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BUSINESS MODEL AND CORE COMPETENCE REFINEMENT: GOOGLE CASE STUDY

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Abstract

Negotiations on the Internet have increased dramatically. Therefore, new strategies and competitive business models are crucial factors to consolidate a firm's leadership position. In essence, a company that offers its services to a broader number of users and complementary companies will have its strategic position strengthened. Google has focused on achieving a leadership position offering two distinct services: the search engine and the advertisement service on the Web. Those services are the base on which the company's core competence was built, i.e. its capacity to store up-to-date information about the search intentions of online users and to offer those users results that satisfy them. This paper demonstrates that Google's competence is reinforced while those services are being used. As a consequence, new users will be attracted by the services offered by the company, which in turn will feed its database, creating the so-called network effect. This paper explains those relations.

Keywords: Business model, core competence, network effect.

1 INTRODUCTION

With the mission of “organizing the world’s information and making it universally accessible and useful” (DAWSON; HAMILTON, 2006), the Google phenomenon can be an impressive example to be followed by any manager who wants to transform its enterprise into a successful business. Some facts illustrate this statement:

- Google originated from the project of two Stanford University doctorate students that, in approximately a decade of existence, led the company to reach the position of the most profitable and innovative of the world (BATTELLE, 2006);
- Google’s search tool became very popular in very little time, to the point of routinely providing 500,000 searches a day, in 1998, a few months after being founded. By late 1999, Google was averaging about seven million searches per day. By the middle of 2000, it was handling 15 million searches per day (VISE; MALSEED, 2007);
- In five years, the company managed to revert a situation of US\$14,7 million net loss to achieve a profit of US\$1,5 billion (VISE; MALSEED, 2007);
- The company filed with the SEC (Securities and Exchange Commission) for an initial public offering (IPO) in 2004, the highest IPO ever accomplished in Nasdaq (BATTELLE, 2006), and ever since, its stock value increased by more than 500% within a period of only three years. Moreover, it is estimated that, despite its short existence, Google was rated the world’s number one brand name, above Apple, Coca-Cola, Samsung, Ikea and Nokia. (DAWSON; HAMILTON, 2006).

So it is possible to affirm that the Google phenomenon reveals new dynamics that occurred at a very fast pace in a new business environment: the company found a way to manage the chaos of continuous growth of information on the Web. Google transformed its technological tool into a profitable business, associating its core competence with an innovative way to generate revenue flows and structuring its business as a correct mix of technology and innovation in business.

Thus, some questions might be asked by people who want to manage a business within a similar context:

- How do you establish a company’s business model that will permit the exploitation of the full potential of a technological innovation?
- How can a business model transform a new technology into value for the company and its clients?

The aim of this study is to tackle those questions through the conceptual approach of business models and core competency refinement.

In general lines, this case study is based on the hypothesis that Google’s success is due to the synergy among two strategic factors: a business model based on search and publicity in the Internet and a great capacity for refining core competency through network effects.

2 THEORETICAL REFLECTIONS

A lot of discussion has arisen about the construct known as business model. In the 90’s, with the commercial ascension of the Internet, many firms presented their descriptions of business models in order to obtain financing (SHAFER; SMITH; LINDER, 2005). The term has been studied and defined. However, in spite of its appealing approach within the

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literature, there is not very much consensus about a common definition to the term (CHESBROUGH; ROSENBLOOM, 2002; HEDMAN; KALLING, 2003; OSTERWALDER, 2004; SHAFER; SMITH; LINDER, 2005).

Since the mid-1990s, studies have begun to associate the construct to the context of the knowledge economy, the information society, or the age of revolution (HAMEL, 2000; OSTERWALDER, 2004; OSTERWALDER; PIGNEUR; TUCCI, 2005; SHAFER; SMITH; LINDER, 2005), where it is seen as an analytical tool that helps managers and strategists to understand and communicate a company's logic in creating sustainable revenues.

According to several authors, the new economy ruled by the technological paradigm of the information technologies allows for a series of new business configurations and partnerships among companies and increases the number of stakeholders, as well as the company's complexity, making it difficult for managers and strategists to intervene (DRUCKER, 1993; HAMEL, 2000; KIM; MAUBORGNE, 1999; LASTRES; ALBAGLI, 1999; OSTERWALDER, 2004).

Among the studies on this concept, some have been concerned with defining it (ALT; ZIMMERMANN, 2001; OSTERWALDER; PIGNEUR; TUCCI, 2005; SEPPÄNEN; MÄKINEN, 2005) and others have tried to point out differences and similarities between the concepts of business model and strategy (HEDMAN; KALLING, 2003; JOIA; FERREIRA, 2005). There are also papers that have discussed its application to e-business and to e-commerce (HAYES; FINNEGAN, 2005; PATELI; GIALIS, 2004; TSALGATIDOU; PITOURA, 2001) or those that have listed the components that should be present in a company's business model (CHESBROUGH; ROSENBLOOM, 2002; OSTERWALDER, 2004; SHAFER; SMITH; LINDER, 2005).

