

Résumé

Cet article montre comment une solution de Veille Antipative Stratégique a été utilisée comme moyen pour aider à la prise de décision stratégique d'une société de logiciel médical. Des données internes et externes ont été employées dans les applications et trois exemples concrets ont été produits. Ils nous permettent de montrer la valeur ajoutée de tels outils et techniques, permettant aux gestionnaires d'améliorer leur processus de prise de décision.

Mots clefs :

Veille Anticipative Stratégique, Collecte et Analyse de données, Décision Stratégique, Intérpretation Collective

Abstract

This article shows how an Anticipative Strategic Intelligence (ASI) solution was used aiming to support the strategic decision making of a medical software firm. Both internal and external data were used throughout 2 end-user applications. Three practical examples were produced and allow us to show the added value of such tools and techniques, allowing managers to improve their decision-making process.

Key-words:

Anticipative Strategic Intelligence, Data collection and analysis, Strategic Decision, Collective Interpretation

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Practical Examples of Anticipative Strategic Intelligence (ASI) in a Medical Software Firm

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Introduction

Information moves the modern world. Every day new solutions are created and enter the market. Maintaining stability is an increasingly difficult task, especially in the IT sector. In this environment, where users have many options, winning customer loyalty is becoming ever more difficult. Besides the need to be constantly improving mechanisms to protect against piracy, it is necessary to have a strategy in constant evolution, in an effort to always add more value to the solution being offered (product or service) so that consumers attribute greater value to it, while, at the same time, attempting to reduce costs.

A great number of systems employed in firms operate with data of a retrospective nature; an important point would be to evolve from there to an anticipative database (Freitas and Janissek-Muniz, 2006). Gensas (2005) describes a situation where a client database is available and there is a wish to evolve from a product strategy to a service strategy; the firm certainly knows its products well and also knows its clients as purchasers of its products. With this objective, it will need to know much more about its clients, their problems, necessities, preferences and suggestions, etc. It will need to know more about its environment.

Making use of the concepts of ASI the firm will be able to anticipate and to act at the appropriate moment. Analyzing data it already has in hands in its CRM system and data collected in medical events looking for “weak signals” (Lesca, 2003) will make it possible for the firm to anticipate.

We begin dealing with the question of decision making and the concept of Strategic Intelligence (Lesca, 2003). Section 2 presents the research method. Section 3 aims to specify the need for change, from a product strategy to a service strategy, while Section 4 presents a quick description of all the stages carried out in the study. Finally, in sections 5 and 6, the paper concludes with the impact and conclusions reached.

1. Decision-Making and Strategic Intelligence

Information provides differentiation in products and services and improves knowledge of the client, thus, when suitably collected, stored and analyzed, information has strategic significance (Mcgee and Prusak, 1994, apud Gensas, 2005). Information is an important resource for the organization and must be treated in order to contribute towards the improvement of results; one needs to identify where the relevant information can be found, it can be obtained from both formal and informal sources (Freitas, Becker, Kladis and Hoppen, 1997).

According to Lesca (2003, p.10), “Collective Anticipative Strategic Intelligence [In French, Veille Anticipative Stratégique – Intelligence Collective] is the collective, pro-active and continuous process by which the members

of a firm collect (voluntarily) and use pertinent information regarding its socio-economic environment and the changes that may occur, in order to create business opportunities, innovate, adapt to the evolving environment, avoid unpleasant strategic surprises and reduce risk and uncertainty in general. The purpose of ASI is to allow rapid action, at the right time and at the lowest cost, using the Collective Intelligence of the firm”.

As discussed by Freitas and Janissek-Muniz (2006), anticipative information is difficult to collect and process within traditional information systems. It is necessary, then, to create new mechanisms, new tools, new methods, new procedures, new systems with this objective. This will require a process of collection, interpretation and diffusion of information. They offer two metaphors that can be used to represent information. For the operational information the metaphor of a rear view mirror is used; this refers to the analysis of passed information, where it is necessary to know what occurred in the past in order to monitor, correct and redirect the present. For information concerning the evolution of an organization the metaphor of radar best captures the position of individuals before the information: studying the environment with an anticipative view. Hence, ASI constitutes the base upon which the methodology applied in this study was defined, with retrospective information (interaction with users) and with anticipative information (users expectations and wishes).

