

THE INTERNATIONALIZATION OF THE SOFTWARE MARKET: OPPORTUNITIES AND CHALLENGES FOR BRAZILIAN COMPANIES

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ABSTRACT

Information technology is responsible for great changes in people's lives, as well as in organizations and the society as a whole. The performance of different sectors of the economy relies on the good use of information. The software industry develops and makes available tools and solutions for better organizing information in order to improve decision making. This paper deals with the possibility of internationalization of the software industry from the perspective of Brazilian software developers and service providers. The purpose of the study was to understand the way Brazilian software companies relate to the international software market, comparing the perceptions of entrepreneurs and those of official agencies' executives responsible for increasing Brazil's participation in the international software market. The study also intended to identify factors that interfere with the Brazilian participation in the international software market. Data collection took place by means of semi-structured interviews. The data that was gathered was submitted to content analysis. Results show that Brazilian software companies perform poorly when the issue is exporting their products and services, due to a few factors that will be discussed here, in detail.

Key-words: internationalization process, software industry, export support agencies

INTRODUCTION

The increased reliance on information technology is one of the characteristics of modern society, which is evolving towards a knowledge based economy. It is still not possible to assess all consequences of such reliance, but it is almost impossible to think the world without the presence of IT in our daily routine.

Information and knowledge are important economy busters, contributing to the increase of the participation of knowledge intensive services in the GNP of different nations. One could even say that the world is experiencing a new revolution, based on information and knowledge, which affects the performance of all other economic sectors. Parker (1999, p. 417) stresses that "differently to land, work and capital, which were so important to the economic growth during the Industrial Revolution, the change power that support the technological revolution is intangible: it is knowledge".

The dynamics of the software sector is responsible for its increasing specialization and its spreading around the world. In the case of the Brazilian software industry, the current scenario reveals it to comprise a set of different realities, rather than a single identity. It is an expanding industry, eager to conquer new consumers and markets. In spite of the Brazilian protectionist international trade policies of the 1980ⁱ, which instead of supporting the industry's growth, prevented it from developing, for many years, the software sector is now very dynamic in the country and it is difficult to determine the limits of its potential expansion. National organizations of different sizes compete with one another in the national market and also rival with foreign companies, which started operating in the country after it opened its markets to foreign enterprises.

Contrasting with the high level of competition with foreign companies in the Brazilian market, the presence of Brazilian companies abroad is still very little significant. That is partially explained by the fact that the Brazilian software industry was not exposed to foreign competition before the 1990's, until when it was under strict market protection. Only after that the country abandoned its protectionist policies and the Brazilian economy started experiencing more international integration.

Regardless of what happened prior to the 1990's, Brazil is currently an important market for software and national companies are challenged to become competitive internationally in a very promising market, which is expanding quickly, although dominated by companies of just a few countries.

Assuming that internationalization is an important strategy for any company in a globalized market, and a determining factor of its success, the current study tries to answer the following question: what are the main internal and external factors that affect the internationalization of Brazilian software companies in the perspective of entrepreneurial leaders and executives from official agencies supporting software export?

In order to provide a better understanding of relevant concepts concerning this study, the following section presents a review on the theory on internationalization and the software industry. After that, another section presents the methodology that was used in the research project. Results are then analyzed and discussed. Finally, some conclusions are drawn and suggestions for future work are presented.

INTERNATIONALIZATION AND THE SOFTWARE INDUSTRY

In this section we will discuss issues related to the internationalization of companies and also the software industry, which are considered important to the understanding of the research issue. Attention will also be given to the historical evolution of the software industry in the world and in Brazil.

Internationalization

The globalization process is a challenge currently being faced by companies all over the world, from a strategic point of view (DOMINGOS *et al.*, 2002). According to Rocha (2002), although not recent, this process is developing at a faster pace, lately. For Versiani (1995), the high degree of uncertainty about the configuration of possible scenarios is one of the major characteristics of globalization, forcing companies to become more agile. Globalization is a process of world integration in several different industries (BASSI, 1999), which demands presence in different markets, productivity increase, costs reduction,

quality improvement, people's qualification and investment in new technologies (VERSIANI, 1995). In addition to the economy, which is almost always considered as the sector more severely affected by globalization, other sectors such as politics, environment, culture and communications, among others, are also impacted by globalization.

