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Esta revista é (e sempre foi) eletrônica para ajudar a proteger o meio ambiente, mas, caso deseje imprimir esse artigo, saiba que ele foi editorado com uma fonte mais ecológica, a *Eco Sans*, que gasta menos tinta.

# COAXING AN INFORMATION SOCIETY IN THE DOMINICAN REPUBLIC: THE RISE AND STEEP FALL OF A TECHNOLOGY PARK'S UNIVERSITY RESEARCH CENTER

## A INDUÇÃO DE UMA SOCIEDADE DA INFORMAÇÃO NA REPÚBLICA DOMINICANA: ASCENÇÃO E QUEDA DE UM CENTRO DE PESQUISA UNIVERSITÁRIO EM UM PARQUE TECNOLÓGICO

(paper submitted in October 2010)

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### **ABSTRACT**

*ICTs are tools that help fuel the processes underpinning the daily activities of an information society engine. Latin American communities are using these tools in the form of policies, strategies and programs to participate in the digital global economy. The Dominican Republic is an example of a country seeking to be a key player in this regional market. This paper discusses the attempts by a technology park's semi-public university to launch an ICT research center. The study is based on a rich auto-ethnographic account by the author's own experience as the chief coordinator of this center. Overall, the paper provides an interesting story of the challenges faced in launching a particular ICT research center, which can be used as lessons to many other research centers in less developed countries.*

*Key-words: Latin America; technology parks; information society; information and communication technologies (ICT); auto-ethnography; critical theory; practitioner research.*

### **RESUMO**

As TICs são ferramentas que ajudam a "azeitar" os processos em que se baseiam as atividades diárias de uma sociedade da informação. Comunidades latino-americanas têm utilizado essas ferramentas na forma de políticas, estratégias e programas para participar da economia digital global. A República Dominicana é um exemplo de país que procura se transformar em um protagonista no mercado regional. Este artigo discute as tentativas de uma universidade semi-pública em um parque tecnológico de implantar um centro de pesquisas em TICs. O estudo envolveu um procedimento auto-entográfico, em que a experiência do próprio autor como coordenador chefe deste centro é analisada. O artigo apresenta uma história interessante dos desafios enfrentados na implantação do centro de pesquisas em TICs, que pode servir de ensinamento para muitos outros centros de pesquisa em países menos desenvolvidos.

Palavras-chave: América Latina; parques tecnológicos; sociedade da informação; tecnologias da informação e comunicação (TICs); auto-etnografia; teoria crítica; pesquisa com profissionais.

## 1 INTRODUÇÃO

As societies move further into the 21st century and the information age continues to expand into new global territories, the democratizing potential of information and communication technologies (ICT) will present a critical challenge to emerging economies as well as less developed countries. While the world has witnessed dramatic waves of ICT, relatively little has been said in the literature about the impact of the future of the information society in Latin America (HILBERT & KATZ, 2002; GALPERIN, 2005).

For scholars of technological innovation and diffusion, many questions emerge about the connection between the current economic crisis in general and the information society. This paper examines the connection between the worldwide crisis, one Latin American country, and the future of its information society. Some have described this country as “a microcosm of the immense changes sweeping all of Latin America and the Third World” (WIARDA & KRYZANEK, 1992).

This article investigates the recent attempt by a public-private university in the Dominican Republic to establish the first ICT research center in the country’s only technology park. The findings shed some light on ICT research centers in technology parks in Latin America. It serves as a particularly useful case study because the Dominican government has aggressively encouraged the growth of similar technology projects, along with tourism and traditional forms of foreign investment, to leapfrog into an information economy (TRAUTH, 2005; BREZIS, 1991). This analysis is an attempt to fill a void of ICT research in less developed countries, most of which are trying to grease-the-wheels of ICT reform. The research questions being explored in this study are:

1. How did a semi-public university in Latin America succeed and fail in the establishment of an ICT research center in a technology park?
2. In what ways did the current economic crisis shift priorities away and affected the plans of the Center?

This study is important for several reasons. First, this study will expand current understanding of a phenomenon that has far-reaching social, business, economic, cultural, and political implications. Second, little, if any, research to date examines the impact of the current economic crisis on the future of our information society, particularly in regions like Latin America<sup>1</sup>. Third, the article will make an important contribution to the ongoing debates about effective practices for fostering a digital information economy in less developed markets.

The article opens with a brief review of the historical context of the Dominican Republic, followed by an overview of technology parks, and then the recent round of telecommunication investment growth in the Dominican

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<sup>1</sup> The importance of this region is evident in several top information systems conference’s decision (the 16th Americas Conference on Information Systems for instance) to host their recent gatherings in the Latin American market, given the dearth of research that exists from and about this region.



Republic that has been recently spurred by the current Administration. The paper offers an auto-ethnographic exploration of the investigator's own personal experience with a technology park start-up research center. Implicit in this exploration are recommendations and suggestions for the Administration, policy makers, business professionals, intellectuals and the general public. It concludes with some lessons drawn from the personal narrative and the implications for the information society. Much of the data are drawn from the author's own ethnographic account, supplemented when possible by data from secondary sources.

This article has five sections: The first section is this introduction. The second section offers brief historical and contextual overview of the country, a brief literature review of technology parks, what constitutes an information society and how the Dominican government is attempting to foster one. Section three describes the methodology and theoretical underpinnings. Section four describes the research setting and findings taken from the author's own ethnographic experience. Finally, the paper concludes with policy recommendations, implications and some conclusions.

## **2 A MIXED HISTORY WITH KEY CONTRIBUTIONS**

Founded in 1492, the Dominican Republic would become the colonial capital of the Americas and a launch pad for further Spanish expeditions. The capital, Santo Domingo, retains much of its original character and contains many European firsts in the Western Hemisphere including the first street, the first cathedral, the first hospital and the first university. Unsurprisingly, the national Latino identity of the Dominican Republic is based on the fabrication of the colonial period - an idealized and often distorted story of the coming together of the Spaniards, the Africans and the native Tainos.

Today, it is the second most populous country in the Caribbean about half the size of the U.S. state of Ohio with approximately 10 million inhabitants. It is a democratic republic, geographically well positioned to the United States and situated in the heart of the Caribbean - located ideally between the North, Central and South American markets. By location alone, it's a natural haven for maritime and air transportation facilities but also investors and tourists. Real estate investors are often attracted to the country's saleable property. Venture capitalists are increasingly taking notice to its market potential. Tourists are enamored by its tropical beauty. Entertainers, politicians and sports figures have made it a well-known hot spot.

Additionally, the nation hosts a highly developed free trade zone system. Traditionally, it is one of the chief exporters of cigars, organic cocoa and bananas<sup>2</sup>. It also exports sugar cane, amber and Larimer. The manufacturing sector includes products in electronics, electric components, textiles, footwear, pharmaceuticals and medical devices. Followed by Mexico, the

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<sup>2</sup> The traditionally stable industries of sugar cane and banana exports are dwindling.

