

Instituto de Investigaciones en Ciencias Económicas



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**REPORT ON THE STATE OF LOGISTICS INTEGRATION  
AND WORKFORCE “READINESS” IN COSTA RICA  
POST DR-CAFTA, AND PRE-EU TRADE ACCORD:  
IMPLICATIONS TO COMPETITIVE ADVANTAGE**

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## Presentación

El Instituto de Investigaciones en Ciencias Económicas (IICE) de la Universidad de Costa Rica, se complace en presentar a la comunidad académica y público en general, el informe “Report on the State of Logistics Integration and Workforce “Readiness” in Costa Rica Post DR-CAFTA, and Pre-EU Trade Accord: Implications to Competitive Advantage”. Este estudio fue preparado por la Dra Elaine S. Potoker, Profesora del Loeb-Sullivan School of Internacional Business and Logistics del Maine Maritime Academy, de Estados Unidos. La Dra Potoker disfrutó de una pasantía de la Fulbright en la Facultad de Ciencias Económicas de la Universidad de Costa Rica. Durante este período impartió lecciones en la Escuela de Administración de Negocios y realizó su trabajo de investigación en el Instituto de Investigaciones en Ciencias Económicas. El trabajo de campo incluyó un intenso proceso de entrevistas con representantes de organizaciones públicas y del sector privado, lo cual aportó información muy valiosa sobre los temas tratados en este informe.

Este estudio de la Dra. Potoker se presenta en un momento oportuno, dado que el país está muy cerca de terminar un largo proceso de negociaciones políticas, para que entre en vigencia el Tratado de Libre Comercio de Centroamérica y República Dominicana con los Estados Unidos. Además, se encuentra en una fase avanzada en sus discusiones para un tratado de libre comercio con la Unión Europea. En ese entorno, pareciera que el país avanza a un ritmo acelerado de su apertura comercial y de integración con la economía mundial. Ante esa realidad, este estudio nos permite hacer un alto en el camino para evaluar si Costa Rica ha desarrollado con el mismo dinamismo sus capacidades en áreas claves para competir con éxito en una economía global, así como de reflexionar acerca de estos temas que muchas veces ignoramos por dedicar más tiempo a lo urgente que a lo importante.

El estudio de la Dra. Potoker representa, sin duda, un aporte importante a la discusión actual en temas relacionados con el estado de las capacidades en áreas claves como infraestructura física, logística, infraestructura de telecomunicaciones, gobierno digital y fuerza laboral. A diferencia de varios estudios recientes, cuyo énfasis se ha centrado en análisis cuantitativos de los problemas y dirigido a una audiencia principalmente académica, el presente trabajo representa un esfuerzo innovador en términos metodológicos y su público meta es el de tomadores de decisiones. En ese sentido, es un estudio accesible para una base mucho más amplia. Otra diferencia con estudios anteriores es que va mucho más allá de un simple diagnóstico y ofrece una interesante discusión acerca de alternativas de política y su impacto potencial en la competitividad del país.

Ph.D Justo Aguilar  
Director IICE

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### *Acronyms and Abbreviations*

As acronyms (siglas) are plentiful in Costa Rica for just about every governmental and non-governmental (NGO) entity, the following are listed for easy reference, along with abbreviations of terms mentioned in discussion.

AACUE	Association Agreement with the European Union (Acuerdo de Asociación con la Unión Europea)
CIES	Council for International Exchange of Scholars, a division of the Institute of International Education (IIE)
CINDE	Costa Rican Investment Board (Coalición Costarricense de Iniciativas para el Desarrollo)
CLAD	Iberoamerican Charter of Digital Government
COMEX	Ministry of Foreign Trade (Ministerio de Comercio Exterior)
CONAPE	National Commission for Educational Loans (Comisión Nacional de Préstamos para la Educación)
CONARE	National Advisory Board of University Chancellors (Consejo Nacional de Rectores) [Representing Public Institutions of Higher Education]

CONESUP	National Advisory Board of University Chancellors [Representing Private Institutions of Higher Education]
DR-CAFTA	The Central American Free Trade Agreement or TLC as it is known in Central America
EU	European Union
FDI	Foreign Direct Investment
FUNDES	Foundation for Latin American Sustainable Development
GDP	Gross Domestic Product
ICE	Costa Rican Electricity Institute
IIE	Institute of International Education
INA	National Institute of Learning
INCOP	Costa Rican Institute of Pacific Ports (Instituto Costarricense de Puertos del Pacífico)
INEC	The National Institute of Statistics and the Census (Instituto Nacional de Estadística y Censos)
INCOFER	Costa Rican Railway Institute (Instituto Costarricense de Ferrocarriles)
MEIC	Ministry of the Economy, Industry and Commerce (Ministerio de Economía, Industria, y Comercio)
MIDEPLAN	Ministry of Planning and Economic Policy ( Ministerio de Planificación y Política Económica)
MOTP	Ministry of Transportation and Public Works
PROCOMER	The Foreign Trade Corporation of Costa Rica
RACSA	Radiográfica Costarricense S.A.
SICE	The Organization of American Status (OAS) Foreign Trade Information System
SME's	Small to Medium-Sized Enterprises
TICA/TIC@	Information Technology for Custom's Control

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## Introduction

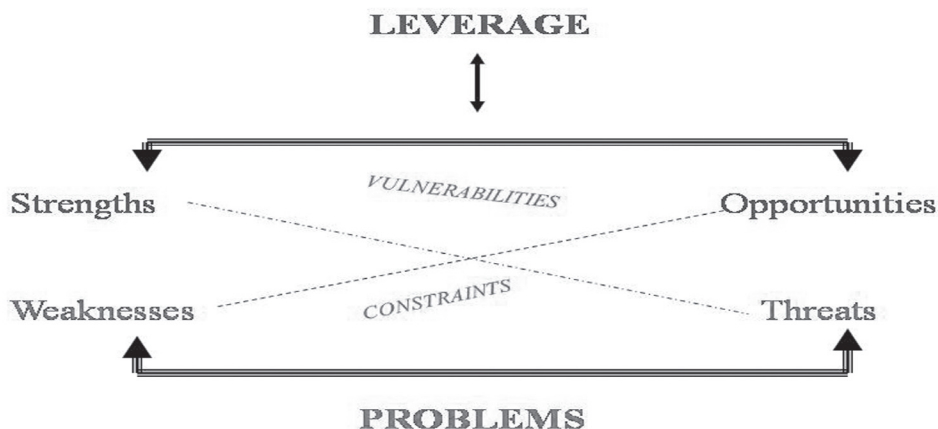
Year 2007 was an exciting time to be in Central America, and in Costa Rica, in particular. Why? Because the Tratado de Libre Comercio/Free Trade Agreement or TLC as it is known in Costa Rica (DR-CAFTA), just passed (barely--approx. 52% - 48%) through a public and admirable democratic referendum process in October <sup>2</sup>. Costa Rica won a UN Security Council Seat from 2008-2009. Costa Rica and China established diplomatic relations. It is also anticipated that China will be a significant investor in infrastructure; accords have already been signed specific to petroleum and technical and economic cooperation. Preliminary negotiations have begun with representatives from the European Union (EU) to explore a trade accord similar to the EU Chile model; and much infrastructural and technological development is underway--to be discussed further in this review.

Costa Rica, as a value-chain partner and an investment location, presents a competitive profile. That profile of strengths includes, but is not limited to: its adult literacy rate of 95% in 2004 (Human Development Indicators, 2006), its track record of attracting Foreign Direct Investment (FDI)--growing more than tenfold between 1980 and 2003 and doubling between 2005 and 2006 ("Inversion Extranjera Directa," 2006), growth in non-traditional exports <sup>3</sup>, its sustained political stability, and its "near shore" location to the United States, its primary market. The annual percentage of GDP growth in Costa Rica in 2006 was an impressive 7.9%, higher than in any of the G-7 "developed" countries ("Key Development Data," 2007).

The initial focus and purpose of the study was to identify and explore country developmental "readiness" specific to logistics integration and workforce preparation—in short, an analysis of strengths, weaknesses, opportunities and threats/vulnerabilities/constraints (SWOT) as shown graphically in Exhibit 1. This graphic is a basis for discussion throughout the paper.

TNC/ETN Transnational Corporation (Empresa Transnacional)

### Exhibit 1. SWOT ANALYSIS Model Format



© Elaine S. Potoker, 2000 - 2008

As stated earlier, while Costa Rica's strengths present a competitive profile as a value-chain partner and investment location, exploratory study findings offer implications to future Costa Rican and regional challenges regarding competitiveness and planning efforts, particularly as trade accord implementation goes forward. As frequently happens with qualitative studies, other themes surfaced during the interviews. As they are related to the focus of the study, they are also addressed herein with the expectation that they will be useful to those who have current and potential future vested interests in Costa Rica and the region. The paper is intentionally written for a practitioner audience, which explains why findings are presented first, and background which generated them, subsequently. It is hoped that the reader(s) will forgive, yet understand this unorthodoxy in reporting research findings. To report on these issues is much akin to trying to photograph a moving target, therefore, the imperative to place exploratory findings in the hands of those for whom they matter most, particularly those who participated in the interviews.

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### ***Co-Existing Paradoxes (the Old vs. the New)***

From the perspective of a researcher, whose academic and business formation have been influenced by the fields of anthropology, international business, public policy and economic and organizational development, Costa Rica is a tapestry of organizational complexity. Impacting decision-making are long-standing laws, new (and old) decrees, a changing government every four years, rotating officials, organizational functionalism, task forces, nationalistic pride, and a direct democracy--where everyone has an opportunity to have an opinion<sup>4</sup>. The following was a common thread representing numerous interviewee perceptions of the democratic process a la Tica here:

*Costa Rica es curioso porque como somos un país reconocido internacionalmente por nuestra democracia; todo el mundo tiene derecho a opinar; y así es. Tal vez, esa libertad también nos amarra.*

Costa Rica is a curious case, because as we are known internationally for our democracy, everyone has the right to an opinion, and that is the way it is. Perhaps that freedom also holds us back. (Assistant Manager and Consultant, semi-autonomous State organization)

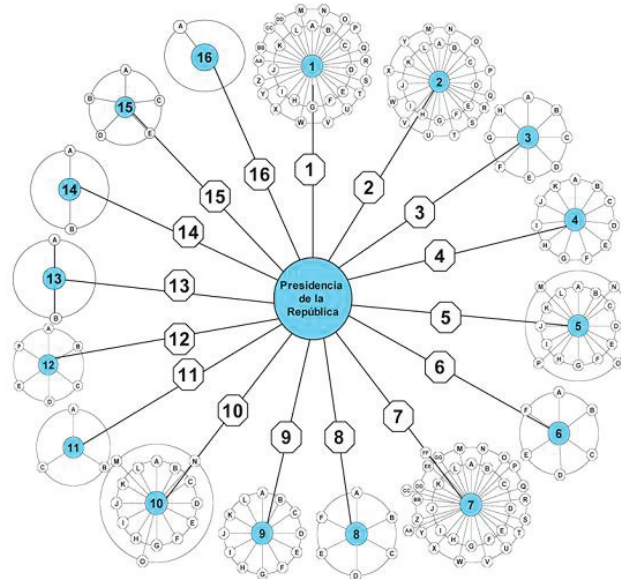
As supported in interviews, this intricately woven, paradoxical co-existence of the new and the traditional tends to slow-down decision-making and goal attainment a constraint, but one that is not fatal. Despite frequent spurts, lateral side-steps, and sometimes steps hacia atrás (backwards), development does happen. How and why that development takes place, while an intriguing case study for an anthropologist, is beyond the scope of this study. Suffice it to say that it does...somehow. Therefore, first the paper addresses those advancements which represent strengths, and in certain cases, opportunities. Subsequently, it turns to the challenges that apparently lie ahead. Some of the challenges, constraints, and/or vulnerabilities involve the very nature of the political and organizational tapestry as described earlier.

### ***Infrastructure and Logistics Integration***

The strategic plan for the country for 2006 - 2010 is formulated, coordinated and monitored by the Ministry of Planning and Economic Policy (MIDEPLAN) with input stakeholders and from Ministries responsible for respective areas of national development. Those Ministries and respective responsibilities are represented in Exhibit 2a, inner circle 1 - 16.



Exhibit 2: Organization by Sector of the National Development Plan 2006 - 2010



### **16 Institucional Sectors and Respective Ministries**

1. Social y lucha contra la pobreza
2. Sector Productivo
3. Sector Educativo
4. Sector Salud
5. Sector Ambiente, Energía y Telecomunicaciones
6. Sector Financiero
7. Sector Cultural
8. Sector Seguridad Ciudadana y Prevención de la Violencia
9. Sector Infraestructura y Transportes
10. Sector Ciencia y Tecnología
11. Sector Trabajo y Seguridad Social
12. Sector de Coordinación Gubernamental
13. Sector Comercio Exterior
14. Sector Política Exterior
15. Sector Política monetaria y supervisión financiera
16. Sector Turismo

Source: Plan nacional de desarrollo: 2006-2010. (2007).

