COMPETITIVE INTELLIGENCE ANALYSIS - SCENARIOS METHOD

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Abstract*: Keeping a company in the top performing players in the relevant market depends not only on its ability to develop continually, sustainably and balanced, to the standards set by the customer and competition, but also on the ability to protect its strategic information and to know in advance the strategic information of the competition. In addition, given that economic markets, regardless of their profile, enable interconnection not only among domestic companies, but also between domestic companies and foreign companies, the issue of economic competition moves from the national economies to the field of interest of regional and international economic organizations. The stakes for each economic player is to keep ahead of the competition and to be always prepared to face market challenges. Therefore, it needs to know as early as possible, how to react to others' strategy in terms of research, production and sales. If a competitor is planning to produce more and cheaper, then it must be prepared to counteract quickly this movement. Competitive intelligence helps to evaluate the capabilities of competitors in the market, legally and ethically, and to develop response strategies. One of the main goals of the competitive intelligence is to acknowledge the role of early warning and prevention of surprises that could have a major impact on the market share, reputation, turnover and profitability in the medium and long term of a company. This paper presents some aspects of competitive intelligence, mainly in terms of information analysis and intelligence generation. Presentation is theoretical and addresses a structured method of information analysis - scenarios method – in a version that combines several types of analysis in order to reveal some interconnecting aspects of the factors governing the activity of a company.*

Keywords: competitive intelligence; intelligence analysis; structured analytic techniques; multiple scenarios analysis

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1. Introduction

Market is a social creation and not an automatic or natural mechanism. Even the pure and perfect competitive market is a fiction modelled according to the positive classical theory; this theory is, in its turn, a theoretical creation of those who created the classical school of political economy.

Market is a social phenomenon, and like any social phenomenon, exists and operates based on rules and regulations. Most are converted into legal or customary rules, accompanied by public or private organizational structures, which provide more accurate market operation.

Market has become gradually the central institution that directly or indirectly reflects any human action. In such a perspective, market is the main communication channel through which all economic agents and primarily the supply and demand agents obtain information, submit and receive messages, on which base they make decisions aimed to their own operating conditions. As a communication channel, the market helps connecting and interacting knowledge, resources and behaviours of millions of different agents. Market helps coordinate people, activities and economic agents, coordination mediated through information and incentives or penalties it provides.

Information and rewards are received and interpreted or compared by their beneficiaries: prices, profits, wages, statistical data, media, etc. They reflect the status of the various areas of activity and specific markets on which base decisions on what and how much to produce, where to invest, the HR policies, etc. are grounded, checked and revised. This is the meaning in which Adam Smith considered that the free market, by the price mechanism and other information, is the "invisible hand" that performs communication, cooperation and, consequently, consistency of millions of individual decisions generated by specific interests.

Competitive market is the central institution that makes from the price a messenger and instrument underlying the choice, selection and, of course, discrimination between those who have access and those who do not have access to economic goods.

Arising from the human nature and essence of business interests, but somewhat limited to the dimensions of the human mind and dominant interests, the market institution has so far proved the best adjustment factor and voluntary interpersonal cooperation, essentially spontaneous.

Adjustment achieved by the market it is not perfect, its limitations arising from various circumstances, of which the following are relevant: *genetic limits* (ignoring externalities, lack of foresight information provided by the market, information asymmetry, influence of public goods), *pre-capitalist constraints* (cooperation is achieved through force, aggression or subordination) and *excessive state intervention*.

Within the genetic limitations, information and economic power asymmetry between the market agents is the support that allows the market state and prospects to be the result of decisions made by the strong and informed ones.

For the "invisible hand" of the market to work properly, it is necessary that the rules of free competition to be the same for all, and contextual conditions relatively similar, conditions fulfilled only in a market with perfect competition.

At least four conditions must be met for existence of the perfect competition: *atomicity* (a large number of sellers and buyers, such as remote exchanges are insignificant in the volume of total exchanges), *free entry* (allow the emergence of new producers, who may enter or exit the market at will), *homogeneity of goods* in the same industry (so that for the customer it is the same from what seller it buys) and *complete information* (companies and buyers know all products and prices on the market at the same time).

The problem occurs in the fourth criterion, which requires that all economic agents (buyers and sellers) have all information on price and quality of the existing products in the market at a given time. Ideally, if this condition could be met, a single price would quickly form, sellers aligning to it instantly.