Dominican Republic is the second largest apparel and footwear importer in Latin America<sup>3</sup>. At present, it boasts almost 60 industrial free zone parks with several hundred companies operating under a tax free haven.

From a telecommunications standpoint, the country's infrastructure is one of the strongest in Latin America, led by major international carriers including Codetel, Tricom, Orange/France Telecom and Centennial. There are over 7 million mobile lines with the lowest T1 connection costs in Latin America as well as approximately 1 million fixed lines, with an annual growth of 10%<sup>4</sup>. Recently, the country has been diversifying and moving into the technology services sector that is being led by its strong telecommunications backbone. These ICT advances are credited, in part, to the local government's efforts to welcome foreign direct investment<sup>5</sup>, updated labor codes, free currency convertibility, competitive compensations and regulatory costs. Also, the fairly stable democratic and economic climate is favorable, in relation to other Latin American countries, to businesses thereby creating an enticing opportunity for international prospects and cultivating a strong, healthy national business/economic relationship.

This said, however, despite the great market potential and competitive advantage, the Dominican Republic is one of the poorer members of the western Hemisphere. with a per capita GDP of \$8,896<sup>6</sup>. The country is statistically one of the largest exporter of prostitutes in the world<sup>7</sup>. Its poor education system and the high population density are also key contributors to not only poverty but also health issues including AIDS and marine contamination<sup>8</sup>. Political corruption evidenced in the recent failed bank bailout and unsuccessful monetary policies are a problem (SANCHEZ-FUND, 2005). Racial tensions with neighboring Haiti continues and grows as thousands of Haitians move westward in search of jobs and better life. The recent earthquake disaster in Haiti will further test Dominico-Haitian relations to the extreme. Any businessperson attracted to the investment opportunities in the Dominican Republic will need to deal with these socio-economic and cultural realities.

### 3 DEMYSTIFYING THE INFORMATION SOCIETY

Currently no generally accepted definition exists concerning what constitutes an "information society." This study borrows Castells' notion. According to him, an information society is one in which "the creation,

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<sup>3</sup> American Apparel & Footwear Association (AAFA) ([www.apparelandfootwear.org/](http://www.apparelandfootwear.org/)).

<sup>4</sup> Telephony Statistics - Instituto Dominicano de las Telecomunicaciones (INDOTEL) ([www.indotel.org.do](http://www.indotel.org.do)).

<sup>5</sup> This is regulated by Law 16-95 which welcomes national and foreign investors, allowing for full reparation ([www.bancentral.gov.do/normativa/leyes/Ley\\_16-95.pdf](http://www.bancentral.gov.do/normativa/leyes/Ley_16-95.pdf)).

<sup>6</sup> "Dominican Republic". International Monetary Fund ([www.imf.org](http://www.imf.org)).

<sup>7</sup> "2008 Human Rights Report: Dominican Republic". Bureau of Democracy, Human Rights, and Labor. U.S. Department of State ([www.state.gov/g/drl/rls/hrrpt/2008/wha/119157.htm](http://www.state.gov/g/drl/rls/hrrpt/2008/wha/119157.htm)).

<sup>8</sup> "Sex, tourism and HIV. A hazardous association in the Dominican Republic" ([www.nih.gov](http://www.nih.gov)).

diffusion, and manipulation of information plays a critical role in the economy” (CASTELLS, 1996; PUTNAM, 2000; SCHEMENT & CURTIS, 1997) characterized by the increased role and rapid growth of ICTs, instigated by global information-interaction infrastructure enabling effective information exchange among different cultures. It is rooted in the post-industrialization era of the 1960s and 1970s and marked by the end of industrial capitalism and the advent of a service economy. The objective of an information society is to provide access to local and global knowledge, while satisfying societal needs offered by information services and products. At a meta-level, it can be viewed as both an engine of social, economic and cultural change in the 21st century and beyond (DUTTON *et al.*, 1999; KVASNY & TRAUTH, 2002). Or, we can borrow the notion that an information society acts as a mirror to gaze at a society’s digital competitive edge through telecommunication and technological achievement (SCHEMENT, 1999). The more information acquired, the more knowledge is created through the economic exploitation of learning .

This said, the idea of an “information society” is not without controversy and finding a universally accepted definition/metric of information is problematic (DARNTON, 2000). Conceptualizing the information society presents one of the greatest challenges in the 21st century as no single measurement allows us to effectively examine it at a macro level. Nevertheless, examining the challenges of the information society is crucial to understanding democracy - what it is and what it could be. The information society raises questions including: How will the information society transform personal and professional relationships? What role will information take in transforming less developed markets in the Information Society? Regardless, access to and skilled use of ICT will continue to be seen as public goods in this new society.

Based on this argument information technology skills and access are beginning to be seen as public goods because, like education and libraries, they are capable of providing positive externalities associated with economic growth and democratic governance (AMERICAN LIBRARY ASSOCIATION, 2003). Because computer and information technologies are framed as tools for participation in the economy and the political arena (GRANT, 2005; BRIDGES.ORG, 2005), this provides a strong case for government intervention to provide access to all citizens. In this context, access to ICT is seen by many governments as a public utility, similar to that of water, gas, electricity and waste, rather than a luxury.

In functional terms, this argument is built on the belief that ICT is becoming a cornerstone of modern life, as much of public, private, educational, and economic life have both online and offline components. It has been argued that as full participation in civic, commercial and social life is tied to Internet and computer literacy and access, high-speed access is becoming a necessity rather than a luxury (ORTIZ & TAPIA, 2008). To support this there have been several studies that claim people who have access to and the skills to use the Internet are (1) more successful economically, with respect to education, jobs, earnings, (2) socially participate more in terms of

political and civic engagement, (3) and receive more government services and other public goods than those who do not (TAPIA, KVASNY & ORTIZ, 2010; ODEN, 2004).

Thus, understanding the importance of an information society is critical because information plays a key role in today's digitally heterogeneous and highly contested society. One school of thought takes this idea a step further and argues that civilization is based on information and declare the 21st century as the age of "information rights" (GRIGOROVICO *et al.*, 2004). The idea is that as we progress further into the high-tech millennium, more governments are helping to extend these rights to all citizenry by providing tools to support the provision of basic tier-information services. More and more governments are using ICT, especially Internet and web-based networks, to provide services between government entities and citizens (by way of e-government initiatives). State simply, democratic and egalitarian governments understand that people without information access in this new century will not be able to fully exercise their rights as citizens (BRIDGES.ORG, 2005; GRANT, 200; LAU *et al.*, 2008). Analogously, just as highways were a critical infrastructure component in the last century, ICT access, and particularly the Internet, is essential to the 21st century infrastructure.

