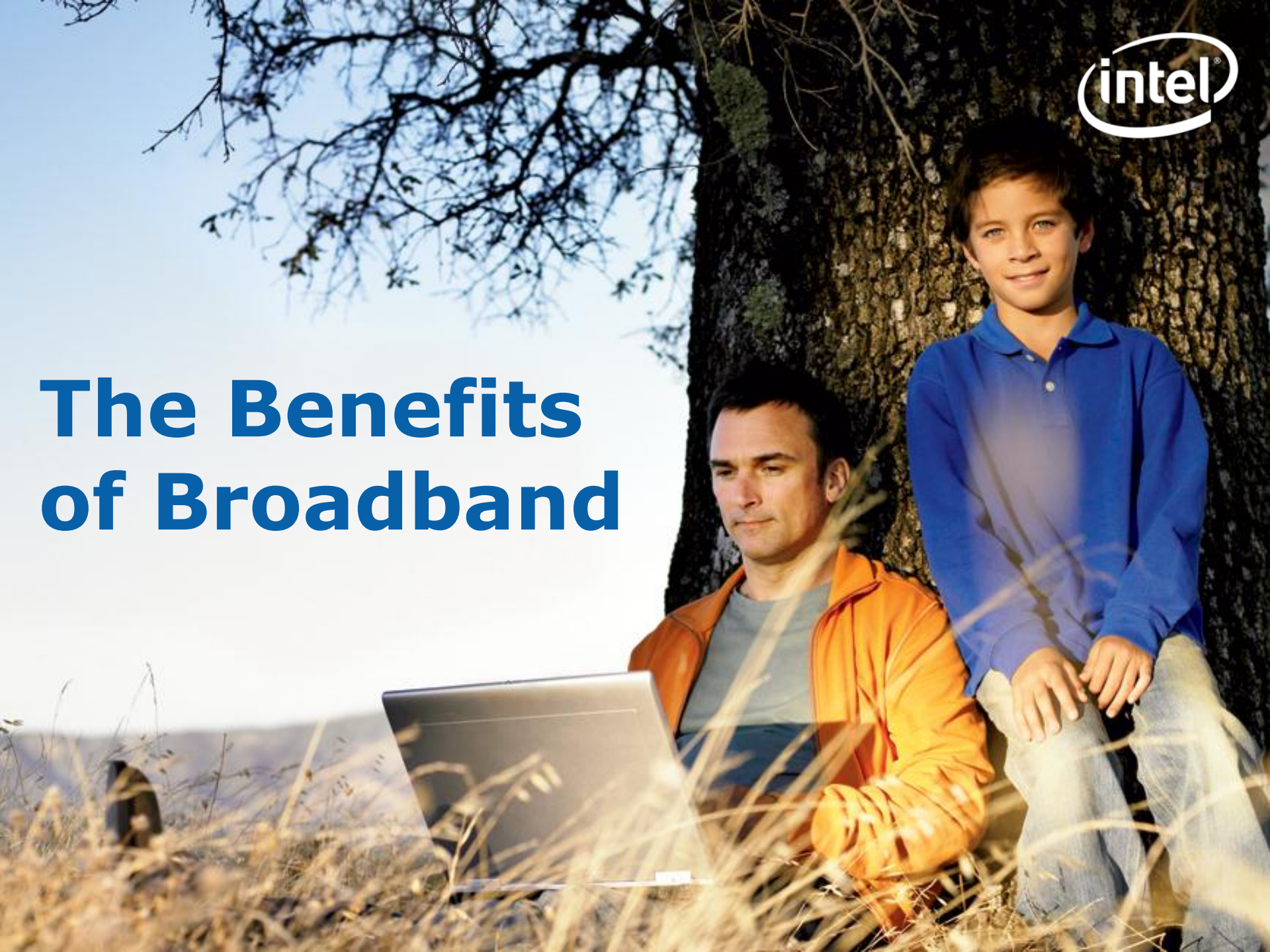




The Benefits of Broadband



Current State of Broadband¹

	Mature markets	Emerging markets
Internet penetration	64%	18%
Broadband penetration	23%	4%
% income spent on ICT	1.5%	17.5%

¹International Telecommunication Union (ITU), "Measuring the Information Society," 2010

Benefits of Broadband

- Bridge the digital divide
- Increase national competitiveness
- Enable all citizens to communicate faster and in more ways
- Increase access and improve delivery of essential social services



Evidence of Benefits of Broadband

- **Economic growth:** Increasing broadband penetration boosts economic growth $\sim 1\%-3\%$.²
- **Jobs:** In Latin America, increasing penetration 5.5% to 7.7% would generate estimated 378,000 new jobs.³
- **Health care:** Telemedicine provides better access to care, reduces travel, and facilitates rapid diagnosis and treatment.⁴
- **Education:** Household Internet access is associated with better educational performance.⁵

²See, for instance, Qiang, Christine Z., 2009. "Telecommunications and Economic Growth." Unpublished paper. World Bank, Washington, D.C.

