CASE STUDY: DOMINICAN REPUBLIC

Santo Domingo, *Image Credit: [Dianne Rosete on Flickr](#) under CC licence.*

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1. INTRODUCTION

In the early 2000s, the Dominican Republic was held up as an ICT sector reform success case. The liberalisation of the sector began in 1998 and led to tremendous growth. For almost a decade, the country reaped the benefits of sector reform, including high levels of foreign direct investment in ICT, increased market competition, reductions in the price of services, increasing rates of ICT adoption, and the ICT sector's growing contribution to GDP growth.

Since 2010, however, the growth rate has slowed. The cost of ICT services has increased and is now as high or higher than the cost of comparable services in other countries of the region; as costs have risen, the overall quality of services has deteriorated. The adoption and use of modern broadband-enabled technologies is limited to a mostly urban, well-off section of the Dominican population; e-government tools are largely underused; and the potential for innovation and local content production remains under-explored. Using the digital opportunities presented by sector liberalisation and modernisation to close social and economic divides will be an important challenge for the Dominican Republic looking forward.

This brief A4AI case study examines the Dominican Republic's liberalisation process, the consequent growth of its ICT sector and the reasons for the sector's slowed growth since 2010, and highlights a number of opportunities for the country to get back on track.

2. THE DOMINICAN REPUBLIC AT A GLANCE

Located in the Caribbean basin, the Dominican Republic is an independent nation that shares the island of Hispaniola with Haiti. Although 70% of its 10.4 million people live in urban areas, almost half of them live in the country's two major cities — Santo Domingo and Santiago; the remaining 30% of Dominicans live in rural areas. As in many developing countries, the Dominican population is young — more than 46% are 24 years of age or younger.

As a result of its US$61.1 billion GDP and US$5,976 GDP per capita, the Dominican Republic is considered by the World Bank to be an "Upper-middle-income economy."[1] However, 41.1% of the population lives in poverty — a ratio that has remained almost unchanged despite years of high economic growth. The high incidence of poverty and its associated challenges help to explain the country's relatively low ranking on the Human Development Index (ranked 102nd out of 187 countries with a score of 0.700).[2]

Today, the Dominican Republic's economy is still largely built upon: tourism; a free zone export-oriented industry; traditional agricultural exports (*e.g.,* sugar, tobacco, coffee); and extractive industries — all of which depend on an intensive, low-cost workforce. In recent years, however, the contribution of the ICT sector has increased significantly — the sector's economic contribution has grown from 2.8% to over 16% of GDP (2013) — and now represents one of the major pillars of the country's economy (see figure 1).

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[1] http://data.worldbank.org/about/country-and-lending-groups#Upper_middle_income

[2] http://hdr.undp.org/en/countries/profiles/DOM

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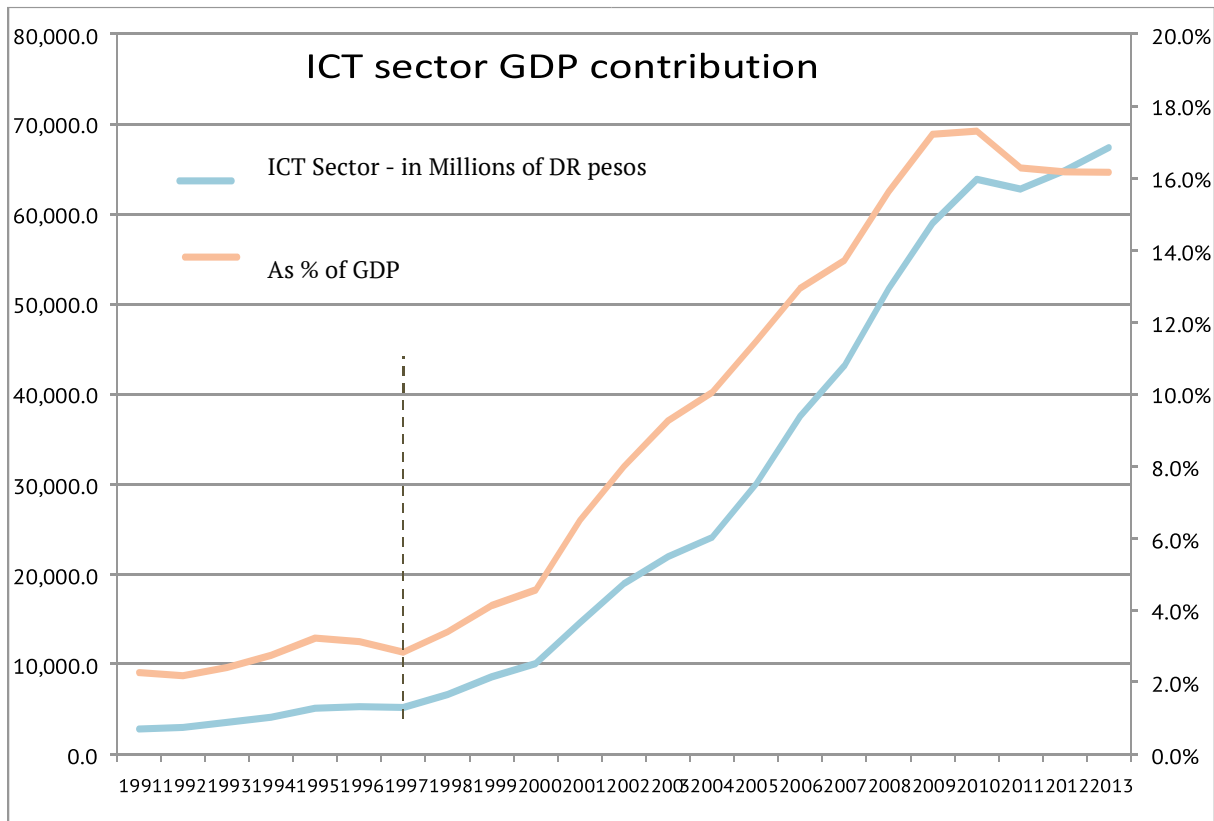
ICT sector GDP contribution

Figure 1: ICT sector and GDP[3]. Source Central Bank - 2013

Although a recent change in the methodology used by the Central Bank of the Dominican Republic[4] has led to a reduction in the ICT sector's contribution to GDP, the growth of the sector over the last 15 years and its strategic importance to the overall economy is unquestionable. When examining the reasons for this growth, few question the positive impact that ICT policy and regulatory reform has had upon the strengthening of the sector.