One strategic possibility that exists for any company in this scenario of globalization is to internationalize its activities. That action may be adopted when one intends to expand business, increasing ones competitiveness, or simply to know what competitors are doing elsewhere. However, in order to be able to discuss internationalization as a strategy, first it is necessary to discuss its concept because, according to Welch and Luostarinen (1988), the term itself is still not clearly defined. According to these authors, internationalization comprises the process of being involved in international operations, no matter if they represent imports or exports. For Johanson and Vahlne (1990), internationalization is a set of operations concerning international businesses, while for Domingos *et al.* (2002) it refers to practices related to foreign activities, i.e., activities that go beyond the boundaries of the country where a company is located. Justifying a broader conception of the term internationalization, Welch and Luostarinen (1988) remark that transposing international barriers, being inserted in a "beyond-boundaries" context, shifting activities, acquiring knowledge, skills and international experience all represent factors that comprise the concept of internationalization and, at the same time, help to better understand it.

Internationalization should concern companies, because it represents a new form of competition and demands good comprehension. According to Bartlett (1995), companies move towards foreign markets originally due to the possibility of obtaining cheaper raw-materials and/or labor. The traditional internationalization process justified itself by providing a more efficient exploration of resources. In a second stage, however, the companies' objective when they enter new markets is to develop products or strategies. Currently, companies internationalize with the purpose of keeping informed about international movements, which is vital for their survival in a globalized economy.

According to Caldeira (2002), increase in competitiveness and globalization of the economy both are responsible for a new environment in which businesses are carried out. Each time more companies start addressing efforts to become fit to participate in the global market. In order to accomplish that, it is required that they adopt competitive strategies that are suitable for the internationalization process.

Internationalization and the Uppsala model. International operations characterize themselves for surpassing boundaries. Internationalization was normally a consequence of the company's growth, after having faced a saturated national market, where it was difficult to keep expanding.

The Uppsala model, formulated by Johanson and Vahlne (1977), from the Uppsala school, in Sweden, sets internationalization steps of a company, based on a behavioral approach. Studies that were carried out by Johanson and Wiedersheim-Paul (1975) with Swedish companies had shown that researched companies presented similar characteristics with respect to their internationalization process. They found out that there was a sequence of internationalization steps based on the "psychological distance" between markets. For those authors, the level of awareness of a specific market would determine the intensity of investments to be made in it.

According to the Uppsala model, companies first attempt to internationalize their operations to countries that are psychologically closer to the company's own country. That means that they will search for similar characteristics with respect to development level, language, cultural aspects, among others, because that reduces the level of uncertainty in the process. Hornell *et al.* (*apud* Hilal and Hemais, 2001) ranked several countries with respect to their psychological distance to Sweden and concluded that Swedish companies would find it easier to invest in countries such as Denmark, Norway and Finland, among others, because they presented little psychological distance to Sweden. Only in a very gradual way they would attempt to enter more (psychologically) distant markets.

According to the Uppsala model, internationalization happens in four gradual steps:

- 1) Irregular export activities, i.e., sporadic exports;
- 2) Export activities by means of a representative in the foreign market;
- 3) Export activities by means of sales branches in the foreign market;
- 4) Implantation of manufacturing plants in the foreign market.

It is important to highlight the Uppsala's model incremental pattern. When defining their internationalization processes, companies would take two variables into account in their decision making. The first one would be its knowledge of the target market, i.e., the identification of a precise market to target. The second would be its level of commitment, i.e., the amount of resources the company would be willing to invest in a specific market. Such process is gradual, however. Only after acquiring experience with a new market companies would increase their level of investment there and, consequently, their international activities.

A lot of criticism was raised against the Uppsala model, due to the impossibility of generalizing its use, considering specific characteristics of different organizations that could interfere with the way they internationalized their activities. According to Parker (1999), there is evidence that there are organizations that are more aggressive in their international investments since they are founded, which makes the use of a model involving internationalization steps less meaningful. However, for Forte and Sette Junior (2005), even being the Uppsala model questionable, the criticism against it does not invalidate it. It could still work as an important tool for the understanding of internationalization in many cases.

