

ICT 4 Development Case Study: Bermuda

Senator Mark Bean

Acting Minister for Energy, Telecommunications and eCommerce on the occasion of the Caribbean ICT Road show – Montserrat April 22, 2010

Theme:

Harnessing the Power of Innovation – the engine for ICT enabled Caribbean development.

Good morning and thank you for inviting me to tell Bermuda's ICT story – past, present and future.

Bermuda lies at a cross road in the Atlantic Ocean. Our geographic isolation has, somewhat paradoxically, helped us to develop as a mid-Atlantic communications hub.

From the early 17th century until today Bermuda serves as a way station for transatlantic commerce – physically through shipping and virtually through ICT.

We were in the past referred to as the Gibraltar of the west – Bermuda was developed primarily as a military outpost due to our strategic location.

We have become so connected as a matter of necessity as we are so remote.

Our first foray into international communications was in 1890 when the first cable was pulled ashore connecting Nova Scotia to Bermuda.

This brought communications to the island where previously any outgoing or incoming communication was via steamship.

Now we are connected to 200 plus countries via diverse digital fibre optic cables facilitating a wide range of modern business communications services simply by picking up a telephone receiver.

Bermuda is now serviced by three independent submarine fiber optic cables terminating at England, New Jersey, Brazil and Charlestown Rhode Island giving Bermuda more than enough bandwidth to service our growth intensive international business' IT needs.

Fast forward to the 21st century and Bermuda is at the forefront of ICT. We have to be.

As our island's economy changed from a reliance on tourism to international business we had to ensure we had the infrastructure and service capability to serve an industry that transacted across the globe. We needed reliability, dependability, bandwidth – and a host of service functions to support our ICT capabilities.

What I hope to do this morning is to give an overview of how we have transitioned from our early connectivity under the sea, to local communications on land and our continued evolution into the satellite space in outer space.

And I look forward to the following discussion on Making ICT work for you.

Bermuda embraced ICT early on and recognized its importance in helping to give the Island an edge in ensuring that business, particularly international business, continued to domicile and remain on the island.

In addition, Bermuda has also kept a steady focus on ICT as a driver for economic and social stability.

The mission of the Ministry of Energy, Telecommunications and E-Commerce is to promote and support the activities of the Government in the development of national energy and information and communications technology policies and to protect the national interest on the implementation of these both domestically and internationally.

In the area of ICT specifically, using an e-readiness framework, the Government's approach is to target not only infrastructure, but encourage the public and private sectors, as well as citizens to leverage technology and the ensuing benefits of living in a digital age.

Because of the Island's remote location, telecommunications has been the lifeline for more than a century. To that end the Department of Telecommunications protects and promotes the interests of the citizens and businesses in the provision of telecom services, whilst safeguarding the sustainability of telecommunications services that contribute fairly and equitably to the social, economic and cultural prosperity of Bermuda.

In a 2009 survey on ICT in Bermuda, 90% of households own computers and 89% have access to the internet with 85% of those households using a high speed connection. 94% of households own a cell phone and of that, 55% of Bermuda residents own mobile devices.

Even with some of the highest penetration rates in the world, and a multiple of telecom providers and services, the Government takes steps to ensure that the telecommunications landscape will continue to be robust.

The highly anticipated telecommunications regulatory regime changes coming shortly will keep Bermuda on the cutting edge of technology implementation and regulation

and, more importantly, position the Department of Telecommunications to contribute to the diversification aims of Bermuda's economy.

The Department of E-Government's mandate is to drive business process efficiency within government through technology. With a strong focus on providing services to clients, be they government, business or citizens, they encourage that new technology tools and applications be integrated and used such as RFID, GIS and security measures such as digital certificates. The Government has its own Digital Certificate Authority.

Among the first countries in the world to pass legislation specific to e-commerce a decade ago, the Department of E-Commerce was originally created to oversee the introduction of this legislation, known as the Electronic Transactions Act 1999, and now focuses on the following areas:

Presently the Department is working on the development of a model Privacy law for Bermuda, as it is clear that Privacy will be one of the critical social, economic and political issues of the 21st century.

While reflecting international best practice, a unique privacy model is being developed to take into consideration certain economic realities, as Bermuda has strong economic ties to North America and Europe, both of whom have very different privacy regimes.

The Electronic Transactions Act (ETA) 1999 and Standard, now at least a decade old, are currently also under review. The importance of the legislative framework and adopting best practices cannot be underestimated. By having a strong ETA in place has allowed a home grown Bermuda firm specializing in security to have an impressive global client base including the Swiss Government.

