Software Success: Brazil

Summary
Software is essential for the growth of the Brazilian economy, both as a large-scale global business and as a way of improving quality and productivity in a number of economic sectors. Software is also valuable in such social areas as education and health care.

Until 1993, the Brazilian software industry tended to operate only in the domestic market. This confinement made it vulnerable to international competitors who could operate on a larger scale and in far wider markets. By losing ground to international companies, moreover, Brazil risked losing research and development (R&D) opportunities for highly trained local people in science and technology (S&T).

One solution to this problem was for Brazilian companies to team up with international companies to promote software produced in Brazil. Such a strategy, coupled with the range of products and services offered by international companies in Brazil and worldwide, could benefit all involved.

The Brazilian Software Export Program (Softex 2000) was created in 1993 as a joint venture between the National Technology R&D Council (CNPq) of the Brazilian Ministry of Science and Technology (MCT) and the United Nations Development Programme (UNDP). The main purpose of the program has been to establish Brazil as a center of excellence in the production and export of software. Soon after its creation, several other agencies, non-profit organizations, local (state) governments and private institutions joined the project. The project's initial budget was US$9 million. However, between 1993 and 1996, Softex 2000 collected and invested nearly US$100 million. The software sector has become one of the prime areas of innovation in Brazil.

During the first four years (the "first phase"), the initiative was managed by CNPq and almost entirely funded by Brazilian government agencies and UNDP. During this phase, an adequate infrastructure was put in place and steps were taken to make it easier for Brazilian companies to launch export efforts. In addition, the Genesis Project (Generation of New Enterprises in Software, Information and Services) was established.

CNPq ceased managing the program in December 1996, which marked the beginning of its second phase. Management was taken over by the Brazilian Society for the Promotion of Software Export (Sociedade Softex), a non-profit, private organization. This second phase was planned to be business-oriented and results-driven as associated companies complemented government funding to support program expansion and the consolidation of results.

The third phase will commence in 2001 when government funding will be phased out altogether.

Brazil aims to rank among the top five software producing and exporting countries by 2020.
Background and Justification

Until 1992, Brazil's computer industry focused on the domestic market and hardware. Software, in fact, was treated as a byproduct of hardware. Despite this strategy, a local software industry still managed to grow up and flourish by developing, as well as end-user applications, a variety of utilities, tools, word-processing and spreadsheet packages. Even the operating systems (based on both Unix and DOS) for computers manufactured in Brazil were produced locally.

The reasons for the early success of the Brazilian software industry can be attributed to: the local client support it could muster; the customization of service for meeting particular client needs; and the attractive terms and conditions, especially for larger clients, that could be obtained by direct negotiations.

By the end of the 1980s, however, competition was becoming fiercer. Revenues from the domestic market were not enough to hold off this competition or to finance industry expansion. If it was to prosper, the Brazilian software industry had to become global and face up to competition on the international marketplace.

The following competitive advantages helped the Brazilian software industry to succeed on the international market:

- A large number of well-trained engineers and computer scientists were already working in Brazil. According to MCT, in the early 1990s there were 100,000 people engaged in information technology activities in Brazil. This highly trained personnel included 30,000 with advanced degrees in computer-oriented fields, 10,000 in R&D efforts, and 800 with Ph.Ds in computer science. The Ph.D. population, moreover, was growing by 10 percent a year. CNPq listed 210 undergraduate and 20 graduate computer science programs available at the country's universities.

- The people involved in the Brazilian software industry were particularly creative.

- Many software companies were already in business. The Brazilian Association of Software and Services Companies (ASSESPRO), which itself has 1,000 members, estimated there were close to 10,000 information technology-related businesses throughout Brazil. These included software firms (most small to medium-sized companies with fewer than 20 employees and annual revenues of less than US$1 million), training organizations, retailers and distributors. These companies had managed to grow up over the previous decade without any market protection, competing with international companies in the domestic market.

The Softex 2000 Program was launched to support the Brazilian software industry and help it become a world-class, international player. To achieve this goal, several strategic issues had to be addressed, including:
Encouraging the creation of many new software firms to build momentum for export and promote entrepreneurship to compensate for the lack of traditional employment opportunities for university graduates.

