PROSPECTS FOR INFORMATION SERVICE EXPORTS FOR THE ENGLISH-SPEAKING CARIBBEAN

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Acknowledgments

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Research undertaken for the countries of the Organization of Eastern Caribbean States (OECS) (Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines) was financed by Institutional Development Fund (IDF) grants from the World Bank. Additional research on Barbados, Jamaica, and Trinidad and Tobago was funded by the Canadian International Development Agency (CIDA).

Many organizations, companies, and individuals have been generous in sharing their experiences in the preparation of this report. The authors also benefited from support and insights of Beverly Mullings, Hermann von Gersdorff, Adrienne Taptich, and Krishna Challa.

Abbreviations

BIDC	Barbados Investment and Development Corporation
CAD	Computer-aided design
CAD/CAM	Computer aided design/ Computer aided manufacturing
CAST	College of Arts, Science and Technology
CGCED	Caribbean Group for Cooperation in Economic Development
CIDA	Canadian International Development Agency
C&W	Cable and Wireless
EDI	Electronic Data Interchange
EU	European Union
GIS	Geographic Information Systems
HTML	Hyper Text Markup Language
IDF	Institutional Development Fund
IT	Information technology
JDI	Jamaica Digiport International
JIT	Just-in-time
MBFTZ	Montego Bay Free Trade Zone
NASSCOM	National Association of Software and Service Companies
OECS	Organization of Eastern Caribbean States
UPS	Uninterruptible power supplies
UWI	University of the West Indies

Executive Summary

The nature and place of work have been transformed by increasing deregulation of telecommunications and the integration of computers and communications across borders. Large North American corporations are looking to outsource information processing tasks away from their central offices to lower-cost countries, using direct electronic communications. Outsourcing companies thus seek information-friendly environments characterized by well regulated information and communication markets and education policies that favor development of a skilled labor force.

The Caribbean is a potential area for these outsourced operations. There are people who are literate, English speaking, trainable in computer supported skills, and available for employment. The governments are stable and based on common English heritage. Time zones and the ability to travel easily to these countries are also favorable characteristics. Labor costs including benefits are quite low by comparison to North America. Telecommunications expenses are significantly higher, however, than in the United States.

Recent discussions with over 200 North American companies, representing the largest market in the world for information processing services, confirm that the potential for outsourcing are ones where North American companies want to find Caribbean partners or suppliers; few opportunities are available to provide direct investment and own one hundred percent of the Caribbean operation.

Matching North American demand with Caribbean supply will be the most difficult task in growing the informatics industry in this region. The demand factors of North America come from sophisticated users of computer technology. The supply factors of the Caribbean will have to rapidly acquire these technology-led skills and develop a computer literate labor force to meet the needs of the North American companies who want to outsource information processing tasks.

While the Caribbean attempts to rapidly increase its skills to satisfy the needs of North American outsourcers, other countries are competing for this work. Asian countries seem to be acceptable sources of supply for many large volume North American service bureaus especially if turn-around time is not an issue. Israel and India are both becoming well-recognized areas to have software developed or modified. Ireland, Mexico, and the Dominican Republic are also growing their capabilities for outsourced informatics services. The Caribbean countries will have to earn a position in this global industry, competing with others on a basis of quality, skills, and overall economic costs (not purely labor-driven costs).

This paper covers a lot of ground, from the potential of creating thousands of information jobs in the Caribbean region to a proposed strategy to enhance the existing information environment. The first two sections discuss potential opportunities, factors that influence outsourcing decisions, and competitors to the Caribbean. The third section analyzes the environment in the region to support the availability, diversity, and supply of low cost information services and products. The final section addresses the main areas where policy action is required in the region.

Introduction

As business and trade become truly globalized, the requirements for national competitiveness are changing. Once it was sufficient to provide scarce commodities, out-of-season produce, or cheap manufactured goods for the markets of more advanced European or American economies. Today progress in transport and information technology make virtually all products and services from all countries available to many purchaser on the globe.

Like many other emerging economies, the English-speaking Caribbean too is competing to provide outsourced information processing and knowledge-based services in this global market. Informatics is an intensely competitive, fast-changing and fast-growing area, but the Caribbean has some advantages in competing for these services. The countries have a strong affinity to North America, with a common heritage, language, and time zones, a tradition of democratic and stable political systems, and relatively easy airline access. In some of the islands, there is also an established history of involvement in and knowledge of the requirements of the information processing industry.

The fastest way to continue to build this industry in the Caribbean is by finding companies in other geographic areas who are willing to place some of their information processing operations in these countries. This will require the proper enabling environment and a willingness to abandon some archaic practices and bureaucratic procedures. Finding companies who are willing to create new jobs, and making sure existing companies do not leave the region for more encouraging markets, will depend on an investment process that is less regulatory and more facilitating, which deals with both domestic and foreign investment with equal vigor.

An intensive prospecting evaluation recently carried out in North America, estimates that 20,000 to 30,000 information processing jobs can be established today in the region. In fact, opportunities for outsourcing far exceed what the region can currently absorb. These jobs include processing health insurance claims and airway bills and tickets, transcribing medical and legal records, and a broad range of data entry, data conversion, and clerical administrative services. Many of the firms exploring outsourcing options are seeking long-term, multi-year contracts.

The information service industry is particularly attractive to the countries of the Caribbean because it is able to confer benefits that reach well beyond that of job creation. In countries where information processing operations have been successfully set up already, such as India,[1] Ireland, and Israel, a number of multiplier effects to the economy have emerged, including:

?? an environmentally clean industrial base, requiring relatively low capital investment;
?? an indigenous knowledge-based labor pool;
?? the transfer of know-how and technology to other local industries and sectors (such as manufacturing, banking, insurance);
?? investment in high-technology operations;
?? foreign exchange earnings; and
?? opportunities for people to upgrade their skills and increase productivity.

Of the obstacles facing Caribbean countries, the most critical is a shortage of informatics professionals who write software, run computers and networks for organizations, perform data entry, manipulation, and conversion, and who can offer a broad range of technical capabilities. Next comes telecommunications pricing, another of many variables that can affect building a successful information processing industry in the region (wages, training expenses, and air freight are also critical costs). To successfully compete, countries will need to develop coordinated strategies for the export of these services. Caribbean firms will also need to develop systematic and economic ways to find and cultivate strategic partners in the key markets.

What are the jobs?

Informatics services utilize information processing, manipulation, or presentation as the core activity in creating value. The information processing services industry encompasses a broad range of activities and applications, such as:

?? key data entry for magazine subscriptions, coupons, and other simple tasks;
?? manuscript conversion from paper or voice to electronic files;
?? corrections and repair of “exceptions” in highly automated systems such as airline ticket revenue accounting;
?? information entry and judgment for health care claims processing;
?? conversion of data bases from old file formats to newer, easier to use systems;
?? providing voice-oriented and computer-supported call center operations for technical “help desks” or customer services;
?? telemarketing, both inbound and outbound, for efficient sales and order entry processes;
?? processing and analysis of market research data;
?? computer-aided design (CAD) services for engineering operations;
?? geographic information services (GIS) for mapping;

?? document storage and management;

?? software program conversion for changes in large system computer platforms; and

?? software development for a wide range of applications, some in support of the local informatics industry, and others for use by unrelated customers.

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Global market for the informatics industry;

With the overall quantity of information handling growing exponentially, the requirement for computer literate employees is becoming increasingly important for global competitiveness. It is currently estimated that more than 10 million workers are employed in computer-supported activities in the United States, and that this sector of the U.S. economy is growing at a rate of 14 to 15 percent per year.

