

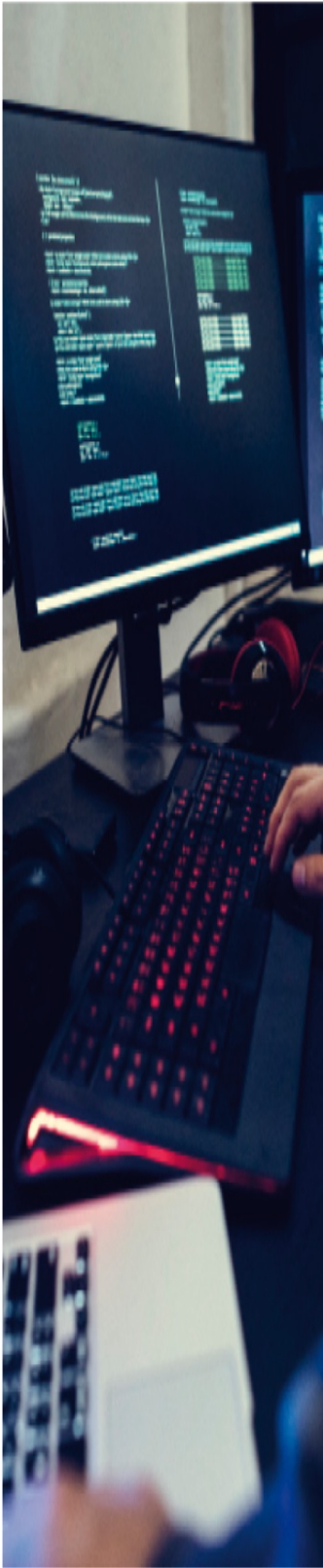
**BAY OF QUINTE
TECHNOLOGY
WORKFORCE
STUDY**

QUINTE ECONOMIC DEVELOPMENT COMMISSION

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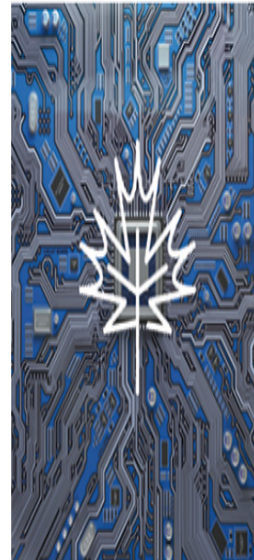


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Bay of Quinte Technology Workforce Study

EXECUTIVE SUMMARY



Quinte Economic Development Commission

Quinte Economic Development Commission is a regional economic development office attracting new investment and supporting our existing vibrant industry and technology hub.

supported action items to address the technology sectors workforce needs were created based on input at the October 18, 2019 Technology Forum with representatives from the local technology businesses and community stakeholders.

Additionally, one of the outcomes of this project was to identify the companies in the local technology sector. With assistance from the Centre for Workforce Development, 84 technology companies were identified in the region resulting in the creation of the region's first technology sector directory.

Community partners, stakeholders and industry members will be working collaboratively to implement the ideas and recommendations in this report.

Quinte Economic Development Commission (QEDC) with funding support from Employment Ontario, the Province of Ontario and the Government of Canada, created this report based on the responses to a labour market survey of the local technology sector and the input from a local technology forum.

Technology sector businesses that participated in the survey helped document the current and future workforce requirements for the region's technology sector. QEDC hired Launch Lab, a member of the Province's Regional Innovation Centre network, to create the survey tool and conduct the survey.

The goal of the survey was to have a better understanding of the collective workforce and skill requirements for the region's growing technology sector. Industry driven, community

This Employment Ontario project is funded in part by the Government of Canada and the Government of Ontario



84

TECH COMPANIES
IN BAY OF
QUINTE



PROJECT METHODOLOGY

This project included a number of steps leading to the strategies and recommendations outlined in this report. An advisory team helped to guide this project. The following steps were followed.

1. Document existing technology companies in the region.
2. Create a survey tool for use in a labour force survey (contracted to Launch Lab).
3. Conduct the workforce survey of existing technology companies (contracted to Launch Lab).
4. Host a technology forum to develop industry driven action plans to address identified workforce requirements.

Document Existing Technology Companies in the Region

QEDC, with support from the Centre for Workforce Development, created the directory of 84 technology related companies. This was a higher number of companies than anticipated, and due to the nature of these businesses, it is expected that additional technology companies will still be identified.

Create a Workforce Survey Tool

Launch Lab was hired to create the survey tool with one of their Entrepreneurs in Residence (EIR), Jacques Pilon as the primary point person on this project. Jacques has extensive experience in technology as an entrepreneur in the region. Various reports and studies were



Tech Companies in Canada

41,500

TECH WORKER AVERAGESALARY



Ontario \$76,605
Canada \$77,794

investigated to develop a survey that include the various job categories in technology. The initial survey tool was test piloted and modified based on feedback.

Conduct the Workforce Survey

All companies in the local technology sector were invited to participate in the survey either electronically or in person. Twenty-four of the eighty-four companies completed the survey for a completion rate of 28.5%. Launch Lab conducted the in-person surveys and received the survey results which were aggregated into the final results.

Technology Forum to Develop Industry Driven Action Plans

QEDC coordinated the forum and engaged the Queen's Executive

Decision Centre to facilitate the forum using their state-of-the-art Group Decision Support Software (GDSS) technology and supported by their experienced facilitator Erik Lockhart. This process improves on conventional meetings where people call out ideas which are recorded on flip charts or whiteboards and then the moderator uses post-it notes and sticky dots to prioritize. Instead, a question is asked and people enter ideas on laptops. All the ideas get shared on a big screen, and can be merged, themed and moved around as needed. After some discussion about the ideas, the group can go back to the laptops and vote on the top ideas. The system then collects and ranks the results, at which point the group can then further discuss, and/or take the top ideas and flesh them out or develop action plans for them. The process was described as extremely fun, accessible and user-friendly.



