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Importance of ICT
Dan Shine
Figure 2: Perceived ICT contribution to society (percent of respondents)

Which three industries do you think make the greatest overall positive contribution to society?

- Healthcare: 40%
- Agriculture: 22%
- Utilities: 21%
- ICT: 20%
- Food and beverage: 20%
- Pharmaceutical: 13%
- Construction: 13%
- Manufacturing: 12%
- Travel, transportation: 12%
- Financial services: 11%
- Retail: 11%
- Oil and gas: 9%
- Automotive: 7%
- Consumer packaged goods: 5%
- Clothing/textiles: 4%
- Mining: 3%
- Chemicals: 2%
- Tobacco: 2%

ICT's ability to improve sustainability is confirmed by consumers.

Source: September 2008 McKinsey survey of 4,787 consumers around the world.
ICT4D Model

Information

- Economic Development
- Health
- Education
- Agriculture-Food Security
- Environment-Climate Change
- Other

Communication

- Broadband & Mobile Networks
- International Connectivity
- Phones, Computers & the Cloud
- Other

Technology

Program Specific Application of ICT

ICT-Related Infrastructure
...the C and T of ICT

MDGs

1. Poverty and Hunger
2. Education
3. Women
4. Child Mortality
5. Maternal Health
6. HIV/AIDS, Malaria, and Other Diseases
7. Environment
8. Global Partnership

WSIS Targets for 2015

1. Connect villages
2. Connect universities, colleges, secondary schools and primary school
3. Connect scientific and research centers
4. Connect public libraries, cultural centers, museums, post offices and archives
5. Connect health centers and hospitals
6. Connect all local and central government and websites and e-mail addresses
7. Primary and secondary school curricula
8. Access to television and radio services
9. Development of content in all world languages on the Internet
10. Half the world’s inhabitants have access to ICTs
MDGs

1. Poverty and Hunger
2. Education
3. Women
4. Child Mortality
5. Maternal Health
6. HIV/AIDS, Malaria, and Other Diseases
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10. Half the world’s inhabitants have access to ICTs
Figure 1: Growth effects of ICTs

Percentage point increase in GDP per capita for every ten percentage point increase in ICT penetration, 1980-2006

Figure 3: Impact of broadband penetration on different economic indicators

3a: Impact on labor productivity growth

\[ y = 0.0015x + 0.0044 \]

\[ R^2 = 0.7241 \]

3b: Impact on annual real GDP growth

- Countries consistently in top five: 3.88%
- Countries consistently in bottom five: 1.67%

Source: OECD Labor Productivity Portal, 2008, http://www.oecd.org/topicstatsportal/0,3398,en_2825_39453906_1_1_1_1_1_1,00.html; Booz & Company analysis, 2009.
Figure 3: ICT readiness vs. competitiveness


Note: The Global Competitiveness Index is a composite index of indicators relating to institutions, infrastructure, macroeconomic environment, health, education, market efficiency, technological readiness, business sophistication, and innovation. The Digital Opportunity Index is a composite index of indicators relating to coverage/access, tariffs, equipment penetration, and broadband adoption.
Economic Growth

Figure 4.2: ICT’s contribution to economic growth
ICT capital’s contribution to economic growth, in percent, by region, 1989-1995 and 1995-2003

Source: ITU adapted from Jorgenson and Vu, 2005.

The US and G7 derive Over 25% of economic growth from ICT
Economic Growth

ICT Investment – Productivity – GDP Growth

Source: 2006 OECD study
Chart 17. Link between Internet access at home and student proficiency

Source: UIS, original source PISA 2003 (OECD).
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Program Overview
Joe Duncan
Enhancing Socioeconomic Development through Innovative Leveraging of ICTs

- **Connectivity**: Expanding Broadband and Mobile
- **Mobile**: As a Socioeconomic Development Tool
- **Innovation**: Gaining Scale and Replication
- **Collaboration**: Leveraging International and Local Partners

**Figure 1: Growth effects of ICTs**
Percentage point increase in GDP per capita for every ten percentage point increase in ICT penetration, 1980-2006

<table>
<thead>
<tr>
<th></th>
<th>High-income economies</th>
<th>Low- and middle-income economies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed</td>
<td>0.43</td>
<td>0.73</td>
</tr>
<tr>
<td>Mobile</td>
<td>0.60</td>
<td>0.81</td>
</tr>
<tr>
<td>Internet</td>
<td>0.77</td>
<td>1.12</td>
</tr>
<tr>
<td>Broadband</td>
<td>1.21</td>
<td>1.38</td>
</tr>
</tbody>
</table>

GBI Program

- New USAID Program:
  - Approved in September 2010
  - $20M+ over 5 Years

- Two Instruments:
  - Cooperative Agreement with NetHope
  - Contract with Integra LLC

