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# Competitive intelligence: a multiphasic precedent to marketing strategy

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## Abstract

**Purpose** – The paper seeks to explore competitive intelligence as a complex business construct and as a precedent for marketing strategy formulation.

**Design/methodology/approach** – In total, 1,025 executives were surveyed about their companies' usage of competitive intelligence collection, analysis, and dissemination as well as their perception concerning certain organizational characteristics.

**Findings** – This research develops and tests intelligence as a precedent to marketing strategy formulation, revealing multiple phases and contributing aspects within the process. It also discovers that the practice of competitive intelligence, while strong in the area of information collection, is weak from a process and analytical perspective.

**Research limitations/implications** – While the sample was indeed a census of Canadian technology firms, care must be taken in generalizing the study beyond this industry, and certainly beyond the Canadian borders. Also, the questionnaire used only dichotomous variables (yes/no answers), which limited the testing that could be done.

**Practical implications** – Using these results, competitive intelligence departments and professionals can improve efficacy within their approach and execution strategies.

**Originality/value** – The contribution of this paper is two-fold. It reveals many of the "state-of-the-art" levels of practice within current competitive intelligence efforts, and it proposes a model of the intelligence process.

**Keywords** Competitive intelligence, Marketing strategy, Market intelligence

**Paper type** Research paper

The formal exploration process of the marketing strategy paradigm has been linked with the environmental scanning literature as a basis for gathering and processing the information and the information processing theory paradigm. In fact, the importance of environmental scanning has often been linked to firm performance (Daft *et al.*, 1988). Perhaps the marriage of environmental scanning and information processing for effective strategic decision making was best summarized by Belich and Dubinsky (1999), who wrote that:

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The ability to develop adequate organizational mechanisms for information acquisition, dissemination, and effective utilization may be precursors to identifying and effectively adapting to major market shifts.

Environmental scanning and information processing activities within marketing strategy have been found to be moderated by the level of environmental uncertainty (Daft and Macintosh, 1981). Daft *et al.* (1988) posited that as uncertainty increased, information processing activities increased. Environmental uncertainty therefore leads to increasing information processing activities within firms (Culnan, 1983; Daft *et al.*, 1988; Tushman, 1977). Regardless of the complexity and uncertainty inherent in any environment, information processing (a firm's ability to adapt to existing market conditions) is largely dependent on its ability to process relevant market information effectively (Egelhoff, 1982). Brouard (2006) linked competitive intelligence and environmental scanning in the development of an instrument to measure companies' environmental scanning capability. In summary, the rational model of strategic decision-making suggests the need for environmental scanning in order to align the organization's strategy with its environment. This, in turn, requires the design of appropriate information processing infrastructures. The need for these infrastructures increase as environmental uncertainty and complexity increase. Competitive intelligence is a process involving the gathering, analyzing, and communicating of environmental information to assist in strategic decision-making. As such, it is the fundamental basis of the strategic decision-making process.

### **Introduction: what is intelligence?**

The concept of intelligence has a rich history of over 2,000 years (Juhari and Stephens, 2006). The intelligence concept of intelligence as part of marketing strategy has long been proposed as an effort to increase the firm's competitiveness and its strategic planning process (Guyton, 1962; Montgomery and Urban, 1970; Pearce, 1976; Montgomery and Weinberg, 1979; Porter, 1980). In 1966, William Fair proposed the formation of a corporate "Central Intelligence Agency" within the firm whose function it would be to "collect, screen, collate, organize, record, retrieve and disseminate information" (Fair, 1966). 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).

