

Competitive intelligence practices: A South African study

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Competitive Intelligence (CI) as a business discipline and as a business practice is still in its infancy in South Africa. Only a few higher education courses in CI exist in South Africa and only a few studies on CI practices in South African firms have been done. The question that arises is: What is the level of development and deployment of CI in South Africa? From this study it is clear that most of the responding firms believe that CI can be used to create a competitive advantage and that CI is a legitimate and necessary activity for increasing their firms' intelligence. It is, however, also clear that South African firms are not well equipped yet to conduct good intelligence practices, especially in the areas of process and structure, analysis and awareness. Recommendations are made in order to increase the firms' CI awareness in order to improve South African firms' competitiveness.

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Introduction

Competitive intelligence (CI) is attracting increasing attention throughout the world. Within South Africa it is increasingly attracting media (Viviers, 2001; Naudé, 2001) and executive attention (Venter, 2001) through conferences (such as those organized by Marcus Evans and the Institute for International Research (IIR)), university courses, consultants and associations (such as SCIPSA and SAACIP). However, Competitive Intelligence in South Africa is still in its infancy (Calof & Viviers, 2001: 63).

While much research exists on the environmental scanning aspects of competitive intelligence and strategic decision-making, little research has been done on the holistic intelligence process model (Calof & Dishman, 2002). The most comprehensive study to date was done by Calof and Breakspear (1999) and subsequently analysed in the Calof and Dishman paper (2002). For a field to evolve it must have a strong theoretical base. With little work being done on the CI constructs themselves, it is difficult for this field, which is already so popular with management, to be properly investigated within the academic sphere.

Little research has been done on CI in South Africa. Although South African firms were included as part of a global study on intelligence practices done by the Society of Competitive Intelligence Professionals (SCIP), very few questionnaires were returned (Calof & Miller, 1997). The extent to which CI is practiced by South African firms and how CI is implemented in South African firms thus remain largely unknown. Accordingly, the primary objective of this study is to test the generalizability of the Calof and Breakspear (1999) Canadian study by replicating it in South African companies. A secondary objective is to use the survey to shed light on how competitive intelligence is practised in South Africa. Furthermore, very little globally and in South Africa has been published about the holistic intelligence model. This research attempted to fill this gap.

The paper is structured as follows: The following section presents a brief overview of the literature on CI, followed by a description of the methodology used in the research. Secondly, the results of the research, namely the state of CI practices in South African firms and tests on the constructs' generalizability, are presented. This paper concludes with

recommendations on how to improve CI practices in South African firms.

Literature review

The concept of intelligence as a process has long been proposed as an effort to increase a firm's competitiveness (Montgomery & Urban, 1970; Pearce, 1976; Montgomery & Weinberg, 1979; Porter, 1980). Already in 1966 William Fair proposed the formation of a corporate 'Central Intelligence Agency' within the firm whose function would be 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, 1996).

A review of the literature related to competitive intelligence suggests that it is a marketing discipline that focuses on gathering information on the competition (see for example Schollhammer, 1994; Agarwal, 1993). However, a broader examination of the literature shows that intelligence is about monitoring not only competition but also the entire business environment. Mere environmental scanning does not capture all of the multiple functions within the intelligence process. Gilad (1996) talks about the objective of intelligence as 'being able to predict competitors' moves, customers' moves, government moves and so forth.' CI therefore consists of both internal and external research efforts (Cleland & King, 1975). In the broadest sense, competitive intelligence (including the collection, analysis, and dissemination of knowledge) is the process to reduce managerial decision uncertainty.

Although part of the nature of competitive intelligence is vested in the environmental scanning literature, studies by leading Competitive Intelligence academics and practitioners have shown that intelligence is more than just collecting information – it is a systematic process involving planning, analysis, data collection, collation/preparation for analysis, communication, and process management. One study has shown that no more than 25% of a typical intelligence project is spent in collecting information (Calof & Miller, 1997).

