Extending Rural Broadband: Lessons from North America

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Broadband Access: Models and Criteria

- Household access
- Personal access
  - using wireless phones, PDAs, laptops or netbooks
- Institutional access:
  - SMEs, NGOs, government agencies, etc.
- Public access
  - Single national model (e.g. post offices);
  - Variety of public access models (telecenters, cybercafés, other shops, post offices NGOs, etc.);
  - Schools and libraries;
  - Other institutions, such as government offices, community centers, banks
- Geographic access
  - Within specified distance of access point
- Other criteria
  - Population, administrative function, etc.

Beyond Infrastructure: What makes Broadband Accessible?

- Availability
  - Coverage (wireless)
  - Houses passed (fiber, coax, copper)
- Affordability
  - Price for commonly used services: now Broadband
  - Price as percentage of disposable income
- Bandwidth
  - Broadband for Internet access and multimedia services
- Quality of Service
  - Reliability
  - Latency (delay)
  - Jitter

Broadband Support Models

- Infrastructure Investment
  - Stimulus funds
    - U.S.
    - Canada
  - Other Infrastructure investment funds
    - U.S. Rural Utilities Service
    - EU: EC rural telecom investments
    - World Bank, other development banks
  - Public/private partnerships
    - Australia (?)
- Sustainability Subsidies
  - Universal service funds
  - Other operational support

Canadian Infrastructure Programs

- Stimulus: “Connecting Rural Canadians”
  - Extends “essential infrastructure” in remote and rural areas
  - Implemented by Industry Canada
  - Preceded by mapping project
  - C$225 million available
  - Requires 50% match (except First Nations)
  - Requires 5 year sustainability plan
- Other Federal Projects
  - FedNor (Northern Ontario)
  - First Nations Infrastructure Fund
- Provinces:
  - Federal/provincial partnerships: Eastern Ontario
  - Public/private partnerships:
    - Alberta, New Brunswick, Nova Scotia, PEI
- Cities, Municipalities: Community wireless

Comparison of US and Canadian Stimulus Programs

- Canada: Connecting Rural Canadians
  - Exclusively rural
  - Exclusively infrastructure: capex
  - Grants only
  - Can fund public sector entities: provinces and territories
  - Mapping before grant RFP
- US:
  - Includes some applications, community computer centers, training etc.
  - Grants and loans (from RUS for infrastructure)
  - Funds for other programs using ICTs:
    - Health records and IT, energy, education, etc.
  - Mapping part of stimulus initiative
- Both:
  - Focus on short-term job creation
  - Require matching funds (20% US; 50% Canada)
  - Little or no funding for evaluation
Dilemmas: Strategy, Policy and Regulation

- **Industry Canada: Strategy without Policy**
  - Several federally-supported studies:
    - Broadband Taskforce: 2001
      - Recommended universal broadband access by 2004
      - Definition of broadband: 1.5 mbps symmetrical
      - Estimated cost: $2.75 to $4.57 billion
      - Rely on market forces to “maximum extent feasible”
      - Use regulation and other government measures where market forces unlikely to achieve telecom policy objectives...
      - Implementation???
  - Still no national broadband plan, but developing “Digital Economy” strategy

- **Regulation:**
  - CRTC Consultation concerning Basic Service: 2010
    - Should basic be updated from voice and dial-up Internet to include broadband?
    - Decision could change Canadian broadband policies

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**Broadband: Creating New Business Opportunities**

- **Reach**
  - New markets, new audiences
- **Market Information**
  - Getting price information
  - Getting competitive bids
  - New sources of supplies
- **Outsourcing/Insourcing**
  - Doing work for distant clients
  - Call centers, data entry, translation
- **Funds transfer**
  - Online banking, investing
  - Merchant payment systems
  - Remittance transfers
- **Microfinance**
  - Connecting lenders with small businesses and entrepreneurs

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**Inutek: Indigenous Alaska Rural ISP**

Inutek.net’s service region includes ten villages in the Northwest Arctic. The new service includes either DSL or Wireless Internet depending upon the village.

Inutek.net divides the entire process of connecting you to the Internet amongst the three members of the consortium. OTZ is responsible for customer service, sign-up, billing, and the DSL system. Maniilaq Association handles installation, technical support, and the wireless system, while GCI maintains the satellite transport system.

**Telemedicine in Alaska**

AFHCAN Telehealth System:
- 250 sites; 70 member organizations
  - Village clinics
  - Public Health clinics
  - Regional hospitals
  - Military installations, Coast Guard, Veterans Administration
  - Covers more than 212,000 beneficiaries
  - About 40% of Alaska population
  - Majority are in Alaska native villages
  - Supported by USF Rural Health Care Program
  - Alaska receives the largest amount of any State: $29m in 2009

**Keewaytinook Internet High School**

Cree and Ojibway villages:
- High school completion for students in native communities using Broadband
- Sustainable model: contracts to provide connectivity and technical support for education, health care, other public services
**Connectivity: Necessary but Not Sufficient**

- **Context:**
  - Social, economic, cultural
  - Need other infrastructure: transportation, power supply, etc.
  - Other services: local banking, funds transfer

- **Content:**
  - Local languages
  - Relevance to rural conditions

- **Capacity:**
  - Skills to use and manage information facilities
  - “Infomediaries”: the information broker
    - Agriculture extension agent
    - Librarian
    - Telecenter staff

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**From Access to Adoption:**

In US and Canada barriers to adoption are not well understood

- Limited data on barriers that non-adopters face

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**Beyond Infrastructure**

- What do we know about broadband impact?
  - Among consumers
  - For business and organizations?
  - For overall productivity?
  - For diversifying national economies?
- Need to collect and update national data
  - Identify indicators
  - Include indicators in census, other data collection
  - Create and update broadband maps

- From Access to Adoption
  - Understand non-adopters
  - Develop training, applications

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Source: Pew Internet & American Life Project, Home Broadband Adoption, June 2009