UNIVERSITY of GUELPH

CHANGING LIVES IMPROVING LIFE

opportunities and challenges of rural broadband

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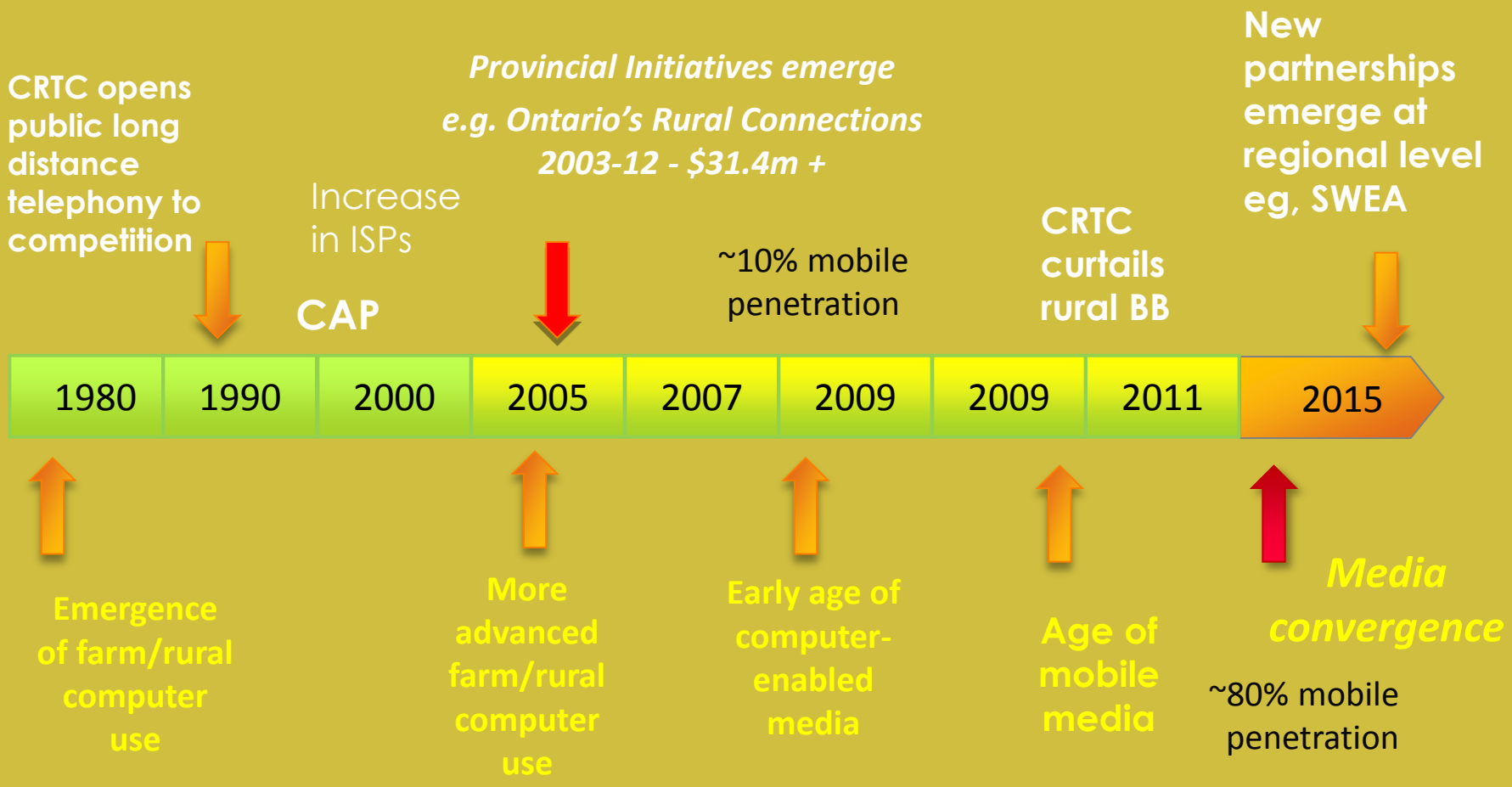


Since the 1900s investments in digital development and rural broadband have been viewed as providing the highest returns on knowledge mobilization for agricultural and rural development.