Software Industry

The term software is used to designate a set of logical instructions that make the computer perform specific tasks, grouped in an organized way as computer programs (SOUSA, 2004). The software industry would then be the group of companies that have the necessary skills to provide services related to software development. Such definition is based on the traditional definition of services as activities that are not directly related to the production of something tangible. Following that reasoning, Teixeira and Guerra (2002) consider the software industry to include companies whose main activities involve exchanging software development services with the market (TEIXEIRA and GUERRA, 2002). According to Castells (2006), the information technology industry produces software, services and hardware and those three sub-industries are inseparable because hardware and software cannot operate on their own and services are many times required to adjust and parameterize software and hardware to work according to the user's needs. Software and hardware are inexorably linked to one another (SHAPIRO and VARIAN, 1999). For the purposes of this study, no distinction will be made between companies that develop software and those that provide software services, as the authors consider that they all would have similar reasons, opportunities and challenges to internationalize their businesses.

The history of software started in the early 1960's, a time when software was considered part of hardware and was not sold separately. Price was established for the set (hardware + software). However, at a given stage, it became clear to the market that the development of software involved costs, which were of the same magnitude, or even higher than the costs involved in manufacturing the hardware. Realizing that was an important step for a movement to be started towards the appropriation of business value by software. From the 1970's on, the software industry started changing at a faster pace, which allowed for the expansion of its frontiers to other areas, providing the internationalization of software services (Heeks, *apud* SOUSA, 2004).

In Brazil, the development of the software industry was also, originally, connected to the trajectory of the hardware industry. Until the beginning of the 1990's, a period when IT market was still a reserve for national enterprises, software production was not a priority. Any existing official incentive was given to hardware manufacturers. Only after protectionist policies were abolished, in 1992, have software developers started to receive some attention from governmental agencies (SOFTEX, 2002).

Silva Filho (2003) reminds us that the potential market for Brazilian software companies abroad is unknown, but the heated international demand for software development provides good perspectives for the country's industry's internationalization.

International Software Market

Very few industries have shown such a fast and sustainable growth along the year as the IT sector, particularly the software and services segment (OECD, 2002). The world's software market was US\$ 90 billion in 1997 and it is expected to reach US\$ 900 billion in 2008, according to the OECD, representing a growth of one thousand per cent in a decade. Market figures for the end of 2005 were already US\$ 662 billion (ABES, 2006), which means that if the forecasted US\$ 900 billion are not reached until 2008, the actual figure will be pretty close to that target, confirming the fast development of the software industry.

When one analyzes the international software market, one notices that the United States participation is outstanding. The country alone is responsible for 43.4% of the world's market, which is almost five times more than Japan's share, the second country in the rank, as can be seen on 0, below.

Table 1: Software and software services top world market

Country	Volume (US\$ billion)	Share (%)
United States	287.5	43.4
Japan	63.2	9.5
United Kingdom	59.5	9.0
Germany	41.3	6.2
France	36.8	5.5
Canada	17.9	2.7
Italy	16.9	2.5
Australia	16.2	2.4
Spain	11.6	1.7
Sweden	10.1	1.5
Other countries	101	15.6
Total	662	100

Source: Abes (2006)

Brazilian Software Industry

According to Taurion (2004), the Brazilian software industry is one of the most promising among developing countries. He also states that the industry has grown fast in Brazil, along the last few years, with significant improvement in quality, capability and competitiveness.

Since the 1990's, after the market reserve was over, IT industry became market oriented (SOFTEX 2002). Global competition forced Brazil to abandon its previous policy that only privileged hardware and treated software as a byproduct of hardware sales. Act 8.248/91ⁱⁱ and the creation of Softex, in 1996, a non-governmental office with the purpose of coordinating Softex 2000ⁱⁱⁱ program, reached

very positive results with respect to the promotion, development and export of Brazilian software. However, the volume of resources assigned to the Softex program were not sufficient to generate scale gains or to involve a large number of companies, which would be required for its goals to be accomplished (SOFTEX, 2002).