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[3] Prepared by INDOTEL based on Central Bank reports2013.
http://www.bancentral.gov.do/estadisticas_economicas/sector_real/pib_sectores_origen.xls
[4] Changes of the reference year from 1991 to 2007 and and price index calculations . See
http://www.bancentral.gov.do/publicaciones_economicas/otros/Cuentas_Nacionales_de_la_Republica_Dominicana_2007.pdf

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3. POLICY AND REGULATORY DEVELOPMENTS

3.1 SUCCESSFUL SECTOR REFORM

The Dominican Republic's reform process started twenty years ago when the Government drafted a new telecommunications law (Telecommunications Law 153-98 [5]) covering interconnection and tariff adjustments, technical and operational regulations, radio spectrum management, and the development of rural telecommunications. The law was passed by the congress in 1998 —despite having been drafted three years earlier in 1995 — and legalised the establishment of the new independent regulatory agency, INDOTEL. Mandated to promote the development of telecommunications, among other things, INDOTEL aims to facilitate universal service; ensure the existence of sustainable, fair and effective competition; and defend and enforce consumer rights. [6]

In the early years of its existence, INDOTEL focused on attracting much needed investment, which it was able to accomplish by providing investors with a relatively predictable, enabling environment. Prior to INDOTEL's creation, the average annual telecom investment (1997-1999) was US$82 million; between

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[5] The ICT sector is also governed by these legal texts
- Telecommunications Law. # 153-98 27/05/1998
- Electronic Commerce, Documents and Digital Signature Law 126-02 04/09/2002.
- Free Access to Public Information Law 200-04 28/07/2004.
- Public Finance Administration System Law 5-07   08/01/2007.
- Technology Crimes Act. Law 53-07 23/04/2007
- National Development Strategy. Law 1-12, 25/01/2012
- Mid 2014 a new law Spam and security has been voted and is being enacted.
- A bill to promote the free and open source software use in government, has been proposed and drafted few years ago, but not yet submitted for approval.

[6] Some of the key government related ICT players are:
- The CNSIC: National Commission for the Information and Knowledge Society
- OPTIC: the official agency, charge of e-government, attached to the ministry of the presidency
- MINEDU: Ministry of Education
- MESCYT: Ministry of higher education, Science and Technology
- DGIEEG: another agency attached to the ministry of the presidency In charge of Open Government and Open data portal
- MINIC: Industry and Commerce in charge of e-commerce related aspects and the ICT promotion in SMEs
- ITLA: Technology institute, training the ICT workforce
- The Santo Domingo Cyber park : public-private partnership that , among others, hosts the NAP of the Caribbean[6]
- RADEI: The National Research Network (NREN), that plans to interconnect national Universities and Research centers though a national backbone and link it with Internet2, GEANT, RedClara and C@ribNET/CKLN global research networks.

2000 and 2005, the average annual investment jumped to US$330 million. Overall, it is estimated that investment of almost US$2 billion was injected into the Dominican ICT sector during the first 10 years of INDOTEL's life and the sector reform process.

3.2 FUND FOR THE DEVELOPMENT OF TELECOMMUNICATIONS

In addition to encouraging private sector investment, INDOTEL has facilitated public sector investment through its management of the Fund for the Development of Telecommunications (Fondo de Desarrollo de las Telecomunicaciones[7] – FDT). This Universal Service Fund (USF) was created "in order to fund projects in low-income rural and urban areas or social interest, to promote Universal Service and telecommunications development." The financing for the fund comes from a 2% levy on all ICT sector services payments.

Since 2001, the USF has funded a range of initiatives, including the public rural telephony project, e-education (WAN and education portal) projects, a telemedicine project, and a rural broadband connectivity project. Since 2005, INDOTEL has partnered with local government, NGOs, community groups and others to host some 1,200 community centres and digital rooms in rural and urban marginal areas. The FDT has also funded the construction and installation of about 90 directly managed community technology centres (CTCs) in rural areas directly managed by the Vice Presidency (and previously the Office of the First Lady).

There have been challenges in the monitoring and evaluation of the impacts of FDT-enabled initiatives, leading some observers to suggest its record has been mixed. For example, while about half of the community technology centres and digital rooms are still operational, many have succumbed to sustainability issues. Current INDOTEL bi-annual plans outline measures to reform some 200 of the centres to become community centres of excellence. Only time will tell if the lessons learned and best practice models to create sustainable centres are utilised.

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[7] http://www.indotel.gob.do/index.php/indotel/fondo-de-desarrollo-de-las-telecomunicaciones

3.3 E-DOMINICANA AND THE NATIONAL COMMISSION FOR THE INFORMATION AND KNOWLEDGE SOCIETY

In addition to regulating the sector and managing the Universal Service Fund, INDOTEL is also responsible for executing and leading the implementation of the Dominican Republic's National ICT Strategy, known as E-Dominicana. The National Commission for the Information and Knowledge Society was established in order to lead the strategy implementation. Hosted by INDOTEL, the Commission employed a wide range of stakeholders from all sectors in order to increase the likelihood of its success, however critics note that the plan's implementation has faced difficulties.[8] A recent assessment by a team of experts from Korea indicated that, despite being an excellent policy and cross-government strategic framework, the effective implementation of E-Dominicana was hindered by infective arrangements, which compounded historical institutional weaknesses in inter-institutional coordination.

3.4 ICT IN THE NATIONAL DEVELOPMENT STRATEGY

The recently enacted National Development Strategy (END[9]) is now the overarching development policy and strategic framework for the country. It recognises the important role that ICTs play in socio-economic development, and the critical role of broadband. Among other things, END states the need to universalise broadband access at accessible costs in households, public administrations, public access centres (telecentres) and businesses.[10]

The introduction of END, and the emphasis it places upon broadband, has catalysed further ICT policy development. Since early 2014, the E-Dominicana Strategy has undergone a review and updating process. With an updated version expected in early 2015, it is hoped that issues of affordability — a key determinate of broadband access and use — will be given sufficient emphasis in the new plan. As the preceding sections of this case study indicate, the need to reinvigorate Dominican ICT policy development is critical for the country to

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[8] The National Commission for Information and communication Society -CNSIC (Decree 212-04) comprises the following institutions: INDOTEL/UTEA, OPTIC, ONE, DPD, PRODETEL, INTEC, UASD, Telecom Companies, NGO consultative board NAP of the Caribbean, MMUJER, MSP, MESCYT, FEDOMU, MEPyD, Alianza ONG, Liga Municipal, Camara TIC. Its main role is to create,

[9] Law No. 1-12, enacted on the 25th of January 2012

[10] Its actions lines include: to strengthen the ICT training, promote ICT private sector development and innovation, digital literacy and universal access, ICT usage promotion for public and private sector management, local content for e-government, and promotes the use of free and open software.

continue the strong growth it saw during the early years of reform. Moreover, if the Dominican Republic is to utilise broadband for socio-economic development, issues of affordability must be central to any broadband-focused strategy.

