

Cuba's Readiness for ICT Transformation:

Executive Summary

July 2015

Shortly after President Barack Obama's announcement on December 17, 2014, that the United States sought to normalize relations with Cuba, the White House released a document citing telecommunications as a key sector where improved ties could prove especially beneficial. Since then, investor interest in the communist island's ICT sector has surged. Yet, much of the euphoria appears at odds with the reality on the ground. Consider Netflix's statement that its online video service will be offered to "Cubans with Internet connection and access to international payment methods."¹ The reality is most Cubans don't have access to Internet at speeds sufficient to enable video streaming, and almost no one on the island has a credit or debit card to pay for the service.

This report clarifies the state of Cuba's ICT infrastructure and assesses the country's prospects as a destination for ICT investment. It is the result of four months of intensive research, which included on-the-ground interviews with dozens of Cuban entrepreneurs and officials in numerous state ministries; quantitative analysis; a survey of 317 Cuban IT professionals conducted from May 18-26, 2015; and government documents that have either been leaked onto the Internet or provided to **Nearshore Americas** for publication for the first time. Although Cuba's private sector ICT market is at a formative stage that prevents compound annual growth rate forecasts, this study provides a rigorous assessment of Cuba's present ICT infrastructure, Cuba's IT talent pool, and likely pathways for ICT development from mid-2015 through 2018.

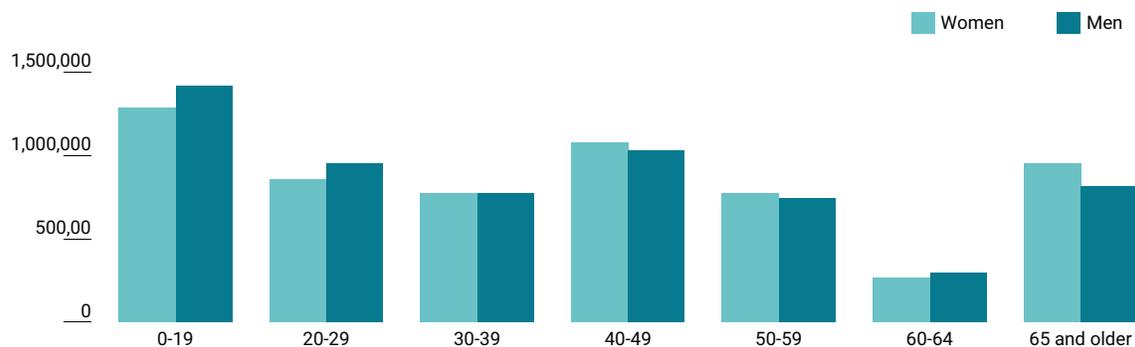
¹ *Business News Americas*, "Can Netflix succeed in Cuba?" 9 Feb 2015:
<http://www.bnamericas.com/news/technology/can-netflix-succeed-in-cuba>



Background Information and Recent Reforms

Cuba's overall demographics paint a mixed picture. Due to a relatively low birth rate and a steady outflow of immigrants – especially young adults – the Cuban population has stagnated around the present level of 11.2 million over the last decade. Based on the current trend, sometime around 2025-2027 the Cuban population will begin shrinking, as the number of deaths will surpass births. Further decreases in the total population are expected for all age groups except for those 60 and over. Cuba suffers from the steady outflow of its working-age population. Every year in the last decade, 45,000 Cubans left the island, principally for another country in Latin America, the United States or Spain.

Average population by age, sex



Source: *Oficina Nacional de Estadística e Información: Edición 2014*, http://www.one.cu/aec2013/esp/03_tabla_cuadro.htm

After formally assuming power from his brother in 2008, Raul Castro began introducing piecemeal reforms to liberalize the economy, including more than 300 measures designed to encourage private enterprise on the island in 2011. The number of private business licenses has increased. The authorization of private real estate sales, first among Cubans in 2011 and on a more limited basis to non-U.S. foreigners in 2014, sought to draw in foreign cash, either directly by foreign investors or through the Cuban diaspora funding purchases of a second home by their relatives on the island.

Yet, these reforms have failed to produce the desired result. Foreign investment to Cuba probably declined in the years leading up to the December 17 announcement. For their part, many Cubans are wary of applying for the private business licenses; two frequently cited reasons are limits on the number of employees make scaling up difficult and steep tax rates. Instead, many prefer to ply their trade on a freelance basis while keeping their state jobs.

