OSINT: Its Implications for Business/Competitive Intelligence Analysis and Analysts

Fuentes abiertas de información: sus implicaciones para el análisis y los analistas de inteligencia económica y competitiva

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Resumen: El desarrollo de las fuentes abiertas como recurso viable para las labores de inteligencia ha venido ganando en reconocimiento. Tanto las agencias nacionales de inteligencia como las organizaciones económico/comerciales vienen incrementando sus actividades en el campo de la inteligencia de fuentes abiertas (OSINT), tratando de añadir aún más valor al esfuerzo de inteligencia total con su utilización. Este progreso se ha producido mientras los profesionales de la inteligencia y sus organizaciones luchan con los desafíos que surgen de adquirir e integrar la información que fluye por este canal con los flujos procedentes de medios más convencionales. Este artículo se centrará principalmente en los desafíos y oportunidades que las fuentes abiertas de información conllevan para el analista de inteligencia económica/competitiva (B/CI) y considerará su impacto en el proceso de análisis mismo. Utilizando la investigación adquirida de los estudios de las cuentas de empresas globales, se describirá el actual estado de la cuestión en materia de análisis de fuentes abiertas en empresas económico/comerciales, se examinarán los desafíos en la planificación y ejecución que las organizaciones están experimentando asociados con el uso y fusión efectivos de las fuentes abiertas de información, y se proporcionan las pautas asociadas al uso exitoso de estas dentro de una serie de empresas líderes en el sector privado.

Palabras clave: análisis, analista, inteligencia económica, inteligencia competitiva, fuentes abiertas.

Abstract: The development of open sources as a viable source of inputs for intelligence efforts has been gaining in popularity. Both national intelligence agencies and business/commercial organizations have been ramping up their open source intelligence (OSINT) efforts, attempting to add even greater value to the overall intelligence endeavor through its utilization. This progress has occurred while both intelligence practitioners and their organizations wrestle with the challenges that arise from gathering and fusing the information flowing from this channel with flows coming from better established means.

This paper will focus principally on the challenges and opportunities that OSINT entails for the business/competitive intelligence (B/CI) analyst and consider its impact on the analysis process itself. Using research gathered from studies of scores of global enterprises, it will describe the current state of the art in analysis efforts of OSINT in business/commercial enterprises, examine the planning and execution challenges organizations are experiencing associated with effectively using and fusing OSINT, and provide guidelines associated with the successful use of OSINT within a number of leading private sector enterprises.

Key Words: Analysis, Analyst, Business Intelligence, Competitive Intelligence, Open Source, OSINT, Proven Practices.

1. INTRODUCTION

The gathering of data and information from open sources (OS) has been an active focus of both national and business/competitive intelligence organizations for decades (Steele, 2002). Business organizations, in particular, have long been reliant on open sources for intelligence purposes; on the other hand, national intelligence organizations, particularly the large ones that are set up in individual collection silos in the United States, have recently been encouraged to make better use of open sources in their array of intelligence gathering functions (The Commission, 2005). This paper highlights the experiences of business organizations in incorporating and utilizing OS for business/competitive intelligence purposes. It focuses most specifically on the implications OS have for analysts and the analysis process within business/commercial enterprises.

2. OSINT AND ITS PLACE WITHIN BUSINESS AND COMPETITIVE INTELLIGENCE (B/CI)

Business/competitive intelligence practitioners have long utilized open sources for gathering data to be used in the intelligence process, evidenced by many articles that have appeared about this process in the B/CI literature (Dishman, Fleisher, & Knip 2003; Fleisher, Knip & Dishman, 2003; Knip, Dishman, & Fleisher, 2003; Fleisher, Wright & Tindale, 2007). One of the key concepts that has guided B/CI practice is the intelligence cycle, which shows how intelligence begins with a client/customer's need, how data and information are collected as a means of addressing the need, the application of analysis and synthesis methods to «make sense» of the collected items, and then how the resultant «solution» or «actionable insight» is communicated back in the form of an intelligence product or service to the client/customer to resolve their query (Murphy, 2006). This all takes place within a cybernetic loop and can be used to locate what a CI practitioner is doing over an array of different projects (i. e., answering different intelligence needs) that may be present at any point in time during the practitioner's conduct of their role (Rajaniemi, 2005).

There are many extant definitions of business/competitive intelligence (Fleisher, 2003a). Rather than getting into a long discussion of which ones are ideal, for the purposes of this paper, I define business/competitive intelligence as

a systematic, targeted, timely and ethical effort to collect, synthesize, and analyze competition and the external environment in order to produce actionable insights for decision-makers. The practical value-adding concept underlying B/CI suggests that effective B/CI should underlie more effective decisions, leading to more insightful (market-based) actions that should eventually result in enhanced economic/financial performance (Fahey, 2007).

