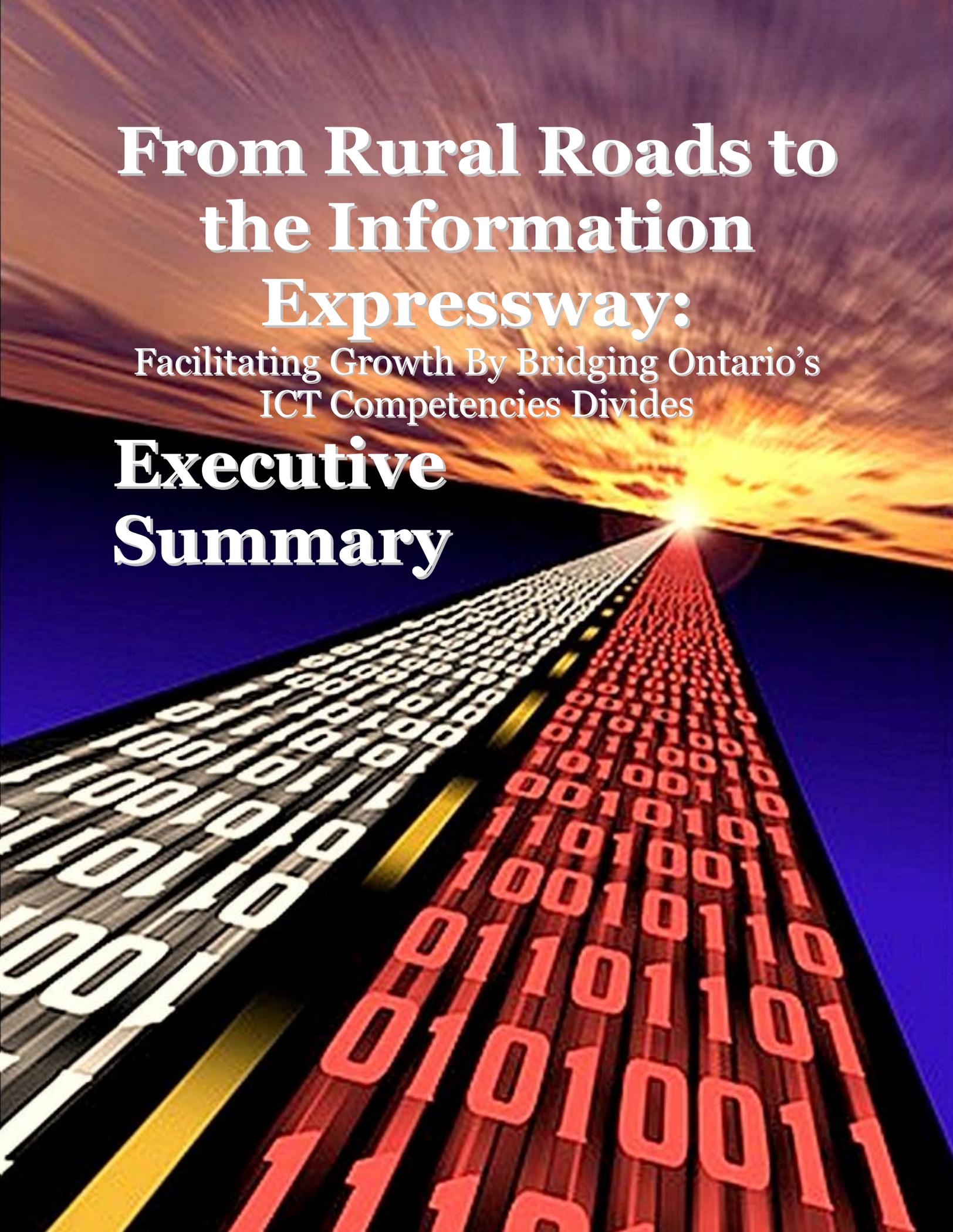


# From Rural Roads to the Information

## Expressway:

Facilitating Growth By Bridging Ontario's  
ICT Competencies Divides

## Executive Summary



by  
Jamie C. Newman

Capstone  
Master of Public Policy



Department of Political Science

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SIMON FRASER UNIVERSITY

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## Abstract

Ontario's economy is in transition. The manufacturing and primary industries are on a trend of decline while service-based industries - especially those requiring the use of information and communications technology (ICT) - are surging. The digital economy is continuing to grow and is expanding employment opportunities worldwide. Tele-work is providing opportunities to improve organizational efficiency. ICT competencies are essential for accessing these opportunities. Ontario citizens from rural regions have been disadvantaged by limited access to broadband internet. The Ontario government has invested in connecting all its citizens; however, the rural digital divide persists due to low competencies. E-learning adult training programs are a good option because they overcome geographic barriers and target populations experiencing digital divides. This study seeks to define the components of an effective e-learning ICT competencies training program and how it can be implemented to overcome the rural and unemployed digital divides and improve economic outcomes for all Ontarians.

**Keywords:** information and communications technology (ICT) competencies, e-learning, adult training, essential skills, digital competency divide, asynchronous learning, synchronous learning, student-centred learning

# Executive Summary

## ICT competencies – Essential Skills

2008-2009's economic downturn has exposed the vulnerability of Ontario's economy. The manufacturing sector, in particular, lost over fifty-three thousand jobs from March 2009 to March 2010. This is not a short-term fluctuation; it has been on a long-term decline having lost close to ten per cent of its proportion of Ontario's GDP from 1987 to 2009. The manufacturing sector demonstrates the most dramatic decline but other goods producing industries (i.e. forestry, mining, agriculture, construction and transportation and warehousing) have also experienced decline; whereas, service providing industries (e.g. health care, education, professional and scientific and financial services) have experienced a long-term trend of growth in their proportion of GDP. This translates into more occupational opportunities in the traditional labour market in service providing industries. These industries also require higher levels of Information and communications technologies (ICT) competencies - essential skills as defined by HRSDC – Canada. This transition disproportionately affects people in the rural areas of Ontario, as goods producing industries comprise a larger proportion of its economy than urban areas.

