Gigabit connectivity fueled by fiber-to-the-home broadband networks or comparable technologies is essential for the economic development and sustainability of Puerto Rico. Communities throughout the U.S., such as Chattanooga, TN, Cedar Falls, IA, Kansas City, MO, and across many development economies, have developed gigabit connectivity to every home and business and are harvesting the economic benefits of such network investment. Benefits take the form of business expansion and creation leading to new employment opportunities and optimizing the use of online resources to support schools, healthcare providers, government institutions, and existing businesses. The result of such investments is greater employment opportunities, local tax revenues, and increased overall value to the community, including real estate values.

The Puerto Rico Broadband Taskforce – a public-private partnership bringing together an array of bipartisan Puerto Rico broadband stakeholders – believes that it is imperative for Puerto Rico's economic sustainability to aggressively join the ranks of the gigabit community. Fueled by this belief, the *Gigabit Island Plan* establishes an ambitious vision for broadband expansion across Puerto Rico over the next five years.

The *Gigabit Island Plan* calls for 99% of households having access to broadband at speeds of at least 10 Mbps and 70% of households having access at speeds of 1 Gbps by the end of the decade. To help meet these ambitious goals, the *Gigabit Island Plan* builds upon the 2*012 Broadband Strategic Plan*, evaluates Puerto Rico's current broadband landscape and trajectory over the last 5 years, and proposes revised and new strategic policy recommendations for continued expansion of both public and private broadband network investment. The Plan also encourages expansion of broadband adoption and use among Puerto Ricans that remain disconnected as well as expansion of gigabit connectivity to all schools across the island, a key sector prone to benefit greatly from online resources and connectivity.

Since the release of the *2012 Broadband Strategic Plan,* the private sector has significantly invested in broadband infrastructure across Puerto Rico. As of June 2014, 77.8% of households have access to broadband of at least 10 Mbps download and 1.5 Mbps upload speeds, up from only 24.5% in 2011. And, whereas no household had broadband available at speeds of 100 Mbps in 2011, by June of 2014, 52.9% of households had access available at that speed. Further, 99.9% of households have access to mobile broadband speeds of at least 3 Mbps download and 768 Kbps upload. Thanks to this growth, the Puerto Rico broadband landscape has met, and in some cases surpassed, many of the infrastructure goals established in the *2012 Broadband Strategic Plan*.

Building a Gigabit Island

Encouraged by these developments and based on experiences gained over the last 5 years, the *Gigabit Island Plan* examines key policy initiatives underway to help streamline broadband expansion. The Plan highlights initiatives that have helped drive this growth, such as Claro's partnership with the Federal Communications Commission to expand broadband to rural areas of the island or the Corredor Digital, a local public-private partnership that utilizes broadband to revitalize and transform the former San Juan Theater District into a sustainable economic development model. The *Gigabit Island Plan* also assesses new fiber-to-the-home projects underway such as Vía Digital, a public-private partnership which aims to leverage unused streetlight conduit systems to deploy fiber; ZUM Fiber, a public project to deploy fiber leveraging Puerto Rico's sewer and aqueduct system; or Optico Fiber, a private venture emulating the business model of Google Fiber in Puerto Rico.

To cultivate additional growth toward achieving Gigabit Island goals, the Plan proposes and revises strategies for both public and private stakeholders. Key recommendations include:

- Continue and expand Island-wide broadband mapping;
- Monitor, measure, and assess the impact of broadband across the Puerto Rico economy
    - Measure and publish aggregate, industry-wide data regarding broadband investment trends;
    - Measure and publish aggregate broadband use patterns;
    - Adjust Puerto Rico economic indicators to estimate and monitor the impact broadband has on the overall economy;
- Lower the costs of broadband build-out through community and provider collaboration
    - Streamlining construction permitting and planning;
    - Ensuring ready and cost-effective access to poles, ducts, conduits, and rights-of-way, both privately and publicly owned;
    - Leveraging existing public assets to incent public and private broadband expansion;
    - Advancing effective "Dig Once" legislation;
- Promote public-private partnerships to stimulate local demand and expand market opportunities;
- Leverage federal support for broadband expansion; and
- Stimulate broadband adoption to encourage further investment.

