BUILDING ENTREPRENEURIAL NETWORKS

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ABSTRACT

This article presents some strategic questions regarding the process of building knowledge based on the use of networks. With the globalization of products and services, environments for knowledge creation have become the big differential for the sustainable development of companies and countries alongside effective generation of wealth.

Concepts related to wealth generation, addressed in this new global environment, reveal ever-present paradoxes, such as the use of asymmetric weapons that drive and pressure countries, transforming their internal and external environments.

In this complex environment, new solutions are required. To encounter these proposals it becomes vital to seek initiatives built on broad debate and people's effective participation.

An innovative response to the questions of building new spaces was encountered at the UNCTAD Forum, held at the end of 2003 in preparation for the Eleventh Conference. This response involves constitution of the

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International Services Zone (ISZ), within the network-to-networks concept, in the sense of combining efforts, competencies and resources to integrate and promote the development of Brazil and Latin America as a whole.

Starting from the concept formulated for constructing the International Services Zone (ISZ), this article presents key questions for developing an interconnected and enterprising business model within a knowledge-based economy.

Key words: Information Technology, Networking, Knowledge.

INTRODUCTION

The ever-accelerating process of knowledge accumulation over the past 150 years has been made possible by vastly enlarged capacity for accumulating information, but this veritable avalanche of data is not always consistent.

Our present information technology traces its origins to the 1940s with the arrival of the first electronic computers, enabling a new and permanent form of communication among people – of the many with the many – generating an accelerated process of democratizing information. Where has everything changed? The time needed to generate information and transfer it to other people. What previously took months or years now can be done in mere fractions of a second and at a very low, often vanishing, cost.

This paradigm shift, where information transfer has gone from expensive and restricted to cheap and democratized, has changed all previous concepts about this transfer, and has directly impacted the transfer of knowledge, and thus the creation of new knowledge.

Based on this new paradigm, related to the knowledge society, we face the need to identify and connect the various links of a chain that can generate value for a company, society or country.

The objective of this article, then, is to present an information management model with the intensive use of information and communications technologies (ICTs), to give substance to the ideas presented at the UNCTAD Forum in 2003 and the presentation of the International Services Zone concept, calling for an interconnected society based on the use of network to networks, integrating PEOPLE, PROJECTS and RESOURCES.

IDENTIFYING STRATEGIC QUESTIONS

Starting from the use of Information and Communication Technologies (ICTs), the process of globalization of products and services has evolved at a dizzying pace regarding access to information. The meteoric rise of the Internet in the world has aggravated the gap in access to information between developed and developing countries, with Latin America and the Caribbean having only 2% of the total hosts per region, against North America with 75.8% of this total (UNCTAD, 2003).

Other data on the number of Internet users and its evolution show how far Latin American countries have to go to catch up to more developed countries. For example, in 2002 Brazil had 14.3 million Internet users, representing 2.4% of the total users and 7.9% of the Brazilian population, indices far below the averages for the world's leading economic powers: the United States has 26.2% of the world's Internet users, representing 61% of the American population, while in Japan 52% of the people are Internet users (UNCTAD, 2003).

Do these numbers have any relation with countries' levels of development? If looking at the GDP figures for the world's richest countries, the answer is yes. In 2001 the United States was in first place in the rankings, with a GDP of US\$ 9.8 trillion, and Japan's GPD was worth US\$ 4.76 trillion, while Brazil's GDP was US\$ 595 billion. Other important data related to information, technology and knowledge are shown below (Tambosi, 2001):

- \rightarrow In Brazil there are about 90 thousand active scientists (0.04% of the population) involved in research and development (R&D), with only 9 thousand (10%) of them working for companies, generating 56 patents per year.
- \rightarrow In contrast, in South Korea, where rapid industrialization occurred in the 1980s and 90s, there are some 75 thousand scientists (0.16% of the population) working for companies, generating 1500 patents a year.
- \rightarrow In the United States there are roughly 960 thousand scientists (0.40% of the population), making it the world leader in generating patents.

It can be noted that countries that invest more in R&D and generation of innovative and productive knowledge are responsible for generating a greater share of wealth. It is no accident that 55% of the revenue generated in countries like the United States originates mainly from the production of concepts and ideas, focused on those that have greatest aggregate value from the intense use of knowledge (Organization for Economic Cooperation and Development - OECD).

The fact is that it is only possible to transform concepts and ideas into wealth from the moment we have developed the other dimensions for wealth generation, related to PEOPLE, TECHNOLOGY and MANAGEMENT, oriented to a market that is capable of absorbing the products and services generated.

So, the base for a country's growth is directly related to how much it invests in generating knowledge and to how much its infrastructure is able to assimilate, harmonize for use, develop, implement and commercialize products and services, thus generating higher levels of wealth.

