Peer Reviewed Article

Effectiveness of the Web as a competitive intelligence tool

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1 Introduction

Although there has always been an interest in the activities of competitors, competitive intelligence (CI), as it is now practised, was formalized in the USA only in the 1970s and 1980s. A major step in the formalisation process was taken when the Society of Competitive Intelligence Professionals was formed to create a forum within which a wholly ethical intelligence-gathering process could be developed. This was essential if the business was to break away from the inevitable, but unacceptable association with industrial espionage. The transfer of techniques to Europe initially took place in the late 1980s and early 1990s but really gathered momentum between 1995 and 1999 when a series of public conferences promoted CI to wider audiences. CI is still in the formative stages of its evolution. The more obvious techniques have been codified and described but new developments are constantly being reported in the professional journals. The Internet has had a profound effect on CI, just as it has on other areas of research.

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2 What is competitive intelligence (CI)?

The Society of Competitive Intelligence Professionals defines CI as 'the process of ethically

collecting, analysing and disseminating accurate, relevant, specific, timely, foresighted and actionable intelligence regarding the implications of the business environment, competitors and the organization itself'.

The concept of intelligence, as a process, has long been proposed as an effort to increase a firm's competitiveness (Montgomery and Urban 1970:226–234; Montgomery and Weinberg 1979:41–52; Pearce 1976:115). In 1966, William Fair (Kahaner 1997:97) proposed the formation of a corporate central intelligence agency within a firm to 'collect, screen, collate, organize, record, retrieve and disseminate information'. Since that time, this proposition has grown to become an emerging business construct with delineated job functions directly responsible for intelligence collection, analysis and dissemination (Kahaner 1997:97).

According to Lackman, Saban and Lanasa (2003), CI is a systematic and ethical programme for gathering, analysing and managing external information that can impact on the organization's strategies and competitive advantage. CI can broadly be defined as actionable recommendations arising from a systematic process that involves planning, gathering, analysing and disseminating information on the external environment for opportunities or developments that have the potential to affect a company's or country's competitive situation (Calof and Skinner 1998:38–42).

According to Lackman *et al*. (2003), CI is a systematic process and involves three major functions, namely, collection and storage of data, analysis and interpretation of the data, and the presentation and dissemination of the intelligence for application where it is required. Calof and Viviers (2001:61–67) agree that CI in South Africa is still in its infancy, as does Muller (2003) who says it is still a fledgling business discipline in South Africa.
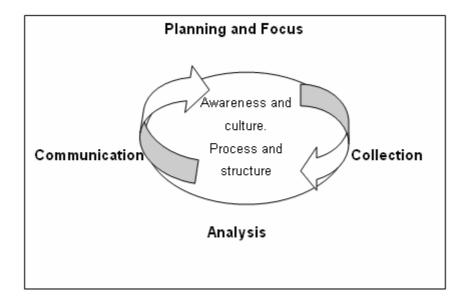
CI uses public sources to find and develop information on competition, competitors and the market environment (Vella and McGonagle 1987). The goal of CI, a sub-area of knowledge management (KM), is to monitor a firm's external environment to obtain information relevant to its decision-making process (Gilad and Gilad 1988). McGonagle and Vella (1990), define CI as 'the use of public sources to develop information about the competition, competitors, and market environment.'

3 CI model

According to Viviers, Saayman, Muller and Calof (2002:28–29), the key operational areas of CI are planning and focus, collection, analysis, communication, awareness, culture, process and structure (Figure 1).