³Dr. Raul L. Katz, "Estimating broadband demand and its economic impact in Latin America," Sept. 4, 2009

⁴Dutta, Soumitra, and Irene Mia. 2008. The Global Information Technology Report 2006-2007: Connecting to the Networked Economy. Basingstoke, U.K.: Palgrave Macmillan.

⁵ITU, Measuring the Information Society, "2010.



Broadband/ICT Plans

To realize the benefits of broadband and ICT, comprehensive national plans are essential.

- Plans provide the vision, organization and support necessary to:
 - Increase broadband penetration rates quickly
 - Deliver broadband services to most or all citizens
 - Reduce costs
 - Ensure continued broadband expansion and improvement



Recommended Plan Structure

Phase 1: Assessment

- **Evaluate** ICT infrastructure and economic status
 - Use data such as basic demographics, GDP, ICT spending, etc.
- **Examine** the regulatory environment
 - Consider spectrum ownership/usage, licensing, tariffs/costs, etc.
- **Assess** the country infrastructure
 - Evaluate international and last-mile connectivity, in-country backbone, etc.
- **Complete** customer/user segmentation
 - Separate based on geography, occupation, population demographics, etc.
- **Conduct** a user vs. needs analysis
 - Develop a “needs roadmap” to pinpoint needs of each segment

Recommended Plan Structure

Phase 2: Development

- **Define** broadband
 - Include desired broadband performance levels over time
- **Develop** a national vision for broadband
 - Vision should be specific, measurable, attainable, relevant and time-bound (SMART)
- **Identify** funding resources
 - Consider spectrum reallocation, dedicated USF, gov't subsidies, etc.
- **Develop** service provider strategies
 - Identify and work with providers to develop offers to consumers
- **Collaborate** with additional business stakeholders
 - Work with network resellers, software developers, etc.