Because critical ICT tools raise the level of human capital in the economy and drive a knowledge-based economy, access to and skilled use of these tools will be indispensable for fully participating in the economy and the political arena. This provides a strong case why government intervention may be necessary to provide access to all citizens, not just those who are already advantaged. Governments set priorities through legislation and policy to ensure the use of ICT tools in achieving social, cultural, business, and economic goals. To public officials, these tools should foster a digital inclusion imperative resulting from a high level determination to see people online accessing information and services.\

#### **4 TECHNOLOGY PARKS AIM TO LEAPFRONG INTO THE FUTURE**

For many countries, the establishment of technology parks is seen as the best way to leapfrog into the information society. Evidently, technology parks have played an important role in development strategies both in developed and less developed economies, e.g. the U.S, Western Europe, Israel, Taiwan, Japan, and many others (BREZNITZ; 2007; BRESNAHAN *et al.*, 2001; SAXENIAN, 1994). These "science" or "research" parks, as they are often dubbed, seek to serve as catalyst agents relying on a cluster of technology-heavy business enterprises (SCOTT, 1996).

The widely accepted premise underlying technology parks is that a community or region's "long-term economic viability will depend on its ability to generate and sustain a concentration of businesses capable of developing new products (or processes) that can penetrate international markets" (LUGAR & GOLDSTEIN, 1991). For countries with a declining manufacturing



influence and an increased dependence on an information economy, technology parks are seen as tools for economic development. For more developed countries whose economies are more advanced and on the right track, investments in science parks serves as a “long-term insurance policy” (LUGAR & GOLDSTEIN, 1991). In either case, these parks, when implemented successfully, almost always lead to more than just employment and new business lines, but social changes in occupations, communal culture, political discourse, policy and so on. While some of these can be classified as advantageous to any given region, the benefits and costs of the intended initiative is not always viewed equally among different population groups.

This said, the development of technology parks is one of a number of initiatives to promote the development of a technology-based sector. Most Latin American countries have adopted other technological strategies, plans or programs to drive the ICT policy revolution in their respective markets.

## 5 IN SEARCH OF A (DOMINICAN) INFORMATION SOCIETY

Nations that have historically lagged behind in ICT advancements are increasing their rate of adoption in numerous ways (BALUTIS, 2001; PELTON, 2003; STEINFELD, 2002; LIN & ATKIN, 2002). Across Latin America, the technological experience and overall landscape of efficient ICT programs that promote an information society varies from country to country. Argentina, Brazil, Chile, Mexico, and Uruguay are the “leaders,” boasting the highest number of Internet Service Providers and Internet users as well as most advanced usage and application of e-government (FREVERTON & MIZELL, 2001; LAU *et al.*, 2008). However, not all Latin American countries have experienced similar success. In other countries, the creation, development and rollout of ICT initiatives and policies continues to be a daunting challenge; for many nations of the Latin American region, it remains a learning process, extremely slow and marked by setbacks, often shelved due to other political priorities.

Like other Latin American countries, the Dominican Republic is also focused on mobilizing programs that promote ICT tools and foster an information society. Like some European and Asia Pacific countries, this Caribbean island hopes to leapfrog into a knowledge-based economy (TRAUTH, 2005; TAYLOR & JUSSAWALLA, 2001). Under the auspices of President Leonel Fernández-Reyna<sup>9</sup> – a prominent attorney who spent part of his childhood in the U.S. - the government seeks to create this society by the establishment of a technology corridor, investments in ICT research, development of an e-government platform and attracting foreign investors<sup>10</sup>.

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<sup>9</sup> The current President of the Dominican Republic since 2004. He held the same office between 1996 and 2000.

<sup>10</sup> President Fernández-Reyna issued decree 1090-04 that formed and designated the Oficina Presidencial de Tecnologías de la Información y Comunicación (OPTIC) with the goal of leading its e-government initiative.

The country's first (and only) technology free zone park was conceived, developed and implemented under the first term of the Fernandez-Reyna presidency from 1996-2000. This technology corridor, the Cyber Park of Santo Domingo (hereafter Cyber Park), was designed with the intent of mimicking technology corridors in the Asia Pacific or Silicon Valley in the state of California. The park was built to drive, to a large extent, the information revolution in the island (and arguably beyond). Today, Cyber Park specializes in information services exports, software development, computer design and manufacturing technology products. The park acts as the government's catalyst to the development of a technological hub in the country. Some of the startups and businesses housed within the high-tech corridor include call centers, software development firms, business outsourcing groups, medical device specialists, printed circuit board manufacturers, injection molding and micro-electronic device experts<sup>11</sup>. To many, Cyber Park is seen as a world-class facility aiming to serve technologically-minded academics, ICT practitioners, while leveraging research and development activities and advances in ICT production, consumption and distribution.

Cyber Park is unique in that most of its in-house research centers are dedicated to the development of biotechnology, software, mechatronics and nanotechnology. Using a framework<sup>12</sup> for technological innovation and development, the park aims to integrate learning and innovation processes dedicated to increasing economic competitiveness through innovative entrepreneurial and intellectual. Similarly, the park promotes ICT entrepreneurship by way of its Empreude program which facilitates important business networks by creating new companies, generating job opportunities, and training managers. More importantly, this initiative seeks to educate local entrepreneurs with technological backgrounds and identify business leaders capable of converting ideas into commercial opportunities with a rapidly growing global scope.

Notwithstanding the creation of Cyber Park, there are other similar ICT initiatives that focus, in part, on ICT research development in the country, namely, the Economic Research Center for the Caribbean, Marine Biological Research Center, Biotechnology & Industrial Innovation Institute, Dominican Institute of Telecommunications (INDOTEL), Dominican Institute for Farm and Forest Investigation, and the Higher Agricultural Institute. However, what makes CyberPark unique is not only the investment but the scope and scale of the venture. This initiative as well as other similar big budget projects arguably allows the country to become "the Singapore of the Caribbean" (STIER, 2006).

Furthermore, the country also invests in university or research centers in the private and public sectors that promote ICT for development. Case in point: the first high-tech institution of higher education was inaugurated

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<sup>11</sup> Cyber Park of Santo Domingo ([www.pcsd.com.do](http://www.pcsd.com.do)).

<sup>12</sup> Cyber Park of Santo Domingo ([www.pcsd.com.do](http://www.pcsd.com.do)).

during the first term of the Fernández-Reyna. At the dawning of 2000<sup>13</sup>, Las Americas Institute of Technology (hereafter ITLA) was officially inaugurated. ITLA is housed within the technology park. It is a public-private institution that aims to encourage technological development and competitive advantage through foreign investments, education, encouragement of creativity and critical thinking. The curriculum is extensive and offers a wide range of certified training programs to bring workforce skills and bilingual professional education to students in the technology field. Some areas include computer-aided design, information technology, industrial design, mechatronics, multimedia, telecommunications, software engineering assembly and injection molding, industrial electronics, automatic controls and computerized numeric controls<sup>14</sup>. The campus offers several technological amenities to its students and staff, namely, wireless internet, a library, business services, a sports complex, a nursing office and a local credit union. ITLA has undoubtedly played a pivotal role in the lives of local Dominicans and has acquired a reputation for its innovative style in education. Unsurprisingly, it is viewed as a local market leader.