It is possible to verify the diversity of definitions for the term in the literature in the study carried out by Amit and Zott (2001), Reis, Proença and Proença Junior (2003), Shafer, Smith and Linder (2005) and Tsalgatiidou and Pitoura (2001).

Reis, Proença and Proença Junior (2003) define a business model as the structure and the logic of the transactions that pertain to the operation of an enterprise and the way in which that enterprise positions itself on the market.

On the other hand, Tsalgatiidou and Pitoura (2001), see the business model as a logical architecture for product, service and information flow, including a description of the business actors involved and their roles, as well as revenue sources.

To Amit and Zott (2001), a business model can be described as an architectural configuration of the components of commercial transactions developed to explore businesses opportunities. Shafer, Smith and Linder (2005) affirm that the basis of a business model is a company's essential logic to create and sustain value. They pointed out four main categories present in a company's business model: i) strategic choices; ii) value creation; iii) value network; iv) value capture.

Regarding the definitions above and other definitions found in the literature, some consensus can be reached in relation to two elements that seem to be present in the concepts of business model: it helps understand a company's business 'logic' and it mentions which components are involved in value creation.

Amit and Zott (2001) stated that if a firm creates value, it does so because of its business model. The authors found empirical support for the belief that the firm's business model is relevant for its performance and proposed that the business model should be understood as a unit of analysis. In other words, the business model describes the ways in which the company qualifies the transactions that create value for all participants, including partners, suppliers and customers. A business model deals with value creation while a revenue model is concerned with value appropriation.

For Kanai and Tsunoda (2002) a business model is dynamic, as the company keeps developing its activities through the combination of three elements that the author defined as: 1) **WHO** the company intends to reach - the customers, 2) **WHAT** value it intends to create – the customers' needs, 3) **HOW** the company proceeds to deliver the value created to its customers - resources and processes.

The contributions of Amit and Zott (2001) and Kanai and Tsunoda (2002) help understand the business model as a tool that enables the company to create value. However, those authors focus only on value creation leaving aside those components of a business model that might help understand how value appropriation occurs.

Hamel (2000) proposed a generic business model that tries to explain a company's performance in the present, which is when, in his opinion, companies should focus on business concept innovation. The terms **business concept** and **business model** are synonymous. The author explains that a business model is a business concept that has been put into practice.

For the author, business concept innovation is what will define the competitive advantage in the present. He explains that business concept innovation is the capacity of re-conceiving existing business models in ways that will enable a company to create new value for its customers, surprise its competitors and create new wealth for its investors.

Osterwalder (2004) created a generic ontology for the term, making it less difficult to describe a company's business model. He defined a business model as:

a conceptual tool that contains a set of elements and their relationships and allows expressing a company's logic of earning money. It is a description of the value a company offers to one or several segments of customers and the architecture of the firm and its network of partners for creating, marketing and delivering this value and relationship capital, in order to generate profitable and sustainable revenue streams (OSTERWALDER, 2004, p. 15).

Chesbrough and Rosenbloom (2002) emphasized that the role of the business model is to assure that the technological core of an innovation is translated into economic value. Thus, without an appropriate business model, the new technology does not turn into economic value.

The concept of business model has become relevant in the context of change brought about by the information technology paradigm that demands disruptive innovation in companies. The business model incorporates the comprehension of how a company can benefit from new opportunities. On the one hand, it defines the way a company combines several strategic approaches. On the other, the business model consists of a definition, as well as the components that have to be present for a company to create and deliver value to members, customers and itself in a sustainable way.

3 RESEARCH PROCEDURES

The present study is a case study that aimed at enlarging knowledge about an object through the comprehension of questions such as **How** and **Why**, in relation to its functioning (JUNG, 2004).

According to Yin (1994), in case studies five components of research design are specially important:

- A study's questions: 1 - How did Google establish its business model to enable the company to fully exploit the potential of its technological innovation? 2 - How did Google's business model transform a new technology into value for the company and

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its customers?

- Its propositions: Clarify matters related to the importance of adequate business models to allow the exploitation of a technological innovation and to translate the technological innovation into value for companies and customers.
- Its units of analysis: Google's business model and Google's core competency refinement;
- The logic linking the data to the propositions: the hypotheses that Google's success is due to the synergy between two strategic factors (a business model based on search and advertising on the Internet and a great capacity for refining the core competency through network effects) guided the study;
- The criteria for interpreting the findings: the study applied Triviños' (1987) definition of one of the types of case studies (historical and organizational case study) where the researcher is interested basically in an organization's life and history, helping to meet the study objectives.

