INTERNET AND E-COMMERCE
IN BRAZIL:
A PERSPECTIVE ON THEIR EVOLUTION

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(17 January 2004)

ABSTRACT

This note, prepared for the World Bank Video-Conference on "E-Leadership – Governmental Strategies to Accelerate SME E-Business Adoption" (20 January 2004), collects some thoughts and ideas on how to promote further expansion of E-Commerce in Brazil with a focus on SMEs.
1. EXECUTIVE SUMMARY

- Brazil exhibits a very unique history of development of Informatics and Telecommunications. Over the last 30 years, Governmental role has been very active in both areas, although following a different model in each one.

- Several problems have derived from this path of evolution. However many benefits were also generated and came into full view with the deployment of the Internet and its applications during the 90’s.

- E-Commerce is still in its infancy in Brazil, as the Internet itself has to bridge the chasm between early adopters and the majority of the population.
  
  - Population of Brazil: 170 million (100%)
  - Active Internet users: 17 million (10%)
  - Active E-Commerce practitioners: 1.7 million (1%)

- Even considering E-Commerce exponential growth in Brazil to be sometime in 2005/2006, figures are impressive. In 2003:
  
  - B2B totaled US$ 4.4 billion (Marketplaces only)
  - B2C totaled US$ 1.7 billion
  - B2G totaled US$ 2.6 billion

  NB – Strictly speaking, E-Commerce in Brazil in 2003 totaled US$ 8.7 billion. Now, it is interesting to notice that intercompany, supply-chain operations through the Web, which are not included above, totaled US$ 37.7 billion.

  NB – What is missing in B2C?
  Answer: More E-Commerce practitioners

- Further growth of E-Commerce in Brazil depend on:
  
  - Many more people on the Internet (that is, classes C, D)
  - Many more companies on the Internet (that is, SMEs)
  - Many more E-Commerce practitioners (that is, Trust and Reliability)

- Most needed (first-order) functions to support E-Commerce in Brazil are in place.
  
  - They have to “click” together
  - Second-order functions (such as Quality Seal, Conflict Resolution, Business Intelligence) have to be implemented.

- Mainstreaming ICT into Development Plans of late-coming countries is still a challenge.

- Development Banks have a key role here. They have to lead the shifting of paradigm, in order to add an Information and knowledge dimension to otherwise Physical Infrastructure deployment plans.
2. BRIEF HISTORICAL PERSPECTIVE

There is a relatively long history of Government intervention in the evolution of Information and Communications Technologies - ICT in Brazil, dating back to the 1960's. In the early 1970's, most of the then existing private telephone companies were converted into regional operating companies of a newly created national corporation, TELEBRÁS, while telecommunications services were regulated to become a monopoly of the state. This model would meet considerable success and last until the late 90's, when a new Telecommunications Act paved the ground for full-fledged privatization of the sector. In the Informatics area, the chosen model of development did have participation of the Government, but in a more open fashion when compared with Telecommunications. In Informatics, the model was based upon the creation and support of private companies to manufacture and distribute hardware and software, while governmental applications were to be developed and operated by public companies. Typically, a computer manufacturing company would be created as a joint-venture between a foreign company (which provided the initial technology package) and a local financial group (typically a large bank which would be itself a large demander of ICT infrastructure and services). R&D in Informatics was actively supported by a specific Law which, in an evolved form, still exists and funds activities of over a hundred Computer Science & Engineering Departments in Brazilian universities.

Many problems have derived from this very closed model of ICT-related development adopted in Brazil, and still have to be tackled with energy and dedication. On the other hand, however, many positive aspects resulted from the model, including:

(i) A thriving R&D community in Informatics and Telecommunications, strongly rooted in local universities and, to a lesser degree, technology-intensive companies;

(ii) Pioneering tradition in the area that, much later, would be called E-Government, and include the successful implementation of nationwide applications such as the Brazilian Electronic Voting System;

(iii) Proven capability in the Private Sector to design, develop and operate huge and complex applications such as banking systems covering the whole country; and

(iv) Capability within Government ranks to conceive of and carry out nationwide initiatives in ICT, as it was the case of the deployment of Internet services in the country.

...Initial efforts related to the Internet in Brazil were organized in 1988, when the National Research Council (CNPq) created a Task Force to plan and build up a nationwide academic network to interconnect over 700 universities, laboratories and R&D centers in the country. This academic network would evolve and, in 1995, spawn the open Internet services one has today in the country, and where the academic part is but a very small, though centrally critical, component.