- Initial Launch:
  - Core Funding
  - Africa USF Project
  - Youth Gaming Project
  - Trafficking Project
Universal Service Funds
Rural Edge Connectivity Solutions
Leveraging Mobile, Including Broadband
Leveraging the Cloud
Shared-Common Solutions: ...
  for Scale, Replication & Sustainability
Approach to Partnerships
Integrating the Pieces

Rich Alliance
Inside USAID
Assess & Plans
Telecom Support
m4D
Scale + +
Shared Solutions
GBI
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NetHope’s Unique Value Proposition

Inter-Agency Collaboration

Public-Private Partnership

Technology Solutions Enabler
NetHope’s Members

Save the Children
The Nature Conservancy
Catholic Relief Services
World Vision
Heifer International
Accion
Plan
Concern Worldwide
Children International
ActionAid International
VSO
Family Health International
ChildFund International
Opportunity International
Winrock International
WaterAid
International Federation of Red Cross and Red Crescent Societies
Mercy Corps
Christian Aid
SOS Children’s Villages International
PATH
Global Branding and Innovation

Building a better world for children
Protecting nature. Preserving life.
Be a part of it.
We believe in life before death
Our Partners

NetHope’s Partners & Supporters

Our Supporters
This is NetHope
What is I4D?

- Literacy training application on PCs in rural education, leading to 5% increase in children reading at grade level each year
- Using SMS to send text messages to communicate with aid workers in disaster areas
- Using the NetHope Relief Kit to provide “IT in a box” during disasters
- Using mobile technologies to automate health care tracking in Rwanda
- Using rugged laptops for farmer education and data collection to combat the cassava disease
- Interactive Audio Instruction (IAI) using cell phones and radios for child development in Malawi
- 39% more women and children benefitting from food distribution in Bangladesh due to portable tracking applications on PDAs
- Using motorcycles to provide internet access for 15 solar-powered village schools, telemedicine clinics, and the governor’s office in a remote province of Cambodia
- Farmers in Argentina using cell phones to get crop data and sell products
- Training 20,000 nurses in Kenya through mobile-based eLearning
- 90% savings in establishing Banking for 130,000 citizens of Malawi thru use of biometrics

The Good News: Strong proof points ICT makes a difference
The Bad News: They are one-offs, not achieving scale
The Opportunity: Turn these into Repeatable Platforms, Built with the Private Sector
Collaborated with State to host a GIS Summit which is now being hosting with USAID, State and Clinton Global Initiative

Cited by the White House as a leadership example in social innovation and collaboration

Partnered with Clinton Bush Haiti Fund to establish Wi-Fi connectivity throughout regions in Haiti,

Launched a serious social gaming consortium in support of DCHA to build an ecosystem of partners in this emerging technology area

Launched a program with WID to use mobile phones to combat trafficking in Russia

Launched a Universal Service Fund activity in Africa.
The Power of Partnership

- **Adobe**: The largest software donation in its history,
- **Esri**: The Esri Nonprofit Organization Program, the biggest initiative in the geospatial industry to provide geographic information system (GIS) software to environmental and humanitarian organizations,
- **Intel and Microsoft**: Architectural resources for cloud-based solutions for the developing world,
- **HP**: Capital and expertise, for design and architecture of innovative cloud services and mobility solutions,
- **Rockefeller Foundation**: Grants to accelerate the identification and deployment of ICT solutions, and
The Power of Partnership

- **HP**, which is collaborating with NetHope to scale the implementation of technology that helps thwart counterfeit drugs in emerging markets,

- **Intel**, which is working with NetHope and member Catholic Relief Services to develop a platform for mobile field workers that's helping over one million farmer families across Sub-Saharan Africa using cloud-enabled innovations to scale to new areas,

- **Microsoft**, which helped NetHope and member CARE in the area of affordable mobile phone technology enhanced with cloud computing in support of CARE’s HIV/AIDS programs in Kenya and Mozambique, and

- **The Bill & Melinda Gates Foundation** grant to NetHope, in support of the Weather Information for All (WIFA) initiative, which aims to increase access to reliable weather and climate information throughout Africa.
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USF & New Solutions
Darrell Owen
USF & New Technology

- Mobile Apps & Cloud Services
- Socio-Economic Value of ICTs
- Competition in Local Marketplace
- Backhaul: Pricing & Available
- Universal Service Funds
- Rural Challenge
- Newer Technology Solutions

Rural Gap
Figure 1: Growth effects of ICTs

Percentage point increase in GDP per capita for every ten percentage points increase in ICT penetration, 1980-2006

- **High-income economies**
  - Fixed: 0.43
  - Mobile: 0.60
  - Internet: 0.77
  - Broadband: 1.12

- **Low- and middle-income economies**
  - Fixed: 0.73
  - Mobile: 0.81
  - Internet: 1.21
  - Broadband: 1.38

Impact of Competition

Figure 3 Mobile Telephony Penetration before and after the Introduction of Competition

Chart 1 Box 10.2: Percentage of countries with competition in the mobile market, 2009

- Full competition: 61%
- Partial competition: 29%
- Monopoly: 10%

Source: ITU World Telecommunication Regulatory database.

