

The Benefits of Applying Universal Service Funds to Support ICT/Broadband Programs



Executive Summary

As the world becomes more dependent on information and communication technology (ICT), broadband Internet access and usage is increasingly recognized as essential to economic growth and the provision of education, healthcare, and other basic services. Despite this growing acceptance, emerging countries continue to struggle to find affordable and sustainable ways to provide widespread access to digital devices and broadband connections, especially in rural and remote areas.

An increasing number of emerging countries are addressing this challenge with the help of universal service funds. These funds were initially created to ensure ubiquitous deployment of basic telephone equipment and services. Today, the funds are being used to support ICT/broadband programs, which may include access to PCs and other digital devices, broadband Internet connections, and localized content and services.

As detailed in this paper, India, Malaysia, Morocco, Pakistan, and Turkey are among the many countries that have created successful ICT/broadband programs that serve thousands of citizens around the world. Many other countries are in the process of updating or creating new universal service policies to achieve similar goals.

Working with policymakers, regulators, telecom providers, and international organizations, Intel has helped countries develop new universal service policies or adapt existing policies to support broadband deployment and ICT adoption. Intel offers advanced technology and industry support, and facilitates adoption of best practices, including advocacy of market-based funding systems grounded in technology and competitive neutrality. As an experienced partner, Intel brings together governments, businesses, and citizens to ensure universal service funds support the social and economic growth of individuals and countries.

“Broadband can help generate jobs, growth, productivity, and long-term economic competitiveness.”

— Dr. Hamadoun Touré,
Secretary-General, ITU



ELEMENTS OF ICT/BROADBAND PROGRAMS

Universal service funds are being used to fund a wide variety of ICT/broadband programs. These programs include some or all of the following elements:

- **Digital devices** – including laptops, netbooks, tablets, etc.
- **Broadband Internet access** – with speeds up to 10 Mbps
- **Local content and services** – software/applications in local languages that make education, financial services, healthcare, e-government, and other services more accessible to more people

The Value of ICT/Broadband Programs

An increasing volume of data shows that ICT/broadband programs—which may include PCs, broadband Internet access, and localized content and services—are an important investment for developed as well as emerging countries.

ICT usage has been shown to be correlated with a wide array of direct economic benefits, including global competitiveness, total factor productivity growth, and increases in GDP¹. In 2010, the World Bank also identified a strong relationship between ICT development and gross income.²

Along with the benefits of ICT in general, nearly all studies suggest that investing specifically in broadband delivers positive results, with the greatest returns frequently seen in emerging markets. For instance, a recent World Bank study found that every 10-percentage-point increase in broadband service penetration leads to an increase in economic growth of 1.3 percentage points, with a slightly greater growth effect in emerging countries than in developed ones.³

Region-specific studies demonstrate additional benefits of investments in broadband. For example:

- **Latin America/Caribbean:** A 1 percent rise in broadband penetration was found to yield a .017 point rise in GDP growth.⁴
- **Brazil:** A study found that broadband added up to 1.4 percent to the employment growth rate.⁵
- **China:** Every 10 percent increase in dial-up and broadband penetration may contribute as much as 2.5 percent to GDP growth.⁶
- **Thailand:** Estimates suggest that broadband could add nearly 1 percent to the country's GDP growth rate.⁷

Along with these direct and indirect economic benefits, deploying broadband services provides additional benefits, including:

- **Access to information and resources:** Broadband technologies enable rural and remote communities to overcome geographical constraints and gain access to regional and worldwide social, political, economic, and financial information and resources.
- **Improved social services:** PCs and broadband connections provide access to online training and information that can help rural and remote communities improve healthcare, education, e-government services, and other social services, while also improving local economies.
- **Wider market opportunities:** With broadband access, new business models can emerge and businesses in geographically remote markets can reach a wider range of potential buyers.
- **Greater business productivity:** Broadband-related services such as e-mail and VoIP enable local businesses to lower costs and improve revenues.

To achieve these and other benefits, market forces alone are not sufficient, especially in emerging countries. ICT and broadband penetration rates need to increase quickly, and reliable broadband services must be made available to the majority of citizens at an affordable price. Such changes can only take place with organized and sustained ICT/broadband programs—which can be supported by universal service policies.