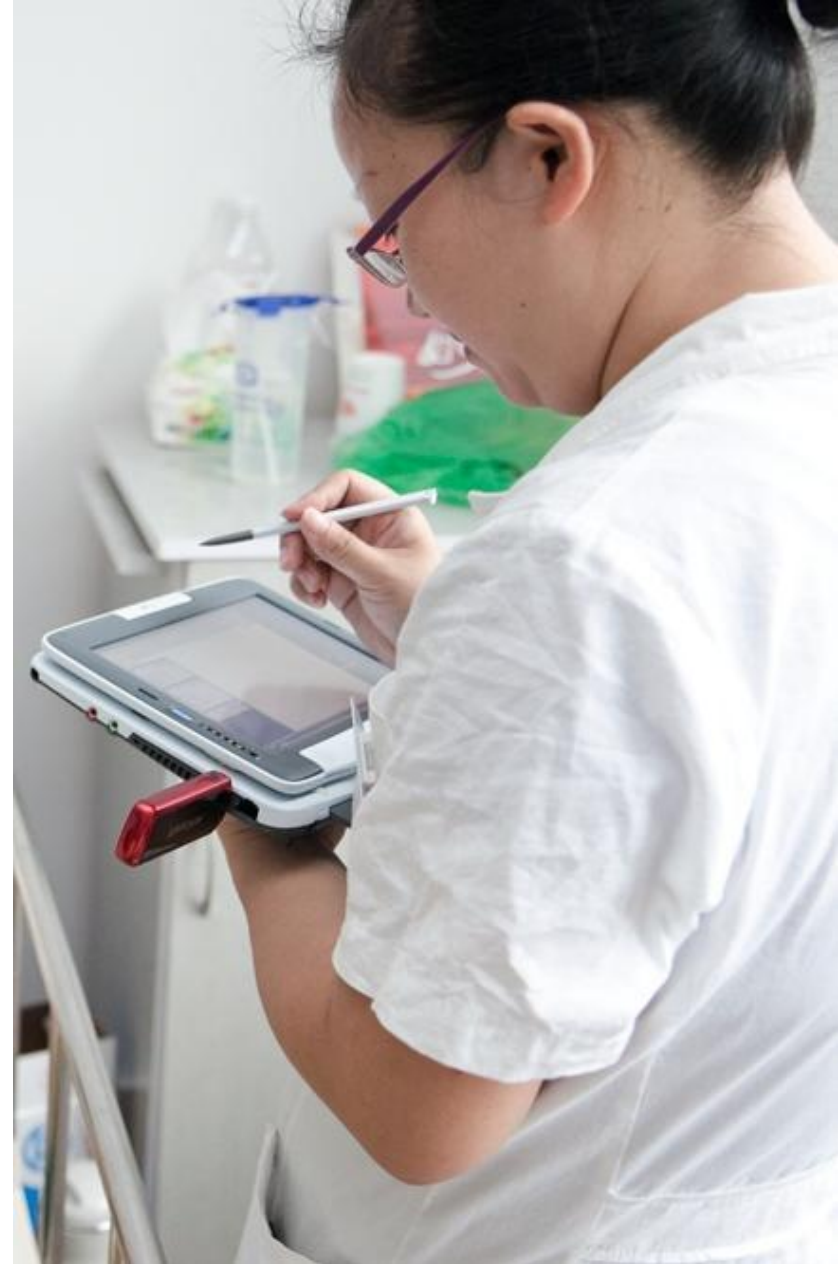
Recommended Plan Structure

Phase 3: Implementation

- **Develop** an implementation strategy
 - Create a strategy to generate public and private support for plan
- **Utilize** a variety of funding strategies
 - Aggressively pursue best funding strategies identified in Phase 2
- **Implement** demand-side programs
 - Gov't and/or other stakeholders should lead variety of programs
- **Measure** progress
 - Continually track, evaluate and update programs to improve results

Best Practices

1. Form public/private partnerships
 - Engage a broad ecosystem (banks, teachers, NGOs, SMBs, etc.)
2. Encourage competition
 - Adopt variety of strategies to expand the BB market and encourage investment
3. Release spectrum
 - Support technology-neutral, service-flexible spectrum policies



Best Practices (cont.)

4. Apply Universal Service Funds
 - Move beyond traditional telecommunications and correct USF inefficiencies
5. Implement a variety of demand-side programs
 - Generate investments and public interest through programs such as tax reductions and digital literacy programs
6. Develop metrics to measure plan success
 - Include SMART metrics, using ITU suggestions as starting point⁶

⁶ www.itu.int/ITU-D/ict/partnership/index.html



Globally Recognized Metrics⁷

Infrastructure and Access

- Fixed and mobile broadband subscriptions
- International bandwidth per population
- Fixed broadband tariffs
- Public Internet access centers (PIACs) per locality by pop.

Education

- Student-to-computer ratio
- % of schools with broadband
- % of ICT-qualified teachers

Business

- % of businesses using computers and type of connectivity
- % of persons employed routinely using computers and Internet
- % of businesses placing/receiving orders over Internet
- % of businesses using Internet and type of connectivity

Households

- % of households with computer, Internet access
- % of households with broadband access and type of connectivity

Health (Intel's recommendation)

- % of hospitals and health centers with access to broadband
- % of hospitals and health centers with digitalized patient records

⁷ ITU, Measuring the Information Society," 2010.