A more appropriate definition of competitive intelligence is 'actionable recommendations arising from a systematic process involving 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 & Skinner, 1998). In analyzing the varied applications of the intelligence terms in the literature, it may be more appropriate to define 'competitive intelligence' as the above process in which relevant information is gathered, analysed and interpreted and in which the resultant intelligence is disseminated to enhance a company or organisation's competitiveness. Using the above descriptions, the Calof and Breakspear (1999) study identified six key areas, which collectively form the intelligence model:

Planning and focus

CI is not about collecting all the available information but focusing on those issues of highest importance to senior management (Daft, Sormunen & Parks, 1988; Herring, 1998; Gilad, 1989). This phase is required to allocate resources for the CI project or process as well as to establish the purpose of the findings

Collection

It is during this phase that information is collected from a variety of sources for examination during the CI process. Collection comes from a variety of different sources and acquisition methods, including environmental scanning (Aguilar, 1967; Lenz & Engledow, 1986a; Lenz & Engledow, 1986b; Daft *et al.*, 1988). Other subjects related to the collection stage are the information source and information usage (Menon & Varadarajan, 1992; Garvin, 1993; Maltz & Kohli, 1996).

Analysis

Many practitioners believe that this is where 'true' intelligence is created, that is, where information is converted into 'actionable intelligence' on which strategic and tactical decisions may be made (Gilad & Gilad, 1985a; Gilad & Gilad, 1986; Kahaner, 1996; Calof & Miller, 1997; Herring, 1998). Much work has therefore been done in the areas of competitive analysis, strategic analysis, environmental analysis, and competitive theory. It is however a general tendency in countries where CI practices are still in its developing phase to make more use of basic analysis tools. In more sophisticated CI environments like North America, Europe and Asia, more advanced analysis techniques are more commonly used (Calof & Miller, 1997).

Communication

The results of the CI process or project need to be communicated to those with the authority and responsibility to act on the findings. The transfer of strategic information was theoretically proposed by Crawford and Sobel in 1982. Corollaries to this include the study of marketing knowledge within the firm (see Menon & Varadarajan, 1992; Moorman, 1995) and knowledge dissemination (see Huber, 1990; Garvin, 1993; Kahaner, 1996; Hurley, Thomas & Hult, 1998).

Process/structure

CI requires appropriate policies, procedures, and a formal (or informal) infrastructure so that employees may contribute effectively to the CI system as well as gain the benefits from the CI process. There is much support for a formal structure and a systematic approach to CI (Porter, 1980; Gilad & Gilad, 1985b; Gilad & Gilad, 1986; Ghoshal & Kim, 1986). Such a formal structure would involve dedicating a CI manager or champion to co-ordinate the collection, storage, analysis and dissemination of intelligence. Such a person needs to be trained in developing and running an effective CI capability and should be well respected at all levels in the company,

preferably be a member of the executive team and needs to have an understanding of the industry and organization to also benefit from his/her contact network (Farrell, 2002). Furthermore, CI is a strategic management tool and should therefore be situated as close as possible to the strategic decision makers and not in a line functional department. Despite this recommendation, it is found that most firms' CI capabilities reside in the Marketing Department (Calof & Breakspear, 1999).

Organizational awareness/culture

For a firm to utilize its CI efforts successfully, there needs to be an appropriate organizational awareness of CI and a culture of competitiveness. There has been support for this awareness/culture construct in the area of market orientation (see Ghoshal & Westney, 1991; Pole, Madsen & Dishman, 2000; Slater & Narver, 2000). While decision-makers should call the shots on what intelligence is required, information gathering should be on every one's mind (Kahaner, 1996). But without proper awareness and attitudes that favour both intelligence and information sharing, it is difficult to develop intelligence within an organization.