According to a study that was carried out by Abes (2006), the Brazilian software (and software services) market is the 12th in the world's rank. That industry involved US\$ 7.23 billion in the country in 2005, 0.95% of the GNP. Leaving services aside and only considering software development, that figure was US\$ 2.72 billion, representing 1.2% of the world's market and 41% of the Latin American market, in which Brazil is ranked first. This shows a major improvement in the Brazilian software industry if compared to OECD 2006 data as showed in Figure 1. At that time Brazil was placed 26 in the ranking, counting for approximately 1% of the world market.

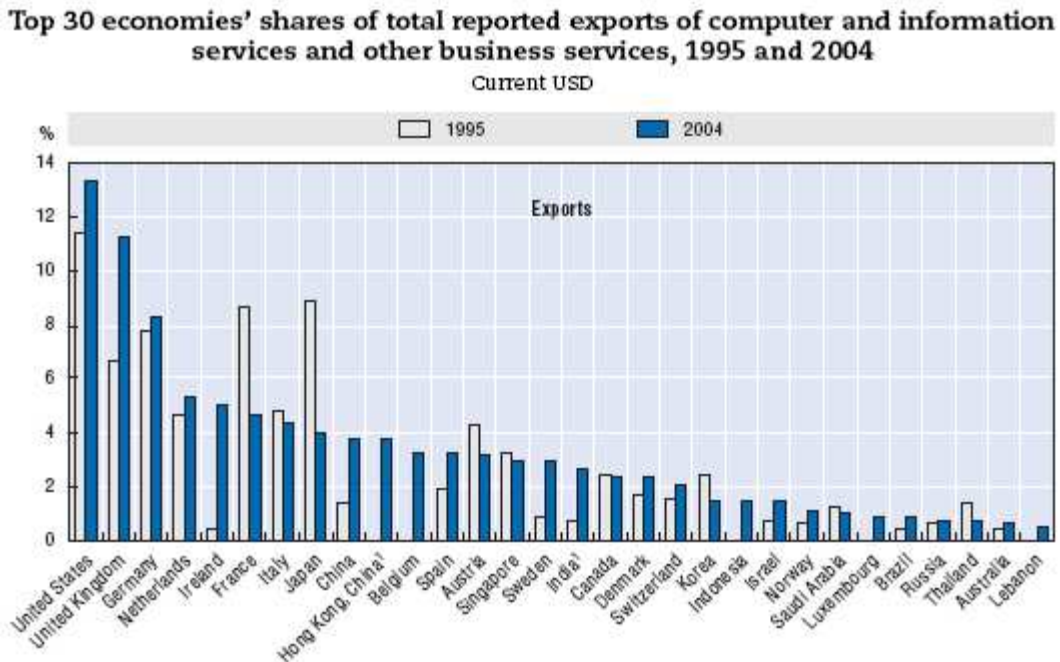


Figure 1: Top 30 economies' share of total reported exports of computer and information services

Source: OECD, 2006

The Brazilian market currently involves some 7,760 companies that develop, manufacture and distribute software and services. Amongst those, 1,850 companies are involved with software development and production; 4,190 companies distribute and resell software and 1,720 companies provide software services (ABES, 2006).

Figure 2, below, presents the distribution of the sector's companies, based on their activities.