Infrastructure



Subsidy PC + BB

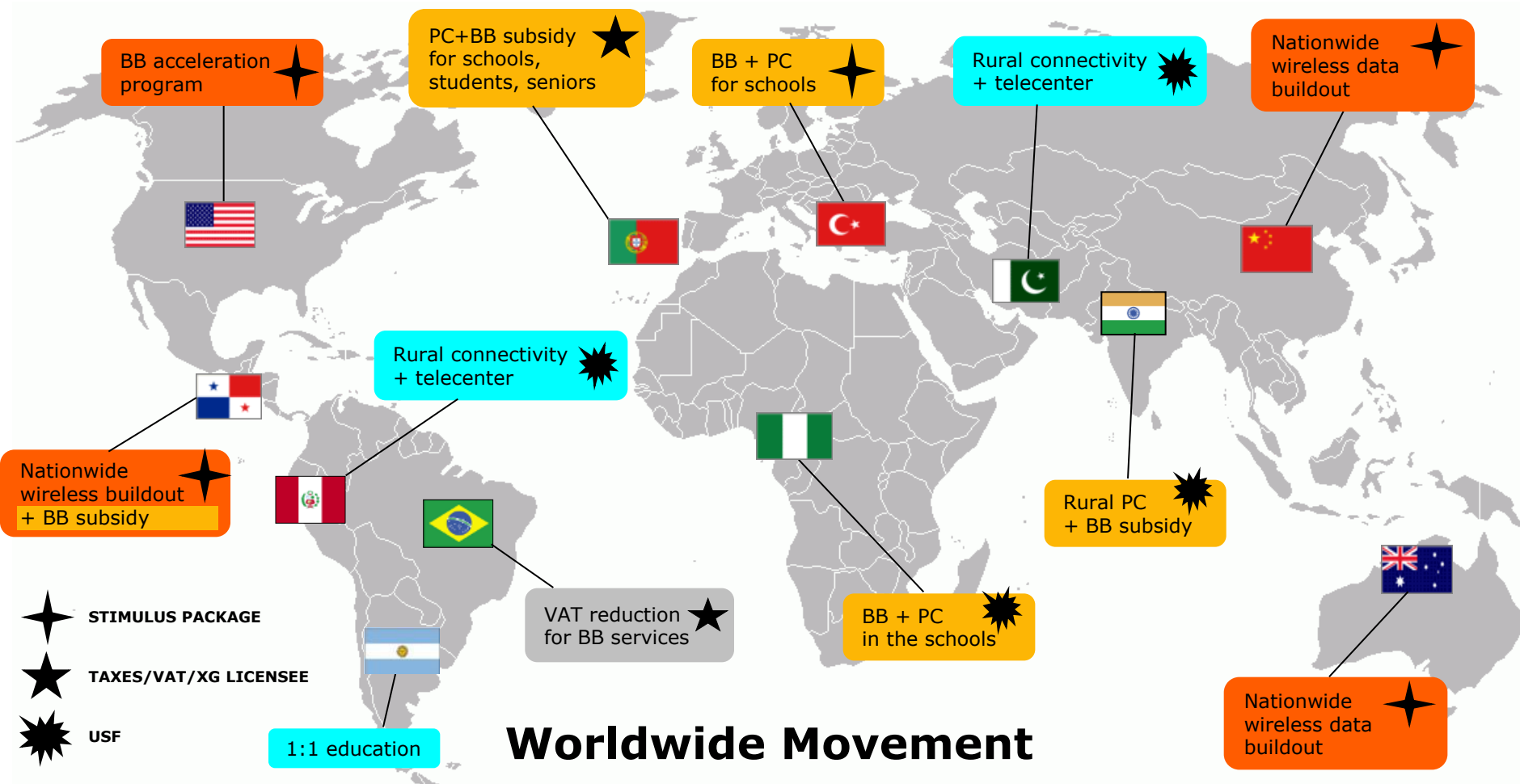


Reduce BB taxes



ICT programs

Accelerating Broadband Adoption



Example 1: Australia

- **Program:** Build national broadband network as part of government stimulus program
- **Partners:** Government, telcos, industry, etc.
- **Funding:** Government economic stimulus program
- **Results:** By 2014, 100Mbps broadband network will be available to 98% of the population.



Example 2:

India

- **Program:** Spread broadband to rural and remote areas at reduced price
- **Partners:** Government, Airtel, Nokia, Vodafone, BSNL, etc.
- **Funding:** USF, new subscribers, subscriptions to expanded services
- **Results:**
 - 30% year-over-year growth in Internet users
 - 54% year-over-year growth in broadband



Example 3: Morocco

- **Program:** NAFIDA lowers price for notebook plus broadband for teachers
- **Partners:** Government, 3 telcos, banks, NGO
- **Funding:** USF and foundation
- **Results:**
 - 74% Internet penetration
 - 85% teacher training
 - 70% have home PCs



Example 4: Panama

- **Program:** PUIA initiative to provide free Internet access to public
- **Partners:** Government, telecom operator, Intel
- **Results:** Free Internet access now available in 22 cities, serving 2.3 million people (80% of population)

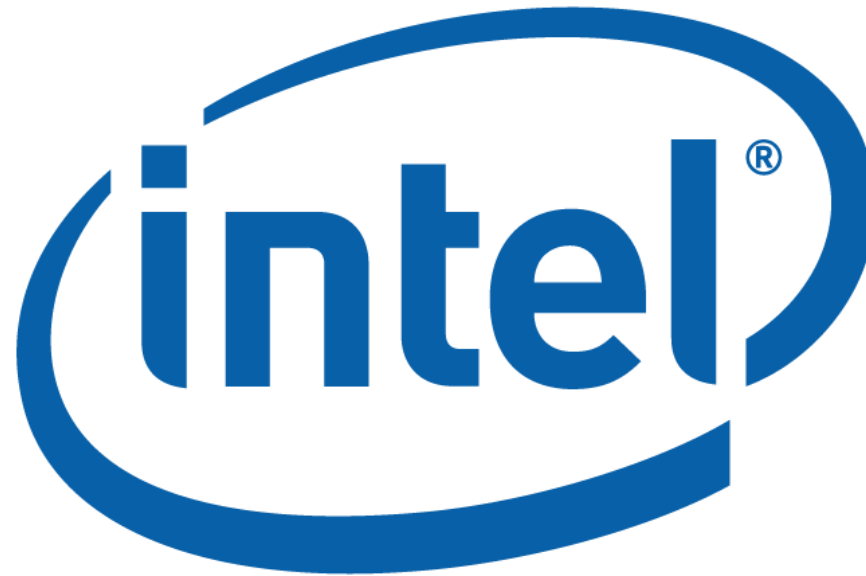


Summary

- Broadband/ICT access has proven economic and social benefits.
- Broadband/ICT plans ensure more effective programs.
- Worldwide, dozens of countries are developing broadband/ICT plans that are successfully bridging the digital divide.

Learn More

- Work with your Intel representative to develop a plan for your country.
- www.intel.com/worldahead



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