Source: ITU, World Telecommunication/ICT Indicators Database.
Note: Year 0 in the figure indicates the year of entry of a second mobile operator.
Global ICT Growth

Chart 10.1: Global ICT development, 1998-2009

- Fixed telephone lines
- Mobile cellular telephone subscriptions
- Internet users
- Fixed broadband subscriptions
- Mobile broadband subscriptions

Per 100 inhabitants

Year: 98 99 00 01 02 03 04 05 06 07 08 09*

Values: 25.9 17.8 9.5 7.1 67.0

Note: *Estimate.
Source: ITU World Telecommunication/ICT Indicators database.
Mobile Growth

Chart 10.2: Global mobile cellular subscriptions, 2000-2009

Subscriptions ( Millions )

Per 100 inhabitants

Chart 10.3: Global mobile cellular penetration, by region, 2009*

<table>
<thead>
<tr>
<th>Region</th>
<th>Mobile penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>31.5</td>
</tr>
<tr>
<td>Asia and the Pacific</td>
<td>46.4</td>
</tr>
<tr>
<td>Arab States</td>
<td>57.6</td>
</tr>
<tr>
<td>Americas</td>
<td>81.0</td>
</tr>
<tr>
<td>CIS</td>
<td>106.6</td>
</tr>
<tr>
<td>Europe</td>
<td>118.6</td>
</tr>
</tbody>
</table>

Note: * Estimate.
Source: ITU World Telecommunication/ICT Indicators database.
Chart 10.5: Global number of Internet users, 2000-2009*

Note: *Estimate.
Source: ITU World Telecommunication/ICT Indicators database.

Chart 10.6: Internet user penetration by region, 2009*

Note: *Estimate.
Source: ITU World Telecommunication/ICT Indicators database.
Results

Mobile subscribers and Internet Users

**Chart 1.2:** Mobile cellular subscriptions by level of development, 1998-2009

**Chart 1.3:** Internet users by level of development, 1998-2009

**Chart 1.4:** Fixed broadband subscribers by level of development, 1998-2009

**Chart 1.5:** Mobile broadband subscriptions by level of development, 2000-2009

---

**Fixed and Mobile Broadband Subscriptions**

*Note: Estimates.*

**Source:** ITU World Telecommunication/ICT Indicators database.
Pricing Constraints

Chart 4.4: Mobile cellular sub-basket by region and by level of development, 2009

Mobile Sub-Basket by Region

Chart 4.5: Fixed broadband sub-basket by region and by level of development, 2009

Fixed Broadband Sub-Basket by Region
Backhaul/Connectivity

Part of Reducing the Cost-Price Issue:

1) Increased Capacity
2) Increased Competition
The other Part of Reducing the Cost-Price Issue:

1) Terrestrial Distribution
2) Local Access
Rural Challenge

5.1 Billion population in Developing Countries

- 57% of 5.1 Billion population

- Living in 2.96 Million Discrete Rural Localities
- with an Average Population of 1,826 each

Rural Population...

4.0 Billion

- Base of the Pyramid
- 4 Billion People
- living on less than U.S.$ 3K/year

Low Income

Global Population
Approx 6+ Billion

60%
Rural Households

% Regional Rural Households with:
Electricity, Radio, TV, Fixed, Mobile, PC, Internet

Figure 3-4: Percentage of rural households with ICTs, by region, latest available data

Note: Regional figures refer to country averages (i.e., not weighed by number of households). Data are based on household surveys conducted between 2000 and 2006.
Source: ITU/BDT research.
Chart 1.1: Rural population covered by a mobile signal, 2000-2008, by region

Source: ITU.
Rural with Low Income….

…. But capable and willing to pay for ICT

100% households (universal service)

Current network reach & access

Low income households

High income households

Geographical reach

100% geographical coverage

100% households (universal service)

True access gap

Smart subsidy zone

Market efficiency gap

Commercially feasible reach

After one-time subsidy, will become commercially feasible

Requires ongoing support

Lower Cost Solutions

- **Backhaul**: Fiber, Microwave, Unlicensed P2P WiFi, and Newer Satellites
- **Distribution**: Convergent Voice and Data Solutions - 3G, 3.5G, WiMAX, LTE, 4G
- **Lower Cost Mobile Solutions**: Microcells, Picocells, and emerging Femtocells capable of being solar powered
- **New Business Models**: Franchise or Franchise-Like Models
Devices, Apps & Cloud