Universal Service Funds as Strategic Investments

When initially created, most universal service policies focused exclusively on providing affordable “fixed line” telephone service to all citizens, regardless of their geographical location. Such models are now largely outdated because of the rapid emergence of broadband Internet connections and mobile technology.

To keep pace with the need for access to modern technology, many countries have already or are considering expanding their universal service fund (USF) distributions to include ICT-related services. Initially, the funds may be applied to support interim measures such as development of community centers, Internet kiosks, and other community access points.

Eventually, universal service funds can be used to support ICT/broadband programs that give underserved businesses and individuals access to PCs, broadband Internet access, and content and services that deliver substantial social and economic benefits (see previous section).

Country Examples

Examples from every region of the world—including India, Malaysia, Morocco, Pakistan, and Turkey—show that universal service funds provide an ideal mechanism for governments in emerging countries to help subsidize and support ICT/broadband programs that target underserved populations.

In fact, many developed and emerging countries now recognize universal service funds as the most efficient and sustainable means of funding available.

India

India’s USF is designed to achieve several objectives, including providing “wide-spread and non-discriminatory access to quality ICT services at affordable prices to people in rural and remote areas.”⁸⁷ Specific areas of focus include providing:

- Public telecommunications and information services
- Broadband connectivity for rural and remote villages
- Support for new technological developments in the telecommunications sector
- Household telephones
- Infrastructure for provision of mobile services

The funds come from a Universal Service Levy, which is set at 5 percent of the adjusted gross revenue of telecom service providers. The Department of Telecom administers the program, which was established in 2002.

Program Example: Broadband to Rural Areas

India’s USF subsidizes setup and management of a wireless broadband network for specified rural and remote areas of the country. The network has successfully connected regions that previously had limited or no Internet access, providing new opportunities for business growth and improved education, healthcare, and other services.

After an initial bidding process, several telecom providers were chosen to develop and operate the wireless broadband infrastructure. Solutions are technology agnostic, so the providers are free to choose any technology.

Results:

- More than 2.6 million broadband connections have been established in rural and remote areas.
- More than 2,500 Internet kiosks have been established.
- Rural and remote areas now have broadband speeds of 512 kbps, upgradable to 2 Mbps.

Program example: Subsidies Improve Affordability and Access

In 2009, the Indian government initiated a subsidy program that uses the country’s USF to make digital devices and broadband Internet access more accessible and affordable in rural and remote areas. The program has enabled thousands of citizens to own their own digital devices and access the Internet through broadband connections for the first time.

Results:

- The subsidy helps cover the cost of the devices and the broadband tariff.
- To date, more than 100,000 digital devices have been sold to citizens in rural and remote areas.
- The program is designed to subsidize sales of up to 900,000 digital devices by 2014.

GUIDELINES FOR APPLYING USF IN SUPPORT OF ICT/BROADBAND PROGRAMS:

- Shift policies to enable and support ICT-related programs, including broadband
- Develop an overall plan that includes short-term and long-term indicators, goals, and measurements to track progress
- Bring stakeholders together in a collaborative process that includes public and private partners with a range of interests and experience
- Focus on and integrate sustainability measures from the beginning
- Consider sufficient spectrum allocation for broadband and last-mile connectivity

CREATING SUSTAINABLE ICT/BROADBAND PROGRAMS

ICT/broadband programs that are funded by universal service funds can and should be sustainable. For that to occur, sustainability must be a key area of focus throughout the planning process and integral to the eventual program design.

The following are a few of the specific best practices that Intel has identified to improve sustainability:

- Develop program plans that cover no more than five to seven years. Markets and technology change too rapidly to plan for longer periods.
- Design plans to fully recover the costs of delivering services over time.
- Ensure that government subsidies are targeted, short-term, and investment-oriented.
- Support service operations mainly through user revenues, with operations scaled to local needs and affordability.
- Ensure that government contributions directly relate to public service goals.

Malaysia

When Malaysia's universal service policy was established in 1998, the goal was to provide telephony services to underserved areas. The policy has since been updated to prioritize providing access to cellular and broadband Internet services.

The nation's universal fund is funded by operators that contribute 6 percent of their total weighted net revenue when revenue exceeds a stated amount. The fund is unique in that it can be used to pay for construction of ICT-related infrastructure, services, and devices.