Theory in the intelligence process has been proposed by many authors under many different labels, including environmental scanning (Aguilar, 1967; Fahey and King, 1977; Fahey *et al.*, 1982; Hambrick, 1982; Sashittal and Jassawalla, 2001; Saxby *et al.*, 2002), business intelligence (BI) (Cleland and King, 1975; Benjamin, 1979; Pearce, 1976), strategic intelligence (SI) (Aaker, 1983; Montgomery and Weinberg, 1979), competitor analysis (CA) (Ghoshal and Westney, 1991; Rothschild, 1979), competitive technical intelligence (CTI) (Albagli *et al.*, 1996; Brockhoff, 1991), and market intelligence (MI) (Chonko *et al.*, 1991; Guyton, 1962. Maltz and Kohli, 1996). Day and Shoemaker (2006) have brought forward the concept of peripheral vision, which is also very similar to the competitive intelligence concept, as was Davenport and Harris's (2006) competitive analytics concept. Most of these works have positioned intelligence as the necessary (and sometimes assumed) prerequisite for strategic planning (Ansoff, 1965; Porter, 1980). Of these, the one area that has received the most academic attention has been that of market intelligence, a logical extension of the market research discipline (Walle, 1999).

It is believed that “competitive” intelligence (CI) may imply the true purpose of intelligence – that is, to gain strategic advantage (Porter, 1980). Therefore, competitive intelligence includes *competitor* intelligence as well as intelligence collected on customers, suppliers, technologies, environments, or potential business relationships (Fair, 1966; Gilad, 1989; Grabowski, 1987; Guyton, 1962). A review of the literature related to intelligence suggests that it is a marketing discipline focused on gathering information on the competition (Schollhammer, 1994). However, a broader examination of the literature shows that intelligence is about not only monitoring competition, but also the entire business environment. A more appropriate definition of intelligence is:

... actionable recommendations arising from a systematic process involving planning, gathering, analyzing, 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).

Recently, Calof has revised the definition to include the objective of intelligence:

Intelligence helps your company sustain and develop distinct competitive advantages by using the entire organization and its networks to develop actionable insights about the environment (customers, competitor, regulars, technology ...). It uses a systematic and ethical process involving, planning, collection, analysis, communication and management (Calof, 2008).

#### *Researching intelligence and the proposed hypotheses*

The existence of intelligence as a business activity has previously been examined by studies involving CEOs and executives (Daft *et al.*, 1988; Gelb *et al.*, 1991; Keegan, 1974; Maltz and Kohli, 1996; Montgomery and Weinberg, 1979), planning and other managers (Fahey and King, 1977; Ghoshal and Westney, 1991; Zinkhan and Gelb, 1985), CI managers and practitioners (Cartwright *et al.*, 1995; Prescott and Smith, 1987), and small business owners (Tarraf and Molz, 2006). The current study sampled executives as in previous studies (Gelb *et al.*, 1991; Keegan, 1974; Maltz and Kohli, 1996; Montgomery and Weinberg, 1979; Wright *et al.*, 2002; Wright and Calof, 2006). From previous studies there appear to be clear and distinct stages in the CI process. Key areas that appear to emerge in the literature are outlined below.

*Planning and focus.* Effective intelligence processes do not attempt to collect all possible information or research everything related to a subject, but focusing on those issues of highest importance to senior management (Aguilar, 1967; Daft *et al.*, 1988; Gilad, 1989; Gilad and Gilad, 1985a; Goretzky, 1982; Herring, 1998; Montgomery and Weinberg, 1979; Porter, 1980). This phase is required to set required resources for the intelligence project or process as well as to establish the purpose and result of the findings. It is during this phase in which the assessment of what intelligence is required for the managerial decision which is under uncertainty. Herring (1998) and Gilad (1989) have emphasized the importance of planning and focus for the intelligence effort. Thus, it is expected when investigating the intelligence process that there will be found an active planning and focus phase.

*H1.* There exists a phase in the intelligence process that that creates the intelligence process.

*Collection.* Collection comes from a variety of different sources and acquisition methods including environmental scanning (Aguilar, 1967; Daft *et al.*, 1988; Fahey and King,

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1977; Fahey *et al.*, 1982; Hambrick, 1982; Keegan, 1974; Lenz and Engledow 1986a, b; Preble *et al.*, 1986). Other subjects related to the collection stage are the information source (Cox and Good, 1967; Fair, 1966; Guyton, 1962; Moriarity and Spekman, 1984; O'Reilly, 1982; Porter and Millar, 1985) as well as information usage (Garvin, 1993; Grabowski, 1987; Maltz and Kohli, 1996; Menon and Varadarajan, 1992; Murray, 1972; Sinkula, 1994; Sinkula *et al.*, 1994). Miller and Calof (1998), in their study of the intelligence process in Society of Competitive Intelligence (SCIP) members, found that roughly 25 percent of all intelligence time involved collection activities. Accordingly, the second hypothesis is:

*H2.* There exists a phase in the intelligence process where the collection of information is conducted.

