

CHARACTERISTICS OF INFORMATION ANALYSIS IN/FOR BUSINESS ENVIRONMENT

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Abstract

Intelligence in general and intelligence analysis in particular are present in the institutional area, as well as in that of the business environment, for both areas being common the stages and, respectively, (an important part of) the analytical tools used.

The distinction between the uses of intelligence is given by the means of obtaining the informational assets and the precise scope of the information analysis.

Keywords: Benchmarking, Data Mining, Business Intelligence, Knowledge Management

Introduction

Intelligence, as actionable information needed and produced to support decision making process, is the result of information gathering information, processing, evaluation and creating the intelligence product. Information analysis and intelligence are stages of various areas of socio-economical life, from the institutional-governmental environment - ministries, authorities, national structures or intelligence departments - to the business environment or even the academics. The distinction between the uses of intelligence is given by the means of obtaining the informational assets and the precise scope of the information analysis.

National intelligence structures obtain information from public or regulated sources and also secret sources and aim to assist the decision making in the process of managing the public institutions that benefit from this type of information, by law.

Entities that act in the business environment are preoccupied to obtain and fructify all sorts of advantages, which allow them to be competitive. Thus, they use various tools to learn about the characteristics of the markets and competitors. In this way, information is considered a production neo

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factor, which, correctly used, enhances classical production factors. The legality characteristic is important in this field, all information used being of public sources.

The academic circles have the purpose of academic research and are orientated, mostly, towards unrestricted information (open source, public source etc.). Research is a field where owning information is crucial. To know competitors' results in advance, to foresee an outcome or anticipate market tendencies for new technologies are challenges for private intelligence environment.

In conclusion, all categories of information users mentioned have a determinant factor, the profoundly human need of anticipation. Since old times, people have tried - with their times instruments - to learn about the future or, particularly for the business environment, to identify and use as many benchmarks on their competitors as possible. The drop of uncertainty level creates comfort and, why not, properly managed, may bring profit. Information on competition moves was, is and most probably will be valued by those who work in economy.

Related to the concerns of the business environment entities to use intelligence practice, to grow and maintain competitively is already understood the fact that in an economy that rapidly globalizes, systematic information gathering and analyzing definitely ensures a durable competitive advantage (*Guide pratique...*, 2006, p. 5).

The need for intelligence in the economic management appeared as a consequence of continuous diminishing of the amount of time used for decision making process, but also of the need to think out action directions, starting from plausible scenarios. Correctly knowing the situation of the business environment and analyzing, in real time, the implications of competition's moves are important premises for reducing risks or growing opportunities, even though they imply complex and rapid correlations.

The use of intelligence activities represents a perspective of business approach that is widely distributed. It has been practiced, for many years, in countries like Japan, Germany, Great Britain, USA or China (*Journal of Intelligence Studies in Business* 1, 2011, pp. 61-75), and the process itself is named *competitive intelligence*.

Concept delimitation

The existent confusion in the circles concerned with the *competitive intelligence* issue, from professional discussions to the academic debate, makes necessary a short presentation of the distinction between this and other areas or adjacent, complementary or independent activities, which

process or use data and information: Benchmarking, Data Mining, Business Intelligence, Knowledge Management and Economic Espionage.

- *Competitive Intelligence (IC)*

Treated as a tool designed to increase competitive skills, IC contributes to the continuous upgrading of the quality of products, services and solutions offered by companies and, at the same time, has an important role in the improvement of the innovation process. Opportunities for gaining advantage over competition are created if several questions (like how/where does the adversary improve his business, when will the adversary's next product be launched, what are the role and place of information in competitors' strategies etc.) get clear and sure answers, through specific information management, based on verified procedures, tools, methodologies and abilities - through a IC process.