A current trend in corporate North America is to reengineer work processes for improved operational results for example, eliminate time, cost and delays, support a particular level of service goals, and minimize intermediate stocks and distribution points. Most of this activity focuses on using just-in-time (JIT) systems, Electronic Data Interchange (EDI), and various other forms of electronic commerce as facilitators for change. The need to redesign work flow and the efficiencies associated with outsourcing have led many corporations to view data entry and information processing as areas that could be most profitably provided by a third party. Decentralized operations and "global corporations" are widely-accepted organizational alternatives in North America. Therefore, outsourcing nonstrategic activities is a viable opportunity for companies.

Improved technology is bringing down processing costs and increasing the demand for information handling. At the same time, with the coming of age of input technologies such as scanning and artificial intelligence, information handling costs are on the decline. Data communications is displacing physical transport, and image-assisted data manipulation is becoming the first choice for data capture. Scanning technology and application specific software are used to capture and compress relevant images. These electronic images are "read" by the computer and, where necessary, transmitted and "cleaned-up" by operators in on-screen data entry operations.

While these new mechanisms will displace many low valued-added informatics jobs such as key entry, there will continue to be a need for higher level, more judgment and knowledge-based pool of workers. The reasons for this lies largely in the problems associated with the quality of document images and the accuracy of recognized characters.

The most significant trends for the next five years appear to be a continuing demand for more knowledge-based workers every year; and advances in computing, data capture and

telecommunications that will facilitate growth of higher value adding informatics operations.
Overall, these trends indicate that opportunities for service operations are likely to increase in the future and operations that are able to provide specialized technical expertise associated with the design, analysis, and project management of high value-added software and services will be the most likely to flourish.

The broadly defined informatics industry is estimated to be valued at over US$400 billion in North America and globally, closer to US$1 trillion. Within North America, there are over 27,000 sites with data entry systems. These operations are currently estimated to employ some 10 million people. Much of this industry is composed of small sites within large corporations where information is a subset of other activities (such as sales offices or distributors). However, several portions of the market are highly focused on informatics as their primary activity and provide opportunities for third party or service-oriented informatics businesses (Figure 2.1). For example:

?? software development is a US$123 billion market;
?? information processing is a US$38 billion area of activity employing 400,000 people;
?? service bureaus represent about 60 percent of the volume of the information processing segment (over 700 data entry service bureaus serve the North American market —about 100 of these companies have off-shore operations); and
?? even pure, low-level data entry represents a US$800 million market opportunity.

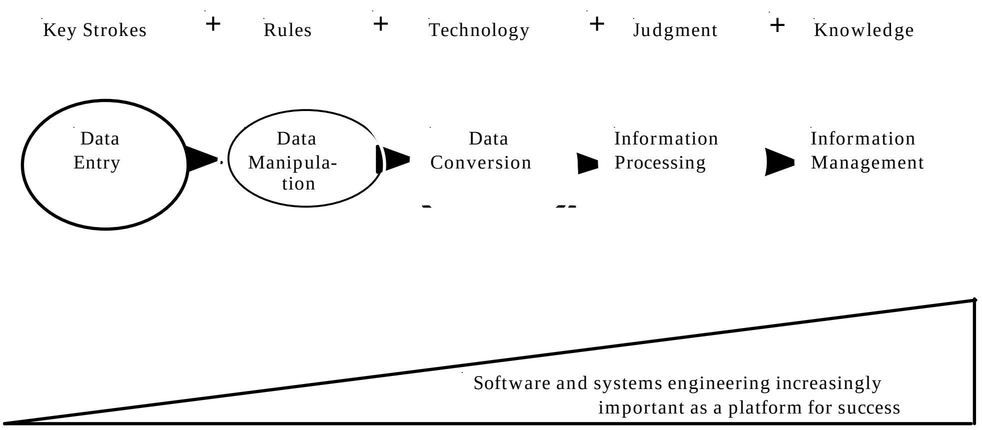
The market for information processing services can be segmented in different ways:
?? by value adding activities (key strokes at the low end and increasing use of knowledge at higher value levels);
?? by quality requirements (from 95 percent to 99.99 percent);
?? by operator skill requirements (from data entry to application of judgment);
?? by industry (airlines, publishing, insurance, and so on.); and
?? by applications (credit cards, help desks, CAD, GIS).

Regardless of the way in which the market is segmented, all information processing services increase in value as incremental skills or technology are added to labor (Figure 2.2).

For example, simple key strokes for data entry resemble typing, and in some cases only numeric data entry may be required. Understanding English or the context of a form or document is not necessary. In North America, the standard for this type of operation is 10,000 key strokes per hour. On the other hand, rules-based operations require an operator to learn a set regimen for entering data from a paper or imaged document.

A further skill requirement may be in the use of technology to simplify a task or improve quality by reducing key errors. At a higher level of operation, the operator may be required to use judgment to decide whether the information is complete and some action should be taken based upon the content. Finally, at the highest end of the process, knowledge is required for tasks such as software conversion, data base development, or computer-aided design.

Figure 2.2 Value creation in the informatics industry



Applications are defined by two primary characteristics: quality and operator skill requirements, which combine to create higher value-added results (Figure 2.3). At the low end, in areas like magazines subscriptions, 100 percent accuracy is not required and operator skills are at the level of typing data into a fixed format data base. At the other end of the spectrum, highly trained operators are necessary, to ensure error-free results. In addition to quality and skill, software is becoming an increasingly important part of the equation for success, as more complex systems are used in higher value creating activities.[1]

Segmentation by industry is probably the easiest way to prioritize which potential customers are most receptive to outsourcing, although there are also some segments within industries that have relatively little need to outsource information processing. For example, most manufacturers have little data processing which could be outsourced; but they may use CAD applications or have other activities which could be outsourced. Most

[1] A complex software development project may require the coordinated work of many teams, often in different locations, with stringent requirements of performance and quality, and the need to support a range of end-user interactions in real time.

retailers use a high level of automation (scanning, bar coding, credit card strip readers) and have little information processing. Wholesalers and a wide spectrum of industries such as oil and gas, manufacturing textiles, and departmental stores use highly automated tools such as EDI. On the other hand, the 700 service bureaus in North America aggregate demand from many different end-users, and apply specialized technology and other scope or scale economies to achieve more efficient operations than a single user may obtain. Typically, these companies do credit card processing, insurance claims processing, document management, and various ongoing activities. Many have existing offshore relationships in China, India, Ireland, the Philippines, and Sri Lanka; a few even have Caribbean experience (primarily contracting with Jamaican firms).

Box 2.1. Indian firms start at bottom and move up value-chain

India's software industry exports started to grow in the late 1980s when it offered low cost data entry services and on-site programming services to firms in industrialized countries. The total value of software exports now exceeds US$300 million. About 150 of the 600 Indian software companies now operate on global contracts only, mainly with the United States and Europe. The National Computer Software Export Promotion Council have been important agents in offering advice on industrial policies and acting as gateways to international markets and services.

At least three firms used data entry services as an inroad into international software production. Each has diversified its services and applications, and, over time, acquired higher technical and managerial skills essential for working internationally in the latest programming technology (object-oriented development for PCs and client server systems).

The software exports division of Datamatics, based in Bombay, was set up in 1975 to provide reliable, outsourced data entry services. It now has 400 software professionals working in applications in banking, telecommunications, transportation, and government. it specializes in setting up dedicated offshore development centers for large corporations such as AT&T, Singapore Airlines, and the Itochu Corporation. Aware of the fact that market pressures are linked to customers, Datamatics has established 64 kbps linkages between Bombay and Singapore and Bombay and Plano, Texas. It has also introduced internal quality control procedures designed to meet international standards. The company's migration up the value-added chain has paralleled its demonstrable achievements and it has gained the confidence of overseas customers.

Decision Support International in New Delhi was founded in 1988 and has grown from US$60,000 revenues in 1988 to US$600,000 in 1994. Its 50 software professionals work on compiling mailing lists and text databases, producing CD-ROMs and directory publishing and scanning services. Another 130 professionals are engaged in data entry and conversion services from hardcopy, microfilm and microfiche, and clerical services.