*Analysis.* This is where “true” intelligence is created, that is converting information into “actionable intelligence” on which strategic and tactical decisions may be made (Calof and Miller, 1997; Gilad and Gilad, 1985a, b; Herring, 1998; Kahaner, 1996). Much work has been done in the areas of competitive analysis (Brock, 1984; Chen, 1996; Keep *et al.*, 1994; Smith *et al.*, 1989, 1992), strategic analysis (Ansoff, 1965; Barney, 1986; Boulton *et al.*, 1982), environmental analysis (Lenz and Engledow, 1986a, b), and competitive theory (Narver and Slater, 1990; Porter, 1980; Slater and Narver, 1994, 2000). The preceding authors have all proposed that analysis should be done as part of the intelligence effort. Thus, it is proposed:

*H3.* There exists a phase in the intelligence process where analysis of the information is conducted.

*Communication.* The results of the intelligence process (or individual project) needs to be communicated to those with the authority and responsibility to act on the findings. Previous studies have included the impact of environment on strategic planning (Boulton *et al.*, 1982; Gilad, 1989; Hambrick, 1982), study of marketing knowledge within the firm (Maltz and Kohli, 1996; Menon and Varadarajan, 1992; Moorman, 1995; Saxby *et al.*, 2002) and knowledge dissemination (Garvin, 1993; Huber, 1990; Hurley *et al.*, 1998; Kahaner, 1996). Kahaner particularly emphasized the importance of proper communication of intelligence results to provide managerial decision support. Thus, the fourth hypothesis is:

*H4.* There exists a phase in the intelligence process where communication and dissemination of the analyzed intelligence is performed.

*Process/structure.* Intelligence requires appropriate policies, procedures, and a formal (or informal infrastructure) so that employees may contribute effectively to the intelligence system as well as gain the benefits from the intelligence process. There is much support for a formal structure and a systematic approach to intelligence (Cox and Good, 1967; Cleland and King, 1975; Gilad and Gilad 1985a, 1986; Ghoshal and Kim, 1986; Porter, 1980). However, many firms' intelligence efforts are short-term projects and, thus, they do not have ongoing or formal processes in place, but still conduct intelligence activities (Prescott and Smith, 1987). Thus, there has been debate within the literature about a full-time intelligence structure versus part-time. However, regardless of the structural debate all authors point towards the importance of an intelligence process for transforming data into intelligence. Accordingly, hypothesis five is:

- H5. For those firms conducting intelligence, there exists a (formal or informal) intelligence process or structure within the firm.

*Organizational awareness/culture.* For a firm to utilize its intelligence efforts successfully, there needs to be an appropriate organizational awareness of intelligence and a culture of competitiveness. There has been support for this awareness/culture construct in the area of market orientation (Gelb *et al.*, 1991; Ghoshal and Kim, 1986; Ghoshal and Westney, 1991; Kohli and Jaworski, 1990; Narver and Slater, 1990; Pole *et al.*, 2000; Slater and Narver, 1994, 1995, 2000). The heightened awareness of a firm's competitive environment (which the existence of intelligence within a firm may create) tends to be one of the bases for organizational learning theory (Garvin, 1993; Sinkula, 1994; Slater and Narver, 1995). Thus, the final hypothesis for test is:

- H6. For those firms conducting intelligence, there exists an organizational awareness and culture of competitiveness within the firm.

This section has sought to explore the competitive intelligence literature in an effort to develop a comprehensive set of testable hypothesis for creation of an integrated intelligence model. For a complete review on literature and past studies on intelligence consult the four part series, bibliography and assessment of key competitive intelligence scholarship, published by the *Journal of Competitive Intelligence and Management* (Dishman *et al.*, 2003; Fleisher *et al.*, 2003; Knip *et al.*, 2003; Fleisher *et al.*, 2007).