This condition is virtually impossible to fulfil, because not all market players have the resources needed to hold, process and exploit the same information. Therefore, those who are informed correctly and in time, have a competitive advantage and manage, in principle, to defeat those uninformed or misinformed.

The stakes for each player is to predict/know the actions of competition, to always be at least one step forward. Therefore, they need to know as early as possible, the others' strategy in research, production and sales. Information is the means by which goals in international economic competitions are achieved. In order to survive, each player must protect its information assets and, at the same time, to strive to know information of its competition.

With new developments in information and communication, the blind spot of a company moves from product or service to information that could enable keeping the competitiveness of such product/service. Often, competition can be gained by knowing and preparing the ground from the human factor perspective, prior to receiving the commercial proposal itself, the ability to determine and set strategic goals, to promote their development, and to make use of all possible means to urge them to take a decision in the desired direction. There is no economic competition that is not influenced anymore. Influence of private and public factors. States need information to maintain their position on the international arena and to help their businesses.

In an age where information supply has increased enormously, power belongs to those who manage to collect, analyze and synthesise timely and the fastest all available information in the competitive environment. Almost 90% of this stock is accessible through databases, press, specialized publications, colloquia or Internet. The rest of 10%, considered to be particularly important and sensitive, are generally obtained from sealed sources and dishonestly (gray information) or illegally (black information). The fierce battles between international players are on these 10%.

2. Competitive Intelligence

Most standard macroeconomic analyzes and forecasts – mainly based on quantitative methods – have not helped significantly in dealing early with the recent financial crisis (2008-2010), although there were relevant signals in some areas, mainly in the academic area. Unfortunately, information about the private sector loans and spending are less accessible than those about the capital movement in the public sector, and in a world where private capital flows have increasing importance, its monitoring and supervising is costly and with inaccurate results. I recall here the fact that an important feature of the market economy is assuming that dispersed information is aggregated by price and information creates a certain predictability that encourages planning of the economic activity.

Qualitative analysis approach is less practiced, although the circumstances in which we have to develop forecasts without reliable data and models are increasingly frequent. It is stated that the qualitative approach has its origins in the 50s of the last century, in the works of Herman Kahn (Stochastic – Monte Carlo – Attenuation Analysis – 1949, Techniques of System Analysis – 1956, War Gaming – 1957, Game Theory –1957, etc.). Followers of the qualitative methods are inclined to be distrustful in the quantifying value, believing that the thoughtful assumptions and hypotheses can be more useful than the sophisticated mathematical analysis methodologies. They argue that the future involves an infinite number of variables and values, and to try to pick a few and to calculate the implications it is meaningless (Thaleb, 2008). They entrust themselves thus to the intuition and value of an integrative and holistic approach. They are aware that the ability to predict somehow the future is low and believe that the best way forward is to make intuitive forecasts, structured around trends known and possible themes of coherent perspective on the future.

Competitive intelligence is defined as the amount of operations used to collect and analyze data and information and, finally, to generate intelligence that is disseminated to beneficiaries, mostly people in the top management of organizations. Roukis, Charnov and Conway (1990:95) examine the competitive intelligence in terms quite familiar to those familiar with the government's intelligence: collection, analysis, intelligence, counterintelligence and security of information systems.
Hulnik (2002) finds similarities between the two fields. He presents three aspects of the government's intelligence easily transferable to the business world: data collection, data analysis and security of operations and information.
In the private sector, intelligence managed to penetrate in various fields, the business environment being the most avid of information leading to reduced risk in decision-making. Although intelligence activities in the economic field are conducted probably from the first exchange between people, after 1982, the private intelligence in the economic field was named *competitive intelligence*. Information analysis in this area is considered as "the process of taking information – often seemingly unconnected – and turning it into intelligence using specific methods" (Kahaner, 1997:96).
One of the main goals of competitive intelligence is to acknowledge the role of early warning and prevention of surprises that could have a major impact on the market share, reputation, turnover and profitability in the medium and long term for a company. Regardless of the strategic approach or the framework chosen by a company for business management, no single element is fundamental to the competitive strategy as information about competition. Information about competition has a clear objective - to develop tactics and strategies necessary to transfer the advantages and consistency of the common market from competitors to your own company. Basically, to reduce the informational asymmetry for your own company.
A company that does not analyze or monitor rigorously the main competitors it is not able to develop and implement a strategy of strong competition. Competitive intelligence supports management decisions on positioning of a business to maximize the value of capabilities that make it stand out from its competitors.
In a functional and operational approach, the intelligence concept corresponds to the "intelligence process", with the objective of knowing, preventing and counteracting vulnerabilities and threats against a protected entity that, in the economic field, can be a company, a group of companies, a sector or an economy as a whole.
Any intelligence process requires some cyclicality. The classical model of competitive intelligence cycle involves the following steps:

