

Information Use, Competitive Intelligence and Organizational Performance: Human Information Behaviour Perspective

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Abstract: The potential usefulness of different kinds of Information System (IS) for environmental management is well recognized. Perhaps one can say advances in information provision have led organizations to attempt to develop IS or information technology (IT) strategies which interrelate with their business strategies and which together support corporate missions. Competitive intelligence activities are intensive information behaviour. This paper attempts to explicitly connect competitive intelligence with information use in an organization. It also identified that adequate use of information is an important part of coping with challenges faced by firms thus enhancing the performance and productivity of such organization. This study relies on secondary data from various sources to conceptualize Competitive Intelligence, using Human Information Behaviour model to show its significance in improving organizational performance. The study suggests that Management needs to understand the importance of CI and allocate enough resources or budget for operation of the intelligence unit.

Keywords: Competitive Intelligence; Information Use; Information Quality; Competitive Advantage; Organizational Performance

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I. Introduction

For any modern organization, one of the most important issues nowadays, along with knowing its strengths/weaknesses and understanding its customers, is about knowing its competitors. Competitive intelligence is defined as “a systematic program for gathering and analyzing information about ones competitors’ activities and general business trends to further ones company’s goals” (Kahaner, 1996). Information use is seen as an important input in most organization since it allows development and creation of competitive advantage. Organizations that can exploit the use of information effectively can remain competitive. Effective information management strategies can enhance efficiency, productivity and ultimately achieve long term corporate goals. A competitive advantage can be gained if information is shared and used by those who could benefit from it.

Information about competition is nowadays critical component for both, tactical and strategic decision making of every company. Building information system that supports the management and decision-making, and that can be a source of competitive advantage, is not an easy task. Turbulent development of information technologies, hardware and software transformed activities such as collection, accumulation and broadcasting of information, into a very easy task, but only from the technical side. What remains problem is how to get quality and useful information. Such high-quality information about competition companies may have on its disposal only if they establish integrated and intelligent system for collecting and analyzing data about the competition. This system is known as “intelligent system for the notification of competition” (Competitive Intelligence-CI). CI provides critical in-formational support to both tactical and strategic decision-making, and is becoming irreplaceable tool in the modern competitive struggle.

Competitive intelligence (CI) can be seen as a process by which an organization legally gathers analysis and distributes the information about its competitive environment. CI information is ‘privileged’ information that should be processed to meet the requirements of management and decision makers. Business organizations and firms use different variations of processes and methods to generate CI information but the aim of such processes is to give firms some knowledge that would lead to a competitive advantage. It creates an enabling environment for organizations to have a competitive edge in a market. This is a major objective of firms who want to achieve competitive advantage over its competitors in the same industry. Viviers and Muller (2004) posit that South African companies have confirmed that CI influences and “positively enhances competitiveness”. The study overall affirms the importance of CI as a business process in South Africa that goes beyond customer and industry analysis to the entire external environment. Cavalcanti (2005) also confirms the positive relationships between CI and company success. Therefore failure by companies to undertake intelligence gathering could lead to bias decision making. Lack of external environment information can degenerate to poor business performance.

Although it is well recognized that information seeking and manipulation is an essential feature of CI, it has rarely been studied from Human Information Behaviour (HIB) perspective.

II. Information Behaviour

As a research field, Human Information Behaviour focuses on how people need, seek and use information to live their lives. Since mid 1980s, this field has become a core in the information science literature (Julien and Dugan, 2000). Wilson (2000) defined HIB as “the totality of human behaviour in relation to sources and channels of information, including both active and passive information seeking, and information use”. Quite often, the term HIB is interchangeably used with others terms, such as information behaviour (Fisher, Erdelez and McKechnie, 2005; Case, 2007) or human information seeking (Choo, Detlor and Tumbull, 2000)

Choo et al. (2000) stated that HIB has three components: information needs, information seeking and information use. Information needs are often discussed at the cognitive level- “gaps or anomalies in the state of knowledge or understanding represented by questions or topics”. In an organizational or a work setting, information need often arises when people are involved in such tasks as planning and decision making. Information seeking refers to a ‘purposive, goal oriented’ process to search for information to satisfy a certain need. One prominent concern for research in information seeking is how people deal with the sources or channels of information. Information use can be seen as the flip side of information need. It occurs when the recipient (of the information) processes information by engaging mental schemas and emotional responses within a large social and cultural context. At the individual level, the outcome of information use is a change of his/her state of knowledge (increase awareness, understanding of a situation), or a capacity to act (solve a problem, make a decision, negotiate a position).