There are several definitions of this concept, depending on the historical moment or geographic space when/where was formulated. The first documented study on the use of intelligence methods was carried out by Pinkerton (1969) and it depicts, in detail, the way a Midwest company conceived a system in order to get marketing information. It is the most detailed study of the beginning of IC. Other significant articles in that time were published by Guyton (1962), Kelly (1965), Greene (1966) and Aguilar (1967). All works from the early period were orientated on gathering information for marketing, thus not justifying the names of "Intelligence", "Business Intelligence", or "Marketing Intelligence". Michael Porter's "Competitive Strategy" was a critical point in time, when the analysis of the industry and competitors replaced the simple finding of an existent situation with the beginnings of the predictive analysis.

Of the relevant definitions of the IC spectrum, those which underline the characteristics of this process and/or its connections with intelligence analysis hold our attention.

R. Brody (2008) defines IC as "the process through which the companies gather actionable information on competition and competitive environment, which, ideally, they use for planning and decision making process to improve their performances".

According to the site of SCIP (<http://www.scip.org/>) organization, IC represents "the method of ethical and moral gathering, analyzing and distributing information on the competitive environment, opportunities, vulnerabilities and competitors' intentions from the business environment. Education in this field improves managers' skills as well as that of the superior managers to face risks, to solve threats from competition, to anticipate market opportunities, to sustain or earn a market advantage".

According to S. Sharp (2009, p. 214), IC "represents the opposite of bad news. It is the best information you can have, no matter if it fits or not to the company's intentions, because it represents reality and, thus, it offers opportunities." The IC process depicted by S. Sharp (Data-Information-Analysis-Intelligence-Decision-Action-Results) is accepted by most authors and it reflects similarities with the intelligence process used by public institutions.

V. Ivan (2014, p. 164) considers IC as a "systematical, ethical and legal process of gathering from public sources data and information regarding competitors' capabilities, as well as technological and marketing tendencies, followed by information analysis, potentially actionable information production and dissemination (intelligence), for the purpose of ensuring competitive advantage, use of opportunities and avoiding marketing surprises".

Today, IC is spread in all modern economies, being part of the activity of multinational companies, sports clubs (<http://www.atiner.gr/papers/SPO2012-0262.pdf>) and nongovernmental organizations.

The model is the same as the one used by governmental intelligence agencies: planning, gathering, processing, analyzing and dissemination. Of course, this is, like any other model, a simplification of reality, having, in fact, a multitude of feedback "curls" between its elements.

The professionals in this field talk about creating capabilities or competences, meaning that this tool is seen as a capital per se, an intangible asset, being impossible to regard it as a simple consultancy or training tool. Its role is to create added value in the business process and functions. Thus, intelligence actions as a key element in conceiving strategies, by reducing uncertainties from the phase of collecting and validation of information that serve as an input for strategy formulation. In this way the decision making process has a realistic and dynamic fundament, on an operational and tactical level, as well as from a strategic point of view.

- *Benchmarking*

Benchmarking represents estimation, assessment of a company's performance or of a piece of its activity. Benchmarking may or may not be followed by changes of some organizational components.

Benchmarking can be reduced to a simple comparison between its indicators or may be extended to the study of methods, common laws and practice used by competitors with performances in the respective field. Often, it is not limited to information on direct competitors, but searches for innovation beyond the field's limits. Mostly, it aims similar developments from other companies and, mainly, the implementation of best practice for obtaining a good performance.

Benchmarking is a management tool, capable to allow the reducing of costs and enhancing technical-economical performances, mainly by imitating good practice in a field. Equally, its sphere can exceed the isolated case of a single firm, to a particular branch in the economy or a national economy, global economy, research system, in which challenges claim developing policies that allow governments to identify and follow world-wide, where there are the most efficient conditions that ensure economic, scientific and social mechanisms and measures that lead sustainable development of society policies (<http://www.ttonline.ro/sectiuni/management-calitate/articole/308-ce-este-benchmarking-ul-i-cum-poate-deveni-el-un-instrument-managementul-unei-firme>).

Although IC and benchmarking have the purpose to enhance competitiveness of the company, their respective methods and results are different. Benchmarking uses economic performance indicators, being limited to that area, while IC is bound to supply that information. Benchmarking is used in intelligence analysis, first, for the general cognition of competitors and that is why the two are part - full, benchmarking being included in the IC sphere.

