

Ultra-high Speed Broadband¹

the Prosperity Imperative for Southwestern Ontario

What are the economic and social challenges in the region?

Economic

- Income disparity between rural and urban citizens is growing.
- Southwestern Ontario, once the economic engine of Canada, has lost thousands of well-paying industrial jobs over the past five years as multinationals move manufacturing off-shore or south of the border.
- Many communities in Southwestern Ontario are one-industry towns who are particularly vulnerable when plants close, e.g., Heinz plant closing in Leamington with 740 jobs lost, a community of only 7,515 households.
- Manufacturers, who are surviving, struggle to retool in the face of competitive global economic forces.
- Youth outmigration to larger urban centres in search of jobs and livelihoods creating upside-down demographic pyramid that is not economically sustainable.
- Small businesses and farm business fight to compete but are disadvantaged by their physical remoteness from supply-chains, marketplaces, financial capital, and government services.
- As tax assessment base shrinks, funds for infrastructure dry up.
- So, many communities across the region are in an economic death spiral or hanging on by their fingernails.

Social

- Rural students do not have equal access to content and resources versus their urban peers.
- School enrollments continue to decline so rural schools close.
- As populations shrink, community centres, libraries, and recreation facilities shutter.
- Growing aged rural populations requiring local access to health and long term care find it increasingly harder to get; forcing them to travel to urban centres for care.

¹ Ultra-high-speed refers to a network, which provides bandwidth (speed and capacity) that scales dynamically as user requirements grow; without service delays or cost increases associated with additional capital outlays

Consequences

- As a consequence, once vibrant and proud communities are being “hollowed out” economically and socially.
- Community organizations and infrastructure that once defined the essence of community spirit are disappearing.
- Urban centres are buckling under the influx of socially and economically challenged populations requiring support.
- The ongoing rural-urban migrations strains urban infrastructure capacity, forces urban sprawl, and increases the region’s carbon footprint and output.
- In this milieu of economic hardship, social ills such as growing income disparity, poverty, homelessness, alcohol abuse and illicit drug use are increasing at worrisome rates.

What is Western Ontario Warden’s Caucus² doing about it?

The WOWC’s strategies to reverse the downward trends are as follows:

- To position the rural areas to prosper socially and economically;
- To press upper levels of government to intervene and provide resources;
- To strengthen the prosperity base of the region in a sustainable manner;
- To support critical industries – agriculture and agri-foods; culture, tourism and recreation; advanced manufacturing; green technologies; transportation and logistics; small business
- To equalize the opportunities for urban, small urban and rural and to level the playing field between Southwestern Ontario and the rest of Ontario;
- To retain youth, attract immigrants and attract and retain skilled workers.



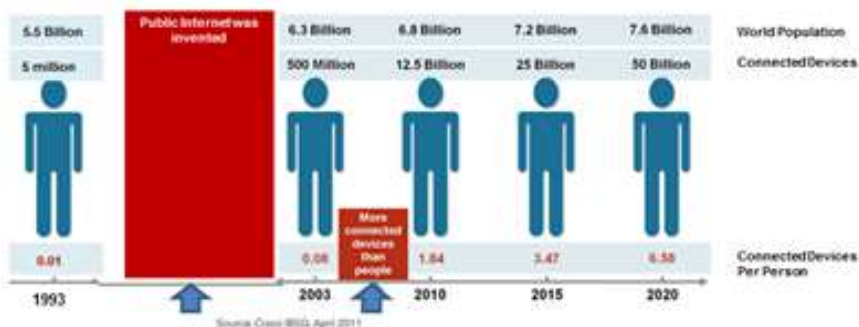
How is broadband access an important tool in economic and social revitalization?

Equitably available and affordable access to an ultra-high speed broadband network regardless of population density is a big part of the answer for our economic and social prosperity because:

² For purposes of this project the WOWC includes 14 counties plus, Chatham-Kent, Kitchener-Waterloo, Windsor, London, St. Thomas, St. Mary’s, Brantford, and Stratford.

- Unemployed people need broadband access in order to search for jobs or start new businesses, social network with their community and potential employers or customers, source seed funding to start-up businesses, access social services support, healthcare and education and other community-based resources.
- Farmers need broadband access to connect with their supply chain and marketplaces, and farmers use broadband connected to embedded sensors for monitoring and control of soil conditions and irrigation systems, livestock location, feeding, and condition, crop environments, plant and equipment operation and maintenance and receive up to the second weather information.
- Small and medium sized businesses need broadband access to market their goods and services, communicate with customers and suppliers, source funding and interact with employees working from home or on the road.
- Large commercial enterprise rely on broadband access to communicate with head office and peer locations, interact with suppliers and customers, and connect with employees working remotely.
- Public sector organizations like school boards, hospitals, county and municipal governments, First Nations, and federal and provincial government sites need to connect site to site and to the Internet to provide services and support for their students/patients/citizens and employees.
- Families and seniors require access to broadband to connect with family and friends, to access healthcare, education, government services, marketplaces, and entertainment.
- As the number of people and organizations employ an increasing array of applications and embedded sensors that require connectivity, what Cisco calls the “Internet of Everything,” is rapidly emerging in Southwestern Ontario. We need a regional network that will scale to these inexorably growing requirements and fibre optics³ is the answer. As shown in Figure 1 by 2020 there will be 50 billion connected devices or 7 devices person.