Section 3.2 of the National Development Plan (PND) frankly acknowledges that the (PND) will not be able to accomplish everything, given the country's limited resources.

*...gobernar es escoger, identificar los principales desafíos que enfrenta el país, los obstáculos que se interponen en su camino al desarrollo y los catalizadores que pueden precipitar este desarrollo. Gobernar es definir prioridades y es tomar decisiones en cuanto a usos alternativos de los recursos públicos, siempre limitados. ... Por estas razones, este Plan no lo incluye todo, y acaso tampoco incluya todo lo que es importante.*

...to govern is to choose, to identify the principal challenges the country faces, the obstacles that stand in the way of development and the catalysts that can bring about this development. To govern is to set priorities and make decisions regarding alternative uses of public resources that are always limited.

...For these reasons, this Plan doesn't include everything, and perhaps does not include everything that is important (PND, p. 29) <sup>5</sup>.

These resource constraints have significant implications to infrastructural development, which, in turn, have implications to the focus of this study. Nevertheless, there are many infrastructural improvements underway in Costa Rica to improve the highways, ports, airport, and communication systems between the ports and Customs. As appropriate to the activities and interests of the organization involved, interviewees were asked to assess the current state of transportation integration in Costa Rica; additionally they were asked to comment on specific pillars of infrastructure that need to be in place in order to achieve an efficient multimodal system of transportation in Costa Rica and in the region <sup>6</sup>.

Harmonization of information management system technology was generally perceived by interviewees to be as super important to Customs control, logistics management, and new business formation in the country--hence, an important pillar. This is discussed in the section that follows.

### ***E-Information Technology***

#### ***Proyect TICA or TIC@ (Information Technology for Customs Control):***

Those interviewees who are impacted by the degree of seamlessness of document transfers between Customs and the ports, affirmed the importance of Project TICA, an e-information project that was mentioned in every interview by representatives of State organizations. TICA is an information management initiative that aims to connect Customs locations electronically throughout Costa Rica. The idea is to create a "virtual Customs"--to automate and harmonize transactions with Customs, which prior to Project TICA were the subject of complaints by many importers and exporters (F. Velázquez D., 2005, p. 1). When accomplished country-wide for both imports and exports, a paperless Customs stands to benefit many stakeholders, including, but not limited to Customs personnel and agents, Ministries, Port Authorities, free trade zones, banks, freight agents, air, maritime, and land transportation companies, and more.

The Project is the Costa Rican adaptation of the Uruguayan GIA/LUCIA system that was launched as a pilot project in 2005 in the Pacific Port of Caldera, and then targeted for implementation in the Atlantic Port of Limón. Projected hoped-for results by the Ministry of Hacienda (the Treasury) involve improvements in transparency, security, transaction time, accuracy of information, standardization of best practices, and efficiency from both a duty collection and operating cost perspective <sup>7</sup>.

### ***Gobierno Digital***

TICA is an element of the broad-based, Gobierno Digital (GD), a private sector, digital platform, e-initiative launched in 1999 by a multidisciplinary group of students from MIT (Boston) and Harvard in the U.S. throughout Latin America; it aims to simplify administration of services between citizens and public and private institutions through information technology and communication (TICs). Interviews overwhelmingly support the importance of this initiative in Costa Rica and its implications to this study. Why? As stated earlier, Costa Rica is a complex tapestry of laws, bureaucratic functionalism at all levels from Ministries to municipalities and other state and semi-autonomous related agencies. A digital platform that creates seamlessness and reduces transaction time is considered to be an essential pillar that has many implications to competitive advantage for the country and the region. Reduction of the digital divide between public offices and citizenry was a focus of the Seventeenth Latin American Summit of Heads of State and Government that met in Chile in November, 2007. The adoption of the Latin American Charter of Digital Government (CLAD), according to one interviewee, may provide leverage to attract additional resources to advance the e-government initiative in Costa Rica and the region. These developments should be viewed more as imperatives for Costa Rica (and the region) to ultimately weigh in as a value adding, strategic platform for commercial activities. Yet, if not in place just to a tiempo (just in time), they could well become constraints and vulnerabilities for this country--an important observation which is a segue introducing the section to follow.

### ***Telecommunications Infrastructure***

The Costa Rican Electricity Institute (I.C.E.) is the state-owned monopoly that controls the country's development, management, production and commercialization of electricity and telecommunications. Through its subsidiary, Radiográfica Costarricense S.A. (RASCA), it also provides telex, telegraph, video conferencing, data transmission, Internet access, facsimile, data and value-added related services. Under the terms of the DR-CAFTA, particularly as described in Chapters 10 (Investment), 11 (Cross-Border Trade in Services), 13 (Telecommunications), and 14 (Electronic Commerce), Costa Rica will be required to open these public telecommunications markets to competition, according no less favorable treatment that it accords to companies in its own territory (DR-CAFTA, 2007). This will require substantial legislative reform--already underway, and investment to modernize its equipment--also underway. Nevertheless, I.C.E. and other State enterprise representatives acknowledged that it will probably take from two to four years for these reforms to be implemented. In the meantime, global world technological advancement and competition will not be standing still.

Obviously, a strong telecommunications and e-infrastructure is essential to optimize the success of Gobierno Digital, TICA (which requires Internet access), logistics telecommunications integration, and new business formation transactions--to be discussed later in report. In short, it is key factor in weighing Costa Rica's competitive advantage.

Costa Rica's domestic telephone system has been described as "good in terms of breadth and coverage" with "restricted cellular telephone service"; with I.C.E. described as "struggling with the demand for new lines, resulting in long waiting times" (Costa Rica, 2007). According to the International Telecommunications Union (ITU), an agency of the United Nations, Internet penetration reaches only 27 % of the country's 4,500,000-plus people (Internet World Stats, 2007). That percentage is higher than in Mexico, and higher than DR-CAFTA signatories--with Nicaragua's 2.7% penetration ranking the lowest. Connectivity and harmonization of technology between countries in the region will be an important issue in the ongoing European Union Accords Rounds.

What were interviewees' SWOT perceptions of I.C.E., telecommunications and/or e-information infrastructure in the context of the title of this report? They are summarized below:

- Treaty or no treaty (even if DR-CAFTA had not been passed), interviews support that the I.C.E. needs to undergo reform in four principal areas: 1) quality of service; 2) competitive pricing; 3) responsive time periods for provision of services; 4) service innovation.
- Companies that are located in Free Trade Zones expressed general satisfaction with telecommunication and e-commerce services. One interviewee from a private enterprise firm with 2,500 employees explains,

*...porque estas empresas como (nombre de empresa) se han ubicado fundamentalmente en zonas industriales, en parques industriales que son amparados a lo que son zonas francas, el sistema de zonas francas del país; estas zonas francas están concentradas fundamentalmente en San José, Heredia, Cartago y bueno, y Alajuela en el Gran Área Metropolitana, con algunas en Puntarenas y otras, pero, pero la gran parte, la mayoría están concentradas en ésa, si se quiere alrededor, en un radio alrededor del aeropuerto lo más cercano posible, en un radio de 12 a 15 millas. ...El área de Belén, que incluye Alajuela, Santa Ana, Heredia, Escazú incluso hasta San Pedro, Curridabat, esta zona...*

*...because these companies such as (name of company) have located primarily in industrial zones, in industrial zones that are supported by free trade zones...the system of free trade zones in the country; these free trade zones are concentrated primarily in San José, Heredia, Cartago, and well, and Alajuela in the greater Metropolitan Area, with a few in Puntarenas and others, but the greater part is there; or if you wish let's say in a radius of 12-15 miles, as close as possible, around the airport...The area of Belén, Alajuela, Santa Ana, Heredia, Escazú--this zone.*

This interviewee emphasized, that if their company were to be asked if I.C.E. is providing adequate service, they would respond affirmatively: They are satisfied with the services they have received to date with regard to energy, telecommunications, voice and data--or the 3 areas that are most important to their business. He felt that as long as a company--whether public or private--can continue to receive high quality service and competitive prices, they will continue to be satisfied. However, this interviewee was quick to point out that this level of satisfaction does not extend to what many others called "la última milla." In other words, throughout the country to all citizens.

*...queda ahí el país efectivamente, ah, digamos le hace falta que esta tecnología llegue a otras partes; eso impide que empresas como las de nosotros y otras puedan abrir sus operaciones una segunda, un segundo edificio, una segunda localización en ciudades como Guanacaste, San Carlos, Limón, Zona Sur, Puntarenas...esto impide esto, ese desarrollo tecnológico impide eso. No es la única condición, pero eso sí ayudaría a muchas empresas a tomar decisiones de poder ir a trabajar.*

...here is exactly where the country needs this technology to reach other parts; this precludes companies such as ours from opening its operations in a second, a second building, a second location in cities-places such as Guanacaste, San Carlos, Limón, the south, Puntarenas, this prevents this, this technological development prevents that. It isn't the only condition, but, yes, it would help many companies make a decision to be able to go (there) to work.

Comments similar to the above were expressed by small and medium sized business interviewees. As example,

Interviewee: *Lo que es Internet y telefonía es un gran problema.*

That which is Internet and telephony related is a big problem.

He further confirms that those who are in the free trade zones have a good level of service, but that is not so where he is.

*Sí, claro, yo a un kilómetro de acá tengo otro negocio y no he logrado en un año que me pongan Internet; no hay; no existe Internet para este lugar; está saturado; no hay líneas disponibles de Internet; no puedo tenerlo.*

Yes, of course. I have another business one kilometer from here and I haven't managed to get Internet installed in one year; there isn't any for this location; it is saturated; there are no available Internet lines; I can't have it (there).

High velocity Internet speed/ wider band width was another requirement deemed super-important within all sectors interviewed <sup>8</sup>.

Of course, reaching the *última milla* is a primary goal of Gobierno Digital. This need was also acknowledged by I.C.E. interviewees, who pointed to the investments I.C.E. plans to make in more access lines, Internet telephony, fiber optic submarine cables, wider bandwidths <sup>9</sup>. However, the question in the minds of many, outside of I.C.E. involved whether I.C.E.'s response will be a reaction, versus innovation, and be marketing oriented for the first time in decades. As one private enterprise interviewee stated

*¿qué nos van a ofrecer diferentes a lo que la competencia nos va a venir a ofrecer? y a mí me parece que hay tres elementos...uno tiene que ser servicios de calidad con un 99.99 de seguridad, de confiabilidad,*

*¿verdad? que es importantísimo para nosotros que no hayan caídas del sistema, etc.; tecnologías nuevas que nos permitan a nosotros ir adelante y competir como país no solo como empresa, porque usted sabe que nosotros competimos con otros; nosotros mismos como corporación competimos con otras 18 empresas de otros países eh tenemos que ser muy competitivos, muy eficientes...¿verdad?*

What are they going to offer differently from the competition? and it seems to me that there are three elements...one has to be quality services with a 99.9% assurance of reliability, right? It is super-important for us that the system doesn't go down; new technologies that permit us to move forward and compete with others, because you know that we compete with others; as a corporation, we compete with 18 other firms from other countries, so we have to be competitive, efficient...right?

Specific to telecommunications, the following State interviewee described I.C.E.'s strengths as good prices, especially for large companies that purchase in volume. The constraints that were expressed by many involve the legislative changes that will need to take place and the need for a prompt response and market orientation—again, this is an opportunity for I.C.E. and for Costa Rica if this takes place, and a vulnerability and problem if it does not happen. As one very blunt example of this view,

*...el Estado tiene una arteriosclerosis institucional ahí que no le permite reaccionar rápidamente a las necesidades cambiantes que tiene el entorno que ocupa que las sociedades reaccionen rápido....*

*Si uno va al I.C.E. en Sabana, uno llega al I.C.E. ahí en la Sabana, y ya ahora abrieron un parqueo hace como cinco años; perfecto, uno va y va hacer un trámite entonces tiene parqueo, camina 200 metros si está lloviendo se moja y tal y pasa a la par de parqueo de funcionarios, el parqueo de funcionarios es el que está a la par del edificio; el parqueo de clientes es el que está allá atrás, o sea la filosofía está invertida es eso.*

...The State has (suffers from) an institutional arteriosclerosis that does not permit it to react rapidly to changing needs in the environment, that require societies to react rapidly. If one goes to I.C.E. on la Sabana, one arrives at I.C.E. here at la Sabana, and now they opened a parking area like about 5 years ago; perfect, so one goes and goes to take care of a transaction so one has parking, walks 200 meters and it is raining and one gets wet and so passes right by parking for employees (officials of I.C.E.), which is right by the building; customer parking is over there behind, or it's like the philosophy is reversed.

Another State official described this challenge as follows.