- *Data Mining*

Data Mining is a (numeric, digital) process of automatic scaling, with the help of specialized algorithms, of a data base, with the purpose of identifying patterns which can sustain the development of models. The increasing data volume and, especially, the data and data relations' complexity significantly reduce the possibility that the man, even with the help of the most performant reporting and visualizing tools, could discover connections between different events "packed" in the data that we can store in unprecedented systems. Performant *Data Mining* solutions automatically identify and verify connections between correlated events or elements of correlated events.

Being a process of big data quantities and extracting relevant information of it by using mathematical and statistical methods. *Data Mining* is commonly used by organizations which are specialized in information about companies and by financial analysts. In addition, it is more and more used in the scientific field for extracting information from big data volume, generated, for example, by modern experiments (<http://ro.wikipedia.org/wiki/>).

In conclusion, *Data Mining* refers to the search of patterns in structured numerical data, with the help of information technology and, in the planning of economic resources it consists in the statistic and logical analysis of big data volume about transactions, but, also in the search of patterns that can help the decision making process. The relation between *Data Mining* and IC is one of independency.

- *Business Intelligence*

It represents a development of *Data Mining* process, keeping its main characteristics. Advanced algorithms are used for obtaining information regarding the company's activity. By contrast, IC refers, mainly, to the activities the competitors of the company, in the external environment. Business intelligence is more an "internal affair", in a way that it concerns interdepartmental activities, the analysis of material and informational flows and the modalities to improve the activity. The paperwork "*Business Intelligence Roadmap*" (MOSS L. T.; ATRE S., B, 2003) presents Business Intelligence as an "architecture and a collection of applications and integrated operational data bases, as well as of helping decision making systems, which supply to the business community (a.n. to the management) an easy access to business data."

Business intelligence is an iterative process, because it starts from the operational environment (inputs, processes, outputs); the decision/making person uses decision helping systems to extract data from the data storage facilities; by having these information, a decision-making person can elaborate action plans. As follows, *Business intelligence* is complementary to IC in knowing one's own company.

- *Knowledge management*

It refers to the management of organizational knowledge about the external and internal environment of the company, entailing the efficient use of information which is necessary to the current decisions or to the strategical planning for improving performances. Without an adequate knowledge management system, the information gathered in IC process would be used only for immediate decisions (tactical level), depriving the management of the company of an important resource, necessary for long and medium term planning (strategical level). Thus, the knowledge management processes get IC products and instils them into the company's informational circuits, as well as in the knowledge/data base. The relation is one of mutual support, each activity using the other one's products.

- *Marketing*

It is the function and, also, the process of an organization/economic entity, which, by scientific methods and techniques, allows the systematical identification of needs, specifications and wills of the target public, for the purpose of fulfilling those with products and services.

The means in which a company knows and adapts the specifications of the (internal and external) environment are scientific methods and techniques at the intersection of economy, sociology, psychology, economic history, anthropology etc. Marketing is orientated towards the client and its preferences,

as well as towards market tendencies, which don't necessary depend on buyer's rationality (fashionable colors, materials, technologies etc.).

IC appeared as a marketing necessity to beneficiate of estimations, data not being always available. Later, IC got new utilities and its own identity. In conclusion, we may say that the two activities are complementary for knowing the business environment, marketing aiming, mainly, the clients, and IC competition.

- *Economic espionage*

Often, IC is mixed/assimilated with economic/industrial espionage, which is totally wrong. Gilad and Gilad (GILAD Benjamin; GILAD Tamar, 1988, p.36) consider that IC "has no connection with industrial espionage. Industrial espionage is an illegal way of obtaining a temporary advantage over competition", According to *Le Petite Larousse*, industrial espionage represents "gathering information from the industrial environment" (not being specified whether illegally or legally) "especially those information about fabrication methods" (*Le Petit Larousse*, Encyclopedia). In turn, all IC definitions specify that it is a legal activity, a monitoring of the organization's external environment, with the purpose of gathering relevant information for the decision making process. Contrary to espionage, IC is a legal process that allows obtaining white and grey information, not black*. In other aspects, the similarities are significant. Besides the secret information gathering methods, collecting information, processing, analyzing and producing intelligence, have, in large, the same content.

