CIT IN DEVELOPING COUNTRIES: THE CASE OF TRINIDAD AND TOBAGO

Milica Bajić Brković

Trinidad and Tobago is faced with the challenge of developing strategies to integrate successfully in the new knowledge economy. Many governmental actions towards "wiring" the nation are currently taking place. Creation of the "intelligent nation" is among country's national development objectives. Vis-à-vis plans yet to be designed and implemented over the next ten years, there is a reality of the www option that has gained a momentum, and is already playing an important role in Trinidad and Tobago. While during the first years the www has been accepted as a medium for communicating and sharing information, today it has moved onto the next generation transforming into the development supporting tool.

The experience of Trinidad and Tobago in using the CIT-based alternative is the focus of this paper. It explores the state of the art in the field, and discusses the way the alternative has been utilized so far in the country's development and management practice. It also identifies the potentials for further development, and suggests a number of proposals for future strategies and actions.

Keywords: CIT, www, Internet, development, management, developing countries, Trinidad and Tobago

INTRODUCTION

Many countries place the Communication and Information Technologies (CIT) high on their development agenda, and rank them amongst the key determinants of their future development. Although CIT taken alone is not a determinator of future development, nor it guides and shape our cities and regions independently of other forces - political, social, economic and cultural, its influence on development is incontestable and increasing.

The World Wide Web (www), and more specifically the Internet, has been introduced on a large scale less than a decade ago, however, in many countries grew rapidly not only in a new communication channel, but into a parallel economic and social domain. As such, it constitutes part of the reality that can no longer be overlooked. The www space has become a place where part of the development and management functions today take place. Currently, there are many e-services in operation, ranging from simple tools for disseminating information and facilitating access and communication, to the most complex forms created and maintained to improve the public domain, and in particular, development and management of cities and regions. Public services and resources have thus become closer to their citizens, and different actors participating in public domain now have an arena for developing dialogue, co-operation and exchange.

Introducing the www based tools into the development and management processes and procedures, does not necessarily lead towards new paradigms or development models. Rather, they are aimed at providing supplementary means to facilitate the existing ones, and to support and comply within the premise of their social/economic role, and its implications. The option has been admired particularly for the role it plays in supporting businesses, locally and internationally, but as a new economic resource in general. As for its social part, the contribution towards enhancing openness and transparency of local governance, as well as development of citizenship and urban democracy, have been amongst those mostly praised.

The experience of Trinidad and Tobago in the field is discussed in this paper. The paper focuses on the way the www based alternative has been utilized so far in the country's development and management practice. It also identifies the potentials for further development, and suggests a number of proposals for future strategies and actions.

TRINIDAD AND TOBAGO ON THE WAY TO THE WIRED WORLD

It was only in 1995 that the World Wide Web was introduced to Trinidad and Tobago. While during the first years it has been accepted as a medium for communicating and sharing information, today it has moved onto the next generation transforming into the development supporting tool.
Today, Trinidad and Tobago is faced with the challenge of developing strategies to integrate successfully in the new knowledge economy. Many governmental actions towards "wiring" the nation are taking place at the current time. Creation of the "intelligent nation" is among country's national development objectives, and different institutions and ministries have been taking steps towards incorporating the use of CIT in their daily operations. The Ministry of Information and Communications Technology has thus been established, and the Government has launched the "Vision 2020", a strategic development document, within which CIT is placed among the top priorities for the next twenty years. The Government has a mandate to take the technology to its fullest potential in order to (a) "catch up" with the global situation, (b) improve its efficiency in operations, and (c) enhance the way of life and development of the nation's citizens.

Important steps which have been taken by government include the creation of an e-Government Unit, and the National Electronic Commerce Secretariat (NeCS). The e-Government Unit is responsible for the development and implementation of a national policy on e-government, and will also eventually supervise the Government Virtual Network which is to be part of the portfolio of the National Information System Centre (NISC). The National Electronic Commerce Secretariat is the official government machinery for the implementation of the e-commerce policy of Trinidad and Tobago. The Secretariat is a central point of contact and coordination with respect to queries and requests for information on e-commerce related activities in Trinidad and Tobago and within the hemisphere and will play an integral part in moving Trinidad and Tobago towards the global digital economy.