*Hay un problema, bueno, hay problema de cultura; servicio al cliente no existe en el I.C.E. que es muy difícil que exista en monopolio; es decir éste es un país en donde se considera normal tener que esperar 7 meses para obtener una línea celular, y uno sabe que ese no es el caso en ningún otro país del mundo.... El I.C.E. siempre va 1 o 2 generaciones atrás de los últimos*



*adelantos tecnológicos...pero además agravado por un problema de gestión del gobierno que no le permite reaccionar con la suficiente flexibilidad ante los cambios tecnológicos.*

There is a problem, ok, a problem of culture; customer service (orientation) doesn't exist in I.C.E. as it is difficult to exist in a monopoly.

In other words, this is a country where it is considered normal to have to wait seven months to obtain a cellular line, and one knows that this isn't the case in any other country in the world. I.C.E. is always one or two generations behind the latest technological advances...but this is also aggravated by the formality of government, of public administration that doesn't let it react with sufficient flexibility to technological changes.

Interviewer: Así es que no es justo a tiempo

So you're saying that it isn't just in time.

Interviewee: No, no, no en eso el I.C.E. es como un gran dinosaurio,

¿verdad? que cuando le muerden la cola y se vuelve a reaccionar, ya le están mordiendo otra parte del cuerpo.

No, no, no with regard to that I.C.E. is like a big dinosaur, isn't it. When its tail is being bitten, it begins to react, but by that time another part of its body is being bitten.

Another view at a State level,

*El asunto del I.C.E. es un problema, ya, de la misma conversión de la institución de una transformación de la institución. Don Pablo Quirós, él está haciendo el esfuerzo para buscar cómo transformar una institución obsoleta; significa obsoleta es dar un proceso de cambio estructural dentro de la institución, traer nuevo personal, tener una visión estratégica. Eso no se va a cambiar de la noche a la mañana.*

The situation regarding I.C.E. is a problem, right now, from the very conversion of the institution to a transformation of the institution. Don Pablo Quirós, he is making the effort to find out how to transform an obsolete institution; obsolete means to set forth a structural change process within the institution, bring in new personnel, and have a strategic vision. That is not going to change overnight.

There is no doubt that this piece of infrastructural reform will be an important litmus test in terms of leverage for competitive advantage. It will also require significant investment from public and private sources. Further, it will require an assessment--a gap analysis, if you will, of where cuellos de botella (bottlenecks) exist countrywide to the level of the citizenry and municipalities. For example, are there gaps involving antiquated (or lack) equipment that preclude connectivity? Or are they related possibly to the fact that the equipment is not being used properly? If this assessment will be done, or who will do and how that will happen is unclear--at least to this researcher--as of this writing. As to harmonization of technology between the countries of DR-CAFTA, even to the level of cell phone usage across borders, this was considered to be a long-term objective. However, it is apparently not a short term reality, given other country-specific challenges that lie ahead. The following section addresses transportation integration issues within the country and the region.

## **Transportation**<sup>10</sup>

Misión:

*Contribuir a mejorar la calidad de vida de los costarricenses y la competitividad del país, facilitando la movilización de personas y mercancías por tierra, aires y mar, en forma segura, rápida, agradable y a un justo costo.* ([http://www.mopt.go.cr/mopt\\_mision\\_vision.html](http://www.mopt.go.cr/mopt_mision_vision.html))

To contribute to better the Costa Rican quality of life and country competitiveness, by facilitating the movement of people and goods by land, air and sea, safely, rapidly, and “pleasantly” and at a fair cost. (The Mission of The Ministry of Transportation and Public Works—MOPT.)

Under the current administration of Oscar Arias, the central authority for oversight of the country’s entire transportation system rests within the Ministry of Transportation and Public Works (MOPT). In other words, final approvals regarding planning, coordination, certifications, regulation, audit, and taxation go through MOPT. This is a pretty large “*camisa*” (shirt) to wear, in the words of one State interviewee. A visit to the MOPT headquarters with long rows of offices and passageways emulates the enormous labyrinth of relationships and responsibilities that are the purview of this organization, and the *rector Ministra* (the Minister). To provide the reader with a sense of what these oversight responsibilities encompass, the following is a very general overview of the Costa Rican transportation system<sup>11</sup>. Following this overview, we return to the SWOT analysis of transportation infrastructure derived through interviews and other sources, and consider the MOPT mission statement that introduces this section.

## **Port Authorities**

Specific to ports, INCOP is the semi-autonomous State organization that is responsible for administration of the ports of the Pacific--most notably, Port Caldera. Likewise, JAPDEVA, is the semi-autonomous State organization that is responsible for the Ports of Limón and Moín on the Atlantic Coast. However, JAPDEVA has additional responsibility for economic development of Limón. The relationship between these Port Authorities, respectively, and MOPT is a significant thread that forms the complex logistics and political tapestry characterizing Costa Rica. Although semi-autonomous—and repeating a point made earlier--under the current administration, both INCOP and JAPDEVA need approval from MOPT. As example, if additional administrative personnel are required in the administrative offices of INCOP, or JAPDEVA’s planners justify the need for another crane, etc., final approval goes through MOPT. Before they might have dealt directly with MIDEPLAN, or the Ministerio de Hacienda (the Treasury), depending upon the nature of the need. While there are often strengths to centralization, a well-known weakness and inherent constraint, particularly when there is responsibility for so many challenged functional areas, is time delays. And time delays there are, sometimes months versus days to obtain approval. Then there is the issue of expertise: Centralization is generally more effective when there are fewer knowledge-based areas to oversee. Location of knowledge-bases, where and when they are needed, also has an impact on whether just a tiempo (JIT) decision making takes place...or not.



At present, it is hoped that the Atlantic ports will attract an investor for privatization of port services as did Caldera. In 2006, INCOP changed from being a workforce of about 925 unionized employees whose responsibilities included stevedore loading and unloading operations, to 45 employees. INCOP's responsibilities now are primarily those involving planning and jurisdiction: To assure plans are implemented, to contract services, provide fiscal oversight, establish rates, and assure proper maintenance of equipment and facilities within the Port confines (and to obtain approval from MOPT). This transition from a unionized to a non-unionized concessionary employing essentially most of the same individuals that were formally unionized is an interesting story in itself, but beyond the scope of this study. It is addressed in part in the workforce readiness section later in report. JAPDEVA's workforce is unionized, with stevedoring operations outsourced.

Exhibit 3a: Costa Rica



Exhibit 3b: Highway Map of Costa Rica



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## PROTECTED AREAS

## National Parks

1. Arenal
2. Itard Hovda
3. Braudo Cuervo
4. Cahalá
5. Chirripó
6. Corcovado
7. Corcovado Biológico
8. Isla del Coco
9. Intercontinental La Amistad
10. Las Tablas
11. Manuel Antonio
12. Marino Ballena
13. Palo Verde
14. Pinos de la Vieja
15. Santa Rosa
16. Tárcoles
17. Tortuguero
18. Volcán Irazú
19. Volcán Poás
20. Volcán Turrialba
21. Volcán Tenorio
22. Juan Castro Blanco
23. Piedras Blancas

## National Wildlife Refuges

24. Caño Negro
25. Iguala
26. Bahía de Junguita
27. Dr. Lucas Rodríguez C.
28. Caparronal
29. Orosi
30. Curú
31. Laguna Madrigal
32. Corral de Piedra
33. Mula Perdida
34. Bosque Delirio
35. Pío Sagastume
36. Pío Curi
37. Pío San José
38. Tamarindo
39. Bosque Alegre
40. Barro Colorado
41. Guadalupe - Moravia
42. Grijalva
43. La Mar, (privado)
44. Monte de Oro
45. Laguna Las Camélias

## National Monument

46. Monumento arqueológico Guayabo

## Provincial Reserves

47. Tobago
48. Grecia
49. Cordillera Volcánica Central
50. Pío Macho
51. Grijalva Dulce
52. Arenal
53. Nicoya PALECO
54. Páscar - Matina
55. Los Santos
56. Curi, El Jirón
57. Coruña - Curupá
58. Bosque eterno de Los Niños
59. Jardín Linkstar
60. Área recreativa Páscar de los Niños
61. Jardín botánico Las Cruces

## Biological Reserves

62. Isla Solís
63. Lomas Barro Colorado
64. Isla Negritos
65. Isla Guayabo
66. Isla Mujeres
67. Isla del Cano

68. Carara
69. Isola
70. Río - Cerezo
71. Natural absoluta Cabo Blanco
72. Natural absoluta Nicoya - Weiberg
73. La Pacifica, (privado)
74. Moravia, (privado)
75. Monteverde, (privado)
76. Paraíso, (privado)
77. Corcovado Biológico
78. Hacienda Santa, (privado)
79. Corcovado Biológico - Pinos de la Vieja
80. Corcovado Biológico Costa Rica - Nicaragua

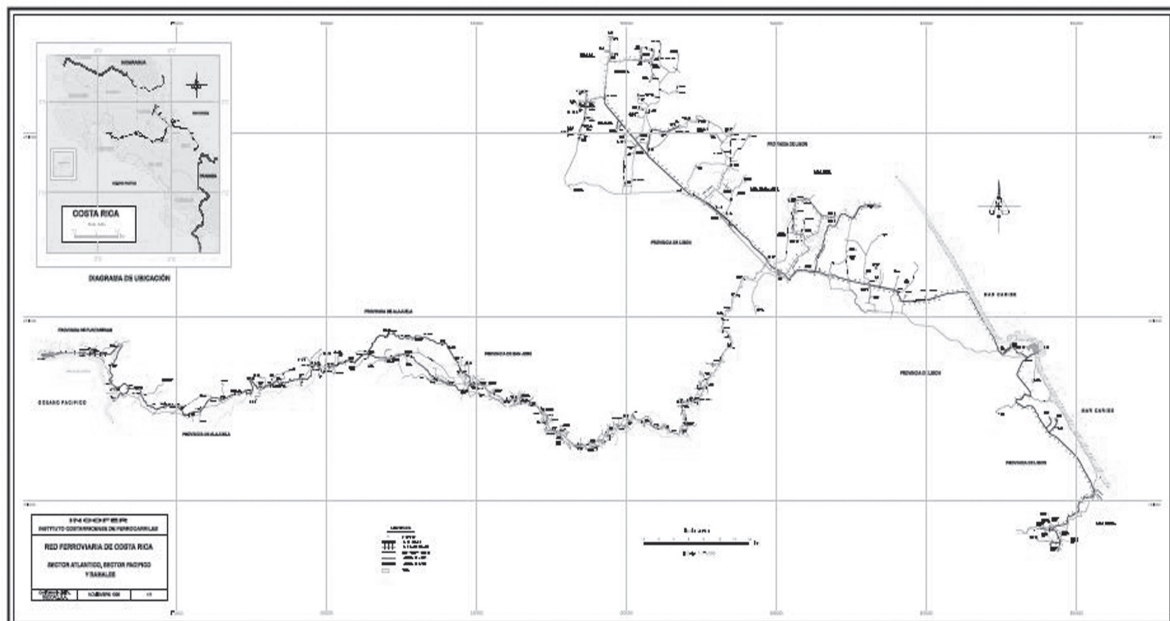
81. Páscar
82. Cerezo La Cruz
83. Nicoya
84. La Capellanía
85. Pío Tico
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135. Pío Tico
136. Pío Tico

## Railroads

As with INCOP and JAPDEVA, The Costa Rican Institute of Railroads (INCOFER) is another semi-autonomous State organization whose primary responsibility is to reactivate the railroad system of transportation of goods or passengers within Costa Rica. Reactivate is the operative word since the railroad system was closed down in 1995 during the presidency of José María Figueres Olsen. Interviews support that this was done apparently without any study as to the impact this would have on the system of transportation in the country. The system is undisputedly old and in need of modernization, and related to this is the need for investment and concessionaries (privatization) in order to get this done. This objective is supported in the MIDEPLAN (p. 127, #11).

As of present, there are train routes that are active in Costa Rica. As examples, there are passenger trains that run from San José to Caldera, in the San José/San Pedro Universidad Latina and Las Pavas area, some freight trains running from San José to Caldera, from Guápiles a Limón—banana for many years, and steel and paper more recently, and other lines from Cariari in Limón to Río Frio en Heredia. When asked if modernization of the railroads will depend on private investment, the response from interviewees was mixed. Some felt that investment will have to become a State priority; others mentioned the inevitable need for investors. Another alternative being considered involves the possibility of multiple concessionaries: If one single investor did not emerge for the entire rail system, an alternative might be privatization of sections of the system. The State would continue to assure that the rights of way would not be compromised in the event of privatization of sections. Exhibit 4 is a map of the current active railroad lines.

Exhibit 4: Train System in Costa Rica (2008)





## ***Airports***

The principal airport for commercial and passenger transportation is Juan Santamaría International Airport located in Alajuela. Expansion and renovation has been a primary goal since 1997 to handle the increasing number of passengers and airlines and needs for major transnationals who rely primarily on air transport in and out of Costa Rica. The airport has been operated by Alterra Partners since 2001, a joint venture company with Singapore Changi Airport and the Bechtel Group.