The acquisition or collection of data underlying the B/CI process takes some of the same forms it would in national intelligence agencies, most prominently including HUMINT (i. e., human source intelligence) and OSINT, although the systemic use of national gathering methods like COMINT (i. e., communications intelligence), IMINT (i. e., imagery intelligence), MASINT (i. e., measurements and signatures), or SIGINT (i. e., signals intelligence) would be unusual (Clark, 2004). OSINT is the most frequently used form of B/CI intelligence gathering, desirable because it is so easy and produces abundant raw materials for further processing (Vibert, 2003). It is usually engaged as a next step in the project plan after the data collector has scoured the existing base of information within the firm and exhausted the organization's reservoir of internal knowledge (Blanco, Caron-Fasan, & Lesca, 2003).

For the purposes of this paper, I define OSINT as the finding, gathering, exploitation, validation, analysis and sharing with intelligence-seeking clients of publicly available print and electronic data from unclassified, non-secret (often «gray literature») sources. Traditionally, OSINT was characterized by the searching of publicly available published sources (Burwell, 2004). This included books, journals, magazines, reports and the like, so much so that some people referred to OSINT as literature intelligence or LITINT (Clark, 2004); nevertheless, the growth of digital sources such as those proliferating over the WWW has enlarged the scope of OS activity (Boncella, 2003).

These sources were usually identified and scoured first by library and information specialists (special librarians), second by corporate librarians and third by corporate information specialists who had been trained and maintained expertise in quickly identifying required sources of information —many of whom continue to serve this purpose although having greatly expanded the range of open sources examined as well as the nature of querying used (Berkien, 2006). Contemporary corporate information specialists apply a variety of methods for organizing open sources including but not limited to web-link analysis (Reid, 2003), webometrics (Bouthillier & Jin, 2005), scanning methods

(Decker, Wagner, & Scholz, 2005), source mapping (Vriens & Achterbergh, 2003), text mining (Leong, Ewing, & Pitt, 2004), blog analysis (Pikas, 2005), and a variety of different patent analysis methods (Dou, Leveille, Manullang, & Dou Jr., 2005; Fleisher & Bensoussan, 2003). See Table 1 for a grid which shows the broad range of open sources utilized for intelligence purposes.

TABLE 1: SAMPLE OPEN SOURCE INFORMATION TARGET GRID

	INTERNAL Sources	EXTERNAL Sources
Human	Boundary spanners Customers Employees Managers Networks Sales staff	Academics Consultants/experts Customers Media members Policy officials Suppliers
	Building diagrams Business plans Databases	Applications (Building) Blogs/Wikis Company Home Pages
Document	Info resource library Intranet (text, A&V) Policies Reports/Statistics	Mapping Media (TV, radio, imagery) Patents/Legal Filings Reports/Statistics
Mixed	Observations Meetings Site Visits	Seminars Site Visits Trade Events

In addition to being a key part of the data collection process, OSINT is often the basis of information utilized in planning and targeting other high value collection activities (Steele, 2002). This is done, at least in part, because it is so convenient to access open sources, as well as the availability of target-rich material (Mah, 2005). In national intelligence, open source data provide a key supplement and archival ability to HUMINT, IMINT, MASINT, SIGINT and other classified collection means. Last but not least, OSINT serves as an effective complement to the other means of data gathering. By combining the data gathered from multiple sources, analysts can better understand the diversity of viewpoints on important issues (Clark, 2004).

Analysts have not been reluctant in using open sources to help them generate business/competitive intelligence insights (Vibert, 2004). Indeed, they have become quite used to integrating data gathered from these sources with other forms of intelligence, and particularly HUMINT (Clark, 2004; Steele, 2002).

Having stated that, there are some issues that these analysts have encountered that are somewhat unique to OSINT. These are described in greater depth in the section that follows.

3. WHAT ARE B/CI ANALYSTS AND WHAT ROLES DO THEY PERFORM?

Analysts maintain an important role in the overall B/CI process (Fleisher & Bensoussan, 2003, 2007), and can be even more prominent in a heavily OS-based environment. Steele (2002: 171) notes that «analysis is the key enabling skill that is essential to the successful integration of OSINT into an all-around intelligence capability». Even though there is no universal job description for B/CI analysts, there is enough published research done in the area to outline a generic job description as well as to understand the kind of roles they should play, processes they employ, as well as outcomes they produce (Sawka, 2005). The kinds of outcomes that analysts typically seek to achieve are:

1. Predict future developments: Analysts explain implications of developments, both current and prospective, to decision makers (Fahey, 2007).
2. Help decision and policy-makers to avoid surprises: Analysts seek to provide warnings of major developments, events, trends and assessments (Gilad, 2004).
3. Make data more meaningful and sensible: Analysts give guidance to decision-makers, as well as offering alternative means for attaining objectives (Fleisher & Bensoussan, 2007).
4. Keep decision makers informed: They offer pieces of current information on specialized topics of concern to decision makers (Service, 2006).