Characteristics of information analysis in/for business environment

In general, analysis implies the use of analytical techniques and methods on a group of data and/or information, that the resulting intelligence product having an added value (an information born from the analyst's judgement) and being useful to the beneficiary's decisions.

The same as in institutional/governmental intelligence, business environment information analysis uses technics and methods in processing available information, with the purpose of obtaining new information - with added value (intelligence) - and potentially actionable for the beneficiary.

According to one of the categorizations, the analytical tool contains two types of methods and technical - quantitative and qualitative - both being equally used, in the governmental area and in business environment.

* White and grey information is public, free or have conditioned access (cost money, need special approval, available only for members of specific associations etc.). It is thought that it represents 70% and, respectively, 20% of the total information on a market. The 10% left, called black information, is secret.

Quantitative methods imply quantifying the factors that are introduced in the analysis and imply the use of bureaucratic, statistical, accountable systems etc. for the evaluation of the available data. Quantitative analysis significantly relies on mathematical approach and computer technology and, although the model is built up by the analyst, the subsequent processing are done by the software.

On the other hand, the qualitative methods have strong connections with the qualitative research and allow a very coherent involvement in the empirical reality and with the "subjects" of the research/analysis and with the scientific explanation.

Related to the temporal evolution dimension, business environment information analysis has several distinctive elements, depending on the exact moment we refer to.

In the '90s, in general, the methods and techniques used were tributary to the Porter model:

- the analysis of competitors' objectives (case study), the analysis of competitors employees (case study), costs analysis (quantitative/accountable), financial analysis (quantitative/accountable), development and available resources (case study), production capabilities used by the competitors (case study) - Gordon (1989);
- chronology, SWOT analysis, benchmarking - Fuld (1995);
- analysis-synthesis, case study and benchmarking - Dutka (1998);
- industry analysis (case study) - Burwell (1999);
- industry analysis (case study), marketing analysis (case study), competitors' analysis (case study), competitive benchmarking - Cook and Cook (2000).

After 2005, the tools extended with risk analysis (Carr, 2006), with the analysis-synthesis on operational, tactical and strategic levels (Fleisher and Bensoussan, 2007), risk analysis (qualitative approach), and early warning - combination of quantitative analysis and qualitative analysis (Fuld, 2010).

At the same time, a distinction should be made between analysis methods and technics and the final product, which is the intelligence product containing the results of one or, many times, several analysis.

In a study made by SCIP in 2006, it is said that 58% of the analysts frequently use the analysis of competitors and 47% use SWOT analysis. Only 16% of them use scenario analysis and just 13% make profiles of the competitors' management (*State of The Art: Competitive Intelligence*, SCIP, 2006).

The main products that IC offers to the beneficiaries contain more and more sophisticated analysis and modern methods and techniques are part of the analysts' tools.

For the characterization of a complex situation, such as a company on a certain market, complex analysis is needed which should include quantitative analysis and qualitative analysis. In the beginning, simple qualitative methods were used, such as analysis-synthesis and case study, now there structured methods and technics are used and the tendency is to make quantifications which allow informational analysis of data and their storage in a way that makes them easy to use in time.

The cybernation of information analysis activities and of those of learning and perfecting analytical methods* offers an interesting vision for the fields possible perspectives.

Conclusions

Intelligence in general and intelligence analysis in particular, are present in the institutional area, as well as in that of the business environment, for both areas being common the stages and, respectively, (an important part of) the analytical tools used. The distinctive elements are the purpose and the sources/the modalities of obtaining information.

In a more and more globalized economy, obtaining/having a competitive advantage represents a major benefit for any economic entity (no matter if it belongs to the state or totally has private capital). In this context, in the business environment (at first, in the western area and later in other places, including, relatively recent, Romania) the necessity of using intelligence activities became more and more obvious.

It is apparent a necessity to deepen what Competitive Intelligence represents or the newer Economic Intelligence - as an IC practice on a state level - in the academic environment, to create a specialized body which should support the competitive skills of the Romanian firms and economy.