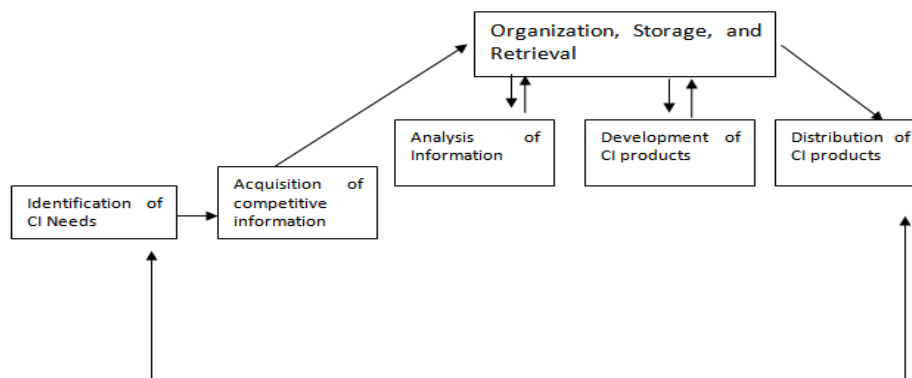
CI is seen as intensive information work. Many CI scholars have pointed out that effective CI often depend on the ability to identify proper intelligence needs, the types of information that can be used to address the needs, the sources and channels to secure the information, and the methods to convert the information into intelligence (Bouthillier and Shearer, 2003; Fleisher and Blekhorn, 2001; Vibert 2004) These aspects are highly relevant to the components of information behaviour research- information needs, information seeking, and information use. Therefore, those HIB theories may provide an interesting reference framework to explain phenomena in CI. Sutton (1988) found that in a given organization, CI professionals usually had a planning, marketing, sales, or marketing research title, and very often, they were at the rank of manager or analyst. The Competitive Intelligence Foundation (2006) found that CI professionals were often located in a standalone strategic planning department, information center, business development or mergers and acquisitions department.

Fuld (1995) classified CI professionals into three broad categories: data collector or librarian, data analyst, and CI or project manager. Similarly, Bergeron and Hiller (2002) divided CI specialist into two general groups: information specialist and analysts. They assumed that an information specialist should primarily focus on the information management, while an analyst should mainly concentrate on synthesis, hypothesis creation, assumption building and testing

III. Conceptual Framework

To further elaborate this, we use Bouthillier and Shearer’s (2003) Information Processing Model of CI as a conceptual guide (see figure 1). This model conceptualizes the CI process from an HIB perspective. It includes six basic steps, and each step can further be broken down into sub processes:

Figure 1: Information Processing Model of CI Cycle



Source: Proceedings of the 36th Annual Conference of the Canadian Association for Information Science (CAIS), University of British Columbia, Vancouver, June 5-7, 2008

- Identification of CI needs (identification of main CI client communities, identification of intelligence needs, identification of CI analysis techniques and translation of intelligence needs to information needs);
- Acquisition of competitive information (identification of relevant internal and external sources; conducting an internal information audit; monitoring information sources; targeting specific information, filtering out information content, and assessing the validity and value of information)
- Organization, storage and retrieval (indexing incoming data, information and intelligence);
- Analysis of information (synthesis and organization of information, making inferences of the analyzed information to produce actionable intelligence).-Development of CI products (packaging and delivery); and
- Distribution of CI products (selection of channels and dissemination)

IV. Nature of Information Quality

The information age was born in 1946 when the Electronic Numerical Integrator and Calculator (ENIAC) came online. That was just before the turning point in the industrial age when Deming had gone to Japan to usher the quality revolution in the maturing of the industrial age through principles applied to manufacturing. These led to elimination of waste and increased focus on customer needs. The effect was the decreased costs of doing business and increased business effectiveness and customer satisfaction (English, 1998). According to a report of English (1998) without quality information an organization cannot thrive.