### **Methodology**

Several efforts have been made to evaluate companies' intelligence capabilities (Antia and Hesford, 2007; Cartwright *et al.*, 1995; Daft *et al.*, 1988; Fahey and King, 1977; Gelb *et al.*, 1991; Ghoshal and Westney, 1991; Keegan, 1974; Maltz and Kohli, 1996; Montgomery and Weinberg, 1979; Prescott and Smith, 1987; Sawka *et al.*, 1995; Zinkhan and Gelb, 1985). Table I looks at a few of these from the perspective of size of sample and focus of the study. For a more complete list of studies conducted in intelligence, consult the *Journal of Competitive Intelligence and Management* bibliography articles (Fleisher *et al.*, 2003, 2007; Dishman *et al.*, 2003).

The instrument used for this study is based on that used by Sawka *et al.* (1995). They conducted an extensive sampling effort jointly with the Industrial Research Institute (IRI) and the Society of Competitive Intelligence Professionals (SCIP).

For this study, membership lists were obtained from a variety of industry associations primarily related to technology. This was done in order to better investigate the model as environmental scanning and information processing activities have been more evident in these types of firms (Egelhoff, 1982). From this list, a population of 3,080 firms was identified. Questionnaires were sent to all 3,080 and 1,280 were returned. In total, 255 were incomplete and unusable. In all 1,025 completed surveys were used in this study, for a valid response rate of just over 33 percent. Prior to sending out the questionnaire, it was pre-tested to a sample group of firms. The focus of this procedure was to ensure questionnaire clarity and interpretability by the respondents. Because of this procedure, a terminology section was added to the cover letter. In addition, question language was modified substantially. Each of the 1,025 respondents represented a unique firm. Some 64 percent of the respondents were executives of the firm. Although the response rate was a satisfactory, a non-response analysis was also conducted. Information on the size of the company, geographic location, and industrial

Study	Respondents	Authors	Sample <i>n</i>
Multinational scanning	Executives	Keegan (1974)	50 (13 firms)
Environmental scanning	Key planning officers	Fabey and King (1977)	12 (12 firms)
Strategic intelligence systems	Executives	Montgomery and Weinberg (1979)	100 (30 firms)
CI in industrial marketers	Managers	Zinkhan and Gelb (1985)	164 (151 firms)
CEO environmental scanning	CEOs	Daft <i>et al.</i> (1988)	50 (50 firms)
CI in general	Executives	Gelb <i>et al.</i> (1991)	20 (20 firms)
CA system organization	Managers and analysts	Ghoshal and Westney (1991)	153 (three firms)
CI systems	CI practitioners	Cartwright <i>et al.</i> (1995)	59 (59 firms)
MI dissemination	Executives	Maltz and Kohli (1996)	788
CTI in manufacturing firms	Manufacturing managers	Sawka <i>et al.</i> (1995)	104 (104 firms)
CI and marketing decisions	Executives	Badr (2003)	227
CI and strategic decision making	CI managers	Badr <i>et al.</i> (2006)	79
CI process	Executives	Current study	1,025 (1,025 firms)
CI and large companies	Executives	Global Intelligence Alliance (2005, 2007)	281
CI practice and focus	SCIP members	Fehring <i>et al.</i> (2006)	520
CI practice in large Finnish companies	Executives	Hannula and Pirttimäki (2003)	50

**Table I.**  
Selected summary of  
previous empirical  
studies

classifications had been obtained prior to survey mailing. No significant differences were evident using any of these dimensions.

### Study results

There are two elements regarding the study results. Firstly, the overall averages within each of the construct areas are reported to provide a better understanding of the competitive intelligence environment within the responding firms. Simple means analysis was used for this purpose. Secondly, the study established the robustness of the constructs and their measures. The underlying validity was established by drawing upon past research in the competitive intelligence field and, in particular, using a modified and pre-tested version of an industry-wide accepted questionnaire. To establish construct reliability Cronbach's  $\alpha$  was generated for each construct. Reliability was further established by using factor analysis with Varimax rotation and eigenvalue cutoffs of 1.00. Analysis produced six factors, which have been labeled "Planning and focus", "Collection", "Analysis", "Communication/dissemination", "Process/structure", and "Awareness/culture". Each of these constructs is presented below.