Figure 1 Operational areas of the CI model
[adapted from Viviers *et al*. (2002)]

- **Planning and focus**. CI should only focus on those business issues that are of critical importance to a company. These issues are known as key intelligence needs or requirements. The importance of this function is to give guidance on the required resources for the CI project or process and to establish the purpose and results of the findings.
- **Collection**. During this phase information is collected from a variety of sources for examination and verification.
- **Analysis**. During this phase information is turned into intelligence through a process of interpretation. The results should be usable in strategic decision-making.
- **Communication**. The results of the CI process are communicated to those with the authority and responsibility to act on the findings in an appropriate format and at the right time.
- **Process and structure**. CI requires appropriate policies, procedures and an infrastructure so that employees may contribute effectively to and benefit from the CI system.
- **Organizational awareness and culture**. For a company to use its CI efforts successfully, an appropriate organizational awareness of CI and a culture of competitiveness are necessary. While decision-makers should determine what intelligence is required, information gathering should be on everyone's mind (Kahaner 1997).

4 CI application areas

According to Malhotra (1996) the CI information obtained using a competitive intelligence programme (CIP) can be used in programmes that supplement planning, mergers and acquisitions, restructuring, marketing, pricing, advertising and research and development activities.
According to Singh (2003), CI can be used effectively for:

- **Planning**. As mentioned above, CI provides strategic planners with information on rivals, enabling them to take more informed decisions in the long term to counter any moves initiated by rivals. Furthermore, CI can provide an indication of changing economic factors so that organizations can develop contingency plans to initiate programmes to protect against a weak economy or to capitalize on a strong one.
- **Mergers and acquisitions**. When the ML Sultan and Natal Technikons merged in

2002, neither party was aware of the working conditions of the other, neither were they aware of the disparities that existed in employee ranks, salaries and other employee benefits. If either party had engaged in CI, these issues could have been pre-empted with solutions having been found before the merger. Instead, when these issues were finally raised, the media were able to paint a poor public image of the merged institution.

- **Research and development**. When scanning was introduced in South Africa, Pick 'n Pay, the leading supermarket in the country, opted for a wait-and-see approach, allowing Checkers to step in as the first to introduce scanning. Pick 'n Pay waited an entire year as the company watched developments at Checkers and studied the problems that were being experienced. When certain that Pick 'n Pay could do it better and with less cost, the company rolled out scanning facilities to all its stores.
- **Pricing**. Drastic price changes, either up or down, can impact on consumer confidence, which could reduce demand or encourage brand switching. It is therefore important to know what the competition is doing regarding pricing and then change prices that are in favour of the customer while still making a profit.
- **Advertising**. Organizations need to be aware of how the media is being used by the competition, what the competition spends on advertising and the style of their adverts. If rivals are successful in a particular media, it might be worth trying. Sales representatives are the best source of this type of information.

5 CI users

In general, there are four types of CI users, namely business users, technical users, casual users and news awareness users.

- Business users monitor business-related information such as finance news, promotion campaigns and new product releases from competitors.
- Technical users monitor new technologies and research results from engineering fields. On-line technical journals and electronic publications can provide such information.
- Casual users monitor information such as the release of new songs, movies, computer games, job openings and property information that are of general interest.
- News awareness users and others want to be informed about what is happening in other countries and regions in a timely manner. Some also want to monitor stock prices, sports results and weather information.

6 CI benefits and pitfalls

6.1 CI benefits
The benefits of CI include the following:

- Helps managers assess their competition and their vendors. This in turn, translates into fewer surprises;
- allows managers to predict changes in business relationships;
- identifies marketplace opportunities;
- guards against threats;
- forecasts a competitor's strategy;
- discovers new or potential competitors;
- learns from the success or failures of others;
- learns about new technologies that can affect the company; and

- learns about how government regulations are impacting the competition.

In summary, CI promotes effective and efficient decision-making, which should lead to greater profitability. It helps avoid unnecessary risks while improving chances for success. Thus, CI becomes a long-term strategic asset to the organization.

6.2 Pitfalls of CI
According to Malhotra (1996), the objective of a CI programme is to gather relevant information that is valid and accurate. Incomplete or inaccurate information may jeopardize the organization's CI efforts, such as the following:

  - **False confirmation**. There may be instances of false confirmation in which one source of data appears to confirm the data obtained from another source. In reality, there is no confirmation because one source may have obtained its data from the second source, or both sources may have received their data from a third common source.
  - **Disinformation**. The data generated may be flawed because of disinformation, which is incomplete or inaccurate information designed to mislead the organization's CI efforts.
  - **Blowback**. Blowback may occur when the company's disinformation or misinformation directed at the competitor contaminates its own intelligence channels or information. In all such cases, the information gathered may be inaccurate or incomplete.