Analysts employ part art, science and craft to their organizational tasks (Fleisher & Bensoussan, 2007). The art facets often centre on the need for creativity, right-brain utilization, and original thinking. This is one reason why there are no software programs that an organization can just plug in that will routinely produce the kind of B/CI analysis products that demanding intelligence clients seek (Bouthillier & Shearer, 2003a; Johnson, 2006). The science component is present in the accepted use of routinized methods, established training programs, and continuing «R&D» that is conducted of analysts (Clark, 2004;

Fleisher & Bensoussan, 2007; Heuer Jr., 1999). The tradecraft of intelligence analysis has a long and rich tradition in national intelligence agencies across the globe, but also has many decades or tradition with business and commercial enterprises (Sawka, 2005). As such, B/CI analysis has many of the hallmarks of the true professions, and the practitioners of B/CI analysis often exhibit tremendous highly professional behavior in the conduct of their activities (Fleisher, 2003b).

Contemporary B/CI analysts deliver a wide range of products and services to their clients. These are delivered or disseminated over an impressive array of channels including e-mail, face-to-face, fax, intranets, presentation, reports and studies, among others (Fleisher & Bensoussan, 2007). The analysts' end products are often judged against the standards of timeliness, accuracy, relevance, completeness, usefulness, and efficiency (Clark, 2004).

Efforts have been made to develop competency-based models that may someday provide a standard analyst's job description (Moore, Krizan, & Moore, 2005). Making this difficult is that key differences often exist between analysts in different sectors (public vs. private), verticals (e. g., pharmaceuticals vs. fast-moving consumer goods), and in different sized organizations (i. e., large multinational corporations vs. small to medium-sized enterprises), between single source and all source analysts (e. g., data formats, proximity to the raw inputs, accessibility to contextual information), between analytical domains (counter intelligence, function, industry, product, geographic/regional analysis, etc.), between types of intelligence produced (e. g. current intelligence, estimative intelligence, etc.), analyst skills, knowledge, ability & experience, understanding and use of analytic networks, customer needs (i. e., strategic, operational, tactical), as well as unique individual differences that lead to a highly complex and expansive taxonomy of intelligence analysis (Johnston, 2005). All of these factors make doing research on analysts and analysis in organizations a more difficult proposition, and one of many reasons why it may be problematic to generalize extensively about analysts.

4. STRUCTURAL PROBLEMS WITH OSINT THAT IMPACT ANALYSIS

Open sources cannot provide all of a B/CI analyst's needs for collected data, and indeed, most B/CI analysts will help shape a collection plan that goes beyond

relying only on these sources. Indeed, there are also several structural problems associated with open source data that make too heavy reliance on it a risky proposition in the intelligence development process. The ones that show up commonly in the literature are in alphabetical order as follows (Boncella, 2003; Burwell, 2004; Gould, undated; Steele, 2002):

- *Form*: most open source items are free text format. This makes it difficult for the analyst to extract relevant portions or segments. Additionally, free text can be difficult to fuse with other gathered data.
- *Indexing*: Open sources are abundant, but even they are limited in terms of what is easily accessible. For example, only a fraction of the Internet is indexed, and the fraction can even be lower when it comes to different open source formats like images, legal policies, maps, or patents. Data gathering specialists within enterprises have to be able to deep dive or dig into the «invisible web», know how to access commercial databases, be comfortable with patent databases, and draw from map sites in order to take the greatest advantage of open source information.
- *Internet volatility*: Pages and sites are 'here today and gone tomorrow'. The life span of pages and sites on the internet tends to be short. A single site can be modified many times a day, meaning that information readily available at one point in the day may be unavailable later. This fact means that organizations need the ability to archive targeted data for subsequent processing, which can be taxing to them in terms of time, applications, or the cost of additional memory resources.
- *Languages*: Open sources are available in over nearly every spoken language, therefore totaling over a couple of thousand active languages. Open source intelligence targets for a typical multinational enterprise can be in scores of languages (Steele, 2002). This multi-lingual source environment creates a strong organizational intelligence need for translation skills. Many organizations lack this within their own workforces, are unwilling to provide resources in order to obtain the skills through outsourcing, or have parochial attitudes that prevent them from taking advantage of sources and data that exist outside of a few designated languages. Additionally, some cultures have only recently started to «publish» information in their native languages on the web, and there are obvious scarcities of data from some, less web-developed, language speakers.