The Daniel Oduber Quirós International Airport located in Liberia in Guanacaste Province is another one of four airports that receives international flights. Its primary traffic has been the tourist industry, and the MIDEPLAN acknowledges the need to improve the infrastructure to accommodate the growing flow of tourists through this airport (p. 59). Interviews support that the government is interested in expanding and remodeling this airport through private investment. During the Supplier Exchange Forum Conference (SEF2) held in Herradura in November, 2007, former U.S. Astronaut and keynote conference speaker, Dr. Franklin Chang Díaz, emphasized the importance of development of this airport as an alternative to the Juan Santamaría International in his presentation, “Costa Rica’s Supply Chain Approach to Technology, Science and Knowledge-based Industry.” Dr. Chang is Chairman and CEO of the AD Astra Rocket Company (and a Costa Rican by birth). The Costa Rican subsidiary of the Houston-based location was formed in 2005, and is strategically located near the city of Liberia on the campus of Earth University. Apparently there are developmental collaboratives taking place in the Liberia area as part of the Strategic Century Twenty-One Initiatives. The idea is to replicate some of the key success capabilities of innovation networks (i.e., Silicon Valley and Route 128) and attract FDI in R&D and very high-value added activities to this region.

## ***Roads***

*...cuando INCOFER cierra hace 10,12 años existían las mismas carreteras que hoy existen, nada más que hoy existen el doble de vehículos que existían hace 10 años y tenemos el doble de exportaciones e importaciones de hace 10 años. Obviamente nos muestra de que hay una saturación en las carreteras nacionales y el remedio no viene por ampliar carreteras; el remedio no viene por hacer nuevas carreteras; está demostrado no aquí, sino en otros países que la solución de la carretera es una solución temporal.*

... when INCOFER closes 10,12 years ago, the same highways that existed then are here today, except that today there are double the amount of vehicles than were around 10 years ago and we have double the amount of imports and exports than 10 years ago. Obviously this shows us that there is a saturation of the national highways; the remedy will not come by widening roads; the remedy will not come about by building new roads. This can be seen not just here, but in other countries that the solution [re: the highway] is a temporary (short-term) solution.

From a passenger perspective, the saturation of major highways is obvious and fatal in terms of time and energy, particularly on highways that do not escape passing through San José. As examples, a 9-10 km. ride from Heredia to San José can take over one hour during peak times, and even more, if there is rain. As in the words of many taxistas (taxi drivers), hay demasiados carros y demasiada presa (too many cars and too much congestion). Exacerbating the situation are overweight semitrailer trucks

and limited enforcement in accordance with the country’s regulations. Route 32, the principal highway between San José and Limón, takes a beating particularly in winter with the heavy rains, and because it is the only highway for commercial traffic once trucks leave the port, and the only highway for them to return. (Passenger cars share the same route.) Or said another way, everything is exclusively transported by truck to and from the ports. In fact, statistics for the privatized Port Caldera show a 12% increase in containers for both imports and exports <sup>12</sup>, a 22% increase in metric tons of imports compared to previous operation of the port by INCOP, and a 48% in metric tons in exports. These figures were compiled prior to the signing of the TLC. One interviewee sums up the effect and offers implications as follows,

*...el tránsito tan pesado de los vehículos de carga nos han deteriorado horriblemente las carreteras...es mucho mejor la idea de que la carga sea a través del ferrocarril que tiene una ruta exclusiva, digamos por su riel, que no por los camiones que nos deterioran constantemente las calles de Costa Rica. ... [además]el boom de la carga y sus embalaje principal va a ser a través de contenedores; vea, lo que es mercadería general y carga suelta, todo eso ya está pasándose al pasado.*

...the heavy traffic of trucks (hauling freight) has caused the roads to deteriorate horribly...a much better idea is (would be) that freight be [carried] through the railroad that has its exclusive route, that is its rail, rather than by trucks that are constantly deteriorating the streets of Costa Rica. ...besides, the freight boom and its principal packaging is through containers; look, what is general merchandise and loose freight, all that is already becoming a thing of the past.

Returning to the SWOT analysis, how did interviewees view the transportation infrastructure within Costa Rica?, Which pillars of infrastructure were perceived to be key to create an efficient multimodal transportation system within the country and region? This is addressed in the section to follow.

## **SWOT**

*La infraestructura de transportes del país muestra un rezago inaceptable e incompatible con las aspiraciones de los costarricenses. De la red vial nacional pavimentada, apenas un 20% se encuentra en buen estado y más del 50% se encuentra en estado deficiente o muy deficiente. (MIDEPLAN, 1.5, “La Infraestructura para el crecimiento,” p. 58)*

The country’s transportation infrastructure demonstrates an unacceptable and incompatible deterrent to Costa Rican aspirations. With regard to the national road network, hardly 20% is in good shape and more than 50% is in a deficient or very deficient state. (MIDEPLAN, 1.5, “The Infrastructure for Growth,” p. 58.)

- Geo-political advantage. When interviewees were asked to comment regarding transportation/infrastructural strengths, the request was generally followed by a period of silence Yet, one strength supported by all, as stated earlier in the introduction to this report, involved the geo-political advantage that Costa Rica offers with its northern and southern borders and ports on the Atlantic and Pacific Oceans, respectively. The political advantage, of course, refers to the

country's political stability. Several individuals that were interviewed representing transnational corporations acknowledged that most of their freight travels out of the country by air through Juan Santamaría International Airport. Based on these interviews, satisfaction levels with service are far improved from what they were a decade ago: There are apparently more flights available (although they acknowledged that this too can still be improved). Freight forwarding assistance and third party logistics providers (3PL) are apparently developing more local and responsive presence. Nevertheless, they commented that there is still room for improvement, particularly, for development of 3PL cooperative alliances with other countries. At the time of this study, twenty-six percent of the exports from Costa Rica are from one company.

- *The cost of inventory.* Interviewees whose companies depend on truck transportation—whether for raw materials or for deliveries of product to retailers—unanimously supported the importance of reactivation of the railroads as an important pillar of infrastructure. Aside from obvious reasons of road congestion affecting deliveries, an even more impelling reason involved their inventory costs. In fact, the “colchón” (a cushion) they carry, rather than being JIT, is more like “JIC” (just in case). When one small business marketing manager was asked if there was much variability in arrival of raw materials from Port Limón, he states,

*Sí, nosotros lo que tenemos que hacer es que nosotros jugamos con un colchón, y pero ese colchón, Elaine, tiene un costo, pero tenemos que hacerlo porque ahí es donde uno tiene que balancear. Bueno, voy a tener un costo de materia prima que está por llegar...o le incumplo a mi cliente.*  
Yes, what we have to do is that we play with a cushion, and... but that cushion, Elaine, has a cost, but we have to do it because here is where one has to balance—ok, I am going to have a cost of raw materials that is about to arrive...or I wind up not meeting my obligations to my customer.

Another company that relies on truck transportation throughout Costa Rica and Central America mentioned that their point to point percentage of cost of sales in logistics in Costa Rica is 5-7%. The owner claims to carry a 3 month inventory that could be reduced to three weeks if it were not for the road congestion. He acknowledged that a rail system would be of great benefit to his company. Unfortunately, not all interviewees were asked what percentage of their costs were costs of inventory, and so are not reported collectively herein. Nevertheless, the concern was most apparent in small-medium sized businesses. This concern, unresolved, points to challenges that are constraints and vulnerabilities in terms of competitiveness and sustainability of small to medium sized businesses. It also has implications to longevity after new business formation. This challenge obviously needs to be addressed, particularly as organizations such as PROCOMER and FUNDES continue their impressive work with new business start-ups.

*Efficiencies, seamlessness, multi-modalism.* Based on the findings of this study, the MOPT mission statement (quoted at the beginning of the section, “Transportation”) appears to be challenged, indeed. Time delays for approvals due to the centralization of authority, road congestion (and quality of life issues related to this), transportation costs due to time variability and more are only partial reasons.

While this study was being compiled, the World Bank published a study (2007) entitled, “Connecting to Compete: Trade Logistics in the Global Economy,” Logistics Performance Index, claiming to be the first-of-its-kind assessment of the logistics performance factors across countries. The

LPI aims “to provide a comprehensive picture of supply chain performance—from customs procedures, logistics costs, and infrastructure quality to the ability to track and trace shipments, timeliness in reaching destination, and the competence of the domestic logistics industry” (p. 1) <sup>13</sup>. Those countries rating high on the LPI were characterized by having less regulation, quality services, and sufficient levels of investment. The study also emphasizes the importance of telecommunications, discussed earlier in this report: “Those whose links to the global logistics web are weak, the costs of exclusion are large and growing” (p. iii). The Foreword to the World Bank report reads as a call to consciousness of what constitutes competitive logistics readiness:

...with the advent of global supply chains, a new premium is being placed on being able to move goods from A to B rapidly, reliably, and cheaply. Beyond cost and time taken to deliver the goods, the predictability and reliability of supply chains is increasingly important in a world of just-in-time production sharing” (p. iii).

Countries performing well have a comprehensive approach, improving all the key logistics in parallel, while those with a piecemeal approach, targeting a single link in the logistics chain, may see initial results but no lasting improvements (p. 5).

How did Costa Rica fare? Costa Rica rated number 72 out of 150 countries studied, rating 73 in “logistics competence,” or competency and quality of service provided by customs brokers and the like, 68 for tracking and tracing of shipments related to telecommunications and IT infrastructure, 38 related to domestic logistics costs, and 63 related to timeliness. All this information begs the question of how these gaps may be exacerbated post DR-CAFTA, and pre-European Round accords as logistics competencies and IT demands increase. The following quote is from a private enterprise that serves retailers primarily throughout Central America. It has very important implications to Costa Rica’s global and regional competitiveness in the realm of logistics.

*Te estaba mencionando que Costa Rica, y en general, la región para las exportaciones extra regionales de la Unión Europea no representan ni el .025%. Es decir, ni siquiera un 1%; y al nivel de las importaciones de lo que la Unión Europea hace extra comunitarias representamos poco menos del 1%. Es decir que somos comercialmente, tanto si lo vemos como un mercado de estilo, o un mercado también de colocación de productos en Europa poco significativo. A diferencia de Estados Unidos que realmente en la región cuando se empezó a negociar con Estados Unidos el principal socio comercial, prácticamente entre todos los países Centroamericanos, es Estados Unidos. Si vemos el tema de las inversiones, observamos que un poco más de 4% de las inversiones que hay en Costa Rica, son europeas; el 70% proviene de Estados Unidos, poco más, poco menos. Entonces, como podría visualizar, bueno negociemos con Europa, para tratar de aumentar esos porcentajes, para tratar que la región sea más atractiva, para traer inversión europea, para poder traer más productos europeos, que entren en condiciones pues de impuestos preferenciales, y para también poder acceder al mercado europeo con más productos. Hay que tener en cuenta que el mercado europeo a diferencia tal vez del norteamericano; es un mercado de productos de valor agregado. No digo que en Estados Unidos no exista, pero el europeo es muy interesado en el consumo de productos orgánicos, de productos sofisticados. Además, de que a diferencia también de Estados Unidos, estamos hablando no de un país, aunque Estados Unidos podríamos verlo como en sub regiones; pero en general, la cultura es más homogénea; en Europa estamos*

*hablando de 27 sub culturas, entonces es mucho más complejo el tema del acceso al mercado Europeo. Si uno visualiza entonces, ¿Cuál es el interés de Europa? Podría reflexionarse que es un interés más de carácter geopolítico....*

I was mentioning to you that for the most part, Costa Rica and the region do not represent even .025% for (% of) exports outside of the European Union. That's saying, not even 1%; and at the level of imports that the European Union does outside of the EU, it represents a little bit less than 1%. That's saying that commercially, we are insignificant, whether we see it (i.e. the EU) as a stylish (sophisticated) market, or also as market for expansion of products into Europe. This is different from the U.S. where the U.S. was, for all practical purposes, the principal commercial (trading) partner between all Central American countries. If we look at the issue of investment, we see that a little more than 4% of the investment that there is in Costa Rica is European; 70% comes from the U.S., more or less. Therefore, as you can see, sure, let's negotiate with Europe...to try to increase these percentages, to try to make the region look more attractive, to attract European investment, to try to bring in more European products and to enter into preferential (treatment) specific to duties, and also (to gain access) to the European market with more products. It is important to keep in mind that the European market is different perhaps from the North American (US) market; it is a market of value added products. I am not saying that this doesn't exist in the U.S., but the European is more interested in the consumption of organic products, of sophisticated products. Additionally, and also different than in the U.S., we are not speaking of one country, although (admittedly) we can look at the U.S. in terms of sub regions; but in general, the culture is more homogeneous; in Europe, we are talking about 27 sub cultures, so the issue of access to the European market is much more complex. So if one (tries to) visualize, what is Europe's interest? You can think (see) for yourself that it is more of an interest that is geopolitical in nature.

...And so the importance to deliver the MOPT mission. The interviewee continues to discuss why EU interest in Costa Rican products and services may be limited due to the competition of local EU production, although there is a record of success in exports from Costa Rica of products such as pineapple, banana, café, and some ornamental products that have enjoyed Custom's preferences. Nevertheless, the quote clearly illustrates that Costa Rica's primary interest to the EU may, indeed, revolve around its geopolitical advantages as European Union trade accord discussions go forward.