Infotech Enterprises of Hyderabad was founded in 1992 and provides software and support services in the field of CAD and GIS to a range of Fortune 500 companies. Infotech has developed software packages for drawing information management, raster graphics editing and parametric modeling.

Customer requirements

Companies typically evaluate numerous economic and political factors in considering outsourcing activities off-shore. The simplest measurement used in determining outsourcing alternatives is comparative labor rates. Within the United States, low level data entry jobs have labor rates as low as US$7 to US$9 per hour. By comparison Caribbean labor rates can be as low as US$1.10 to US$1.40 per hour. This labor rate is higher than the Caribbean minimum wages which range from US$0.75 to US$1.00 per hour. By comparison, rates in China and the Philippines are in the range of US$0.70 to US$0.80 per hour (Table 2.1). Caribbean rates vary significantly between islands. These "raw" labor rates then need to be factored by productivity for the desired application (including required quality levels) and other factors to arrive at a fully "loaded" labor cost.

Table 2.1 Selected comparative wage rates in information processing services, 1995 (US$)

Country	Hourly Wage-Data Entry	Hourly Wage-Secretary	Hourly Wage-Voice Operator
Barbados	2.00-2.90	4.70-5.65	-
China	0.80-1.50	-	-
Dominica	1.10-1.60	1.75	1.10
Dominican Republic	0.95-1.22	-	-
Grenada	1.25-2.10	2.40	3.05
India	0.80-1.50	-	
Ireland	5.50-11.50	6.00-9.--	-
Jamaica	1.10-3.00	1.75	-
Mexico	1.25-2.00	-	1.10
Philippines	0.70-0.80	-	-
St. Kitts & Nevis	1.40	2.25	-
St. Lucia	1.10-1.70	2.10-2.50	1.80
St. Vincent &	1.10-1.60	2.15	1.70
Grenadines	1.50	-	1.60
Trinidad & Tobago	7.00-9.00	8.50	-
United States			8.00-12.00

Rates do not include costs and profits.

Tangible costs other than labor are also evaluated in the decision making process; typical ones often considered in order of priority would be:

?? productivity of the labor force and high accuracy rates, particularly for data entry activities;

?? current availability of potential employees as well as access to training;

?? laws and regulations which impede investment or increase the cost of doing business;

?? air cargo or courier costs;
?? facility lease and improvement costs;
?? license fees;
?? customs duties;
?? government labor policies or local customs on vacations, fringe benefits, life-long employment, and so on;
?? risk of foreign exchange fluctuation and ability to repatriate funds;
?? electrical expenses, including the need for ancillary equipment such as uninterruptible power supplies (UPS) or standby generators;
?? local computer costs and maintenance expenses;
?? cost and quality of living for expatriate workers;
?? rate of inflation; and
?? travel and lodging.

Beyond these tangible costs, other factors influence the total economic analysis for outsourcing. They include the following:

?? *The relative strategic importance of information processing to the overall business.* If viewed as a core competency of the business, it will seldom be outsourced. However, if the activity is only supportive of the core business, it may be evaluated for cost of efficiency improvement from outsourcing. Hence the economics of a noncore information process for a large corporation may be comparably more favorable for outsourcing than that of an offshore informatics operations for a service bureau, where scale and scope provide some efficiencies.
?? *Industry cost perceptions.* When significant companies in an industry change their cost structures through modified work processes, others in the industry often evaluate their operations for similar improvements. Outsourcing appears to be heavily driven by these work flow and process improvement activities.
?? *Computing platform changes.* Changes from legacy systems (for example, proprietary mainframe oriented systems) to newer open systems in client-service architectures generally require data and software conversion activities. Most of these appear to be one-time events, but some can lead to on-going maintenance activities. For one-time events, most end-users do not want to add staff to their operations and often are willing to pay a premium to have someone else provide this function.
?? *Time sensitivity of the application.* In many applications, such as processing transactions for customer billing, the cash flow value of shorter turnaround time is important.
?? *Language***.** This can be important where high quality is required and cursive writing or understanding the “context” of a document is necessary.
?? *Confidentiality of data and protection of software.* The need for intellectual property protection for electronic databases and computer

software may influence the decision on whether to outsource and where to outsource. This is particularly applicable to specialized, higher value-added informatics products. The benefits from strengthened legislation for software protection are clear: stronger incentives for local suppliers and foreign investment.

?? *Cultural factors and geographic location.* Customers may also justify economic difference based on their perception of how easy it will be to do business with a potential supplier or location. Similarly, the desirability of travel to a particular destination can affect choices.

These factors also have a great impact on the type of investment a company will consider in establishing an offshore facility. Several models are apparent for the Caribbean:

?? *Direct investment by North American companies who desire to own a facility in the Caribbean.* Some companies feel this is the easiest and the best way to handle their offshore needs. The advantages are generally related to control, speed of development, lower costs, and simplified decision processes. The disadvantages are having responsibility for an operation in a distant location, which might require expatriate managers to handle start-up problems or minimize ongoing operational weaknesses. This form of investment has been the most common in the Caribbean.

?? *Joint ventures between North American companies and Caribbean businesses.* This is recognized as the most difficult relationship to forge, but considered to be the strongest long-term operational model. The advantages lie in local people operating in a local environment in both the Caribbean and in North America (combining Caribbean expertise for operations with North American expertise in marketing and technology). The primary difficulty is finding two partners who can build this type of relationship successfully.

?? *Caribbean-owned suppliers.* Many people in the Caribbean have expressed a desire to start up an informatics company. Similarly, many North American companies would like to find a good supplier offshore. The advantage is increased Caribbean prosperity (jobs are obtained plus profits are retained in the Caribbean). The difficulties are that the Caribbean companies are not well prepared to market their emerging capabilities, or independently deliver a service someone would buy. There are also problems in matching buyers in North America with sellers in the Caribbean. Each contract for this type of work has fairly unique requirements. Capital availability and technology transfer can both be obstacles in this model.

Each of these models will have a different impact on the economy.

?? While direct investment looks attractive, these operations would be subsidiaries of foreign corporations with fewer “local allegiances” than the other models. Also, the total capital investment is not great in this industry by comparison to tourism or manufacturing, and the impact of direct investment is relatively low.

?? Local business development provides a more sustainable industry with potential profits for reinvestment in the local economy. However, the obstacles to entry are significant for a new participant. The risks may be unacceptable for most serious investors.

?? Joint ventures may provide the best compromise and least risk for growing a sustainable industry in the Caribbean, but it requires a tremendous amount of trust between the joint venture parties.

Finally, as in any service industry, a key measure of success will be how many jobs are created. Service industries are generally not capital-intensive, but labor-intensive. As such, any and all models should be cultivated. Each has its place, depending on the ambitions of the people and companies who want to participate. Ignoring any of these possibilities will only reduce the amount of success.

Main competition and determinants of competitiveness

Despite impressive progress over the past five years in a few Caribbean countries in the supply of information processing services, the competition they face is still significant. Countries such as Ireland, India, and the Philippines have been concentrating on contract software programming and other value added informatics activities, while China, Mauritius, Mexico, Sri Lanka, and Zimbabwe have become fairly popular sites for data entry and conversion activities. Most potential clients in the United States, Europe, and even within the Caribbean, now try to spread their risk and seek several offshore countries. The following countries have been identified as major competitors to the Caribbean:

?? CHINA *Pros:* Low wages are a big attraction. Several service bureaus have had excellent experience with Chinese partners. The Chinese work ethic, in particular, is praised. *Cons:* Same distance factors as the Philippines (see below). Language barrier. Air freight and telecommunications facilities are problematic. Such difficulties as lack of precise laws on capitalist businesses and disregard for intellectual property protection are among the obstacles for most supply sources.

