

Towards a New Approach of the Economic Intelligence Process: Basic Concepts, Analysis Methods and Informational Tools

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***Abstract.** One of the obvious trends in current business environment is the increased competition. In this context, organizations are becoming more and more aware of the importance of knowledge as a key factor in obtaining competitive advantage. A possible solution in knowledge management is Economic Intelligence (EI) that involves the collection, evaluation, processing, analysis, and dissemination of economic data (about products, clients, competitors, etc.) inside organizations. The availability of massive quantities of data correlated with advances in information and communication technology allowing for the filtering and processing of these data provide new tools for the production of economic intelligence.*

The research is focused on innovative aspects of economic intelligence process (models of analysis, activities, methods and informational tools) and is providing practical guidelines for initiating this process. In this paper, we try: (a) to contribute to a coherent view on economic intelligence process (approaches, stages, fields of application); b) to describe the most important models of analysis related to this process; c) to analyze the activities, methods and tools associated with each stage of an EI process.

Keywords: economic intelligence; informational watcher; information search; decision-making process.

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JEL Codes: 32O, 33O

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Introduction

In the knowledge-based economy, economic intelligence and ICT (Information and Communication Technologies) represent basic components of competitive research and innovation strategies. In this paper, the concept of “economic intelligence” refers to the product resulting from the collection, evaluation, analysis, integration and interpretation of all available information, supportive of the decision-making processes pertaining to the organizational goals of stability, security and development. Focused primarily on information available outside the organization, the scope of Economic Intelligence (EI) covers wide fields, ranging from information technologies to market or legal topics. Economic Intelligence is closely correlated with other information management approaches such as Knowledge Management (that works, in our opinion, on information collected inside the organization), or Business Intelligence, that excels in the use of software tools dealing mainly with quantitative information. Economic Intelligence mainly addresses users in need of up-to-date information in order to make the best decisions in the framework of a defined strategy. The range of ideas associated with this concept is enormous, and the scientific community is far from being homogeneous or aligned to a common approach. The purpose of this research is to answer a few questions: (1) “Which are the basic concepts related to Economic Intelligence?” (2) “Which are the methods of analysis related to Economic Intelligence process?” (3) “Which are the methods and tools for supporting an Economic Intelligence process?”

Regarding the methodological approach we have used:

(a) the systematic consultation of online bibliographic databases; (b) the progressive consultation of books rich in bibliographical references; (c) the systematic consultation of the collections of journals on this subject; (d) elaboration of an analysis framework for the prior research; taking into account the criteria for analysis elaborated previously in other research; (e) data analysis (content analysis and descriptive analysis).

1. A “classical” approach of “Economic Intelligence”

From the beginning of the earliest writings that have made reference to different models describing it, the Economic Intelligence has sometimes been presented as a communication system, sometimes as a monitoring process, as a defensive practice or otherwise offensive to some, as a set of methods and management tools for others and eventually as a management style. The concept has evolved over time, from the initial form of “Business Intelligence System” to the current acceptance of “Economic Intelligence”.

H. P. Luhn (1958, p. 314) advanced the concept of “Business Intelligence System” in 1958. The notion of *intelligence* is defined here, in a more general sense, as “the ability to apprehend the interrelationships of presented facts in such a way as to guide action towards a desired goal.” Wilensky defines the “organizational intelligence” as “the problem of gathering, processing, interpreting, and communicating of the

information needed in decision-making processes” (1967, p. 3). For Baumard, the “Economic intelligence” is not just an art of observation, but also an “offensive and defensive practice of information. Its purpose is to connect several fields together, in order to better serve the tactical and strategic objectives of the firm. It is a tool of connection between the action and the knowledge of the firm” (1991).

The Martre Report defines Economic Intelligence as the set of coordinated actions of search, processing and distribution for exploitation, of useful information for economic actors (Martre, 1994). These actions have been carried out legally with all the necessary protection for the safeguard of the company’s patrimony, and with the best quality, delay and cost.

