

Communications and Information Technologies: Opportunities for Economic Development in the Caribbean

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1. Introduction

Today we live in an incredible age. Never before have advances in technology (including the invention of the automobile) affected the lives of so many people in so many places on the globe in such a significant way. The gadgets of technology are everywhere. They include cellular telephones, fax machines, personal computers, high-definition televisions, camcorders, VCRs, laser printers, and digital cameras, to mention a few.

The information age in which we live has been made possible by the on-going revolution in communications and computer technology, including software. Perhaps its most significant by-product is the Internet. Nations that are unable to exploit the Internet will suffer severe economic disadvantages in the 21st century. You cannot afford not to be a player. The competition is, indeed, global, but so are the markets for all products and services. The question for today is "what should Caribbean nations do to ensure and/or enhance economic success in the new century and beyond?" I am an optimist. I believe that where there is change, there is also opportunity. Economies, like organisms, always evolve in response to environmental changes. The changes can be dramatic. The goal is to manage this evolution.

For Caribbean nations, one answer is to rapidly develop new economies based on information-technology industries. America is talking about "The New Economy", propelled mainly by information technology. Technological, business and financial creativity are the keys for the new economy. Already, according to the August 31, 1998 issue of *Business Week*, America has seen seven continuous years of impressive economic growth: 70% increase in real profits since 1990, inflation below 2%, 4.5 % unemployment, and rising wages for even the lowest paid workers. Such growth is the envy of every developing country.

I claim that small developing countries can also achieve equally if not more impressive economic growth. Because the on-going communications and computer revolution has almost leveled the playing field with regard to access to information, there is room for Caribbean nations to compete with developed countries in new information technology and service businesses. For example, opportunities abound in software development and Internet-based services. Caribbean Nations must act now to seize these opportunities. To take advantage of these opportunities, there are critical roles that must be played by every sector of society. Progressive government planning and policies as we enter the twenty-first century are necessary. Revised education, infrastructure, entrepreneurship and people plans are needed.

2. Technology Trends and Opportunities

The expected technology progress at the beginning of the 21st century will be even more impressive than that experienced at the beginning of the current century. This past revolution arose from a series of breakthrough innovations that included the telephone and the automobile and it dramatically altered the way people lived. The 21st century is expected to be the century of biology. Medicine is already being transformed with new genetically engineered drugs and non-invasive surgical procedures. For example, today we can slip new genes into plants and animals and create new drugs. In agriculture, we can now create pest-resistant crops and engineer desired flavors into fruits and vegetables.

In the physical sciences, continued advances in molecular engineering are expected to result in new, highly-specialized materials for all sorts of uses. Nanotechnology promises miniature robots that could crawl around in our arteries, remove clogs and perform surgery. Advanced video and mobile communication systems (e.g., display glasses and cellular phones with e-mail and Web browsing capability from anywhere on the earth) and will revolutionize information-technology and entertainment industries.

With regard to commerce, Internet-based business transactions (e-commerce) will create new and revolutionize old industries. E-commerce could be 5% of global business 10 years from now. In the truly global markets of the future, we will be able to buy and sell goods almost anywhere on the globe with just a few keystrokes.

In the corporate arena, the corporation of the future will have minimal inventory. Just-in-time manufacturing and contract manufacturing will be the trend. That is, companies will subcontract their manufacturing to other companies that specialize in large-scale product manufacture through the use of reconfigurable assembly lines.

We will also see increased financial efficiency and increased productivity arising from creative ways of processing data, bundling loans and packaging securities. On the down side, new technologies stimulating rapid economic growth in one region of the world can add to the volatility that we see in today's world economies. Crises such as the one plaguing the Pacific Rim today and that are now beginning to hit South America will be with us from time to time in the next century. World leaders and organizations will need to reengineer the current global economic system to build in more stability. Thus, recessions will continue to be a part of the future of world economies, but overall growth can be strong for those nations who take steps now to remain or become economically competitive.

3. What Caribbean Nations Should Do

A twenty-first-century economic development plan for Caribbean nations (whether or not they are lacking substantial natural resources) should embrace at least five components:

- (1) progressive government policies and procedures,
- (2) a proactive and relevant education plan,
- (3) an aggressive infrastructure development plan,
- (4) a vibrant entrepreneurship plan, and
- (5) an exciting people plan.

3.1 Government Planning, Policies and Procedures

Government planning and policy is key. Everyone agrees with the solution! Effective leadership from the top that is party blind and color blind is essential. Governments must set goal-oriented plans and policies that are clear and unambiguous. We must sustain innovation and the environment. Simultaneously, we must educate the work force, stimulate entrepreneurship, establish progressive policies and procedures, and secure the resources to vigorously implement the development plan.