#### *Planning and focus*

Of note in this section include the large number of respondents who recognized that intelligence is more than just asking questions about competitors but involves other aspects of the environment (76 percent). Additionally, most felt that they were focused on the needs of senior management (77 percent). Unfortunately, only 23 percent regularly interviewed executives to truly understand their strategic or decision-making needs. A second negative aspect in this section was the large number of respondents who indicated that their activities are focused only on their direct competitors (46 percent). Cronbach's  $\alpha$  for the nine questions was 68 percent (see Tables II and III). Factor analysis yielded two underlying factors: factor 1 grouped the questions that we have labeled as "Focus"-related, while questions associated with establishing the "Existence" of intelligence within the firm aligned with factor 2. These results support the strength of the underlying construct and their associated questions.

#### *Collection*

One of the more significant results of the study was the high percentage of respondents who regularly get information about competitors or emerging technology from their employees (73 percent). Interestingly, the predominant source of information from responding companies was secondary, external sources (76 percent) rather than internal sources (38 percent). Measurement problems with the construct was evident in that three factors emerged with an  $\alpha$  of 0.47. With the  $\alpha$  distant from the target of 0.60, coupled with the three factors, suggests that the underlying construct may have to be interpreted different ways.

#### *Analysis*

Analysis is considered by some to be the most important part of the intelligence process. However, Analysis, along with the Process/structure construct, recorded the lowest means of any of the questionnaire sections. None of the nine analysis questions had more than 31 percent answering "yes". Further, the two questions that addressed higher-level analytical techniques had fewer than 10 percent of the respondents

Phase	Questions	Average mean (percent)	p-value	$\alpha$ (percent)	Factors/variance	Emerged factors
Planning and focus	9	47.4	0.0000	68	2/41.1 percent	"Focus", "Existence"
Collection	7	59.0	0.0000	47	3/56 percent	"Source variety", "CTI collection", "Secondary as primary"
Analysis	9	25.8	0.0000	74	3/56 percent	"CTI analysis", "Competitive analysis", "Advanced analytical techniques"
Communication/dissemination	2	54.0	0.0000	N/A	1	
Process	8	24.5	0.0000	60	2/42 percent	"Formal infrastructure", "Employee Involvement"
Awareness/culture	5	72.4	0.0000	72	1/48 percent	
Total	40					

**Table II.**  
Construct means and reliability results



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answering positively. Clearly, the respondents place a great deal more time and effort in collection as opposed to analysis. Regarding construct reliability, the Cronbach's  $\alpha$  for the analysis questions was 74 percent. Factor analysis yielded three factors with the factors breaking down as advanced versus simple analytical techniques.

#### *Communication*

The study revealed that 54 percent of the respondents indicated that the results were given to anyone in the organization who was interested in the findings. However, the communication phase was investigated using only two questions and, as such, it is not possible to ascertain construct reliability.

#### *Process/structure*

The results of the Process/structure questions indicate that companies may not yet be investing appropriately in building the internal infrastructure required for fully effective intelligence efficacy. Only 26 percent claimed a capability to locate internal sources of information and knowledge and, apparently, very little use is made of computer systems to support intelligence activities (13 percent and 8 percent). Although 49 percent indicated that they have convenient ways for employees to report intelligence input, only 13 percent have incentives to encourage this to happen. These indicators of structural deficiency are supported by the responses to two other questions that examined the process and structure. When asked if they have a formal intelligence system, only 11 percent responded "yes". These results suggest that the predominant model of intelligence is currently a part-time or casual one. Construct reliability results were positive with an  $\alpha$  of 0.60. Further, factor analysis indicated two underlying factors, with one being associated with the systems and processes for employee contributions and the other representing other types of systems.

#### *Awareness/culture*

Of all the sections in the questionnaire, this section yielded the highest number of positive responses. With the exception of use by senior management, all awareness/culture questions recorded greater than 70 percent. This indicates an organizational culture highly supportive of effective intelligence. This construct also appeared to have the highest reliability of the group with an  $\alpha$  of 0.72 and only one factor emerging in the factor analysis.