### ***Workforce Readiness Post DR-CAFTA***

As the interviews progressed during the five month stay in Costa Rica, one theme that surfaced involved the importance of an available bilingual English/Spanish and technologically competent workforce post DR-CAFTA. Interviewees were asked to rate the importance of the following two issues from 1 (very important) to 5 (not at all important).

A. ( ) Capacitación de la mano de obra conforme a las habilidades que se van a subcontratar en el futuro empresas de todos tamaños—tanto del sector público como del sector privado.

[Rate the importance of] training of the workforce in accordance with the abilities that are going to be needed in future businesses of all sizes—for both the private and the public sector.

D. ( ) Estudios del impacto que el TLC tendrá en la disponibilidad y movimiento de recursos humanos en la región.

[Rate the importance of] the need for studies [showing] the impact the TLC will have on the availability and movement of human resources in the region.



The survey included a comment section following each question which was probed further during the interviews. The themes that emerged during those discussions are the basis of this section. Findings clearly show that a bilingual Spanish-English and information technologically competent workforce is an important issue, and a challenge to forecast in terms of JIT availability—i.e., being available just-in-time, or when needed in accordance with the pace of organizational growth in the private and public sectors. The following statement by a high level State organization official sums up a view of needed information:

*...no hay un estudio global ... que haga un inventario empresa por empresa-- ¿cuántos empleados va a comprar usted el año entrante, cuántos están empleando actualmente?; no hay un inventario general global, que además esté bien ordenado, bien estructurado, por sectores, de cuál es la necesidad de mano de obra para el año entrante y con qué características, verdad y tal; no, es cuando llega una empresa va al CINDE, verdad, o va a PROCOMER, y dice bueno voy a instalarme aquí...sí hay muchas pistas y pequeños estudios.*

...There is no comprehensive study...(one) that does an inventory business by business—How many employees are you going to hire this coming year?; how many are being hired right now? There is no comprehensive inventory that is also well organized, well structured by sectors (showing) what are the workforce requirements for the coming year, and with what characteristics as such; no, it is like when a company arrives and goes to CINDE, right? Or to PROCOMER, and says...ok, so I’m going to set up operations here; sure, there are lots of initiatives and few studies.

*Findings from this study support that this perspective is largely justified.*

In 2005, a “First National Forum on the Teaching of English in Higher Education” was held at headquarters of CONARE, or the National Advisory Board of University Chancellors, Planning Office for Higher Education. Sixty individuals attended representing both State and private universities, other educational institutions, and 10 private sector businesses--3 of which were represented among those interviewed in this exploratory study. The Forum results clearly point to the need for more advanced levels of English language instruction, higher levels of English language preparation for professors, studies verifying business sector needs, the need for proficiency standardization tests at a national level (CONARE). While most information from this Forum is not directly related to the scope of this study, it is interesting that apparently 50% of the Forum participants affirmed that the lack of bilingual personnel was causing them economic losses.

**Exhibit 5a: Distribución de la población por sexo y grupos quinquenales de edad, 2006.**

Population Distribution by Sex and Five-Year Age Increments, 2006					
Grupos de Edad; Age Groups	POBLACIÓN/Population			PORCENTAJE/Percentage	
	Total	Hombres/Men	Mujeres/Women	Hombres/Men	Mujeres/Women
	<b>4,401,849</b>	<b>2,238,327</b>	<b>2,163,522</b>		
0 a 4	386,166	197,876	188,290	4.5	4.3
5 a 9	403,895	207,712	196,183	4.7	4.5
10 a 14	427,071	220,189	206,882	5.0	4.7
15 a 19	441,806	227,290	214,516	5.2	4.9
20 a 24	424,352	217,568	206,784	4.9	4.7
25 a 29	379,191	193,941	185,250	4.4	4.2
30 a 34	319,556	162,702	156,854	3.7	3.6
35 a 39	314,607	160,477	154,130	3.6	3.5
40 a 44	308,931	157,828	151,103	3.6	3.4
45 a 49	266,040	136,174	129,866	3.1	3.0
50 a 54	207,774	104,994	102,780	2.4	2.3
55 a 59	152,705	76,087	76,618	1.7	1.7
60 a 64	112,204	55,265	56,939	1.3	1.3
65 a 69	87,359	42,473	44,886	1.0	1.0
70 a 74	65,913	31,021	34,892	0.7	0.8
75 a 79	49,907	23,114	26,793	0.5	0.6
80 y más	54,372	23,616	30,756	0.5	0.7

Exhibit 5a illustrates what percentage of Costa Rica's over 4 million inhabitants are potentially in the workforce pipeline, irrespective of skill levels and competencies. The Exhibit 5b graphic display, generated from data from Exhibit 5a, shows the potential availability of a relatively young workforce coming through the pipeline after age 14. When listing the advantages of setting up business in Costa Rica, organizational efforts to attract direct foreign investment (DFI) generally include mention of the availability of a young and healthy workforce.

**Exhibit 5b: Distribución de la población por sexo y grupos quinquenales de edad  
 2006**

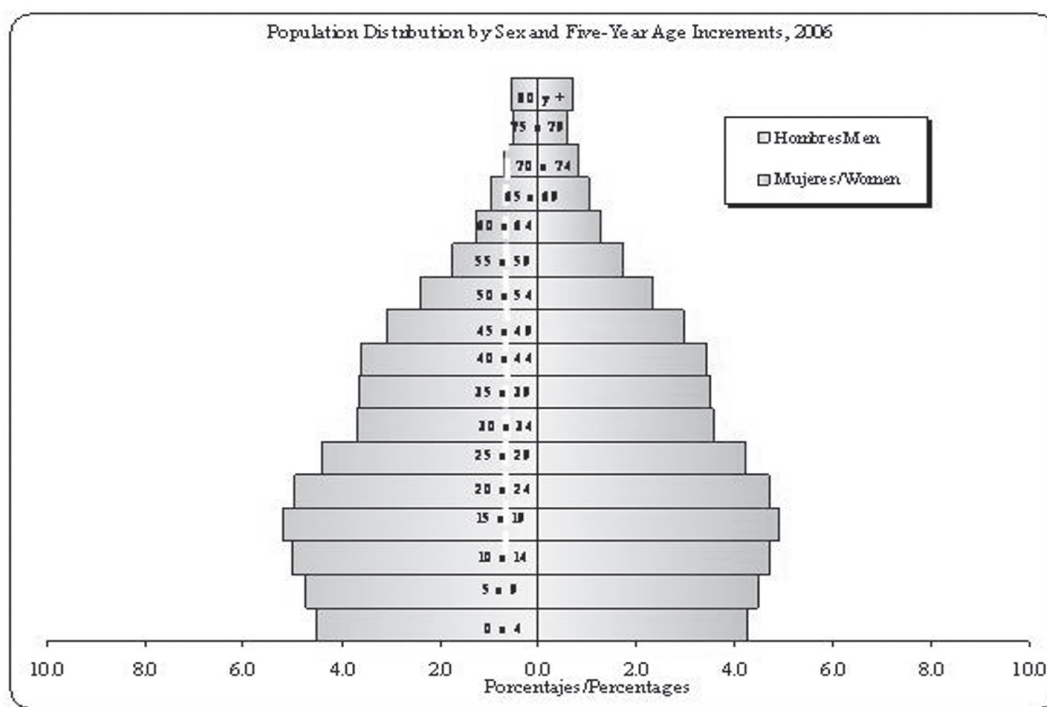


Exhibit 6 breaks down Exhibit 5a further by age groups, focusing on the percentage of the Costa Rican population that claims to speak English fluently. It is compiled from raw survey data gathered in July, 2007 by the Institute of Statistics and the Census (INEC). It shows that 7.7% of the population claims to speak English fluently. However, the difficulty with this data is that presently there continues to be no State-wide system in place to assess levels of proficiency (a 2005 Forum concern mentioned earlier).

The note below Exhibit 6 provides clarification of how the term “fluently” should be understood:

*Los resultados se basan en la pregunta: ¿habla fluidamente alguno de los siguientes idiomas... inglés, francés, alemán, otro? Se incluye el término fluidamente tratando de reforzar la idea y captar a las personas que tienen la capacidad de entablar una conversación completa en un segundo idioma, sin embargo, durante la entrevista no es posible comprobar si la persona efectivamente habla, en este caso, inglés fluidamente.*

Results are based on the question: Do you speak one of the following languages fluently... English, French, German, other? The term (“fluently”) is included to reinforce the idea and capture those people that have the ability to start a complete conversation in a second language; nevertheless, during the interview it isn’t possible to confirm if the person effectively speaks, in this case, English fluently.

**Exhibit 6: Población de 10 años o más que habla inglés según grupos quinquenales de edad**

<b>Population of 10 yrs. or older that speak English--groups in 5 yrs increments</b>	
Encuesta de Hogares de Propósitos Múltiples, julio del 2007	
<i>Survey of Homes for Multiple Purposes, July, 2007</i>	
<b>Grupos quinquenales de edad</b>	<b>Total</b>
<b>Total de personas que hablan inglés</b>	<b>340,421</b>
<b>Total of people who speak English.</b>	
<b>De 10 a 14 años</b>	15,930
<b>De 15 a 19 años</b>	41,151
<b>De 20 a 24 años</b>	67,180
<b>De 25 a 29 años</b>	49,317
<b>De 30 a 34 años</b>	38,104
<b>De 35 a 39 años</b>	30,694
<b>De 40 a 44 años</b>	24,767
<b>De 45 a 49 años</b>	18,410
<b>De 50 a 54 años</b>	17,526
<b>De 55 a 59 años</b>	12,397
<b>De 60 a 64 años</b>	8,839
<b>De 65 años y más</b>	16,106
<p>Los resultados se basan en la pregunta: ¿habla fluidamente alguno de los siguientes idiomas....inglés, francés, alemán, otro?. Se incluye el término fluidamente tratando de reforzar la idea y captar a las personas que tienen la capacidad de entablar una conversación completa en un segundo idioma, sin embargo, durante la entrevista no es posible comprobar si la persona efectivamente habla, en este caso, inglés fluidamente.</p> <p><i>Source: (2008) National Institute of Statistics and the Census (INEC)</i></p>	

Exhibit 7 illustrates that approximately 5% of total Costa Rican population are those who are working that claim English-speaking fluency. Exhibit 7 also shows those individuals with English-speaking language fluency have specialties in areas such as the physical sciences, information technology, engineering, manufacturing, architecture, and others. The “Others” category includes a wide range of specialties: including, but not limited to teaching and science education, humanities and the arts, social sciences, journalism, life sciences, fishing, medicine, social services, security, environmental protection, and transportation, and are approximately 48% of the total population claiming English-speaking fluency. The “Others” group represents 78% of those who claim a specialty. The reader should bear in mind that fluency in English (beyond oral ability) at a high level of proficiency, and including oral comprehension and written skills, is not captured in Exhibits 5-7, nor was this researcher able to locate data that would point to this information. There are studies that attempt to forecast demand for professionals in certain specialties, but none were found that address more than the specialties themselves--not the associated English language or other competencies that may be required along with the specialty <sup>14</sup>.

**Exhibit 7: Población total, Población de 10 años o más que habla fluidamente inglés por sexo, según características**

Total Population, Population of 10 years or older by sex who speak English fluently			
Encuesta de Hogares de Propósitos Múltiples, julio del 2007 Survey of Households for Multiple Reasons, July 2007			
Características/Characteristics	Total	Hombres	Mujeres
Población total de Costa Rica Total Population of Costa Rica	4,443,100	2,195,652	2,247,448
Total de personas que hablan inglés Total people who speak English (fluently)	340,421	189,122	151,299
<b>Trabajan/working</b>	<b>220,759</b>	<b>135,402</b>	<b>85,357</b>
<b>No Trabajan/not working</b>	<b>119,662</b>	<b>53,720</b>	<b>65,942</b>
Especialidades obtenidas en la educación formal superior (para universitaria y universitaria) para la población que habla inglés			
Specialties pursued through formal higher education for the people who speak English (fluently)			
Total de personas que hablan inglés Total people who speak English (fluently)	340,421	189,122	151,299
Personas que poseen alguna especialidad People who have some specialty	208,112	114,543	93,569
Personas que no poseen especialidad People who don't have a specialty	132,309	74,579	57,730
Especialidades en tecnologías y hablan inglés Specialties in technical areas and who speak English	45,039	36,115	8,924
Ciencias físicas <sup>1/</sup>	1,777	1,053	724
Informática <sup>2/</sup>	12,128	10,121	2,007
Ingeniería y afines <sup>3/</sup>	24,036	21,238	2,798
Industria y producción <sup>4/</sup>	785	35	750
Arquitectura y construcción <sup>5/</sup>	6,313	3,668	2,645
Otras especialidades <sup>6/</sup> y hablan inglés	163,073	78,428	84,645
Other specialties and who speak English			
1/ Astronomía y ciencias espaciales, física y asignaturas afines, química y asignaturas afines, geología, geofísica, meteorología, antropología física, geografía física y demás ciencias de la tierra, meteorología y demás ciencias de la atmósfera, compendio la investigación sobre el clima, las ciencias marinas, virología, paleontología.			
2/ Informática: Ingeniería de computadores, Ingeniería de software, sistemas de computación, conceptos de sistemas, programación informática, procesamiento de datos, redes, sistemas operativos - elaboración de programas informáticos solamente (el material y equipo se debe clasificar en el sector de la Ingeniería).			
3/ Diseño técnico, diseño y mantenimiento industrial, mecánica, metalurgia, electricidad, electrónica, telecomunicaciones, Ingeniería eléctrica y química, mantenimiento de vehículos, topografía.			
4/ Almacén y bebidas, textiles, construcción, calzado, cuero, materiales (madera, papel, plástico, vidrio, etc.), minería e industrias extractivas. Control de calidad y supervisión de producción, tecnología de alimentos, conservación de alimentos.			
5/ Arquitectura y urbanismo: arquitectura estructural, arquitectura paisajística, planificación comunitaria, cartografía; Edificación, construcción; Ingeniería civil; Diseño interior.			
6/ Formación de personal docente y ciencias de la educación; Humanidades y artes; Ciencias sociales; Periodismo e informática; Enseñanza comercial y administrativa; Derecho; Ciencias de la vida; Matemáticas y estadística; Agricultura, silvicultura y pesca, veterinaria; Medicina; Servicios sociales, personales, transporte; Protección del medio ambiente; Seguridad.			