a. *identification of the information needs* - through analysis of data and information available in the organization, concerning the objectives to be supported by intelligence;
b. *planning* - identifying the environments and places from where the necessary data and information can be collected;
c. *obtaining data and information* - required and available through ethical and legal means and methods;
d. *processing of data and information obtained* - in terms of source qualification and content truthfulness;
e. *information analysis and intelligence generation* - by using analysis techniques specific to the type of data and information available and completing the picture of the situation analysed;
f. *information product development* - by using the analysis results and their formalization according to the purpose and scope of access of the beneficiary;
g. *dissemination and feedback* - submission of the final information products to consumers and taking their feedback.

3. Information analysis and intelligence generation - scenarios method

3.1 Information analysis

Information analysis is a phase of the intelligence process with many and varied definitions. Correlating the latest definitions, we consider that *information analysis is the activity through which analysis techniques are applied to an existing set of information, depending on the nature of information and intended purpose.*

The analyst, as a manufacturer of intelligence, receives unprocessed or poorly processed data and information (raw intelligence), which are transformed by adding real value and adapting to the beneficiary's requests, into information products.

Data can come from a number of disparate and uncoordinated measurements or observations, while the information is based on coordinated, organized and coherent data, which usually have a certain meaning. Another opinion (Devlin, 1997:21) considers data as what the components of information systems create, store and provide. Data that were processed by adding or creating new meanings or useful knowledge become information.

Intelligence generation, although it has a pronounced operational specific – characterized by fast handling, operations being facilitated by the contribution of databases, expert programs and performing computers, with beneficial effects in terms of decision-making, efficiency and cost – it is constituted, in substance, in the component or analytical side of informative activities. The result of intelligence generation materializes in information products for decision makers.

Analysis requires competence and experience to use the right tools and techniques, to structure the information according to its relevance, removing uncertainty and analyzing the information according to the situational logic, requiring the analysis to focus on the cause-effect and means-purposes relationships. Information products must comply with all relevant legislation, codes of practice, standards, protocols, procedures and guidelines of the organization.

Analysis involves selection, separation, comparison with other data and integration, resulting in the transformation of the primary data and information into usable intelligence product. Analysis is a part of intelligence that expresses the added value.

During the analytical process, connections are highlighted, as well as the missing information, weaknesses and what should be done to remedy the shortcomings.

Analysts' task is to integrate single data/information into a unified product, to evaluate the information according to a particular context and to achieve the final product that includes consideration of events, developments or judgments about the possible implications.

Richards J. Heuer (2008), one of the most prominent theorists of information analysis, presented in his paper entitled "Taxonomy of Structured Analysis Techniques", four general methods of data analysis: quantitative methods using empirical data, quantitative methods using data generated by experts, method of the unassisted judgments and method of the structured analysis. The first two groups consider the quantitative analysis and the other two the quantitative analysis. It is also worth noting that quantitative methods using empirical data and intuitive analysis are performed under low uncertainty, while the quantitative methods using data generated by experts and structural analysis are performed under increased uncertainty and predominantly predictive-oriented.

Quantitative methods using empirical data - are based on accurate data collected from the reference environment or resulted from the activities of various systems (social, economic, etc.).

Quantitative methods using data generated by experts - are based on opinions and judgments of the experts in the field. Their collection and use are subject to clear rules concerning the author and the context in which his/her opinion was expressed. There is also the possibility of consulting the experts asking them to formulate opinions/judgments, predominantly with quantitative content in terms of the analyzed subject. This method includes dynamic modelling, simulation, etc.
Method of unassisted judgments - or intuitive analysis (phrase disavowed by Heuer for its lack of rationality from the definition of intuitive) - includes judgments based on: evidence; critical thinking; historical experiences (prior); case study; analogy. This method usually involves an individual effort and ideas remain in the analyst's mind until development of analysis. That is, basically, the distinguishing feature of the method.
Structured analysis - Uses structured techniques to mitigate the adverse impact caused by the cognitive limitations and pitfalls known in the analysis. The distinctive feature is that structured techniques externalize and break mental processes in a way that allows their review and criticism by other analysts.
Structural analysis can be performed in relation to the context and data held by a number of specific techniques, grouped in *Imagination Tehniques* (Structured Brainstorming, Simple Scenarios, Alternative Futures Analysis, Quadrant Crunching and Multiple Scenarios Generation), *Diagnostic Tehniques* (Key Assumptations Check, Cronologies & Timelines, Delphi Tehnique, Multiple Hypotetheses Generation, Analysis of Competing Hypotheses, Colaborative Analysis of Competing Hypotesis, Indicators Validator and Risk Analysis) and *Reframing and Challenge Tehniques* (What If? Analysis, Outside-in Thinking, Red Hat Analysis, The Pre-Mortem Assessment, High Impact/LowProbability Analysis, Deception Detection, Team A/B Analysis and Devil's Advocacy).