2. Research Method

This study was performed from August to December 2005, as an Action Research (Thiollent, 1997; Baskerville and Myers, 2004). Action Research is generally perceived as having two objectives: “improve the processes of the organization participating in the study, and, at the same time, produce valid and consistent information” (Kock, Mcqueen and Scott, 1997).

This method was chosen due to the direct interaction with one of the directors and the opportunity to be present in the firm during this period.

The commitment of the firm is fundamental for the success of the research; “a good understanding between the actors involved is necessary” (Thiollent, 1997, p.20). Susman and Evered (1978) describe the cyclical nature, a characteristic peculiar to the Action Research method, as the notion that qualitative Action Research is conducted in cycles that involve successive periods of intervention and reflection. The cyclical process includes five phases: diagnostic, planning the action, action, assessment and learning.

Initially, this interaction occurred in order to perform the mapping of the activities related to the executive problem of strategy transformation. At two meetings with the firm’s staff it was decided which data would be interesting, that is, which data would be used to produce meaning. At one of these meetings it was decided that, besides

the data existing within the firm, new data would be collected from clients and participants at events, in this case medical conferences. In order to obtain this new data a questionnaire was elaborated, following the concepts of L.E.SCAning® (Lesca, 2003) to obtain data about the firm's environment, which was then approved by the director at a third meeting. Following, another meeting was arranged with the firm's sales team that would attend these conferences. The sales team would be the data collectors. In this meeting there was a short training exercise for them to learn how to correctly apply the form. The training was simple, consisting of a simulated conversation, one playing the role of a doctor attending a medical conference while the members of the sales team were instructed on how to complete the form.

At the same time, a web application for this form based on L.E.SCAning® was being developed, where it would be possible to enter the data, as well as consult and visualize reports that would remain permanently available online. This web application was also approved, in what was the third meeting with the director of the firm. Developing the applications for the systemization of the data treatment, as well as the time spent in the environment of the firm was important for the growth of the researcher. Besides the experience in the firm, which can always be different, and the experience of being part of a company in the field of software, there was also the learning in relation to the concepts in the area of systems and in the application of data analysis techniques.

3. Gens and the Strategic Change

Here is a brief description of the firm Gens S/A, together with the approach taken in relation to the need for a strategic change in one of its business units. Gens was chosen mainly because it offered the opportunity to cooperate with one of the directors engaged in the attempt to alter the strategy of one of its business units. The study was carried out from August to December 2005. Gens was founded in 1991 and was one of the first firms in Brazil to offer management software designed for the health area. Its focus is software for the automation of medical environments. With more than 20,000 copies of its products installed, having approximately 50% of the market of medical software, it is the market leader in terms of number of copies sold in Brazil. Among the products developed by Gens is Personal Med, which is aimed at smaller medical establishments (clinics and medical offices).

The present study concerned Gens business unit that deals with small scale medical environments. The product, Personal Med® (sold in the user-license model with additional upgrades), is designed to offer information technology services in medical clinics and offices. With the slogan "information where and when necessary", Gens developed other products based on mobile technology: Personal Med Management/Administration, for small clinics: Personal Med Mobile, which functions on a

handheld PDA platform, and can be synchronized with Desktop/desktop; an internet version of the patient file; Personal Med Cellular, which operates on a cellular phone platform synchronized with patient files on the Internet.

The firm employs a total of 43 people, including the two directors and five people that operate in Portugal. A team of fifteen people are responsible for support. They deal with telephone enquiries from 8am until 7pm, Monday to Friday and answer e-mails. They help users to solve their problems or deal with difficulties related to the use of the software.

The revenue of one of the firm's business units (licenses for use in medical offices) is currently based on the sale of products to new clients or on the sale of updates for previously installed software. Investment in R&D requires constant revenue in order to maintain leadership in this market. The clients of Personal Med® already trust the product and understand that Gens can add value to their services. With this situation in mind, the essence of the present study is to establish resources for the collection and analysis of data in an attempt to understand the difficulties encountered in transforming the business model of a software firm from a firm focused on the sale of software to one where the focus is supplying services. It is important to be able to listen to the users and analyze the data stored during years of interaction with users which may contain pertinent "dormant" information. The purpose of the present study is to cooperate with this learning process.