7. Measuring the effectiveness of CI

According to West (2001), some key indicators of the effectiveness of CI are:

7.1 Quality of intelligence provided
To be effective, CI must be of sufficient depth and quality to make a contribution to decisions and must also be well timed to eliminate surprises. Reviewing the output of the CI department can test all of these. The key questions are:

  - Does the intelligence normally prove to be accurate? (Accuracy)
  - Is the intelligence provided sufficiently detailed to facilitate the definition of counter measures? (Depth)
  - Does the intelligence cover topics that are relevant to the day-to-day management of the business? (Relevance)
  - When special requests are made does the system provide a response within an acceptable timescale? (Responsiveness)
  - Is the intelligence received with sufficient lead-time for the company to make effective plans? (Timing)
  - How frequently do events occur that were not flagged in advance by the CI system? How frequently are we taken by surprise? (Comprehensiveness)

The better the quality of intelligence results, the better the decisions that are made.

7.2 Use being made of CI
The primary indicator of whether CI is working for an organization is the extent to which it is being used and the build up of demand for intelligence. Use does not necessarily mean effectiveness but if staff members demand increasing amounts of intelligence as part of the process by which they make decisions and formulate their plans, it is reasonable to assume that they feel it is making a contribution.

Many CI departments have been set up as profit rather than cost centres and cross-charge for their services. Growth in the demand placed on a CI department that charges for its services suggests that its output is working.

A further refinement of the assessment is the extent to which demand is sustained through periods of recession. Competition strengthens in times of recession and this is the very time when intelligence can make its most valuable contribution.

7.3 Development of an intelligence culture
The third indicator of CI effectiveness is the extent to which an intelligence culture develops within a company. A strong intelligence culture is one in which:

- a large number of staff members contribute intelligence on competitors and business trends to the corporate system;
- intelligence is always demanded at all levels before decisions are made;
- staff members who are not permitted access to intelligence make strong representations in order to gain access; and
- victories over competitors are strongly celebrated.

The acid test is whether a proposed withdrawal of the system or service would produce howls of rage or a whimper.

7.4 Event analysis
Although an overall view of the exact contribution of CI is difficult, at a tactical level an analysis of orders gained and lost can show whether the availability of intelligence contributed to the profits and if a lack of intelligence contributed to the losses. One of the main triggers to establish a CI function is when a company suffers a major loss because it has been unaware of the actions of a competitor.

7.5 Market share
The ultimate expression of successful competitive action is growth in market share. Although this can never be attributed entirely to better knowledge of the competitive environment, companies that make active use of CI and achieve sustained growth in their market share can normally see some connection. Unfortunately, it is equally possible for users of CI to lose market share.

8. CI in South Africa

The South African economy is no more competitive now than it was a few years ago and this is reflected in the 2001 global competitiveness report of the World Economic Forum. The report reflects that South Africa's growth competitiveness index (GCI – 32nd place out of 58 nations) and current competitiveness index (CCI – 25th place out of 58 nations) rankings have remained unchanged.

According to the 2002 edition of the Economist Intelligence Unit's e-readiness rankings, South Africa ranked 33 out of 60 countries and has an e-readiness score of 5.45 out of 10. 'E-readiness' is shorthand for the extent to which a country's business environment is conducive to Internet-based commercial opportunities.

A newly released study of CI practices of South African businesses, sponsored by the National Research Foundation, found that 84% of senior managers believed that CI can be used to create a competitive advantage and a similarly high percentage believed that this is a

legitimate and necessary activity for business. The study team included Professor Wilma Viviers and Andrea Saayman of the School of Economics, Risk Management and International Trade of the Potchefstroom University for CHE, and Marie-Luce Muller, CI analyst from IBIS. In April 2001, questionnaires were sent to more than 2500 South African businesses to determine how they conduct their CI activities. These companies were asked 72 questions designed to identify their standing in the areas of planning and focus, collection, analysis, process or structure and awareness (Viviers *et al*. 2002:27–37).

