top search tools. Includes summaries of pages.
- The Networth Equities Center* (<http://networth.galt.com/www/home/equity/irr/>) - Its Investor Relations Resource is a searchable index of Web pages published by public companies.
- NewsLink* (<http://www.newslink.org>) - More than 3,000 links to news oriented sites.
- Patent Portal* (<http://www.law.vill.edu/~rgruner/patport.htm>) - site for patents and patent law.
- Society of Competitive Intelligence Professionals* (<http://www.scip.org>) - Home page features publications, electronic discussion groups, expert/speaker database and events calendar.
- Starting Point* (<http://www.stpt.com>) - Home page links to major companies in the U.S.
- U.S. Securities and Exchange Commission* (<http://www.sec.gov>) - Offers 10-k and reports filed by public companies.

APPENDIX 3

Non-Web Sources of Competitive Intelligence (Source = Luecal and Dahl, 1995, p. 9-10 & Sutton 1988, P. 19)

Sources within the Company

Sales Force
Planning Staff
Engineering Staff
Purchasing staff

Marketing Research Staff
Analysis of Competitor's Product
Former employees of competitors

Contacts within the Trade

Customers
Meetings, Trade Shows
Distributors
Suppliers
Consultants

Retailers
Competitor's employees
Ad agencies
Trade Associations

Published Information

Industry Periodicals
Companies Promotional Materials
Companies' Annual Reports
Companies' 10-k Reports
Security Analysts' Reports
Government Publication

Financial Periodicals
Speeches by Competitor's Management
General Business Periodicals
National Newspapers
Newspapers in Competitors' Cities
Directories (ex. Standard & Poor's)

APPENDIX 3 (cont)
Non-Web Sources of Competitive Intelligence
(Source = Luecal and Dahl, 1995, p. 9-10 & Sutton 1988, P. 19)

Other Sources

Security Analysts
Investment Banks
Want ads

Tracking Services
Court Records
Commercial Banks

APPENDIX 4
Database Vendors
(Source = Small Business Reports, 12/92, p. 61)

Service	Type of Information	Phone Number (s)
CompuServe Inc.	Comprehensive	(800) 848-8990
Data-Star	Business, Science, Medical News	(800) 221-7754
Data Times	Regional Newspapers, Trade Publications, financial information	(405) 751-6400
Dialog	Comprehensive	(800) 334-2564
Dow Jones	News Retrieval, Business News	(609) 452-1511
Lexis/Nexis	Legal Information, Business and Financial News	(800) 227-4908
NewsNet	Business News	(800) 345-1301
Washington Alert	State/Federal Legislation and Regulations, Political News	(800) 432-2250

APPENDIX 5
How to use the Internet Effectively to Gather CI
(Source = Fuld, 1996)

- *Know what you want.* Otherwise, you can end up with information overload.
- *Understand that the net is full of chaos.* Although the net offers a lot of free information, it also carries a lot of nonsense.
- *Use hyperlinks.* Hyperlinks can lead you to unexpected information pools.
- *Expect bad data.* Inaccurate data are plentiful on the net, particularly in the usenet discussion groups. Verify rumors and double-check the so-called facts.
- *Do not expect analysis.* Be prepared to interpret the information you find.
- *Appreciate the power of electronic chitchat.* Freewheeling usenet discussions allow you to catch sight of industry trends or technology development far ahead of official government filings or traditional news reports.
- *Let your fingers do the walking.* Indexes such as Lycos, Yahoo! and Dega news can be powerful time-saving information-gathering tools.
- *Appreciate web self-promotion.* Corporate home pages are usually self-aggrandizing and filled with the kinds of detailed information that the official media dismiss as not newsworthy, but you can often gleam enlightening tidbits about the company and the market it serves.
- *Recognize patterns.* Conduct word searches on downloaded documents. Look for patterns. How many times does a particular word or phrase appear? Words such as agreement or alliance reveal strategies a company may not explicitly state but implicitly describes.
- *Be sure to note the dates on the files you download.* Realize that just because the information shows up on your screen instantly, doesn't mean it's timely.