- **Low Cost Internet Devices**: Netbooks and NetTops...low cost and low power
- **Smart Phones**: The new affordable “computer” of convenience & choice ...and solar chargeable
- **Mobile Applications**: Low cost, use-specific applications, & potentially locally developed
- **Cloud Computing**: Opportunity for lower costs, scaled & replicated solutions
GBI Telecom Services

- National ICT Strategic & Tactical Plans
- Telecom Legal and Regulatory Support
- Regulator Institutional Strengthening
- Frequency Management & Monitoring
- Universal Service Funds
- Working With Carriers
  - Demonstrations of Newer Solutions
  - Leveraging NetHope Member Demand
- Mobile & Cloud Applications
USF in Africa
Eric White, INTEGRA LLC
Objective

The Africa Universal Service Fund Technical Assistance Project

To provide wireless voice and broadband connectivity to underserved communities in rural areas across sub-Saharan Africa.
“Gap” model revisited

- True Access Gap: \( OPEX > ARPU \Rightarrow \text{Black Hole} \)
- Smart Subsidy Zone: \( ARPU > OPEX \)
- Market efficiency gap: \( ARPU < (OPEX + \text{CAPAM}) \)
- Current network reach & access
USFs are:

- Capable of pushing connectivity to the “smart subsidy” frontier.
- Necessary, but not sufficient, for closing the true access gap.
- Failing to operate as intended
Strong Partnership with Intel brings:

1) Corporate funds to extend program reach
1) Brand recognition
1) Pan-African USF Workshops
1) Targeted technical support
Phase I – Benchmarking and Strategy Building

• Evaluate USFs in sub-Saharan Africa
• Identify common issues for GBI and mission follow up
• Build toolkits and modules
• Identify countries for targeted Technical Assistance
Phase II – Targeted Technical Assistance

Technical Assistance will focus on issues such as:

1. Institutional goals: strategic and operational plans
2. Training in how to effectively run a tender process
3. Training in internal controls and management
4. Help in designing programs that most effectively expand ICT coverage, and assistance in implementing them
1. USFs are a key to expanding connectivity infrastructure to underserved areas.
2. GBI is engaged in an aggressive program to strengthen USFs in sub-Saharan Africa

Contact Info

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NetHope & Inveneo in Haiti
The NetHope/Inveneo Haiti Wi-Fi NGO Network restored internet connectivity and enabled IP telephony for 22 NGOs in PaP.

Backhaul provided by two Haitian ISPs (Access Haiti and Multilink) – paid $22,000USD/mo for 22Mb of dedicated bandwidth.

Service provided by Haitian owned and operated support company (HTG) – paid $4,000 USD/mo.

Fully self sustaining by revenues from NGOs on the network.
Leogane Rural Extension

**Link established August 2010**
- Within 6 weeks, serving 15+ organizations connected
- Habitat for Humanity, Canadian Red Cross, German Red Cross, IFRC, Save the Children, All Hands, Notre Dame Hospital, Swiss Red Cross, WFP, others
- Recovery and development activities underway

**Driving Economic Opportunity**
- $300 - $1000 each monthly
- Already driving almost $100,000 annually to local ISPs
Connected Rural Communities

- Hospitals
- NGOs
- Government
- Microfinance institutions
- Businesses
- Tourism
- Radio stations
- Community centers
- Schools and universities

Map of Haiti with various icons representing different sectors.
Connected Rural Communities

- Improved Program Delivery
- Accountability
- Psycho/Social
- Cost Savings
Building the Business Case

- Demand Aggregation
  - US AID Funded Projects (and GTZ, JIKA, etc.)
  - Concentration of Large Humanitarian Orgs
  - Hospitals, Government Offices, Tourism

- Regional “Readiness”
  - Existing Connectivity Options
  - Commercial Landscape (Internet Service Providers et al)
  - Terrain

- Technical Feasibility
- Capital Funding Availability
- Program Management Expertise
“A good hockey player plays where the puck is.

A GREAT hockey player skates to where the puck is going to be”

-- Wayne Gretzky
frankschott@nethope.org
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Summary
Joe Duncan
GBI Focus: Broadband and Applications

GBI Support for:

1. Bureaus and Missions
2. Infrastructure Programs
3. Sector-Specific Programs

Instruments: NetHope, Integra & Cisco

GBI Materials – Package of one-pagers
Key Contacts

⚙️ USAID (EGAT/I&E/ICT Team)
  Joe Duncan: GBI Program Director

❖ Integra LLC
  Bob Otto: President
  Eric White: Managing Associate
  Laurie Moy: Communications Director

❖ NetHope
  Erin Mote: GBI Alliance – Chief of Party
  Walidah Willoughby: Program Mgmt Associate
Thank you