The digital economy is emerging as one of the most important indicators of a nation's prosperity into the future. High levels of ICT competencies are an essential prerequisite to flourish in the digital economy. Overall, Canada has a population willing to engage in the digital economy and good infrastructure but lags behind on creating a receptive market environment, political and regulatory environment, business and government readiness. Supporting ICT competencies facilitation in Ontario addresses some of these deficiencies inhibiting capitalization on digital economy opportunities.

HRSDC defines ICT competencies as essential. Primary, secondary and tertiary education recognizes the increasing importance of these competencies by offering education in general ICT competencies. Adult training in Ontario is also recognizing its importance by implementing some internal ICT curriculum and providing referrals to an external partner that provides more robust ICT curriculum. Reading, writing and numeracy dominate the adult training regime and ICT competencies are under-emphasized. To equip the at-risk populations (e.g. unemployed and/or rural) for success in the modern economy, adult training services must adapt to the evolving importance of ICT competencies. E-learning reduces the barriers for people inhibited from accessing traditional classroom learning.

## **Study Design: ICT Competency E-Learning Program Evaluation**

I am interested in the performance of Ontario's adult training e-learning capabilities and ICT curriculum in comparison to other programs. I chose to analyze the current external ICT competency training partner used by adult training e-learning services (Goodwill Community Foundation – Learnfree.org) and a recommended training partner of the European/International Computers Driver's License ECDL/ICDL (Jenison's Impetus Plus). ECDL/ICDL is the most used and recognized ICT competency accreditor in the world. I use a case study approach to analyze e-learning programs on important inputs for an effective training program and available outputs. Programs are analyzed on six domains: Outputs, Curriculum, Content, Support, Administration and External Context. Each of these domains have a variety of criteria and sub-criteria used to administer a systematic and empirical assessment of service provision. The purpose of this study is to inform potential policy alternatives to improve ICT competencies for people accessing adult training services in Ontario, specifically considering the unique learning barriers of the unemployed and people living in rural areas.

## **Results: ICT Competency E-Learning Program Evaluation**

Overall, Ontario's adult training e-learning programs and Jenison were the top performers on the E-Learning Program evaluation. They differ on their strengths and weakness according to domain. Ontario's internal ICT curriculum was the largest inhibitor to their overall score, but this is counterbalanced by their high-quality e-learning content and support services. Jenison had the most comprehensive curriculum available and it is designed for beginner, intermediate and some advanced level learners. They were also the top performer on the Outputs domain driven by their direct training for and referral to ECDL/ICDL accreditation testing. They also have the most consistent and adequate funding due to the user fees they charge. The Goodwill Community Foundation (GCF) was the worst performer on all domains except curriculum primarily because of the limited comprehensiveness of their asynchronous courses, difficulty accessing synchronous courses, limited support service capacity and inadequate and inconsistent funding to service their high demand. Because of this, GCF is an ineffective training partner in comparison to Jenison according to the evaluation framework.

## **Policy Analysis: More Robust and Effective ICT Programs**

I analyze two alternatives plus the status quo to determine if improving ICT competency training is worthwhile. The policy alternatives are to implement more robust and effective curriculum as an internal program or use an external partner to deliver more robust and effective curriculum alongside the status quo. I determine the value of each policy alternative using seven policy criteria: effectiveness improving ICT competency training overall, effectiveness improving ICT competency training for the rural and/or unemployed people, fiscal cost, horizontal (urban geographic) equity, vertical equity, political and public acceptability and implementation complexity. Policy analysis indicates using an external partner is the best alternative because it addresses the deficiencies of the status quo for

improving the ICT competencies of all rural and unemployed people accessing adult training services. It also entails a much lower fiscal cost than implementing more robust curriculum internally. There are concerns with the political acceptability and implementation complexity of this alternative, which is discussed in the report.

## Recommendations

I recommend that the Ministry of Training, Colleges and Universities – the public body responsible for delivering adult training in Ontario – subscribes to an ECDL/ICDL training partner similar to Jenison’s Impetus Plus program and provides better and more consistent referrals to appropriate candidates for ICT competencies upgrading. This would involve:

- discontinuing referrals to GCF ICT competency training,
- paying the licensing fee to the selected training partner,
- assessing the prerequisite competencies for using the e-learning environment,
- adapting the existing internal curriculum to be an orientation to the e-learning environment that trains candidates in the prerequisite competencies, and
- developing an effective communications strategy for achieving a referral system that allows all appropriate candidates exposure and access to effective and robust ICT competency training services.

I also recommend - for consideration - monitoring aggregate performance on ICT competencies for the population by different geographic locations and demographic characteristics using standardized tests similar to the International Adult Literacy Survey for reading, writing and numeracy. ECDL/ICDL testing uses respected testing modules to assess ICT competencies around the world. A partnership between ICDL – Canada and Statistics Canada would capitalize on the existing capabilities to monitor ICT competencies in Canada. I recommend this for consideration because there are significant implementation concerns regarding the privacy and security concerns of ICDL/ECDL clients, the representativeness of the people accessing the services and the willingness of these partners to combine efforts.