In reviewing the aforementioned data, one cannot help but conclude that it is not a matter of if there will be a shortfall in the workforce profile required, but rather (perhaps) how much. As another example of anticipated needs, interviews in both the Port of Calderas and with JAPDEVA in Limón support that there will be a need for more English-speaking and IT literate personnel, to include those who work in Customs.

Transportation is grouped with “Other Specialties” (the 163,073 individuals) that claim fluency in English (footnote 6). Further investigation of what “transportation” might include indicated the following (INEC, Mar. 7, 08):

*Respecto a transporte se refiere a servicios de transporte marítimo, terrestre, ferroviario, marinas, es decir incluye todo pero no hay forma de distinguir cada cosa. Además sólo se ubicaron 814 casos de los cuales 730 declaran hablar inglés. Estos datos deben tomarse con precaución pues los casos muestrales son muy pocos.*

Regarding transportation, this refers to marine transportation services, ground shipping, railroad, marinas—in other words, it includes everything but there is no way to distinguish each one. Additionally, only 814 cases were identified from which 730 said they spoke English. This data should be viewed with caution because there are very few sample cases [few cases in the sample].

Another example with implications to projected workforce needs includes the growth of call centers in Costa Rica—from five in 2002 and approximately 4,500 employees to more than 50 with approximately 20,000 direct employees in 2007—each competing for English-speaking employees. These outsourced services support airlines, transnational companies whose Latin American operations are based in Costa Rica, small to medium-sized businesses, and others. Workers in this sector require skill sets far beyond personnel whose job might be to just pick up the telephone. These are customer service businesses requiring high levels of English-language proficiency. Some specifically target shared services or those related job characteristics that go beyond English-language skills: Examples include payroll and accounting operations, logistics services, and more <sup>15</sup>. According to one spokesperson from this sector, their firm could have hired 6000 workers to fill their needs, but will only be able to employ between 500 and 600 in 2008. News reports support that another call center decided to set up operations in neighboring Panama due to unavailability of approximately 800 bilingual (fluent English-speaking) workers. Consider with these examples the impact of Gobierno Digital, the Tic@ system, and the importance of IT proficiency. Will the labor pool be there, and in the quantities necessary—particularly as negotiations go forward with the European Union regarding a potential trade accord?

Section 4.1.2 of the MIDEPLAN (Plan Nacional de Desarrollo, p. 51) details goals for development of the education sector. It points to educational development goals at all grade levels in science, mathematics, communication and language. English skill development is specifically addressed in section 4.1.2.3, and includes mention of the collaborative partnerships that are planned by the National Institute of Learning (INA) and universities in professional technical areas. Nevertheless, obviously, a proposed budget increase from 6% to 8% of the GDP (p. 122) will not cover all the needs in the education sector. Interviews support numerous private sector initiatives actively training and recruiting within and outside of Costa Rica to assure there is a talent pool for the future. Several transnationals have established higher education and K-12 divisions to develop that talent pool from “kinder” and up; others have formed their own academic centers to address the English shortfall. Aside from INA initiatives mentioned earlier, one interviewee pointed to the National Commission

for Educational Loans (CONAPE). This organization apparently has funded 8-10 week immersion courses in Canadian institutions to raise English-level proficiency. One private sector representative sums up the state of urgency that is required to act competitively about this issue:

*...la aprobación del Tratado de Libre Comercio, sobre todo con los Estados Unidos y los países de Centroamérica ha venido a ser como un empuje rápido, como una inyección, y decirle, tienen que correr ahora; porque el tiempo que se ha perdido tienen que aprovecharlo ahora; y creo que estamos en ese momento; y sobre el tema de competitividad, la presencia de empresas como Intel, (xxx), Procter and Gamble, como estas grandes transnacionales desde 5 o 8 años le han venido diciendo al país, “ustedes deben moverse más rápido,” y creo que algo se está haciendo no al ritmo que las empresas quieren; nos parece que es muy lento, el ritmo, la respuesta que dan las instituciones del estado, pero me parece que vamos caminando; vamos caminando... nosotros competimos con otras regiones del mundo y uno es para que sea que los cambios que son necesarios estén a tiempo, estén a tiempo.*

...the approval of the TLC, above all with the U.S. and Central America has become a rapid push, like an injection, and (I have to) tell you that they have to move (run) now; because time has been lost, they have to take advantage of it now; and I think we are at that point; and regarding the theme of competitiveness, the presence of firms such as Intel, (ours), Procter and Gamble, like these big transnationals that have come here 5-8 years ago, are saying to the country, “you ought to move faster;” and I believe that whatever is happening is not at the rhythm that businesses want; it seems to us that the rhythm is very slow--the response that the State institutions give; (yet) we are moving along; we’re moving...we are competing with other regions of the world and the changes that are necessary have to be timely, may they be timely.

In short, question A, which introduced this section, was rated across the board by interviewees as very important, or #1.

One interviewee from a private, non-governmental organization (NGO) sums up workforce needs from a foreign direct investment (FDI) perspective:

*Se requiere fortalecer las habilidades y destrezas (soft skills) en aspectos como bilingüismo (principalmente) y liderazgo, comunicación asertiva, administración de proyectos y otros aspectos que refuerzan la preparación académica que se tiene. Son de especial relevancia como carreras de Administración de Negocios, Ingenierías y Computación.*

It is necessary to strengthen the abilities and skills (soft skills) in areas such as bilingualism (in particular) and leadership, strong communication skills, project management and other areas that reinforce the academic preparation that one has. They are of special relevance as are careers in Business Management, Engineering and Computer Science.

A subsequent question also asked how the interviewee viewed the importance of establishing a labor cooperation mechanism amongst the signatories of DR-CAFTA. This, of course, is Article 16.5 of the DR-CAFTA Trade Agreement which recognizes, “that cooperation on labor issues can play an important role in advancing development in the territory of the Parties and in providing opportunities to improve labor standards, and to further advance common commitments” (“Article 16.5: Labor Cooperation and Capacity Building Mechanism”). Again, he rated that issue #1 in importance <sup>16</sup>. He adds,

*La preparación del capital humano para el nuevo esquema conlleva muchas áreas de acción y cooperación, dentro de las cuales están la orientación de vocaciones hacia lo que las empresas están demandando, la generación de estadísticas detalladas y su proyección hacia futuro (incluyendo el nivel de inglés con que la fuerza laboral cuenta) y de nuevo el tema de los soft skills a través de las disciplinas más importantes (administración, ingeniería, computación).*

The preparation of human capital for the new plan connotes many areas of action and cooperation, some of which are vocational training geared toward what businesses are demanding, generation of detailed statistics and forecasting the future (including the level of English that the labor force has/can rely upon) and again the issue of the soft skills within the most important disciplines (management, engineering, and computer science).

Yet, when asked to rate the importance of question D (above),

[Rate the importance of] the need for studies [showing] the impact the TLC will have on the availability and movement of human resources in the region.

the response was a “4,” explaining that he felt there were other priorities for research studies,

*Sinceramente, desde nuestro giro de negocios creo que los recursos podrían orientarse a acciones más prioritarias, sin detrimento de que el estímulo que el tratado implica para otras áreas como la producción azucarera y de etanol pueda llegar a generar movimientos laborales importantes.*

Sincerely, from (the perspective) of our range of business activities, I believe that resources would be directed toward work that is a higher priority, without detriment to the stimulus that the Agreement implies for other areas such as sugar and ethanol production that could generate important movement of labor.

Questioning if movement of labor in the region would be a natural evolution of DR-CAFTA and on-going trade negotiations with the EU drew mixed responses. While many acknowledged the value of cooperative efforts and the necessary compliance with Article 16.5, the notion of regional standardization of labor laws to facilitate movement of human capital seemed unrealistic as an attainable goal or priority in the short or medium-term future. Additionally, there were concerns expressed by some regarding the thought of importing more labor from neighboring countries to fill potential shortfalls. There apparently are already significant concerns regarding migration of unskilled labor from Nicaragua--as an example.

As this report is being written, President Oscar Arias has signed a decree that pledges to make Costa Rica the first multilingual country in Central America, an action said to be motivated primarily by the trade agreement and export and FDI- oriented development models targeting value-added strategic areas for the country—not just maquiladora, and low-value added services. This commitment will obviously require many levels of cooperation and resources to accomplish. The next section points to another theme, not anticipated, that has indirect implications to workforce “readiness.”



### ***Other Workforce-Related Findings: Related to Competitive Advantage***

The following item was among those pre-diagnostic questions that were asked early in the exploratory study:

*C. ( ) La necesidad de desarrollar alianzas entre empresarios, el sector público, y el gobierno para entrenar y desarrollar una cultura de seguridad entre la mano de obra de la región.*  
[Rate the importance of] the necessity of developing alliances with businesspeople, the public sector and the government for training and developing a security-minded culture among the workforce in the region.

Starting with pre-diagnostic questions was an effort to assure that the research questions were the “right” ones, and if not, to modify them, as appropriate, before proceeding much further. The above item was originally meant to target port administrators and those State and NGO organizations that provide assistance to new business start-ups—or a total of 10 interviews. Prior to the interviews, a written questionnaire was emailed. Subsequently, the above item was changed to, “customer satisfaction and security-minded culture,” at the suggestion of the interviewees. All individuals interviewed rated this item very important, or #1. One NGO interviewee wrote as commentary, “indispensable” (indispensable). One representative from a semi-autonomous, State organization noted,

*Es importantísimo crear conciencia nacional de la situación de la seguridad ya sea en los puertos o en otras instancias públicas. En el caso de puertos, es aún más delicado porque de no respetarse, cerramos relaciones comerciales con el principal socio comercial (USA).*  
*It is very important to create national conscience regarding the situation of security, whether it be at the ports or in other public instances. In the case of ports, it is even more of a delicate (situation) because not paying attention (honoring this, doing so), we shut down our commercial relationships with our principal trading partner (the USA).*

An interesting theme emerged from this line of workforce “readiness” questioning, beginning with an interviewee from another semi-autonomous State organization. He pointed to the relative “youth” of Costa Rica as a competitor in the global marketplace. He acknowledged that Costa Rica was not actually launched into thinking beyond traditional exports until the enactment of the Caribbean Basin Initiative (CBI) with the Caribbean Basic Recovery Act (CBERA) in 1983. Yet, he argued that Costa Rica probably didn’t consider itself an exporter until perhaps 1994, when a trade agreement was signed with Mexico. It was then, in his view, steps were taken to move forward. He added that the strategy of export development, unfortunately, was not in sync with investment in infrastructure such as in ports and equipment. He echoed the earlier report information regarding the importance of the railroads and the deterioration of the major highways. In short, his argument is that the Costa Rica has only recently come to grips with the relative importance of being a serious player among global competitors. Another State official further supported this perspective:

*Este país tiene más o menos veinte años, veintidós años...bueno, vamos a promover el desarrollo de comercio exterior; vamos a ir a la conquista de mercados; vamos a hacer tratados; se creó en toda la conciencia exportadora; se generaron condiciones; se dieron cambios en el sistema productivo; y se crearon las instituciones; podríamos decir casi con certeza que hoy después de veinte años Costa Rica tiene una misión...*

This country has more or less 20, 22 years...(thinking)...ok, let's promote development of foreign trade, let's go conquer markets <sup>17</sup>, let's make treaties; an export conscience was created; conditions were generated; changes were made in manufacturing systems; institutions were created; we could say with certainty that today after 20 years, Costa Rica has a mission.