The leadership from the top must enable, not disable economic development, and it must continually examine the consequences of its actions from this perspective. Progressive laws and regulations that facilitate the achievement of the overall goal must be established. Old anti-progressive laws that are residues of colonial times must be repealed and replaced by new, forward-looking ones.

We must reduce the red tape, stop the nepotism, set up planning and decision-making committees rather than dictatorships, and treat every citizen fairly and equally with regard to the utilization and allocation of government resources. The members of such planning and decision-making committees should be chosen with input from all the major parties. These commissions would establish progressive policies that belong to no single party because they belong to all parties. Then we need to bind future governments to the programs and policies established by the commissions. The people (both at home and abroad) must believe in the dream, and must be made to feel a part of the dream.

Government must assist by removing impediments to entrepreneurship and economic development. It should, for example, take bold and creative steps to make capital more accessible to entrepreneurs that have good ideas and sound business plans. It must set up the infrastructure, catalyze the economic engine by exciting the people, and then manage the process (mostly from the background) as the people develop their country. I realize, as I am sure you do, that such a paradigm shift is unnatural for most governments. Insecure or self-interested leaders will not find such a plan attractive. It requires the government to make long-term investments and give up some control.

At the same time, the government must be the watchdog for the common good. This is primarily a regulatory role. It must not allow eager entrepreneurs to destroy our beautiful beaches, deforest

our lands, eliminate our unique or endangered species of wild life, pollute the air or the drinking water, or dump hazardous waste in our backyards, streams, rivers and coastal waters.

Economic development will only take place in the context of a sound environmental policy. For what good is strong economy if we poison ourselves in the process? Obviously, an economy without a progressive environmental policy would be doomed to failure in the long run, as it would expend so much on health care and lose so much in productivity that it would eventually become non-competitive in the global marketplace.

Government itself must also embrace information technology to make its business more efficient. Long waits for permits are unacceptable, demoralizing and a disincentive to entrepreneurship. The mentality of government workers must change. Those that do not understand or refuse to subscribe to the goals of the new economic system should be moved to routine, noncreative and non-influential positions. Young people with computer skills should be hired to automate government systems and bring the processes of the government into the 21st century.

The execution of the economic development plan must be disciplined and focused. We must get “policy” in, and get “politics” out. Both a short-term plan and a long-term plan are needed. With regard to business development, the short-term plan could focus on:

- (1) enhancing existing service industries and product manufacture,
- (2) expanding current market share in key industries and services, and
- (3) initiating research and development of new products and services that could be produced in the next five years and beyond.

Industries such as financial services, information services, Internet-based businesses, software, biotechnology for the development of new medicines and drugs (perhaps in collaboration with first-world companies), processed foods from indigenous crops, cosmetics and perfumes, fish farming and canning, computer assembly and repair, and automobile assembly should be targeted for development. At the same time we should continue to mechanize farming with the use of technology, expand the exportation of music and art, add value to our commodities by making finished products out of our natural resources, and continue to invest in tourism with the help of advances in technology.

The long-term plan could focus on building industries in the above areas while continuing a modest level of research (joint between industry and the university) that is focused on new product development and on existing product improvement. Some Caribbean nations already have initiatives in a few of these areas, but we must do more and do better.

Caribbean nations should continue to encourage foreign investment, but must be careful not to be totally exploited in the process. We must encourage talented entrepreneurially-oriented natives living abroad, especially those with science and engineering skills, to return home and set up companies. And why not give them the same tax havens and incentives that we give foreign corporations that often leave our shores after the perks expire? Many expatriates want to help, but are frustrated by the systems and infrastructure at home. Those that are not entrepreneurially

oriented can also help. The government can use them as advisors, for second or third opinions on proposals and contracts being contemplated, and as committee members. Many will offer this kind of assistance without compensation beyond an airline ticket.

Finally, government must set up a judicial system that earns the respect of the people. This means that it must be fair, firm, friendly and fast. The people must use the system, not violence, to solve their problems. Economic development will not thrive in the midst of lawlessness or domestic unrest. In short, the business of government should be business!

3.2 Education Plan

An educated workforce is critical to the success of the new economic development plan. The Region urgently needs education reform. We should begin with the primary schools. We must set some new long-term education goals. For example:

- (1) everyone born after today must be literate by age eight,
- (2) all children now under age ten must get a high school education,
- (3) all elementary and high school students must be taught (in addition to the basics) the fundamentals of economics, business management, finance, and entrepreneurship,
- (4) all children over age ten must be able to type,
- (5) computer literacy is mandatory for all children to graduate primary school after 2002,
- (6) all students born in the 21st century must have access to a university education, and
- (7) teacher training, wherever necessary, will always be a high priority.