?? DOMINICAN REPUBLIC *Pros:* Several major North American corporations have located information-intensive operations here, taking advantage of similar attributes as found in the English-speaking Caribbean—low wage rates, an educated population, good infrastructure (including nominally lower cost telecommunications), frequent airline transport. *Cons:* Lacks language and cultural affinity to North America.

?? INDIA *Pros:* India is becoming a powerhouse in software development and software conversion. With 30,000 new software engineers graduating every year, the software industry is rapidly establishing credibility and demonstrable achievements both within the country and abroad. Software exports in 1994 were over US$300 million. Many small companies entered the market in the past five years because of the relatively low barriers to initial entry in terms of capital requirements (see Box 2.1). *Cons:* Telecommunications are generally focused on satellite links which have high rates.

?? IRELAND *Pros:* Ireland's Development Agency has attracted many North American companies with customer service operations focused on the European market. Ireland may be preferred to the Caribbean for West European outsourcing of informatics, especially given time zone and geographic affinities; wages are also lower than in the United Kingdom (see Box 2.2). *Cons:* Combination of wage rates and communications expenses makes Ireland as expensive as the United States for informatics operations.

?? ISRAEL *Pros:* Because of a continuing flow of immigrants from Russia who are software or electrical engineers, Israel has developed a software industry oriented towards export, especially producing system solutions for global sale to serve many vertical applications (manufacturing information systems, operational support systems for telephone companies, banking systems, and so on). *Cons:* Distance, some degree of language barrier, and wage rates inhibit Israel's competitiveness in data entry.

?? MEXICO *Pros:* Mexico is becoming a large source for coupon fulfillment activities and some service bureaus have successfully competed for contracts from air courier services. Low wage rates, proximity to the United States, and massive telecommunications upgrades which are underway, all make Mexico an attractive candidate for outsourcing. *Cons:* Language differences. Relatively low literacy rate. Uncertain macroeconomic situation.

?? THE PHILIPPINES *Pros:* Wage rates are somewhat less than the lowest wage Caribbean countries—in the US$0.70 to US$0.80 per hour range for data entry. Large backfile conversions with medium to slow turnaround are easily done with large shops having 600 to over 1,000 employees. In 1992, remote support services, particularly data entry, represented over 40 percent of total Philippine export earnings in software and services. *Cons:* Given its location in relation to the North American market, time-sensitive applications may be precluded. Government restrictions on foreign equity ownership are problematic. Telecommunications rates for broadband facilities are very high.

?? SRI LANKA One service bureau has established a new facility in Sri Lanka but it is too early to determine its experience. This reflects a move to find progressively lower labor rates to compete for low-end projects.

Box 2.2. Ireland Key factors in attracting export jobs

Cigna, an American company offering corporate health care plans, has set up a back office in Laughrea, an Irish village of 3,500 inhabitants. The office provides jobs for more than 80 local people, mostly women, and handles about 20 percent of Cigna's business by formatting and keying about 5,000 forms a day. The center processes paperwork from patients, doctors, and corporate clients in the United States. Results are transmitted back on leased lines on a transatlantic cable to Cigna headquarters in Delaware, United States, in time for the start of the working day. U.S. paperwork is currently flown to Shannon airport, but in the future this could be transferred as images.

Technology investment

?? Long-distance, and low-cost telecommunications based on fiber-optic trunks.
?? Office automation based on PC networks.

Context

?? High national unemployment and limited local employment opportunities.
?? High migration to cities from the countryside.
?? Scarcity of jobs in other countries (United Kingdom, United States) and difficulties of emigration.

Key factors which enabled this arrangement

?? Educational surplus with available office skills.
?? Skilled people willing to accept relatively lower wages (average starting annual salary is US$11,000) rather than move to the city or remain unemployed.
?? High-speed, low-cost communications.
?? Openness and encouragement from government to overseas employers and aid for set-up.
?? Availability of a vocational school capable of providing courses in office work and computing.
?? Language capabilities.
??

Source: S. Forge, *The Consequences of Current Telecommunications Trends for the Competitiveness of Developing Countries*, World Bank, Telecommunications and Informatics Division, 1995.

Box 2.3 Barbados: Treating informatics as an important strategic sector

An economy built on sugar, Barbados is much more diverse today. Nearly 29 years after independence from Britain, tourism has become more important than sugar, generating US$500 million in gross foreign exchange every year. The data processing, informatics, and financial services businesses have grown substantially in importance, generating an estimated US$75 million a year in foreign exchange and providing over 2,000 high quality jobs.

The government is moving ahead to improve the islands position as an offshore financial center and to transform Barbados into an "information age society in less than a generation," according to Minister Philip Goddard, Minister of International Trade and Business. The Information Technology Strategic Plan for Barbados 1994-2004 envisions the development of an information infrastructure through intensive information technology (IT) skill building, telecommunications sector reform, and promoting on-line applications and databases for hospitals, courts, and customs.

The range of informatics services available includes simple text keying, air ticket data capture, health insurance claims processing, digital prepress work, and software development. The Barbados Investment and Development Corporation (BIDC) promotes the country to the North American information-processing sector. It sells Barbados as an efficient country with a stable government, a good business climate, and quality labor. The process of establishing a business is relatively straightforward and the BIDC acts as a one-stop show for investors.

There are two telecommunications companies in Barbados BARTEL operates international long distance services and BET provides domestic services. BARTEL is 80 percent owned by Cable and Wireless, which also owns 85 percent of BET. The remaining shares are publicly traded. BARTEL provides 35 percent of its revenues to BET to subsidize local service. The telecommunications network is modern and all digital. BET plans to provide a suite of services that matches those available in North America within the next year.

Barbados has favorable telecommunications rates for information-processing firms. Both BET and BARTEL have special rates available and are willing to negotiate even more favorable rates on a case-by-case basis. As examples, half-switched T-1 circuit service to North America has a tariffed rate of US$18,000 per month and a half-switched 56kbps circuit service is priced at US$1,800 per month. These rates are comparable to rates offered in Jamaica's Montego Bay Free Trade Zone and similar to Canadian rates in North America. The government is pressing for even lower rates as part of its growing realization that to build the information highway it is necessary to have plural and competitive telecommunications industry.

3

Caribbean market conditions for informatics

Information processing is a relatively small industry in the Caribbean, employing an estimated 6,500 persons in 1994. Most companies are located in Jamaica and Barbados which are the countries with the longest standing experience in the sector, and which together represent 90 percent of the industry

Table 3.1: Size of the information processing industry in the Caribbean

Country	Number of Companies	Estimated Number Employed	Estimated Percentage in Data-Entry
Jamaica	49	3,500	76
Barbados	14	2,300	88
Trinidad and Tobago	3	230	91
Grenada	1	270	98
St. Kitts and Nevis	3	128	98
St. Lucia	1	50	98
St. Vincent & the Grenadines	1	–	–
Industry Total	72	6,478	–

Source: D. Pantin, "Export-Based Information Processing in the Caribbean with Particular Reference to Off-Shore Data-Entry/ Processing," report prepared for the International Federation of Commercial, Clerical and Technical Employees, Geneva, 1995. Also includes World Bank estimates.

Business environment

While all the governments of the countries reviewed in this report welcome foreign investment and are eager to promote increased investment in the information services industry, not all of them have existing laws and practices adequate to support the establishment and expansion of such an industry. For instance, in some islands the approval process for incoming investments is time-consuming, multi-layered and expensive. Collateral requirements, such as approvals for incentives and work permits, require government intervention into the proposed investment and in some cases review and analysis by more than one agency. These constraints, explored further below, apply to most service-based industries; but in some cases, such as telecommunications, they can become major impediments in developing an information services industry.