Data were collected from secondary sources, which have been defined by the University of Maryland Libraries (2009) as interpretations and evaluations of primary sources. They are not evidence, but rather commentary on and discussion of evidence. Secondary sources might be bibliographies, biographical works, commentaries, critiques, dictionaries, encyclopedias, histories, journal articles, magazine and newspaper articles, monographs – other than autobiography – textbooks, web site (UNIVERSITY OF MARYLAND LIBRARIES, 2009).

4 THE CASE STUDY

The present section states Google's case study. It describes the company's emergence, as well as its business model and evolution.

4.1 THE ORIGINS OF THE INTERNET 'SEARCH AND ADVERTISING' BUSINESS MODEL

Throughout the 1990s, there was a huge and 'disordered' increase in the content of the World Wide Web, thanks to the growing popularity of personal computers, and a strong need for organizing that vast content emerged, to assist Internet users.

The search tools of the time, however, used simple algorithms that sorted the search results according to the number of times certain key-words appeared on the pages. That system was unable to classify the sites according to the best content, because most of the time those results were confused by spams (repeated words on the page), which disturbed the search tool at the time of the indexation.

At that time, most of the Internet traffic was controlled by large portals that were able to filter and produce diversified contents in their domains. For those large portals, offering effective search tools was of little interest, since they might conduct their users to other independent sites, outside the portals. Battelle (2006) explains that in the late 1990s, search was not a priority for most Internet executives. The search tool was just a commodity - an attribute that was only satisfactory and at that time, the goal was not to send people out of one's portal, as search tools did, but to keep them in.

Thanks to intense traffic, the large portals also acted as important Internet advertising vehicles. However, advertising was unable to differentiate specific traffic (in other words, the traffic where users would be predisposed to act in response to advertisements of the products

or services of a company) from non-specific traffic (the common traffic that did not get translated into customers for advertising companies).

Since the substantial volume of traffic in the large portals consisted mostly of non-specific traffic, the advertising companies were not obtaining the expected response to the investments they were making on the Internet.

In an attempt to solve those problems, GoTo emerged, offering a new search tool based on a new business model: the search results obtained were the paid advertising announcements themselves. For the final user, that meant that spamming could be fought, because non deliberate results were eliminated. At the same time, there was no waste for the companies involving the investments they had made, since the advertising was geared to the specific traffic. Moreover, in the GoTo model, the announcers would only pay for the advertisements according to their performance. In other words, payment would be due when a user effectively entered the announcer's site through the advertising link, which was called **cost per click (CPC)**.

The first problem of GoTo, however, lay on the announcers' critical mass creation – put in a different way, a chain reaction in which the announcers' volume grows automatically, attracted by the new customers - to fill out its lists of search results, owing to the novelty of its advertising model. Most companies were not yet convinced that their investments would indeed turn into new businesses.

GoTo then devised an aggressive strategy of critical mass creation, offering the advertising service linked to the search results at the minimum cost of a cent of a dollar per click. GoTo believed that very soon companies would begin to compete for the paid announcements, so that the company that was willing to pay more would have its announcement better positioned when a certain keyword was typed into its search tool. The results of this strategy were quickly observed, and in six months the revenues generated by its advertising service had surpassed service maintenance expenses.

The company also adopted a strategy for traffic acquisition. Through partnership agreements, GoTo placed a search tool inside other sites of great audience. This way, it developed two business lines: the search service through the main GoTo site, and a distribution business that generated smaller revenues, but on a much larger scale through the traffic generated by third parties' sites.

4.2 GOOGLE EMERGENCE

In January 1996, Larry Page and Sergey Brin began to work on a doctorate project on Computer Science at Stanford University. Such a project consisted of the creation of a Web tool called BackRub that aimed at assimilating the connections between different Web sites. According to Battelle (2006, p. 61), BackRub would be “a system that would discover connections in the Web, store them for analysis, and replicate them in a way that enabled anyone to see who was connecting to any Web page”.