Competitive intelligence is therefore a systematic programme for gathering and analysing information about key stakeholders such as customers, competitors, legislation, and suppliers to find new opportunities and stay competitive. Those that truly understand competitive intelligence (Calof, 1997; Kahaner, 1996) refer to a multistage process called the competitive intelligence wheel or process consisting of defining intelligence needs, planning the intelligence project, data collection, analysis of the data and then evaluation and dissemination of the entire project.

Research methodology

Sample selection

Identifying a sample base for South African firms is difficult, since South Africa is not as advanced as many other countries where similar research has been conducted (e.g. North American and Europe). Fortunately, Reed Inc. (a publishing company in South Africa) agreed to provide access to their extensive databases. In all, 2 462 companies were selected for the sample of this study. These were selected from the following three databases.

General database

The general database contains the information of 17 500 businesses in South Africa, of which 73% are small enterprises (with less than 50 employees), 17% are medium enterprises (with between 51 and 200 employees) and 10% are large enterprises (with more than 200 employees). Businesses from various sectors of the economy such as manufacturing firms, traders, transportation enterprises, financial institutions and service enterprises are included in the database.

Exporter database

The exporters database contains the information of 7 664 enterprises that export or import. All sectors of the economy are covered in the database. 66% of the enterprises on the database are small, 22% are medium-sized and 12% are large enterprises.

JSE Securities Exchange (JSE) database:

This database provides information on all companies listed on the JSE.

From the Reed general database 1 000 of the 17 500 enterprises were chosen at random. Another 1 000 of the 7 664 enterprises in the Reed exporter database were also selected at random. A random number generation programme was used for company selection in both cases. All companies in the JSE database (462) were selected. The extent to which these databases statistically mirror the underlying South African business environment is impossible to determine.

Survey design

The questionnaire was based on a questionnaire used by Calof in determining the state of CI in Canadian firms (Calof & Breakspear, 1999). Sixty questions were identified and adapted to the South African situation and to form the basis of the questionnaire administered in this research. The Calof and Breakspear (1999) questionnaire was found to possess strong psychometrics, high alpha's and unidimensionality in the constructs (see Calof & Dishman, 2002). The questionnaire was also extended to include questions regarding demographical details and to provide more detailed information regarding the sources and uses of and time spent on CI by the respondent. The questions covered all areas of the intelligence cycle: planning and focus, collection, analysis and communication as well as process/structure, awareness and attitudes towards competitive intelligence.

Although the questionnaires used by Calof provided for yes or no answers only, the questionnaire in this project was adapted to include the use of the 5-point Likert scale. The scale ranged from strongly disagree (1) to strongly agree (5). A score above 3 thus indicates that respondents agree with the answer (indicating that the action is generally implemented), while a score below 3 indicates non-agreement (the action is generally not implemented).

Pre- and post-tests

The questionnaire was pre-tested on a sample of academic and industry experts to establish face validity. The questionnaire was also pre-tested on three companies to ensure that it was understandable to the respondents. Comments from these individuals were considered and changes to the questionnaire were made accordingly. Six companies who scored highly on the questionnaire were also interviewed to ensure that the questions were interpreted correctly. These interviews resulted in modifications to certain questions as they appeared to have been interpreted

differently by different respondents. As a further measure to establish construct validity, the responses were subject to Cronbach's Alpha. Cooper and Emory (1995) determine a value of 0.60 as the cut-off value for Alpha's in new research areas. This was used as the cut-off value for determining construct validity in this study as well.

Results

Response rate and respondent characteristics

The questionnaires were mailed to all 2 462 companies in early June 2001. Of these, 128 were returned unopened yielding an adjusted sample size of 2 334. A second round of questionnaires was sent out by email two months later. In all, 120 questionnaires were received, representing a response rate of 4.9%. Compared to the Canadian study response rate of 33% (Calof & Breakspear, 1999), this response rate is low and poses problems in terms of the generalizability of the study and respondent representativeness. The Canadian study had such a high response rate due to extensive support from industry and government. To better understand why the response rate was so low, the Bureau of Market Research and DRI-WEFA (market research firms in South Africa) were consulted. Their research indicated that mail surveys that ask security related information, generally result in 2% to 4% response rates in South Africa. In a similar study of intelligence practices of German multinationals in South Africa (Viviers, Calof & Naude, 2002), the response rate was similar to that of this study at 5%.