Box 3.1 CAD/CAM export services in Jamaica

Data conversion and the drafting of new drawings represent segments of the Computer Aided Design/Computer Aided Manufacturing (CAD/CAM) market that can be provided in the Caribbean. Mona Informatix Ltd., a company formed in 1994 by the Mona Campus of the University of the West Indies in Jamaica, offers GIS and CAD/CAM services to foreign as well as local companies. The company recently entered into a one-year, US$1 million contract with the Boeing Commercial Airplane Group of the United States, for the provision of CAD/CAM which involves precision scanning of J size (3 feet by 10 fees) engineering drawings at 500 dots per inch. These scanned images are then stored on a Convez 3440 supercomputer where they are subsequently processed by eight networked Sn SPARC workstations. Using drawing conversion and editing software, the drawings are converted into vector graphics and stored in digital form. Accuracy levels of plus or minus 0.0005 inches (0.13 mmm) of the dimensions of the original engineering drawing are achieved.

In 1995, Mona Informatix employed nine persons, and expects this number to expand in the near future as it secures larger and longer contracts. Currently, Mona Informatrix recruits employees from the University of the West Indies (UWI), the College of Arts, Science and Technology (CAST), as well as individuals with technical drawing and surveying skills. Mona Informatrix's procurement of a million dollar contract with one of the largest aerospace companies in the world, demonstrates that the Caribbean is able to meet the exceedingly tight specifications of this security-conscious industry.

The company believes there is considerable scope for further expansion of CAD/CAM services from Jamaica . In 1993, the size of the CAD/CAM market in the United States was estimated at US$17.8 billion, with the services element accounting for 15 percent of the market. The growth rate of this sector is estimated to be over 20 percent per year.

Mona Informatix represented an attractive offshore location for CAD/CAM services for a number of reasons. First, the company was able to provide data conversion and drafting services for approximately a third of the cost of similar services in the United States. Second, Boeing felt that the confidentiality of the highly sensitive CAD/CAM data was less subject to risk in the Caribbean, given the absence of competitors providing similar products. Third, the minimum requirements for a CAD/CAM technician are a high school certificate and at least one year's training using the relevant CAD/CAM software. This allows the sector to potentially recruit a wide range of individuals with lower levels of computing skill.

CAD/CAM services, however, are expensive to provide. They require a wide range of sophisticated computer hardware and software, including scanners and large format plotters. In 1994, the typical cost of computer hardware was between US$5,000 and US$10,000 per workstation, and software from US$3,000 to US$20,000. In addition, accuracy and attention to detail are crucial determinants of success.

The approach that Mona Informatix took is one that could be replicated elsewhere in the Caribbean. It shows how a Caribbean firm can sell a large company on a small project; develop real expertise that meets a market niche; and eventually market and expand worldwide.

Work permits

All the Caribbean countries reviewed require foreign investors to obtain work permits for expatriate employees; however, there are significant differences in the ease of doing so. In Trinidad and Tobago, obtaining a work permit is considered onerous and costly. The firm must prove that no Trinidadian is qualified to fill the position and during the period that the permit is valid. The process in the Organization of Eastern Caribbean States (OECS) countries is also difficult because of a lack of clear and concise guidelines or published criteria for issuing work permits. This can make the approval process arbitrary and subject to factors outside of strict legal requirements. In Jamaica and Barbados the process is simpler and shorter (four to six weeks) and is assisted by the investment promotions agency of each country. It still represents, however, a significant financial and time cost to firms.

Land and stock ownership restrictions

Land ownership is a sensitive issue in many Caribbean countries. It is argued that small islands with limited amounts of land, located close to wealthy countries, have legitimate concern about being overrun by foreigners. With the exception of Barbados and Jamaica, all of the countries in this report have legislation which restricts the ownership of land or Land Holding Act. They all essentially prevent foreign persons or companies from owning certain amounts of land, or entering into a lease for a period of over one year without a license issued by the government. In addition, there are limitations on stock ownership which restrict foreigners from becoming directors of local companies, or voting at meetings of such a companies, or holding shares in companies without such a license.

These restrictions are further complicated by the fact that there are no objective standards, or criteria set out in the legislation. Thus, investors have no way of determining whether their applications for licenses will be approved before they have invested considerable funds in the proposed project which usually has to be detailed in the application. Finally, the financial burden of obtaining such a license is quite high. Fees or stamp taxes as high as 10 percent of the value of the land are required.

Tax incentive programs

The range of tax incentives available to information processing services companies varies widely in the Caribbean countries. None of them offer incentives specifically tailored for this industry,[2] although many have targeted tax incentives under more general legislation (Appendix 1). In Barbados, for example, incentives are offered to information

[2] The OECS countries are currently considering special legislationfor this sector, which would not only seek to remove impediments to investment, but also provide for favorable tax rates linked to employment generation.

processing companies under the International Business Companies Act (IBC).[3] The Act allows IBCs to benefit from reduced tax on income and exemptions on withholding taxes on dividends, interest, royalties, rent or management fees paid to a company carrying on international business. In addition, IBCs are eligible to import operational equipment and raw materials free of customs duty, consumption tax, and stamp tax. In Jamaica, similar incentives are offered to investors with foreign currency who locate in free trade zones (see below). In Trinidad and Tobago, incentives are available under the Fiscal Incentives Act. In some of the OECS countries, “special” legislation is adopted to allow Cabinet to authorize incentives for projects which do not fall within the parameters of the fiscal incentive law, while other OECS countries claim an inherent right to grant such incentives.

Free trade zones

Some countries in the region, for example, Jamaica, St. Lucia, and Trinidad and Tobago have legislation which allows manufacturing and other operations to be carried out in zones where foreign inputs may be imported, manipulated and then exported without the payment of taxes or duties on the imported materials or the exported finished goods. The growth of informatics in Jamaica greatly accelerated as a result of the creation of the Montego Bay Free Trade Zone (MBFTZ) in 1985. The zone includes the Jamaica Digiport International (JDI) teleport, which allows tenants to benefit from high quality and competitively priced telecommunications services not readily available elsewhere in the country. With its rapid growth, however, it has become difficult for operators in the MBFTZ to find employable labor. Consequently, labor rates have also escalated at this location. This problem is compounded by the fact that the MBFTZ is somewhat removed from the city center and public transportation is problematic. Companies outside the MBFTZ are now being approved by the Jamaican government to operate as “single entity free zones” which qualify for the same incentives.

Foreign exchange requirements

Foreign exchange controls have been removed or significantly relaxed in all the countries covered in this report. In Jamaica and Trinidad and Tobago there are not controls on foreign exchange. While the remaining governments intent to abolish all exchange requirements, there are vestiges of restrictive laws currently in force. For example, some OECS countries have registration requirements for the repatriation of capital and remittance of dividends in foreign exchange, and approval requirements to convert higher than a certain amount of national currency into foreign exchange.

Restrictive biases

Many Caribbean countries have legislation that confers unequal costs and benefits upon particular types of information processing companies. In Jamaica, for example, local investors in information processing services have access to neither the generous tax

[3] Companies with less than 10 percent local ownership who export all their goods and services. This 10 percent ownership requirement, however, may be subject to revision.

incentives open to investors who are located in the free zones, nor the considerably cheaper telecommunication rates of the JDI. Similar biases exist in Barbados, where local companies receive less generous tax incentives than IBCs. In other islands the biases go the other way. St. Lucia, for example, has legislation which requires information processing businesses to obtain trade licenses. The St. Lucia law, *The Trade Licenses Act, 1985*, is applicable only to foreign companies and allows local business people, tradesmen and trade unionists (some of whom could be potential competitors) to determine who is required to obtain a license.