With the development of the BackRub project, the PageRank algorithm was created. It was capable of counting all the connections between different sites and then ranking them according to their degree of importance. According to UP Blog, Google explains its PageRank technology in the following way:

The classification of the pages (PageRank) relies on the exceptionally democratic nature of the Web, using its vast link structure as an indicator of each individual page value. Essentially, Google interprets a link between page A and page B as a vote from page A to page B. But Google looks beyond the volume of votes, or links, that a page receives; it also analyzes

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the page that gives the vote. The votes given by 'important' pages weigh more and help make other pages 'important' (UPBLOG, 2008, p. 1)

Based on PageRank and other refinements, Google was the most sophisticated search tool when compared to others at that time. Page and Brin, its creators, tried to license the technology to several Silicon Valley companies (including Yahoo and Excite) over a period of eighteen months for the amount of US\$ 1,2 million, but no satisfactory agreement was reached. The reason for that, as explained above, was that a search tool was not a priority for Internet executives at the time.

After failing to obtain success in licensing their technology, they decided to set up a company and, after presenting the Google technology to Andy Bechtolsheim, a venture capitalist and one of the founders of Sun, Page and Brin got US\$ 100,000. Some weeks later, on September 7, 1998, Google Inc. was formally incorporated. Its core competency was to provide a search service to Internet users; in the beginning, they had only three employees and the main office was located at a rented room beside a garage.

4.3 GOOGLE'S BUSINESS MODEL

Unlike GoTo, Google's main objective was not to provide an advertising tool, but rather a search tool that offered Internet users the best results according to the degree of relevance of each site's content, with the help of advanced algorithms.

That strategy allowed the company to secure an intense volume of traffic in very little time. Only two years after its foundation, Google had already registered approximately sixty million daily searches.

However, even with the vast audience they had attracted, the company had negative revenues until the end of 2000, since it did not yet have a sustainable business model. It was then, in an attempt to change that situation, that Google launched a new service called AdWords, which Battelle (2006) describes as follows:

In essence, Google replicated the GoTo approach, building an automated self-service model that allowed the announcers to buy on-line text announcements using a credit card. However, unlike GoTo, Google already had plenty of traffic for its natural search results (results that classified the sites by the best content) and Brin and Page insisted on separating them from the advertising results, a key distinction of Google in relation to GoTo, which was launched as a purely commercial tool (BATTELLE, 2006, p. 107)

In October 2000, Google introduced a new service, called AdWords. An announcement on the main site promoted the new service: 'Do you have a credit card and five minutes? Place your announcement on Google today' (BATTELLE, 2006, p. 107)

As it can be seen, AdWords is a service through which Google transmits advertisements on its result page with a crucial difference: Google separated publicity results from 'natural' search results. Figure 1 shows that AdWords are ordered on the right side of Google's search page.

The image shows a Google search results page for the keyword "Cars". At the top, the Google logo is visible, followed by a search bar containing the word "Cars" and a "Search" button. Below the search bar, the page displays "Results 1 - 10 of about 857,000,000 for Cars [definition]. (0.28 seconds)".

The results are divided into two sections:

- AdWords section (circled in green):** This section contains two sponsored links:
 - Import Cars from Japan:** "Wide selection of 30,000 stocks! Get the car you are looking for. www.tradecarview.com"
 - Second Hand Cars:** "Participate in Used Car Auctions In The USA. Cars Shipped Worldwide! www.ExportTrader.com"
- Natural search results (circled in red):** This section contains several organic search results:
 - Buy New & Used Cars, Research Prices, Sell My Car, Find Auto Dealers:** "American-Made Index: Find out which cars are the most American ... To find cars in your area, select your closest city or enter your ZIP code now. ZIP code: ... www.cars.com/ - 45k - Cached - Similar pages - Note this"
 - Cars - The Official DVD and Blu-ray Disc™ Website:** "Walt Disney Pictures and Pixar Animation Studios presents it's latest animated adventure, Cars. In theaters June 9th. disney.go.com/disneypictures/Cars/ - 10k - Cached - Similar pages - Note this"
 - Cars (2006):** "Directed by John Lasseter, Joe Ranft. With Owen Wilson, Paul Newman, Bonnie Hunt. A hot-shot race-car named Lightning McQueen gets waylaid in Radiator ... www.imdb.com/title/tt0317219/ - 62k - Cached - Similar pages - Note this"
 - New Cars, Car Reviews & Prices, Used Cars for Sale, & Auto Shows ...:** "Official Motor Trend magazine web site features used cars, road tests, new cars, concept cars, auto shows, and much more car buying information and help. www.motortrend.com/ - 152k - Cached - Similar pages - Note this"
 - Pixar - Cars:** "Official Pixar site with teasers. [Requires QuickTime] www.pixar.com/featurefilms/cars/ - 8k - Cached - Similar pages - Note this"
 - New Cars - 2008 New Car Prices, Dealers, Reviews and Car Buying ...:** "Carseek features new cars, auto reviews, car prices, auto specifications, new car dealers, car loans and insurance for 2008 car models."