According to Lesca (1995), the “competitive intelligence” or the “strategic vigil” is the information process with which the organization carries out the “anticipation” listening of those “weak points” of its economic environment with the creative goal of discovering opportunities and reducing risks related to uncertainty.

In Besson and Possin’s view, the “economic intelligence” is the art of detecting threats and opportunities by coordinating the collection, sorting, storage, validation, analysis and dissemination of useful or strategic information to those in need. It will involve adequate protection at all stages of its development: acquisition, processing, exploitation and protection of informational patrimony. In essence, economic intelligence is an informational cycle whose purpose is to produce strategic and tactical “high added value”.

In 2004, Bertacchini considers that “territorial intelligence” (concept related to “economic intelligence”) can be compared with the territoriality which results from the phenomenon of appropriation of resources of a territory; it consists in know-how transmissions between categories of local actors of different cultures” (2004).

According to Juillet (quoted by Kislin, 2007), the economic intelligence represents the control and protection of strategic information that enables the entrepreneur to optimize the decision-making.

According to Salles, these definitions show that there are four major periods (2003) in the evolution of the Economic Intelligence concept:

- The first period, corresponding to the 1980s and early 1990s, where the definitions are primarily focused on processes, tools and techniques that are described in detail (the definitions of Wilensky, Martre and Lesca, for example);
- The second period, which covers the 1990s, where the definitions concerned primarily the use of economic intelligence or strategic vigil and its overall objectives (Besson and Possin);
- The third period, which began in the late 1990s, has emerged the concepts of co-management and collective intelligence, organizational learning and collaborative work;
- The definitions of the fourth period began in the 2000s, and include in addition to previous notions, those of cultural identity, regionalism and the concept of “economic defense” (Bertacchini, Juillet).

In conclusion, Economic Intelligence concerns the set of concepts, methods and

tools which unify all the coordinated actions of research, acquisition, treatment, storage and diffusion of information, relevant to individual or organization in the framework of a strategy. These processes are coherent, permanent and interactive and can induce real changes in decision-making mechanisms. The development of Economic Intelligence in enterprises can affect all the dimensions of the business. Economic Intelligence, based on a set of structured methods and tools, will bring about important changes in individual and collective behaviour.

If we try to find common characteristics for all these definitions, we must emphasize the following key points:

(1) Economic Intelligence is an ethical and legal business practice; it is distinguished by espionage because it uses legal means exclusively;

(2) The focus is on the external business environment;

(3) There is a process involved in gathering information, converting it into intelligence and then utilizing this in business decision making.

The professionals of this domain emphasize that if the intelligence gathered is not usable (or actionable upon) then it is not intelligence.

Alternative approaches, including *Competitive Intelligence (CI)*, could be considered more or less similar to Economic Intelligence. CI, developed and widely used by American companies, is a concept that represents a monitoring approach and process, oriented towards the market environment and to enhancing marketplace competitiveness. It uses similar methods

and tools as those of EI but aims more specifically at the analysis of information regarding business competitors. The widely adopted *Business Intelligence* focuses on dealing with quantitative information and the software methods and tools to process it, such as Data mining or Data Warehouse. The concept of *Technology Watch* refers to a system focused on the active monitoring of technological topics or issues, such as patents, Intellectual Property Rights, research, standards, trends analysis and foresight programs, in order to provide intelligent support for decision-making. Economic and Technologic Intelligence (ETI) covers the same field as Economic Intelligence, especially stressing the aspects linked to technology. ETI as a concept is widely used within the framework of European Commission for research and development programs.

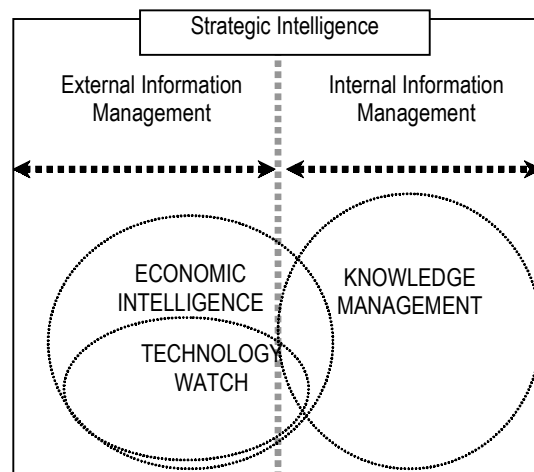


Figure 1. Fields of application of the different concepts of intelligence

Source: Cetisme Project, 2002.