Relying on its state-of-the-art Cyber Park and ITLA's leading-edge pedagogical model, the country hopes to leapfrog as a competitive member into the information society, both from an industrial and educational stance. ITLA and the technology corridor as a whole are key contributing members of the Dominican information society. Both are designed to serve as the key drivers for socio-economic development by servicing the ICT industries, train the labor force, encourage innovation and disseminate research activities. For a country still facing high levels of poverty and social inequalities, Fernández-Reyna is trying to germinate a new regional ICT hub and has put forth ITLA and Cyber Park as the guiding initiatives to thrust the 500-year old country into the scientific and technological innovation age.

## 6 AN AUTO-ETHNOGRAPHIC, CRITICAL, AND GROUNDED APPROACH

As a young scholar, I have already been trained across various epistemologies and methodologies. I am comfortable with a variety of qualitative traditions, yet this study employs a unique approach unfamiliar to me: an auto-ethnographic method to address the research questions. Although ethnographic and auto-ethnographic reports are presented in the form of personal narratives, this research tradition does more than just tell stories. An auto-ethnography is both an anthropological account and personal narrative that examines the subject matter through the eyes of the writer's own personal experience (ELLIS & BOCHNER, 2000; GREENWOOD & LEVIN). Unlike an ethnography account whereby the research relies on qualitative

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<sup>13</sup> Resolution #05-2006 of the National Council of Higher Education, Science and Technology (CONESCYT in Spanish) decreed Las Americas Institute of Technology (ITLA in Spanish) inside Cyber Park of Santo Domingo as an institution of higher education in the Dominican Republic.

<sup>14</sup> Instituto Tecnológico de Las Américas ([www.itla.edu.do](http://www.itla.edu.do)).



research methods to collect data and understand a particular culture (e.g. participant observation, interviews, etc.), an auto-ethnography only takes the researcher's subjective experience into account when examining the practices and belief constructs of the subjects being explored. Although auto-ethnographic work is both controversial and problematic, subjectivity is the least common denominator in most qualitative studies; so, auto-ethnography is slowly gaining acceptance in the sciences, namely, sociology, journalism and communication.

In traditional ethnography, the investigator embeds herself/himself in the field to study "the other." Ideally, "the other" involves a particular group removed from her reality and dimension – different native group, socio-economic status, or beliefs (PATTON, 2002). Ethnographic research strives to usually remove the researcher's influence from the project and presentation of data. The data should reflect the lived experience of the group being studied with the investigators' personal viewpoints extracted from the study in order to accurately reflect the culture (VIDICH & LYMAN, 2000). Recent postmodern critiques suggest that relating stories that surround the researcher's personal struggles and experience is a legitimate and integral part of the study (GREENWOOD & LEVIN, 1998). In this light auto-ethnography helps by explaining the impact of the current crisis on the information society in the Dominican Republic.

This study employs an analytical induction (structured form of grounded theory) methodology of inquiry. Grounded theory describes the manner in which theory develops from data collection and analysis (BOWERS, 1988). It was developed by Glaser and Strauss, who identified an opportunity to move away from the traditional construct of verifying theory (GLASER & STRAUSS, 1967; CRESWELL, 1998). In contrast to experimental design, grounded theory does not conform to the expectations of a pre-determined hypothesis, because theory is constructed rather than tested (BOWERS, 1988; STRAUSS & CORBIN, 1998). The theory is, thus, grounded in the data from which it was generated rather than being drawn from a pre-existing body of knowledge.

Analytical induction is particular to qualitative studies and is a way of dealing with observational data using an iterative process of developing categories. While pure grounded theory and analytical induction are advocated for theory development and testing, there are few examples of this being employed. This research study is a vivid example of how this approach can be carried out.

Therefore, the epistemology for this research study is qualitative, interpretive and critical. Qualitative research is grounded in the ideals of description, narrative, and experience (MERRIAM, 1998). When trying to understand the complex lives of people – culture, context, lived experiences, and intricacies of a specific case – qualitative methodology provides the opportunity for thorough, deep involvement. Through interviews, observation, and immersion, this study develops a rich, thick description and understanding of the subject matter (MERRIAM, 1998). Qualitative research



helps the reader to understand participants' stories and behaviors (STRAUSS & CORBIN, 1998).

The study is interpretative for several reasons: it attempts to understand the deeper structure of phenomena within its cultural/contextual situation; it reveals the story behind the statistics; and it lends itself to multiple degrees of openness. This study also performs the critical role of critiquing the status quo by exposing structural contradictions and distortions in belief systems and social practices by calling for changes in practices. By understanding the story, the research provides empirical data and practical implications for practitioners, policy analysts, government officials, and telecom decision makers.

Following this retrospective account, I collected over a one-year period (September 2007 – August 2008) reflections-in-action consisting of several handwritten pages, created weekly and supported by other documentary evidence in the form of workplace artifacts such as: computer screen images (printed at various stages of the project, labeled, dated, and kept in a project file), emails (stored on hard disk), resource material related to project content such as government reports, CDs, books, and writing prepared by other members of the ITLA community (labeled and stored in project files where possible), directives from project initiators, grant proposals, letters, memos, meeting minutes and agendas, and visitors' comments, letters, and e-mails (labeled and stored in project files). At the time of writing, I kept over 300 pages of documentation in all. The handwritten pages served the purpose of crystallizing ideas and provided a record

After this one-year period of reflective writing and formative analysis, a summative analysis was undertaken in which an overarching process of categorization and theming (STRAUSS & CORBIN, 1990) took place. This analysis stimulated deeper and more detailed reflections in which recurring themes and meaningful tracks were developed. These themes formed the foundation of this narrative and provided the basis for theory development.

I chose an auto-ethnographic method not for its poetic license but because it provided the most appropriate means of investigating the research focus: the tacit understandings of a university organization involved in designing, developing and implementing an ICT research center in a technology park. Similarly, Latin America represents an appropriate research study target owing to the dearth of ICT/information society work in this area. It is important to note that the narrative account of the research moved beyond mere emotional expression by demonstrating deeper levels of reflection and analysis and by employing a style of authorship that highlighted connections to broader themes. The collection of multiple sources of evidence, the establishment of a chain of evidence, and the use of peer review also helped establish my report as a scholarly rather than an emotional account.

#### ETHICAL CONSIDERATIONS

To my knowledge, no one had previously attempted to conduct an ethnographic study of emerging ICT academic start-ups in Latin America.