Faced with the points laid out above, we can list the following strategic questions to be addressed:

- \rightarrow How to create a climate oriented to knowledge when this is already reserved as a main source of wealth generation in richer countries, those that dominate the entire process of value generation from conception to effective implementation in a determined market?
- \rightarrow How to respond to complex questions such as social inclusion through digital inclusion, megadiversity and multiculturality, existing in a global setting?
- \rightarrow How to develop innovative products and services and change the current situation of low investment in research and development by nurturing a potentially existing market?
- \rightarrow How to promote Latin American integration through the use of ICTs?
- \rightarrow How to mobilize for a new society based on management of knowledge and creation of enterprising companies and people?
- \rightarrow How to constitute ICTs adhering to the market, obtaining a global competitive difference?
- \rightarrow How to act to complement the scarce socioeconomic resources available instead of competing for resources?

PROPOSAL FOR INTEGRATION BASED ON ICTs

Traditionally, technological innovations have benefited developed countries, leaving other countries as "also-rans", often with outmoded technologies at exorbitant prices.

This traditional equation can be inverted when we look to the panorama of foreign commerce and generation of wealth of a country or region, which can initially benefit from a given technology, exporting the model to a country or set of countries until it reaches the entire region.

If analyzing the benefits that the Internet has brought to the commercial sectors in developed countries, we can confirm that important logistics equations determining price, gaining new markets and maintaining and expanding traditional sales segments have been modified very rapidly due to the huge advantage derived from the refinement of the information access portals have brought to users.

An example of this fact is related to the CorreiosNet Shopping (Post Office-Net Shopping) project in Brazil, making available online shipping services to companies of all sizes via the Post Office's services portal. However, this was not entirely successful, because many customers wanted simultaneously to receive the new product and have the problematic or obsolete product taken away at the same time.

Other examples can be given as further backing for the enormous advantages derived from timely, cheap and easily accessed knowledge, such as a farmer who can react in advance to market changes caused by an imminent fall in the harvest, made possible by reliable weather data available before the crop in question is affected.

What is the great challenge that, if overcome, can leverage addressing the above questions, among so many others? The answer is: enterprising people and firms armed with timely and accurate information.

Under these conditions, the production of a Networks Integration Portal, which is normally created and developed within a focused and functional vision, arises as a solution for horizontal integration of PEOPLE, PROJECTS and RESOURCES. We call this Portal the International Services Zone, or ISZ, through which it will be possible to integrate various efforts already under way in Brazil, transforming a potential threat of a strong invasion of the local market into a big opportunity to leverage new business.

Thus, as presented in Figure 1, starting from national integration, as sketched out in the Action Plan of the World Conference for the Information Society (WCIS), we will achieve greater integration among nations, which in turn will help further the integration of all of Latin America, creating a virtuous circle for the whole process.



FIGURE 1 - THE VIRTUOUS CIRCLE OF INTEGRATION

THE ISZ CONCEPT

With the advance of globalized products and services and the gradual hegemony, starting in the 1970s, of the neoliberal model, the countries of South America, particularly Brazil, have been pressured to align themselves with the world development agenda of the countries.

This development agenda demands creative and innovative solutions, since the process presented demonstrates difficulties in sizing up basic questions of countries' need, such as those related to agriculture and energy. Even more complex questions involving the use of Information and Communication Technologies (ICTs) also need to be addressed, such as social inclusion aided by digital inclusion and sociocultural and environmental megadiversity.

In this context, various efforts for South American integration have been occurring through the ICT Forums, the World Conference for the Information Society (WCIS), the South American Regional Infrastructure Integration initiative (IIRSA) and UNCTAD, among others, having as goals to accelerate the connections among people and countries, the constitution of ICTs adhering to the market, the lack of socioeconomic resources and the main challenge of complementing and not competing for resources.

Hence the International Services Zone concept arises as an initiative of the Latin American Information Technology Network (RITLA), intending to speed the national integration process to help achieve lasting and sustainable Latin American integration. The ISZ's mission statement is:

"To connect **people**, **projects** and **resources**, promoting and facilitating actions that influence, cooperate and induce governments, institutions, companies and communities toward **regional and global development**, based on the mass use of information by means of **ICTs**".

Hence, the model implemented by the ISZ has the following points as its premises:

- \rightarrow **Decentralization**: the model is based on decentralized initiatives in the sense of generation of knowledge and wealth, thus providing a multiplying effect throughout the entire process, where each individual or company will be able to be a new entrepreneur in the country.
- \rightarrow **Expandability**: the ISZ is totally modular, permitting it to start in one region and then spread to other regions, with the advantage that it can be interconnected as the other regions become ready.
- \rightarrow **Connectivity**: the connectivity between networks and with all networks is a fundamental condition, at which point the ISZ Portal will be oriented toward disseminating basic information to aggregate value in the generation of revenue for society at large.