How these investments should happen is a widely contested question!

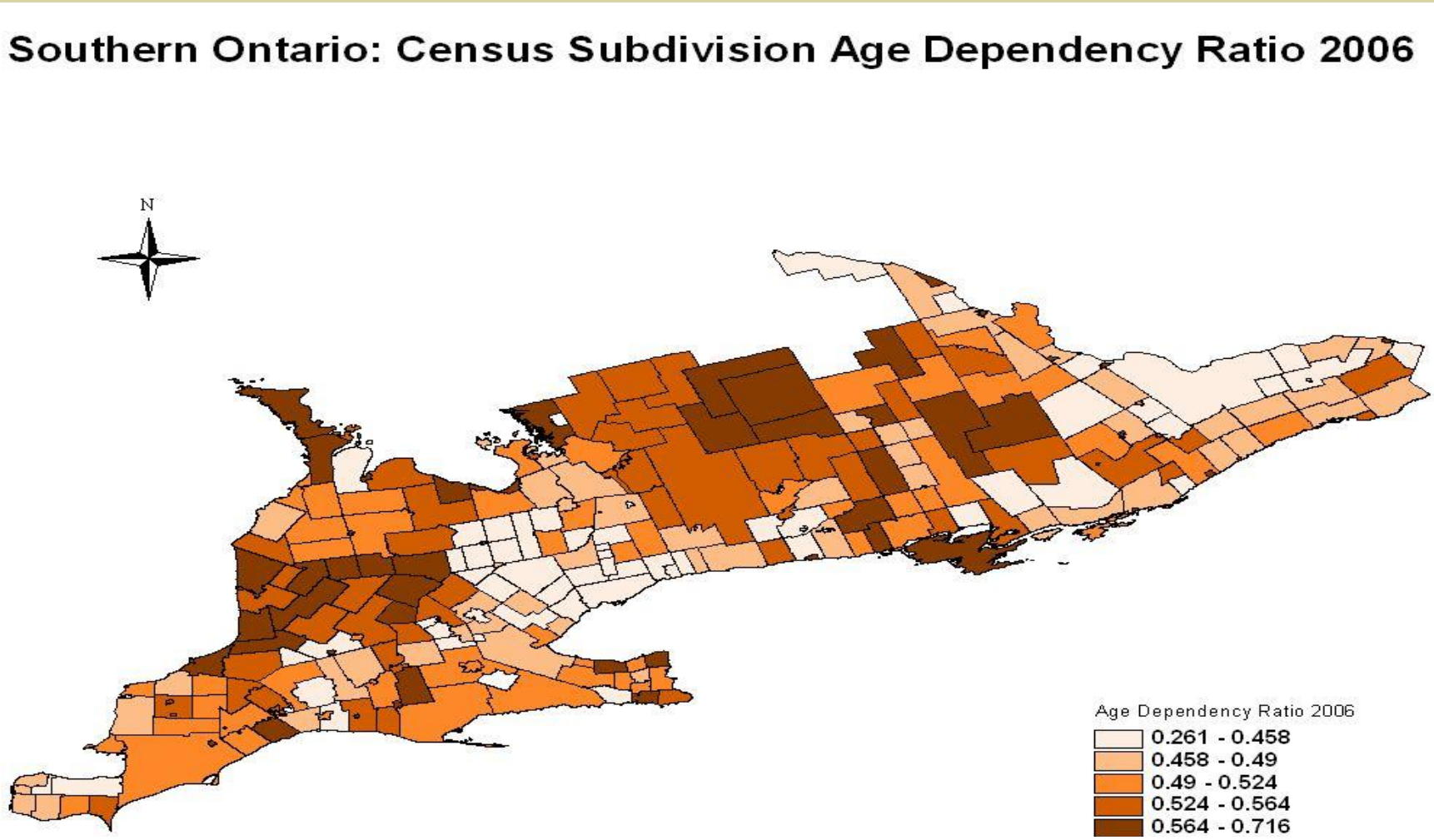
~20% of Canadians lack any access to broadband

- Vast majority are in **rural and small communities**
- **Access is not always sustainable** – as mentioned the end of the CAP has closed access at the community level – rural households report being unable to afford **cost increases for moving beyond dial-up or for improvements to quality of service**