An important question that managers ask is how an organization can take best advantage of information technology in order to support its operations, add value to its products and services and gain competitive edge in the market place as organizations embark on their journey to be more responsive to their customers (both internal and external) and to continuously improve the quality of their products and services. Information systems must do the same. However it appears that despite the importance of IT to the success of most organizations, the function has not been proactive when it comes to actively pursuing and implementing quality principles.

Information is neither a byproduct nor documentation. It is a direct product of processes that capture knowledge about the persons, places, things and events discovered while conducting business transactions. If electronically collected information has quality and is sharable, it can add high value (Kanungo and Bhatnagar, 2002). For information to have quality it must be produced according to a well-defined information product specification in the same way manufactured products are produced according to specs. Information customers need to understand the meaning of data in the same way products have an owner's manual to describe a products use. Many costly business errors come from having different interpretations. The information supplier role applies to the person whose work causes knowledge to be created or updated. Information producers are those who create ideas or designs. Virtually everyone in the enterprise, whether a machine operator, an executive manager or a clerk who deals with customers, plays both roles. Some business roles do not produce information, but they transcribe it from one form to another, such as when someone takes a customer completed order form and enters it electronically into a database (Robert and Sikes, 2011)

V. Information Quality Management

This is an information technology (IT) management discipline, which encompasses the COBIT Information Criteria of efficiency, effectiveness, confidentiality, integrity, availability, compliance and reliability. The idea is for companies to have the risks of using a program diminished to protect private and sensitive information. Information Criteria are a core component of the COBIT Framework that describes the intent of the objectives, namely the control of: *Effectiveness* deals with information being relevant and pertinent to the business process as well as being delivered in a timely, correct, consistent and usable manner. *Efficiency* concerns the provision of information through the optimal (most productive and economical) use of resources. *Confidentially* concerns the protection of sensitive information from unauthorized disclosure. *Integrity* relates to the accuracy and completeness of information as well as to its validity in accordance with business values and expectations. *Availability* relates to information being available when required by the business process now and in the future. It also concerns the safeguarding of necessary resources and associated capabilities. *Compliance* deals with complying with the laws, regulations and contractual arrangements to which the business process is subject, i.e., externally imposed business criteria as well as internal policies. *Reliability* relates to the provision of appropriate information for management to operate the entity and exercise its fiduciary and governance responsibilities (Kanungo and Bhatnagar, 2002).

Management in the context of information systems focused on five functional areas; *planning* a well defined data architecture like a blueprint and designing databases to support all knowledge worker requirements; *leading and directing* with information policies and data standards, and holding managers accountable for information just as they are accountable for financial and people resources; *controlling* cost by not developing redundant applications and databases; *organizing* with a strong information management function that provides leadership and direction, facilitates information planning and implements controls to assure quality information

production (Kanungo and Bhatnagar, 2002).

In order to achieve the above five management functions and corporate objectives the information must reflect specific criteria which is described in COBIT as requirements for information specific to the individual company. Seven individual, partially overlapping information criteria for the broader security requirements from the quality and fiduciary aspect were defined as follows; Effectiveness deals with the relevance and suitability of information for the business process as well as its appropriate provision in terms of time, accuracy, consistency and usability. Efficiency deals with the supply of information through the optimum (most productive and most efficient) use of resources. Confidentiality deals with the protection of sensitive information against unauthorized disclosure. Integrity relates to the accuracy and completeness of information as well as its validity in accordance with corporate values and expectations. Availability for the business process now and in the future, it also applies to the protection for necessary resources and their services. Compliance deals with the adherence to laws, regulations and contractual agreements which the business process has to take into account, such as e.g externally imposed criteria or internal guidelines. Reliability relates to the appropriate nature of supplied information which is used by the management in order to steer the company and enable it to meet its obligations with regard to good faith and governance (Kanungo and Bhatnagar, 2002).