Yet, while he pointed to the realization of “export consciousness,” he questioned if national consciousness as a global competitor had really taken hold, calling it still, developmental.

Specific to development of a national consciousness and a strategic plan for port development, one interviewee stated,

*En el caso de Limón, que maneja un 75% de la economía del país, ¿cómo es posible que todavía tengamos carreteras de dos vías, tengamos poca infraestructura, tengamos pocos equipos?; entonces yo creo que debería haber un plan estratégico, que toda vaya de mano junto con el crecimiento que se está dando...porque si es el puerto más importante que tiene el país, y es un sostén fundamental para la economía, realmente debería dársele la importancia que tiene; no podemos seguir con la misma infraestructura porque de hecho se sabe que estamos colapsados...*

*El gobierno cree que mediante la concesión se va a poder ampliar los puertos, pero no hay un plan que me diga hacia qué lado, cómo se va a hacer; y no hay un cronograma en el tiempo versus incremento de carga para la satisfacción de necesidades de servicios demandadas; entonces si eso no existe, en estos momentos, yo con toda la seguridad puedo decir que no hay una perspectiva clara, como, por ejemplo, lo tiene Panamá. Panamá está muy claro en qué es lo que van a hacer este año, el otro, hasta el año 2015 para la atención del movimiento de carga. En el año 2015 Panamá estará duplicando el movimiento de carga o la atención a las cargas, y en TEUs se estarán manejando aproximadamente 7.4 millones de empleos; eso es algo bien claro, bien fijado, y ya el gobierno se ha estado moviendo en esa dirección.*

In the case of Limón, which handles about 75% of the economy of the country, how is it possible that we still have 2 lane highways, that we have little infrastructure, that we have little equipment? So I believe we should have a strategic plan that goes hand-in-hand with the growth going forward... because if it is the port that is the most important (thing) that the country has, and it is the fundamental support (backbone) for the economy, really, it should be afforded the importance that it has; we cannot go on with the same infrastructure, because in fact it is known that it is (we are) collapsed.

The government believes that through concession, the ports will be able to grow; but there is no plan that tells me toward what end, how is it going to be done? And, there is no timeline (prepared) in accordance with cargo growth (to address) the satisfaction of needs for demanded services; so if that doesn't exist, with total confidence I can say that there is not a clear perspective as, for example, Panama has. Panama is very clear regarding what they are going to do this year, another, and up until year 2015 to address the movement of cargo. In year 2015, Panama will be doubling the movement of cargo or the attention (needed) for cargo, and in TEUs [intermodal shipping containers or literally, twenty foot equivalent units] approximately 7.4 million jobs/employees will be handling them; that is pretty clear, well laid out, and the government is already moving in that direction.

As an example of the “need to create a culture of competitiveness,” Customs in the unionized Port of Limón was generally criticized by the small to medium-sized businesses for not being open 365 days a year, and 24 hours a day. Another view is presented by a logistics manager from a transnational firm that depends mainly on shipments by ocean freight:

*Si empezamos con las fortalezas...es un puerto [Limón] muy confiable, muy predecible, o sea nosotros sabemos que es lo que va a suceder. Nosotros quisiéramos que trabajaran 24 horas al día, 365 días al año, sin embargo, sabemos cuál es el horario que tienen y la programación de la producción se hace de acuerdo a eso. Mi frecuencia de embarque hacia los mercados es una o dos veces la semana. Yo saco producto, aproximadamente sacamos unos 15 en [confidencial] por semana, lo sacamos con 2 navieras y salen más o menos 7 y 8 contenedores.*

If we begin with the strengths...it [Limón] is a very dependable, very predictable, or it may be that we know what is going to happen. We would like them to work 24 hours a day, 365 days a year; nevertheless, we know what the schedule is that they have, and production is programmed in accordance with that. My frequency of shipments to markets is one or two times a week. I get product, we get approximately 15 containers on [confidential name of company] each week, we get it with 2 ships and more or less seven and eight containers leave.

This interviewee felt that the system at the Port worked well enough, and acknowledged they have adjusted according to the strengths and weaknesses represented there.

The imperative to create a “national culture” dedicated to customer service, a “national consciousness”, or “a mentality of competitiveness” as a global competitor, and/or “national consciousness” and “security mindedness” (in the case of ports) were among the frequent expressions gleaned through analysis of the interview transcriptions.

Regrettably, there was not time to explore how such culture creation might be or is being accomplished at the workforce level through training, except perhaps at the privatized Port Caldera, where workforce training was discussed to some extent. However, as the findings are very limited, they are mentioned in the final section of this report as a recommendation for further study. The following section provides an overview to the research design and methodologies utilized for compilation of this report.

## ***Methodology***

The author and researcher of this report was Coordinator of Central American operations for a U.S. pipe tool manufacturer during the 1980s and traveled to Costa Rica with some frequency. Therefore, she had some insight into which organizations might be valuable to interview on the question of logistics and workforce readiness post-DR-CAFTA. Additionally, she is a trained qualitative researcher/fieldworker, and a published author on the subject of the Caribbean Basin Initiative--both an advantage to regional sensitivity, setting realistic timelines, and formulating a research design.

Early on, it was obvious that this exploratory research endeavor would be a qualitative one, relying primarily on structured, open-ended interviews. While the interview questions on particular topics were guided by a general

statement or question, the value of choosing this particular interview format was to give the researcher considerable latitude to pursue emerging issues during the interview. This is standard as an approach to interviewing (Bogdan and Biklen, 1992, p. 97).

A list of organizational prospects was generated based on prior work experience and the Caribbean Region Profile 2007, a resource published by Caribbean-Central American Action. This is a private, independent organization that works to promote investment and commercial dialogue throughout the region. Upon arrival to Costa Rica, the validity of this list was discussed in several initial brainstorming sessions with two researchers from the Research Institute for Economic Science (Freddy Rojas and Gabriela González, ICEE). Other prospects were identified subsequently. Therefore, the sample chosen was a convenience sample representing the public and the private sector. Scheduling appointments was a challenge due to cultural protocols involving reporting relationships. Therefore, we had to wait for the person in charge (or a very empowered assistant) to grant the interview. Additionally, winter rains often made scheduling difficult due to road congestion. Nevertheless, 54 interviews were accomplished. Exhibit 8 shows the distribution according to types of organizations.

**Exhibit 8 Interviewees (Costa Rica, Nov. – Dec. 2007)**

<b>STATE</b>	<b>NGO</b>	<b>PRIVATE</b>	<b>OTHER</b>
17	8	19	10
State: refers to Ministries <i>and</i> semi-autonomous State organizations			
NGO: refers to non-governmental organizations offering services and/or collaborating with the private sectors			
Private: refers to those who were interviewed from the private sector			
Other: refers to those who were interviewed while at a conference or in an academic setting			
All interviewees from State, NGO, and Private enterprise, and Other held top management or administrative positions			

Most interviews were scheduled for one hour, which generally allowed for ample opportunity to explore themes further with the respondents. Many ran over, but seldom were any under one hour. All but two organizations allowed the conversation to be taped. Therefore, all interviewee commentary that is incorporated within the report is quite accurate—verifiable on tape and in the respective typewritten transcriptions. All interviews were conducted in Spanish.

As mentioned earlier, to assure the items for discussion were well focused, an initial 10 interviews were conducted utilizing pre-diagnostic questions to assure they were focused and clearly understandable. These questions were sent to each organization by email with a cover letter on ICEE’s stationery. Some had to be resent due to shifts in personnel or misplacement. Appendix A.1 is the cover letter that accompanied A.2, the Pre-Diagnostic questions.

Subsequent to these “trial run” questions, it was recognized that the questions would have to be customized for each organization. While the original intention was to standardize the questions being sent to everyone, those questions that did not relate to the business of the organization had a detrimental effect on willingness to respond, causing time to elapse. Several interview prospects requested phone calls prior to scheduling of the interviews.

All the transcripts and notes were reviewed for common themes. Items that were pertinent to the activities or concerns of the organization and included on customized questionnaires were rated from 1-5 (most importance to no importance), and averaged for each category of organization--government (State), NGO, Private, or “Other.” Refer to Exhibit 9a & b. As an example, Theme 1: “The importance of developing a multi-modal transportation system with the railroad as an integral part of that system,” was rated #1 by the public and private sector. “NC,” as in the case of the NGOs and the “Others,” indicates that the results were not conclusive for either of these two groups. Why “not conclusive?”: Because in most instances, not all organizations were asked this question if their business activities had little to do with this theme. While the theme might have been mentioned in a transcript, there was no way to compute an average of the responses of all NGO’s or “Others.” Nevertheless, if at least one representative from the NC groups affirmed the importance of an item, and at least 2 others from other groups, that was considered significant to the study and reported herein. However, other themes, not necessarily triangulated, but provided a unique perspective to an issue, in some cases, are mentioned in the concluding section recommendations for further study. An average score of “3,” as in the case of Theme 5, does not necessarily mean that the respondents were ambivalent. Several respondents mentioned while the theme was important, from their vantage point it may not have been as important as others. The following sections offer conclusions and recommendations for further study.

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## Conclusions and Recommendations

The following discussion aims to apply and synthesize findings into action items for future planning and consideration. Coupled with conclusions are recommendations for future study.

•“Global” (holistic) studies. There is obviously a need for a “global” study of bilingual (English/Spanish) and multilingual workforce needs as current trade accord implementation goes forward and others are negotiated. This need is not new to those Costa Ricans concerned with FDI and business development issues. Findings show that government officials at the highest levels, CINDE, INA and others have made this effort a national priority. However, these efforts could benefit from application of best practices regarding job analysis from the field of international human resource management, as an example. Job analysis is generally understood as an effort to identify the knowledge, skills and abilities/attitudes that are essential to a particular job and (ideally) to generalize to particular job categories. Proficiency in a language and IT are best understood in the context of the duties and responsibilities of the job itself. Regarding Exhibit 7, while we can illustrate how many individuals speak English within a particular specialty such as industry/manufacturing, how do we know which of those jobs require English (or other languages, knowledge or skills), for that matter; and if so, to what level of proficiency? Identification of worker characteristics (problem-solving, mathematical ability, oral and written communication skills, interpersonal skills) and essential job functions/tasks is the objective of job analysis (Gómez-Mejía, 2007). Job analysis is also a key precursor to training, for development of metrics for performance evaluation of outputs, and for identification of recruitment criteria. Given the findings discussed earlier, another objective of best practices application of job analysis would be to develop quantifiable performance objectives regarding culture creation (customer service mindedness, etc.). Job analysis also takes a holistic vs. piecemeal view of the worker and his/her relationship to the strategic goals of the organization and to society. Therefore, findings regarding critical KSA needs are very important to translate into curriculum planning efforts at all levels in the educational pipeline <sup>18</sup>.

•Port Privatization (Caldera and Workforce Efficiency). Earlier reference was made to the Port of Caldera and JAPDEVA. Reiterating, in 2006 the Port of Caldera was privatized. The Colombian concessionary employs essentially most of the same individuals that were formally unionized. JAPDEVA's workforce is unionized, with stevedoring operations outsourced. Interviews by those who use both port operations, overwhelmingly point to the efficiencies that Caldera has managed to achieve with the many of the same personnel. Comments regarding JAPDEVA are mixed, acknowledging that more efficiencies could probably be achieved if it were privatized as was Caldera. To form conclusions regarding the perceived efficiencies achieved by of one port vs. another due to privatization would be hasty, indeed, and not illustrative of effective research techniques many reasons: the lack of comparability of the characteristics of ports themselves, the shipping volumes they manage, climate, overview of responsibilities, and more. The privatization at Caldera brought about changes in policy and adoption of a workforce code (El Código de Trabajo). Again, this study recommends an application of



best practices and job analysis to determine how this privatization effort managed to effect the changes they did, given the port characteristics, and with basically the same workforce. Why? To translate that information to best practices in the same sector and possibly in other sectors as may be applicable.

•Lifelong learning. Polls that aim to assess workforce needs according to job specialization areas are important, of course. As stated above, they are a piece of the picture, but only one piece. One interviewee (State-level), while acknowledging the importance of generating an aggressive plan to develop second language training in public education, he cautioned against short to medium-term thinking about educational outcomes. His views are mentioned, as they appeared unique—no one else expressed these concerns. As Costa Rica moves forward, perhaps these views will be inspirational to those charged with educational development of a citizenry prepared for lifelong learning. He cautioned against educational planning that responds primarily to current business needs.