Benefits of Rural Broadband

- Many benefits of rural broadband for **communication and knowledge sharing, information on health, online education, job searching & training, teleworking**, etc.
- The agri-business and agri-food sector have a **specific set of benefits and needs** for access to high-speed internet
- To identify the potential benefits (and needs) of rural BB we need to **understand the context of our rural areas and agri-food users**

Example: Demographics of Demand – South & West of Greater Toronto Area



Darkest areas represents highest (purported) no. dependents on working population
Note: 2011 CSD level data not yet avail. (CSD equates to. township, constituent municipality within a Census Division)

For Ontario, and across Canada, linking agri-food innovation & rural connectivity is strategic

- Agriculture and the food industry is the second largest sector of the Ontario economy.
- Growing evidence of links between innovation and connectivity

Examples of changing agri-food systems:

- **Crop and livestock operations / decision support models – typically linking handheld mobile computers with office systems**
- **Barn and equipment monitoring systems; early warning; precision agriculture**
- **"The online farm" – virtual networks of advocacy and support to the agri-food sector**

Opportunities

Efficiency gains through high-speed internet uptake:

- Electronic ordering; equipment repair – on line access to manuals, parts number information and ordering of spares
- On demand market information; weather forecasts
- Digital extension / info services
- Portals for widening product distribution within local to international markets

Challenges

Cost viz. Quality of Service

- Rural users in SW Ontario are increasingly annoyed with price/speed comparisons
  - What does $50 buy?
  - In urban areas 15Mbps (effectively $3.33/Mb).
  - In rural areas 1.5 Mbps for (effectively $33.33/Mb)
  - (excludes variances due to usage caps)