In the wake of the Internet boom, Brazil was able to achieve a number of remarkable results, including:

(i) Some world-class, best-case applications of E-Government, such as COMPRASNET (an Electronic Procurement System), the Electronic Voting System, etc.,
(ii) Three out of the ten largest Internet banking operations in the world (with BRADESCO, BANCO DO BRASIL, and BANCO ITAU ranking second, seventh, and tenth, respectively); and

(iii) Possibly the largest R&D Internet backbone in a developing country.

Challenges Ahead

The evolution of the Internet in Brazil is no doubt a very interesting and compelling history of success in the use of ICT to meet strategic demands of the country. However, when one tries to assess where Brazil stands on the path to the Internet as a truly universal service, one cannot but conclude that the game is just in the beginning and that major challenges lie ahead, with the very sobering realization that all deep-rooted social problems of the Brazilian society will come out in the open.

For instance, the Brazilian population is around 170 million people, at present. Active Internet users amount to about ten percent of the population, that is, about 17 million. And active E-Commerce internauts are about ten percent of the total number of internauts, that is, some 1.7 million people, or one percent of the whole population!

... It stands out that the central challenge for the Brazilian Internet is to be able to cross the chasm between current users (mostly in classes A/B) and the vast majority of non-users (mostly in the remaining classes) which amount to 90% of the whole population.

... How to do it?

The recipe is more or less evident, and comprises:

(i) Provision of cheap, local access to the Internet in all towns and villages;

(ii) Promotion of wide, encompassing initiatives of Digital Literacy, allied with social assistance, remedial schooling, etc. for the population;

(iii) Creation of incentives for SMEs to get connected and offer services through the Net;

(iv) Promotion of local services on the Web which directly relate to the daily lives and needs of the lower income strata of the Brazilian society;

(v) etc.

Now, the actual adoption of such a recipe and its thorough implementation is a formidable task, and require material resources, strong determination and dogged persistence from the Government.

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Trends

The new Federal Administration has already displayed clear signs that it intends to promote very bold, strategic actions toward digital inclusion in Brazil. Such actions may include:

(i) The deployment of a national optical fiber infrastructure to support some major classes of network applications, such as E-Government, Education, Community Action, etc. A large part of such infrastructure already exists, covering eighteen states of the country where more than 90% of the population live and 93% of the national GDP is generated. Basically, only the Amazon region and the far western states are not covered. The available bandwidth, even with current optical transmission technology, is in excess of terabits per second. The gradual utilization of this infrastructure will allow the connection of public facilities, schools, libraries, clusters of SMEs, etc., at a fraction of the current commercial prices for telecommunications services, and the provision of large bandwidth applications involving video-conferencing, multimedia contents delivery, etc.;

(ii) The development of a Digital Satellite Television–based delivery system for educational and cultural contents;

(iii) The deployment of a national system of Telecenters for Business with at least one telecenter per municipality in the country.

(iv) The effective take-off of a national program for Digital Inclusion (through schools, libraries, etc.) for which a Universalization Fund (FUST) has already collected over US$ 900 million since 2000, but has been blocked for a number of regulatory issues.

(v) The creation of a loan program to support modernization of SMEs (with funds from BNDES and IDB of US$ 200 million).

These measures, in conjunction with a possible upturn of the Brazilian economy (as suggested by indicators in recent polls), may signal the start of a new wave of growth and evolution of the Brazilian Internet.

3. E-COMMERCE IN BRAZIL

E-Commerce as a specific type of Internet-based service, has been by and large a terrain where the Brazilian Government has intervened very little. Here, governmental initiatives have been mostly concentrated in the sphere of regulatory framework. Two landmark actions were:

(i) The creation of the Public Key Infrastructure Facility (ICP/BR) to offer basic authentication facilities to all interested parties in electronic transactions in Brazil, at cost; and

(ii) The creation of the Brazilian Payment System (SPB/BR) to regulate the real-time realization of all banking transactions in Brazil.

Beyond that, the Private Sector in Brazil was entrusted to adopt and explore the Internet in a self-regulated framework. Given the prospects of the potential E-Commerce market of the country, many entrepreneurs were eager to jump in, and a booming niche was soon
created. A number of companies were created to operate solely in the virtual market, such as SUBMARINO, while some major bricks-and-mortar companies started to venture into Internet-based operations and to restructure their supply chains to use the Internet.