8.1 Local research findings

According to the study by Viviers *et al*. (2002:27–37), South African companies yielded the following results:

- **Focus and planning**. The companies in South Africa focused on more than just competitors. About 80% of these companies were concerned about the plans and intentions of key competitors, key allies and partners such as suppliers, distributors, investors and collaborators. This is a very good result. However focus and planning may not have been reflective of senior management's needs.
- **Proper collection**. South African companies recognized the importance of getting information from people – 69% of their collection time was spent with people from inside or outside their organization. Of particular importance was the fact that most employees were regularly reporting competitive information to appropriate managers (66%). This represents an excellent collection focus. Unfortunately, the process followed to collect this information was poor; information was rarely validated (30% did some form of validation). This makes South African firms particularly vulnerable to misinformation.
- Even though employees were the primary source of information, few were offered training in how to collect information properly (13% said yes to this question). This makes South African firms particularly vulnerable to misinformation. By way of contrast, training in collection is offered to virtually all employees in Japanese and Korean companies.
- **Analysis**. Analysis was one of the weakest areas in the practise of CI by South African firms. While most companies did basic analysis, such as preparing competitor profiles (59%) or SWOT (49%), few used more advanced approaches such as psychological profiling (3%) or on-line data screening (6%).
- **Intelligence infrastructure or system**. This was the second weakest area in the practise of CI by South African firms. Although most information was obtained from employees, responses to infrastructure or system questions indicated that these firms were making this a very difficult task for employees. Few companies had a central coordinating point for receiving CI information (35%). Most indicated that they did not have convenient ways for employees to report observations and information (38% said they had a convenient way) and few provided incentives to encourage these activities (11%). They did not provide training (18%) and did not have a legal and ethical guideline to help employees understand how to conduct intelligence activities (31%). Only 28% had a formal knowledge management system, 15% had conducted an internal knowledge audit and only 20% had an inventory of internal information and knowledge.
- **Right attitude and awareness**. Eighty-four per cent of South African firms had the right attitude towards CI and saw it as something that could be used to create a competitive advantage and 78% indicated that senior management supported intelligence activities. Only 14% of the employees understood what CI was, which was disturbing. Further, only 19% indicated that their company's culture encouraged information gathering. Finally, despite senior management indicating that CI is important, only 47% indicated that they use CI regularly in planning and strategic decision-making.

According to Calof (1999), South African firms are unfortunately not well equipped to conduct good intelligence practices and are far behind those in the United States, Japan, Sweden, France, Canada, Israel and others. His study concludes that South African businesses must improve their intelligence skills or they face the risk of being left behind as the global business environment becomes more competitive.

9 Research methodology

9.1 Aim of the study
The study conducted by Viviers *et al*. (2002) identified that 21.2% of the information was obtained from electronic sources. This was found to be the second highest source of competitor information. No study has been conducted to determine the effectiveness of the World-Wide Web as a CI tool and this has warranted a need for research in this area. As a CI source, the Internet is both an additional source of information and a cost-effective means of sharing and disseminating information for decision-makers. Another aim of the study was to determine CI practices in South Africa and to determine whether a culture of CI existed.

9.2 Sampling technique
For the purposes of this research, convenience sampling was used since it was extremely difficult to identify a sample base for South African firms and also because no known research has been done in this particular area. This was a preliminary investigation, as more respondents are required to have results that are more general. The questionnaire was e-mailed to 100 business executives and only 20% was returned. Sixty per cent of the responses received were from males and 40% were from females. All respondents indicated they used the Internet daily.