On the other hand, Knowledge Management focuses on the existing knowledge inside the organization and comprises a range of practices used in order to identify, create, represent, distribute and enable adoption of insights and experiences. The differences between Knowledge Management and Economic Intelligence concern the fields of application of these concepts (figure 1).

Other intelligence techniques and methods, such as Defense and Lobbying, are sometimes called Strategic Intelligence (intelligence provided in support of strategic decision-making). Sherman Kent defined strategic intelligence as the “kind of knowledge a state must possess regarding other states in order to assure itself that its causes will not suffer nor its undertakings fail because its statesmen and soldiers plan and act in ignorance” (quoted by Choksy, 2005). The concept of Strategic Intelligence is usually employed in France and other European countries as including the areas of Economic Intelligence and Knowledge Management.

2. Economic intelligence: analysis models

We described the economic intelligence as an approach with a dominant informational dimension, which is built around a surveillance process represented by a series of coordinated operations by which the collected information becomes usable, useful and therefore worthy of interest for a decision-maker and a particular decision problem.

The different characteristics of economic intelligence that we have previously presented have highlighted several dimensions of its approach. The inclusion of one or more of these dimensions allows the design of various models used for the analysis (conceptual and practical) of economic intelligence (Bournois, Romani, 2000):

- The dimension called “ecological” characterizes the business environment (partners, competitors, markets, etc.);
- The internal actors of the company represent the “psycho-sociological” dimension;
- The external human networks claimed and mobilized around the project, define the “reticulated” dimension;
- The teleological dimension corresponds to the final purpose of the approach through strategy development;
- Finally, the technological dimension includes all the methods, tools and techniques used for the entire process of decision support through surveillance process, information protection, or benchmarking, for example.

We have selected for analysis four models built on these dimensions: the model presented by F. Jacobiak, the AFDIE model, the model of P. Achard and the analysis model of Salles.

Jakobiak proposes a model of economic intelligence based on five main points (2004):

- A doctrine which consists of the definition of the concept of Economic Intelligence recognized by the whole group;
- An approach consisting of: (a) a

master plan for moving from theory to method (what information flows to whom and for what purposes, what actors will intervene-project manager, monitors, analyzers, policy makers, etc.) in order to develop and implement a coherent strategy;

(b) a master plan to develop this method and to introduce the structure, control mode, cost problems and schedule;

- A federated structure of two networks: the network of concerned information poles (the selected monitoring areas) and the network of analyzers (the groups of experts and the selection of critical success factors);

- An experiment which defines the general operational rules of economic intelligence within the organization: the degree of freedom for each group, the recommendations and guidelines, media and technical support (software, materials, etc.), data storage (types of information taken into account);

- A quantitative and qualitative control.

For Jacobiak, the cornerstone of the economic intelligence project is the network of analyzing experts: this is where the raw information transmitted by the observers is transformed into developed information, usable and interpretable by decision makers. The model separates the phase of observation and the phase of analysis and isolates the different actors involved, by interposing a high number of intermediaries. This fact can produce many inconveniences in the communication chain between the main actors of organization.

The AFDIE (Association Française pour le Développement de l'Intelligence Economique) model outlined five basic principles of economic intelligence leading

to sustainable performance (Besson and al., 2001):

1. The integration and taking into account of the environments in anticipation logic;

2. The organization design based on collective intelligence;

3. An organization built around systems and networks;

4. A combination of a managerial logic and entrepreneurial logic;

5. Adhesion to a Code of Ethics/ Deontological Code.

The AFDIE model consists of eleven factors (seven action factors: leadership, ethics, forecasting, environment perception, knowledge and skills, influence, networks' organization - and four result factors: value creation, information quality, image, decision-making process) with the same relative importance and without any ranking among them.