- *Sources*: Even if the data gathering specialist can locate desired information, they may have great difficulty in determining the origin or nature of the source. Much data available on the Internet, to use a pertinent example, lacks tagging information that would allow the reader to understand where it originated in order to validate it (Steele, 2002). Privacy concerns have further exacerbated the need to maintain anonymity or privacy in communication over open sources (Erlich, 2006). Additionally, some forms of sourcing can be manipulated, opening up the possibilities of denial and deception. This can create huge challenges for the analyst in validating the information, in determining the source, in understanding when the data was made available, in building networks of information around the originator, and so on.
- *Volume*: Arguably the biggest problem facing individuals using open sources is the sheer volume of materials that are present in open source channels. There is just too much material to process, and it explains, in part at least, why enterprises have been spending enormous resources on data and information storage, hoping to collect as much data as they think they may need, but much of this data goes unexploited, unused, or is unable to be accessed (Sawka, 2007).

These issues have conspired to «paralyze» many analysts, decision makers and executives within companies. They have also limited the effectiveness of B/CI functions within many companies, thus rendering more than a few enterprises without direction or clear sense of strategic objectives (Sawka, 2007). These items also are not likely to undergo significant change in at least the next few years, creating a major challenge for B/CI analysts. These are described in greater depth in the following section.

5. ANALYSTS CONCERNS ABOUT EMPLOYING OSINT

There are a variety of managerial issues that have appeared in the B/CI scholarship that have to do with performing B/CI effectively. For the purposes of this paper, I have divided these into two categories: 1) those that are derived from the individuals responsible for producing business/competitive intelligence outputs and products for clients, and 2) those that have more to do with the

actual clients or customer s of B/CI within an enterprise. The managerial issues each faces are described more thoroughly in the section that follows.

5.1 Those that emanate from producers of B/CI

- *Different users & needs/Poor understanding of user need*: A typical B/CI analyst within a large corporation will have a multitude of internal clients/customers, ranging from top executives, marketing directors, sales staffers, to planners and managers responsible for special projects in areas like mergers & acquisitions, supply chain partnering decisions, and so on. These different users all require intelligence for purposes unique to their organizational roles, and even within these areas, the kind of intelligence that is more routinized from that which is done on a one time only basis. This creates a myriad of challenges in setting up data gathering systems to support wide ranging analysis tasks (Fleisher & Bensoussan, 2007).
- *Don't provide actionable insights*: Some B/CI practitioners are more interested in producing products or services to show that they are busy, instead of producing outputs that resolve their clients' needs (Sawka, 2007). There have been many examples of resources wasted on setting up websites that few actually visit or use, newsletters that stack up in managers' inboxes, and reports that go unread. Those that do not provide recommendations that not only meet the clients' needs but that pave a path forward for the organization in the marketplace often find themselves looking for new work before too long (Sawka, 2007).
- *Hard to get on executives schedule*: Executives are busy and seldom have time to «shoot the breeze» with employees that they don't see as offering them value for the time spent. A fair number of senior executives are unfamiliar with B/CI, and do not have an appreciation for how the products/services generated by B/CI practitioners can assist them in making their decisions.
- *Inadequate resources*: Many surveys done in the B/CI field speak of practitioners' desire to enhance the quantity or quality of resources at their disposal. Time is amongst the resources that B/CI practitioners wish they had more of (Sperger, 2007).

- *Lack of feedback*: The literature speaks of many examples of practitioners who are unsure of how their recommendations influenced or failed to influence managers' decisions. Although B/CI analysts have been generating products and services for many years in firms, they are often unsure as to how much each of these is valued by clients who receive them (Hayes, 2006). Few B/CI managers have institutionalized assessment, evaluation or measurement systems that give them management control feedback that would enable them to regularly improve their performance (Blenkhorn & Fleisher, 2007).
- *Lack time to satisfy all clients*: This occurs partly because many B/CI managers lack the planning wherewithal to properly queue requests, or know how to prioritize the truly essential requests from the «nice to know» ones.
- *No/bad information sharing*: Organizational silos still exist within many organizations and information does not readily flow in to and out of intelligence as it would under ideal, frictionfree conditions (Proian, 2007).
- *Organization barriers*: B/CI practitioners often are unsure of who to call even within their own firms to gather additional information, and the lack of project follow up does not provide them a sense of direction that allows them to know when they have done well or what could be done the next time to improve their performance. Many organizations also have cultures that protect against the sharing of information internally, with a view that «knowledge is power» and practitioners who see the ownership of key information as necessary to their personal, but not organizational, interest (Lapstra & Knip, 2005).
- *Too much information*: Many business organizations still struggle with dealing with the volume and nature of information that they capture (Vibert, 2003; Vriens, 2003a). Management information systems (MIS) are still evolving, and the use of customer relation management (CRM), enterprise resource planning (ERP) and other MIS for B/CI purposes is still mostly embryonic in its development. This makes for greater needs for effective collection management practices and policies (Steele, 2002).
- *Unclear objectives/goals*: Some B/CI departments lack a mission, others were set up for purposes that no longer exist, some were championed by