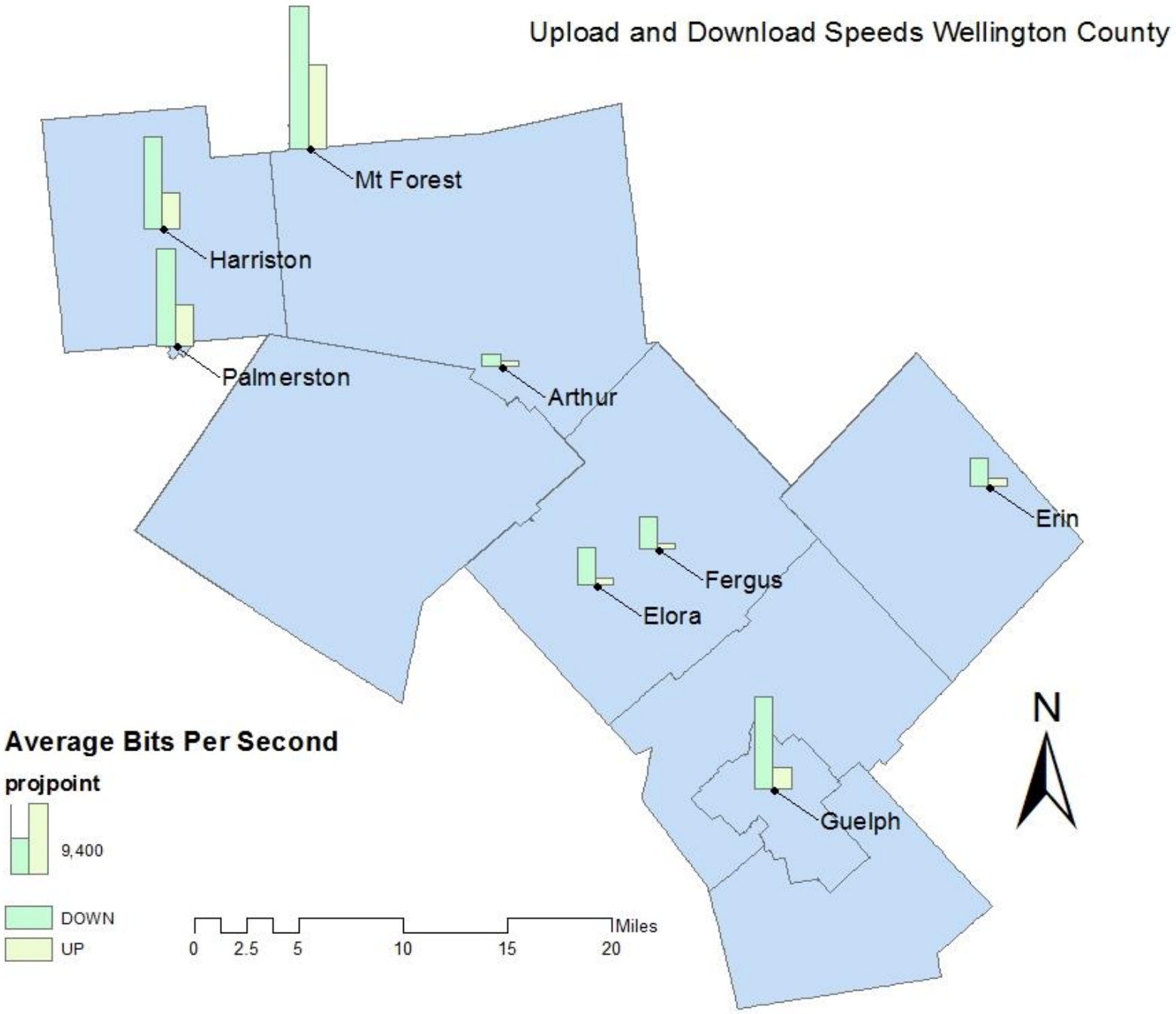
Mobile & APP-athy

- Signs of rural users now adjusting their behaviour and expectations with lack of BB as essential service
  - Fixed services necessary for routine uses – not just innovation
  - Mobile substitution = new costs
  - Rural ISPs need more spectrum to grow service speeds

CASE Study – Preliminary Findings

Wellington County

University of Guelph MSc Candidate Wilson Halder, SSHRC supported PDG project with Monieson Centre


Upload and Download Speeds Wellington County
Mt Forest
Harriston
Palmerston
Arthur
Erin
Fergus
Elora
Guelph
N
Average Bits Per Second
projpoint
9,400
DOWN
UP
0
2.5
5
10
15
20
Miles

Key Findings

- Lack of BB coverage competition available for rural Wellington County farm families to allow consumer choice – continuing gaps in coverage and variable quality of service
- Use of 4G platform for mobile communication utilized by rural farmers for range of key operations, however BB capacity largely undervalued due to scepticism regarding its reliability on a secure network, and a lack of awareness surrounding informational, operational and innovation capabilities
- Due to a shortage of fixed protocol of communication and technological systems for farm delivery, smaller farms are less likely to engage in innovative ICT applications

Key Findings

- Increasing interest to seek cross platform use of information access (ie. smart phone to the tablet or desk-top/barn PC)
- Rural enterprises cite the lack of adoption opportunities, accountability, control and trust as key issues restricting uptake
- Evidence of "disruptive innovation" motivating connectivity – a key factor for rural healthcare access through online services / applications requiring high-speed, secure BB

Issues at Farm Level	Possible Strategies for Success
Inadequate number of ISPs such as FireFly Networks to serve larger areas thereby leading to affordability and accessibility constraints for farm businesses	Encourage public sector to mobilize broadband services in the private sector (i.e. tower development)
'How do I know what I don't know?'	Invest in or trial operational capabilities and awareness that can strengthen innovation

Issues at Farm Level	Possible Strategies for Success
Lack of surge or critical mass to uptake any particular technology or service across multiple enterprises Leads to stakeholder divides; produces outdated inefficiencies along production, processing and/or distribution	Public and private financial support for consultation -- interact and participate in efforts to build farm solutions at individual, organizational and systems levels
Absence of communication protocols and standardization that facilitate the exchange of data across multiple platforms (i.e. from smart phone to tablet to desktop)	Implement an information platform for rural / agricultural ICT uptake

- **Evaluation of past** investments and their role in rural user uptake – including value to different sectors (i.e. agri-food)
- **Monitoring of on-going and new investments** that will influence the rural-urban 'digital divide'
- **Engage stakeholders** in awareness building – not just rural
- Complacency with existing technologies; ***"know what you don't know"***
- Identify promising opportunities **– build on these**

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Thank You RDI and guests.

Questions?

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