SMES and Clusters

Within the Private Sector in Brazil, like in anywhere else, large companies have been the first adopters of ICT in general since the beginning of computerization efforts, back in the 1960's. The same happened again with the Internet and E-Commerce. Precise figures are in need, but the general consensus is that large companies in Brazil are almost with no exceptions well-off in the adoption of the Internet and (to a lesser degree) E-Commerce. At any rate, there is no demand for public policy measures here.

When one goes down the chain, however, the situation changes. Within the universe of small and medium enterprises (SMEs) in Brazil (which by some accounts total more than 3 million), over 60% are yet to get connected to the Internet (and, in reality, half of these 60% are yet in need of basic computerization). Thus, public policies to foster further expansion of E-Commerce in Brazil clearly have to target SMEs. Beyond sheer statistical reasons, this assertion gets additional relevance when one realizes that small enterprises are those which are closer to the daily lives of the larger part of the population in Brazil. Digital inclusion of people and digital inclusion of SMEs are two interdependent variables of digital inclusion equation in Brazil which have to be dealt with together and not separately.

Not surprisingly, many recent initiatives to promote E-Commerce in Brazil target SMEs as their main audience. SEBRAE is of course a central actor here, and supports a whole range of projects of its own and of other institutions. One example is the initiative of the Ministry of Trade (MDIC) to deploy thousands of Telecenters for Business in the country. Another example is Project E-CLUSTERS, sponsored by IDB/FOMIN and SEBRAE-RJ, which purports to validate and disseminate an approach to introduce E-Commerce in clusters of SMEs. In Brazil alone, there are over 200 clusters or proto-clusters mapped, a significant part of which are solid candidates to become “electronic clusters”. The distinctive advantage of this approach is that it maximizes the chances of successful introduction of E-Commerce practices among SMEs by building upon previously existing structures and mechanisms for pooling and sharing of resources among groups of SMEs.

Reliability

As a result of the relatively loose way E-Commerce has grown in Brazil, some structural problems have been created and may become critical in the near future. For instance, the enterprising spirit of the Brazilians ensure that, in a matter of less than four years, a mechanism or entity was either created or identified to tackle most of the functions or services needed to support the adequate functioning of E-Commerce in Brazil. However, these functions and services do not “click” together as neatly as they should. Second-order functions and services (that is, those which are based upon the composition of primitive functions and services) are thus very difficult to create and operate, because by definition they involve several different actors. As a consequence, aspects of a deeply
collective nature such as trust and reliability in E-Commerce in Brazil have not been dealt with in a thorough way to date.

This is the underlying motivation of Project E-Reliability, which is at present being articulated in Brazil as the local incarnation of similarly aimed initiatives in the European Union and some countries like Singapore.

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Cross-border Transactions

Much has been touted, in Brazil as well as in other developing countries, about the potential role of E-Commerce to leverage export drives of SMEs. The main advantage is obvious. With the proper logistical support, an SME in Brazil can sell and deliver a good to a client anywhere in the world. Aply realizing this, the Brazilian Post and Telegraph Company (CORREIOS), for example, created a whole range of services to support the small scale exporter, anchored on Internet-based mechanisms.

However, the readiness of one single country is not enough. Full-fledged, direct, cross-border E-Commerce operations between any two countries depend upon the interoperability of a host of legal and technical standards and practices in use in these two countries. To start with, the public-key infrastructures of any two intertrading countries have to be interoperable, so that authentication of transaction actors can happen either way, and E-Commerce services can be based either side. Within the MERCOSUR GROUP, a specific committee, SGT-13, has been trying to address this issue and take concrete measures to solve it. But of course this kind of initiative is not costless (though not expensive) and is quite demanding in political and technical articulation.

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4. ICT AND REGIONAL DEVELOPMENT PLANNING

Much has being said about the need for developing countries to mainstream ICT into their Development Plans. But this is more easily said then done.

As a rule, a developing country still has the baricenter of its national plans in physical infrastructure, that is, transportation, energy and communications. On top of this physical layer, there will come a layer of basic public services, such as sanitation, education, health care, etc., which again as a rule will also require huge investments in physical infrastructure. Where will ICT fit in? Typically, the ICT dimension will be a last-minute addition as an ingredient of very sector-specific projects (even in Education, Health, etc.) which, not been seen as so critical or fundamental as those in the basic layers, will hardly become top priority.