This is seen as a system where the performance and the general equilibrium depend on the level of interactions' adjustment between all its parts, not just the excellence of two or three of them. Therefore, the weakest link will determine the fragility of the entire company or organization.

According to Achard model, the implementation of an economic intelligence system can be realized in 5 phases (2005):

- (a) A planning phase to define what the expectations of economic intelligence unit are;

- (b) A research phase for "people needed vs. skills required";

- (c) A phase of positioning economic intelligence in the organization's inner core

as an internal provider system accompanying missions and decision-making objectives, while participating in obtaining information useful at all levels;

(d) A phase of developing EI process in terms of surveillance dimensions, information gathering, processing and dissemination in accordance with decision-making objectives.

(e) An evaluation phase through a measure of model performance, with criteria for qualitative and quantitative assessment.

In the model of Achard, the informational watcher is a basic component of an EI system, providing leadership and system coordination in a sense of complicity with the decision-maker.

The Economic Intelligence approach proposed by Salles (2003) is built on the MEDESIIE method that realizes an analysis of decision-maker needs. The conceptual architecture of this method is based on the definition proposed by Seligmann (1989) for the characterization of the information systems design methods. According to this author, any method necessarily relies on four components (or “way of”): a paradigm (a view or a way of thinking), one or more models (formal representations) to be built, an organizational approach (milestones, success factors) and finally the tools and implemented practices.

The Salles model is a mega-model that consists of five units of analysis:

1. A model of the enterprise established according to its different functions (production, economic, financial and innovation);

2. A model of the environment, congruent with the model of Porter (competitors characterization, markets,

conditions of supply, etc.) and which highlights the endogenous and exogenous factors in the relationships the company maintains with its environment;

3. A model of strategy, in order to identify the core competences of the company and to define issues and key tasks (research independence, growth of its business, increase profits, etc.);

4. A model for the collection, analysis and validation of needs;

5. A model of defining the economic intelligence products, that consists in a mockup made according to collected needs in order to identify the cost, power and scope to assess a priori the effects.

In this model, economic intelligence is seen as a cognitive process whose primary purpose is providing assistance in management processes and producing representations of the environment in order to create new knowledge.

3. Economic Intelligence: process, activities, methods and informational tools

The Economic Intelligence process success depends on choices made in each stage, because these choices will eventually determine the type of result. The stages of this process can be defined as follows:

1) Identification of the problems to solve in terms of threat, risk and danger;

2) Transformation of decision-problem into information search problem;

3) Identification of relevant information sources;

4) Validation of the information sources;

- 5) Collection and validation of information;
- 6) Processing the collected information for the calculation of indicators;
- 7) Interpretation of the indicators;
- 8) Decision-making for the resolution of the problem;
- 9) Protection of informational patrimony throughout the entire process.

Also in this process, one can identify three main actors:

Decision maker is the individual in the organization that is capable of identifying and posing a problem to solve in terms of danger, risk or threat that weighs on the organization. In EI process, there is a well established flow from raw data, to the highest level of information quality. This process starts with the data sourced in the “real world”. The information is analyzed in the context of the personal standards, criteria and expectations of the decision-maker to become knowledge (figure 2). Finally, the decision-maker applies this knowledge to a particular situation to create intelligence.

Information watcher (or *watcher, market watcher, observer, knowledge manager, information specialist, information analyst, intelligence manager, record manager, scientific surveyor, industry watcher, gatekeeper, news master in Anglo-Saxon terminology*). The range of concepts from practice referential associated with this profession is enormous. In fact, all the above mentioned concepts refer to the person within

the organization that specializes in the methods of collection and analysis of information. His objective is to obtain indicators (based on collected information), or value added information that the decision maker depend on for his/her decision process. After receiving the problem to solve as outlined by the decision maker, the information watcher must translate it into information attributes to be collected and which are used to calculate the indicators. The abilities and skills required to be an informational watcher are set out bellow in Table 1.