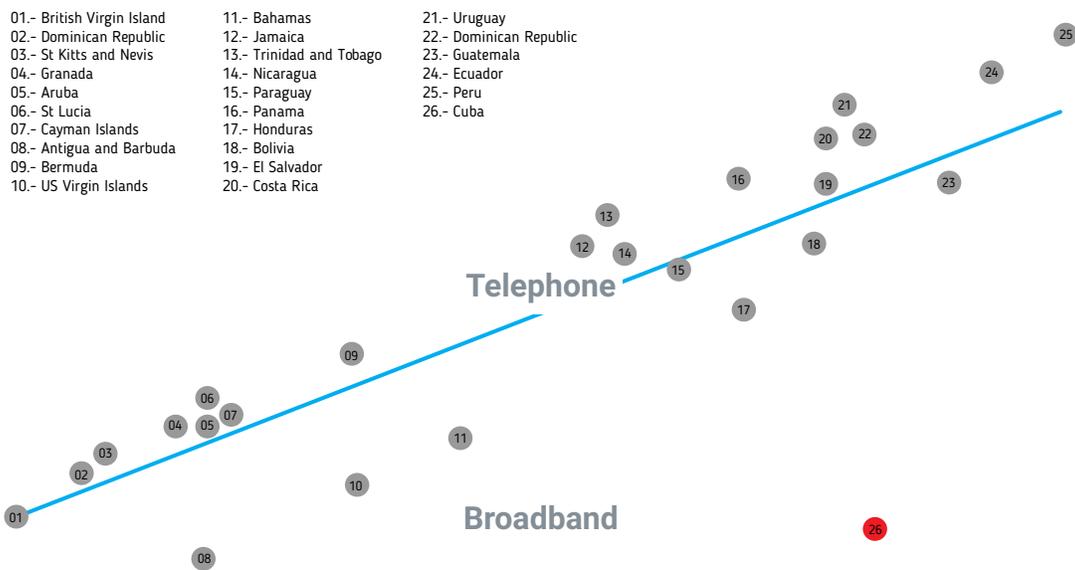
¹ Business News Americas, "Can Netflix succeed in Cuba?" 9 Feb 2015: <http://www.bnamericas.com/news/technology/can-netflix-succeed-in-cuba>



ICT Infrastructure

Cuba's fixed-line telephone network is on par with that of other large Caribbean islands and many other Latin American countries. However, Cuba's poor connectivity, slow Internet connection speeds and high costs combine to make the country an outlier in the region.

Fixed-line subscriptions



Source: Computation based on data from ITU

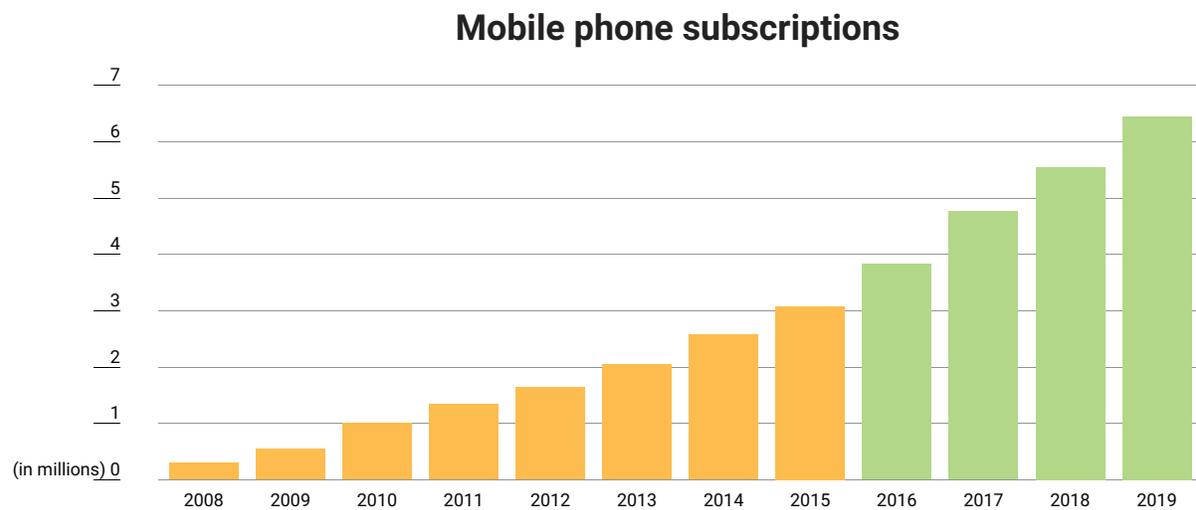
Today less than 4% of Cubans enjoy legally authorized Internet connections in their homes. Most Cubans who do access the Internet do so from work or school. A combination of high costs, blocked sites and monitoring drives most Cubans to forego connecting to the global Internet, instead accessing a domestic intranet with limited offerings.