The development strategy emphasizes, inter alia, the importance of developing an appropriate strategy for integrating into the world wide technologically based economy, and providing the infra and supra structure for supporting it. Here are some fractions from the document.

**Towards the Globally Competitive and Technologically-Driven Economy**

Government intends to use the information technology revolution as a tool for human development and is therefore committed to transforming Trinidad and Tobago into a globally competitive, technology-driven society. In this regard, information technology will be utilized to nurture and develop the country's human resource capability. Thus the objective is to enhance understanding of the role of technology and adopt best practices to increase the knowledge, develop and leverage competencies and create jobs with the ultimate aim of improving the socio-economic well being of all of the people in Trinidad and Tobago.

In order to exploit technology as a business and social facilitator, Government will continue to invest, build and facilitate the development of information technologies, telecommunications and Internet infrastructures in Trinidad and Tobago. The aim is to make Trinidad and Tobago an intelligent nation, where technology is pervasive in use and is incorporated into every aspect of the improvement of society—at work, at home and at play.

Key strategies include: the establishment of a Technology Park, the liberalization of the telecommunications sector, the expansion of Internet connectivity and implementation of the e-Commerce Action Plan. Additionally, to facilitate and support the thrust in technology, Government will continue to invest in the upgrade of physical infrastructure.

Over the medium term, a National Information and Communications Strategy will also be formulated, with the main focus on:

1. Enhancing the infrastructure for increasing competitiveness by focusing on areas such as telecommunications, industry/academic collaboration in research and development, venture capital, long-term education policy and intellectual property protection.

2. Creating and strengthening the market for Information Technology (IT) services through Government procurement procedures and encouragement of strategic alliances between local and foreign firms involved in information technology.

3. Enhancing general capabilities, both in individuals through skills training as well as management development and in industry through the formation of business associations and co-operation among competitors, to deal with mutual issues and emerging trends in the IT industries.

4. Establishment of the Trinidad and Tobago Telecommunications Authority (TTTEL) is an indispensable element in the development of the information, communications and technology sector. Over the medium term, the Telecommunications Act 2001 and its associated regulations will be implemented. To facilitate in this activity, Government will access the Multilateral Investment Fund (MIF) of the Inter-American Development Bank (IDB) for the provision of technical assistance in the form of legal, economic and engineering consultancies to strengthen policy formulation in implementation and regulatory management.

5. Government through the Freedom of Information Act (FOIA) 1999, will promote transparency and accountability in the conduct of Government business and encourage meaningful public participation in the formulation of national policy. The FOIA Monitoring Unit will facilitate the implementation of the Act in all public authorities through the delivery of sensitization programmes and development of an activity database to monitor the work of the public authorities and their designated officers.

Government will also transform the National Information Systems Centre (NISC) from its current data processing and service function to a policy and coordinating agency for information technology in the public service. Consideration will be given to restructuring NISC into a statutory body or corporate entity in order to more effectively serve its clients and contribute to the wider development of the information economy. Individual ministries and departments will eventually be required to establish their own IT Units to cater to specific needs within the context of a general policy framework administered by the Central IT Organization.

**Development of E-Commerce**

Government can hardly be expected to be the main engine of growth in the knowledge-based economy. Policy and legislation are critical to
the process, however the private sector has already established itself as a major shareholder in cyber space and its influence is steadily growing.

In respect to that, the National Electronic Commerce Secretariat has developed a five-year action plan to bring e-commerce to the forefront of local and international business development. E-commerce holds great potential opportunities for businesses. Besides the access to new and bigger markets, e-commerce can help reduce costs and increase turnaround times by streamlining and integrating processes along the entire business value chain. Further, the emergence of Trinidad and Tobago as a regional e-commerce hub will help to create and sustain an e-commerce services sector. This sector will provide employment opportunities for business strategists, creative designers, system integrators, network operators and other e-commerce intermediaries.

The Electronic Commerce Action Plan was launched to drive the pervasive use of electronic commerce in Trinidad and Tobago, and to establish Trinidad and Tobago as the regional e-commerce hub. This launch marked the start of a campaign to bring electronic commerce to mainstream businesses, the public and Government and to attract international e-commerce activities to Trinidad and Tobago.