VI. The Role of Information Technology in Strategic Management

A strategic Information System has been defined as "the information system to support or change enterprise's strategy". Strategic management is the technique that an organization can plan the strategy of its future operations; in the other word a Strategic Information System is a system to manage information and assist in strategic decision making. The term strategic points to the long-term nature of this mapping exercise and to the large magnitude of advantage the exercise is expected to give an organization (Mahmood, Mahdi and Marziyah, 2010). Four critical factors in developing and strategic IS are Initiation, data collection, strategy formulation and short-term development. These factors are used to prioritize proposed ISs, so that those giving competitive advantage to the organization can be highlighted for immediate development (Jaruzelski, Loehr, & Holman, 2012). IT contributes to strategic management in many ways (for addition information see Kemerer, 1997, and Callon, 1996). Turban, King, Viehland and Lee (2006) introduce these eight factors;

Innovative applications: IT creates innovative applications that provide direct strategic advantage to organizations. For example, Federal Express was the first company in its industry to use IT for tracking the location of every package in its system. Next, FedEx was the first company to make this database accessible to its customers over the Internet. FedEx has gone on to provide e-fulfillment solutions based on IT and is even writing software for this purpose (Bhise, 2000).

Competitive weapons: ISs themselves have long been recognized as a competitive weapon (Ives and Learmouth, 1984, and Callon, 1996). Michael Dell, founder of Dell Computer, puts it bluntly: "The Internet is like a weapon sitting on the table, ready to be picked up by either you or your competitors".

Changes in processes: IT supports changes in business processes that translate to strategic advantage (Davenport, 1999). For example, Berris is Australia's largest manufacturer and distributor of fruit juice products. The principal goal of its enterprise resource planning system implementation was "to turn its branch-based business into a national organization with a single set of unified business processes" in order to achieve millions of dollars in cost-savings. Other ways in which IT can change business processes include better control over remote stores or offices by providing speedy communication tools, streamlined product design time with computer-aided engineering tools, and better decision-making processes by providing managers with timely information reports.

Links with business partners: IT links a company with its business partners effectively and efficiently. For example, Rosenbluth's Global Distribution Network allows it to connect agents, customers, and travel service providers around the globe, an innovation that allowed it to broaden its marketing range (Clemons and Hann, 1999).

Cost reductions: IT enables companies to reduce costs. For example, a Booz- Allen & Hamilton study found that: a traditional bank transaction costs \$1.07, whereas the same transaction over the Web costs about 1 cent; a traditional airline ticket costs \$8 to process, an e-ticket costs \$1 (ibm.com/partnerworld/pwhome.nsf/vAssetsLookup/ad2.pdf/\$file/ad2.pdf). In the customer service area, a customer call handled by a live agent costs \$33, but an intelligent agent can handle the same request for less than \$2 (Schwartz, 2000).

Relationships with suppliers and customers: IT can be used to lock in suppliers and customers, or to build in switching costs (making it more difficult for suppliers or customers to switch to competitors).

New products: A firm can leverage its investment in IT to create new products that are in demand in the marketplace. According to Vandembosch and Dawar (2002, p.38), “The redefinition of ICI’s role not only generated much higher margins for the business, it also gave ICI a much more defensible competitive position”.

Competitive intelligence: IT provides competitive (business) intelligence by collecting and analyzing information about products, markets, competitors, and environmental changes (Guimaraes and Armstrong, 1997).