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However, there is one notable exception to the government's reform agenda, and it deals with telecoms. In 2008, the government allowed Cubans to own mobile phones with a pre-paid subscription, and shortly thereafter it permitted mobiles to be included in gift parcels sent from the United States. This jump-started mobile telephony on the island. Since then, the number of mobile phone subscriptions on the island has increased tenfold, rising from only 300,000 to surpass the 3 million mark in May 2015.



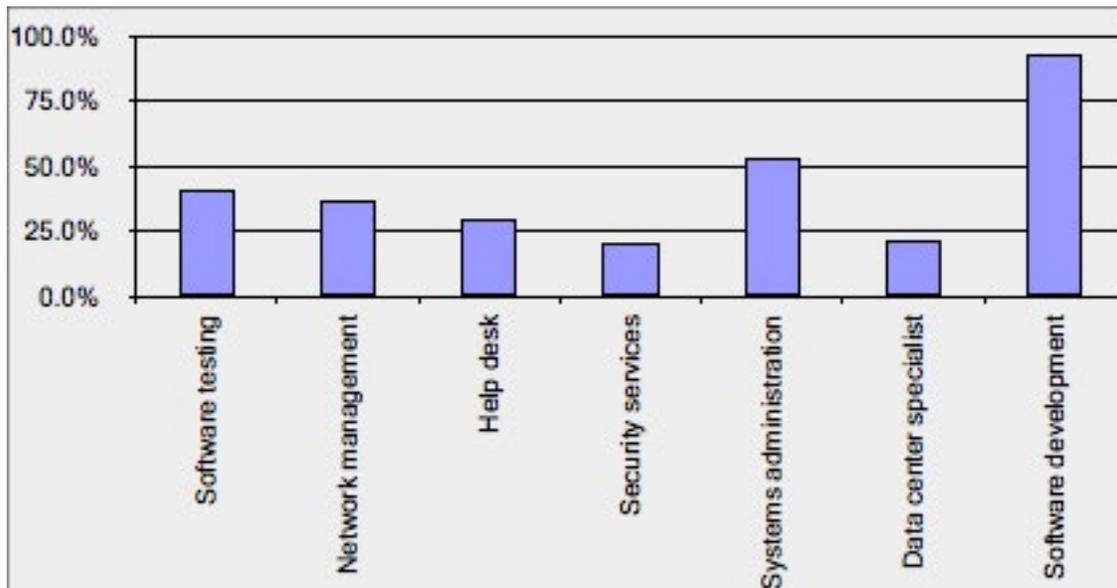
Source: *Various, Juventud Rebelde, TeleGeography*



Workforce Strengths

The central paradox of IT in Cuba is that poor connectivity exists alongside a highly educated workforce. More than 45% of respondents to our survey reported accessing the Internet from work at a connection speed of 1Mbit or less. Still, Cuba's IT talent pool likely ranges in size from 25,000-100,000 workers. And they boast a formidable set of talents, from software testing to network and software development.

What type of IT activities do you specialize in? (Mark all that apply.)



Source: *Nearshore Americas, Encuesta sobre Tecnologías de la Información y las Comunicaciones (TIC) en Cuba.*