South America has a major regional initiative under way, called Integration of Physical Infrastructure of South America (IIRSA), while Central America has Plan Puebla Panamá (PPP) more or less with a similar goal. Most national/regional development banks are involved in either initiative (IDB, CAF, CDB, FONPLATA) in coordinating capacity.

These two regional initiatives have immense merits, the only criticism allowable being that they are arriving late (although, luckily enough, never too late!). However, when closely examined, these two initiatives show that the inclusion of an ICT dimension in regional development plans is not a well solved issue. Actually they show that even development banks have some paradigm recycling to do. As each individual country progresses in acquiring a more elaborated view of the role of ICT, the same will have to happen, and at a
faster pace, within development banks, so that they can proceed with their evangelization task on the importance of ICT for Development with a truly New Book.
APPENDIX
INTERNET AND E-COMMERCE IN BRAZIL:
KEY DATA FOR 2003

1. DIGITAL INCLUSION

(i) ITU

In November 2003, the International Telecommunications Union (ITU) issued the yearly DIGITAL ACCESS INDEX (DAI) for 2003, comparing countries of the world with respect to digital inclusion. Brazil ranked 65th, with an estimate of 26 million total users of the Internet, 14.3 million of them having access from home.

NB1 – As a matter of comparison, Chile ranked 43rd, Uruguay 51st, and Costa Rica 58th in the same study.

NB2 – Industry experts in Brazil estimate the black market of computers and software in the country to be over 70%. This means that digital inclusion rates in Brazil may be of course considerably higher. However, it probably does not alter the relative ranking amongst countries in the region.

(ii) ANATEL

The Agency for Telecommunication Regulation in Brazil issued its yearly report on the Internet in October 2003, adding interesting aspects to the picture. For instance:

- Classes A and B account for 90.7% of Internet users in Brazil. Clearly, the singlemost critical barrier to more widespread digital inclusion in Brazil is income: a typical family in Brazil collects solely one tenth of the average family income of the 30 countries of OCDE.
- Brazilian internauts hold the longest sessions (for a single access) in the world: 38 minutes, seconded by Japanese colleagues with 33 minutes.

2. E-COMMERCE

(i) B2B

According to E-Consulting, B2B E-Commerce in Brazil (defined as any WEB-based transaction involving electronic payment between any interacting entities) totalled over US$ 42 billion in 2003, one tenth of which originating from market places on the Net. The other 90% originated from supply chain operations, with a truly dominant role played by PETROBRAS (the government-owned oil corporation of Brazil). Technically, for comparison with international figures, if one considers Marketplace B2B only, then the amount of US$ 4.4 billion should be considered.
(ii) B2C

According to E-Consulting, **B2C E-Commerce** in Brazil totalled **US$ 1.7 billion** in 2003 (not including real estate and financial transactions, but including automobiles and tourism). If one projects the B2B/B2C volume ratio to converge to something like 80/20 or 70/30, as in many countries, the **low share of B2C E-Commerce** in Brazil stands out as very **intriguing**. The explanation offered by EConsulting is very straightforward: B2C transactions in Brazil are made by some 1.7 million internauts only! Thus, no wonder the total volume of expenses is low, compared to what it could be.

On the merchants side, things are quite concentrated as well. Less than 15 virtual stores account for more than 90% of the total volume of sales. But the growth of the B2C market in Brazil keeps strong and steady: the two largest B2C companies in Brazil, AMERICANAS and SUBMARINO, respectively sold in 2003 US$ $80$ million and US$ $70$ million, reflecting growths in excess of 60% over their figures for 2002.

(iii) E-Commerce Users

Early in 2003, O ESTADO DE SÃO PAULO – OESP, a large newspaper in Brazil, conducted a survey of Brazilian internauts’ habits. The respondents to the questionnaire on OESP’s web site (who by this very act self-selected themselves as very pro-active Internet users) said that:

- 52% of them purchase goods and services;
- 85% of them carry out banking operations, and
- 69% pay Credit Card bills via the Internet

Despite their overall enthusiasm with the Internet, no less than 60% of them saw **security** as the most critical issue of the Net.