4. THE IMPACT OF PLANNING

4.1 MARKET STRUCTURE

The Dominican Republic displays many of the hallmarks of a country that has gone through a successful liberalisation and ICT sector policy reform process. There is competition in the market for all retail services, most notably in the fixed-line and mobile markets. The country also has the kind of innovative services one would expect to see in a competitive ICT environment. For example, most Dominicans access Internet and broadband services using mobile devices. Yet, as this case study outlines, the use of mobile broadband service remains limited relative to access and competition in some aspects of the market.

Although 17 companies have concessions for telephony services, there are six mobile operators, four fixed-line providers and fifteen Internet providers. The incumbent, Claro, dominates 95% of the fixed-line market and still holds about 54% of the mobile market; Orange is second largest market operator. There are two other operators, Tricom and Viva, that also have small market shares, but in 2014, Orange and Tricom merged to leave the market with only three operators.
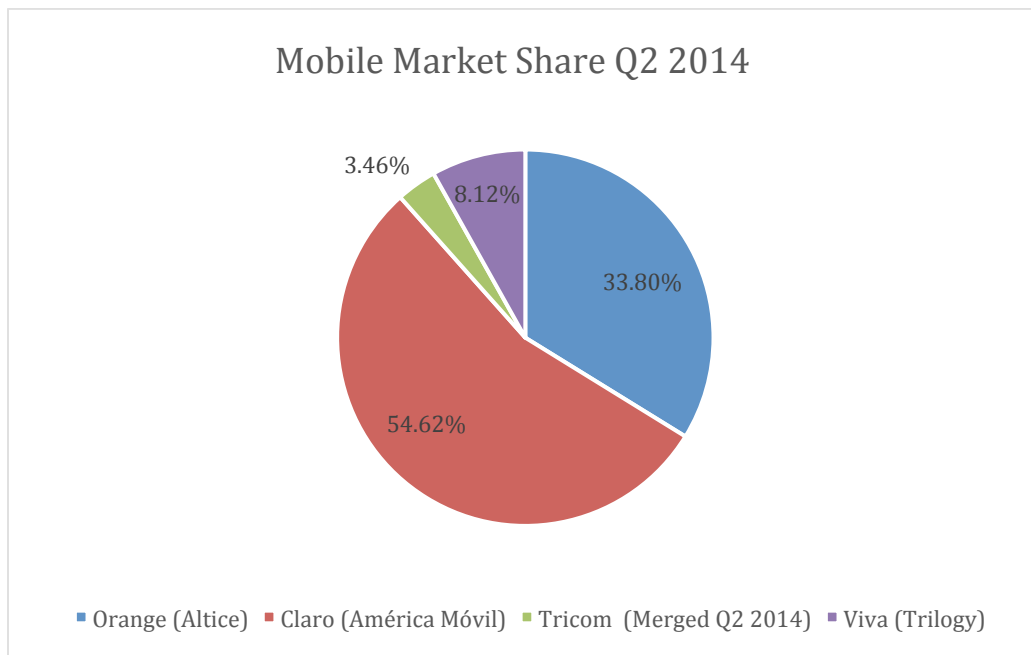

Figure 2: Mobile Market Share Q2 2014 (GSMA)

4.2 BROADBAND INFRASTRUCTURE DEVELOPMENT

Sectorial reform has also provided an enabling environment for the development of broadband infrastructure in the Dominican Republic. In terms of the all-important submarine cables that help link this island nation to the rest of the world, the country is well served by five international fibre cables and 4 different landing points.[11] Indeed, according to a recent World Bank study undertaken to prepare for the Caribbean Communications Infrastructure Programme (CARCIP) project loan, "the submarine cable international connections exist and are not an obstacle for fixed broadband supply."
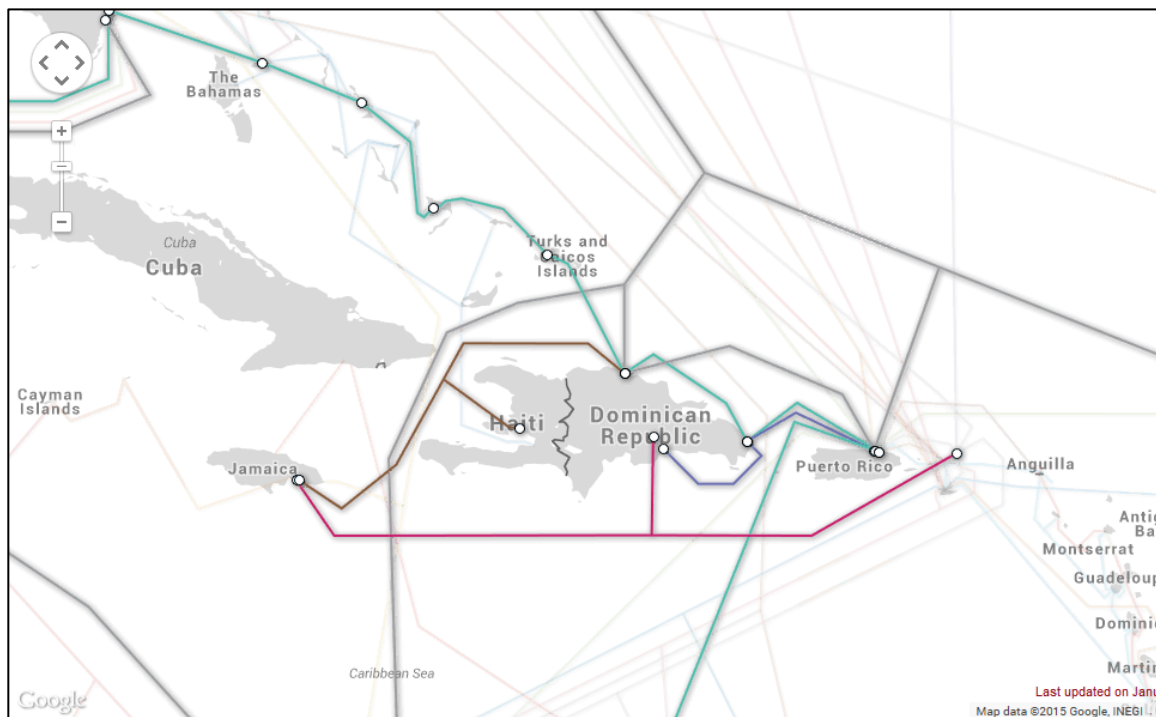