FOCUS AND FIRST STAGES OF FORMING THE ISZ

Its first function will be to promote the development and create perspectives that can ensure companies' competitiveness in the regional and international scenario, reverting the current situation of unemployment and spurring the economy, within the standards of a competitive and sustainably developing region.

The ISZ at this first moment will focus mainly on structuring a portal that will enable connection of people and other existing networks. Thus, at this first moment, the ISZ will be a large site with information that aims to connect people – projects and resources at the level of Brazil and Latin America.

The final goal of the ISZ is social inclusion, but that will use the generation of business using the ICTs to reach this objective. As shown in Figure 2, various other elements need to be considered, remembering the systemic vision necessary for sustainability of the whole process.



FIGURE 2 – ELEMENTS OF THE ISZ

At a second stage, the ISZ will act as an integrator of people – projects and resources, when the elements accredited by the RITLA/ISZ will enter into action as business consultants, who will receive special training on how to do business in a global environment – initially restricted to Latin America. The second phase will use the base of nodal points identified in the first phase, aggregating value with the use of business consultants.

In a third stage or step, knowledge will be mined from the available data to identify new business opportunities. This stage will provide proactive actuation of the ISZ members, facilitated by the use of tools to extract non-explicit knowledge and connections from the relationships and capacity to realize new business deals.

Finally, in the fourth phase will come the formation of multipliers, able to articulate and create sub-networks within the overall network, thus functioning as multiplying elements and to aggregate value, taking the articulation capacity of the RITLA/ISZ down to the level of its own sub-networks built based on specific objectives.

Figure 4 shows the overall ISZ model, composed of the following elements:

1. **Connecting People and Firms**: This set of facilities available at the Portal will be the first and most important process, which will seek to identify, present, relate, integrate and add value available to both

individuals and companies. This connectivity will be fundamental for the next steps.

- 2. **Mapping Competencies**: These facilities will promote in sustainable form the identification and definition of available competencies, projects and resources, functioning as a filter for the first block, when the relevant information will be revealed to reach the final objective.
- 3. **Business Prospecting**: These facilities will prospect for and mine available knowledge with an eye to identifying the connections that exist but are not visible to the naked eye, connections that can be important for generating new business.
- 4. **Prospecting for Technological Solutions**: This step seeks to identify and deal with technological solutions available in the market or that require some type of guidance in the sense of setting up a database of partners for problem solving and market integration. This will especially focus on freeware.
- 5. **Structuring Process Solutions**: This step occurs at the moment that a new business opportunity appears and it is necessary to build business processes seeking to define and structure the management model and business processes to materialize it.
- 6. **Managing Business**: This step will be the business deals themselves that will arise as fruit of the ISZ's work or that may exist in the market. In this case they will be solutions of the following types: B2B Business to Business, B2C Business to Consumer, B2E Business to Employee, among others.

These business processes of the ISZ will be aligned with some questions of great importance, such as:

- \rightarrow New Vision A new vision of the world is one of the bases for the ISZ, bringing to Brazil and South America a new way of seeing the world, where South America is at the center of this world, in this way favoring lateral commercialization within the continent itself, in contrast with the vision that has reined for decades where trade is visible to Europe and the United States. The proposal to set out on a movement to place "Brazil at the center of the world" will serve as an invitation to Brazilian society to recognize a unique opportunity for a changed perspective and transformation of the country.
- \rightarrow Education: The base for sustainable development and development of new values is ongoing education, to train entrepreneurs, managers, professionals and also to shift professionals to new areas of actuation.

- \rightarrow National and International Agenda: The world is in movement and has a crowded agenda of commitments and goals to be met. It is fundamental to be in tune and integrated with this agenda, avoiding being trampled asunder by the speed of exogenous changes.
- \rightarrow **Geo-Referenced Visualization**: The use of geographic information system (GIS) solutions to harmonize geo-referenced positioning of events, products and services is fundamental to enable increased business, since for information there are no frontiers for the other items of logistics, time being basic for it to become viable.



FIGURE 4 - BUSINESS PROCESSES OF THE ISZ

Thus the main objective of the ISZ is to create a network that allows the connection of people and their institutions to the resources available and existing and potential projects. This connection PEOPLE – PROJECTS - RESOURCES seeks to stimulate and give visibility to the connections that can accelerate Brazil's and South America's integration.