End user: this is the final user of the system; it can be either of the previously mentioned users or neither of the two. This user can be identified depending on which layer of the Economic Intelligence system he interacts with.

In order to avoid wasting time and resources making the wrong choice, it is best to initiate the process with an organizational diagnosis (Cetisme, 2002). This should analyze both the hard elements (strategic-structural: law, politics and economic aspects of the working environment or functional: planning, comparing results with efforts, role and task distribution) and soft elements (organizational climate, motivation, various levels of communication, leadership style, problem-solving capability and distribution of power) with the aim of discerning the way they function with respect to the organization mission and objectives.

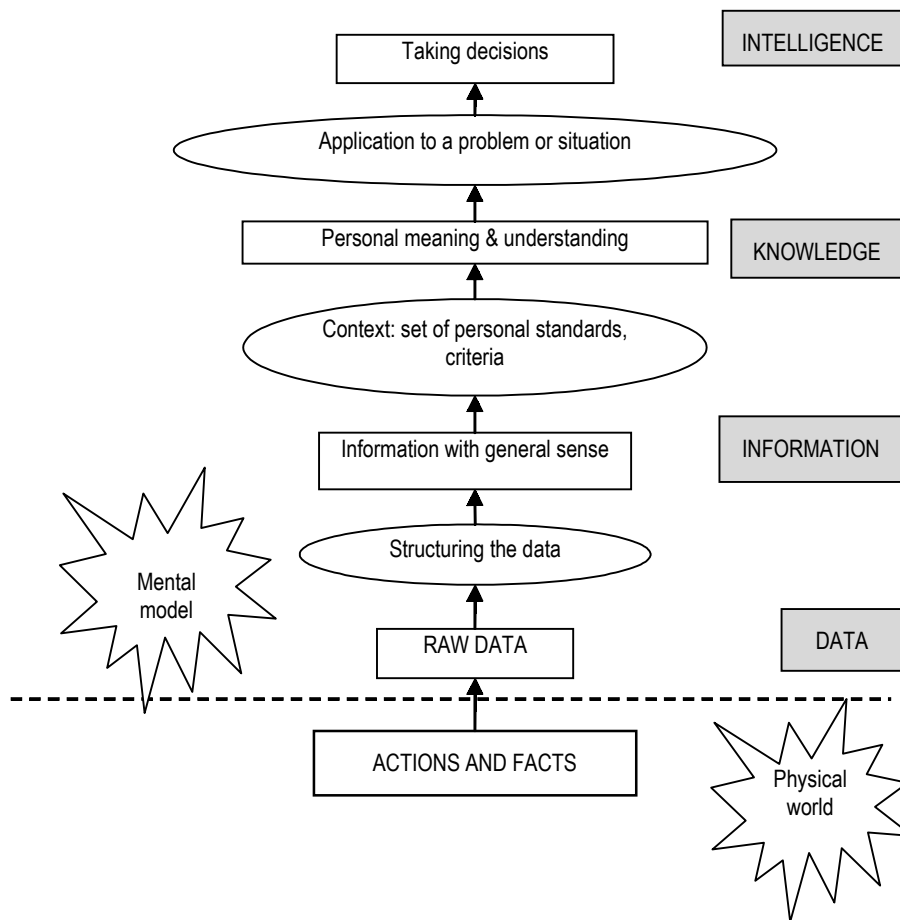


Figure 2. *From data to intelligence*

Source: Cetisme, 2002.

The “organizational diagnosis” should be comprehensive, including the analysis of the firm’s ethics, the organization’s well being, and other components.

An internal analysis of current information flows is the next key step. This step must offer an answer to the following questions: (a) Is the current approach satisfactory? If not, why not? (b) What is the current flow? (c) What is the organizational culture? (d) Which channels does the organization currently use and which could it use? (e) How is information disseminated into the organization? (f) What kind of information is disseminated

to customers or partners? (g) Are employees and managers motivated to disseminate information? How?

Replying to these questions will help identify internal weaknesses (threats, risks and dangers) and therefore provide an indication of how to improve the internal information flow.