Figure 3: International Cables Map[12]

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[11] The cables are: Antillas 1 owned by AT&T, Verizon, Sprint, Tata Communications, Orange, Columbus Networks, Telecom Italia Sparkle ; ARCOS owned by Columbus Networks, Axtel, CANTV, Codetel, Hondutel, Belize Telemedia, Enitel, AT&T, Alestra, Verizon, RACSA, United Telecommunication Services (UTS),; Telecarrier, Tricom USA, Telecomunicaciones Ultramarinas de Puerto Rico, Internexa, Orbinet Overseas, Telepuerto San Isidro, Bahamas Telecommunications Company; America Movil Submarine Cable System-1 (AMX-1: owned by América Móvil; Fibralink owned by Columbus Networks; East-West owned by Cable & Wireless Communications, Columbus Networks

[12] http://submarinecablemap.com/#/country/dominican-republic

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4.3 NATIONAL TELECOM OPERATOR BACKBONES AND EXTENSIVE 3G

The Dominican Republic's good international fibre connectivity is complemented by an extensive terrestrial fibre optic network, installed by telecom operators Codetel, Orange, Tricom, Trilogy, Wind, Skymax and Columbus. Primarily concentrated around Santiago, Santo Domingo and tourist coastal areas, these networks extend about 3,200 kilometres. The route Puerto Plata – Santiago - Santo Domingo is the most concentrated in terms of capacity. Dots on the map (see Figure 4) represent expansion plans for the network, estimated at some 1,500 additional kilometres of optic fibre.
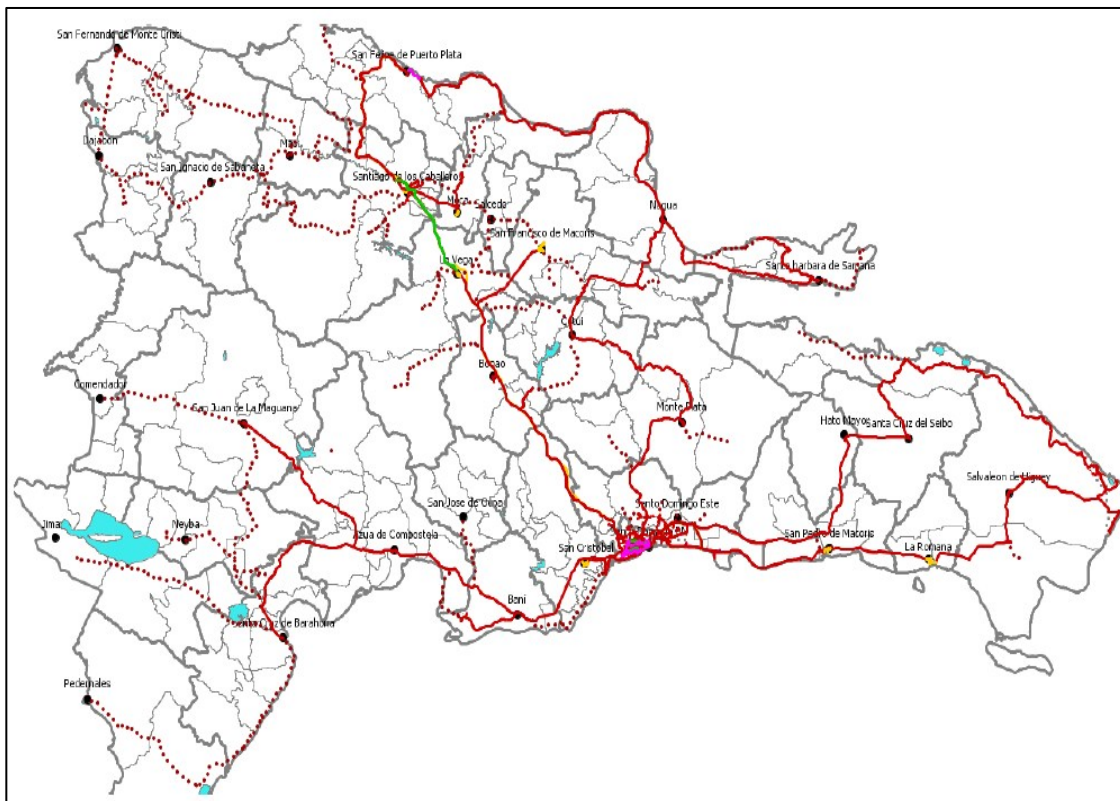

Figure 4: Map of Current Telecom Operator Fibre Network

It is not just telecoms operators that are helping to extend fibre in the Dominican Republic. Some cable TV companies have rolled out fibre optic networks, mainly in the northern part of the island, connecting the touristic areas around small towns. According to INDOTEL reports, the national electrical enterprise ETED has a 48-fibre cable (ITU-TG655) from Puerto Plata - Navarrete

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(Villa Bisonó) and the Network Access Point (NAP) of the Caribbean, as well as a landing station in Santo Domingo. They declared having 540 kilometres of fibre in 2012, and 270 kilometres more in 2013. A private generation company, CPEM, has laid down some 240 kilometres of optic fibre cables (magenta colour on Figure 4) between the NAP of the Caribbean and their electric station in Bávaro, with several branches towards Uvero Alto and Bayahibe.

Although the majority of the population lives within reach of fibre, the concentration of fibre along just a few routes means that a significant portion of Dominican territory does not have fibre connectivity. Extensive third generation (3G) coverage provides broadband access in those areas without fibre. The USF/INDOTEL's Rural Broadband Network Project (2007) incentivised the deployment of 3G mobile phone services in 506 locations that were not previously covered by commercial telecommunication companies. This project helped achieve nationwide coverage rate of 96% of the municipalities; as a result, 3G is accessible to over 90% of the population.[13] The extent of this 3G network has created a huge opportunity to bring universal access to all Dominicans, but 3G usage stats suggest that most Dominicans are not seizing this opportunity for increased access to mobile broadband service.

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[13] A municipality is an administrative division that has local elected governments with some powers of self-government and jurisdiction. Each province is composed of two or more municipalities that might also be further divided into municipal districts. The Dominican Republic has 154 municipalities and 202 municipal districts.