When a multi-trait correlation matrix is produced, preliminary analysis showed that there exists some indication for discriminant validity, as the corresponding correlations between the various traits are low. These correlations ranged from  $-0.08$  to  $0.298$  (see Table IV). However, further examination of inter-item constructs also showed low correlations, which may be indicative of the nature of the dichotomous questions that were utilized in the study (see Table V).

### **Conclusion**

Many companies reported a good internal culture to support intelligence but are not really practicing it as has been recommended by previous authors. Low responses were evident in Planning/focus, Analysis, Communication and Systems/procedures, but, generally, very high scores in Awareness/culture. What was most disturbing was that only 36 percent of the responding companies communicate intelligence needs to

**Table IV.**  
Multi-trait correlation  
matrix

	Formal infrastructure	Employee involvement	Org. awareness	Existence of intelligence	Focus of intelligence	Source variety	CTI collection	Secondary as primary	CTI analysis	Competitive analysis
Formal infrastructure	1.000									
Employee involvement	0.126	1.000								
Org. awareness	0.116	0.192	1.000							
Existence of intelligence	0.093	0.177	0.199	1.000						
Focus of intelligence	0.163	0.179	0.207	0.141	1.000					
Source variety	0.087	0.135	0.195	0.131	0.154	1.000				
CTI collection	0.053	0.066	0.121	0.076	0.151	0.043	1.000			
Secondary as primary	-0.025	-0.027	0.031	0.014	-0.080	0.037	-0.019	1.000		
CTI analysis	0.179	0.185	0.218	0.160	0.298	0.152	0.168	-0.038	1.000	
Competitive analysis	0.147	0.127	0.140	0.099	0.208	0.093	0.117	-0.044	0.206	1.000

<i>Process and structure</i>	Q3	Q20	Q21	Q22	Q31	Q34	Q37	Q39
Q3	1							
Q20	0.122**	1						
Q21	0.143**	0.297**	1					
Q22	0.111**	0.235**	0.427**	1				
Q31	0.110**	0.091**	0.137**	0.086**	1			
Q34	0.133**	0.089**	0.170**	0.174**	0.144**	1		
Q37	0.135**	0.070**	0.137**	0.105**	0.102**	0.341**	1	
Q39	0.085**	0.179**	0.170**	0.143**	0.118**	0.205**	0.198**	1
<i>Planning and focus</i>	Q4	Q5	Q6	Q7	Q8	Q23	Q26	Q29
Q4	1							
Q5	-0.127**	1						
Q6	-0.135**	0.285**	1					
Q7	-0.094**	0.180**	0.227**	1				
Q8	0.010	0.232**	0.148**	0.122**	1			
Q23	-0.047	0.171**	0.262**	0.148**	0.110**	1		
Q26	-0.690*	0.309**	0.234**	0.185**	0.246**	0.404**	1	
Q29	-0.145**	0.346**	0.302**	0.217**	0.215**	0.189**	0.259**	1
Q41	-0.120**	0.238**	0.236**	0.145**	0.280**	0.157**	0.238**	0.235**
<i>Collection</i>	Q2	Q10	Q11	Q17	Q32	Q33	Q35	
Q2	1							
Q10	0.265**	1						
Q11	0.167**	0.256**	1					
Q17	0.194**	0.125**	0.110**	1				
Q32	0.076**	0.040	-0.101	0.171**	1			
Q33	0.085**	0.085**	0.196**	0.008	-0.019	1		
Q35	0.096	0.059	-0.037	-0.041	0.004	0.030	1	

(continued)

**Table V.**  
Inter-item correlations for  
significant multi-trait  
constructs

Table V.