In summary, the low response rate makes generalizing the results across the entire South African business environment difficult. However, since the primary objective of this study was to refine the intelligence model and its constructs, lack of representativeness was not seen as a significant problem.

Most completed questionnaires were received from manufacturing firms (55% - see Table 1 below). In terms of the size of respondents, 45% were from large enterprises (with more than 200 employees), 44% from medium-sized firms and the remainder were from smaller firms (see Table 2). This is not representative of the population of South African firms in general. A more representative response base would have had 57% small businesses to reflect the percentage of small businesses in the sample frame. Given the low response rate and the bias towards larger firms, the results of this study cannot be generalized over the entire South African context. Hopefully future studies will be able to improve the understanding of the intelligence practices in smaller South African firms. This study provides a better understanding of medium and large-sized firms.

Table 1: Sectoral breakdown of respondents compared to sample

Sector	Response	Sample
Manufacturing	55%	57%
Trade	9%	25%
Financing	5%	4%
Services	5%	8%
Other	27%	6%

Table 2: Respondents breakdown by size and export compared to sample

	Sample	Respondent
<u>Employees:</u>		
<50	57%	11%
50-199	16%	45%
>200	27%	44%
<u>Export:</u>		
Exports	63%	76,5%
Does not export	37%	23,5%

Approximately 76.5% of the respondents were exporters with 65% of these exporting less than 20% of total sales, 16% exporting between 25% and 49% of their sales, 11% exporting between 50% and 74% of their sales and 8% exporting more than 75% of their total sales. This vastly exceeds the percentage of South African exporters in the databases (see Table 1), but the difference is not as large as that measured by firm size. In summary, the respondents were not truly representative of the sample frame since they were larger and more likely to export than the sample itself. Accordingly, a non-response bias analysis has been done to identify the extent to which results can be generalized over the sample frame, and is reported under results.

Construct results

Process and structure

Overall, the results suggest that the responding South African firms are very poor in the formal organization and processing of intelligence. The number one source for information in South African firms is their employees. Unfortunately the systems are not designed to support their efforts. In fact, responses indicated that firms were making this a very difficult task for employees. Few companies had a central coordinating point for receiving competitive intelligence information (question 41: 2.6 out of 5 – see Table 6), most indicated that they did not have convenient ways for employees to report observations and information (question 23: 2.8) and few provided incentives to encourage these activities (question 21: 2.1), provided training (question 42: 1.8) or even had legal and ethical guidelines to help employees understand how to conduct intelligence activities (question 4: 2.6).

Even more troubling was the lack of effort on knowledge management. Intelligence is made easier if employees know where the information resides within the company. Although in most cases the information required to conduct intelligence, has been found to be inside the company, few had a formal knowledge management system (question 51: 2.5), had conducted an internal knowledge audit (question 60: 2.0), or had an inventory of internal information and knowledge (question 33: 2.5). These results suggest a general lack of appropriate processes or structures for competitive intelligence in the responding firms.

In terms of the 'formal' structure for intelligence, 23.5% of respondents indicated that they had a formal CI effort in their organization. Not surprisingly, given the newness of

the field, most of these (72%) have been in operation for less than 4 years. The number of companies developing intelligence groups has risen sharply and it is not uncommon to find the job title of Manager of Competitive Intelligence on a company's organization chart (Tyson, 1998). Of the respondents 20.4% indicated CI was conducted by one person part-time, 47.6% stated that CI was conducted by a few people part-time, 0.9% had one full time person responsible for CI, 10.7% has a CI department and 20.4% said that CI was integrated throughout the organization. When the CI department responses are combined with those of a full-time complement, 11.6% of the respondents had a full-time focus on competitive intelligence. The model of intelligence in the responding South African firms is therefore a part-time model meaning that few firms are committing full-time resources towards their CI efforts. This also points towards a general lack of CI in the responding firms, and as Gilad mentioned at the 2000 SCIP conference 'part time CI is no CI' (Gilad, 2000).