Figure 1 - View of the natural search results and of the *AdWords* from Google
Source: Adapted from the Google (2009)

Google was aware that most of the users were much more interested in natural search results than in advertising results; and the company knew that when mixing those two types of results the quality of its services could be seriously affected.

The first versions of AdWords adopted a CPT (Cost per Thousand) system, in which the announcers paid for the number of impressions (or announcements) and not for the click, as in GoTo. But in February of 2002, Google launched a new version of AdWords that offered not only the advertising service by performance (CPC or Cost per Click), but also an auction system that classified and evaluated a paid announcement according to its level of popularity. In other words, the company that paid more for a certain keyword would have its announcement ranked better in the AdWords section when that word was typed in Google. However, it could lose that position if another company's Web page got a larger number of clicks in that same section over time.

Some months after introducing the new version of AdWords, Google made public an agreement with AOL in which AOL would use Google's search technology in the AOL portal. Such an agreement, together with others with several small companies, demonstrated that Google had opened a new business line: the distribution of AdWords.

That business model permitted synergistically combining search and advertising services. It succeeded at rescuing Google from a loss situation in the years of 1999 and 2000 and turning it into one of the most profitable companies in the history of business. Table 1 shows the company's financial performance from 1999 to 2005.

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Years	1999	2000	2001	2002	2003	2004	2005
Profit (in million dollars)	-6,1	-14,7	7	99,7	105,6	399	1500

Table 1. Google's profits along the years.
Source: Vise & Malseed (2007).

According to Vise and Malseed (2007) the secret of the effectiveness of Google's businesses model is discussed by its founders, Larry Page and Sergey Brin, in the following text:

Google exhibits only text announcements addressed by keywords. That means you won't see the announcement unless you are looking for information on that specific topic. And for that, there are not animated banners competing for your attention, the text announcements are read carefully by the users, who frequently think they are as valuable as the search results themselves (VISE; MALSEED, 2007, p. 116).

4.4 BUSINESS MODELS: GOOGLE VERSUS GOTO

In spite of the similarities between the GoTo and Google business models (since both offered advertising linked to a search tool), it is important to observe differences that were crucial and that culminated in Google's success when compared to GoTo.

In general, in their business models, companies develop dynamic activities through the combination of three factors that Kanai and Tsunoda (2002) defines as: 1) WHO the company intends to reach - the customers, 2) WHICH value it intends to create - the needs, 3) HOW the company works in order to deliver the value created to its customers - the resources and the processes. Bearing those factors in mind, it is possible to distinguish between the GoTo and the Google business models more accurately. Figure 2 presents those differences in a summarized way.

Modelos de Negócio	GoTo	Google
WHO does the company intend to reach - the customers	<ul style="list-style-type: none"> • Customers interested in a search tool which was essentially commercial. • Companies interested in announcing their products and services to the specific traffic. 	<ul style="list-style-type: none"> • Customers interested in a search tool which classified the Internet sites according to their content relevance. • Companies interested in announcing their products and services on the Internet to the specific traffic.
WHICH value does it intend to create - the needs	<ul style="list-style-type: none"> • A service that offered Internet users a search tool with commercial results. • A service that offered companies advertising within the results of a search tool. 	<ul style="list-style-type: none"> • A service that offered Internet users a search tool which classified sites by their relevance degree. • A service that offered companies text advertisements beside the natural search results from the Google search tool.
HOW does the company proceed to supply the value created to its customers - the resources and the processes	<ul style="list-style-type: none"> • Creating a search tool in which the results were paid text advertisements. • Agressive strategy of increasing the mass of announcing customers. 	<ul style="list-style-type: none"> • Creating a search tool that offered Internet users a service that classified sites by content relevance through technologically advanced algorithms. • Natural acquisition of traffic by the search tool. • AdWords launch.

Figure 2 - Google's business model X GoTo's business model

Source: Developed by the authors

As can be seen, in terms of reaching customers (WHO the company wants to reach), Google was more effective, focusing on the group formed by all Internet users, offering them a service of greater value, classifying Internet sites according to the relevance of their content. This resulted in the rapid increase in the mass of users that would soon propel the development of other strategic actions by Google.

In terms of value created (WHICH needs the company should meet), Google distinguished natural search results from those based strictly on advertisements, while GoTo focused mainly on commercial results.

The great difference between the two business models, however, lies in the resources and processes used by the two companies (HOW the company works to deliver the value created). While GoTo developed a search tool based upon paid advertising to assist mainly those companies that wanted to announce on the Internet, Google developed the best existing search tool, enabled through technologically advanced algorithms, focusing on assisting Internet users mainly.

That becomes evident when Google launches Adwords and insists on separating the results of advertisements from those obtained through its search technology.