The National e-Commerce Action Plan has five main thrusts:

1. Strengthening the e-commerce infrastructure;
2. Increasing participation in e-commerce;
3. Clarify marketplace rules;
4. Building user confidence in e-commerce; and
5. Jump-starting the e-commerce - sectoral initiatives.

Each of these five areas will be implemented through specific programmes and projects over the period 2001 to 2005.

Beginning 2001, the priority of the e-commerce initiative has been to implement the following programmes and projects:

1. The establishment of community and home-based Internet access centres in remote locations throughout the country;
2. The development of Enterprise TT: an e-commerce business development scheme for micro, small and medium-sized enterprises;
3. The establishment of an e-commerce training unit for training the general public in e-commerce and the use of the Internet;
4. The development of an on-line guide to doing e-business;
5. The introduction of a legislative framework and other mechanisms that cater for the protection of consumers rights, protection of intellectual property rights and the criminalization of computer misuse and computer fraud;
6. The establishment of a country registry;
7. The development of e-government towards a better trained, equipped and transformed public service sector that offers efficient and expeditious on-line services to citizens of Trinidad and Tobago; and
8. The implementation of a mechanism that would allow for the establishment of an authentication and certification authority and the promotion of electronic payment systems.

**WWW BASED ALTERNATIVE IN DEVELOPMENT/MANAGEMENT**

The CIT has potentials for improving the quality of public/economic domain by providing different e-services for managing cities and running economy. The e-services are amongst the most rapidly growing development sectors of today, and remarkable results in that field have been achieved in many countries worldwide. In more developed countries there are hundreds of thousands of operating modules with different tools in almost every city/region. Some countries, like Italy or Singapore are gradually replacing a traditional model of the face-to-face office work by this alternative.

Among the range of different tools there are those that have been around since the advent of the www. Others have gone mainstream over the last few years. All of them can be implemented as part of an e-management strategy. The most simple is a website typically used as the foundation for delivering services, and the place where most citizens initially go to explore the types of services that are offered, while the more sophisticated include the Civic Web Network - CWN (Bajic Bkovic, 1999, 2002), Online Portals (Steins, 2002), or Web Portals or Gateway (Creech, et al., 2001). All of them may include different tools and technologies, and with respect to that their role may change as well, ranging from a simple "storage and communication space" to a democratic public realm or business arena.

The www based alternative generates positive effects to all parties involved, from the individual to the societal level. The benefits could be summarized as follows:

**Individual/Citizens**

1. Offers alternatives
2. Enhances public participation in the democratic process
3. Enhances social and community life
4. Provides instruments for carrying out activities
5. Provides access to information and facilities
6. Develops new skills and creative thought
7. Supports cosmopolitanism and trans-localism
8. Opening up an opportunity to integrate the less privileged or otherwise marginalized groups

**Business/Corporate Sector**

1. Supports business and economy
2. Improve service delivery business-client and business-business
3. Creates opportunities to improve delivery at lower costs
4. Enables greater efficiency in job performance
5. May enhance or improve employment practices
6. Opens the door to new business opportunities
7. Provides innovative and new professional tools
8. Provides opportunities to integrate into regional/international business/economic world

**Public Sector**

1. Creates opportunities for governments to improve service delivery at lower costs
2. Provides potentials to improve quality of the local urban management
3. Supports efficiency of local governments and improving quality of the decision-making processes
4. Improves quality of communication between local authorities and their citizens, and adding new opportunities for participation expansion in the local community affairs
5. Provides a platform for communication and cooperation between different local authority's bodies and departments
6. Enables citizens to communicate with their governments in an easier and more efficient way
7. Provides citizens with easier access to different information, government departments and bodies, etc.
8. Supports democratization and public involvement
9. Supports cosmopolitanism and trans-localism and is opening up opportunities to integrate into regional/international wider framework

**THE WWW BASED TOOLS CURRENTLY IN USE IN TRINIDAD AND TOBAGO**

Vis-à-vis the strategy yet to be implemented over the next ten years, there is a reality of the www option that has gained a momentum, and already playing an important role in Trinidad and Tobago.