Certainly this role was new to me and exerted particular stresses to me in ways that influenced not the research process but my overall experience as the Center's coordinator during my year-long tenure with ITLA as well as during the writing phase of this research.

The nature of this auto-ethnography highlights a number of ethical issues inherent in qualitative research. However, a major concern that I have relates to the knowledge that this research center and its participants have about this research, especially since I had access to all the information not as a researcher but as a paid employee. ITLA nor its affiliates have been informed about the fact that I was studying them nor were they given the opportunity to read and comment on this paper. Although, I do not disclose names of participants, I provide enough identifying information that I suspect the identities of the participants (including the various decision makers) could be determined. In retrospect, it may have been impossible to receive consent to conduct this research (MASON, 2002). As Mason suggests, I have thought long and hard about the ultimate purpose of this research with ethics, morality and politics at the forefront of my mind. As such, it is my hope that what I am doing is novel in trying to provide my reflection on what went wrong in this initiative and how could other research centers in developing countries learn from the mistakes of this one.

## **7 RESEARCH SETTING**

In July of 2007, I was offered a paid internship (akin to a quasi-fellowship) by ITLA in the Dominican Republic to head their newly created "Centro Internacional de Investigacion en Alta Tecnologia" or "International High-Tech Research Center" in Spanish (hereafter CREA). The "high-tech" labeling was a misnomer as it was rather a start-up center that focused mostly on ICT initiatives. In September of that year, I moved to the country for a period of eight-months, although my contract continued remotely for an additional four months (or one year in total).

### **7.1 OVERVIEW OF THE RESEARCH CENTER**

CREA was formed in 2007 as an inter-departmental and inter-academic unit of ITLA, but also as its research arm. It was the de facto center of its kind in the country not only because of its prime location within Cyber Park but because of its unique research depth and breath. By establishing CREA, ITLA hoped to further develop a unique culture of research within the technology park and in the Dominican Republic. It hoped to push the frontiers of knowledge across higher education disciplines in the country, taking advantage of their modestly successful high-tech university.

Especially, the center sought to originate and disseminate research and development mechanisms that employ ICT solutions in order to mobilize the Dominican population with innovative ideas to strengthen its social capital. It was founded on the premise that ICT plays a significant role in development efforts by opening up new horizons for progress and the exchange of knowledge, education and training, and for the promotion of creativity. It

hoped to achieve this goal by bringing researchers and technologists from around the world, and in so doing, becoming the ICT research hub in the country. Its ultimate goal was to be the leader in one of the most prestigious and important institutions of higher education in the country. Its goal was to not only serve as the key portal or gateway of ICT research in the country, but to become the most recognized and reputable center in its own right, not only in the Caribbean but in all of Latin America.

In the short term, while Cyber Park worked to combine advanced IT research with early stage high technology companies moving into and out of the incubator, ITLA and CREA sought to develop research projects that work concomitantly with the very real economic issues the country faces all while supporting the thematic areas of research of the institution. The center's four thematic areas of research were: Software Engineering, Geographical Information Systems, Mechatronics, Renewable Energy, and the Information Society. Some of the research projects that were identified and approved during the first phase of implementation are noted below:

1. Evaluation of an educational web portal all while improving the learning process of children and adolescents in the Dominican Republic
2. Simulation of Hydrodynamic fluids on the hydrographic basin of the Dominican territory using Geographical Information Systems in order to create an early warning detection system for rain floods
3. The development of a conceptual model that integrates a radio frequency identification system, a global positioning system device, and geographical information system framework for business intelligence and knowledge management
4. Development of qualitative and quantitative indicators that examine the impact of ICT in the judicial sector of the Dominican Republic
5. Design and development of a methodology for software quality project management using the Capability Maturity Model Integration approach and the software engineering standards of the IEEE
6. Designing windmills from recyclable auto materials in order to implement a renewal energy resource for the Dominican Republic

By way of these research lines and projects, CREA hoped to achieve ICT research dominance, stature and control in the Dominican Republic. It also had other secondary or less obvious ambitious. The center established additional milestones in the short-term which included the first Dominican ICT peer-reviewed, top ranked journal in the region, development of patents and utility models, and the launch of a doctoral summer school or camp for research scholars.

## 7.2 OVERVIEW OF ROLE, STAFF AND DAY-TO-DAY ACTIVITIES

I became the center's chief coordinator in September 2007 and reported directly to the Executive Director of ITLA. At the time of my arrival, I was

provided one office space in one of the four main buildings that ITLA owns within Cyber Park.

The CREA team consisted of seven doctoral students and one part-time staff member (a secretary). Two of the doctoral students were females and five were males. Three lived in low-income neighborhoods, one resided in a middle-class community, one was a business professional, and two were university administrators. Four of the doctoral students had just returned from a university in Spain after having passed the equivalent of their comprehensives – the others had just completed the equivalent of their candidacy examination<sup>15</sup>. I, too, was a doctoral student having just defended my dissertation proposal in the spring of 2007. Unlike them, I opted to temporarily move to the country and accept the internship/fellowship for purposes of advancing my own research know-how.

As the center's chief operator, I was charged with training these doctoral scholars in hopes of making them top, ranked scientists. Similarly, I was tasked with drafting and implementing the strategic plan, managing resources, coordinating efforts to promote the Center (organizing website development for instance), building relationships across several public and private organizations and pursuing joint research projects.

The contractual obligations of the young doctoral research team included the following:

- Teaching approximately ten hours per week in one (or more) of the Center's thematic lines of research;
- Working on at least one (1) self-funded research project per annum;
- Preparing and disseminating research results in various forms such as peer-reviewed journal articles, technical papers in refereed journals, professional newsletters, news releases, posters, and educational materials;
- Attending conferences and meetings, for the purpose of professional and scientific interchange;
- Providing general research assistance and guidance to the development and strategic planning of the Center;
- Collaborating with other national and international research groups;
- Expanding current efforts to review and share the scientific literature on Dominican issues and programs, and ensure local research issues are integrated into the global body of literature;
- Providing leadership and mentoring in research to ITLA's community, the Dominican government, non-governmental organizations, private firms and the general population; and

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<sup>15</sup> These young scholars returned to the country due to restrictions imposed by their student visas, the inter-organizational agreements and work commitments between ITLA and the Spanish universities, or a combination of both.



- Serving as a member to various government-sponsored commissions and committees.