In addition, Bermuda's corporate legislation under the Ministry of Finance was recently updated and continues to be under review to assess ways in which Government can increase the number of "e-friendly" elements that make it easier for Bermuda-based companies to operate solely in an electronic environment.

Promoting security and online safety are a strong focus. In addition to assisting in the development of the Child Protection Amendments to the Criminal Code (criminalizing child pornography and the use of 'communications mediums' for the luring of children), the Department created the CyberTips.bm website targeted at children, parents and teachers encouraging safe online practices and digital citizenship.

Following an e-readiness strategy the Department of E-Commerce encourages the development of technology skills in all citizens, promoting careers in technology and

supporting the growth of the IT sector and undertakes initiatives in these areas which include:

The Technology Leadership Forum (TLF) is a public/private partnership between government and the IT industry to promote technology excellence. The TLF has created a unique IT Internship Programme based on the actual IT needs of business and students are mentored by top industry talent. The programme gives students ample experience in this multi-faceted industry through real world work experience and in class training.

Additionally, the Department of E-Commerce has organized TechWeek, an annual technology-related event for the last 4 years. TechWeek is a country wide celebration of technology and provides an opportunity for the public to have fun and learn about technology. There are a number of regular features including lunch and learns, student activities, a digital art competition and senior tech teas.

The TechAwards is an annual event where local technology innovation is recognised. As mobile is the way forward, the Department in partnership with BlackBerry manufacturer Research in Motion (RIM), and local carriers, created a competition to encourage software developers and entrepreneurs to create innovative local applications for a BlackBerry phone.

While there are three mobile carriers, none wanted to take the risk of developing local mobile applications for a small population and so the Government decided to step in. Bermuda was the first country RIM has ever partnered with, to host and sponsor such an event, which was seen to jump-start the development of local-based applications for mobile devices in Bermuda.

The Constraints in employing ICT for development

Bermuda's ICT infrastructure is world-class, with significant bandwidth, redundancy and security in a competitive landscape.

However, having a very small population base can pose challenges for economies of scale, particularly when legacy systems and infrastructure must be continuously improved, to ensure the continued prosperity of the country. Another example of the economies of scale issue is the mobile application development competition mentioned earlier.

A small jurisdiction can also have problems in providing specialized ICT talent. Bermuda does not have a university and many students study abroad and decide not to return

immediately or not at all,(the old Diaspora story). So while the Department of E-Commerce encourages e-literacy and training across the island so the workforce can support business in general, the ability to use technology is both Bermuda's greatest enabler in terms of continuing to attract international business and yet a major limitation, if the skills are not available, as complex businesses demand sophisticated IT skills.

Gains achieved as a direct result of the effective use of ICT

Bermuda is a sophisticated financial and legal centre. Company formation is fast and streamlined while we also apply strict Know Your Customer rules so as to ensure our reputation remains unblemished.

The banking, trust, accounting, custodial and legal services are of a high international standard. A strong technology support network is in place with hosting, BC and DR facilities, web designers, software developers, network support and hardware and infrastructure specialists, security vendors and ISPs.

Bermuda's focus on international business is a catalyst for evolution and forces ICT companies to mature in order to support the sector. By the same token, the strength of the ICT sector gives business a significant comfort level to enable global companies to run operations out of Bermuda.

By focusing on the aspects that constitute e-readiness, from policy and infrastructure to e-literacy, for the third year in a row, Bermuda was ranked one of the top twenty-one e-ready countries in the world and in the top 10 overall for business environment and connectivity by the Economist Magazine's Economist Intelligence Unit for their 2009 "Global E-Readiness Rankings" survey.

This prestigious survey is used by international business as a tool in making investment decisions about locating in foreign jurisdictions.

An enormous amount of work goes on for many of the Ministry's initiatives, often in the form of partnerships that are created for the benefit of both business and the people of Bermuda.

The sophistication of Bermuda's ICT industry and international recognition gained enable global partnerships that reap substantial benefits for the country as well. In November 2009, the Department of E-Commerce and the Bermuda Chamber of Commerce partnered with the World Information Technology Services Alliance (WITSA) to host the Global Public Policy Summit (GPPS) 2009 in Bermuda.

GPPS 2009 focused on business technology as an enabler in world economies and featured key global ICT industry players from 40 countries. A key outcome was the Bermuda Declaration. Proposed and drafted by the Department of E-Commerce, and adopted by over 90% of the delegates, the Declaration recognizes the importance of ICT as a proven driver for global economic activity and growth and will be used as a catalyst for discussions regarding future global ICT policy direction in other international forums. The local tourism, ICT and the financial services sectors, all benefitted from the exposure through GPPS 2009.

