

Competitive Intelligence for strategic Decision Making

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Abstract

Competitive Intelligence is a process that has become essential for companies in understanding competitive issues. The ability to read and understand environments, and then influence actions are the elements that characterize the Competitive Intelligence. Firms operate in complex business ecosystems, where the Competitive Intelligence allows a deciphering of relations between actors in order to detect the potentials and risks of the markets. It uses different tools and techniques to perfect its competitive recommendations for strategic decisions.

Competitive analysis is part of this need to reduce uncertainty and inform decision-making. The Competitive Intelligence responds to this need by applying the specific methods of the information cycle.

It is in this context that our research aims to develop a tool that helps decision-makers predict their competitors' actions. In this article, we explain the importance of Competitive Intelligence for the decision-making process within the company.

Keywords: Competitive Intelligence, Strategy, Information System, Decision-Making.

1. INTRODUCTION

There is many definition of Competitive Intelligence (CI). In its simplest definition, CI is a procedure for collecting and understanding information within an environment. However, CI has been defined very differently in previous researches. Similarly, terminology is very varied: terms such as technological watch, competitive watch, competitive intelligence ... etc. are alternately used in previous researches [1].

The first reference of CI was related to the military domain in "The Art of War" by Sun Tzu around the 6th century BC. CI has undergone progressive evolution. The Strategic and Competitive Intelligence Professionals (SCIP) defines it as: "A systematic and ethical program for gathering, analyzing and managing external information that can affect your company's plans, decisions and operations" [2]. Competitive Intelligence can focus on a specific aspect of Competitor Intelligence, but it can also focus on other disciplines such as products, customers, employees, lost prospects, marketing, sales or environmental aspects. Competitive Intelligence provides organizations with a competitive advantage in any of those disciplines when a structured program is properly implemented, managed and maintained.

It is important to underline that CI is not business espionage. CI is ethical, legal and legitimate. It uses public, but not necessarily published information to deal with the competitive environment of the company.

2. COMPETITIVE INTELLIGENCE: BETWEEN COMPETITION AND DECISION-MAKING

The transformations of economies and strategic stakes strongly influence the forms of Competitive Intelligence. CI becomes a decision-making phase and a management tool in its own right [3], [4], whose aim is to improve the competitiveness of the company [5]. CI is directly interacting with the enterprise environment [6]. CI is based on information literacy and knowledge generation, with a view to better understanding of economic environments and better anticipation of change [7].

Indeed, Prescott [8] defines four levels of the CI evolution:

- **60s-70s: Competitive Intelligence Gathering** which consists of developing skills in information acquisition
- **1980: Industry and Competitor Analysis** which consists of building a business case for CI, spy image and analytical skill development.
- **1987 to 2000: Competitive Intelligence for Strategic Decision Making** which consists of demonstrating bottom-line input, role of information technology, CI technology, international CI, demands vs. supply driven CI and counter-intelligence.
- **Recently: Competitive Intelligence as a Core Capability** which consists of managing the parallel process, intelligence infrastructures for multinationals, CI as learning and network analysis in a word of globalization.

One of the main contributions of CI is decision support [9]. CI helps to illuminate the shadows, by understanding the external and internal information. The decision-maker thus has elements that are fundamental in his decision-making

process [10]. Thus, 73.5% of business leaders interviewed by Phanuel and Levy (2002) [11] consider that the main purposes of CI are to facilitate strategic decision-making.

In a recent evolution, companies are increasingly subscribing to a simple CI design as a "guide tool" and adopting a design in which CI is a meaningful "consulting tool". CI then provides real scenarios, which are both strategic choices and options for the decision-maker [12]. This scenario development is determined by the practice of CI. It allows the decision-maker to benefit from a decision-making palette that becomes fundamental in the decision-making process [13], [14], [15].

Beyond this role of decision-making support, CI has a different vocation, more offensive. Indeed, if CI analyzes the environment to reveal the actions and intentions of the competitors, CI also makes it possible to draw up plans of attack or defense. In this sense, it differs from competitive or technological watch, which is essentially an information gathering and processing activity. Beyond intelligence, CI allows the company to develop an ability to influence its environment. For example, introducing rumors that destabilize competitors is part of CI's domains. Similarly, developing an ability to influence professional organizations or public authorities is a major activity of CI.

CI is part of a predominantly competitive approach to the relationships between firms. The company must, by gathering information, guard against the maneuvers of its current or potential competitors. Similarly, by manipulating information, it must develop a nuisance capacity toward those same competitors. Thus, Bournois and Romani [16] show that the practice of CI is all the more important as companies consider operating in an environment where the intensity of competition is strong or global.