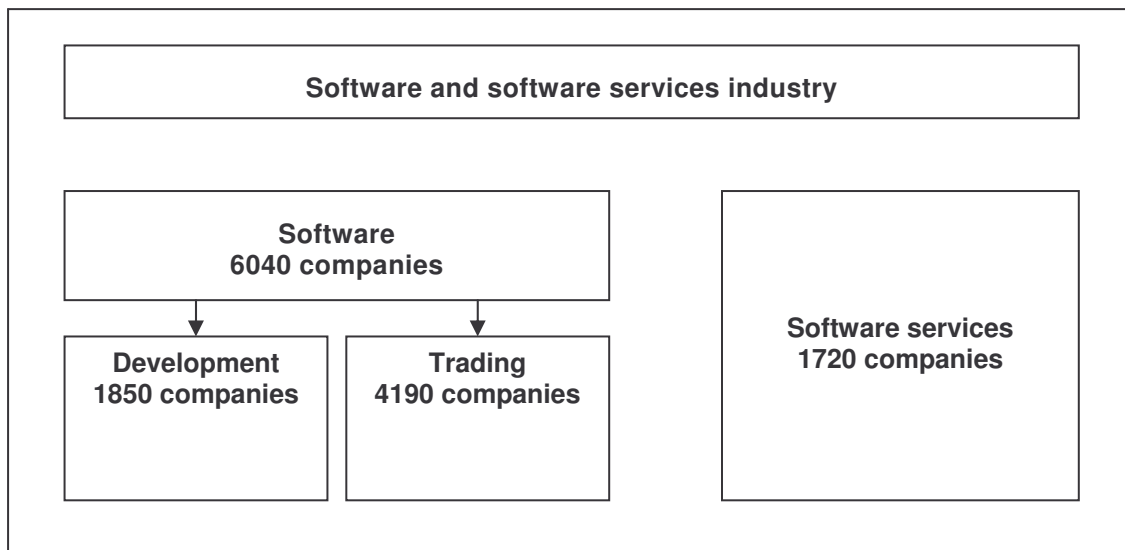


Figure 2: Software industry companies in Brazil and its sub-sectors

Source: Elaborated by the authors based on Abes (2006)

Brazilian Software Exports

The world software market, as the Brazilian one, is an ascending market. But when one analyzes Brazilian software exports, one notices that they are inexpressive. According to Furlan (2003), Brazilian software has good quality, but the country's share in the international market is far below its potential. Furlan also says that, in order to continue growing, Brazilian software companies should pay more attention to the opportunities of exporting their good quality products. Stefanuto (2004) reminds us that the Brazilian software industry developed itself under the shade of the hardware

industry, which had implications in the way the industry evolved in the country. According to this author, the Brazilian software industry lacks an integrative culture, capable of developing cooperative loops among different companies and is very fragmented regionally. In addition to that, there was little external influence due to the market reserve. For Gomel (2005), Brazilian software companies tend not to consider the possibility of exporting their products. That opinion is shared by Sampaio (2006), who says that, differently to other countries whose software industry is focused on the international market, Brazilian companies are favored by high internal demand, which generated an anti-export culture. In spite of that, the Brazilian software industry presents some promising characteristics, in the opinion of Roselino (2006).

Brazilian industry's low export rate has been pointed out as one of its fragilities, when compared with other countries that have a much higher international market penetration in that segment (SOFTEX, 2002). Efforts have been made in order to increase the country's share in the world software market, but the country is still far from reaching a preeminent position. Brazil exported US\$ 178 million in software and software services, in 2005 (US\$ 35.6 million, or ca. 20%, in software and the remaining US\$ 142.4 million in services. There is an estimate that India will export over US\$ 50 billion in 2008 (TAURION, 2004). Therefore, even if there is a high increase in exports from 2005 to 2008, it is difficult to think that Brazil will reach, in the short run, figures that are even close to those obtained by countries that have taken software export as a priority.

Many researchers believe that it is possible for Brazil to improve its export records significantly, considering that the country has already matured to define more efficient policies for the software area and also because it already has some success stories to tell in software development, such as those for *e-business*, ERP, bank automation, automated elections, among others (SOFTEX, 2002; TAURION, 2004). But a focus on the external market seems to be missing, according to some

experts, as well as efforts to eliminate a few bureaucratic barriers that disturb the Brazilian economy (STEFANUTO, 2004; GOMEL, 2005).

Method

This study consists on an exploratory research with descriptive intentions, which was considered the most suitable way to achieve its proposed objectives. As the authors are trying to achieve a better understanding of the phenomenon as a whole, taking all its complexity into account, a qualitative approach was taken. Qualitative methods are usually indicated when the problem one is studying is little known and the chosen perspective is an exploratory one (GODOY, 1995).

The authors intended to understand the current status of the phenomenon, but believed that data about the past could be important for its comprehension. Therefore, data collection was made by means of single semi-structured interviews with each participant, which involved questions that tried to capture the evolution of the discussed issues along the time. So, in spite of the study's cross-sectional characteristics, it provided information for longitudinal analyses, as well.