We consider that the majority of implementation problems are the result of human conflicts inside an organization. If new procedures are imposed from above and not shared by everyone within the organization, the usual result is de-motivation (Cetisme, 2002).

The information needs analysis can be divided into the steps below:

- a. Users' identification;
- b. Organization analysis;
- c. Identification of key critical factors;
- d. Information needs definition;
- e. Information available and Information gap;
- f. Needs updating.

There are some questions which can help the identification of the users inside an organization: Does a strategic document exist in this organization? How was it developed? Who is aware of it? Why? How is the internal decision system organized?

Is the strategic planning activity based on information about external and internal information? Does a link exist between strategy and information gathering? How is the operational information disseminated within the whole organization?

Once information users have been identified, it is necessary to clearly assess the organization background and strategy. It is vital to clarify the following aspects:

- Organization history;
- Main shareholders and stakeholders;
- Key industry markets in which the organization is involved;
- Organization visibility;
- Management information flow.

In order to identify the organization strategy, it is important to know the answers for the following questions: What are its mission and vision? What are its main long-term objectives? What are its strategies? What is the organization's focus in the past, in the present and in the future? What is the current operating organizational culture? In which new markets is the organization

planning to enter? How will the products develop? Are the values and goals shared by all the organization?

The answers to these questions offer a general picture of the organization and its requirements. In order to define an Economic Intelligence process or to improve the current one, this phase plays a key role.

The next step addresses information needs for each strategic area: market, product, competitors, technologies, environment, and customers. The use of an interview questionnaire with open questions is normally the most productive method for the identification of needs.

For each of the identified strategic areas, the current availability of information should be checked, according to the following (Cetisme, 2002):

- Accuracy of management's knowledge on the technical and economic issues of interest for the organization;
- Information priorities;
- Availability of information (who gathers it – and how?);
- Information about schedules, gathering, storing, location (when is it gathered? how is it stored? where? who can use it?);
- Details about the information flow;
- Details about the management involvement in information issues;
- Motivation of staff to report about information issues.

The EI process is a continuous, interactive and iterative process allowing fast and efficient changes. When strategy and organization change, the EI process needs to be assessed and changed accordingly.

The key information sources for an EI process cover the electronic sources (search engines, intelligent agents, alert systems, Semantic Web, News Groups, Newsletters, Weblog, Mail lists), but the traditional sources (books, magazines, technical literature, newspapers, conferences, meetings) can't be ignored.

There are numerous potentially useful analysis tools for getting value out of information in the fields of competition, markets and technology. Different levels of analysis can be conducted depending on the nature of organization's competitive objectives: a market analysis, an industry analysis or a company analysis. Some of the techniques available include Porter's five forces model, SWOT analysis, competitor profiling, patent analysis and benchmarking techniques. For those dealing with technical information, scientometric tools (techniques that exploit statistical scientific and technological information contained in databases including patents) can be interesting. Other tools include the technological attractiveness-technological position matrix, the technology-product matrix, core competences and those related to prediction such as foresight, methods based on extrapolation of past trends, S-curves, Delphi methods.

We believe that best practices in the validation of the information are: a) identifying the original source of the information and checking its credibility; b) checking the procedure used to obtain statistical data; c) looking for different sources for the same information, checking if the original sources are different; d) checking the information with external experts.

Once analyzed and validated information has been created, it needs to be disseminated within the organization: first to those who are personally affected by the Economic Intelligence process, and then to all those inside the organization that may find the information useful or relevant to their work.

The Information and Communication Technologies offer the infrastructure and the tools needed to assist all stages throughout the entire EI process. Many authors, like Balmisse (2005) or Gorla (2006), the reference portals like INIST and BNF (quoted by Kislin, 2007) have developed directories and repositories that are relatively exhaustive, with software tools useful for an informational watcher.

The activities, methods and tools associated with different stages of economic intelligence process are set out in Table 1.