Ensuring adequate lab infrastructure, financing and training for existing software firms so they could produce internationally competitive products and services. Financing, particularly venture capital, is critical to such efforts. Major financial institutions in Brazil require "real guarantees" before loans can be issued. Software products usually are not accepted as loan collateral. As a result, venture capital often has been unavailable for software companies.

Motivating existing companies to operate internationally and not just in domestic markets. A particular problem faced by Brazil is that language and logistics barriers discourage producers from venturing beyond the domestic market.

Facilitating access to marketing and sales information and channels in major target markets worldwide. Each target market needs a contact person (with at least a phone number) to allow general "networking". In addition, Brazilian software is not yet known in world markets.

**Description**
A systematic, participative planning technique and operating procedures for the Softex 2000 Program were proposed by consultant Carlos Matus of Chile. This methodology was called Strategic Situational Planning. The following describes the steps involved (not necessarily in chronological order, nor in order of importance).

Initial efforts concentrated on improving the infrastructure available to software companies. In conjunction with local institutions, the program established 20 regional Softex centers (known as "nuclei") nationwide as autonomous institutions. The purpose of these centers, which were constituted as nonprofit civil societies, was to serve local companies and organizations interested in promoting the software sector in their areas of influence. In fact, the centers have been designated as Softex program agents whose mission is to provide technical, management and marketing support to the associated software companies, using their own resources as well as those allocated nationally by the program.

Each nucleus is equipped with modern work-station networks from different manufacturers, high-speed internet access, physical and remotely accessed libraries, and training and other facilities. They are also the contact points for cooperation between software companies and local universities.

Good software can be produced anywhere. As proof of this point, only 12 of a total of 20 nuclei are in state capitals; the remaining eight are in small or medium-sized towns.

Software companies can start to operate within the nucleus, sharing its equipment, facilities and other resources. Alternatively, they can operate separately from the nucleus but be connected to it.

Major Softex offices have been, or are
being established in the most promising potential markets for Brazilian software products and services, including the United States (Austin, Boston and California), Europe (Germany), Asia (China) and the Southern Common Market—MERCOSUR (Argentina). Smaller representative offices have been set up in Spain and Australia.

The mission of all these offices is to promote awareness of Brazilian software, seek and create opportunities for Brazilian companies in the different regions, and foster cooperation with other companies and institutions. Typical services provided by the offices include market research, legal advice, identification of potential partners with venture capital, and arranging for Brazilian companies to participate in major local events and shows.

The main objective of the Softex Genesis Project is to provide computer science students at universities with the tools, methods and means of starting up new enterprises and becoming successful entrepreneurs.

Generators of New Enterprises ("Softex Genes") are now operating in 12 Brazilian cities. Softex Genes are independently managed business units with their own budgets. Each gene sets its own business plan, targets and schedules and presents them to national Softex coordinators for evaluation.

Softex accepts only business plans whose targets are compatible with the overall goals of the Genesis Project.

Each gene operates in close collaboration with a Softex Nucleus and at least one academic department at an institution of higher education. Along with its other activities, the gene also must:

- Offer a special optional course (called "Inoculating the Enterprise Virus") to final-year students in the computer science, electrical engineering and BA departments of participating universities.
- Try to arrange financing (seed money) and provide each start-up company with assistance in revising business plans, product positioning and day-to-day management.

During the first phase of the Genesis Project, US$86 million is being invested in the first 12 genes (at the rate of US$167,000 per gene per year for three years). Each gene is expected to be capable of creating at least ten new companies every year, at an average investment of US$167,000 for each new company.

The first 12 Genes started operating in 1997 and generated a total of 97 new enterprises and 286 new jobs (including the entrepreneurs) in their first year of operation. Two of these new enterprises are already selling their products in North America.

Softex has also turned its attention to the scarcity of long-term financing for Brazilian software companies and the almost non-existence of venture capital in Brazil.

At the end of 1996, the program devised a promising and creative financing scheme that was implemented during 1997. The scheme was supported by such Brazilian agencies as MCT's Agency for Financing Studies and Projects (FINEP), CNPq and the Brazilian Agency for Supporting Small and Medium-Sized Companies (SEBRAE),
which engineered and sponsored a special credit security fund.