The Broadband Adoption Challenge

Key among these recommendations is the promotion of demand growth for broadband services, an ongoing challenge for Puerto Rico. Residential broadband adoption (home subscription to broadband service) in Puerto Rico has significantly grown since 2010 from 31% to 46% in 2014. By comparison, home broadband adoption across the United States grew by just 4 percentage points between 2010 and 2013. Despite Puerto Rico's recent rapid market growth, broadband adoption significantly lags behind U.S. rates where, on average, 70% of households subscribe to broadband.

Broadband adoption is particularly attenuated among certain demographic groups including low-income households, senior citizens, adults with disabilities, and adults with less education. The barriers to adoption among these groups are consistently affordability of broadband service and/or the digital device, relevancy of online resources, and lack of digital skills. While no silver bullet exists to address digital inclusion challenges among these populations, closing the adoption gap is vital for Puerto Rico to become the Gigabit Island as envisioned. The *Gigabit Island Plan* reinforces policies aimed to expand adoption identified in the *2012 Broadband Strategic Plan*. Key recommendations include:

- Continue to expand public digital literacy and workforce development programs by leveraging existing community resources and garnering support from national non-profit organizations and public institutions such as the University of Puerto Rico campuses;
- Leverage existing online digital literacy curricula in order to sustain resources, both personnel and monetary;

- Maintain targeted awareness campaigns promoting the benefits of online resources across vulnerable populations and supplement this communication with in-person, on-the-ground outreach from familiar and trusted community organizations; and
- Encourage the private sector – in partnership with public agencies including the Public Housing Authority, the Special Communities Administration, the Department of Labor, Economic Development, and the Department of Family Affairs – to establish programs that offer basic broadband service at discounted prices to the most vulnerable populations in Puerto Rico.

Gigabit Capacity to Puerto Rico Schools

The *Gigabit Island Plan* finally examines the broadband landscape across Puerto Rico's K-12 education system, evaluating the Puerto Rico Department of Education (PRDE) 5-year technology plan, and federal initiatives to support high-speed connectivity to schools, such as the FCC's E-rate program and President Obama's ConnectED program. The *Gigabit Island Plan* provides strategic recommendations to meet the various goals established under these programs and outlines the various implications of these programs on Puerto Rico's broadband ecosystem. Key recommendations include:

- The Telecommunications Regulatory Board, Puerto Rico Office of the CIO, and Puerto Rico Broadband Taskforce should collaborate with Puerto Rico's Department of Education to support its annual assessment of the Department's Technology Plan goals and progress. Support could include:
  - o Conducting an independent annual inventory of fiber optic availability to public and private schools across Puerto Rico; such inventory should be reflected in publicly available, easy-to-use maps; and
  - o Conducting an independent annual inventory of the broadband capacity contracted across Puerto Rico schools, including capacity to the premise and wireless capacity per student and staff at each institution.
- Puerto Rico should support the financial needs of the Department of Education to ensure adequate funding to meet broadband expansion plans, including the necessary match funds to meet E-rate program funding rules.
- Broadband stakeholders, including the Telecommunications Board, the CIO's office, and the Puerto Rico Broadband Taskforce, should support the PRDE and other eligible entities to ensure they effectively leverage E-rate and other federal funding opportunities.
- Public and private broadband stakeholders, including the Telecommunications Regulatory Board, Puerto Rico Office of the CIO, and Puerto Rico Broadband Taskforce, should work with the PRDE to evaluate its IP topography structure and assess whether a less centralized, more regional approach can result in a more efficient competitive offering that helps rein in the cost of meeting the new, ambitious PRDE broadband targets.