3.2 Scenarios method - alternative
Scenario analysis serves three important purposes: sees into the future and tries thereby to anticipate events and to understand the risks; it is a source of original ideas, identifying strategic options to which no one may have thought; helps managers to leave the routine mentality circle and to acknowledge the existence of possible futures, other than those derived by simple extrapolation of the present.
The following eight-step methodology for the analysis through scenarios is based on the qualitative approach. It is centred on the need to generate possible future scenarios, each representing a coherent vision, expressed as a theme (such as "demographic decline", "staff professionalization" etc). It uses two central concepts to generate scenarios and their application to the company concerned, namely, "determinant factor" and, accordingly, "determined factor".
Determinants are predictable and expected or predictable and unexpected future events in the economic reality. Determined factors reflect possible changes in the external or internal environment of a company created by the determinants. For example, a determinant factor that could be an interest rate increase would generate a determined factor that could be the increased cost of capital, probably doubled by a decrease in demand and a decline in investment.
Determinant and determined factors do not have a bi-univocal relationship. A determinant factor may affect the company in many ways and a determined factor can vary as effect of action of multiple determinants. Thus, the increase in interest rates will have an impact on at least three determined factors – such as increased borrowing costs, reduced investment and lower demand - and several determinant factors - such as economic growth, lower taxes and changes in the consumer preferences - can influence only one determined factor - the demand, in our case.

Step 1 – "Analysis of the environment in which the company operates" – first step in the analysis using multiple scenarios is to develop a broader characterization of the environment in which the company operates. Although the approach is qualitative, the macroeconomic performance of the state and region, estimates of the GDP, statistics on the macroeconomic developments and economic sector in which the company operates are considered. Rating agency assessments for the country and those made among other investors in the field in question, are also subject of interest. A comprehensive analysis at this level can be achieved by using the PEST analysis (acronym of Political, Economic, Social and Technological).

Thus, the following are considered: the *policymakers* that can influence economic activities (economic legislation, tax policy, labour law, political stability, legislative stability, etc.), *economic factors* (economic cycles, trends in GDP, interest rates, liquidity in the market, inflation, unemployment, energy costs, etc.), *social factors* (demographics, income distribution, social mobility, education, consumerism, attitude to work, etc.) and *technological factors* (level of research, grants for innovative technologies, the rate of technology obsolescence in the sector concerned, the speed of technology transfer, etc.).

Step 2 – "Analysis of market and competition" – knowledge of the market environment is essential to identify opportunities and constraints faced by the company.

Analysis of the market in which the company operates can be achieved by using the model of five forces proposed by Michael Porter (1980). Forces proposed for consideration are the following:

- *rivalry between existing firms* – concentration, increase, differences between products, fixed costs relative to value added, market exit barriers;
- *barriers to those seeking to enter the market* – economies of scale, brand identity, differences between products, access to distribution, government policies;
- *bargaining power of buyers* – concentration of bargaining power of buyers, the awareness of buyers, product substitutes, the ability to produce their own product, price compared to the total expenditure for procurement;
- *bargaining power of suppliers* – concentration of bargaining power of suppliers, the volume of suppliers' production, product differences, brand identity;
- *threat of substitute products/services* – number of alternatives, economic efficiency of alternatives, forwarding costs, customer price sensitivity.

The main benefit of applying this technique is that it provides a framework for the analyst's thinking in the competitive environment. Some issues may be particularly more relevant to that sector than others. It might prove useful that two or more teams of analysts to make independent assessments and subsequently to adjust them by contradictory talks. It can also be useful to do more analysis with reference to the market as a whole, then by specific sections, and subsequently introducing variables with predicted future development.