The Board of Directors was composed of 12 academic experts. It was established to guide the incorporation of the Center and create a stronger link to the academic community within and outside the country. The key board members of the Center were:

- a director of a computing center from Spain
- an IT department head from Spain
- an associate dean of a computer science department from Spain
- a professor of e-learning from Spain
- a professor of journalism from Spain
- a telecom industry professional from the U.S.
- a prominent business owner, former professor of computer science from the U.S.
- an ivy-league university administrator from the U.S.
- a university provost from an engineering school in the U.S.
- a dean from a communications school at a well-known public U.S. university.
- a dean from a computer science department at a major U.S. institution
- a professor of environmental studies from a local university

### 7.3 A REFLECTIVE REVIEW OF THE “START-UP” EXPERIENCE

During the research process, an exploration of ITLA’s research center in their quest for fostering an information society in the Dominican Republic was undertaken. This section through taking cognizance of the methodological and theoretical fit to the literature, attempts to situate the research findings. It highlights emergent themes, and thus, examines the ways a university research center in one country in Latin America attempted to pave the way for ICT research. Despite the difficulty in disentangling the multiple components involved in this narrative and uniqueness of the research setting, the emergent themes reveal some broader aspects of the information society in this country and its relation to the challenges facing Latin American countries.

#### THEME 1: ONLY AS STRONG AS ITS WEAKEST LINK

I viewed my tenure at ITLA as basically my growing-up time as a professional and scholar. I became head of a start-up research center in a Latin America country at the age of 28 and had just completed two years of marriage. I was a novice in every sense of the word in academic terms, having completed three years of research, with no doctoral degree in hand. Professionally, ITLA gave me a hands-on opportunity to immerse myself project management and development.

This said, the lack of a fully qualified candidate is problematic at best, dangerous at worst, given that the overall CREA system was only as strong as its leader. The ability for a renowned high-tech institution to make available such a visionary center – particularly through the engagement of key international stakeholders is contingent upon the right level of leadership as well. Although it is a great step to have this center available to the Dominican community, CREA would make little to no impact until a practiced professional or experienced researcher is hired to lead the initiative.

My role was a newly created position for ITLA and the overarching goal was to “run” the center. Although I had a fair grasp of how to write an article and run a basic experiment, I certainly wasn’t steeped in the content areas (i.e. GIS, Energy, Mechatronics, etc.). Similarly, I had never managed a department, resources, budget figures, or a strategic plan. I suppose the manner in which I focused on digital divide issues in my research took precedence over my lack of experience in business management. In any regard, I was very happy to land the role at ITLA. Mostly due to the fact the staff at ITLA quickly embraced me during my tenure there and were a huge catalyst in my learning and professional growth. I tried to soak up every conversation, discussion, conflict, celebration or opportunity for growth so I could learn as much as possible. The staff was especially supportive in many ways. I received more gifts and invitations than I could have ever possibly imagined.

This finding is consistent with previous research (ROSELL *et al.*, 1992; MARCELLE, 2004). These scholars posit that in order for Latin American leaders to succeed in the design, development and implementation of their information society, they need to use experienced and creative leadership that finds appropriate solutions. Because CREA was positioned as a key player in the Dominican information revolution, the project was too big to be left to a single stakeholder. Rosell *et al.* argue that leadership in the information society “means taking the lead in establishing a shared framework of goals, interpretations and values (a shared model map), and then encouraging a wide range of players, both within government and across society.” (ROSELL *et al.*, 1992).

## THEME 2: ENAMORING DON JULIO

I arrived in the Dominican Republic as a “tabula rasa.” In my first few weeks at the university, there seemed to be a positive buzz in the air among staff members of ITLA. I was frequently greeted as “Don Julio” as “Don” is an appellation used to denote respect in Spanish-speaking countries. Being a first generation American, this made me feel uneasy and out of my element so-to-speak considering my elders in the U.S. were often bestowed this honor. Higher-ranking officials within the institution frequently congratulated me on a job well-done and indicated the internship could be a permanent fixture if I chose to stay. I was floored by the kind and gracious invitation.

My transition into ITLA took place as the current person overseeing the pilot project was leaving the university to seek another opportunity. The Executive Director named me head of CREA as this person was preparing to

leave the institution. I was fortunate in having learned from all my previous temporary consulting roles. In retrospect, I was much more equipped to handle the pressures of the job than I had previously anticipated. My learning curve was very steep. I not only had to understand the culture, but also adapt to the current research work environment (or lack thereof).

I was quickly exposed to many personalities and organizations. I attended meetings held by the Office of the First Lady<sup>16</sup> and the Ministry of the State of Higher Education, Science and Technology<sup>17</sup>. I met with senior officials from the Dominican Institute of Telecommunications<sup>18</sup> (akin to the Federal Communications Commission). I engaged with presidents of local universities and senior administrators of other institutions of higher learning. Although I admit I enjoyed the process of constructing these newly found social networks, I was not prepared to make this country my home.

Some scholars assert that “brain drain”<sup>19</sup> offers a disadvantage to less developed markets. Trauth, Dutta et al argue that some Asia Pacific and European countries have been able to successfully turn that into an advantage in the global labor marketplace (TRAUTH, 2005; DUTTA *et al.*, 2006). Treverton & Mizell (2001) assert that the need to attract and retain skilled resources goes beyond education to safety and living conditions that will attract potential “brain drain” prospects. Although I felt a sense of community and unity across ITLA as well as a sense of adventure living and working abroad, I often felt my safety was at risk. During my time with ITLA, I was hospitalized twice due to food contamination at the school cafeteria. I also survived through Hurricane Noel, living without running water for a few days. These experiences were not the reason for leaving the post but could certainly be considered contributing factors.

### THEME 3: LOS COMESOLOS<sup>20</sup> (“THOSE WHO EAT ALONE”)

The term “los comesolos” is a local political pejorative used when a current administration tends to not only heavily favor their own and ignore others, but also amass illicit wealth from public funds.

I quickly became disillusioned with the organization when I came to see that the most distinctive and consistent aspect of its lack of collaboration was what it avoided, rather than what it focused upon. In statements, meetings, calls and various conversations, I found that, time and time again, ITLA avoided engaging other key local universities and institutions as key partners. Either it saw them as competitive threats that could be as onerous as not having any competition, or else when it calls for participation, collaborators

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<sup>16</sup> Despacho de la Primera Dama ([www.primeradama.gob.do](http://www.primeradama.gob.do)).

<sup>17</sup> Secretaria de Estado de Educacion Superioro, Ciencia y Tecnologia ([www.seescyt.gob.do](http://www.seescyt.gob.do)).

<sup>18</sup> Instituto Dominicano de Telecomunicaciones ([www.indotel.org.do](http://www.indotel.org.do)).

<sup>19</sup> Brain drain is the emigration of individuals with technical skills or knowledge.

<sup>20</sup> In Dominican parlance, government groups that often hand out favors to a reduced inner circle are called “comesolos” or those who rather eat alone and not share among a wide pool of collaborators.

are appended to some random invite list as if it were some minor last minute addition to a shopping list.