This would mean that we would have to place computers in all primary and secondary schools since most students do not have computers and Web access at home. Then and only then would this generation of youngsters be able to access and use the Internet and the World Wide Web as communication and information resources on which to build future businesses.

The university must also reinvent itself with a focus on economic relevance. Roughly eighty percent of university research should be driven by the economic needs of the Region. This is not to say the university should abandon all theoretical research. In fact, theoretical research that can be shown to have a clear link to future product or service development should be encouraged. Technology transfer from university to industry and from industry to university should be more strongly encouraged and rewarded. We must upgrade university facilities and start technology business incubators within the university. Further, the university must help business to sustain their competitive advantage through research.

To assist those in the workforce who need continuing education, as well as the aspiring late bloomers, distance learning courses offered by the universities and community colleges should be

expanded. Information technology should be used to enhance the learning process in the classroom (both real and virtual) just as it should be used in the government and corporate sectors to enhance productivity.

Today, there is a worldwide hunt for experts in software engineering. It is estimated that the current market for software services and products is US\$ 300B. Even with typical starting annual salaries of US\$ 70,000, a 13% growth rate, and lucrative stock and bonus offerings, the industry is still not attracting trained software experts fast enough to meet the demand. This is in part because the work is considered to be tedious and boring by many. Microsoft invites Europeans in 11 countries to free training programs. According to *Business Week* magazine, some 3,000 Europeans have already gone through the program. Caribbean natives may never be offered these opportunities, but the point is clear. There is a unique opportunity for Third-World people to tap into high-tech software jobs that are being avoided by the more affluent workers in developed countries. And technology has made it unnecessary for Third-World natives to travel to these jobs. The work can be done right here in the Region. Software is completely portable if the communications infrastructure is in place. The user cannot tell the difference between Caribbean software and US software. It has no color, no religion, and no creed. Like music, it is universal.

For Caribbean islands, which typically have limited natural resources, a near-term software development and training focus makes sense today. Schools and universities should be training students on how to generate and use software for all kinds of applications. There is no reason why the next "Bill Gates" could not come from St Catherine in Jamaica, St. Lucy in Barbados, Cali in Columbia, or Tunapuna in Trinidad. Some governments have already started down this road, but they must accelerate the pace and maintain the momentum if they are going to be successful participants in the "new economy".

3.3 Infrastructure Development Plan

The infrastructure development plan is quite straightforward. To stimulate economic development, governments must either invest in, or stimulate the private sector to invest in the development of:

- (a) modern, low-cost telecommunications systems (especially telephone and the Internet),
- (b) modern and efficient transportation systems (roads, rail, harbors, airports),
- (c) efficient, affordable and plentiful utilities (electricity, gas, oil),
- (d) affordable and accessible health care systems,
- (e) well-equipped universities, community colleges, trade schools, high schools and elementary schools,
- (f) an excellent intellectual property system,

(g) effective banking and other financial services, and

(h) a vibrant stock exchange in which both the rich and the poor can participate.

Unfortunately, today, we see many Caribbean nations with their utilities monopolized by foreign interests. The costs of these utilities are too high and are an impediment to the economic development of the Region. How can the Region compete economically on a global basis if the cost of a telephone call or Internet access is up to five times higher than in the US? These monopolies must be broken. Else the Region's growth will not reach its full potential.

Collaborating with others in the Region, and bundling telecommunications and energy systems into single units for bid, is one long-term approach to be considered. However, advances in technology have a way of breaking monopolies in ways that no government regulation, legislation or national takeover can. For example, in some parts of the Region, it may be possible through deregulation for the cellular telephone industry to create enough competition within the local telephone market that the existing monopolies would have no choice but to reduce local rates. This option should be explored. The anticipated advances in Internet phone technology also offer much hope.

3.4 Entrepreneurship Plan

To accelerate economic development in the Caribbean in the twenty-first century, we need a paradigm shift. We must switch to an entrepreneurial culture. There are many things that we can do. Here are a few examples:

- (a) make mandatory the teaching of the fundamentals of economics, business management, finance and entrepreneurship to all elementary and high school students,
- (b) Government should set up small business technology development plans that provide equity-based seed capital for new and developing business with sound business plans,
- (c) Government should act to make all kinds of investment capital more accessible to start-up businesses,
- (d) financial institutions and entrepreneurs should work together to develop a venture capital base,
- (e) businesses should use information technology to make themselves more competitive on a global scale, and
- (f) entrepreneurs should organize themselves into societies and associations so they can share information, help each other, and influence legislation.