The web sites, as the most simple tool for delivering the www services, are the prevailing instrument currently in use. An ongoing study on conducting the businesses and public affairs via the web option (Bajic Brkovic, 2003) has revealed that as for the country of this size, there are an enormous number of sites currently operating. This is due partly to the fact that Trinidad and Tobago has the most vibrant economy in the English-speaking Caribbean, and is the fastest growing country in the region. On the other hand, it could be also attributed to the ongoing endeavor of integrating the country into the global processes, and catching up for benefits of the knowledge-based society.

Roughly, the operating sites could be grouped into the following categories:
1. Industry and manufacturing
2. Government
3. Non-governmental organizations
4. Education

In assessing the role they play and impact that have on development/management practice in the country, the following features are relevant:
1. Their mission and contents;
2. Population group they address, and user group they target as their primary client;
3. Type of communication built in: one/two way; real/non real time communication; interactive communication;
4. Provisions for direct involvement and participation of relevant actors/public/stakeholders;
5. Links: local/regional/international;
6. Relevance for improving service delivery;
7. Potentials for enhancing further development of services;
8. Provisions/potentials for manageable and transparent management;

**Industry and manufacturing**

The overwhelming majority of the operating sites in Trinidad and Tobago are from the industry and manufacturing sector. This speaks for a need to explore and use all options available in captivating economic opportunities, with a view to strengthening the country's development. The companies that have chosen to explore and utilize the wired option range from large multinationals to the very small local operating enterprises.

The majority of these presentations are made for the self-promotion purposes, and are constructed and designed to support the companies' self image, as well as for marketing purposes. Only a very small number are at a stage of using the web option as a real communication tool, or as a platform for conducting daily operations.

The communication mode is most often the one-way, and while a small number of them do have an established two-way communication channel, they choose a non-real time operational mode (e-mail, posting messages, comments etc.).

Business-to-public option is as a rule in use, however, a business-to-business option appears to be a growing trend, especially in case of big companies. Good examples are the Petroleum Company of Trinidad and Tobago Limited (Petrotin): http://www.petrotin.com, Atlantic LNG Company of Trinidad and Tobago http://www.alantig.com, Cariri http://www.cariri.com, or The Caribbean Association of Industry and Commerce (CAIC) http://www.Trinidadnet_caic. All these sites are extremely informative. They offer information not only on the companies' profile, but provide a number of linked services as well, and a substantial amount of relevant information for business contacts and business co-operation.

An outstanding example of the business-to-public preference is the Caribbean Shopping site http://www.CaribbeanSN.com, a remarkable practice on using the web technology to support business, but public life as well. A number of different technologies are in function here, including even a simple web mapping and the electronic database.

![Figure 1 - Caribbean Shopping Site](image1)
![Figure 2 - Cariri Technology Services](image2)
Another example, is the Telecommunication Services of Trinidad and Tobago http://www.tsst.net.tt/ which offers various on-line services for its customers, providing a two-way communication channel, and many links to the global search engines, international sites, banking institutions, etc.

A good example of business-to-public model is also the RBTT Bank Ltd., http://www.rbtt.com, which provides financial services such as on-line banking (credit cards, loans, new accounts, etc.), or Nealco Real Estate http://www.nealco-real-estate.com, the company which advertises properties for rent or sale, and contains updated information on current real estate market conditions. Users can obtain information on properties available, but there are other complementing services as well.

Tourism is an important part of the Trinidad and Tobago economy. Consequently, there are numerous sites devoted to that sector of country's development. While the majority is for marketing purposes, several of them use the web option in a more sophisticated manner. A good example could be the BWIA, the largest state owned international airline company in the region http://www.bwia.com which offers not only flight schedules and information on different destinations, but on-line bookings and other services as well.

**Government**

Government constitutes the second biggest www user in Trinidad and Tobago. With respect to what is today a standard in the field, and taking the governmental sector as a whole, the Trinidad and Tobago current situation falls far behind the other countries' experiences. The state of the art for the time being indicates that the web-based option is only at the embryonic stage. Simple and reduced presentations of the government, its structure and bodies, are aimed at supporting the image of the government in the public, and provide relevant information on governmental departments, ministries and agencies.