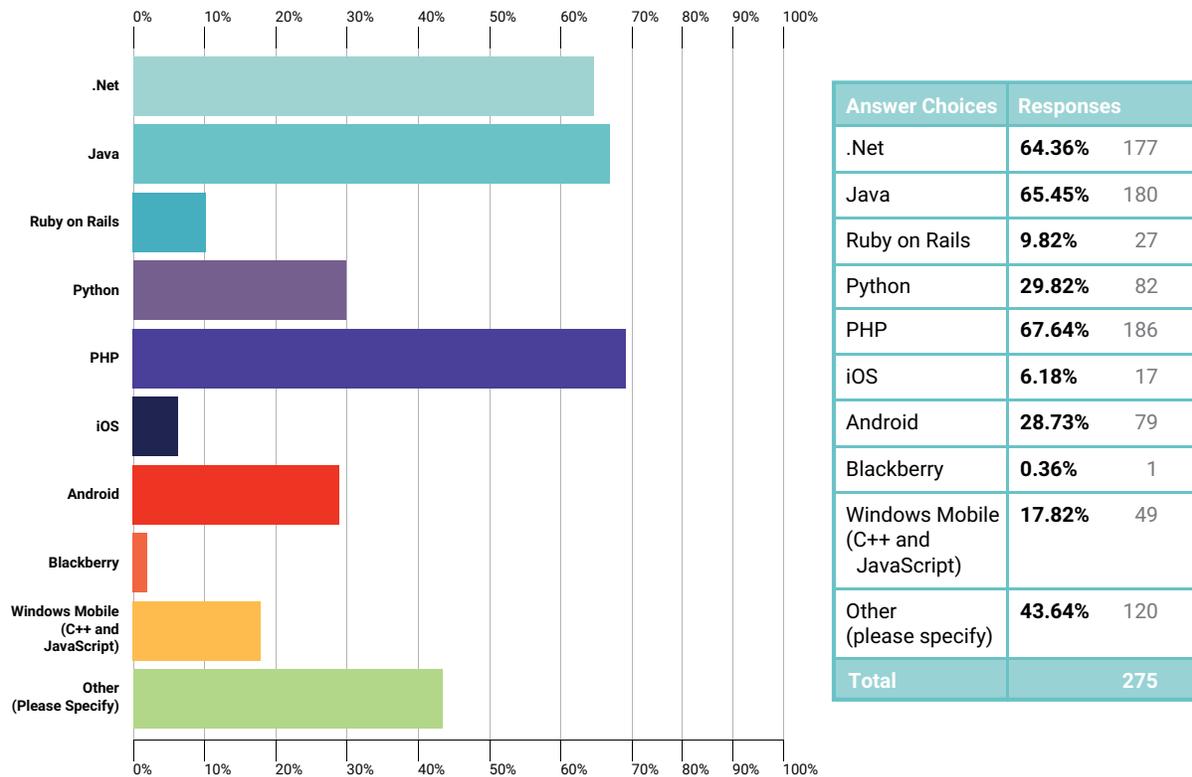
Over half of the Cuban IT professionals we surveyed reported working with a foreign company as a client. Cuba programmers are proficient in an impressive array of programming languages.



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Software Developers: What programming language do you specialize in?



Source: Nearshore Americas, *Encuesta sobre Tecnologías de la Información y las Comunicaciones (TIC) en Cuba*.

Cuban programmers deliver these services for an average salary of about \$500 a month, significantly more than the wage of the average Cuban but also far below the prevailing global wage for programmers. Cuban programmers offer an opportunity for wage arbitrage for global outsourcers, though they lack the ability to significantly scale up deliverables for contracts and, given the poor connectivity, few Cuban programmers are able to work in Agile.

Cuba's opening as an outsourcing destination hinges on the country's large STEM-trained workforce, which includes thousands of world-class software programmers. On the basis of our survey findings, we believe that Cuba possesses the largest surplus of IT talent in the Americas.



Forecasts

In the near term, the Cuban government will remain in firm control of the pace of Internet modernization. The state-run telecom provider ETECSA is in the process of installing a fiber optic backbone that will reach out to over 20 towns across the island, and as it solves “last mile” challenges, more Cubans will gain regular access to the Internet. Improvements in connectivity will come slow for now, a result of setbacks in ETECSA’s execution of the rollout, the company’s need to balance greater access with ongoing revenue (ETECSA is a major source of income for the Cuban government), and the government’s overarching insistence on monitoring how Cubans will utilize Internet access.



In 2016 and beyond, we forecast an opening economy. In the context of the IT outsourcing sector, this will be an atypical opening, not driven by back-office operations but instead by Cuba’s software programmers. These programmers are already forming developer groups in Havana and the tech hub of Villa Clara. Presently, members of these developer groups reach clients abroad through a limited array of websites, but they are gelling into networks capable of delivering on a broader package of tasks. They also include an understanding between members of share structures and the responsibilities of executive officeholders, in preparation to emerge as a corporation once the time is right.

A key variable in the positioning of the island as a Nearshore destination is the Cuban diaspora. Although the present number of IT professionals residing on the island numbers in the range of 25,000-100,000, the overall Cuban talent pool is probably many times larger. For one, many Cubans with coveted tech skills have taken advantage of loosened travel restrictions to go abroad in recent years. Many are cooling their heels in the Americas, hashing out plans for a return to the island. The Cuban diaspora could return with capital from working and making connections abroad, business skills honed by the competitive global environment, and a local’s eye for finding the right location and time to make a move.