executives who have long departed the organization, and others just lack the time to properly gather objectives and conduct necessary planning exercises that would clarify their essential tasks.

5.2 Concerns that emanate from the users/clients of B/CI

There are a variety of issues that emanate from users/clients. This includes all of those executives, whether at top, middle or lower levels of the organization that could potentially use B/CI products and services in their decision making roles.

- *Aren't sure what to ask for*: Many executives have had little exposure to actual B/CI functions, processes or practitioners in their careers. As such, many are unsure of what the function can do and what to ask of its practitioners (Herring, 2006a).
- *Credibility of analysis or analysts*: Many executives receive products or services that are labeled as B/CI, but they are actually something else. This could occur because the outputs are unprocessed, unanalyzed, or unfiltered, or undeveloped in terms of generating recommendations and insights (Fleisher & Bensoussan, 2007).
- *Don't always share what they know before-hand*: Many executives are reluctant to openly communicate with their B/CI analysts and do not have the nature of trusting relationship that allows them to be involved early on in the process of making key organizational decisions .
- *Focus*: Many executives see their B/CI specialists as glorified information gathering stations. These executives are those ones who task their functions with declaration like «bring us everything you can about...», thereby leading to unsatisfactory outcomes from B/CI. The more experienced B/CI executives know to focus their executives in on requirements that can be supported by intelligence analysis. This is often done through the rigorous application of a key intelligence process (KIT) or critical intelligence needs dialogue process (Herring, 2006 a & b).
- *Not exposed to benefits of intelligence in schooling*: Few MBA programs, those that train vast quantities of present and future business decision makers, have courses, subjects or degrees in the B/CI area (Fleisher, 2004). Managers who have never heard of B/CI in these programs are li-

kely to infer that the field is therefore not important enough to learn about for business managers.

- *Timeliness*: B/CI analysts must deliver their intelligence insights to decision makers in advance of the time they need to make a decision, not afterwards (Fahey, 2007). Unfortunately, many practitioners are unable to deliver to this standard on a regular basis, sometimes events don't provide them the «slack» time they would like, or sometimes the decision maker is not willing to wait for the intelligence.
- *Unsure how to integrate B/CI with other intelligence*: Today's senior executives receive data, information and/or intelligence from an ever-growing array of specialists within their organizations (Liebowitz, 2006). Whether it is business intelligence driven by modern information technology solutions, customer intelligence created from mining customer databases, finance insights by scouring all manner of financial statements and ratios, human resources strategy, marketing intelligence, or so on, each offers «intelligence» that competes for the executives' time with B/CI. This points to the importance of the culture of an organization in determining to what extent it is culturally and managerially prepared to become intelligencecapable (Lapstra & Knip, 2005).
- *Who to send intelligence to*: Many of today's employees are exposed to important data or information, but many of them don't know how to participate in their firms' B/CI process or what specialist they should communicate their newly found experiences or observations to.

6. ANALYSTS AND THE IMPLICATIONS OF DATA GATHERED FROM OPEN SOURCES

Analysts in business enterprises have been seeking, processing and applying open source data to their tasks for decades. Only in recent years, as the volume of digital information has grown so rapidly, have problems surfaced associated with using the mass of data (Vibert, 2003). Managers have been known to spend several hours a day searching for information, and later realizing that much of the information they acquired has little relevance or value toward meeting their needs. Companies typically spend far more resources, and particularly in the form of time, gathering information than they do processing,

analyzing and exploiting it. Studies in the B/CI field have shown that practitioners would like to reverse this equation, and spend double the time processing, analyzing and exploiting it as opposed to just gathering it (Competitive Intelligence Foundation, 2006).

In reality, there is much value-adding activity that an analyst can do the collected data that goes far beyond the automatic forwarding of information (Marin & Poulter, 2004). What does the analyst do with validated open source data? S/he would perform any sort of the following operations upon gathered data, including but not limited to: conceptualize, confirm, describe, explain, extend, forecast, hypothesize, identify, illustrate, model, predict, re-organize, research, re-task collection, synthesize, text, and/or visualize (Johnston, 2005). Effective analysts know both the methods and the appropriate sequences of technique applications that enable them to make better sense of the raw information (Fleisher & Bensoussan, 2007). This is a result of their knowledge, skills, abilities and experiences (i. e., competencies) in doing B/CI analysis.