On the local level (regional corporations), there have been very limited initiatives taken so far. It is worth mentioning though that Trinidad and Tobago is a highly centralized country, therefore the regional corporations have rather limited jurisdiction and responsibilities.

**Figure 3. - Government Official Page**

Regional corporations could be accessed through the Ministry of Local Government. The Ministry's site contains a remarkable amount of information, and provides links to all regional corporations. As for the regional corporations themselves, all sites are developed in a standardized and simple format, providing information on general office information, members of council, and alike.

Both the state government and regional corporations provide very minimal room for interaction between the general public and the governmental bodies government-to-citizens, or for communication between the citizens themselves-public-to-public. The Government of Trinidad and Tobago site has a feedback option though, thus providing the citizens with an opportunity to send their comments and suggestions, or comment on the government activities. Using the web-based option to create a public forum, and a space where public could meet, is however envisaged in the strategic documents on e-development, but has yet to take fruition.

It is interesting to compare the situation in Trinidad and Tobago to what one can find in other countries.

The ongoing intention today, is to use web networking to enable geographically distributed users to access databases and computational resources, to provide efficient messaging and data exchange, and sophisticated real-time communication. Web networking is aimed at providing supplementary means to facilitate access to different information resources related to urban development and management, to sustain and foster further development of urban democracy, and to annex new forms of urban management to the existing ones. The ultimate goal is to construct a more comfortable urban milieu, and more democratic and fair social environment. In essence it may be described as having increased transparency, more effective public participation and public involvement, and improved co-operation.

The situation in Trinidad and Tobago is considerably different. Hardly any of the above mentioned features could be met here. It is rather the opposite the case. It is therefore characterized by:

1. The overall development and deployment of the web networking, compared to other countries, is rather low, at the embryonic stage only;
2. The total number of the typical www-based services is rather limited, mainly serving the basic functions in governing public affairs;
3. The main function of the existing government sites is to disseminate information, or selected data on government and its related bodies;

4. The transparency of government activity is rather low. There are some indications however, of a possible change toward a more open and cooperative work;

5. The citizen's participation is weak, and only in limited cases there exists an effective online communication between the citizens and the authorities.

There are two, strikingly different examples in this category, the Tourism and Industrial Development Company of Trinidad and Tobago http://www.tidco.co.tt, and Central Bank of Trinidad and Tobago http://www.centralbank.org.tt/, each of which offers a remarkable insight in its operations and relevant data. They are most certainly turning a new page in using the web-based alternative, and their experience deserves to be further explored and made known throughout the country.

**Non-governmental organizations**

Non-governmental organizations constitute a third group of the www users. While the NGO sector is quite developed in the country, the corresponding picture could hardly be obtained by observing only their web use. Local community and citizens groups, woman associations, family associations, different interests groups, etc., although very active on the public scene, have hardly, if at all, stepped into the www world. To a certain extent, this could be explained by the cultural model prevailing in Trinidad and Tobago, which assumes a face-to-face contact as a main communication channel, on the other hand, it is also due to the low computer availability at the time, and the low level of computer literacy in the country in general. Digital divide is a reality in Trinidad and Tobago.

The sites that could be identified in this category though, are as a rule designed and maintained by sport clubs and societies, clubs and committees, mainly those that are supported by the government or industry sector. Disseminating information on their activities is their main concern, and only in a very limited number of cases, other options (communications with visitors, e-mail, discussion room) have been explored.

**Education**

The fourth category includes educational institutions and organizations. A distinguished example in this category is The University of The West Indies site, the only one in this category that has a number of established services, and a very good potential for further development. Access to information has been the primary objective so far. A recent decision to start the on-line education programme has provided an impetus for further dynamic and vibrant development of the web based option. Compared to the situation of the only one year ago, a remarkable change has occurred, with the number of services operating for UWI students.