4.5 GOOGLE'S BUSINESS MODEL EVOLUTION

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A businesses model is not static. On the contrary, it is dynamic and because of that Google is trying to adapt itself and continuously create new value to satisfy clients' needs.

In 2003, for instance, Google launched AdSense, a service for distributing AdWords in the web sites of third parties. In this service, site editors, through registration with Google, allow advertising announcements (usually of correlated content) from the Google net announcers to appear beside the content of their sites. In that case, the editor responsible for that site may receive a portion of the revenue that is generated by the click of an Internet user who was attracted by AdSense.

According to Battelle (2006, p. 130), in that new service there was a significant difference in relation to AdWords, since AdSense “was not addressed by the consumers' consultations based on intentions, but by a site content”. The author asserts that “the supposition was that if a reader was visiting a site related to flowers, for instance, flower announcements from the Google nets inside the current Web page would be the most appropriate” (BATTELLE, 2006, p. 130)

Also according to Battelle (2006, p. 130) “AdSense was by almost any measure a great success - thousands of editors enrolled to use the service. Most were responsible for small sites that had not previously had a way of turning the small traffic they had into money”.

Thus, AdSense has created an important net of distribution of Google announcements directly into independent sites, characterizing an evolution in the company's business model, as the advertisements were only transmitted within the search results.

Ever since then, Google has been developing its businesses model through the expansion of its portfolio of services offered to Internet users. That happens because for each new service offered, the company generates more traffic and opens up new space to expand its advertising services. Some examples are the transmission of advertisements in new services such as Gmail (the email service) and Orkut (the relationship site).

Another example in the evolution of Google's business model is the acquisition of the video site YouTube by Google, in 2006. At an interview to *Folha Online* (the website of one of the most prestigious newspapers in Brazil), the president of Google Brazil, Alexandre Hohagen, announced that in the United States the company is already offering a new form of advertisement: in-video ads, with advertisements inserted in YouTube videos.

The next section explains how the Google business model evolution has become possible.

5 GOOGLE'S CORE COMPETENCY REFINEMENT

The concept of a firm's core competency has its origins on the Resource Based View (RBV) theory. It is defined as the consolidation of the company's technical and productive abilities and it can be perfected with the addition of the customer's competencies (PRAHALAD; HAMEL, 2005).

Google's core competency is based on the technology used in the search service, which is capable of building and organizing a database that makes it possible for the Internet user to find practically any piece of information he may be looking for.

Google periodically scans the entire Internet content and, through technologically advanced algorithms, complements and updates its database adding each new item of information found to its result indexes. Figure 3 shows this process.