9.3 Survey design
Seventeen quantitative questions were identified and adapted from Doll and Torzadeh (1998) to form the basis of the questionnaire. The questionnaire was divided into seven sub-sections to determine the effectiveness of the Web as a CI tool, namely content, accuracy, format, ease of use, timeliness, information usage and general. The questionnaire included the use of a 5-point Likert scale to limit the number of responses. The scale ranged from 'almost never' (1) to 'almost always' (5).

9.4 Results
The low response rate of 20% relates strongly to similar studies, such as a study conducted to determine CI practices in Canada that yielded a response rate of 33% (Calof and Breakspear 1999). A similar study conducted in South Africa yielded a response rate of 4.9%. The low response rate in South Africa is due to the fact that there is little support from industry and government when compared to other countries and also because companies do not want to divulge information of a highly sensitive and competitive nature. The low response rate of 20% makes generalizing the results across the entire South African business environment difficult. Since the primary objective of this study was to determine the effectiveness of the Web as a CI tool, lack of representation was seen as a significant problem.
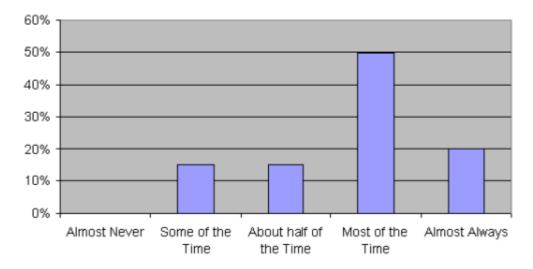
9.4.1 Content
Four sets of questions (1, 2, 3 and 4) were posed to examine content.

When asked the question, 'Does the Web provide precise information that you need?', 50% of the respondents indicated that the Web provided them with precise information that they needed most of the time as depicted in Figure 2.
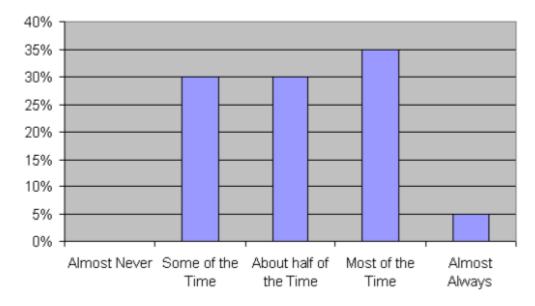
Figure 2 Content

In terms of content, most of the respondents felt that the information on the Web was precise, met their needs and was sufficient.

9.4.2 Accuracy
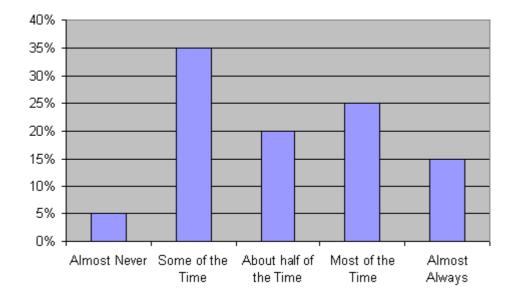Two sets of questions (5 and 6) were posed to examine accuracy.

When asked the question 'Do you think that the information provided by the Web is accurate?', respondents indicated that the information provided on the Web was accurate most of the time as reflected by the majority of respondents (35%) (Figure 3).

Figure 3 Accuracy

When asked if the information could be verified, 35% of the respondents indicated that some of the time information could be verified (Figure 4). This made these firms vulnerable to misinformation and disinformation, which could have a negative impact on their strategic plans and decisions.
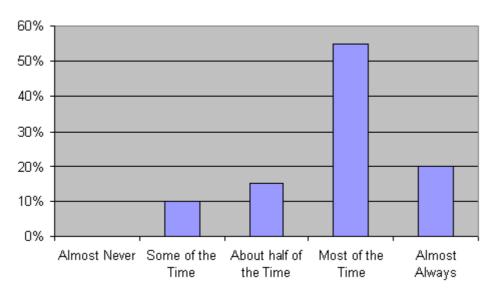
Figure 4 Accuracy