The birth of the ISZ, starting from a non-governmental organization such as the Latin American Information Technology Network (RITLA) brings special meaning because RITLA is a partner of UNCTAD, whose overall objective as greater competitiveness, development and a better quality of life on the entire planet. More specifically, the ISZ has these objectives:

- → To promote public and private initiatives over its network to increase the use of information and communication technologies by offering software, systems and services throughout the Latin American region, maintaining a short-, medium- and long-term vision.
- \rightarrow To promote and qualify the use of software, systems and services developed in the region to implement networks, infrastructure, undertakings and companies capable of creating self-sustaining

competitive advantages and inducing economic and social integration at the regional and national level.

- \rightarrow To integrate databases and networks though the application of its own system, with the participation of professionals, academics, volunteer activists, businesspeople and public and private institutions to cooperate in implementing public policies encouraging connectivity, accompanying the advances made, identifying benchmarks and successful cases.
- \rightarrow To create a process of awareness of leaderships and sponsors in the government, academic and business spheres to change paradigms, becoming a Portal privileging the entire region.
- \rightarrow To examine alternatives of new solutions that examine new alternative solutions that permit sustained regional development, such as germinating points in their areas of influence, based on an agenda of connectivity harmonized with global technological changes.
- \rightarrow To activate information and manage an evolving portfolio of undertakings and initiatives to attract national and international investments and strategic associations, seeking to increase the systemic competitiveness of the regional economy and realize concrete products and services (software, products and contents).
- \rightarrow To supply investors, entrepreneurs, policymakers and representatives of society with a suitable tool to envision the attractiveness of and the reach of the products and services in portfolio (in the form of an information system based on a geo-referenced database).
- \rightarrow To mobilize companies, entrepreneurs, professionals and researchers to use the portfolio to be created as a base for a regional innovation system, so that this availability of information permits the adoption of the best decisions and awareness of what is happening in the their own market as well as markets outside the region.
- \rightarrow To select, in assembling the portfolio, market-oriented and businessoriented preferences that balance attractiveness and security for investors with systemic return for society (economic, cultural, social and environmental).
- \rightarrow To manage the portfolio of software, systems and services made available as one of options, making an **assessment and follow-up** per company or private institution, able to guide, facilitate searching and evaluate utility and its practical value.

- \rightarrow To foster a broad training program aimed at developing leaderships of producers, exporters, importers and other agents, encouraging their competencies and interchange.
- \rightarrow To apply new measures to objectively qualify systemic qualitative benefits (not captured by traditional economic criteria) to assess the return on undertakings, taking account their capacity to induce new self-sustaining organizations to generate jobs and income.

We can list the benefits expected from using the ISZ:

- \rightarrow To obtain more consistent and secure information for more educated decisions.
- \rightarrow Social inclusion with the use of the ICTs, i.e., social inclusion from digital inclusion.
- \rightarrow Potential generation of opportunities based on a new work environment.
- \rightarrow Proactivity from the information obtained, making in possible to anticipate competencies and new businesses to be developed.
- \rightarrow Integration of productive chains, maximizing results at lower costs.
- \rightarrow Bringing citizens nearer their government and integration among academe companies government.

FUTURE CHALLENGES AND WORKS

The expected result of the ISZ will consist of promoting sustainable economic and social development through more efficient use of the existing technological resources. Information technology has been breaking through barriers of time/space, strongly impacting traditional models of relationships among the various economic segments. The treatment and consolidation of a large part of the commercial practices that exist today needs to be reviewed and reordered because of globalization, the overturning of mercantile paradigms and the speed imposed by information and communication technology.

For Brazil, the growing search by capital of investment opportunities in the global market configures a historic opportunity to attract capital flows that combine an attractive return for investors and leveraging of sustained economic and social development. This is a proposal that places Brazil in the international context of as a dynamic springboard for undertakings, able to remunerate national and regional, public and private investments to finance ventures and companies that can create sustainable competitive advantages and induce a climate of economic and social emancipation, increasing the systemic competitiveness of the Brazilian economy.

In the face of these various possibilities, the objective of this article is to present within an ample scenario the infinite possibilities that arise from companies connected in networks and the search for ongoing learning from generating new businesses.

A more focused unfolding of this work will be done based on the case study of PERTROBRAS, which today is made up of more than 180 companies distributed in a network. The key questions to be developed will be:

- How from a network involving thousands of persons distributed throughout Brazil and the other countries of Latin America can we identify and apply new management practices developed collectively?
- What is the management model that should be implemented to permit connectivity among people to create a cooperative environment propitious for generation of new knowledge?

To address these issues, new mental models need to be constructed for a new environment based on networks, unlike those known up to then that are already internalized by the majority, which based on the traditional industrial economy will not function in an interconnected world (Applegate, 2003).

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