Nearly 200 companies with products that would be ready for export within the following 12 months presented business plans to the scheme. About 40 companies were selected for support and have received special grants and loans at advantageous conditions (relatively low interest rates and grace and payback periods of one and four years, respectively). Another round of financing, promoted by the Ministry of Finance's National Bank for Economic and Social Development (BNDES) was finalized in mid-1998. International venture capital funds and investment banking firms are also being contacted about investing in the Brazilian software industry.

To encourage companies to operate in international markets, Softex organized Brazilian software pavilions at the world's two main trade shows (COMDEX Fall in Las Vegas, United States, and CeBIT in Hanover, Germany), as well as at COMDEX-Infocom, in Argentina, and Comdex Asia, in Beijing.

It also established three important seminars in Brazil: “How to Export Software and Services,” which is dedicated to the marketing aspects of export; “International Developers’ Opportunities,” which aims at increasing contacts among the main platform vendors; and “Investment in Software Companies (ISC),” which addresses financing for the sector. During the first two events, workshops and business meetings with international industry experts, distributors and publishers, as well as Brazilian companies, help identify possible avenues for worldwide market penetration of Brazilian software. At ISC, software entrepreneurs can meet executives from the international investment sector. Softex nuclei also publish a great deal of literature on export procedures, hints and opportunities.

In addition, Sociedade Softex supplies management and finances to the program offices abroad and organizes events and operations at Softex nuclei. Some nuclei are organizing into consortia to tackle more difficult challenges, such as increasing their presence in world markets, particularly in the United States. Nuclei are also negotiating with associated companies to convince them to pick up more substantial shares of the costs. At the same time, nuclei are turning into business units, having to produce sound business plans to obtain funding (whose returns will be reinvested). Sociedade Softex provides fall-back support in securing budgets for the nuclei, defining policy and cultivating an institutional image for Brazilian software.

The Softex 2000 Program has already had some impressive successes. As well as establishing the Softex Nuclei and Genes in Brazil and the Softex offices abroad, the program has galvanized support from all the major funding agencies in Brazil, raising US$80 million for investment in software companies in 1998 alone.

The program has introduced the practice of drawing up and following comprehensive business plans as a way for Brazilian companies to secure investment, and the “business plan culture” now permeates the sector at all nuclei, international offices and companies. Special venture capital funds for the software sector are being considered (with the par-
ticipation of foreign investors) and should be
designed and launched in the near future.

By the end of 1997, more than 1,000 com-
panies had associated themselves with Soft-
ex nuclei. Four more nuclei were scheduled
to start operations in 1998. Genes had creat-
ed more than 97 new companies in 1997 and
an additional 100 new companies were
expected in 1998. With the aid of Softex
abroad, Brazilian companies have signed
sales deals and partnership agreements
throughout the world. Taxes on the re-
venues generated by some of these deals are
expected to exceed the amount invested by
the federal government to operate the
offices abroad (that is the case of the office
in Beijing).

Numerous courses on software business
management and advanced software de-
development techniques are now available to stu-
dents and those working in the sector.

Patenting and
Commercialization
Brazilian software products and services are
starting to be sold in Asia, Europe, MERCOS-
SUR and North America. The trademarks
Brazilian Software and Softex are being reg-
istered in these regions in countries where
Softex has offices. Initial export values are
small, but significant increases are expected.
The commercialization that is taking place is
benefiting Brazilian companies and their for-
egn partners alike. Softex keeps track of
results so that operations can be monitored
and adjusted as necessary.

Partnerships
Softex depends on partnerships with the pub-
lic and private sectors in Brazil and abroad.

Brazilian partners include: CNPq; FINEP
of MCT; MCT itself, through the Secretary
of Informatics Policy (SEPIN); Ministry for
External Relations (MRE); the recently
founded Agency for the Promotion of Export
(APEX); BNDES; SEBRAE and its local
(state) chapters; governments of all cities
and states where there are Softex nuclei;
major universities where genes are located;
ASSEPRO; and Brazilian Association of Elec-
tric and Electronics Industries (ABINEE).