9.4.3 Format
Two sets of questions (7 and 8) were posed to examine the format of Web pages.

When asked if the information obtained was clear, the majority of the respondents (55%) felt that the output was presented in a clear format as is evidenced in Figure 5.
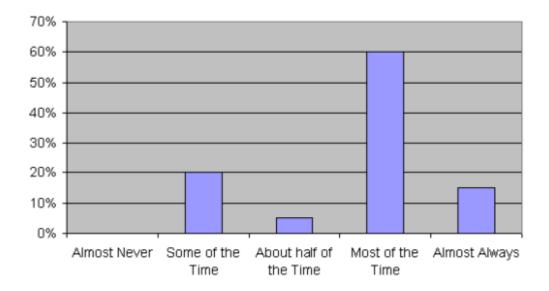
Figure 5 Format

It is clear from Figure 5 that the responses tended towards the positive end of the scale, that is, 'most of the time' and 'almost always'. This is a clear indication that the Web is effective in providing information in a clear format.

9.4.4. Ease of use
One question (9) was posed to examine ease of use and the user friendliness of the Web.

Sixty per cent of the respondents indicated that most of the time the Web was user-friendly, which is depicted in Figure 6 below.
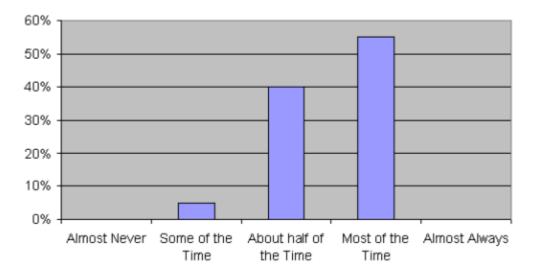
Figure 6 Ease of use

Once again, the results tended towards the positive end of the scale with 60% saying that the Web was user-friendly most of the time and 20% saying almost always. As a research tool and an information source, the Web is quicker and easier to use than a library due to its search functions, search tools, links and hyperlinks.

9.4.5 Timeliness
Two sets of questions (10 and 11) were posed to examine the timeliness of Web pages.

When asked 'Do you get the information you need in time?', the majority of the respondents (55%) indicated that most of the information they needed was well timed (Figure 7).

Figure 7 Timeliness

When talking about timeliness, one cannot avoid a discussion on manual searches for information versus electronic searches, where information is available in less time than when using a library. However, searching through pages of Web sites can be time consuming. This however, did not seem to be a problem for the respondents.
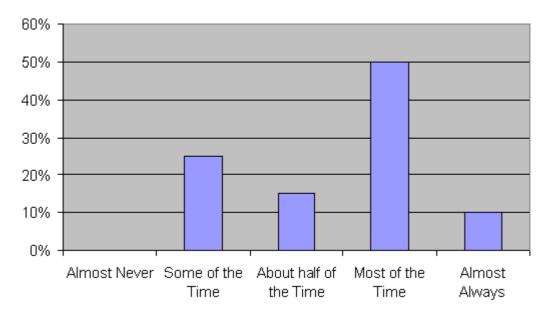
9.4.6 Information usage
Three sets of questions (12, 13 and 14) were posed to examine information usage.

Fifty per cent of the respondents indicated that they used the information provided by the

Web most of the time (Figure 8).
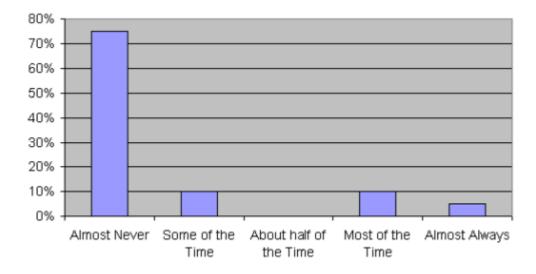
Figure 8 Information usage

The fact that all the respondents did not use all the information provided by the Web is indicative of information overload. It is clear that respondents did not need or did not have the capacity to process all the information they receive.

9.4.7 General
Three sets of questions were posed to determine whether CI was formally incorporated within the organizations.