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5. ICT USAGE IN THE DOMINICAN REPUBLIC

5.1 TEN YEARS OF GROWTH

ICT sector competition and good infrastructure have contributed to the development of ICT access and usage in the Dominican Republic. Over the last ten years, the number of fixed telephone lines has increased marginally, with teledensity (number lines per 100 inhabitants), rising from 10.48% to 11.17% between 2003 and 2013. In contrast, mobile phone subscriptions increased significantly, rising from 27% to 94% between 2003 and 2013.
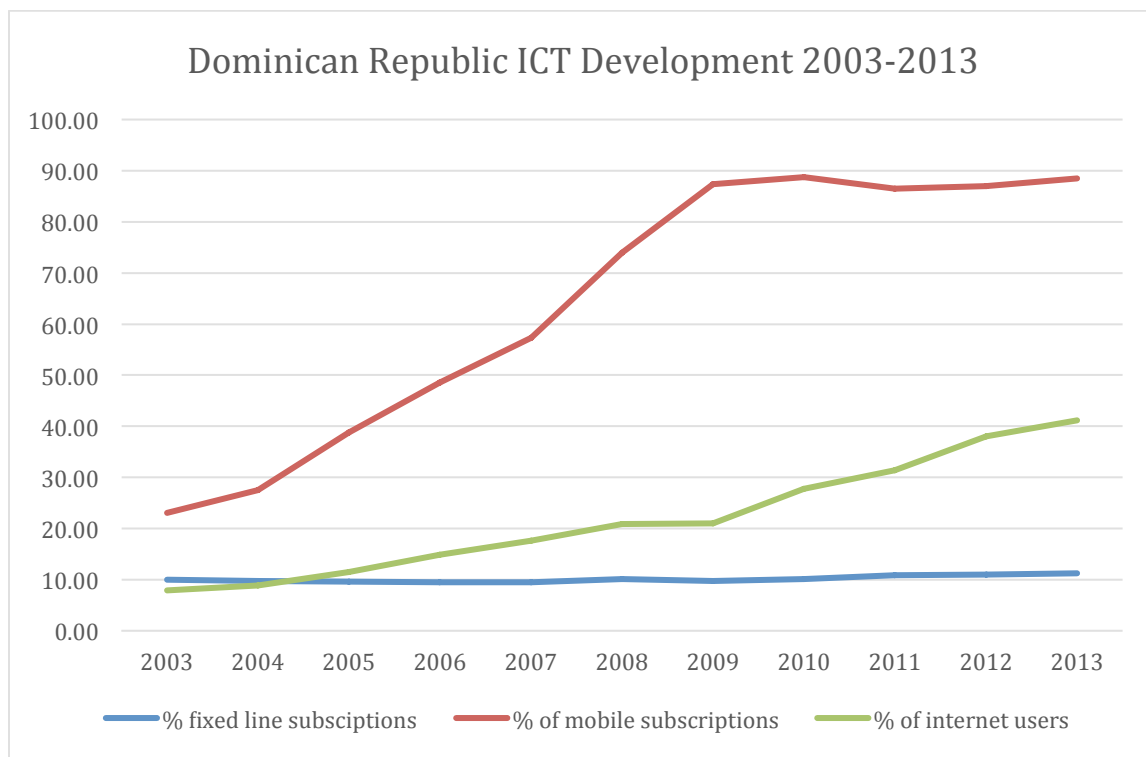

Figure 5: Dominican Republic ICT Development 2003-2013 (ITU)

According to the INDOTEL, Internet penetration (accounts per 100 inhabitants) increased from 1.1% in 2003 to 32.4% in 2013. A 2014 household survey found that 45.9% of Dominicans have used Internet at least once during the last year, and 18.6% of the households have some kind of Internet access — more than 3 times the 2007 rate. While the growth in Internet usage might be considered impressive, the Dominican Republic's Internet usage figure of 45.9% is just

below the regional average of 46.72%, and still some way behind some regional neighbours such as Puerto Rico (73.9%) and Trinidad and Tobago (63.8%).

The contrast between the Dominican Republic and its regional neighbours is even starker when one looks at 3G and 4G usage. In the last 4 years, according to INDOTEL, the mobile data penetration rate has grown considerably, from 3% in 2010 to 30% in 2013. Yet only 37% of mobile data subscriptions are broadband (3G or 4G); the majority use only 2G or EDGE services. In fact, the proportion of 3G subscribers in the Dominican Republic is among the lowest in the region. Dominican ICT stakeholders must find this hard to accept, as they live in a country in which almost 90% of citizens are covered by a 3G signal. Even more concerning is that the growth of 3G appears to have stalled. This appears to be indicative of a general slowdown in the growth and development of the ICT sector.
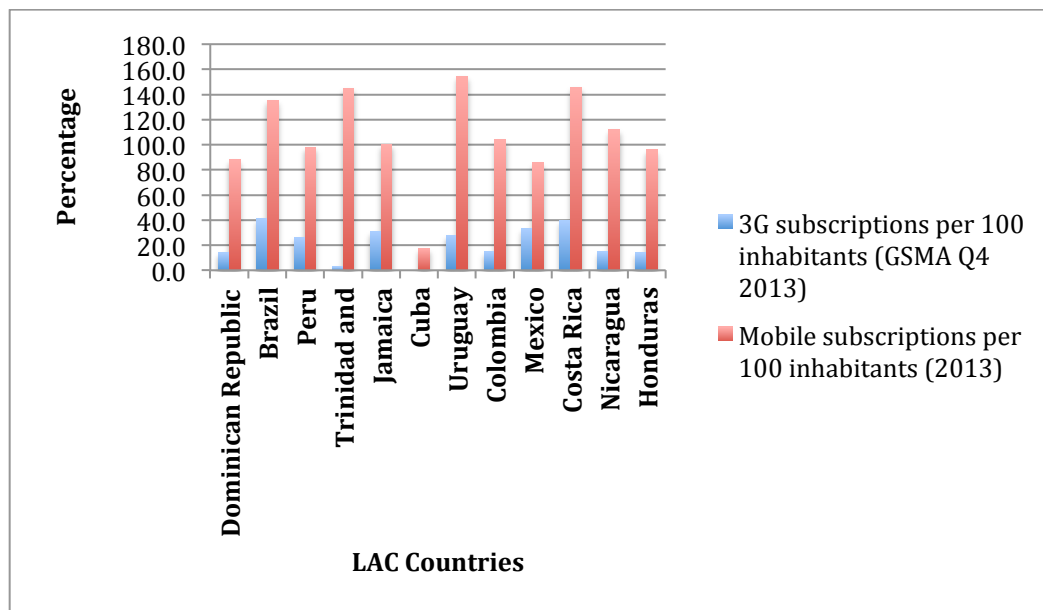

Figure 6: LAC countries mobile and 3G subscriptions (source GSMA)

5.2 THEN CAME THE SLOWDOWN

Global indices — like the ITU's ICT Development Index (IDI), which ranks countries according to their ICT infrastructure and uptake, and the World Economic Forum's Network Readiness Index — have recorded the Dominican Republic's ICT slowdown. The country's IDI ranking has fallen from 95th place in 2011, to 102nd in 2014, while the network readiness ranking has fallen from 66th

in 2006 to 93rd out of 144 countries in 2014. With access less of an issue in the Dominican Republic than in many other developing countries, the relatively low use of 3G and 4G services in the Dominican Republic, and the country's declining rankings in global indices, raises questions as to what barriers to increased access exist and how they might be overcome. These questions must be answered quickly if the Dominican Republic is to halt its regional decline and achieve the goals of the National Broadband Strategy.