The interviews, which were carried out with software sector entrepreneurs and executives working for official agencies interested in increasing Brazil's software exports (Abes and Softex) were based on pre-established scripts, in order to prevent dispersion. Participants were selected based on the researchers' convenience and their capacity to provide answers that could contribute to the solution of the research problem, according to Creswell's (2003) suggestions. In the case of software entrepreneurs, the first participants were people the researchers had contact in the field and, after them having been interviewed, a snow-ball technique was applied, by means of which each participant was invited to point out new potential participants. These new leads were then contacted and also interviewed. Executives from

governmental agencies were selected based on their direct involvement with projects supporting the internationalization of Brazilian companies.

Interview scripts were distinct for the entrepreneurs and agency executives, because some questions that were asked to the entrepreneurs wouldn't make sense to agency executives and vice-versa.

In general, the study attempted to understand the software sector and the participation of Brazilian companies in the international market. Due to that reason, the research didn't restrict itself to a specific software segment. Any company that developed software or software services was a potential participant.

Another issue that needs to be highlighted here is that there was no discrimination based on the companies' size. The authors expected that, by interviewing the owners or main executives of companies of different sizes, they would be able to develop a better understanding of the importance of size as an internationalization factor. The convenience sample ended up containing less small companies than the population, according to Abes 2006 data.

Twenty four owners or executives of software companies were interviewed. Two of those interviews were carried out by telephone, because companies were located in different cities to where the researchers were. At the beginning of each interview, the interviewer requested authorization to record the interview, which was given by twelve participants. Interviews that could be recorded were then transcribed in order to facilitate analysis. In case no permission was given to record, and also in the case of interviews that occurred through the telephone, the interviewer tried to take as many notes as possible during the interview. To improve accuracy and in order to retain as much as possible of the participants' impressions, the interviewer reviewed his notes and complemented them right after concluding each interview.

Only one of the interviews with agencies' executives was face-to-face. All other interviews took place by the telephone because most agencies were located in different parts of the country. All agencies that develop any activity aiming at stimulating foreign trade had one of their executives interviewed. At the beginning of each interview the participant was requested to explain how his/her agency helped the internationalization of Brazilian businesses.

After data was collected, the next stage was to analyze the information that was gathered, following the guidelines proposed by Bardin (2000) for content analysis.

Data Analysis and Interpretation

The analysis of the content of the interviews and other information that was gathered during the study (secondary data) allowed some important findings to be made, which will be reported in this section.

The software industry is very dynamic and is growing at a fast pace worldwide, presenting new opportunities to players in the market all the time.

The participation of Brazilian companies in the global market is, however, insipient. There is no significant export effort in this area. Smaller and also less developed countries have been able to take better advantage of the opportunities than Brazil.

Analyzing the answers provided by the entrepreneurs, it becomes clear that, according to their perception, the difficulties concerning Brazilian software export are the government's fault.

Excessive taxation was mentioned by fifteen of the twenty four interviewed company owners; lack of government support was mentioned by eleven of them and bureaucracy was raised as a major problem by

nine. The entrepreneurs think that the government should be more active in improving the situation. One of them said: “government action is weak. There is no financing and the Brazilian entrepreneur is unable to suitably invest in his/her own business”.

Agencies' executives agree with the entrepreneurs with respect to bureaucracy and taxation. They say that bureaucracy imposes difficulties and prevents companies from being able to use the support that is provided by governmental agencies. “The Brazilian entrepreneur gives up government support because too many guarantees are requested in order to finance a venture or its expansion”. They also acknowledge that governmental agencies are slow in their processes, which also doesn't help. However, they say that the entrepreneurs' complaint about lack of support is ungrounded. “Resources are available, but many entrepreneurs do not know where to look for them and many times they remain untouched in an official bank”.

It was noticed that most entrepreneurs don't really know what support they can get from governmental agencies. As the internal market is heated, there is little concern about finding out which resources the government makes available to support the development of external markets to Brazilian products. As a result of that, entrepreneurs don't look for support for the development, promotion and exposition of their products in foreign markets.