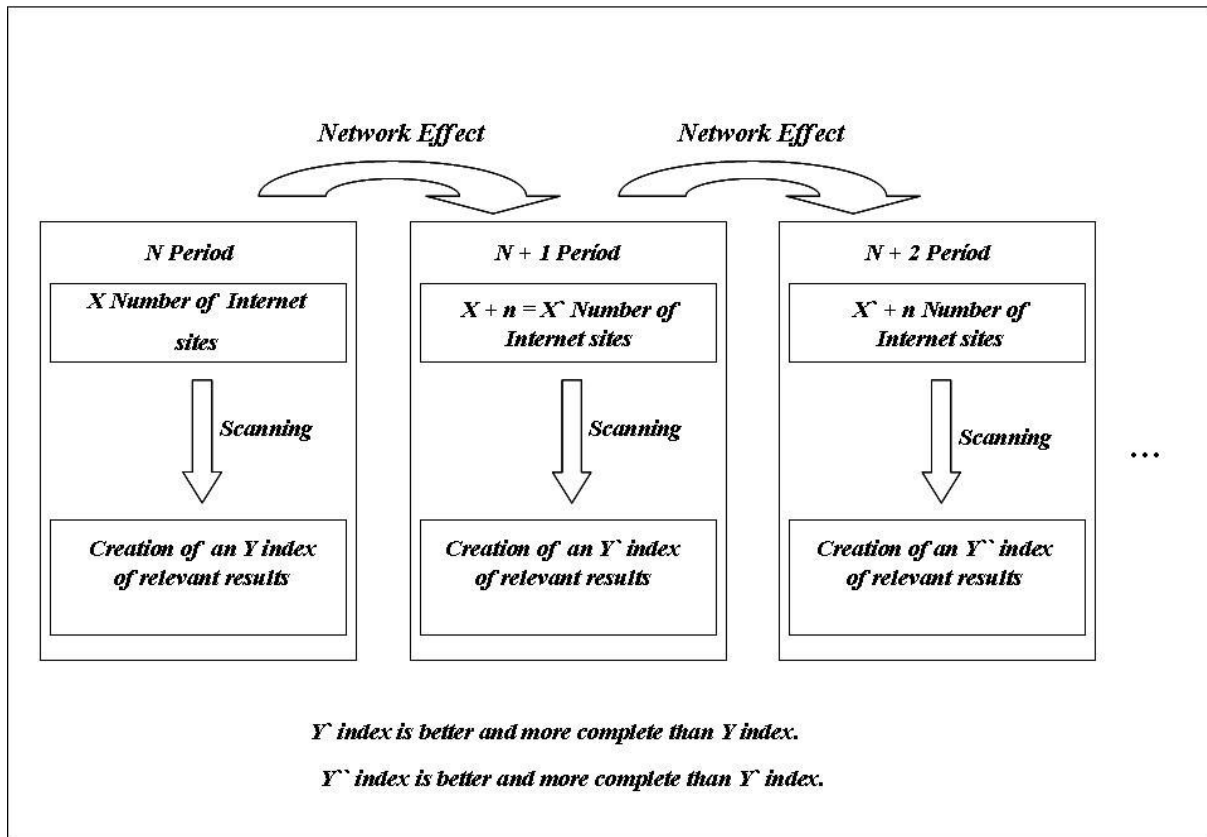


Figure 3 - Google core competence refinement through network effects

Source: Developed by the authors

For instance, if at a certain period N in time, there existed an X number of sites on the Internet, Google's search tool would scan those sites and would create a database containing a Y index of results by means of relevance ranking.

However, in the $N+1$ period, new Web pages would be created, increasing the volume of Internet content. In the new scanning, in the $N+1$ period, an $X+n$ number of sites will be found, and the Y index will be complemented and updated, and that will create a new Y' index of results through relevance ranking, making the Y' index better than the previous Y index.

Later, in the $N+2$ period, a new scanning will find an $X'+n$ number of pages (that is the same of " $X+n$ " from the $N+1$ period plus a new n number of sites), then the formation of an Y'' index is originated, which is better than the Y' index.

As the periodic scanning of the Internet is carried out, the Google database tends to grow and to get better. Continuing as in the example above, it can be said that the index generated in the $N+3$ period will be larger and better than the Y'' index generated in the $N+2$ period. The Google database tends to be continually refined and to accompany the growth of the Internet content.

What could be considered a 'chaos' resulting from the explosive increase in Internet content becomes, for Google, a continuous process of improvement of its search tool.

Therefore, the refinement of Google's core competency (its search tool) takes place mainly through co-creation of value by the editors of Internet pages (that is, by the increase in the number of Internet pages). In that case, the editors that create and update the pages constantly add value to the Internet content, which ends up contributing to the enrichment of Google's database. Consequently, one could assume that Google's core competency

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refinement results from the following network effect: the larger the increase in Internet content, the more complete Google's database will be and the better the results offered to the users of the search tool. As a consequence, if the search results are better, more users will be attracted by Google's service, which in turn will attract even more announcers.

Figure 4 shows the process of traffic increase and revenues generated by Google's core competency refinement.

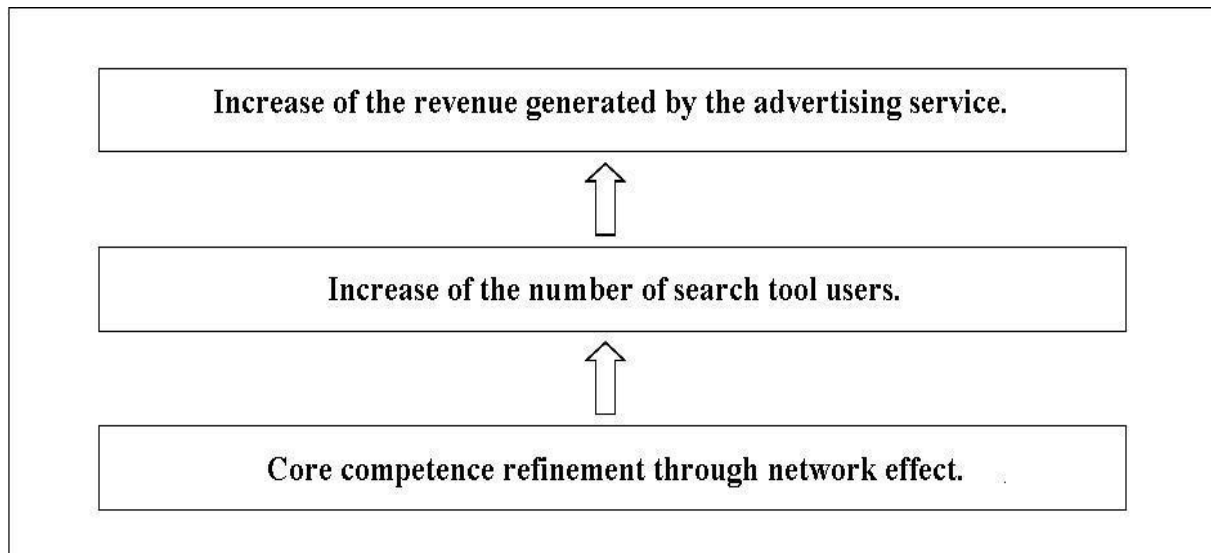


Figure 4. The process of traffic increase and revenues generated by the Google's core competence refinement
Source: Developed by the authors