Partnerships allow developing countries to overcome the obstacles of insufficient resources, expertise, and project management. This is particularly true of the information society where partnerships should not be viewed as a threat but an opportunity. They are a vehicle for accelerating organizational learning and for organizing trans-organizational communities of practice and innovation. Some researchers have provided a framework for understanding the imperative for collaborative research partnerships, particularly those involving government, university and industry actors (CARAYANNIS & ALEXANDER, 1999). Conversely, other scholars like Flora & Hirt (2005) posit that those same forces that have coalesced to create a knowledge economy in which collaboration and competition are critical elements for success in industry have resulted in an academy that functions more like a private enterprise (GILDE, 2007; SLAUGHTER & RHOADES, 2004). Such organizations must learn to share resources and facilities to both compete and collaborate to ensure organizational survival.

#### THEME 4: TALENTS DENIED AND BLAME SHIFTING

It is in its handling of the tensions within its research team, however, that ITLA has been truly disappointing. As the team leader of the Center, I expected to work with a team of Ph.D. researchers to further develop the thematic lines of research within the institution and work with the student population to engage in activities to voice their opinions and concerns, and raise research awareness on the value of ICT to the Dominican experience. I was naïve to think ITLA would recruit (and retain) scholars that studied any aspect of the Center's lines of research and that could integrate research scholarship with creative practice and/or efforts at advocacy and social change. Although the friendships forged during my tenure there with the young research team are invaluable on a personal level, they are insignificant to the sustainability or survivability of the center.

In less than six months after arrival, I was asked to terminate the first contract of one of our team members due to the student's failure to perform and produce research in the short order. The second research member was fired for the same reasons a month later. In retrospect, ITLA's contract with the research team was one-sided and unfair to these young scholars. These young scholars should have been protected and treasured as gold so-to-speak but instead slipped through ITLA's safety net. Like most scholars, I, too, believe the social contract between institutions and government in the information age must deal with these real threats to human capital (SCHEMENT, 1999; PUTNAM, 2000).

Additionally, ITLA's handling of the recruitment process was disconcerting. It was not so much the position it espoused of working with the current doctoral students they had sponsored to study abroad (all in universities in Spain) but the fact that the institution made no real effort to organize a formal call, business statement or marketing campaign to attract scientific and professional top talent. Other local universities, the Pontificia



Universidad Católica Madre y Maestra<sup>21</sup> and Instituto Tecnológico de Santo Domingo<sup>22</sup> for instance, were surprisingly successful in hiring locals, expatriates or foreigners, who lead their own research programs. But, ITLA failed to mobilize a “top scholar” campaign, and reluctantly ignored the perils of not having a pipeline of qualified ICT research professionals within their own institution.

#### THEME 5: YOU CANNOT HAVE OMELETTES WITHOUT BREAKING EGGS

No doubt there is a humorous exaggeration in this aphorism, but there is gross exaggeration in the frame of mind against which it is directed. You cannot have omelettes without breaking eggs, you cannot build a top-ranked research center, without making a significant financial investment, key resources (e.g. qualified administrative head and research professionals) and key infrastructure with all services and support involved.

Our office space (ex teachers lounge) was never fully equipped with more than two computers. We often had to share the slow broadband landline for Internet access. All eight cubicles were often empty with infrequent visits from the research team who Internet access to lead functional research lives.

Overall, I felt pressured to produce quality research without adequate support. These were not seasoned scientists but young ambitious doctoral students. I, too, was a young scholar who had accepted the assignment to learn about my own personal Dominican identity. I accepted the role and was immediately asked to produce top-ranked research all while drastically changing the socio-research fabric of the school in the very short-term.

This theme is consistent with Mansell’s position, that ICT policy has a role to play in economic development, but key priorities and widespread access must be prioritized Mansell (2001). Mansell cautions against unrealistic expectations, reasoning that institutional and infrastructure must be addressed first. Sussman (1997) agrees, suggesting that ICTs’ abilities to transform society have been overstated. Proponents urge decision-makers to exercise restraint, lest they burden their people with unrealistic expectations; resulting in disillusionment when the applications fail to be the panacea they are billed to be (SUSSMAN, 1997).

However, I suggest asking not only whether ICTs are amenable to any improvement in the Dominican landscape through the introduction of CREA, but assuming the answer is positive, how to shape the broader environment in ways that may make particular applications and services as useful as possible in combating the existence of at-risk communities. Wolfe (1996) calls it the “integrated approach to development”. It is important to recognize that the causal relationship between ICTs, technology parks, universities/research

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<sup>21</sup> The Nanoscience and Technology Research Lab hosted by Dr. Fabrice Piazza (<http://www.pucmm.edu.do/RSTA/Academico/Facultades/Ingenieria/Departamentos/ITT-Carrera/Profesores/FabricePiazza/Paginas/default.aspx>).

<sup>22</sup> The Remote Perception Lab hosted by Dr. Yolanda Leon ([www.intec.edu.do/premota/sigrd.htm](http://www.intec.edu.do/premota/sigrd.htm)).

centers and quality of life is complex and requires significant investments in the short and long run. The enthusiasm with which ITLA rushed into creating the center often seems to overshadow the question of precisely how CREA contributes to promoting economic development and fostering an information society in the Dominican Republic. Exclusive emphasis on the euphoric nature of these centers, at the expense of in-depth analysis and evaluation of the broader socio-economic context, is likely to result in unanticipated failures, wasted time and frustrated resources.

THEN CAME THE CRISES OF 2008, 2009 AND COUNTING...

Although the benefits of a knowledge economy provide an enticing opportunity, the crises continue to engulf the world economy and are difficult to foresee. Globally, the housing boom and bust that precipitated the crisis were enabled by loose monetary policies. Semiconductors, electronics, communications and IT equipment were hit by slumping business and consumer demand and growth dropped sharply. ICT employment trended downwards. ICT research and development declined. Then, seemingly overnight, drivers that were used to measure the growth of an information society, seemed to have evaporated. The magnitude of the recent financial quasi-meltdown and subsequent recession not only impacted advanced knowledge economies but also emerging regions like Latin America and specifically countries like the Dominican Republic.

Unsurprisingly, the Dominican Republic has weathered previous crises due to the willingness of the people to bolster their education and increase their opportunities. However, as credit tightens, more foreign investors are pulling out of less developed markets. The establishment of an information society in the country was once a given, but with the current crises, the future of ICT ventures is uncertain at best, ominous at worst.

The crises are already forcing the nation to make difficult social, business and economic decisions. In the case of ITLA, it changed the priorities from broad-based ICT research investments to sustenance of "top" IT projects. With this shift in priorities, there has been a new sense of urgency and the time frame for the programs continues to change at an increasing rate from short-term to shorter periods. Rather than plant seed money and build programs slowly, there is a great concentration on immediate results. Without the required short term results, resources are quickly laid off and funds diverted to other infrastructure programs and thus, delaying or aborting the advancement of its information society.