Table 3: Department responsible for CI

Sales and marketing	53%
Strategic planning	17%
Research and Development	6%
Information Services/MIS	3%
Other	21%

While CI is intended to be a strategic function, in the case of the respondents, it was more of a marketing function. The main department responsible for CI was the Marketing Department (53%), followed by Strategic Planning (17%), as indicated in Table 3. In most cases the executive responsible for competitive intelligence was also either the Marketing Manager (37%) or the Chief Executive Officer (37%) – (see Table 4).

Table 4: Person (s) responsible for Competitive Intelligence?

Marketing Manager	37%
Chief Executive Officer	37%
Manager Strategic Planning	14%
Chief Operating Officer	10%
Other	5%

Table 5: Percentage of time spent on different elements of the intelligence wheel

Planning	15%
Collection	35%
Analysis	25%
Evaluation	15%
Communication	12%
Other	8%

To achieve the second objective of this study, validating the instrument and the constructs, all 18 questions of the process and structure construct were analysed using Cronbach's alpha. The Cronbach's alpha was 0.915, which is very high. This suggests that the measures are extremely strong. SPSS's 'Scale If Item deleted' test suggested that the alpha could not be improved significantly by deleting any of the questions which implied that the questionnaire does possess good metrics for the process and structure construct.

Regarding the time allocated within the competitive intelligence process (see Table 5), respondents spend most of their time collecting information (35%) and analysing it (25%). These figures do not differ substantially from those suggested in past intelligence literature (Calof & Breakpear, 1999; Prescott & Bhardwaj, 1995).

In South Africa in general, there was very little indication of a formal process. Only two out of 18 responses to the process questions had response averages of over 3 (see Table 6).

Planning and focus

Two sets of questions were posed to examine the planning and focus elements. In terms of construct reliability, the Cronbach's alpha of 0.814 (see Table 14) suggests good measurement characteristics. Eliminating items would not have increased the Alpha.

The first set of questions asked respondents to estimate the amount of time spent on different targets. Results suggested a focus beyond that of competitors, with 40.5% of time being spent on competitors, 37.2% on customers, 10.8% on government and 10.2% on suppliers (see Table 7 below). Results of 10 Likert questions asked about respondents' intelligence planning and focus confirmed this finding. The statement 'we are concerned about the plans and intentions of not only key competitors but also of key allies and partners, such as suppliers, distributors, investors and collaborators' gained the most support of all planning questions with an average of 3.9 (see Table 8 below). However, this focus and planning may not reflect senior management's needs since only 24% of the companies indicated that they interviewed senior managers to identify their intelligence needs (question 24).

Table 6: Results of process and structure questions

Nr.	Question	Average
4	Our company has developed legal and ethical guidelines for the conduct of CI activities.	2.6
21	Our company has incentives to encourage employees to report their competitive observations and information.	2
22	We proactively communicate the company's intelligence needs to employees.	2.5
23	We have convenient ways for employees to report observations & information.	2.8
32	Our corporate Intranet is specifically designed to facilitate and support our CI activities.	2.2
33	We maintain a comprehensive map or inventory of internal information and knowledge.	2.5
41	There is a central co-ordination point for receiving competitive intelligence information.	2.6
42	We make intelligence training available to all our employees.	1.8
45	We have dedicated staff and resources for the organization of competitive intelligence information.	2.3
47	We evaluate our competitive intelligence results.	2.7
50	Our intelligence staff regularly attends intelligence seminars/training Furthermore,	2.1
51	We have a formal knowledge management system.	2.5
53	Our company maintains a central record of reliable sources of information.	2.7
57	We have a long-term competitive intelligence plan.	2
58	Our competitive intelligence unit reports directly to the CEO or a senior manager.	2.7
60	We have conducted an internal knowledge audit (identify and catalogue what people know, what reports they have, publications, etc).	2
62	Our company's competitive intelligence capability is an ongoing process	3.5
63	Our competitive intelligence capability is a strategic management tool	3.3