4. Operationalization of the solution

Knowing that the firm wished to move from a sale of products based strategy to one based on the sale of services with the focus being the clients that used the Personal Med® software, it was clear that it would be necessary to look for information regarding the users of this software. A great deal of information on these users was already available to the firm, stored in the CRM that Gens uses. With each enquiry made to the "CSU" - Client Support Unit, the support staff access the data on the client via SIGwin® (CRM system developed by Gens itself). Using this system they access client data while dealing with the client, and have access to data such as when the software was purchased, which version the user has, when a problem was last reported, what the problem was, etc. The staff not only access the client data, they also register, at each enquiry response, free remarks in a field designed for this purpose in the CRM system. This, then, represented an important source of data on the study target, the physicians using Personal Med® software.

In order to achieve the main objective (develop applications for organizing and facilitating the collection, management and exploitation of data, with a view to operationalize ASI concepts to support the strategic decision

making process in a firm within the medical software sector), a number of stages, listed below, were carried out.

Stage-1: Defining the target consists in the firm identifying the important actors within its business environment and the topics that are in its interest to monitor.

Stage-2: Data collection refers to the data relative to the target which can be used to generate information for the firm (Caron-Fasan and Janissek-Muniz, 2004). The report form is divided into 4 parts: the Actor, the Respondent, the Collection and the Information.

Stage-3: The Organization of data for the creation of information consists in organizing both the internal circulation flows and those originating externally to the firm. This stage would be incomplete without the installation of an information storage procedure, in a more or less elaborated database or data warehouse form. The objective is to make it accessible to the firm's decision-makers.

Stage-4: Creating Meaning from the Data. The use of tools available on the Web (forms and views) will help the team produce the discussions and ideas that will facilitate the generation of meaning from the data in order to feed the decision-making process.

5. Analysis of the impact of adopting the applications

This section contains a short description of 3 examples generated using the ASI method that was applied in order to generate meaning or understanding of the data collected in the CRM system and on the report forms from conferences. Initially, due to the quantity of data, it was decided to analyze the data beforehand in a search for clues that could lead to conclusions regarding the creation of new products or services for the business unit being studied. Data from two sources were used:

a) CRM system, which contains information from client calls to the firm from 1993 to 2005. In this databank 201,853 registers were identified, that is, conversations between an employee at the firm's call center and a client. A total of 8,195,002 words were listed.

b) forms collected at medical conferences in 2005, as a result of the conversations of the members of the firm's sales team with users of the software. The data was collected at 3 medical events: The Brazilian Congress of Cardiology (Porto Alegre/RS –September2005), The Brazilian Congress of Traumatology (Vitoria/ES – October/November2005) and The Brazilian Congress of Gynecology and Obstetrics (Rio de Janeiro/RJ – November2005). At those events, 30 report forms were collected, which were registered on the Web system created for this purpose. The two databanks were registered on the Sphinx® software from which the previewed treatment methodology was used (lexical analysis, textual dictionaries, data interpretation,etc). The process of creat-

ing groups of similar words, surveying the most cited words and associating them, facilitated the creation of some sample cases. The initial ideas were tested with a team from inside the firm in an attempt to identify the relationship between the outstanding words, with services or products linked to the everyday activities of the corporation and verifying the existence of meaning. The 3 examples chosen were the following: 1-Creation of Additional Service; 2-Anticipation of Applied Technology; and 3-Assistance in Prioritizing Services.

5.1. Exemple-1 : The creation of additional services

In this example, the object was to test whether a group of frequently occurring words (a large number of events in the CRM database) would give some indication of the type of services that could be created by the firm. The most frequently occurring word was "installation". Soon after, a meeting was arranged with the internal team, made up of the director of the business unit, the manager of the unit and some of the more experienced attendants. The aim of the meeting was to verify whether the word "installation" was widely used in the everyday operations. The team pointed out that the installation password release service was frequently used in the Client Support Unit -CSU- and that it was pertinent to go ahead with the proposed survey. The first step was to identify words that had the same meaning. With this aim, a dictionary grouping several related words, such as "password" and "re-installation", was created.