Eventually, the institution scaled-back several of its technological programs, CREA being one of them. As of this writing, it is my understanding the center is no longer in operation. I was not able to find any information online post the highly publicized launch event. Naturally, I do not believe ITLA would have covered at the spectacle of having the country's first ICT research center criticized or analyzed. I argue this is considerably more than a digression. It is about understanding the tendencies and tensions inherent in the information society wherein we must find the right balance between the rights of the individual and the obligations of governments, of being

willing to stimulate the discourse necessary to redress the social ills of less developed societies.

## 8 KEY POLICY RECOMMENDATIONS

The findings suggest policy issues and implications for ITLA, the Dominican Republic and Latin American countries.

First, ITLA needs to make special efforts to promote more joint research collaborations with other universities. The government must help ITLA and similar universities work in partnership rather than competition by enhancing the value-add and allowing universities to take ownership of the research discourse. One option, more frequent now in Latin American countries, is to work in collaborative research projects to achieve a mutually benefitting common good.

Second, ITLA needs to have a vested interest and political patrimonialism in the community where it is located. The government and local partnering agencies need to adopt a long-term strategic approach to truly assist the local community where the technology park is located<sup>23</sup>. Although ITLA started a pilot project to provide wireless broadband access to their local community (known as e-Caleta), the program never fully launched (HERNANDEZ *et al.*, 2008).

Moreover, once research opportunities are identified and agreed, these resources should be trained in scientific thinking. My experience as head of ITLA's research center suggests that this institution may be saddled with unbalanced budgets and insufficient revenues to support scientific training expenditure. Whatever the causes this finding foreshadows the fact that a more efficient and accountable management is needed, at least in the absorptive capacity. After all, researchers thrive on the intellectual training processes that lead to the refinement and development of their research careers. This often takes the form of participation in academic conferences, attending training workshops, going to professional seminars, getting involved in educational summer programs, and so on. Eliminating individual (and even political) discretion, and developing a standard for priorities should be a first step to creating a stable pipeline of scientific workers which shifts the main focus from short to long term returns.

Hard hitting strategies should be discouraged. At a government level, officials should understand that one cannot introduce radical and hard hitting reforms into the country easily. The country already bears several plans from international financing institutions (International Monetary Fund, World Bank, etc.) and the pressure to create political stability is tremendous. In order to revive a sluggish economy, precautionary measures are important. Often the poorest citizens suffer from the very reform measures that are supposed to

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<sup>23</sup> ITLA is located in La Caleta, Boca Chica a few minutes outside of the capital. This community is one of the poorest and most vulnerable in the region.

help them. Some of the goals of the Center were simply too lofty (i.e. setting up a top-ranked, peer-reviewed journal, generating patents, etc.).

In this same vein, Cyber Park and ITLA need to better align their research agendas. At the institutional level, ITLA's strong focus on "top" ICT projects (renewable energy and geographical information systems for instance) should be cautioned. Although this finding is not surprising (organizational leaders are always seeking to leave their legacy), ITLA should find a way of aligning its CREA strategies with the Cyberpark's current activities. This said, however, my experience there suggests that the ITLA-CyberPark relationship needs to be strengthened and may not be fully aligned. So, there may be needs for additional dialogue. During my tenure, Cyberpark's economic agenda and ITLA's newly designed research plan was not harmonious, and to date, it is not clear what and how they should best be targeted. As Kay & Shapira (2009) indicate, "there seems to be challenges here for Latin American countries in the mix of research access where academic presence is strongest, but may not always mesh with economic sector opportunities."

The government should increase involvement and incentives with its university research center community. Good government establishes predictability with enforcement mechanism. Institutions should be put in place to establish a legal standardized framework that reduces the risk of failure. Improving the governance requires an ICT reform agenda aimed towards broad-based development designed to answer the peculiarities of the Dominican economy and take the unique historical and cultural make up into account.

## 9 CONCLUDING REMARKS AND IMPLICATIONS

This piece is not without its limitations. It shares with all research, for example, the fundamental limitation and strength, of viewpoint. That is, I give only my viewpoint. Other researchers might tell a completely different story. My effort is to offer the reader insight into my "culture", "situation", "way of life" (PATTON, 2002, p. 84). The work is subject to the politics of interpretation, as it should be. Yet hermeneutics notwithstanding, allows readers to bring their own lenses through which to share in at least some part of its meaning. At least this is my hope.

While some governments pursuing ICT research centers within technology parks hope to leapfrog into an information economy there is still a socio-economic and political deficiency, the focus has shifted from social justice to political mileage. This shift is the result of an inherent tension that exists between local universities, which are motivated to produce an IT pipeline of workers, and the government which is motivated by monetary expediency and political considerations. More importantly, this paper seeks to raise the tension between the research agenda that has initially motivated ITLA and the "profit" motive that ensued. By profit, this means any type of gain or get-rich-quick scheme (such as notoriety, rewards and reputation).



This disconnect may lead to a host of other problems in which public policy, local government, and universities are seen by underserved communities as untrustworthy. However, a positive result of this autoethnography demonstrates that ITLA was able to swiftly and convincingly render a project plan, assign resources, and devise a strategic agenda to sway funding approvers toward a more favorable stance. I concede that the growing use of such tactics has brought the social inclusion issue to the forefront in the Dominican Republic. Although this project served as a site that brought together the realities of disparaged communities, research that addresses social-political-technological concerns is needed. The questions are immense, the current research is meager, and the implications are far-ranging.

The turn of a century often marks a reflection on the past and fresh aspirations for the future. It is clear that establishing an information economy in less developed world contexts will not be as easy to foster given current market constraints. There are both internal and external questions related to the Dominican Republic. Any assessment of strategies for developing the information society in this country needs to take into account broader considerations and debates about potential influences and impacts as well as tendencies and tensions both positive and negative. So, this gives rise to the big questions that need to be addressed in future studies: Should this country continue to promote an information society in spite of the current economic constraints? Should they (re)invest in ICT tools once the economy “picks up”? Should the world interject and help “the left behind”? What is Dominican public interest, civil society, policymaking, and public discourse saying about the crisis? Is this a trend across Latin America? What are the dynamics of adoption and usage of ICTs by Latin American universities? These are just some of the questions that arise.

In sum, it is probably too early for unequivocal verdicts. The Dominican Republic is a small country without an entrenched economic system like Mexico or Brazil; it is therefore arguably more flexible and able to take advantage of the innovations in information technology. However, the nature of the current global economy might not be conducive to developing as strong of an information society infrastructure as previously desired. Although one successful initiative could very well drive the Dominican economy for decades to come, it must begin in manageable steps and take off without too much need for marketing or public relations. Fortunately, the Dominican Republic has several other programs which do have the potential to reach an international zeitgeist but many still require investors. Regardless, the resolve and spirit of the Dominican people is resilient enough to adapt and overcome.

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