6. BARRIERS TO INTERNET AND BROADBAND USE

6.1 PERSISTANT URBAN-RURAL DIVIDE

When looking at the usage challenges, the Dominican Republic's urban-rural divide in access and usage is apparent. According to the ONE 2013 national survey, 52.2% of urban dwellers used the Internet over the course of the year, while only 27.8% of those in rural areas did so. For households, the gap is even wider, with only 6.4% of households connected to broadband in rural areas, versus 22.8% in towns.

The map below, based on INDOTEL's 2011 data, shows the geographical divide between provinces. Most municipalities have fewer than 500 connected homes; just two have more than 100,000 connections. The infrastructure dichotomy also affects businesses, further undermining the Dominican Republic's socio-economic development. INDOTEL data[14] indicates that businesses with Internet accounts are largely concentrated in six of the 32 municipalities, and about half of the municipalities have fewer than 50 connected businesses.
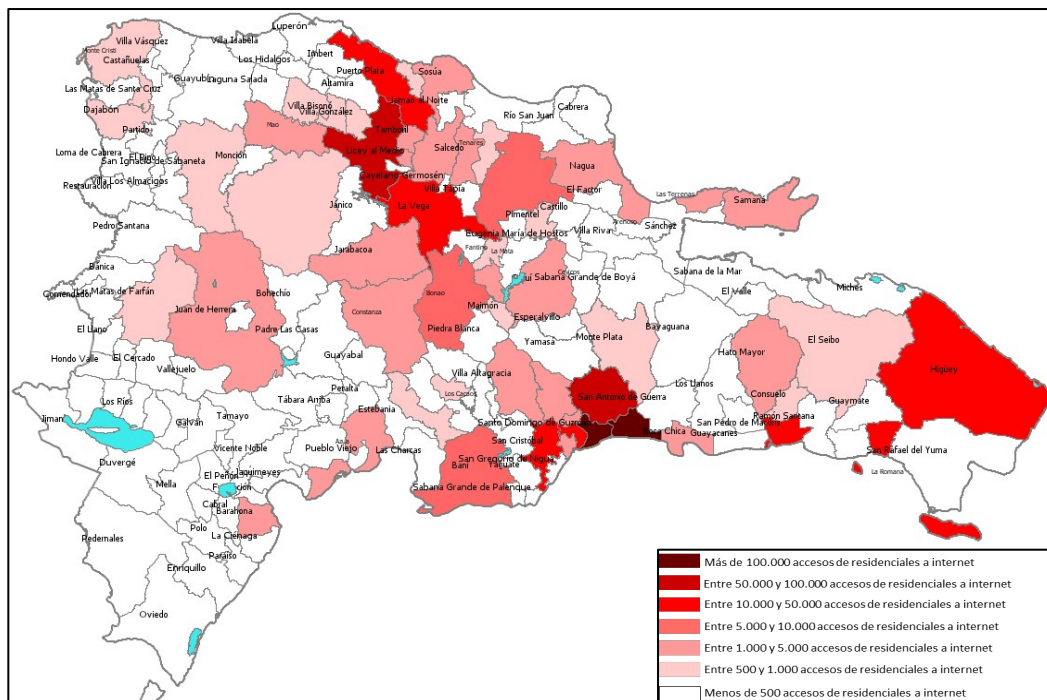

Legend:
- Más de 100.000 accesos de residenciales a internet
- Entre 50.000 y 100.000 accesos de residenciales a internet
- Entre 10.000 y 50.000 accesos de residenciales a internet
- Entre 5.000 y 10.000 accesos de residenciales a internet
- Entre 1.000 y 5.000 accesos de residenciales a internet
- Entre 500 y 1.000 accesos de residenciales a internet
- Menos de 500 accesos de residenciales a internet

Figure 7: Residential Internet Access Numbers in Municipalities, 2011

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[14] Proyecto "despliegue de red de fibra optica en todo el territorio nacional" Perfil básico del proyecto INDOTEL June 2014

6.2 NEED FOR AN INTERNET EXCHANGE POINT (IXP)

The Dominican Republic does not have an Internet Exchange Point (IXP). Establishing an IXP in the country would reduce overall network operation costs, which could lead to a reduction in the cost of services. Dominican stakeholders appreciate the need for an IXP. The NAP of the Caribbean[15], located within the Cyberpark of Santo Domingo, was identified as the natural place to establish an IXP due to the fact that most operator cables terminate in its Meet Point Room. However, the traffic exchange and routing system has not yet been set up. In early 2014, the national research network Red Avanzada Dominicana de Educación e Investigación (RADEI) developed and submitted to INDOTEL a proposal to develop a national IXP[16], but observers suggest this proposal has not been included in bi-annual plans.

6.3 THE TAX BURDEN

Taxation comprises a major proportion of the total cost of ICT ownership — Dominicans p ay a 10% selective tax on any ICT service and an 18% Value Added Tax (VAT).[17]

A range of other taxes and fees negatively affect the cost structures of supply and increase the cost to connect. These include import duties, equipment sales taxes, license costs, and duties on imported telecommunications equipment. Another constrain is the unpredictability of the taxes and levies for rights of way and tower permits that are issued by local municipality governments.

6.4 LIMITED WHOLESALE COMPETITION

A lack of competition in the wholesale market for broadband capacity has also undermined the development of services and constrained Internet access by contributing to relatively high prices. A recent World Bank assessment identified the challenge: Despite strong competition at the retail broadband level, there is little competition for wholesale broadband capacity and where competition is limited, connection prices are relatively high. The report noted that:

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[15] NAP del Caribe: http://napdelcaribe.net.do/

[16] Propuesta para la Creación de un Internet Exchange Point (IXP), document shared privately by RADEI director.

[17] The Selective Tax on Consumption applies to the transfer of some goods of national production at the manufacturing level, as well as their importation, and the rendering of telecommunications, insurance services, and the payment by check or wire transfers.