This team identified 127,795 occurrences, based on which a random search was made of the listed texts. The main objective was to check the appearance of the words and identify the existence of a connection with a possible service that could be created and any ideas about how such a service might function. The next stage was to bring the team together again and explain the context of the work. The analysis of the words and of some of the texts was put up for discussion among the team. After this period of exchanging ideas and searching for meaning, the possibility of creating a new service arose, in which release of system installation passwords would take place over the Web. In fact, contact with each user for liberation of the user's license required significant time and resources and an online process would free-up call attendants to deal with more technical enquiries. The on-line system password release process functions as shown in Figure 1.

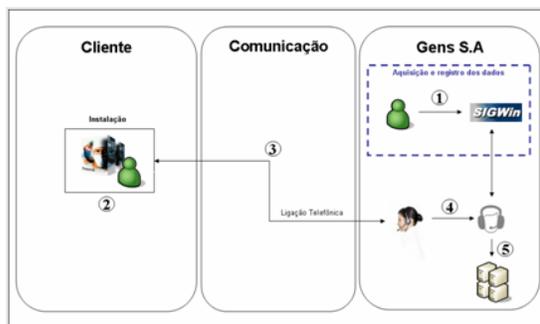


Figure 1 – The present password release process
 Source: Gensas (2006)

Step-1: When the software is acquired, a request is made to the CRM, which identifies the client;

Step-2: When installing the system, the software asks the client to call the customer service and request the release for the installation;

Step-3: The client calls the firm;

Step-4: An attendant receives the call and releases the password to the client;

Step-5: The process is recorded on the firm's CRM.

In meetings with the firm's internal team, it was found that this service, obligatory for all customers, consumed a great deal of the firm's resources. It was estimated that 25% of the calls to the CSU were for the release of installation passwords, causing high costs for the firm because it occupies the CSU, requires a large number of attendants and, moreover, makes the customers weary and irritated as they have to wait on the line to be attended while they are paying for the call. Thus, it was found that a new automatic password release service on the firm's website could be created and integrated with the firm's CRM. This would be a valuable, high quality service for the customer, which would cost less for the final user and for the corporation, and would increase the level of satisfaction. This new service will follow the flow chart below (Figure 2).

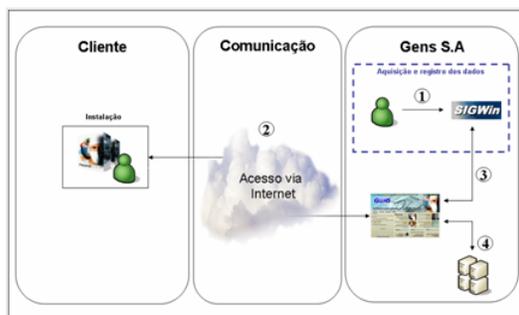


Figure 2 – Automatic password release service
 Source: Gensas (2006)

Step-1: When the system is acquired, a new request is made in the CRM, which identifies the client;

Step-2: When the client installs the system, the software asks him/her to connect to the firm's website and receive the release password;

Step-3: A feature of the site allows the password to be released automatically, directly connecting to the firm's CRM, releasing the quantity of licenses indicated in the purchase;

Step-4: The entire process is automatically recorded on the firm's CRM system.

The main advantages that this new process offers, besides an increase in customer satisfaction, are:

- it is possible to directly access the installation password without the need to call the CSU;
- it is no longer necessary to make a long distance call;
- it is possible to directly access the system without the need for manual intervention;
- it is possible to access the system at any time of the night or day throughout the year.

The only disadvantage noted being that in the original system, with the first contact the attendant had the opportunity to establish an important direct relationship between the firm and the customer. However, this could be substituted by e-mail, a conventional letter, or a call to check quality after installation of the system. This idea was taken to a directors meeting and the new service was approved and considered for implementation by the firm. This case could be replicated for other groups of words and will certainly be part of new surveys and analyses made by the firm's team.