Possibly more troubling for B/CI analysts is the problem that comes from the relative availability of open sources and the ease by which nearly anybody can access it. The question that arises for them is «If everyone has access to the same items, including your rivals, how then can it be leveraged for competitive advantage?» Many managers exhibit an attitude like this when they perceive that there is little value that a B/CI analyst could add beyond the items forwarded to them either manually or automatically through the assistance of information system applications.

This raises one of the most serious issues facing today's B/CI analysts. They need to be able to employ a wide range of methods in order to task information specialists and to make sense of the data once gathered. Methods must drive open source collection. Having said that, many practitioners allow their analysis processes to be driven by the data they can most easily access. Others do not go beyond employing a very limited range of tools that they try to employ for purposes beyond those which the tools were designed (Fleisher & Bensoussan, 2007). Lastly, more than a few practitioners are not trained in proper B/CI analysis processes and do not recognize the need to match methods, either existing ones or newly conceptualized ones designed for the task, in order to best address their clients' key intelligence needs.

7. PROVEN B/CI OPERATING PRACTICES IN AN OSINT-DOMINANT CONTEXT

One of the biggest challenges faced by B/CI analysts in employing open sources within the larger intelligence process is in making the data gathered there usable and helpful. The following guidelines have been demonstrated to be important in making effective use of OS:

- *Reliability & authority*: information on which analysts base their decisions should ideally come from authoritative, reviewed and edited sources. B/CI functions that employ OSINT more capably build protocols into their data collection that impose some requirements to keep (digital) source tagging of information, or for collectors to provide this information so that cross-checking and verifying can occur.
- *Updated & archived*: systems that are used to gather OS must provide timely access to the most up-to-date information as well as extensive archiving ability (Vriens, 2003b). For those systems relying heavily on HUMINT, this will mean that intelligence participants must have ready and convenient access to communication channels that allow them to transmit their findings to a central repository for processing.
- *Aggregated information*: Analysts need ready, centralized access to their sources; therefore, sources should ideally be aggregated and searchable within a single interface. This is a much easier task with today's solution suites that are designed expressly for the purposes described.
- *Easily accessible*: Today's analysts are nearly always «on the go» and need to be able to access their data from anywhere via any devices —including mobile phones, Blackberry, laptop, via telephone, the Internet, and so on. They also need this access to be available 24x7x365, since their decision makers' needs, as well as the ongoing movements that affect their organizations, are happening around the clock and calendar.
- *Full selection of information*: Today's analysts need to have access to a huge array of open sources, e. g. newswires, industry newsletters, specialty publications, daily business press, trade journals, industry analysts' reports, and so forth. Many of these are «free», but better sources for intelligence are frequently commercial ones and nearly always require some expenditure. There is typically a positive correlation between cost and intelligence value (free ones generate little value, the more expensive ones usua-

lly generate more), although this is not a one to one correlation by any stretch. Additionally, free is always free either, as a lot of «free» data or information actually are bad, hard to organize, difficult to validate, or the processor must engage with it for much more time in order that it be made suitable for intelligence analysis purposes.

- *Ready-to-download information*: analysts are far better able to work with information in formats that are easily integrated and easy to download/email/print, integrate with other data. This is not only an information technology issue but one of needing to educate and inform intelligence network participants of appropriate protocols as well.
- *Updating features*: analysts are best served when their open source systems provide them the use of electronic clipping services, 'alerts' and other automated/automatic updating capabilities, so that they can be made aware of changes occurring in the environment that become reflected in the open sources themselves.

A good example of a multinational organization that makes effective use of OSINT in their B/CI activities is Shell Services International (SSI) (Bell & Breeding, 2003; Breeding, 2000; Flowers, 2003). Business intelligence is the overall «umbrella» that contains several different types of intelligence such as market intelligence, partner intelligence (i. e., collaborations between SSI and other organizations at ever link along its value chain), competitor intelligence, technical intelligence, and customer/prospect intelligence. Each of these intelligence areas has its own «knowledge house» within the larger BI portal, driven by systems that integrate and make available all sources of information. Shell employs their gathered knowledge using a range of analytical techniques, particularly ones focused on forecasting or predicting future developments such as war games, win-loss analysis, scenario development, futuring, and related methods. The company's ability in using B/CI have led to influencing an array of important executive level decisions made through the years and the capabilities B/CI brings is considered a competitive advantage to SSI in its marketplace.