Figure 1 - The Internet of Everything



³ Fibre optics operates at the Speed of Light, which travels at 299,792,458 metres per second. Wireless and telephone and cable copper connections travel at the Speed of Sound or 343.2 metres per second

What barriers in access to broadband stand in the way?

As shown in the WOWC Broadband Feasibility Study⁴, the barriers to broadband access are:

- Large incumbent telecom providers concentrate on areas with greatest population density to increase their return on investment, so many residents and businesses have only one provider and broadband access is limited or not available.
- Lack of telecom competition in many areas of the region leads to higher rates, fewer service choices, and locked-in consumers.
- Persistent Internet cost and quality of service disparity between urban and rural users is a barrier for access to government, education, healthcare, markets, and entertainment.
- Small and medium sized businesses and public institutions in urban and rural areas have limited broadband access, fewer choices, and pay higher prices compared to their peers in the rest of Ontario which put them at a competitive disadvantage and may force them to relocate.
- Inequality of access in-turn stifles regional economic and social renewal efforts of WOWC, and others.

What are the solutions to overcoming the broadband barriers?

The feasibility study shows how to overcome these broadband barriers by building ultra-high speed broadband infrastructure the WOWC is calling SWIFT (South West Integrated Fibre Technology network):

- Internet connectivity which is equitably affordable and accessible to users regardless of population density.
- SWIFT will provide up to 1 Gbps⁵ symmetrical access for everyone.
- The SWIFT design provides fibre optic coverage to all 16 counties and 8 separated municipalities in the study, reaching 310 cities/towns/villages/and hamlets, serving a total population of 2,960,941, covering land area of 41,286 km², with the lowest density community served at 4 persons per km².
- Creating an integrated and unified network of existing fibre optic infrastructure and new fibre optic construction where all providers may fairly compete to provide access to users.

