

Bridging the Digital Divide: – A T&T Business Perspective

The process of globalization was greatly facilitated by developments in the area of information and communications technology. However, this development came with a bitter contradiction. The more progress was made, the broader the technological gap between developed and developing countries.

Global Perspective

There are an estimated 429 million people online globally, but even this staggering number is small when considered in context. For example, of those 429 million, fully 41% are in North America. Also, 429 million represents only 6% of the world's entire population. Other facts:

- The United States has more computers than the rest of the world combined

When assessed by region, Internet use is dominated by North Americans:

- 41% of the global online population is in the United States & Canada
- 27% of the online population lives in Europe, the Middle East and Africa (25% of European Homes are online)
- 20% of the online population logs on from Asia Pacific (33% of all Asian Homes are online)
- ***Only 4% of the world's online population are in South America***

(Source: First Quarter 2001 Global Internet Trends, [Neilsen/Netratings](#))

Even among highly developed nations, there exist vast differences in the availability of home Internet access. Sweden ranks as the nation with the highest percentage of home Internet connections at 61%; Spain trails the list with only 20% of its homes connected. (Source: Neilsen/Netratings, February 2001)

The Pew Internet and American Life Project published in Who's Not Online that 57% of those not online have no intention of going online. The research Firm [Ipsos-Reid](#) found a similar statistic internationally:

- 33% of those people have chosen to not go online. Among the biggest reasons were lack of need (40%); no computer (33%); no interest (25%); lack of knowledge for use (25%); and general cost involved (16%).

The gap that exists between those who appreciate the technology and have access to it and those who do not is known as the “digital divide.”

This paper will consider the digital divide phenomenon by further sub-dividing it into three gaps, viz.:

- The information technology access gap
- The information technology application gap
- The information technology development gap

The Information Technology Access Gap

What is it?

This is the gap most often referred to in the literature. It represents the divide between those who have physical access to the computer (at home, school, the work place or cyber café).

Contributing factors

- *Quality of physical infrastructure*
Coverage, quality and bandwidth of telecommunications from the telephone company to the Internet Service Provider (ISP) to the end user. Often, in developing countries, the penetration rate of telephones to households is low (as low as 1.74% in Albania, Eastern Europe), and even where there are connections, they tend to be of low quality and low bandwidth thereby presenting a significant challenge to data communications.
- *Cost of telecommunications and equipment is high*
In developing countries, telecommunications is often handled by either the state or a private sector entity operating under monopolistic conditions. As a result, prices tend to be very high and the service not customer oriented.

Impact

- *Low Utilization*
4% of the world's online population are in South America
3% of ISPs are located in developed countries
- *Limited access to information*
The Internet is an invaluable source of a rich variety of information on any imaginable topic and can help you to make contact with others of similar interests. This provides a fertile source of research data or information on current events worldwide. Those fortunate enough to be exposed to computers at an early age are learning a new way of processing information and are receiving mental stimulation as well as specific knowledge that will place them significantly ahead of those without

similar opportunities. Clearly those who have access to this facility are in a much better position to innovate and create opportunities than those who do not.

- *Limited access to products and services*

Those who do not have access to information technology are severely restricted in their access to product and service options. They only know about those they have already accessed or those that are advertised in the various media that they access. As a result selection is made based on a very limited set of options or additional cost is incurred to employ middlemen to source the right product or service. The Internet helps to make the world of options known to the buyer.

Also, possible through the Internet is the actual delivery of certain types of products and services. Access in this manner significantly reduces the lead-time for acquisition (avoiding delivery time and the bureaucracy for importation) and typically also, the cost of acquisition (delivery cost and importation costs). Potentially, the reduced lead time and cost leads to better competitive advantage for the business community

Recommendations (T&T)

- Accelerate the de-monopolization of the telecommunications industry and encourage wireless technology.
- Provide Internet access in every school and community
- Make IT compulsory in all diploma and degree courses
- Make an on-site IT facility a necessary precondition for accreditation of teaching establishments
- Provide computer literacy classes in all public libraries
- Support the use of open source software

The Information Technology Application Gap

What is it?

This divide separates those who know how to apply existing technology to create wealth and those who do not. It separates those who understand how the technology could work for them and take full advantage of it, and those who do not fully understand the technology and/or underutilize it.