For correct positioning, a detailed and specific analysis of the category of "rivalry" in the field of the five forces must be undertaken, by drawing an accurate profile of each of the company's major competitors. Analysis at this level will aim to understanding the strategies, predicting the likely reactions and assessing the capacity to collect, process and analyze, in turn, information to increase the competitive advantage.

Step 3 – "The diagnostic analysis of your own company" – even if the scenario analysis is focused mainly on the external environment and not on the company, before developing scenarios it is still important to prepare a profile of the company business. The person developing the scenarios has thus the opportunity to have the most relevant determinant factors. Company profile should contain at least: cost analysis by company activities and connections both upstream and downstream, i.e. suppliers and customers; identification of the company competences; financial, technological and marketing data; data concerning the human resources; major strategies, organizational culture and leadership style; mission and objectives.
Step 4 – "Development of scenarios" - it is advisable to develop at least three scenarios. One of them shall be based on the implications of the current economic trends. The other should describe possible alternative visions of the future. Thus, the scenarios are described in terms of determinant factors as they were revealed in the first three steps. A list of determined factors is developed for each scenario - correlated with the determinants - and their strength is estimated as probability of occurrence and strategic importance. Each determined factors a designation that could be the first letters of the alphabet (A, B, C, D. ..).
It is important not to choose three scenarios characterized as optimistic, neutral and pessimistic because these titles are merely placing an error range around the neutral scenario. The scenarios are derived from determinants and we can vary the estimates for their evolution on a scale as broad as possible.
Step 5 – "Estimating the determined factors for each scenario" – involves the development of a matrix that has the main determined factors in the first column (may be cost, level of competition, nature of competition, market prices, opportunities for expansion, demand for a particular product/service, etc.) and on the first row the name of the scenarios developed, numbered from 1 to "n". At the intersection of each row with a column it is recorded the analyst's estimate on the evolution trend (increases slowly, constantly, decreases rapidly, etc.) for that determined factors in the scenario in question.
Step 6 – *"Scenario matrix"* – it is a graphical transposition of the estimates already made. On the abscissa is the strategic importance and on the ordinate the likelihood of occurrence, with values from low to high. We raise perpendicular lines from the two points with the "high" value and results in a rectangle. We divide this rectangle into four quadrants, we number them (I-IV) clockwise from the one with the highest values and we obtain the basis of scenario matrix.
Take each factor in the context of each scenario and place it on the chart. Let's say that we take the determined factor "A" in the context of the scenario "1". We estimated at Step 4 what happens (increases slightly, decreases fast, remains constant, etc.) in this context, and the analyst must now assign a value to this information, between "low" and "high" on the "strategic importance" axis and one on the "probability of occurrence" axis. Afterwards, place the item "A1" in the scenario matrix. Resume for each pair and place in the matrix.
Step 7 – *"Choosing the most likely scenario"* – the factors considered as applying to the most likely scenario and with the highest level of strategic importance are in the rectangle numbered "I" and in the area immediately adjacent. The factors in this rectangle will certainly be a combination of factors of two or more original scenarios. List the factors in the rectangle "I" and they are the basis for further processing. Practically, a new scenario is outlined, which may contain contradictions, but this is not unusual given that, at this level, we already have the prospect of a futures and not a likely future.
Step 8 – *"Development of contingency plans"* – means virtually development of plans including measures to be taken in the event of simultaneous or concurrent occurrence of the problems that are found in quadrant "I".

In addition, the factors appearing in quadrant "II" should not be neglected. They are not seen as likely, but if they manifest, their strategic importance can lead to serious consequences.
There can be no assurance that the deviation from the chosen scenario will necessarily go towards the contingency plans, but development of such plans creates favourable conditions to a favourable reaction for addressing a situation that can be catastrophic.

4. Conclusions

Competitiveness by intelligence assumes that companies are able to develop effective competitive strategies only if they benefit of analysis, estimates and evaluations made through processes that add value to the raw information, usually publicly available.
Understanding the forces that influence the future is crucial for an analyst who is interested in improving his/her technique in order to prevent strategic surprises.
Scenario analysis method represents a challenge to the traditional methods, managing to bring on the final list matters that hardly would have been met by other means. Once identified the determinant and determined factors, they can be monitored regularly, and the analysis repeated to update their relations. In addition, alert thresholds can be set, so that, when exceeding preset values to automatically apply sectoral or contingency plans.
From the perspective of intelligence analysts, the method presents the advantages of the structural analysis, the analysis process being available for confrontation and evaluation in all its stages.

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