Table 7: Time spent focusing on different targets

Competitors	40.5%
Customers	37.2%
Government	10.8%
Suppliers	10.2%
Partners	8.3%
Other	9.7%

Table 8: Results of planning and focus questions

Nr.	Question	Average
2	We are concerned with understanding the plans and intentions of not only our key competitors but also of key allies and partners, such as suppliers, distributors, investors and collaborators.	3.9
6	Our company produces intelligence reports and assessments on the competitors/emerging technologies that we believe are most important.	3.1
7	Our company continuously and systematically monitors our technologies globally to determine whether new competitors or technology substitutes are emerging.	3.5
8	We monitor and assess the activities and plans of organizations and groups (such as regulatory agencies or NGOs) whose views of our company could affect us.	3.1
9	Our company produces assessments that address several possible outcomes of our competitors' actions and that identify the threats and opportunities those outcomes present for our company.	2.9
12	Our company analyses our competitors' plans and strategies to predict and anticipate their actions.	3.2
24	We interview our executives regularly to identify their intelligence requirements.	2.4
34	Key corporate decision-makers are regularly surveyed/interviewed to verify that the intelligence products produced for them, satisfy their needs and provide value.	2.5
38	We know the mind set of the CEOs and other key executives of our top customers - how they view the industry, the degree of risk they are willing to take, the priority of their business goals, etc.	3.3
54	We conduct intelligence projects regardless of whether we have been asked to do it.	2.6

Collection

Concerning the planning construct, two sets of questions were asked about firms' collection behaviour. 10 collection-related Likert questions were asked to assess the extent to which firms were following these guidelines. As in the case of planning and focus, the reliability of the construct was very high with a Cronbach's alpha of 0.7972 (see Table 14). In terms of the response to this question, some South African companies recognized the importance of getting information from people as 66% of their collection time was spent gathering information from people inside or outside their organization (see Table 9).

Table 9: Percentage of information obtained from

Employees within your organization	30.8%
People outside your organization	34.8%
Electronic information	21.2%
Published information	19.6%
Other	11.1%

Table 10: Results of collection questions

Nr.	Question	Average
10	Our employees regularly report information about our competitors to appropriate managers.	3
11	Our company maintains a network of human contacts outside the company that we call on to answer senior management's questions in a timely and credible fashion.	3.4
18	Our company collects and uses patent and scientific literature to assess R&D programs and/or emerging technologies.	2.9
27	Our company has a variety of methods for collecting current intelligence, such as organised methods to exploit conferences.	2.7
36	All information collected is checked for accuracy and validated by at least one other source.	2.8
37	We train/prepare our employees every time they go to trade shows, exhibitions, conventions, and so forth about what information they should look for.	2.8
40	Results from exit interviews/job interviews are used in our intelligence system.	2.1
49	We try to collect all available information on our competitors.	3.5
55	Our employees have received formal training on how to collect information (e.g. an internet searching course or an interviewing course).	2
59	After collecting information whether it is from a person or from a documented source (e.g. the internet) we classify the source.	2.2

Analysis

Six analysis questions were asked. Again, the Cronbach's alpha was high at 0.74 (see Table 14) indicating reliable measures for this construct.

Analysis is perhaps one of weakest areas in the CI practises of responding South African firms. The results of the questions are indicated in Table 11 and the following became evident. While most companies did some basic analyses such as preparing competitor profiles (question 1: 3.3) or SWOT-analyses (question 12: 3.1), few used more advanced approaches such as psychological profiling (question 14: 1.8) or on-line data screening (question 15: 1.9). Within North America, Europe and Asia, these techniques are extremely common in larger firms.