Contributing Factors

- *Education/training*

To a large extent, lack of knowledge about the capabilities of the technology is the major inhibitor to its optimal application. Despite all of the information in the regular media and the professional journals, many managers remain oblivious to its power for

resolving business problems or creating opportunities. Often, the problem is visualization. Without seeing the technology at work, it is difficult to imagine how it could be of strategic value to ones operations and only the basic features are therefore employed.

- *Threat to status quo / fear of change*

Another significant inhibitor to the optimal use of the technology is the resistance to change. Where people or companies are comfortable with their personal or competitive positions, there is no perceived need for change. Where they have achieved success with the old methods, new methods seem to be threats rather than opportunities.

- *Financial infrastructure*

A precondition for engaging in e-commerce is a means to make/collect payments safely online. The banking system plays a pivotal role in providing this facility. In the region, they have been reluctant to make the necessary investment or take the necessary risk. This has stifled the growth of the local supply-side e-commerce.

- *Legal infrastructure*

Perhaps even more stifling that the constraints presented by the reluctance of the financial sector is the inappropriateness of our legislation to cope with modern business transactions. Electronic documents, the lifeblood of electronic transactions, are not recognized under current laws. To engage in e-commerce, then, requires that the local businessman take more risk than his foreign counterpart.

Impact

- *Low returns on IT investments*

A lot of money, time and human resources are wasted when the use of IT is not optimized. IT has the potential to bring about different degrees of change in an organization from the automation of existing business procedures to facilitating radical business re-engineering, all of which could be realized with current technologies. To employ this technology and capitalize on it would be to miss out on business opportunities.

- *Competitive disadvantage*

Competing through computing has been the way of the modern business world for the last two decades, and the developed countries are quite expert at it. Developing countries must learn to apply the technology for strategic advantage or at least strategic benefit. The alternative is to experience an ever-widening imbalance in trade. Countries such as Japan and Singapore are noted for gaining competitive advantage through the strategic application of existing technology.

Recommendations

- It is evident that teaching computer literacy is not sufficient. IT literacy would better serve to bridge this gap. Businessmen and management trainees need to be exposed to examples of how business organizations of similar size to ours could benefit from the technology. Special promotions/events by the national library, the chambers of commerce, UWI and other business schools would provide the seed for ideas to germinate. Tiger can play a pivotal role in this regard by establishing a case history collection and hosting seminars where feature speakers present their findings on or experiences with the use of the technology for strategic purpose. DFC and SBDC should have vibrant units that advise on the use of IT as either a free or subsidized service.
- Those who are happy with the status quo must be made to feel less comfortable. They must understand that the new technology is a double-edged sword. It provides opportunities but also presents significant threats. Many of our businesses are intermediaries, yet one of its features most appreciated by its users is that it allows them to access the supplier directly or at least with fewer intermediaries. If our intermediaries are to maintain their profitability, they must develop new strategies, which, in today's business world, requires embracing IT rather than a casual handshake with it.
- One of the reasons why the banking sector is so reluctant to invest is the large expenditure required of them. However, this was the same reluctance with which they treated the introduction of automatic banking machines (ABMs). They were able to overcome the cost and operational problems while providing superior customer service when they finally decided to collaborate rather than compete. Linx was born out of that collaboration. A similar venture would help to share the risks and increase the chances of success for Internet credit card payments. Such a collaborative effort could also provide the necessary authentication services required for electronic transactions.
- A new legal framework was debated in Parliament and other places but eventually sent back for re-drafting and has since been put on the back burner (it would seem). Tiger and the other Chambers as well as ITPS and other interested parties should be encouraged to lobby for the finalization of the new enabling laws. A few countries in the Caribbean have already provided new laws framed after the Model Law on Electronic Commerce developed by the United Nations Commission on International Trade Law (UNCITRAL). Bermuda, Barbados, Chile and Mexico are among those that have already implemented it.

The Information Technology Creation Gap

What is it?

This divide is at three levels. It represents the gap between those who conduct fundamental research and development in the technology; those who use and create IT products and services with existing technology; and those who are only consumers of the IT products and services.