Cable links:

Exactly one year ago, Bermuda celebrated our latest cable connection – the Challenger cable system which runs between the US East coast and Bermuda.

In 2006 the Bermuda Government issued an RFP to build a cable link. Local company KeyTech discussed forming a local group to bid for the project and in 2007 they were named as the successful bidder and the Ministry of Energy, Telecommunications and E-Commerce granted the new company – Cable Co. – a Class A license to build and operate the cable.

This was to become our third operational cable with the others being a now two year old link operated by UK Based Cable and Wireless and a 12 year old link operated by Brasil Telecom.

This project was complex with a number of moving parts, including licensing in Bermuda and the USA and the construction elements. Cable Co. worked with key partners, including the Ministry of Telecommunications, BTC, Verizon, Alcatel, North Rock Communications and Transact to successfully complete the project.

The project was completed on budget and ahead of schedule by Alcatel, who laid the 1,445 kilometre cable linking its facility at BTC's former telephone exchange building in Victoria Street, Hamilton to a Verizon centre Rhode Island in the US, offering a current capacity of 20 Gigabits per second, with the potential to be increased to 320 Giga bits per second.

The Cable then required further commissioning and licensing with the FCC (Federal Communications Commission) and Bermuda Government as well as testing the service for customers.

North Rock and Transact had originally partnered with Keytech on the license application and product specifications in the planning and construction stage of Challenger, but had since agreed to be customers instead of equity shareholders as a result of economic circumstances, along with KeyTech subsidiary Logic Communications, to use the cable to meet their customers' international bandwidth needs.

The cable provided the provision of more bandwidth at a competitive price to its customers, while also being a 100-percent Bermudian-owned company with any profits made remaining in the Island's economy.

At the end of the day the cable provides improved customer service and the capacity to grow based on customer needs, as well as a better redundancy.

This was also the first time in BTC's 120 year history that they had owned international facilities.

Previously Cable and Wireless were the only link to the outside world – and all local companies had to negotiate with them to secure overseas services.

Cable and Wireless is well known throughout the Caribbean – indeed it has been said that when the Royal Navy set out to conquer the world's oceans and countries – a Cable and Wireless ship was following behind.

The Department is an active participant in international telecommunications and technology forums, and is a leader in its region. As an Overseas Territory of the UK, the Department can attend ITU meetings as a member of the UK delegation. The Department's outreach to international organizations is furthered through its Development Partnership in the Commonwealth Telecommunications' Organisation (CTO), and by increasing involvement in the work of the Caribbean Telecommunications Union (CTU).

Space:

Recognising the critical role a modern telecommunications sector plays in our continued success, Bermuda has also become active in satellites and space activities. This is intended to improve and enhance our image in the telecommunications sector

In addition to promoting competition and continuing to follow internationally recognised best practice, the Department is taking steps to diversify its telecommunications base in the following ways:

- *Satellite Networks* – Alongside the regulatory reform process, the Department has made regulations to establish procedures for the authorization of satellite networks, and operators are already taking advantage of this.
- *Outer Space Act* – As a British Overseas Territory, Bermuda has negotiated the extension of the United Kingdom's Outer Space Act, enabling Bermuda

companies to be licensed to conduct activities in outer space in compliance with international agreements.

- *Orbital Assets* – The Department is also exploring ways of using orbital assets allotted to Bermuda by the ITU to increase Bermuda's participation in the space sector. This creates an additional platform from which Bermuda companies can offer their services in the global marketplace, and increasing the services and opportunities offered to Bermudians.
- *Orbital Locations* – Bermuda has allotments in the ITU's Region 2 BSS Plan at 31°W, 92.3°W and at 96.2°W, and in the Region 2 FSS Plan at 37.1°W, and is exploring ways to bring these assets into use. It should be noted that the allotment at 92.3 W is a collective group designation to cover five Caribbean regions identified as Bermuda, Bahamas, Belize, Eastern Caribbean and Jamaica.
- *Earth Stations* – The Department is developing a regulatory framework to ensure that earth stations deployed on the island are subject to the minimum amount of regulation necessary, whilst ensuring that they can be afforded the appropriate level of protection from other systems and services, including international registration if needed.

So how can Bermuda's model assist our Caribbean neighbours? I should mention here that I am the Bermuda Government's representative for CARICOM.

And I and my Government is open and willing to work with the Caribbean Telecommunications Union to further assist in your social and economic development for the benefit of the entire region.

Bermuda is just a small fish in a pond filled with big fish – and we have had to be creative and unique in how we interact and compete with the big players in this field. But if Bermuda can do it – then certainly any of the countries represented here today can also do it.