5.2. Exemple-2 : Anticipation of the applied technology

The objective of this second example was to test whether words that appeared on the forms (informal conversations held at medical congresses with users) might have some relationship with the appearance of the same words on the CRM base (much wider), thus giving clues to new technologies to be applied or developed by the firm. A survey was made of technology related words occurring most frequently on the 30 forms obtained at the above mentioned congresses. Three words stood out: Web (9 times), palm/pocket (6 times), Linux (2 times). With this, a search was made for references to these words on the firm's CRM base. The number of appearances recorded from 1993 until 2005 was shown to be of little significance. It was concluded that words related to technology would be of little use in a base with registers since 1993,

when such technology was not part of the national scenario. Therefore, a cut was made in the CRM data base, where only registers from the year 2005 were considered. In this case, the number of appearances changed, Palm/Pocket were a lot more significant than Web or Linux. Thus, some words began to make sense. In further meetings with the team aimed at making sense of these numbers, clues were found as to how these sources of information might be used in creating new products. Three groups were identified:

- **Group-1: Non-significant technology.** The word “Linux” rarely appeared, indicating that this type of technology was not seen to be significant for the medical public that buys work environment management systems, suggesting that there was no point in the firm investing in this technology for now.
- **Group-2: Latent technology.** In this case, with the word “Web” there was an important growth in appearances with time. This shows a latent market technology with clues for new products.
- **Group-3: Anticipative technology.** In this case, the word “Palm/pocket” shows that in conversation with physicians, ideas for new technologies appear, or the consumer desires mobile solutions.

These were not, however, significant in the CRM system. This exemplifies a weak signal, a technology increasingly apparent in the software market and that might represent an important investment for the firm.

5.3. Exemple-3 : Help in prioritizing services

The objective of this third example was to test whether a group of words linked to the topic “service” and grouped by region in the country (location of the clients listed in the register), might be able to signal areas of investment priority for the firm in order to generate additional software services to be sold through the network of representatives. A survey of words related to the word “service” was made, the focus being to identify regions in the country where the users of the software would be more receptive to contacts from representatives of the firm concerning offers of services linked to the software.

To this end, the “service” dictionary was created, containing a set of words directly related to services or the need for a service that are currently directly performed by the firms head office or occasionally by its representatives in the country. Following the survey of words, they were grouped together by region, as shown in Figure 3. This cross-referencing of information may give some leads to the firm’s marketing team in the detection of prioritizing the reinforcement of the network of representatives related directly to the demand in the national mar-

ket. In this way, the research can help the managers of the firm prioritize investments in marketing and training the representatives, while taking into account the demand or market opportunities in the region. The idea is to use the information as an aid in deciding to invest the firm’s resources, with more precise analyses of budget and return on investment.

Figure 3 – Dictionary “Service” by region

Regions - Services														
REGIONS - NOTE														
	Sudeste		Sul		Nordeste		Centro-Oeste		Norte		Outros Países		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	
Adm.	2.232	47,0%	1.133	23,1%	411	8,7%	42	0,9%	120	2,6%	0	0,0%	5.738	100,0%
Atm.	2.761	48,3%	1.333	23,4%	512	9,0%	28	0,5%	104	1,9%	0	0,0%	5.738	100,0%
Financeira	966	16,8%	489	8,7%	292	5,3%	14	0,3%	41	0,7%	0	0,0%	2.724	100,0%
Operacional	554	9,8%	285	5,1%	148	2,7%	4	0,1%	18	0,3%	0	0,0%	1.009	100,0%
Tecnologia	487	8,6%	237	4,3%	121	2,2%	7	0,1%	17	0,3%	0	0,0%	1.049	100,0%
HRM	359	6,4%	242	4,3%	90	1,6%	4	0,1%	11	0,2%	0	0,0%	1.406	100,0%
REVENHOS	297	5,3%	156	2,8%	72	1,3%	4	0,1%	11	0,2%	0	0,0%	600	100,0%
Marketing	202	3,6%	103	1,8%	49	0,9%	2	0,0%	8	0,1%	0	0,0%	364	100,0%
PRODUTOS	113	2,0%	57	1,0%	28	0,5%	1	0,0%	3	0,1%	0	0,0%	202	100,0%
Recursos	156	2,8%	78	1,4%	39	0,7%	2	0,0%	7	0,1%	0	0,0%	382	100,0%
Seguridade	116	2,1%	59	1,1%	28	0,5%	1	0,0%	4	0,1%	0	0,0%	208	100,0%
Desenvolvimento	81	1,4%	40	0,7%	19	0,3%	1	0,0%	3	0,1%	0	0,0%	144	100,0%
Operacional	103	1,8%	52	0,9%	25	0,4%	1	0,0%	4	0,1%	0	0,0%	185	100,0%
Produtividade	60	1,1%	30	0,5%	14	0,3%	0	0,0%	1	0,0%	0	0,0%	105	100,0%
Operacional	72	1,3%	36	0,6%	17	0,3%	1	0,0%	2	0,0%	0	0,0%	128	100,0%
Total	4.623	81,0%	2.344	41,0%	1.061	19,0%	114	2,0%	304	5,4%	0	0,0%	5.738	100,0%