Telecommunications

In this fiercely competitive world, the development of the information services industry will not be sustainable in countries which do not have efficient, high quality telecommunications at a low price. While the Caribbean region enjoys modern digital telecommunications, the current structure within which the dominant carrier is not subject to commercial discipline; the supply of services and increasing competition which do not encourage private investment; and the prevalence of monopolistic pricing policies, all create obstacles to growth.

Structure and scope for competition

External and domestic telecommunication services in the Caribbean are served by various members of the Cable and Wireless (C&W) group. In Jamaica and Barbados, for example, telecommunications services are privately owned, with C&W as the major shareholder. In three other countries (Trinidad and Tobago, St. Kitts and Nevis, and Dominica) C&W has entered into joint ventures with the respective governments. In the remaining five countries in this report, C&W operates both internal and external communications through C&W (West Indies) Ltd.

C&W has a monopoly over the telecommunications services provided to all these countries, assured by each of the governments through licensing agreements, which in most of the countries will not expire for another ten years or more. Questions can be raised as to the extent and validity of this monopoly, particularly in the context of the post-Uruguay Round. For example, it is doubtful whether the monopoly, extends to the operation of satellite linkages operated exclusively by a particular company for its own business operations, and not for hire by a third party. While C&W claims the provisions of such services by third parties is prohibited by the terms of their license, others disagree. Allowing a company to operate a ground station to bring in its own data but not to transmit would appear to be permissible in most of the countries. In fact C&W representatives in the region were of the opinion that such a down-link would not violate the license and could, perhaps, be operated by a third party.

In a number of countries within the region, issues have also been raised with respect to the constitutionality of the monopoly granted to C&W. In one country, a court case is pending on this question raised in connection with the "Call-Back" scheme. Call-Back services allow users to take advantages of U.S. rates for international calls. C&W

apparently blocked the use of this system and the subscriber is in court seeking to prevent C&W from interfering with us use of the Call-Back system.

Regulation and pricing

Agreements and licenses in most countries of the region reflect the types of agreements made generations ago. They generally favor C&W's position *vis-à-vis* the host government, providing C&W with virtual self-regulation and control of the telecommunications system, and with little control left to governments over operations. While the agreements call for arbitration, the language of the key provisions is vague and often undefined, so that they are not conducive to effective enforcement. Governments generally play a minor role in determining or revising rates and have little if any authority to review or audit the financial accounts. In some instances, the agreements are drafted as if they were legislation enacted by a parliament instead of an agreement between the government and a private commercial body. Promises are made which appear to attempt to lock in terms and conditions that normally would be subject to legislation.

The financial benefit to the government derived from C&W operations appears to be minimal. The most any government obtains in royalties appears to be 5 percent of new revenues. This is inconsistent with developments in a number of other countries in which similar license or franchise arrangements have to contribute a far greater share of net revenue to the host government. The trend in other regions is to require substantial license fees for the right to operate in the spectrum utilized for telecommunications. Would-be-telecom providers have agreed to pay governments considerable sums for the privilege of operating national and international telecommunications systems. Many argue that if concessions or licenses for the extraction of petroleum or other minerals warrant the payment of substantial license fees to the host government, why should not the use of the spectrum, which is also a natural resource, warrant the payment of like or similar fees?

Telecommunications pricing is an obstacle for those companies that require direct electronic communication, or are using magnetic media, but would like to send data internally by telecommunications, which they cannot because of high costs. Business people are much more concerned about international rates they are about service quality or availability. These high international rates are used to subsidize local services, which are relatively inexpensive.

The discrepancy between what phone calls cost from the Caribbean to the United States, versus from the United States to the Caribbean, is driving companies to use Call-Back services. Furthermore, the 800 service has limited availability in some countries. American business travelers expect to be able to use 800 numbers to reach calling card and voice mail services. In many Caribbean countries, however, 800 numbers require replacing the 800 area code with 400, and are billed at normal international direct-dial rates. Dedicated data circuits (needed to transmit and receive information electronically to and from a remote data center) to North America are expensive (Appendix 2).

C&W has stated it would be willing to assist in the development of the information service sector. To this end, it has indicated it would be lower its rates for broadband and other facilities for the information services sector in OECS countries, so as to be competitive with Jamaica Digiport and the similarly favorable rates being offered in Barbados. Previously, in the Eastern Caribbean, monthly charges for 56/64kbps half-circuit service were more than US$4,000 per month and nearly US$50,000 for a T-1 half circuit (equivalent to 24 channels each carrying 64kbp). Rates in Jamaica Digiport, on the other hand, are US$1,850 per month and US$18,100 respectively. Rates for these same services in Trinidad and Tobago, however, still remain relatively high.

Competitive advantages and relative weaknesses

The Caribbean region possesses several advantages and near-term constraints as a base for offshore production of information services.

Talent and skills base

There is a high level of basic literacy in the region; many potential employees can read and write English and possess the ability to acquire new skills. The recent graduates of the secondary school system are receptive and capable of rapid new skill development; but few have computer skills. While there is a desire to improve computer and keyboard skills, the task of doing so is tremendous. The number of schools with computer laboratories is small, and consequently, the number of graduates from secondary schools with significant experience is very low. In most cases, therefore, operators of information services companies undertake training courses for new employees for periods of three to six months.

Similar skills shortages exist for higher value-added services like software program conversion, for changes in large-system computer platforms, and in software development. The University of the West Indies and various tertiary level colleges provide training courses, but are only able to supply a small fraction of the informatics skills required by the market. In some countries, the graduates may not have the appropriate skills needed in the informatics market. In Jamaica, for example, many computer science graduates receive training that is more relevant to work in the “production-side” of information technology (computer hardware and software, telecommunications equipment and microelectronics) rather than the “user-side” (management information systems, information services, electronic publishing and financial transactions systems).

Labor costs

In comparison to wages for the information processing industry in North America and Europe, the Caribbean offers competitive wage rates. The OECS countries offer low wage rates globally (US$1.10-2.10/hr). While other islands offer wage rates that are slightly higher (on average between US$1.10-3.00/hr), they are still considered competitive by global standards. (Table 2.1)

Transport

The Caribbean enjoys geographic proximity to North America and, to a lesser extent, Western Europe, compared to its Asian and Pacific competitors. Jamaica, Trinidad and Tobago, and Barbados have numerous direct flights to major U.S. cities offered daily by a number of carriers. Within the Eastern Caribbean, air transport is primarily provided by small subregional carriers. A few OECS countries do not have international air carrier services, which will be a barrier for any air-freight oriented information service. Such countries are, therefore, more likely to rely on transmitting data via telecommunications.

Electrical services

Electrical services are based on the European standard of 220 volt 50 cycle and 440 volt 50 cycle for industrial applications. Most power is generated by diesel facilities. In all the countries outages, though infrequent, occur often enough to be a problem for computer-based operations. UPS and surge protectors are considered mainstays of any such operations. Emergency stand-by generators are required if guaranteed continuous processes are anticipated. While the electrical service may be questioned as part of a due diligence review by prospective investors, it is unlikely to be major issue.

Local and international public telephone systems

C&W has made substantial investments in the region resulting in generally high quality local and international service for voice communications. The range of services has increased significantly over the past decade, particularly in Jamaica, and Trinidad and Tobago, where a wider range of services (Switched 56,X.25 and Centrex) are provided at reduced prices.

Information processing equipment services and support

Although levels of service vary throughout the region, there is adequate support for microprocessor-based computers. Fujitsu-ICL is one of the largest vendors in the region, with major operations in Barbados, Jamaica, and Trinidad and Tobago. Support and service for minicomputer-based operations would need to be provided by regional offices of manufacturers such as IBM, DEC, SUN, NCR, and others. A wide range of support services are available in Barbados, Jamaica, and Trinidad and Tobago, and these islands often provide support services for the OECS countries.