Contributing factors

- *Education/skill*
System produces graduates who are good at passing exams but have little confidence in the ability to apply their knowledge to solving different and new real world problems
- *Restricted access to base technology*
“The new world economy based on knowledge was turning information into a good, which was as valuable or even more valuable than traditional goods. In the developed countries, a frenzied race had been unleashed to patent not only technologies, but also the ideas that supported the new economies, creating further barriers to third world countries that needed those technologies. Intellectual property rights excluded developing countries from knowledge.”
- *Business culture*
The nature of business in the Caribbean is characterized by the existence of a few large companies that engage in the export of primary products or the trade of largely foreign produced goods and services. The relatively small manufacturing sector typically employs foreign materials and technology in their processes. Industrialization by Invitation, the initiative to encourage the growth of the manufacturing sector failed in that local businessmen grew totally dependent on the technology of assembly but were not exposed to the more fundamental underlying technologies so they remain low-value-added industries. With few exceptions, the “Captains of Industry” are essentially risk averse – not prepared to be the proving ground for local technology.
- *National culture*
We are not a nation that looks to ourselves for solutions to our problems or initiatives for new products (except food and music to some extent, but certainly not high-tech solutions). The television and Internet only help to exacerbate this situation as foreign lifestyles and values are sought after in exact replica.
- *Financial infrastructure*
The aversion to risk is nowhere more evident than in the financial sector. Loans for high-risk projects are either non-existent or are so burdensome that they prejudice the project to failure. Even suppliers of venture capital seem to want an inordinate amount of assurance before they would make funds available for the development of new technology ideas.

Impact

- *Buyer of products and services versus supplier*
Competitive advantage is possible but not sustainable. True competitive advantage is achieved when an innovation is not easily copied. Fundamental research yields more opportunities for sustainability; without it one competes in a technology arena shared by the rest of the world. Still, some short-term advantage may be gained from being to apply existing technology in novel ways to generate new products and services.
- *Lack of relevant/desired content*
Research information is widely available but may not be relevant. More indigenous research is required and the content made available via the Internet. A student could easily find more information about Tibet than Tobago on the Internet. We can learn more about organizational change management in Proctor & Gamble than Petrotrin. There may also be the need to combat foreign, unhealthy use of technology portraying unacceptable lifestyles and values by providing sufficient local and regional alternatives that reflect the values that we would want to preserve as Caribbean people.
- *Lack of relevant indigenous technology*
We may end up paying for a Rolls-Royce when all we need is a Toyota. So much software goes completely underutilized and yet we are constantly forced to move up to the next new release with even more features that require an even greater investment in hardware, none of which is being designed or developed in the region.

Recommendations

- Niche products need to be identified that will either serve the special needs of the Caribbean or will use the special talents and knowledge of the Caribbean people. For example, many Caribbean countries have access to sophisticated international telecommunication services, but have inefficient and/or costly internal distribution systems. Wireless technologies are maturing rapidly and can provide relief in the near future.
- The UWI Faculty of Engineering must embrace their new role in regional development by focusing a concentration of R&D in targeted areas that offer greatest prospects for contributing to the regional economy. Low cost wireless technologies may be such a concentration of study.
- Risk can be reduced through alliances and partnerships with companies, organizations and even individuals who have the requisite experience (preferably overseas nationals).
- Innovation in science and technology must be encouraged throughout the society. Competitions that result in patents and scholarships, science fairs sponsored by the private sector, change in the judging criteria for “Company of the Year” that includes

heavily weighted components for innovation and R&D are some examples of how a culture of innovation might be encouraged.

- Throughout the education system, problem solving, critical thinking, communications and teamwork must be emphasized – the skills citizens need for the Information Age. We must learn to depend on and trust our skills in solving our own problems. Without this it is difficult to convince the rest of the world that we can solve theirs.
- As a people we must be encouraged to publish our research work in the Internet. Teachers, students, government technocrats, private sector professionals should all be encouraged to publish the results of their research. This could come under the purview of the national libraries in the various countries. Their focus should be equally placed on getting people to read more as well as getting us to write and publish more.
- Funding for research should be sourced regionally and internationally for high-tech R&D with the developing world as the potential beneficiaries.