	Q1	Q9	Q12	Q13	Q14	Q27	Q28	Q40	Q43
Q1	1								
Q9	0.377**	1							
Q12	0.435**	0.427**	1						
Q13	0.224**	0.232**	0.206**	1					
Q14	0.080*	0.176**	0.155**	0.109**	1				
Q27	0.145**	0.215**	0.249**	0.031	0.197**	1			
Q28	0.209**	0.324**	0.239**	0.105**	0.088**	0.137**	1		
Q40	0.200**	0.325**	0.249**	0.158**	0.099**	0.180**	0.412**	1	
Q43	0.297**	0.381**	0.315**	0.125**	0.089**	0.215**	0.413**	0.382**	1

employees, yet in the collection phase, twice this number indicated that employees regularly reported information. Taken together with the results from the planning section, this suggests that many firms have employees regularly contributing information without being informed about management's information needs. Further, for those few that informed the employees as to what to collect (36 percent), less than half (44 percent) actually interviewed senior management regularly to understand management or strategic needs.

A model of the intelligence process is thus proposed (see Figure 1). This provides additional insight as to significant factors related to the various phases. The intelligence process and structure as well as the organizational awareness and culture are seen as having direct impact on all of the various phases in the intelligence course. From the intelligence process and structure, two factors have arisen:

- (1) the existence of a formal infrastructure; and
- (2) the level of employee involvement.

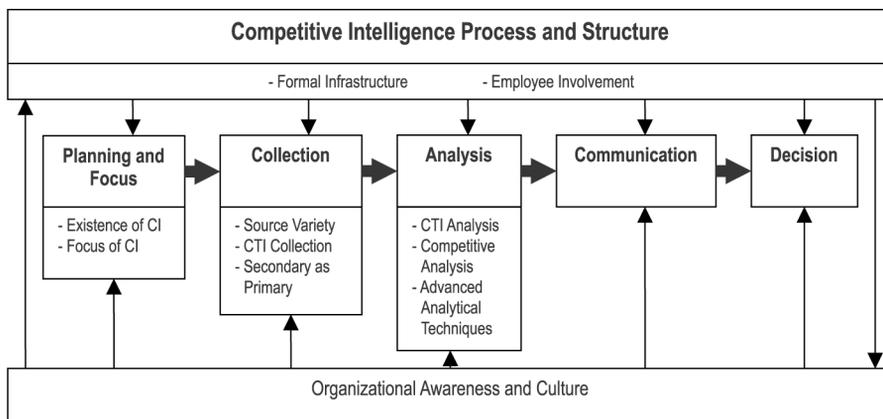
It is believed that these factors contribute to the effectiveness as well as the efficacy of the intelligence effort within the firm. Within the planning and focus phase, two factors were recognized:

- (1) the existence of intelligence; and
- (2) the focus of intelligence.

Although some firms did report that they conducted intelligence, but in an informal and non-structured manner, it was clearly found that the existence of an intelligence effort (or formal unit) and a clear and well-communicated definition and mission of that effort was contributory to the initial phase in the intelligence process.

During the collection phase three factors arose:

- (1) source variety;
- (2) competitive technical intelligence; and
- (3) using secondary sources as the principal information resource.



**Figure 1.**  
Model of competitive intelligence

It is clear from the study that a variety of information sources are utilized, including internal and external sources, sources that are both qualitative and quantitative in nature, as well as using both textual and human information sources. Of particular note was the usage of competitive technical intelligence collection. Although the respondent sample was skewed toward technology firms, clearly this is an important sub-factor in the various types of information collected among other informational types such as financial, strategic, or sales/marketing related.

In the analysis phase, three factors emerged:

- (1) competitive technical intelligence analysis;
- (2) competitive analysis; and
- (3) the usage of advanced analytical techniques.

The discovery of competitive technical intelligence analysis is logical as it corresponds with the competitive technical intelligence collection factor. The existence of competitive analysis was also detected as this is the predominant activity of competitive (or competitor) intelligence efforts. The activities under this factor may include competitor profiling, product line comparisons, war-gaming and competitive move prediction.

However, before the results of the study are generalized, further study is necessary. More detailed case studies are needed to aid in the development of an intelligence “best practices” guide to help firms become more aware of accepted and successful practices. These case studies are also needed for validating the results of previous assumptions made about intelligence structure and implementation. The idea of an integrated intelligence scheme is proposed by many authors but its proposed or actual structure is unknown. How can it be designed to be effective? While this study represented organizations in the technology sector, more research is needed to understand whether the results hold true for other industries.

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