*...probablemente haya necesidad de hacer algún plan intensivo de capacitación, en un segundo idioma, pero eso digamos para la coyuntura actual, verdad, esa necesidad para lo actual. Para el futuro, lo que es necesario es hacer un esfuerzo enorme en todo lo que es educación pública, ¿verdad?, tanto primaria como secundaria, pero que los muchachos salgan con una base de inglés mucho mejor de lo que están saliendo actualmente. Ahora también en esto hay que tener cuidado...[porque] la educación tiene propósitos que exceden la coyuntura, ¿verdad?;... y eso no podemos perderlo de vista; es decir sería muy osado, muy atrevido de parte del país, adecuando su sistema educativo a las necesidades de la coyuntura, a hacer un esfuerzo de reconversión y adaptación del sistema educativo, pero aclarando a una coyuntura que pueda dejar de tener vigencia dentro de unos años. Creo que hay que tener una balanza en eso, ¿verdad?...la educación tiene una responsabilidad de preservar ciertos valores, ¿verdad?, y cierta esencia humanista, si usted quiere. Que no pueda renunciar a eso por solo y sencillamente convertirse en una fábrica procesadora de técnicos para la coyuntura, ¿verdad? Yo creo que eso es peligrosísimo, y hay que atender las necesidades de estas empresas, sobre todo porque eso significa que esos muchachos que salen de la universidad, o antes de salir, tienen una, la oportunidad de forjarse un futuro mejor al de sus padres, como era antes este país hace 30 o 40 años. Pero hay que mantener ese balance.*

...Probably there is a necessity to [develop] some intensive training plan in a second language, but that is for the current situation; that necessity is for now. For the future, what is necessary is to exert an enormous effort in everything that is public education—right?—as much in primary education as in secondary education, so that the students can wind up with a foundation in English that is much better than what they are leaving with now. Now then, with this, it is necessary to be careful [because] education has purposes that go beyond the current situation, right?; and we can't lose sight of that; in other words, it would be very daring, very bold on the part of the country, adjusting the educational system according to the needs of a current situation, making an effort to change and adapt the educational system, fitting it to a situation that may no longer be in effect within a few years. I think it is necessary to have a balance in this, right? (don't you think?)...Education has a responsibility to preserve certain values, right? and a certain humanist essence, if you like. You can't forsake that and simply convert yourself into a processing factory of technicians for the current situation, right? I think that is very dangerous; and it is necessary to attend to the needs of these companies, above all, because that means that these students that leave the university, or before leaving, they have a...an opportunity to forge a future for themselves that is better than that of their parents, as this country was before 30 or 40 years ago. But it is necessary to maintain that balance.

•State of Logistics “Readiness”.

As stated earlier, findings show delivery of the MOPT mission is debatable in the areas highlighted below.

To contribute to better the Costa Rican quality of life and country competitiveness, by facilitating the movement of people and goods by land, air and sea, safely, rapidly, and “pleasantly” and at a fair cost.

([http://www.mopt.go.cr/mopt\\_mision\\_vision.html](http://www.mopt.go.cr/mopt_mision_vision.html)).

Ticos know that the major roads’ situation for both passenger and commercial traffic are intolerable. The study reinforces the importance of a rail infrastructure, particularly one that would take some of the pressure off the roads by bypassing San José. State level interviewees mentioned the imperative of port development in tune with the increase in container traffic through Limón and Caldera. However, the only sector that pointed to the problem regarding JIC inventory (just in case) vs. JIT (just in time) inventory was the private sector. Interview findings support that businesses have gotten used to dealing with these inefficiencies and variability in transit times, unfortunately. Yet, carrying such inventory cushions should be construed as a vulnerability to new business development and longevity, and a constraint in reducing the costs of doing business. Therefore, this report strongly recommends that a study be done that collects information on the percentage of inventory costs businesses of all sizes are carrying. There are excellent research resources for gathering that information available in Costa Rica. Additionally, the study should also determine how those costs especially impact the small to medium-sized businesses (PYMES). Why? Because it deemed that these costs are perhaps the strongest arguing point—leverage, if you will, for acceleration of reactivation of the rail system. Another important factor: How does business size influence what gets prioritized regarding of infrastructure funding across transportation sectors (or not)?

One Limonese interviewee leaves the subject of multimodal transportation on a hopeful note, but emphasizes the importance of an integrated effort in the region:

*...como fortaleza, tenemos la ubicación geográfica de nuestro puerto que está de frente y de cara al mundo en términos comerciales--hacia Suramérica, Norteamérica, Europa; y que desgraciadamente, no estamos potencializando o explotando esa joya que Dios nos ha dado, esa ubicación magnífica. Por lo tanto, hay que trabajar muy, muy, muy seriamente en términos de lo que es la parte elemental de la logística. Ya que nuestro país es tan pequeño que también se ha hablado mucho en términos de la logística Centroamericana; y que para eso, pues tiene que haber una mejor integración. No es solamente querer hacerlo; sino que deben de participar los Estados, el gobierno--tiene que haber voluntad política--que es lo más elemental para que las cosas lleguen a su feliz término.*

...as a strength, we have the geographical location of our port which is in front of and with a face to the world from a commercial standpoint—toward South America, North America, Europe; and unfortunately, we are not realizing the potential or exploring this jewel that God has given us, this magnificent location. Therefore, it is necessary to work very, very, very seriously in terms of what is most fundamental to logistics. Since our country is very small, there has been much talk in terms of Central American logistics; and for that, well, there will have to be better integration. It is not a matter of wanting to do it; rather, the States, the governments should participate—there has to be political will—which is the most fundamental [thing] in order for matters to reach their happy ending.



•The Centralization-Decentralization Conundrum. The Costa Rican government is making every effort to reduce transaction times and processes (trámites) for new business start ups. Bureaucratic red tape has been the subject of much attention at all levels of government and by NGO's concerned with FDI and PYME growth and sustainability<sup>19</sup>. Seamlessness in business development is obviously deemed to be a necessity and a priority. In the spirit of these initiatives, it appears that the transportation sector could also benefit from such trámite reduction initiatives. Specifically, such efforts should assess the degree of centralization vs. decentralization that is required (or not) to effect improved coordination for oversight of the logistics infrastructure. There is a historical tendency in Costa Rica to add more task forces and change ministerial functions, or grow the arms of the State as new concerns surface, possibly creating potential unnecessary redundancies. Yet, as stated earlier, while there are often strengths to centralization, a well-known weakness and inherent constraint—particularly when there is responsibility for so many challenged functional areas, is time delays. Centralization is generally more effective when there are fewer knowledge-based areas to oversee. Oversight of port transportation and development alone requires a huge reservoir of expertise. Location of knowledge-bases, where and when they are needed, also has an impact on whether just a tiempo (JIT) decision making takes place...or not.

•Goal-Setting and the Ports. Ports generally set goals in terms of tonnage, not export dollars. Therefore, there appears to be a break-down in terms of translation of dollars into tonnage, which has an impact on operational goal-setting at the port level. As example, if government sets a goal of x millions of dollars in exports, a port is challenged to analyze that goal from the vantage point of import-export goals. Plus, there is the factor of needed infrastructural development and equipment in order to accomplish such goals—particularly if the common denominator is stated in export dollars vs. tonnage to move. Workforce efficiencies are, of course, a factor of clearly communicated goals. Therefore, this study recommends an audit across those State entities and organizations concerned with export growth to assure that these goals are communicated in a common language. These common language denominators are critical to evaluate Costa Rica's competitive advantage going forward.

•Telecommunications and la Última Milla. The ultimate success of Project Tic@ and Gobierno Digital will depend on the ability to reach all corners of the country and assure compatibility with existing equipment and developing infrastructure. Who will perform this audit and compile and address these gaps remains unclear to this researcher; yet, it is obviously important to assess and address accordingly. There may be opportunities here for outside funding, given the geopolitical advantage Costa Rica enjoys.

#### •A Culture of Competitiveness: A Marketing Perspective

Creating a national consciousness of competitiveness is among the challenges facing Costa Rica and the region. An NGO interviewee, provides a perspective to this challenge:

*...me parece que el país debe trabajar, de una manera conjunta con lo que hemos denominado un proyecto para el país [llamado] “imagen país”; y para poder construir la “imagen país,” el nombre del país,” le pongo un ejemplo, no es lo mismo que usted cuando vea la bandera de Canadá, automáticamente cuando entra uno, dice, “ésta es Canadá”; cuando ve el círculo en este caso con un punto rojo, en blanco usted dice, “esto es Japón.” Pero, ¿cómo nos asocian los extranjeros a nosotros; ¿cómo nos*

*asocian la comunidad internacional a Costa Rica?; ése es el concepto que me parece que hay que trabajar; y cuando yo abro un proyecto tan grande: “Imagen País”: Eso involucra una coordinación a nivel de otras instituciones.*

It seems to me that the country should work together on what we have identified as a project for the country,[called a] Country Image; and in order to build the “country image,” the name of the country, I’ll give you an example that is not unlike that of when you see the Canadian flag—automatically one says, “this is Canada”; when you see the circle, in this case, with a red dot in white, you say, “this is Japan.” But what do foreigners associate with us; what does the international community associate with Costa Rica? That is the concept that it appears to me that needs work, and when I initiate a big project: “country image”...that involves coordination with other institutions.

Coordination with institutions is a State priority as well as a fairly recent ministerial function (Ministro de Coordinación Inter-institucional/Minister of Inter-institutional Coordination, 2007); development of a systems approach is obviously on the minds of many. Additionally, there is a competitiveness has also has a place at a ministerial level (Ministro de Competividad). Whether these approaches will be catalysts for long-lasting improvements will be determined in the future. The J. Arvis (2007) report, cautioned against piecemeal vs. comprehensive approaches in order to optimize logistics results. That is also good advice from the vantage point of public policy and planning.

In conclusion, it is hoped that this study will be useful to all who participated in it as they go forward. Many other valuable themes emerged from this exploratory effort. They include, but are not limited to: the role of transnationals in new business and public policy development, the profile of “change agents” in developing countries <sup>20</sup>.

**Note: No portion of this study may be distributed without the written permission of the author.**

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## Notes

1. Sacar el jugo is difficult to translate. Literally, it means “take out the juice”; figuratively, it means “take advantage of the best of something.” Ticos is the term used to refer to “Costa Ricans.”
2. Thirteen complementary laws need to be approved by the Costa Rican Congress before the Agreement takes effect. The Agreement is in effect in all other CA/DR countries
3. See Potoker & Borgman (2007) for further detail related to traditional and non-traditional exports.
4. As Biesanz et al. (1982, p. 10) state, “decision-making a la tica [Costa Rican style] means constant bargaining in an effort to avoid conflict, even when the problem is not really resolved. Their saying “Each in his own house and God in all” indicates the high value Ticos place on convivencia or living side by side.”
5. The same may be said for this exploratory study. The only themes that are discussed are ones that surfaced during a 5 month period and were validated in at least 3 interviews representing more than one type of institution as represented in Exhibit 8.
6. Refer to Appendix A.2 for interview questions.
7. Refer to: <http://www.hacienda.go.cr/NR/rdonlyres/83E2224B-A19A-47DF-8C0C-8A14C56EFD8E/11301/QueeselTICA1.doc>; <http://www.inteliagencia.net/ts/tecnysis/ProyectoTica.aspx>; <http://www.inteliagencia.net/infotica/> for more information on Project Tica, its history, technological systems requirements, and its stakeholders.
8. This view is also presented in the MIDEPLAN, 1.11, p. 79.
9. See, “Telecommunications” (Costa Rica, 2007) for current capabilities in these areas.
10. Where not otherwise cited, or general knowledge, all of the following discussion is supported by interviews. All except two were tape-recorded and transcribed.
11. For information regarding specific infrastructural development objectives and timelines, refer to the MIDEPLAN and MOPT web sites, respectively.
12. derived from Port of Calderas, internal records re: INCOP (2005-2006) , and the Port of Calderas 2007).
13. For information regarding how the LPI was compiled, the resources, and the methodology employed, refer to J. Arvis (2007).
14. For more information on studies in higher education, refer to the web site of CONARE, <http://www.conare.ac.cr/>; <http://163.178.80.12/catalogos/doctextcomp/index.htm>), whose work focuses on the public institutions of higher education, and the National Advisory Board of University Chancellors for Private Universities (CONESUP, <http://www.unire.or.cr/leyes-reglamentos/ley-conesup.htm>).
15. Call centers serving sectors such as tourism, sports books (betting) are growing. Each requires improved band width, fiber optics—in short, platforms that optimize growth.
16. This issue rated #1 very consistently. Of course, DR-CAFTA nations will be obligated to comply with Article 16.5, therefore, the value of the rating is most likely, “questionable.”
17. Another interviewee noted the establishment of the Foreign Trade Corporation of Costa Rica (PROCOMER) didn’t occur until 1996. PROCOMER now has 10 offices in locations where Costa Rica has foreign trade agreements. [http://www.c-caa.org/aboutus/about\\_ccaa.html](http://www.c-caa.org/aboutus/about_ccaa.html)
18. To provide detailed information regarding methodology and elements of such a job analysis endeavor goes beyond the scope of this study. For more information on job analysis, work implication, performance and culture creation, contact the author at [pe@interloqui.com](mailto:pe@interloqui.com).
19. This subject could be a report, in-and- of- itself; yet, is it beyond the scope of this study.
20. For more information on this report or others, evolving, please contact the author at [pe@interloqui.com](mailto:pe@interloqui.com).