In fact, the dynamics of Google's core competency refinement through network effects is explained by Alecrim (2005), on the InfoWester site:

The amount of information in the Internet is so large and so diversified that it is practically impossible to find everything that is necessary without the use of a search mechanism. There are very good search tools in the Internet, like Altavista, AlltheWeb, Yahoo and MSN. However, none of those sites is so wide ranging as Google. There are good reasons for that. To begin with, Google updates its information base daily. Here in InfoWester, for instance, every day we noticed the presence of the crawler Googlebot, a Google 'robot' that looks for new information in every site. That is really interesting because about 3 days after an article is published in InfoWester it is already possible to find it at Google. Other search mechanisms also possess crawlers, but they are less efficient in updating terms and classifying information (ALECRIM, 2005, p. 1)

6 FINAL CONSIDERATIONS

Within the new economy of Web-based businesses, it is crucial that new structures for analyzing companies' strategies be created. Therefore, this study aimed at offering a new contribution, based on the conceptual frameworks of business model and core competency refinement.

In that context, it is a fact that in the current stage of technological development technology gets mixed up with business strategy, and it has become more important to figure out what are the technological foundations that support competitive advantages.

Nevertheless, as demonstrated by the Google case study, it should be pointed out that an innovative technology alone does not guarantee the translation of a good business idea into sustainable competitive advantages.

Two elements are relevant for a company's development and evolution. First of all, it is necessary to build the accurate architecture of the company's business model. Secondly, it is of extreme relevance to consolidate the firm's core competency.

In the case study analyzed in this work, the evolution of Google's business model was leveraged by a more sophisticated search technology, which distinguished the company from the GoTo business model. Google's first strategic move was guided by the assumption that Internet users were more interested in natural results than in advertisement results. Such a clue allowed the company to create new value for its customers: Internet users and companies interested in online advertising. Moreover, Google's business model also contributed to the company appropriating value at a first moment through AdWords (inside Google's Web page) and at a second moment through AdSense distribution channels (AdWords service inside third parties' Web pages). In terms of the architecture of a firm's business model, Google surpassed GoTo at offering greater value at the same time it found a way to increase appropriability.

On the other hand, considering that Google's core competency is based on the technology used in the search service, capable of offering benefits previously unknown, it can be said that the refinement of such a competency also contributed to the company's business success, since the more refined it becomes, the more attractive Google's search tool is, since Internet users will be more confident that they will find almost any item of information they may be looking for.

Google's core competency refinement results from the following network effect: the larger the increase in Internet content, the more complete Google's database will be, and so will the results offered to users.

In conclusion, this paper demonstrates that the refinement of the company's core competency and its business model act synergistically because if the search results are better (refinement of the core competency), more users will be attracted by Google's service, and therefore, more announcers will be interested in online advertising, generating more revenues (the improvement of business model).

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MODELO DE NEGÓCIOS E REFINAMENTO DA COMPETÊNCIA CENTRAL: O CASO GOOGLE

Resumo

O volume de negócios realizados na Internet tem crescido vertiginosamente. Neste sentido, novas estratégias e modelos de negócios competitivos são fatores cruciais para consolidar uma posição de liderança no mercado. Em essência, uma empresa que oferecer seus serviços a um grande número de usuários e de empresas complementares terá sua posição estratégica fortalecida. A empresa Google tem focado o alcance da posição de liderança por meio de dois serviços distintos, a ferramenta de busca e o serviço de propaganda na Web. Estes serviços formam a base da construção da competência central da empresa, isto é, sua capacidade de armazenar dados atualizados sobre as intenções de busca dos usuários online e o oferecimento de resultados que os satisfaçam. Esse estudo demonstra que a competência da Google é fortalecida à medida que estes serviços são utilizados. Como consequência, novos usuários

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são atraídos pelos serviços da empresa, o que retro-alimenta sua base de dados, criando, assim, o chamado efeito em rede. Este trabalho explica estas relações.

Palavras-chave: Competência central, efeito em rede, modelo de negócios.

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