Source: Research

We can see the regions of the country with the greatest number and proportional percentage of appearances of the “service” dictionary. When analyzing the total percentage of appearances, the Southeast and South regions stand out, followed by the Northeast. The Center-West and North are shown to be far behind in terms of numbers of appearances. With the first analysis, it is clear that the division directly follows that of GDP. This relationship could result from the economic capacity to absorb the services or more directly the number of users of the software in each region. Certainly, this comparison would show that the number of customers of the firm, despite having its headquarters in the South region, would be divided according to the distribution of the national GDP.

It can clearly be interpreted that the firm’s clients are proportionally open to services to be developed by the firm on the software they currently use. As the number of clients is divided by regions in the same order or proportion as the number of appearances of the word “service”, any investment in the network of representatives that could offer services for the client base should be guided according to Figure 3. Thus, the investments in the national service network prioritizing the regions, states and even reaching the level of municipalities can directly follow the number of users found in each place. This, search in the CRM and the direct cross-referencing with the mapping of the area to be covered by a representative are now available to the firm’s marketing and sales teams, who can act on the relationship with the representatives and have a good chance of success in offering services.

The benefit of this example was passed on to the firm’s internal teams. This information is already being taken into consideration in decisions affecting strategic investments and is one more indicator to add to the panel of information that the firm uses in its everyday investment decisions. With this, the study proved that this type of anticipative analysis can be simple, fast and effective, and can reflect a significant relation between the number of users by region and the return on investments to be made in them.

6. Conclusion

The experience of conceiving and implanting an application to deal with more qualitative internal data was based on the definition of a data importation procedure, in order to, then, apply qualitative analysis techniques with the aim of producing thematic dictionaries. In this way, it was possible for the firm to consult the content of forms on the Web, with filter criteria such as region, period, medical specialty, type of problem, etc. A special feature of this solution was the elaboration of thematic dictionaries that made it possible to add qualitative data to the table in a dynamic manner. This means that even future support registers will be able to benefit from this online procedure.

The experience of treating the external data required the collaboration of the firm’s agents that were in contact with the clients at special events (conferences). This demanded or presupposed a level of awareness and commitment in order to increase quality of the information. The plan was only to systematize and make available a report form on a Web link in order to facilitate the register of each contact between the agent and the user. Furthermore, it was possible to make reports and cross-references available, which adapt and enrich themselves as the agents continue to deposit more contact registers. With the adhesion of several agents from the organization, it can easily become an excellent thermometer of user expectations, with the advantage of cross referencing some profile data with the addition of qualitative data, which is usually richer and useful than a simple “satisfaction – dissatisfaction” scale.

The applicability of Lesca’s concept “Anticipative Strategic Intelligence” was confirmed. With the data systematized in this way, together they will be able to generate meaning and be of great importance in strategic planning, helping to anticipate situations and foresee risks. The research team participated directly in this activity, on the one hand mapping the process and defining the requirements, on the other, developing the applications themselves, which demanded the study of some concepts and some techniques, such as mastering software for implementation. The firm where this activity was undertaken potentially benefits from these results, and may do so even further if it has the energy and persistence to continue using the models and techniques made available.

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