Recent studies show that, for most multinational companies that activate in Romania, there are specialized IC departments, in the Romanian firms the concept being almost completely unknown. We may speak of an informational asymmetry, which is averse to the inland factors of production.

References

1. AGUILAR, Francis Joseph (1967), *Scanning the Business Environment*, Macmillan, New York.
2. BRODY, Roberta (2008), *Issues in defining competitive intelligence: An exploration*, in *Journal of Competitive Intelligence and Management* 4(3), 3-16.
3. CARR METCALF, Margaret (2006), *Super Searchers on Competitive Intelligence*, Information Today, Inc., Medford, New Jersey, second printing.

* The project developed by Mason University, TIACRITIS (Teaching Intelligence Analysis, Critical Thinking Skills).

4. COOK, M; COOK, C. (2000), *Competitive Intelligence: Create a Intelligent Organization and Compete to Win*, Kogan Page, SUA.
5. FLEISHER, Craig S.; Bensoussan, Babette E. (2007), *Business and Competitive Analysis*, Pearson Education Inc, New Jersey.
6. FULD, Leonard (1995), *The New Competitor Intelligence*, John Wiley and Sons.
7. FULD, Leonard (2010), *The Secret Language of Competitive Intelligence*, Dog Ear Publishing, Indianapolis.
8. GILAD, Benjamin; GILAD, Tamar (1988), *The Business Intelligence System: a New Tool for Competitive Advantage*, Ed. Amacom, New York.
9. GREENE, R.M., Jr., ed. (1966), *Business Intelligence and Espionage*, Homewood, IL, Dow-Jones and Irwin Inc.
10. GUYTON, W. J. (1962), *A guide to gathering marketing intelligence*, Industrial Marketing, March.
11. IVAN, Valeriu (2014), *Information Analysis: from competitive intelligence to an economic dimension of the national security*, The Romanian Academy (doctoral dissertation), București.
12. KELLY, W.T. (1965), *Marketing Intelligence: The Management of Marketing Information*, Staples Press, London.
13. MOSS, L. T.; ATRE S., *Business Intelligence Roadmap: The Complete Project Lifecycle for Decision-Support Applications*, Addison Wesley, 2003;
14. MULLER, M.L. (2008), *Competitive intelligence in business: Latin America*, în *South African Journal of Information Management*, 9(2).
15. PINKERTON, R.L. (1969), *How to develop a marketing intelligence system*, Industrial Marketing (a series of five articles, April-August 1969).
16. PORTER, Michael (1980), *Competitive Strategy*, Free Press, New York.
17. SHARP, Seena (2009), *Competitive Intelligence Advantage*, John Wiley & Sons, Inc., Hoboken, New Jersey.
18. *Guide pratique pour les PME*, Cercle d'Intelligence Economique du MEDEF, Paris, 2006.
19. Xinzhou Xie și Xuehui Jin (2011), *The Evolution of Competitive Intelligence in China*, Journal of Intelligence Studies in Business 1, 2011, available at <https://ojs.hh.se/index.php/JISIB/article/viewFile/15/pdf> (checked on the 15th of January 2015).
20. Strategic and Competitive Intelligence Professionals, <http://www.scip.org/> (conditioned acces), checked on the 24th of April 2014.
21. <http://www.atiner.gr/papers/SPO2012-0262.pdf>;
22. <https://www.yumpu.com/en/document/view/10861863/an-examination-of-the-existence-and-usage-of-> (both sites checked on the 10th of January 2015).
23. *What is Benchmarking and how can it be a management tool?* at <http://www.ttonline.ro/sectiuni/management-calitate/articole/308-ce-este-benchmarking-ul-i-cum-poate-deveni-el-un-instrument-managementul-unei-firme>, checked on the 18th of January 2015.
24. http://ro.wikipedia.org/wiki/Extragerea_de_cuno%C8%99tin%C8%9Be_din_date, checked on the 18th of January 2015.
25. ***, *State of The Art: Competitive Intelligence* (Research Report 2005-2006), edited by Dale Fehringer *et al.*, SCIP, 2006.