Communication

Only two Likert questions that were included in the questionnaire could be used to test the extent of

This was further confirmed by the responses to question 11 where an average of 3.4 was gained for the statement about a network of human contacts outside the company who are called upon to answer senior manager questions. Most employees are also regularly reporting competitive information to appropriate managers (question 10: 3.0). This reporting to appropriate managers represents an excellent collection focus (see results of the collection questions in Table 10). Unfortunately, the process followed to collect this information was poor since the results show that information was rarely validated (question 36: 2.8). This makes South African firms particularly vulnerable to misinformation and disinformation. Even though employees were the primary source of information, few were offered training in how to properly collect information (question 55: 2.0).

communication of intelligence results in South African firms. This is due to ambiguity in the formulation of certain communication questions. These questions could therefore not be used in analysing the communication construct and will be reformulated for future studies. No Cronbach's alpha could be determined to assess the construct validity for this section, because of the limited number of questions in the construct. The results of these questions are indicated in Table 12.

The communication of intelligence findings to the right person is essential, since no strategic decision can be made if the appropriate decision-maker does not receive the intelligence. While 57% of the respondents indicated that intelligence results are distributed only to the authorized persons, there seems to be a lack of different intelligence products in these firms to present the findings (question 44: 2.2). Typical intelligence products include news bulletins (that have low strategic value) and scenario planning (that has high strategic value).

Table 11: Results of analysis questions

Nr.	Question	Average
1	Our company regularly prepares profiles of our competitors.	3.3
13	Our company uses formal competitor analytical models such as SWOT and gap analysis.	3.1
14	Our company uses formal psychological models such as competitor management profiling.	1.8
15	Our company uses advanced analytical techniques (e.g. on-line data screening, photography/imaging of competitor technology) to analyse our competitors and assess their future business implications.	1.9
26	Our company develops profiles of emerging technologies to better understand their characteristics, potential applications and market advantages.	3
29	We use information management techniques, such as data-mining, data-warehousing, OLAP or "business intelligence" software, to understand our customers.	2.3

Table 12: Results of the communications questions

Nr.	Question	Average
28	Our staff distributes intelligence findings only to those who are authorised to see them.	3.3
44	We have an array of tailored products for the presentation of intelligence findings.	2.2

Awareness and culture

Seven questions relating to awareness and culture were asked. The Cronbach's alpha for these was 0.800, again a very high indication of construct reliability (see Table 14).

On the positive side, it appears that the responding South African firms have the right attitude for competitive intelligence (Table 13). While most agreed that it was something that could be used to create a competitive advantage (question 48: 4.1), the respondents strongly agreed with the statement that senior management supported

intelligence activities (question 19: 3.9). Keeping in mind that intelligence requires information sharing and that 66% of the companies indicated that they regularly get information from employees, it is disturbing that few agreed with the statement that employees understood what competitive intelligence was (question 46: 2.2). Finally, despite the fact that senior management had indicated that CI was important, respondents only marginally agreed with the statement that senior managers use CI regularly in planning and strategic decision-making (question 25: 3.1).

Table 13: Results of the awareness and culture questions

Nr.	Question	Average
17	Our company recognises CI as a legitimate and necessary activity for business.	3.8
19	Senior company management supports intelligence activities.	3.9
25	Senior managers use CI regularly in their planning and decision-making.	3.1
43	The results from our intelligence process influence our corporate strategy and direction.	3.5
46	Most employees understand exactly what competitive intelligence is.	2.2
48	We believe that competitive intelligence can be used to create a competitive advantage.	4.1
52	Our corporate culture encourages information sharing.	3.5

Table 14: Alpha Cronbach values for constructs

Construct	Alpha
Planning and Focus	0.8144
Collection	0.7972
Analysis	0.7413
Communication	n/a
Process and Structure	0.9149
Awareness and Culture	0.8002
Total CI	0.8601