Program Example: 1 Million PCs with Broadband Internet Access

Malaysia is using its USF to provide 1 million PCs and a year of free broadband Internet access to underserved communities around the country. For thousands of citizens in remote areas, the program offers their first introduction to modern technology and all of the social and economic benefits it offers.

Results:

- Initial 127,000 PCs have been distributed.
- Second phase is now underway, with more than 300,000 units to be distributed.
- Local ecosystem of suppliers, system integrators, and telco service providers has been developed.
- Program has helped to raise household broadband penetration rate from 20 percent in 2008 to over 53 percent in 2011.

Program Example: Sustainable Community Centers

For nearly a decade, Malaysia has used its USF to build and operate community broadband centers in rural and remote areas. During the first three years, the USF pays for the construction and operation of the centers, while the centers use that time to develop their own sustainable funding methods.

Results:

- Hundreds of community broadband centers with broadband Internet access have been built and training provided to serve remote and rural regions.
- Many of the centers also extend connectivity to nearby locations through Wi-Fi networks.
- The community centers have developed a variety of sustainable funding methods, including requiring payment for services (ICT training, printing, copying, faxing, etc.) and selling ICT-related devices such as PCs and USB thumb drives.

"In many cases, the creation of a USF has been seen as one of the key requirements to achieve universal access and/or service. Consequently, the number of USFs has more than doubled over the last decade.⁹"

Morocco

In 2004, Morocco's original universal service policy was redefined to focus on telecommunications services in addition to telephone services. Funding for the program comes from telecommunications operators that provide 2 percent of their turnover before tax.

Morocco's universal service funds have largely focused on the educational system, where students and teachers now have digital devices with localized content, as well as broadband Internet access and ICT training. The funds have also been used to equip multimedia centers at schools around the country.

Program example: Bringing Digital Devices and Broadband to Teachers

Nearly half the teachers in Morocco now have access to laptops and broadband Internet access thanks to the NAFID@ Program. The program also provides localized computer content and training to help teachers integrate ICT in their classrooms.

Funded by the country's USF, the program seeks to enhance teachers' ICT-related skills, leading to improvement in the quality of learning for students.

Results:

- More than 150,000 teachers have subscribed to a subsidized broadband Internet connection.
- Teachers have purchased 50,000 laptop computers at a subsidized price, with localized, built-in content.

Program example: Helping Students Get Connected

Since late 2009, the INJAZ program (Arabic for "Achievement") has provided substantial subsidies to lower the cost of digital devices and the first year of broadband Internet access for engineering and science students.

By making ICT more affordable for students studying engineering and science, the program helps to develop a future workforce of entrepreneurs and technology leaders.

Results:

- More than 40,000 science and engineering students now have their own laptops and broadband Internet connections.
- Goal is to provide a laptop for every student—80,000 in all.
- Plans are being developed to expand the program to cover university students in other disciplines.



Intel World Ahead Program

Since 2006, the Intel World Ahead Program has brought technology and broadband Internet access to millions of new users. Intel works closely with governments to develop programs and solutions that deliver dramatic social and economic benefits—including 21st century education, increased economic opportunity, and improved healthcare—to people worldwide.

The Benefits of Applying Universal Service Funds to Support ICT/Broadband Programs

Pakistan

Pakistan's universal service company was created in 2007 to "connect the unconnected" across Pakistan. The country's policy boldly declares that each of the nation's 180 million citizens has a right not only to basic telecommunications services but also to e-services and broadband.

The USF is primarily funded by telecom operators that contribute 1.5 percent of adjusted revenues. There is no government funding. The goals for the USF are to increase the level of telecom penetration in rural areas, expand broadband penetration in unserved areas, and enhance e-services throughout the country.



Program Example: Nationwide Broadband

Since early 2009, Pakistan's USF has been used to extend broadband Internet access to small towns and cities across the country. Of the 450 towns and cities targeted, only 10 had broadband access when the program started. The next step will be to extend broadband coverage to villages through community telecenters.

Results:

- Today, 238 towns and cities have broadband Internet access.
- Nearly 800 secondary schools, colleges, and libraries have digital devices and a year of free broadband access.
- Telecom operators are incentivized to attract more broadband customers in order to receive more universal service funds.