4

Strategies for growing informatics in the Caribbean

The following changes will be required in the Caribbean countries to succeed in the informatics industry:

- ?? increasing computer literacy and creating a pool of workers for the industry;
- ?? revising laws or policies that potentially impede foreign investment or participation;
- ?? making telecommunications competitive; and
- ?? marketing the Caribbean as a site for informatics operations.

A public-private sector partnership that tackles this agenda can attract foreign direct investment and develop international competitiveness in the supply of information and communication services (Table 4.1)

Table 4.1 Action plan for expanding information service exports

Human Resource Development	Attractive Business Environment	Competitive Telecommunications	Market Awareness
mobilize private resources for training	streamline approval procedures including work permits and exempt informatics from land-holding restrictions	accelerate reform in regulatory framework for telecommunications and ensure competitive rates for data transmission	develop marketing strategy which includes documenting product features, building awareness, prospecting, and competitive positioning
develop training curriculum to meet customer requirements	introduce performance-based investment requirements	undertake regional review of telecom. laws and establish regional working group	advertise reduced data telecommunications rates as part of promotional campaign
diffuse computer literacy through standardized training	guarantee foreign investors capital repatriation	encourage C&W to become a partner in developing the informatics industry	hold business workshops for Caribbean private sector to build awareness of opportunities

Developing human resources

One of the most important criteria for deciding whether to locate any business at a new site is the existence of a pool of people who can be employed to do the work. It has been estimated that for the informatics industry in Jamaica some 3,500 to 4,000 jobs have been lost to other countries as a direct result of insufficient trained labor. Currently all countries in this report suffer from a shortage of labor in relation to the requirements of the industry. This is particularly the case where the higher value-added services are concerned. The challenge facing the Caribbean region, therefore, is to turn its young population into a competitive resource in the international market, and to educate a new generation of informatics entrepreneurs.

Evidently, the level of computer training and literacy in the Caribbean needs to be improved. A systematic approach to both training the population with new skills and consistently measuring computer literacy attainment can provide a strong competitive advantage. The private training industry is playing an important role in responding to labor market pressures. Every country reviewed for this report has private companies who are commercially viable in the computer training business. In addition, other institutions are developing the skills base which an information processing industry will require. Banks, insurance companies, and telephone companies have committed significant resources to hands-on computer training. The many technical schools provide computer literacy courses, computer maintenance training, and some limited software classes, while the University of the West Indies has started a degree program in software engineering. The Caribbean Examinations Council offers proficiency tests in typing and in technical proficiency with computer software for word processing spreadsheets, and data base management. Even so, recent test results indicate that a significant number of students are graduating with adequate typing skills, but very few have computer proficiency.

Overall, there is a recognition that training is important, especially since there are significant opportunities for people with skills in the following areas:

?? Micrographic indexing;
?? SGML and HTML based indexing of electronic records;
?? Heads-up image assisted data entry;
?? Health insurance claims processing including preliminary adjudication;
?? Legal and medical transcription;
?? Data base conversions including applications software development;
?? Raster to vector image correction in engineering applications; and
?? GIS data entry and maintenance.

What is required is developing greater understanding of the software, hardware, and systems most frequently used in the industry, so that standardized training can be applied to meet these specific needs. Targeted programs can develop specialized IT staff and information resource managers. The private sector can play an important role in identifying the new skills required, in creating specialized IT training institutions in joint ventures with leading IT multinationals, and in combining training with development of electronic data bases for government use.

It might be appropriate to consider offering this skill building as university credit courses. The large pool of recent secondary school graduates who work for several years before going on to a university, and who represent the prospective employee base for the informatics industry, could benefit from such a program

In addition to skill building, there is also a need to increase knowledge among Caribbean private sector individuals who want to participate in this industry. Periodic workshops and other training activities activities could help increase exposure to this business opportunity. Such activities could focus on current understanding of the market, its needs, and build specific skills. Tailored sessions could explore applications and technologies, and technical experts could their present hardware and software solutions. Investors could be asked to discuss their operations, and other experts recruited to address specialized topics. These in-country seminars would stimulate local entrepreneurial interest and participation in the industry. At the same time, the publicity generated in North America will assist in identifying prospective investors and partners.

Improving the business environment

Developing and expanding the information processing industry in the Caribbean requires an enabling environment that is receptive to and supportive of the needs of foreign and local investors and contract work. The goal is to facilitate investment in information processing services and assure entrepreneurs that it will be easy to do business in the region. Information-intensive, export-driven businesses thrive best in an environment with effective legal and regulatory frameworks and infrastructure capabilities which encourage innovation and productivity. Of special importance to the informatics industry are the following (see also the constraints discussed in the section on business environment in Chapter 3):

?? Approval processes. In many countries in the Caribbean, approvals are complex and time-consuming procedures, taking anywhere from 45 days to 2 years, compared with 3 to 4 days in some Asian and Latin American countries. Reducing the high level of arbitrariness, streamlining procedures and allowing an investor flexibility to respond quickly are important ingredients for creating an attractive business environment.

?? Work permits. Given that very few foreign investors are likely to want to employ expensive expatriates if competent local staff is available, much of the detailed requirements which currently exist in some countries could either be eliminated or simplified. In the event that a country might want to restrict the number of foreign personnel, there are various alternative ways in which this could be accomplished. For example, a link could be made between the number of local employees intended to be hired and the authorization of foreign personnel. While certain assumptions can be made as to the foreign personnel requirements in this particular industry, work permit authorizations should reflect reality and be flexible enough to accommodate special requirements related to the informatics sector.

Box 4.1 Caribbean telecommunications, an anomaly

The assumptions behind regulatory regimes in the Caribbean have become obsolete. The experience of liberalized markets (e.g., the U.K.) has invalidated the traditional arguments in favor of monopolies and extensive limits to competition. In liberalized markets, services once thought to be uneconomic have proven profitable and worthy of investment. These experiences have also invalidated arguments against competition, such as the view that new market entrants merely cream off the most profitable subsectors. Further, such experiences have called into question traditional assumptions about the scale economies of the telecommunications (i.e., that a market is only big enough for one or two suppliers). In New Zealand, for instance, there are five profitable, competing companies. Telecommunications is, in fact, not a natural monopoly. Hence telecommunications regulation should not be concerned with the achievement of scale economies. Rather, regulation needs to be focused solely on making the market work more efficiently, regulating monopoly power so as to ensure that competition blossoms and remains healthy.

Source: Adam Smith Institute, Telecommunications Regulation, London, June 1994.

?? Land-holding restrictions. Given that the land requirements for projects in the informatics sector are normally below three acres in area, investors intending to set up information service businesses should not be required to obtain a license in order to acquire or lease land. While it is recognized that few licenses are ever denied in these countries, such restrictions put the particular country in an unfavorable light when compared to similar countries in search of foreign investment. These requirements also restrict local land owning companies from participating in joint ventures with foreign investors, as the inclusion of foreign investors would make the local company susceptible to the provisions of the Alien Land Holding Acts and require them to apply for a license. In several countries in which such restrictions are in place, governments are in the process of changing the legislation.

?? Incentives. Incentives are usually based on tax breaks or holidays, which result in the loss of potential tax revenues. Whether or not these incentives attract such substantial investment and ancillary benefits as to counter the loss of tax revenues, it is argued that without them there would be no new investments. There is no hard evidence that incentives play a major role in attracting informatics-related investments. Moreover, tax holidays are by their very nature transitory and often attract foot-loose industries with the habit of fleeing to another tax haven when benefits expire. It is better to grant a low tax rate and one which is easy to administer. Also, present tax incentives are designed for capital intensive operations, and are not the most appropriate for labor-intensive ones such as the information services industry. Incentives, if they are to be offered at all, should take into account the employment-generating and technology aspects of the industry, and they should be easy to administer. If entitlements to the information services industry could be made performance-driven, that is, investors could become eligible for entitlements based on certain performance criteria, they would certainly find the region more attractive.