Why reinvent the wheel? The Japanese borrowed basic research results from western developed countries for ages, and used it as the base upon which to improve, develop and manufacture consumer products and other engineered goods. Many of these goods were then sold back to

those same countries from which the basic research came. Caribbean nations can do the same. We can learn basic software skills from the US, and then outperform the US as a source of high-quality, inexpensive software, both customized and generic. Why not do as the Netherlands has done and implement a version of the successful US Small Business Innovation Research (SBIR) Program? In Phase I of the US program, contracts of up to US\$ 100,000 are awarded to small companies (less than 500 employees) on a competitive basis to establish the feasibility of development of high-tech commercial products or services. Those companies that successfully complete the Phase I objectives are invited to apply for Phase II funding of up to \$750,000 for the development of premanufacturing prototypes. Many of the successful Phase II winners form alliances with larger companies, and in some cases these larger companies cost share in or add to level of the Phase II award from the government. This program has created lots of new industries and consequently, lots of new jobs.

A possible Caribbean version of this could be a Small Business Technology Development (SBTD) Program. In one scenario, I can see the government very heavily advertising the availability of seed capital and soliciting business plans for the development of new products and services or to upgrade the quality of existing products and services. Plans involving joint product or service development between industry and universities would be encouraged. The plans would be evaluated based on their technical merit, the competence of the management team, the size of the potential market, the realism of the proposed market share, the global competitiveness of the business, and a general overall ranking of the probability of success of the venture. The evaluations would be carried out by a committee of experts in the above-mentioned areas. There would be no nepotism and no special-interest advantages in the selection process. Committee members with conflicts of interest would excuse themselves from the evaluation process.

The first phase of the Caribbean SBTD program would be a feasibility phase where the technical feasibility of the product or service is established. If the Phase I program is successful, successful Phase I awardees would be invited to update their business plans and resubmit them for possible Phase II funding. The government would take a small equity stake in the companies that are awarded Phase II funds. If these companies go on to be highly successful, the government would eventually sell its equity back to the founders or other interested investors, and plough back the proceeds realized from the sale into the basic pool of SBTD funds. In this way the pool could actually grow after about ten years. Thus, in a well-managed program, I could see the taxpayers being repaid their initial investment into the program, for a truly self-sustaining program.

To be successful, such a SBTD program must be part of the national entrepreneurship culture. The people and the politicians must always be talking about the program and the culture. The program must continually be refined as the economy evolves so it remains efficient and effective.

3.5 People Plan

The government must motivate the people in the same way effective leadership does in the corporate sector. The people, on the other hand, must practice discipline, diligence, a shared sense of responsibility for self, and a code of self-reliance. This includes a willingness to work for a living, and for some, a desire to accumulate substantial wealth. A portion of the latter will

be the entrepreneurs. They will fuel the economic engine if the government helps with stimuli and incentives, and removes red tape and roadblocks while imposing only sufficient regulation to assure that the common good is not threatened by any sector of society.

Although entrepreneurship should be encouraged, not all should aspire to be entrepreneurs. Most who take this road will fail. Successful entrepreneurs usually possess a set of common traits. They tend to be dreamers, visionaries, creative, disciplined, flexible, goal-oriented, highly motivated, well-informed, well-connected, opportunistic, optimistic, risk takers, resourceful, persuasive, pragmatic, have an ability to motivate people, and are workaholics.

The award of grants and contracts should be as fair as possible so that the people can have confidence in the system and the policies of the government. If the confidence of the people is not earned, the economic engine will stall. A government cannot create economic growth without a cooperative populace. At the same time the people must act collectively to vote out of power those politicians who are corrupt, and those who protect self-interest through nepotism and through use of the "old boy" network.

Finally, for many Caribbean nations, the "silent economy" stemming from the steady flow of funds from nationals living in England and North America to their relatives at home, is a significant contribution to foreign exchange. This practice has significantly raised the standard of living of the poorer sectors of the population. It should be recognized, encouraged and nurtured with a formal system of rewards and incentives.

4. Summary

In summary, the opportunities for economic development of the Caribbean region have never been brighter. This is due in part to the on-going communications and computer revolution that has almost leveled the playing field with regard to access to information. Thus, there is room for Caribbean nations to compete with developed countries in new information-technology and service businesses. The global economic climate today presents a set of opportunities for all developing countries that may not recur in the next hundred years. Caribbean nations must act now to seize these opportunities. Progressive government planning and policies as we enter the twenty-first century are necessary. Education reform is urgently needed. Entrepreneurship stimulation plans also urgently need to be put in place. Infrastructure development and people plans are needed. We should co-operate more with each other in the Region to share utilities and resources and to trade with the rest of the world as a single entity whenever possible.

Finally, the recommendations made herein should also apply to any developing country that lacks substantial natural resources and wants to be a viable economic entity in the current and emerging global markets of the early twenty-first century.