Program example: Extending fiber-optic connectivity

Pakistan's USF is being used to extend fiber-optic connectivity across the country. Building these "information highways" is a multi-year project that is creating jobs and laying the groundwork for nationwide broadband connectivity.

Results:

- Nearly 3,000 kilometers of fiber-optic cable have been laid so far.
- Goal is to lay about 8,800 kilometers of fiber-optic cables across the country.
- Connectivity will eventually extend to all 400 subdistricts in the country, including the 30 percent that are rural and remote and were previously unserved.

Turkey

In June 2005, the government of Turkey instituted its USF, which is managed by the Ministry of Transport and Communications. Turkey's policy allows funds to be spent on digital devices as well as ICT equipment such as base stations and fiber lines.

Creation of the USF quickly enabled Turkey to expand broadband services to every public school in the country and, through community Internet centers, to increase public access and usage of the Internet.

Program Example: Education Transformation

Through the Fatih program, Turkey aims to transform its education system to provide 1:1 eLearning. The program, which involves deploying ICT devices, broadband Internet access, and ICT training in classrooms across the country, is funded by the Ministry of Education and by the USF, which is contributing USD 8 billion to USD 9 billion over four years.

Results:

- Initial rollout is underway, which involves development of broadband networks and ICT infrastructure in schools across the country.
- Over the next three years, digital devices and broadband access will be provided to 620,000 classrooms, serving 15 million students.

Program example: Internet access centers

Since 2006, Turkey's USF has been used to fund development of public Internet access centers (PIACs), and to equip those PIACs with PCs and other digital devices. The centers provide many rural and remote communities with a much-needed introduction to computers and Internet access, as well as digital literacy training.

Results:

- More than 4,500 PIACs are now in operation.
- The PIACs include more than 75,000 digital devices.
- Each PIAC offers digital devices, printers, and an Internet connection.





Summary

By expanding universal service policies beyond traditional telecommunications services to support ICT/broadband programs, emerging countries can reap enormous dividends. Programs that feature a combination of PCs and other digital devices, broadband connections, and localized content and services can give citizens in even the most rural and remote regions access to better education, healthcare, social support, and economic opportunities.

As shown by examples from India, Malaysia, Morocco, Pakistan, and Turkey, countries from all regions of the world have successfully implemented and updated their universal policies to support ICT/broadband programs. Through these programs, communities can become more connected and prosperous, and citizens in all regions of the world can acquire the education and skills they need to compete in the global economy.

“The role of broadband is a critical catalyst to the process of economic growth, within and beyond the ICT sector, as well as a crucial tool for social development.”⁹

Contact Intel today to help put together a program for your country.
www.intel.com/worldahead

ADDITIONAL RESOURCES

Broadband Commission for Digital Development 2010 report,
"Broadband: A Platform for Progress": www.broadbandcommission.org

World Bank, "Measuring the Information Society 2010":
www.itu.int/ITU-D/ict/publications/idi/2009

India

Dept. of Telecommunications: www.dot.gov.in

BSNL (national telecommunications company): www.bsnl.co.in

Malaysia

Malaysian Communications and Multimedia Commission: www.skmm.gov.my

Morocco

INJAZ program: www.injaz.ma

NAFID@ program: www.nafida.ma

Pakistan

Ministry of Information Technology: www.ictrdf.org.pk

Video of USF projects: www.youtube.com/watch?v=SSTmmiP7SZk

Turkey

Ministry of Transport and Communications: www.ubak.gov.tr

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2. World Bank (2010). "Measuring the Information Society."
3. Qiang, Christine Zhen-Wei (2009). "Telecommunications and Economic Growth." Unpublished paper, World Bank, Washington, D.C.
4. Telecom Advisory Services LLC (2009). "The Impact of Taxation on the Development of the Mobile Broadband Sector."
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6. Value Partners (2009). "Broadband in China: Accelerate Development to Serve the Public."
7. Center for Ethics of Science and Technology, Digital Divide Institute, Thailand (2010). "Broadband Thailand 2015."
8. http://www.usof.gov.in/usof-cms/usof_aims.htm
9. Broadband Commission for Digital Development 2010 report, "Broadband: A Platform for Progress": www.broadbandcommission.org

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