"In March 2014, the NAP of the Caribbean offered wholesale high speed Internet at US$125 for each Mbps of symmetrical speed (i.e. equal speed for uploading and for downloading). However, in most municipalities this service is offered by a single provider, for about US$500[18]; the difference in price between the NAP and the average municipality is due to national transmission (or backbone) costs; in most municipalities there is no competition in this network segment. In the national fixed broadband market, the incumbent[19] holds more than half of the market and there is not a strong additional player.[20]

6.5 THE RELEVANCE OF AFFORDABILITY

In addition to the challenges noted above, it is important to understand the primary reasons why people are not using broadband Internet. Surveys conducted by the National Statistics Office show that accessibility (distance or service availability) accounts for only 1.5% of the recorded responses, as one would expect in a country with good infrastructure. The most common reason recorded in a 2013 household survey is a lack of knowledge surrounding the use of computers or Internet navigation (51%). About 29% responses are related to issues of affordability — respondents did not have an Internet-enabled device, cited a lack of money for a device or services, or noted that the Internet was too expensive.

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[18] Information provided by the late Engineer Alvaro Nadal, pioneer of the country telecommunications sector and head of the NAP until he passed away in December 2014.

[19] The incumbent in the Dominican Republic is Claro. It is the former monopolistic operator and has about half of the market share in most of the main retail services.

[20] *Dominican Republic JIT Policy Notes 2013*. World Bank, 2013.
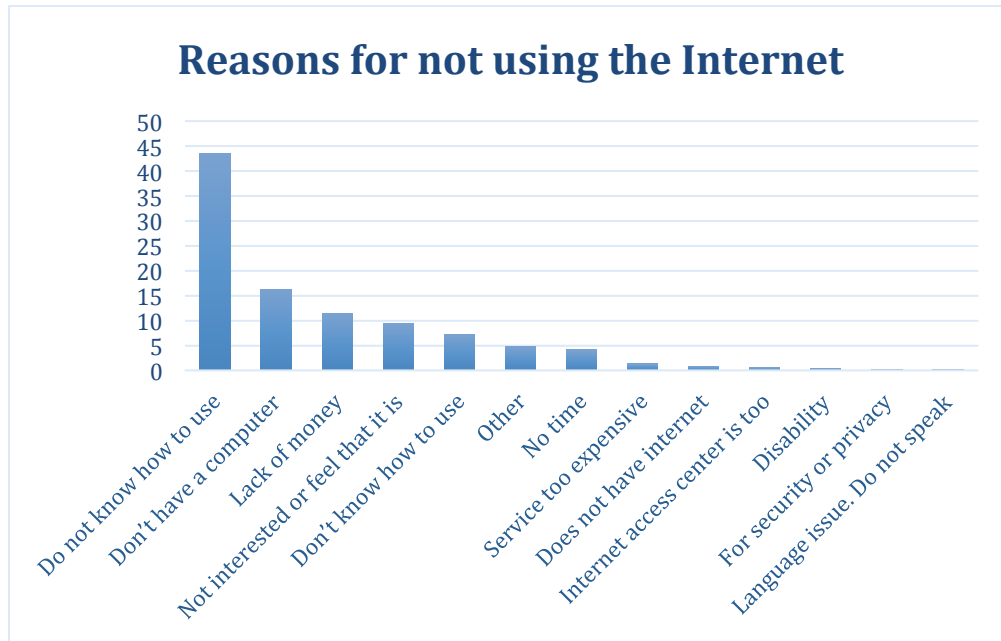
Reasons for not using the Internet

Figure 7: Reasons for not using the Internet (ENHOGAR 2013 Survey)

Clearly, as policy makers in the Dominican Republic work to develop further the E-Dominicana National Broadband Strategy further, issues related to demand stimulation must be central. Measures must be taken to ensure that Dominicans know how to use Internet and broadband services, understand the potential benefits, and can afford access.

6.6 AFFORDABILITY IN FOCUS

A deeper assessment of affordability in the Dominican Republic indicates that, like many Latin American countries, the Dominican Republic has made significant progress in the last decade. However, it cannot rest on its laurels. An unlimited fixed-broadband package in the country costs 4.54% of GNI per capita, which means that the cost of fixed broadband is now lower than the UN target of 5% of GNI per capita, and just below the regional average 2014 (4.6%).

Details of the Fixed-broadband sub-basket	Rank	as % of GNI p.c.	USD	PPP$	Speed in Mbit/s	Data cap
Fixed-broadband sub-basket, 2013	94	4.54	21.28	40.86	1	Unlimited

Mobile broadband prices (postpaid handset-based 500 MB package) represent an average of 3.95% of GNI per capita; the prepaid 500MB package is 6.8% of GNI per capita. This represents a significant reduction from last year's rate of 26.1%. Computer-based mobile broadband prices fell from 47.7% of GNI per capita to 3.95% between 2013 and 2014, while prepaid fell from 106% to 7.09% of GNI per capita. The high cost of prepaid mobile broadband services is a serious concern when you consider the fact that 83% of the country's mobile users are prepaid consumers.

Dominican Republic in 2014 MIS	IDI rank	as % of GNI p.c.	USD	PPP$	Monthly data allowance (MB)
Mobile-broadband prices, postpaid handset-based 500 MB, 2013	101	3.95	18.5	35.53	1,536
Mobile-broadband prices, prepaid Handset-based 500 MB, 2013	108	6.8	31.84	61.15	2,800

6.7 AFFORDABILITY FOR LOWER INCOME POPULATIONS

For those focused on affordability and increasing access, the Dominican Republic's MIS 2014 ranking for fixed and mobile entry-level services can be misleading, and has the potential to undermine efforts to create widespread affordability and usage. The GINI coefficient for the Dominican Republic was 45.7 in 2012, according to the World Bank data. If one looks closely at the MIS 2014 data, it appears that fixed broadband prices are still more that 5% of household disposable income for 70% of Dominican households. This figure rises to 80% of households with respect to mobile broadband.

For the poorest 20% of Dominican households — the ones with arguably the most to gain from Internet access — a fixed broadband package represents 21.16% of household disposable income. The data is even more concerning when we assess entry-level mobile broadband — the primary means of access for most Dominicans. An entry-level package would cost the poorest 20% of households 31.66% of their disposable income.

It is interesting note that, using the UN target of 5% of GNI per capita as a measure, only 20% to 30% of Dominicans can afford fixed or mobile broadband services. This suggests that subscriptions to broadband services are approaching

saturation at the current price point for entry-level services. Shared access will remain an option, and most Dominicans do access the Internet through shared access points. The National Statistical Office notes that only 27.6% of the population uses the Internet at home, 12.6% do so at work, and most access the Internet at a cybercafé (28.3%). Services will need to become affordable to the majority of population if the accessible and affordable broadband envisaged in the National Broadband Strategy is to become a reality.