**Activities, methods and tools associated with different stages
of economic intelligence process**

Table 1

No.	Stages of economic intelligence process	Actors	Activities & Areas of expertise	Examples of tools
1.	Identification of the problems to solve in terms of threat, risk and danger	Decision-maker	- Knowledge of immediate and extended environment (Firm, sector of activity, markets, etc.)	- Analysis methods and tools: Pareto, SWOT, Ishikawa diagram, BCG matrix, MACTOR method, value analysis, Six Sigma, Business process, etc. - MEPD questionnaire - Business Plan, Project Management, Gantt, Pert, etc.
2.	Transformation of decision-problem into information search problem	Decision-maker and watcher	- Skills for decision problem analysis and informational problem projection - Translation and contextualization of demands, prior research and stored cases - Defining the basket of informational indicators - Monitoring and evaluating the translation process	Needs analysis and tools (MEPD, MEDESIIIE, UML, requirements engineering, etc) - Auditing method and tools, TQM, PDPA - Brainstorming tools and concept mapping - Computer Supported Cooperative Work, (Groupware tools, E-mail, E-conference, workflow) - Case-Based Reasoning Methods
3.	Identification of relevant information sources and validation of sources.	Watcher	- Search for formal and Informal sources; - Selection of appropriate sources for the decision problem, memorization, and information traceability	- Private networks - Databases, documentary software - Browsers, meta-browsers - Enterprise Information Portal (EIP) - Surveillance Software for sources - Alert agents
4.	Collection and validation of information	Watcher	- Valuation of the indicators by information retrieval - Crossing sources, procedures for verification and monitoring of information. - Skills and abilities for information systems and documentary languages (thesaurus, query language, creation of queries)	- Intelligent agents - Specialized portals - Specialized browsers - Search engines - Documentation - Archives and other recording tools - Semantic Web
5.	Processing the collected information for the calculation of indicators	Watcher	- Intellectual and physical processing of documents (description, tracking, indexing, memorization, abstract, bibliography, synthesis, ...) - Linguistic processing and information mapping (translations, visual representations of information)	- Automatic abstracting and summarizing tools - Classification tools - Content extraction tools, concept mapping - Infometry, statistical methods and tools
6.	The adapted presentation of informational solutions	Watcher	- Elaborating a final format for presenting information (contingency tables, graphs, surveillance reports, synthesis notes, reporting)	- Birotics, PAO, - Collaboration tools, - Sharing tools - Dissemination tools
7.	Interpretation of the information.	Decision-maker	- Ability to analyze and interpret information	- Decision support systems (DSS), SIS, Data Warehouse, Data Mining
8.	Decision making for the resolution of the problem	Decision-maker	- Knowledge of decision-making process - Monitoring the informational indicators - Monitoring the indicators for decision-making	- Management tools, Scoreboard, decision matrix
* throughout the entire process	Protection of informational patrimony	Watcher and decision-maker	- Identifying, disseminating, storing, sharing and protecting knowledge - Selective dissemination of information	- Security software for systems and networks, firewalls, antivirus, cryptography and steganography - Patents, quality norms, brand image, etc. - Securization of LAN and PAN networks, Video Surveillance systems, - Intranet, virtual private networks, secured protocols and secured networks.

Source: adapted from Kislin P., 2007, p. 219.

Conclusion

The purpose of this research was to contribute to a coherent view on economic intelligence process. The prior literature reveals an enormous range of ideas associated with this concept and is far from being aligned to a common approach. This paper tries to review the nature of economic intelligence and to highlight the challenges of systematically managing economic intelligence. The current process of intelligence activity is divided by organizational function, or is related to an individual manager. An optimal management solution should combine the informational tools with the analysis and

synthesis abilities of informational watcher. Managing economic intelligence cannot be subject to sole technical solutions. Enabling technology to assist decision-makers in their intelligence scanning and analysis activities is a challenging task. We expect that, in the future, effective managing economic intelligence will rely heavily on an organizational approach including illustration of organizational vision, sharing tacit/explicit or formal/informal knowledge, establishing an intelligence culture, creating an organizational memory and redesigning the process of intelligence gathering, analysis, and dissemination.

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