Non-response analysis

Respondents to this survey were larger in size and more likely to export than the firms within the sample frame. Accordingly, there was a concern about non-response bias. To address this, all the questionnaire items that were used to measure the intelligence constructs were tested with SPSSX's Anova. This test is designed to identify the extent to which group means differ. In general, there were few significant differences in responses from firms of different

size or between those that exported and those that did not. Of the 61 questions, Anova was significant in five questions relating to whether firms exported or not and six questions relating to size (small *versus* medium *versus* large firms). From Table 15 it can be seen that the differences are spread among all constructs. This non-response analysis therefore suggests that although the respondents were not representative of the overall sample base, the responses may be generalized over the sample frame.

Conclusion and recommendations

The first objective of this paper was to refine and test the intelligence model in order to extend it beyond the Canadian study. In this regard, the study has been successful. All

measures exhibited strong characteristics with high Cronbach alpha values.

The secondary objective was to assess the current state of CI in South African firms. Despite the weak response and the bias of the responses to larger firms surveyed, the non-response bias analysis indicates that the results may be generalized over the sample frame.

On the positive side, it is clear from the data that senior managers of some South African firms believe that CI can be used to create a competitive advantage and a high percentage believe that CI is a legitimate and necessary activity for increasing their intelligence and therefore provide them with a sustainable competitive edge over competitors.

Table 15: Non-response analysis: Results of Anova by exports and employees only for results with significance greater than 0.05

Question	Anova Significance by		
	Construct	Exports	Sales
3 Secondary sources of information (public literature, analysts' reports, newspapers, libraries, databases, consultant reports, government reports, etc.) are our most important sources of information used to learn about our key competitors.	Collect	None	.004
5 Our company is only concerned about the companies with whom we directly compete	Focus	None	.009
8 We monitor and assess the activities and plans of organisations and groups (such as regulatory agencies or NGOs) whose views of our company could affect us.	Focus	None	.007
18 Our company collects and uses patent and scientific literature to assess R&D programmes and/or emerging technologies.	Collect	.010	None
23 We have convenient ways for employees to report observations & information.	Process	None	.006
26 Our company develops profiles of emerging technologies to better understand their characteristics, potential applications and market advantages.	Analysis	.021	None
33 We maintain a comprehensive map or inventory of international info and knowledge.	Process	.024	None
37 We train/prepare our employees every time they go to trade shows, exhibitions, conventions, and so forth about what information they should look for.	Collection	None	.008
41 There is a central co-ordination point for receiving competitive intelligence information.	Process	.035	None
46 Most employees understand exactly what competitive intelligence is.	Culture	None	.039
50 Our intelligence staff regularly attends intelligence seminars/training programs.	Process	.011	None
Total questions with significant differences		5	6

However, it seems that South African firms are not as well equipped to conduct good intelligence practices as their counterparts in the United States, Japan, Sweden, France, Israel and others (Kahaner, 1996). Perhaps the country could benefit from the type of programmes seen in other countries and at universities such as Sweden's Lund University, where students are offered extensive curricula in CI, including Doctorate Studies. In Japan and France, intelligence officers teach college courses on the subject (Kahaner, 1996).

Weaknesses were evident in all aspects of the intelligence model, especially in process and structure and analysis. Thus, programmes and policies that are supportive of

intelligence need to be developed. In particular, awareness needs to be created and developed. In other countries this has been done, with great success, through the cooperation between media, workshops presented by SCIP chapters countrywide, training organisations, academic courses, as well as the full support and participation of CI activities by the government. This cooperation model is therefore highly recommended in South Africa.

Finally, further research within South Africa will be necessary to obtain a more accurate picture of competitive intelligence practices. The small number of firms that responded has made it clear that this will be an important

next step if the results are to be used for policy recommendations.

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