**PROSPECTS FOR FURTHER DEVELOPMENT OF CIT IN TT AND IMPLICATIONS ON SPATIAL PLANNING AND DEVELOPMENT**

Trinidad and Tobago has gained a momentum in developing the CIT based alternative. The governmental "e" strategy provides a platform to build on. According to industry analysts, Trinidad and Tobago does have the potential to become a major player in the digital economy. The Cabinet - appointed National Electronic Commerce Policy Committee estimates that the rate of connectivity is growing steadily for both business and individual users. The foundation required to realize this potential has already been laid, vis-à-vis - there is basic infrastructure, there is a network, the...
Government is committed to introducing the CIT, the private sector is embarking on the process, and there is an emergence of on-line business activity.

As always in times of great structural change, there are many questions that need answers. The specific situation of Trinidad and Tobago, being a developing country, calls for a comprehensive scheme, and specific actions to be designed and implemented on different levels, and within different stakeholders' framework. It is clear that the government cannot be the only "engine" behind the process. Co-operation and collaboration of all stakeholders is needed, if the ambitiously placed goal is to be achieved.

Apart from the National strategy already in force, other actions should include:

1. Supporting all interested parties to become proactive, instead of being responsive and "letting the technology happen";
2. Supporting national/local business in developing and using the web based alternative;
3. Supporting local initiatives, by developing specifically designed incentives for local community projects;
4. Opening up the educational barriers, and focusing on human capital. Approach the issue of the e-education in a comprehensively and with clarity of long-term vision;
5. Include the question of infrastructure provision/development into the national priority development plans;
6. Design and develop incentives for development of CIT;
7. Develop the appropriate regulatory and administrative framework in order to enable and encourage digital communications and transactions;
8. Creation of a high-quality local component, and use the technology to create local capacity;
9. Place greater attention on capacity building, civil society development, public participation, and alike; and
10. Include and encourage the local "Bill Gates" or visionaries in Trinidad and Tobago in the planning/development and visioning processes.

What would be the implications of these strategies and actions for planning and spatial development?

Despite the fact that the web phenomenon is relatively new in the profession and not yet entirely explored, in many countries and cities it has already been fully integrated into the planning practice. E-space is not only a place where people meet. It is also an economic place, a powerful economic resource that fully participates in shaping development of many regions and cities worldwide. At the same time, it is also a place where part of urban/spatial development and management functions takes place.

The global electronic network supports mobility in space and time, and as such is relevant for any planning or development action, be it at a local, national or international level. Transparency, efficiency and economy, the key words of the e-option, support a call for information networking on the Internet to channel organizational and operational resources for planning purposes. There are hundreds of thousands of operating modules with different tools in almost every city or region. Some countries, like Italy or Singapore have begun to gradually replace a traditional model of the face-to-face office work by the e-alternative.

The implications are even wider, and tackle the issues of urban and spatial structure and organization. In more developed countries where ICT have been implemented in a more thoroughly way, cities and regions are already changing their physical shape. Not that often is that visible, nor it has been explicitly brought to our attention. But let us not ignore the evidence which already exist, e.g., only in California there are more than 150 000 no-place jobs created only over the last decade, or the 50% reduction of trips related to the local government operations with their citizens, in Bologna. Distance education based on www has mounted up to 40% in some universities which subsequently has reduced number of trips, demand for housing, etc. There are many other examples which support the principle expressed in this paper that our cities and regions are on a big move, and will substantially change the way they operate and look, in the future.

CONCLUDING REMARKS

Technology-based paradigms, such as that of the information society, provide a multitude of means to a multitude of ends. In this paper, a distinction has been made between the ends and the means associated with this paradigm. The paper explored the state of the art of the means, but clearly it was the ends that guided the discussion.

Trinidad and Tobago possesses a "digital opportunity" and apparently many efforts and actions are on the way to transform this opportunity into the advantage for the country's development. The new Information and Communications Technologies provide several positive possibilities for the country from the individual to the societal level and are here to stay.

There are the questioning and doubling tones as well. In addressing the concerns of those who are skeptical to incorporate these technologies into the social, economic and spatial fabric of the country, it should be noted that CIT do not necessarily exist to replace existing and traditional mechanisms of doing things, but they do offer more efficient alternatives and as such provide options. In fact, new technologies offer the possibility, for the first time, to provide improved delivery at a reduced cost.

REFERENCES