7.1 Demonstrated and Proven Practices at the Junction of OSINT and Analysis

There are a number of features of demonstrated effective or proven B/CI practices that revolve around the interface of OSINT and analysis. Ones that are portrayed in the B/CI body of knowledge include the following, among others:

- *Active internal networks feeding and interacting with the B/CI function*: Since much of the data or information required by analysts likely already exists somewhere and with somebody already in their organization, the B/CI manager and analysts' ability to organize, cultivate and keep networks energized can be a major benefit for the B/CI function (Duncan, 2006). The companies that have figured out how to do this on a multi-national basis then have round-the-clock ability to address intelligence needs. The challenge is in establishing the networks, providing incentives for people to actively participate in them, and then for the analyst to have the kind of information and communication application support to best exploit the rich amount of data that an active network can generate.
- *High utilization of wide-ranging OSINT in the form of external primary & secondary sources (Gould, undated)*: Companies cannot and should not be over-reliant on any single source of data for their intelligence needs and need to find an effective balance between automated and human systems (Marteniuk, 2003). There has been a tendency for companies to over-rely on open sources, particularly those available via the Internet, which has been problematic in recent years (Windle, 2003).
- *Well-established B/CI gathering and communication protocols (Johnston, 2005)*: Especially in light of the nature of ethics issues that may commonly arise in the production of B/CI, it is more important than ever that data collectors, network participants, analysts, and CI managers have well-established and well-understood protocols for gathering and disseminating data (Murphy, 2005). This can keep them from violating either laws from one country to another for from crossing ethical thresholds that might otherwise endanger their own or their company's ability to operate. The need to train B/CI participants in understanding what is ethical and legal, in addition to what is relevant, is another task that remains challenging for B/CI managers but one that is increasingly

being talked through IT-enabled methods itself (Du Toit & Muller, 2005).

- *Has established process for data/info validation (Clark, 2004)*: As I covered previously in the section entitled «reliability and authority», it is important that B/CI analysts have the ability to avoid the «garbage in, garbage out» (i. e., GIGO) phenomena that has plagued the operations of so many forms of organizational information systems.
- *Commonly employs a wide range of analytical methods*: No good B/CI analyst can rely only on a few analysis methods in order to address the increasingly wide range of client demands that come out today, unless their employer has the resources to keep their analysts narrowly focused with specialties, whether they are organized by verticals (e. g., IT, consumer goods, pharmaceuticals, etc.), geography (e. g., Spain, EU, North America, etc.), industry, or function (e. g., customer intelligence, market intelligence, technical intelligence, etc.) (Fleisher & Bensoussan, 2007). Since most employers don't have the resources to employ intelligence analysis specialists of this nature, the generalist analysts will need to be comfortable with an array of analysis methods, since these will guide data collection as well as serve as the fulcrum upon which their analyses are driven.
- *Knowledge management systems to store & disseminate validated intelligence*: There is a growing array of purpose-specific intelligence and knowledge management software and applications that provides greater functionality than prior versions (Parker & Nitse, 2005; Rothberg & Erickson, 2004). Combined with sufficient memory storage, as well as finely honed policies that guide intelligence practice, these systems can allow for more efficient and effective exploitation of gathered data and information.
- *High personalization of B/CI products*: B/CI analysts have increasingly been enhancing their ability to «customize» or «personalize» their B/CI products specifically to the stated (and sometimes unstated) needs and requirements of their customers (Tan, Ong, Pan, Ng, & Li, 2004). Whether this is in the content of their outputs, the channels in which they are transmitted, or the alteration of the physical nature of the outputs themselves, personalization of intelligence through the support of increasingly powerful software and information technology (IT) solutions will continue to be a growth trend for B/CI analysts into the near future (Bouthillier & Shearer, 2003b).

- *Counter-intelligence processes widely understood and employed around firm*: Open sources are a two-edged sword for most enterprises, and security of the organization's information is a constant challenge in an OS world (Fitzpatrick & Burke, 2003). They can be useful to answer their own intelligence needs, but can also be a source of information for their competitors looking to position themselves in the marketplace (Nakra, 2003). As such, the best B/CI functions take counter-intelligence requirements very seriously, and have policies and protocols in place to prevent the accidental leakage out of sensitive or proprietary information via open sources.
- *Clear strategy for CI location and structure*: Understanding where to put B/CI practitioners and functions has always been a controversial matter (Kragten, 2007). Early answers suggested simplistic solutions like centralizing or decentralizing it, but it was realized pretty early by practitioners that the answers were never simple and almost always contingent on a variety of strategy, structure and systems-oriented factors that were unique to their organization and the nature of its competitive challenges. These challenges become more acute when the company is organized and has competitors across many borders (Annett, 2005).