?? Free Trade Zones. While the MBFTZ was considered to be an important impetus to the development of informatics in Jamaica, the serious problems it has with attracting sufficient labor calls into question its viability as a model for other Caribbean countries. At the same time, the growth of hemispheric and free trade agreements among countries (such as NAFTA) is making the free zone concept increasingly obsolete.

?? Foreign exchange. Even if all currency restrictions were to be removed immediately in those countries where they exist, investors would still want certainty and would want to know that foreign exchange is available when profits or capital are to be repatriated. It would be preferable, therefore, even if foreign exchange laws were to be eliminated, to guarantee foreign investors that their original capital in foreign exchange could be repatriated and that profits could be remitted freely to their home countries.

?? Intellectual Property Rights. Intellectual property rights are particularly important when software development is involved. While this value-added activity is not currently taking place in the Caribbean on any significant scale, countries can facilitate its development by making themselves more "information-friendly" through the enactment of appropriate laws. This issue will also become more relevant when international and hemispheric trade agreements are fully promulgated.

Making telecommunications competitive

While the infrastructure necessary for informatics is more than adequate by comparison to many other potential locations, the rates in many Caribbean countries for international telecommunications clearly remain too high to be attractive to a data communications intensive business. C&W's stated commitment to reduce and equalize rates for data transmission within the region, will help address this issue. Cost effective rates should be established, published and made available as part of a promotional package offered to prospective investors. The Caribbean needs to show that its telecommunication rates are competitive with other areas of the world seeking similar investment.

In the long term, the regulation and ownership structure of telecommunications will become a major determinant of international competitiveness.

In most of the region, the telecommunications laws do not provide for effective control over the telecommunications provider. There is a strong need for up-to-date laws which will enable the countries to properly regulate telecommunications operations. In addition, the trend in many countries and regions, the European Union (EU), for example, is to move away from exclusive arrangements and monopoly situations towards an open market economy in telecommunications services. Emerging economies in Latin America and elsewhere are allowing multiple providers, especially in long distance and international services.

Caribbean countries should consider a regional review of the telecommunications laws with a view to adopting a regulatory framework for their telecommunications facilities. Dealing with issues on a regional basis would provide the countries with a stronger platform from which to negotiate favorable rates and to take other positive actions in aid of this fledging industry. A regional working group could advise on the development of tariffs and other telecom matters of common interest to all Caribbean countries. The Caribbean Telecommunications Union and CANTO should be involved in this effort.

Developing a marketing strategy

If Caribbean entrepreneurs are to exploit the advantages the region has over its competitors in the offshore information processing market, many inter-related issues will have to be managed. These include:

?? embracing a competitive focus (where superiority in delivery of cost-effective service is a primary goal);
?? understanding and meeting customer needs (services, pricing, delivery, and targeted market campaigns);
?? meeting segment needs (geographic proximity, service features, training support, pricing);
?? choosing the best service deployment options (transport versus intelligence, lead versus follow market);
?? anticipating uncertainty and responding with flexibility to market changes (delivering customer solutions, not fixed-format products); and
?? cooperating with other countries to develop a reputation for the Caribbean as an attractive region for informatics.

Each country in the Caribbean, of course, will need to consider its own strategy to develop this sector. A major reason for the success of Jamaica and Barbados in developing their informatics businesses is the market awareness of their capabilities among information processing companies in North America. This reflects significant investments which both countries made in marketing and advertising (as well as in lowering telecommunications rates for data transmissions). To provide opportunities for buyers to hear the Caribbean story and become aware of the region's advantages, a marketing strategy is necessary and would typically involve the following:

?? Documenting product features. To ensure that a buyer makes a favorable decision about doing business in a country, promotional agencies should be able to provide a prospective investor information on all aspects of doing businesses. This includes costs for all areas noted previously; infrastructure and telecommunications facilities; skill base and available pool of potential employees; available training programs; computer maintenance and support capabilities; specific laws and regulations; lists of typical banks, accounting and other firms who support start-up ventures; testimonials of informatics firms already operating in the country; and typical information for a business traveler (for example, business accommodations, hours of operation, and so on.)

?? Building awareness and prospecting. Typical promotional activities include: a lead generation program including direct mail, promotional brochures, and attendance at key trade shows; trade directory listings; publicity releases and events; multimedia computer-based presentations; and continual telephone and personal prospecting of targeted accounts.

?? Competitive positioning. In selling a particular country in the Caribbean, there will generally be a need for comparing capabilities with that of other alternative locations. Negative selling is usually unsuccessful. The aim is to raise—by discussing positive Caribbean standards—those issues which differentiate the Caribbean countries from other alternatives, such as: highly stable, business-friendly environment; democratic governments; fully convertible currencies; common heritage with English language, laws, and customs; close proximity to and affinity with North American culture, time zones, and business attitudes; easy to get to with many airlines; high literacy rates; modern telecommunications facilities with more reasonable costs than any other location except in the United States; all these and more adding up to an ideal location for a full range of information-processing requirements.

Conclusion

Simply stated, customers have choices and they will evaluate their options. Once the countries of the Caribbean are recognized as potential sites for outsourced information processing, they will be compared to all other "reasonable" locations. While each country has unique strengths and weaknesses, which need to be recognized, the goal is to use cumulative capabilities to become more competitive in the global marketplace. The region will need to continue to develop skilled people, cost-effective telecommunications facilities, and informatics-friendly governments to address the needs of prospective investors or partners. There is currently significantly more demand for offshore information processing services than the Caribbean region is able to serve, primarily because of insufficient trained labor. Computer literacy and knowledge workers are clearly the next evolutionary step in creating jobs and viable outsourcing opportunities for companies.

Along with training labor and improving the business environment and regulatory framework for telecommunications, there is a need to attract more private sector participation in this industry. Also, to reduce competition, the Caribbean countries should coordinate regional marketing activities and expand the image of the broader “region” as a source for information processing operations. Harmonizing regulatory frameworks, fiscal incentives and trade policies and allowing the free movement of labor among countries in the region, could provide uniformity among the countries and enable the region to attract new investors. These are issues that can be appropriately addressed through such forums as CARICOM and the Caribbean Group for Cooperation in Economic Development (CGCED).

APPENDIX 3:

Glossary of telecommunications terms

ATM	Asynchronous Transfer Mode, an emerging technology for transmitting voice, data, and video on the same network in a very efficient manner. Requires large bandwidth connectivity between all network locations.
bandwidth	The amount of data that can be transmitted on a communications circuit. Normally stated in terms of bits per second
broadband	A relative term meaning high bandwidth or data rates. Generally applies to rates above 1.5 Mbps (megabits per second
CATV	Community access television (cable television).
Central Office	Local telephone switching center. Also known as a CO.
Centrex	Telephone company provided features that duplicate the capabilities of premise equipment like a private branch exchange
dedicated service	Point-to-point services provided without switching.
frame relay	A new direct service that uses data packets rather than continuous transmission to increase network bandwidth efficiency.
ISDN	Integrated Services Digital Network. A mechanism that allows the telephone network to more easily carry all types of voice and data services in an efficient manner. Generally in increments or "channels" of 64 kbps.
kbps	Kilo (1,000) bits per second, a measure of data speed or bandwidth.
Mbps	Mega (million) bits per second.
private facilities	Transmission system owned by and used for a company's private communications.
private lines	An older way of describing dedicated facilities leased from the telephone company.
SONET	Synchronous Optical Network, a fiber-optic transmission standard.
switched service	Telephone transmission using dialed numbers to reach another user via a central office switch.

T-carrier	High speed dedicated communications lines.
T-1, T-3	Specific T-carrier services T-1 operates at 1.5 Mbps and T-3 at 45 Mbps.