Turban et al, (2006) believe in battle, information about one’s competitors can mean the difference between winning and losing a battle in business many companies continuously monitor the activities of their competitors to acquire **competitive intelligence**. Such information-gathering drives business performance by increasing market knowledge, improving knowledge management, and raising the quality of strategic planning; Comcowich (2002) considered the following uses of competitive intelligence:

A sporting goods company found an activist group planning a demonstration and boycott months in advance, enabling the company to implement a counter strategy.

Within days of launch, a software firm found dissatisfaction with specific product features, enabling the technicians to write a “patch” that fixed the problem within days instead of the months normally required to obtain customer feedback and implement software fixes.

A packaging company was able to determine the location, size, and production capacity for a new plant being built by a competitor. The otherwise well protected information was found by an automated monitoring service in building permit documents within the Web site of the town where the new plant was being built.

A telecommunications company uncovered a competitor’s legislative strategy, enabling the company to gain an upper hand in a state-by-state lobbying battle.

The creative team embarking on development of a new video game used the Internet to identify cutting-edge product attributes that game-players prefer. The intensive research uncovered three key “gotta haves” that were not identified in focus groups and had not been included in the original design specification.

Desouza believes (2001) that, Competitive intelligence can be done with technologies such as optical character recognition, intelligent agents and especially the Internet. The Internet is a company’s most important tool to support competitive intelligence (Teo, 2000, Bell and Harari, 2000, and Buchwitz, 2002).

Power and Sharda (1997) proposed a framework in which the Internet capabilities are shown to provide information for strategic decisions. Power and Sharda (1997) emphasize the search capability of the various tools of the Internet. Using these tools an organization can implement specific search strategies.

Turban et al, (2006) believe that with respect to this terms, it’s not enough just to gather information on a competitor. Analyzing and interpreting the information is as important as collecting it. They suggest that one can use IT tools ranging from intelligent agents to data mining. Another, more sinister, aspect of competitive intelligence is industrial espionage. Industrial espionage is considered to be unethical and usually illegal.

VII. Conclusion and Recommendations

Information is not valuable if the knowledge is not understood, not relevant, timely and cost effective and does not lead to better performance or competitive advantage. Every organization wants to achieve competitive advantage and knowledge of the external environment and its usage can lead to such difference. The ultimate is for management to formulate fact based actionable decisions from the knowledge acquired from CI activities. Roberts & Sikes (2008) posit that for firms to be in tune with the current speed and pace of business, management decisions should flow in a faster and more fluent manner. CI information should be a part of management processes to allow for proactive operations. Gross (2000) calls the CI information “a catalyst in the decision-making process”. The implementation of CI in organizations seems simple but can be challenging.

Management needs to understand the importance of CI and allocate enough resources or budget for operation of the intelligence unit. Failure to do that can lead to poor management and usage of this knowledge (Broome. 2001). The management of information in most organizations is reflected in the decisions made by the firm and their performance in the industry. Further, organizations can safely anticipate changes by competitors, industry and the entire external environment to gear up for such “predictable surprises” (Bernhardt, 2005). Competitive Intelligence provides a foreknowledge that can put firms in a better position. The management and distribution of CI information in organizations determines the seriousness attached to such knowledge. The understanding of CI practice is not significantly recognized in Nigerian companies. Beyond sales records, market share, and innovative products implementation not much is done. Organizations profess to have research and development department which operates to generate customer and external environment information. But core intelligence reports that identifies opportunities and provide actionable information for management consumption seems to be given minor attention.

In this paper an important dimension of information systems, identifying competitive advantages and enhancing competitive strategies through information systems, was discussed. Organizations can apply tools such as Human Information Behaviour and Bouthillier and Shearer's model to analyse their competitive position, examine their competitive advantages, and identify relevant competitive strategies. Information systems can play a very important role in the success of organisation's competitive strategies. However competitive strategies alone cannot create magic. In order to meet the 'Information Strategy/Information Technology's unmet potential', both IS/IT and non-IS/IT executives need to work hard to have better understanding of each other's areas. The transparency in the planning and execution of information systems projects should be visible to business leaders. Accountability of information systems projects should be applied to both information systems and business parts in the organisation.

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