8. THE FUTURE OF B/CI ANALYSIS AND OSINT

There are some trends manifesting themselves within B/CI practice that appear to portend implications for the future of the practice. I have isolated a few of these that tend to gravitate around the OSINT/analysis axis that I have focused on in this paper. I would suggest that following bear watching in subsequent years.

- *Answering client questions in real-time, through multiple modes, with more versatile products*: There will be increasing efforts made to provide «real-time» intelligence support to clients (Azvine, Cui & Nauck, 2005). This means there will need to be enhanced data gathering, processing and analysis capabilities. The first two of those are already showing signs of improvement, but the third arguably lags and may not be as amenable to automation.

- *Continuing needs to add value to intelligence*: B/CI managers have constantly been required to demonstrate the «value» of their efforts, often in terms that financially-focused managers understand but which don't readily translate from intelligence outputs and outcomes (Blenkhorn & Fleisher, 2007).
- *Developing, cultivating and leveraging networks*: Network-focused business and competitive intelligence will continue to grow in its presence, particularly as more and more Asian-based enterprises ramp up their B/CI efforts (Blenkhorn & Fleisher, 2005).
- *Concentrating resources*: There is still too much waste experienced in intelligence efforts, particularly on the data collection side (Competitive Intelligence Foundation, 2006). Whether the problem is redundancy in resource acquisition, wasting time sorting through irrelevant sources, or buying extra digital storage without fully understanding how it may be used, there will continue to be efforts within organizations to reduce this waste. This effort will accelerate should we enter a period of recessionary or tightened global, economic conditions. It will also require B/CI practitioners to develop more innovative and persuasive ways of marshalling resources if they expect to be able to deliver the level of services that clients expect (Sperger, 2007).
- *Forging partnerships*: Few organizations, outside of a handful of national intelligence organizations, can afford to maintain a fully resourced intelligence operation. Today's larger B/CI functions are smaller (on a proportionate basis) than ones that operated in the nineties. This means that B/CI managers will need to continue to employ and outsource B/CI work to consultants, info specialists, software developers, applications providers, etc. as well as needing to better exploit open sources with their limited resources. One of the best ways they will do this is through upgrading their own knowledge, skills and abilities, possibly through working with associations, education providers or post-secondary institutions to help them achieve this enhancement.
- *Further fusion of data types through newly developed concepts and applications (Steele, 2002)*: Applications and solutions vendors are increasingly developing products that will provide fusion of differing data formats, thereby allowing for more efficient processing of these items by analysts (Bouthillier & Shearer, 2003a).

- *Looking over the horizon, across borders, and identifying new opportunities*: There has been a long-standing tendency among many executives in multinational corporations, particularly those traded on major western markets, to be driven by the «tyranny of the quarterly report.» Short term stock prices guided behavior, creating a lesser need for intelligence or true long range planning and decision making (Gilad, 2004). Future B/CI efforts will be focused on identifying, gathering, and fusing leading (not lagging) indicators that exist, and then integrating them into intelligence insights. The focus of these leading indicators will increasingly be across borders and will require networks that similarly cut across geographic boundaries (Kragten, 2007). Opportunities will be aggressively pursued, in addition to the scanning for emerging or present threats (Frates & Sharp, 2005).
- *Providing on-call direct support*: The development of «one stop» intelligence shops will likely occur, whereby intelligence about customers, competitors, environments, markets or suppliers, among other things, can all be found. These will be easily accessed through accessible communication and information technology, and will allow for two-way flows of information between suppliers of information, analysts, and intelligence clients.

9. CONCLUSION

Business/competitive remain an important source of potential competitive advantage in an increasingly globalized, information-driven global market place (Herzog, 2007). OSINT has always been important to B/CI efforts and likely will remain so in the future. B/CI analysts are (arguably) further along in their exploitation of OS sources than public intelligence practitioners, although they also suffer their own share of inhibitors and challenges in fully employing open sourced data for analysis purposes. This paper has sought to examine those in greater depth, as well as providing some insights in to how some organizations have improved their practices of B/CI at the OSINT/analysis junction.

There remains a need for library and information specialists to closely collaborate with analysts. These two groups must increasingly dialogue and assist one another in understanding what can and cannot be accomplished. Collaboration

as a whole will continue to increase in the production of B/CI intelligence (Bouthillier & Shearer, 2003b).

The use of OSINT in intelligence development offers fantastic opportunities for academic research. OSINT centres of excellence are beginning to develop in various places around the globe and should continue to crop up into the near future.

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