International partnerships include those
with the United Nations (UN), through
UNDP; Forschungszentrum Informationstechnik GmbH (GMD) of Germany; Insti-
tute of Scientific and Technical Information
of China (ISTIC); Camara de Empresas de
Software y Servicios Informaticos (CESSI)
of Argentina; Israeli Association of Software
Houses (IASH); Indian Association of Soft-
ware and Services Companies (NASCOM);
and Initiative, Creativity and Capital (IC2)
Institute of Austin, Texas, United States.

Replicability
The Softex 2000 Program is already bene-
fiting software industries and markets in
other countries through the creation of
joint ventures and cooperation agreements
between Brazilian and foreign companies to
promote and facilitate trade in software
products and services from companies.
(That is the case, for example, with partner
companies and institutions in China.) Two-
way operations are anticipated in which
each cooperating company represents the
interests of its partner(s) in markets where
it already operates. This strategy simplifies
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logistics, reduces costs and is likely to increase each partner’s revenues.

Cooperation need not be limited to marketing and commercial actions, however. Companies could also assist each other by adding value to a partner’s existing line of products through developing complementary modules and products or offering international technical support. Softex exists to help companies engaged in such cooperative agreements.

Developing countries with software industries similar or complementary to that of Brazil may find it worthwhile to join forces with Softex companies. Joint efforts in R&D, marketing and sales or financing should cut the time, cost and market risk of the companies involved.

Softex 2000, in general, and the Genesis Project, in particular, are frameworks that could be adapted and used in other countries with appropriate conditions.

Lessons Learned

A lack of adequate and timely funding is one of the greatest problems faced by innovative experience like this one. The organization’s offices all over the world need constant backup and support. Although Softex has managed to raise the funds necessary to meet most of its needs, overseas transfer of Brazilian publicly sourced funds is strictly controlled, making it difficult to pay contractors and foreign nationals who are hired as office executives and staff. Delays with payments have caused Softex problems in honoring its financial commitments and, in some cases, strained relationships with foreign partners.

One solution to this situation would be to reduce Softex’s dependence on public funds and look for increased contributions from the private sector. This process has already started but it will take time before significant results can be achieved.

Another obstacle is the high cost of running an enterprise in Brazil. Levels of city, state and federal taxation could cause Brazilian software products and services to lose worldwide market competitiveness. In collaboration with ASSESPRO, Softex nuclei have lobbied city governments to grant special status to software enterprises and exempt them from local services taxes for a certain period. Most of the cities where Softex nuclei exist have passed legislation to reduce taxes. A wider effort aimed at negotiating with all three levels of government must now be made.

Despite these difficulties, the Softex 2000 Program continues to win support from both the public and a wide range of institutions. In fact, the software sector is seen as being well-organized and likely to bring valuable results in the medium to long term.

However, progress will not continue without additional interventions. Other industrial sectors are already viewing Softex as privileged and, as a result, they are demanding investments now be concentrated elsewhere. There is the risk that, once the program’s goals have been realized, government investment will decline jeopardizing the program’s continuous expansion within all social, governmental and industrial segments.

Softex’s long-term success depends on its abilities to use free-market principles and attract venture capital to contribute to its initiatives.
Impact
In terms of Brazilian development, the Softex 2000 Program is an innovation because:

- It pushes Brazil’s software industry to become involved in international markets.
- It is based on high value-added products developed by the creativity and talents of Brazilian people rather than on products derived from the country’s natural resources and cheap labor.
- It concentrates on small and medium-sized companies, which are flexible, instead of large companies and conglomerates.

The program’s most significant impact lies in its dissemination of entrepreneurial concepts among Brazil’s academic institutions. This has proved extremely valuable in the face of an increasingly global economy where traditional employment patterns are changing dramatically.

Thanks in part to the project, business and entrepreneurial training are now part of technical undergraduate computer science courses, preparing students to compete in this new economy.

Softex, in fact, has created increasing optimism in Brazil’s software sector. Computer science graduates now have the knowledge and skills to open their own businesses, and some are doing so even before graduating.

In the words of the well-respected economic analyst, R. Moss Kanter, Softex is helping Brazilian software companies to learn “the need to meet the highest standards anywhere to compete” and giving them the “ability to command resources and operate beyond borders across wide territories.”

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