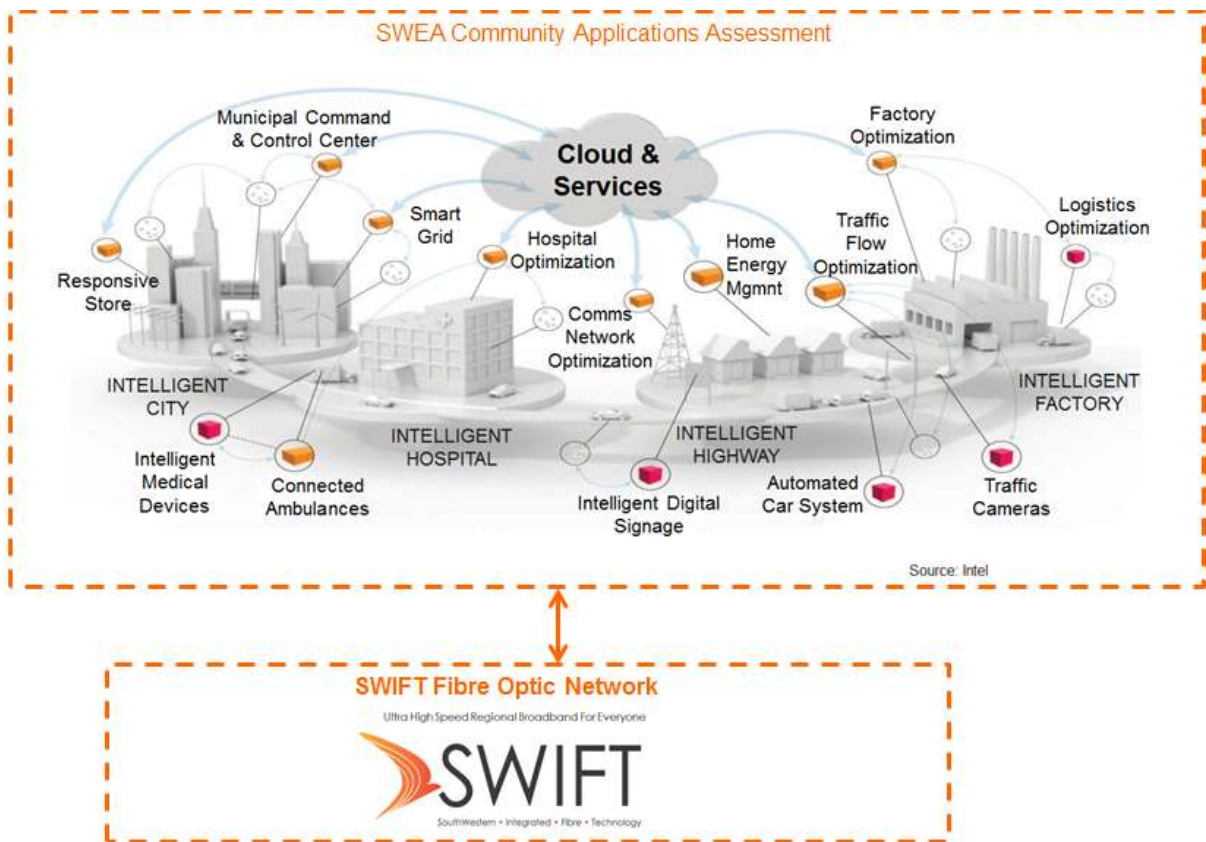


⁴ <http://www.wowc.ca/resources>

⁵ Gbps, short for Gigabits per second, is a data transfer speed measurement for high-speed networks. One gigabit equals 1,000,000,000 bits (or 100 times faster than the typical DSL or cable-modem connection). 10 Gbps and 100 Gbps connections for business and institutions will be available from SWIFT partner providers.

- The investment in scalable⁶ fibre optic infrastructure will speed the deployment of next generation systems and applications users need as catalogued in the South West Economic Alliance community applications assessment project⁷, as shown in Figure 2.
- SWIFT will give consumers more competitive choices and providers more funds to upgrade and expand their systems.
- SWIFT is a vehicle to ensure the digital divide is permanently overcome through a user-pay model like water or electricity with on-going collaboration between the WOWC, users, and service providers.

Figure 2 Users, applications, and broadband infrastructure make a complete system



⁶ A scalable network is one whose capacity may be increased as users requirements grow without triggering significant incremental costs or delays associated with plant and equipment upgrades or replacements.

⁷ <http://swea.ca/swea-intelligent-region-project-proceeds/>

How does SWIFT lead to economic and social prosperity?

The Government of Canada, Government of Ontario, and the WOWC have specific objectives for economic and social prosperity. SWIFT contributes to these priorities by:

- Connecting Canadians with available jobs by equipping them with access to the skills and training they require for obtaining high-quality, well-paying jobs.
- Helping manufacturers and businesses succeed in the global economy by better connecting them to it.
- Connecting families and communities so they have expanding opportunities to succeed and enjoy a high quality of life.
- Connecting youth to better access to education and employment from home.
- Connecting seniors for enhanced interactions with healthcare providers and support services at home.

How much will SWIFT cost?

Based on the feasibility study, which determined that extensive fibre optic assets currently exist, which may be employed in the project combined with investments in new fibre optic infrastructure, the following are the estimated costs:

- The greenfield budget estimate for SWIFT is \$233,810,000, including \$50 - \$70 million in last-mile fibre. Day one annual operating expenses of SWIFT \$9.7 million
- These figures for SWIFT have an average cost per person of \$93 compared to similar projects of the Eastern Ontario Warden's Caucus (EOWC) called Eastern Ontario Regional Network (EORN)⁸ at \$114 per person or the Nishnawbe Aski Nation (NAN) project called the North West Ontario Broadband Expansion Initiative (NWOBEI)⁹ at about \$1,760 per person.
- The SWIFT network will be ensure ongoing competition occurs between providers regardless of population density, providing consumers with more choices, better services, and lower prices.
- Source of senior level government funding is Building Canada Fund through Infrastructure Canada \$33 billion managed by Infrastructure Canada¹⁰ and matched by funds from the

<p>Federal - \$81 million Provincial - \$81 million Municipal - \$16 million Private Sector - \$66 million</p>
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⁸ www.eorn.ca

⁹ www.nanbroadband.ca

¹⁰ www.infc.gc.ca

province Ontario/or P3 Canada¹¹, Infrastructure Ontario¹² with matching contributions from municipal government and private telecom providers.

FAQ

- 1. Why fibre?** – Southwestern Ontario needs the infrastructure that will allow the region to compete with the world. Many current and most future applications will depend on synchronous (two-way) connections between the cloud and the end user. Moreover, those connections must be able to provide the quality of service necessary to support millions of users and their applications simultaneously. Only fibre-optics has the capability to deliver the speeds required by these future applications.
- 2. Is the market not doing a good job by itself?** The private sector companies that provide broadband are primarily responsible to deliver value to their shareholders. The SWIFT network consortium would have permanent public sector members on the board to ensure that less densely populated rural areas that do not have a quick return on investment for the private would get the broadband infrastructure they require and that urban and rural areas will have many service providers competing so that consumers have more choices, better services, and lower prices.
- 3. How do I get involved?** Keep up to date on the project by signing up for our email newsletter at <http://www.wowc.ca> or follow us on Twitter [@wowcinc](https://twitter.com/wowcinc). The project depends on participation of our federal and provincial governments so contact your local MP and MPP to let them know you support the project.

¹¹ www.p3canada.ca

¹² www.infrastructureontario.ca