It seems that there is a communication problem. On one hand, there are resources that are not being used and, on the other, there is lack of knowledge and interest. As a result, there is a continuous effect of opportunities being wasted to improve the software sector's performance in the global market.

Some agency executives also agree that the country's high taxation reduces companies' competitiveness, interfering with the performance of Brazilian software companies abroad.

The lack of actions and strategies involving the international market became evident. Fourteen of the twenty four interviewed entrepreneurs said that they don't develop any actions and/or strategies for the external market. That shows that internationalization is not considered important by those companies that still don't have an international presence. One of the factors that is responsible for the Brazilian poor performance in the international software market is that the internal demand is so high. Twelve participants considered this factor as an important one, in analyzing the relationship of Brazilian software companies with the external market. After all, new markets are searched when it is needed. If there is no need, considering that a company may already operate close to its maximum capacity, search for new markets becomes a second priority. Although the entrepreneurs consider that the external market is a promising one, they prefer to focus on the internal market because there are still many unexplored opportunities there.

Many entrepreneurs do not know the internationalization process, i.e., they don't know how to export. A vicious circle is formed: they don't know the process because they do not export and they do not export, because they do not know the process.

Another finding of the study is with respect to the "Brazil image" in the software industry, at world level. With the exception of a few isolated cases of success, Brazil does not have, according to the interviewed entrepreneurs, a solid image of a country that produces quality software. Segments like bank automation, ERP and electronic elections are exceptions, but they are not sufficient to make the country to be seen as a reliable quality software provider. The country's image is not strong and, according to the entrepreneurs' perception, little is being made to change that. There is no systematic effort to expand the international market for Brazilian software. Again, there is a vicious circle: the little share in the international market does not contribute to the development of a good image of the country as a supplier. On the other hand, the lack of a good image does not help to improve the market share.

From the 24 companies that had their owners or main executives interviewed, eighteen were small companies. Among those, only three export or have already exported. In contrast, the three large companies in the sample have a presence in the international market. This shows that small companies tend to have smaller penetration in other markets than larger ones. There may be several reasons for that. One is a structural and managerial issue. While large companies have departments (or at least, people) assigned to different functions, small companies concentrate several tasks in the hands of few, many times, the owners themselves. Having too many things to worry about, people in small companies probably prioritize tactical and contingency business issues, relegating to a second stand some strategic issues, such as prospecting new markets.

One of the entrepreneurs summarized that by saying:

“I think that the greatest difficulty in exporting is for the small companies, because large companies have specific people for each function, including foreign trade. That makes things easier. In small companies, no rare the president has to do it all”.

In addition to management difficulties, due to the accumulation of functions, small companies are also faced with difficulty to finance their production and exports. The excessive guarantees that are demanded and the lack of time to get informed about finance incentives made available by governmental agencies represent important limiting factors to the expansion of Brazilian software exports, in the opinion of the entrepreneurs.

There are many bureaucratic barriers, which interfere with the export performance of Brazilian companies. Entrepreneurs complain that the government does not provide support and that it doesn't make resources available to the software industry. According to them, actions that were missed could leverage the IT industry as a whole. In their opinion, some of the governmental agencies should be more active in promoting the sector. One of them said that embassies and other diplomatic representations should not be

just places "where the Brazilian flag is displayed". Showing their criticism about the government's role, they also say that most government officials are not well prepared for the analysis of finance requests and, thus, little help is released. They consider that the software industry is not one of the government's priorities and that the government is more interested in exporting commodities than technology.

One entrepreneur said something that well illustrates the overall feeling about the situation:

“Exporting software is not a priority for the Brazilian officials. Whatever is related to exports in Brazil prioritizes commodities. The government's agenda does not include discussing software export. Because of that, results are disappointing. When they happen, they are due to isolated efforts by specific companies. There is no project and there will probably be none if no government policy is specifically developed for that”.

Government agencies' executives, in their turn, say that the entrepreneurs have to be more organized. According to them, there are resources available, which are not being used. The government has financing projects that are aimed at supporting exports. However, the entrepreneurs do not make an effort to meet the demands for the concession of such benefits. The money ends up not being used.