In order to understand CI in its dynamics, we will resume here the very classic cycle of CI:

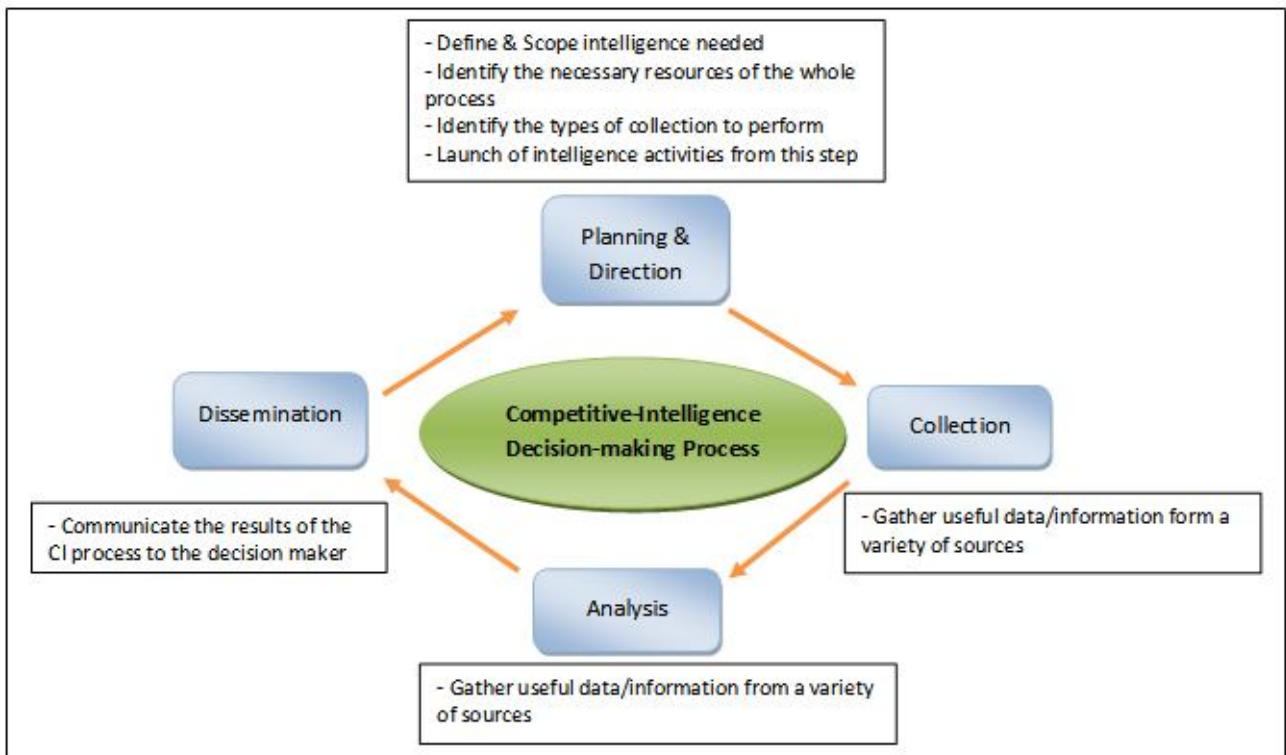


Figure 1 Cycle of Competitive Intelligence

In addition, CI serves the economic war and is at the heart of companies with strong and global competition [17]. Secret services and other organizations like the United States Central Intelligence Agency (CIA) use an extended process with continuous activities [18], to ensure the well execution of CI, to create the right environment for CI. This requires continuous staff training, to define and install the appropriate policies, procedures and infrastructure required by the CI.

3. RESEARCH OBJECTIVE

CI existing researches define the concept of CI and propose models for uses and practices of CI. Our aim is to go beyond that by developing a complete solution in the hands of the decision maker, since the decision-making process is the most important objective of CI.

We aim to develop a method for strategic choice approach to anticipate competitor decisions based on the association of Artificial Intelligence and Multi-criteria Decision Aid fields.

We will first study predictive modeling and algorithms such as RULES Family algorithm, but also Operations research tools and Multi-criteria Decision Aid that explicitly evaluates multiple conflicting criteria in decision making.

Our choice is confirmed by the recent interest of the economic and the scientific communities in combining Multi-criteria Decision Aid (MCDA) and Artificial Intelligence (AI) techniques. Indeed, in recent years, MCDA and AI have been applied with considerable success to support decision-making in a wide range of complex real-world problems.

For example, in September 2012, International Journal of Multi-Criteria Decision Making has launched a call for paper on the theme of "Multi-criteria decision and Artificial Intelligence". And in April 2013, Michael Doumpos and Evangelos Grigoroudis wrote a book entitled "Multicriteria Decision Aid and Artificial Intelligence: Links, Theory and Applications" to present hybrid models and algorithms for preference modelling and optimisation problems, to cover the recent advances in intelligent decision making and to provide illustrations of new intelligent technologies and architectures for decision making in static and distributed environments[19].

Many AI and MCDA methods and techniques are available. We will especially study: Game theory, Ontologies, Automated reasoning, Data envelopment analysis, Decision EXpert (DEX), Rough set, Evaluation Based on Distance from Average Solution (EDAS), Evidential reasoning approach (ER), Fuzzy logic ... etc

4. PERSPECTIVES

In our next research, we will explore the artificial intelligence and multi-criteria decision aid techniques in order to propose a hybrid model combining artificial intelligence and multi-criteria decision aid techniques.

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