When asked whether their organizations had a CI policy, 75% of the respondents reflected that their employers almost never had a CI policy (Figure 9). As reflected in a previous study by Viviers *et al.* (2002), 84% of South African firms had the right attitude for CI and saw it as something that could create a competitive advantage, yet it had not been implemented in most organizations.
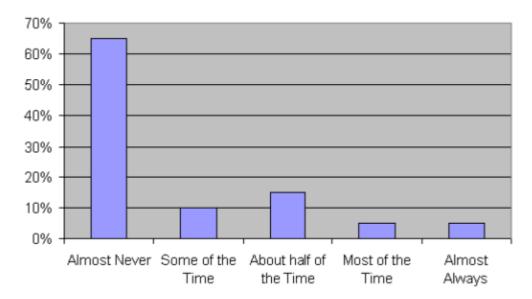
Figure 9 General

It is alarming that in the current competitive South African environment, organizations are

ignoring CI as a means of enhancing their competitive advantage.

The question, 'Does your organization have a competitive intelligence culture?', elicited a response where 65% of the respondents indicated that their organizations almost never had a CI culture (Figure 10). These results were similar to a study conducted by Viviers *et al.* (2002) that stated that only 19% indicated that their company's culture encouraged information gathering.

Figure 10 General

According to the literature, one of the key success factors of a CI programme is a CI culture. The absence of a CI culture and a CI policy begs the question 'what are companies doing to use information to gain a competitive advantage?' Many practitioners believe that true intelligence is created when information is analysed and converted into actionable intelligence on which strategic and tactical decisions may be made (Gilad and Gilad (1985a:65–70); Gilad and Gilad (1986:53–60); Kahaner (1997); Calof and Miller (1997:213–223); Herring (1998:13–316). This absence of an intelligence culture makes it difficult to conclude whether the Web is an effective CI tool. However, based on the various dimensions of the survey, the tool was effective but the users were not using it properly.

From the results of this study, it can be concluded that the Web is effective as an information-gathering tool but it is not being used as a CI tool. The information on the Web lacks accuracy as the information cannot be verified. Improvement is needed in this area. Because the information gathered lacks accuracy, it cannot be properly analysed, and the resultant information that is disseminated will not enhance a company's competitiveness. According to Malhotra (1996) inaccurate information may jeopardize the organization's CI efforts and could lead to false confirmation, disinformation and blowback. In terms of format, the majority of the respondents felt it was user-friendly and the information was clear. In terms of timeliness, the majority of the respondents felt that the Web provided timely up-to-date information. From the results, it can be concluded that there is a lack of knowledge and practice of CI in firms as well as a lack of a CI culture.

10 Recommendations and conclusions

Although part of the nature of CI is vested in the environmental scanning literature, studies by leading CI academics and practitioners have shown that intelligence is more than just

collecting information – it is a systematic process involving planning, analysis, data collection, collation or preparation for analysis, communication and process management. However, due to the poor response, the results cannot be generalized to the broader business population. Given time and financial resources, this study should be extended to businesses in other provinces.

CI can enable organizations to gain a competitive advantage but has not been fully implemented in South African organizations and a CI culture does not exist. It seems therefore, that South African firms are still not well equipped to conduct good intelligence practices such as those practised by their counterparts in the United States, Japan, Sweden, France, Israel and elsewhere (Kahaner 1997).

To emphasize the importance of CI, students should be offered extensive curricular in CI as is practised in other countries like Sweden, Japan and France.

Employees need to be educated in CI practices. They need to be taught how to collect and analyse information. Programmes and policies that are supportive of intelligence need to be developed and awareness, in particular, also needs to be created and developed. This can be done through cooperation between the media and training organizations with the full support and participation of the government. The Society of Competitive Intelligence Professionals should also conduct workshops and provide training for corporates and new businesses as well.

As the Web is an important CI tool; South African organizations need to incorporate it into the strategic planning process in order to get the full benefit of information as an enabler of strategic advantage.

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