Entrepreneurs emphasize the quality of the Brazilian software and also of the country's labor. For them, the flexibility and creativity of the Brazilian professionals are great competitive advantages. They highlight, however, that the Brazilian software needs to be certified, in order to have better insertion in the international market. Although this opinion is shared by agencies' executives, no initiative towards that seems to exist. The entrepreneurs seem to be pleased with the favorable conditions of the internal market, while the government also seems not to have that as a priority.

One also notices that there is no cooperation among the entrepreneurs. Good practices are not shared and that affects the performance of the Brazilian software industry as a whole, in the international market.

At last, it is important to say that the language also poses a barrier to the internationalization of Brazilian software companies. Seven of the participants mentioned that they considered that Brazil was in disadvantage in the international software industry, losing a significant part of its potential market share, due to the little penetration of Portuguese in different markets. According to them, countries that have English as their official language are in advantage, because it is easier for them to understand the requirements of customers, in order to provide technical support, not to mention the sale itself. The software service sector is the most affected. For those entrepreneurs, speaking English was a required skill in the IT area but it becomes absolutely essential for those who work or intend to work in the international market.

Conclusion

Previous works already mentioned the little insertion of Brazilian software companies in the international market, highlighting its low export inclination. They also referred to the existence of an anti-export trend and to the country's poor results in the international software market (FURLAN, 2003; STEFANUTO, 2004; GOMEL, 2005; SAMPAIO, 2006; ROSELINO, 2006). All of that was confirmed by this study. In addition, this study also confirmed that Brazilian companies are not developing actions and strategies that can better position the country in the international software market.

The Brazilian software industry presents a set of different realities, rather than a single identity. It is a promising sector, but the country has not been able to develop an image of a reliable supplier of quality products, so far. That means that, for not being a traditional player in the international software market, Brazil would first have to prove its competence. Lack of a good image is a problem and, according to a few of the participants, a difficult problem to solve, without investing heavily in advertisement, but also in being a consistent and reliable supplier in the market.

There are opportunities to be explored and a few factors, such as the quality of labor, the country's strong technological base, government actions, improvement of managerial systems, among others, may leverage the Brazilian software industry, helping to create a positive image, externally, and to improve performance in the international market.

In brief, this paper presented a few findings about the Brazilian software sector and its export performance. The development of new studies may broaden the comprehension of the reasons for the country's poor performance in the international software market. Specific software market niches could be explored in further studies, bringing revealing results, considering that there is high internal diversity in the sector. Quantitative studies, with larger samples, would also be useful to increase the level of information, allowing for the use of statistical tools and analyses whose results could be confronted with those now obtained.

Any scientific study has its limitations and those often result from the methodological approach that is used. Although qualitative research is considered suitable for research in the social sciences (GODOY, 1995), allowing for theoretical-empirical knowledge to be obtained and assigning “scientificity” to the study (VIEIRA, 2004), the interpretation of the data and inferences are dependent on the researchers' perspective and they may, involuntarily, bias the study, by introducing preconceived ideas into the analysis. Although the authors of this paper were conscious about that possibility and have made an effort to avoid it, they acknowledge it as a limitation of the study.

Finally, the study has shown opportunities and challenges for the Brazilian software industry, which need to be considered. Internationalization may become an important part of the strategy of any company in the software industry, but it has to be a long term commitment. The advantages of internationalizing seem to

have been already understood by most Brazilian companies. They now need to understand that changes won't happen on their own. It is necessary to plan in advance but also to convert plans in routine action!

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ⁱ Informatics Act – Act # 7232, issued in October 1984, settling policies for information technology in Brazil and determining that the Brazilian market would be a reserve to companies established in the country.

ⁱⁱ Legislation that determined exemptions for hardware companies if they committed themselves to keeping high levels of national content in their products, developing content and R&D efforts locally. This act was replaced by Act #10.176/01 which had the same scope, but demanded companies to invest the incentives they received from the government in specific areas of the country (North, North-east and Center-west).

ⁱⁱⁱ National Program for Software Export created by the Ministry of Science and Technology to stimulate the development of the Brazilian software industry, focusing on exports.