MIS 2014 data	Average	Lowest 20%	Highest 20%	% households for which cost < 5% household income
Fixed-broadband prices as a percentage of household disposable income	4.94	21.16	1.87	30
Prepaid handset-based mobile-broadband (500 MB/month) prices as a percentage of household disposable income, 2013	7.39	31.66	2.8	20

Figure 8: Price of Pre-paid Mobile Broadband as % of Disposable Income for the Lowest 20% of HH

7. CHALLENGES, OPPORTUNITIES AND THE WAY FORWARD

Dominican stakeholders, including INDOTEL, are conscious that to build a resilient and competitive economy, improve the country's global competitiveness, and achieve social development there is an urgent need to re-formulate new sector policies and regulations. This revised policy and regulatory environment must enable and promote the development of a strong ICT sector that delivers innovative and affordable ICT services.

In 2014, the National Commission for the Information and Knowledge Society has engaged stakeholders for the redrafting of the national ICT strategy, and technical management of INDOTEL is working on a more specific National Broadband Plan. A parliamentary commission has been created to review the telecommunications law, but has not yet delivered a new text. These forthcoming changes offer a unique opportunity to put broadband, and those issues that undermine broadband affordability and access, at the heart of new policies, regulations and legislation.

INDOTEL has identified some of the key challenges to access and affordability. These include the need to:
- Increase ICT access, and broadband access in particular, to larger segments of the population;
- Expand and upgrade the basic telecom infrastructure, while rationalising the usage of existing infrastructure;
- Increase market competition for better services and affordability;
- Improve quality of services that once were a standard for the region;
- Adopt policies and regulations that reflect the new generation of converged services;
- Improve consumer rights and awareness;
- Simplify the processes for market players; and
- Review current ICT sector fiscal arrangements to determine whether they incentivise investment and do not undermine efforts to generate public finances.

Some recently approved projects under the FDT Universal Service Fund will work to address some of these challenges. These projects include the implementation of a new strategy to introduce 200 community centres focused on local development, as well as a project to deliver a subsidy to poor households that will enable them to receive ICT training and pay for monthly broadband connectivity. A systematic review of past FDT projects to look at the

contribution of these projects to ICT penetration, connectivity, usage and affordability, and to shed light on lessons learned in their implementation, would also be welcomed. This review would identify the best strategies for the future, enabling the FDT to continue what has been effective and to revise or stop those mechanisms that have not produced the expected results.

The official signing of a Memorandum of Understanding between A4AI and INDOTEL in September 2014 and accompanying presentation of key affordability provoked strong reactions among key market stakeholders in the Dominican Republic. This led INDOTEL to create an internal commission to review the data and issues surrounding ICT service pricing and affordability. A4AI's work with INDOTEL also presents an opportunity for the Dominican Republic to develop a strong multi-stakeholder coalition that will support INDOTEL's development of strategic and regulatory outputs designed to make services more affordable.

In addition to A4AI support, the Dominican Republic is also receiving support from the World Bank that should contribute to infrastructure development, as well as developments in the policy and regulatory environment and innovative services. In September 2014, a new broadband project was approved.[21] It will be implemented with a $US30 million[22] from the World Bank regional CARCIP project.   The project should "increase access to regional broadband networks and advance the development of ICT-enabled services in the Dominican Republic and in the Caribbean Region," and is set to "contribute to the END target of reaching 80% of Internet penetration by 2030" by "making ICT more accessible to remote rural areas." The project also looks to "facilitate the development of an IT industry that allows for the country to diversify its economy," "to contribute to emergency national plans with a more resilient regional infrastructure and an emergency communications network that allows the Government to be more responsive," and to "improve government efficiency, transparency, and access to services enabling the development of e-government and e-society applications." The project has a connectivity infrastructure component (up to US$25 million) that includes assistance for both an "Enabling

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[21] The project was already announced for 2010, see Indotel anuncia nuevo proyecto de banda ancha http://elnacional.com.do/indotel-anuncia-nuevo-proyecto-de-banda-ancha and "Capilaridad de Fibra Óptica para áreas no servidas en República Dominicana" http://www.indotel.gob.do/index.php/cgblog/1227/La-inversion-estimada-del-proyecto-Capilaridad-sera-RD-118-8-millones

[22] See http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/LCR/2014/05/27/090224b0824a4eba/1_0/Rendered/PDF/Project0Inform0nican0Rep0000P147483.pdf

Environment" (US$1 million), as well as an "Open Innovation Hub" (US$3.5 million) component. It is expected that the revised National Broadband Plan will be finalised soon under this project umbrella.

KEY QUESTIONS FOR THE FUTURE

- Will the revised E-Dominicana Strategy place issues of relevance and affordability at its centre?
- Will the country's Universal Service Fund (FDT) improve its record of project implementation impact and sustainability?
- Will shared access and open access be used to create competition in the wholesale broadband market?
- When will the National Broadband Plan be finalized and will it include an implementation plan and accurate budget?
- What monitoring and evaluation mechanisms will be used to assess the implementation of the plan?
- Will competition be reduced in the mobile market after the merger of the 2nd and 3rd mobile operators?
- Will the subsidy mechanism for household broadband access be effective and will it reach those who most need it?
- Will the IXP become a reality and push broadband wholesale market prices down?
- Would a fiscal review and reform lead to the reduction of taxes on ICT services, and increase usage and the tax revenues?
- How can taxes and levies from local governments become more predictable for telecom operators?

ABOUT THE ALLIANCE FOR AFFORDABLE INTERNET

Launched in October 2013, the Alliance for Affordable Internet (A4AI-www.a4ai.org) is a global coalition committed to driving down the cost of Internet access in less developed countries.

A4AI focuses on creating the conditions for open, efficient and competitive broadband markets via policy and regulatory reform. Through a combination of advocacy, research and knowledge sharing, the Alliance aims to facilitate the achievement of the UN Broadband Commission target of entry-level broadband services priced at less than 5% of average monthly income. In doing so, A4AI will help to connect the 60% of people in developing countries who currently cannot access the Internet.

A4AI's 70+ members and local partners are drawn from both developed and less developed countries and include public, private and not-for-profit organisations. The World Wide Web Foundation, founded by Web inventor Sir Tim Berners-Lee, initiated the Alliance. Members include Google, USAID and the UK DFID.

For more information, visit: http://www.a4ai.org