1000+ EMPLOYEES WORKING IN TECH RELATED FIRMS IN BAY OF QUINTE



Queen's Executive Decision Centre

Queen's Executive Decision Centre has developed innovative ways for technology to support the planning and decision-making tasks of executive teams from both private and public sector organizations. The technology effectively creates an electronic meeting room containing a large screen projection system, and a microcomputer network.

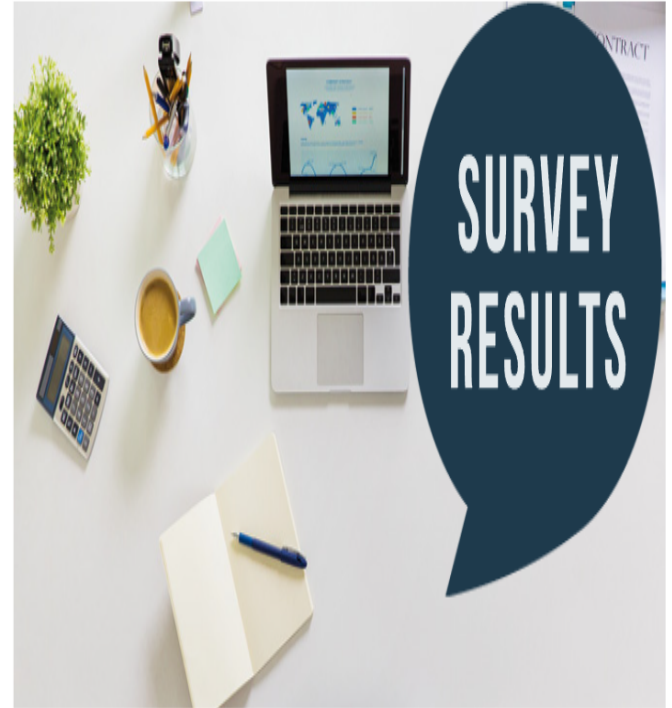


Launch Lab is a Regional Innovation Centre and member of the Ontario Network of Entrepreneurs, a provincially funded network of resources for entrepreneurs. As a RIC, their regional boundaries consist of most of southeastern Ontario (Trenton, down to Picton, over to Cornwall, and back up and around through Smiths Falls and Bancroft).

GEOGRAPHY

The geographic area covered by this project is the Greater Bay of Quinte Region, which includes the service territory of the Quinte Economic Development Commission (QEDC): Brighton, Quinte West and Belleville, as well as the technology-based companies in the surrounding communities. The Greater Bay of Quinte Region is strategically positioned off Highway 401, the major transportation route for all of southern Ontario, offering ready access to major markets in Canada and the United States.

The region is noted for its spirit of cooperation, collaboration and teamwork. QEDC is an example of three municipalities working together for economic development for the betterment of the region.



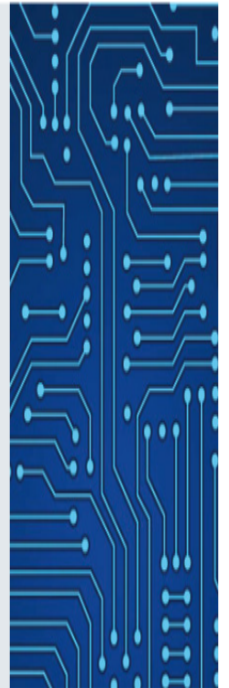
THE SURVEY

Quinte Economic Development Commission developed a directory of the technology companies located in the greater Bay of Quinte region over the summer of 2019. Using this directory, all companies were invited to participate in the survey either electronically or in-person.

Some findings of note can be found on the following pages. They include an understanding of the current skills currently held by the workforce in the region and what technology is currently being embraced in their organizations.

It's noted that almost all companies surveyed were predicting steady but potentially limited growth.

Launch Lab was hired to conduct the in person surveys and aggregate the final results.



106,137

BAY OF QUINTE REGION POPULATION

24

COMPANIES PARTICIPATED IN THE SURVEY



SURVEY HIGHLIGHTS

The Bay of Quinte region is home to a relatively diverse cross section of industry within the tech sector. From the survey a picture of the variety of current skills in the region emerged as well as potential areas for growth in the workforce.

The survey uncovered technologies embraced in local organizations, current skill sets in the region and where future opportunities may lie.

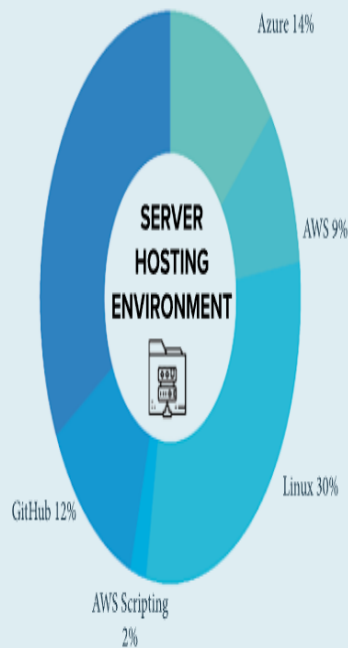
OPPORTUNITY FOR SPECIALIZATION WITH LOCAL SPECIALIST IN RANSOM WARE



7-10



LOCAL COMPANIES TYPICALLY START SELLING OUTSIDE THE REGION AT AROUND AN EMPLOYEE COUNT OF 7-10.



App for Apple Android

15%

Xamarin

8%

PROGRAMMER CORE LANGUAGES

8%

C++



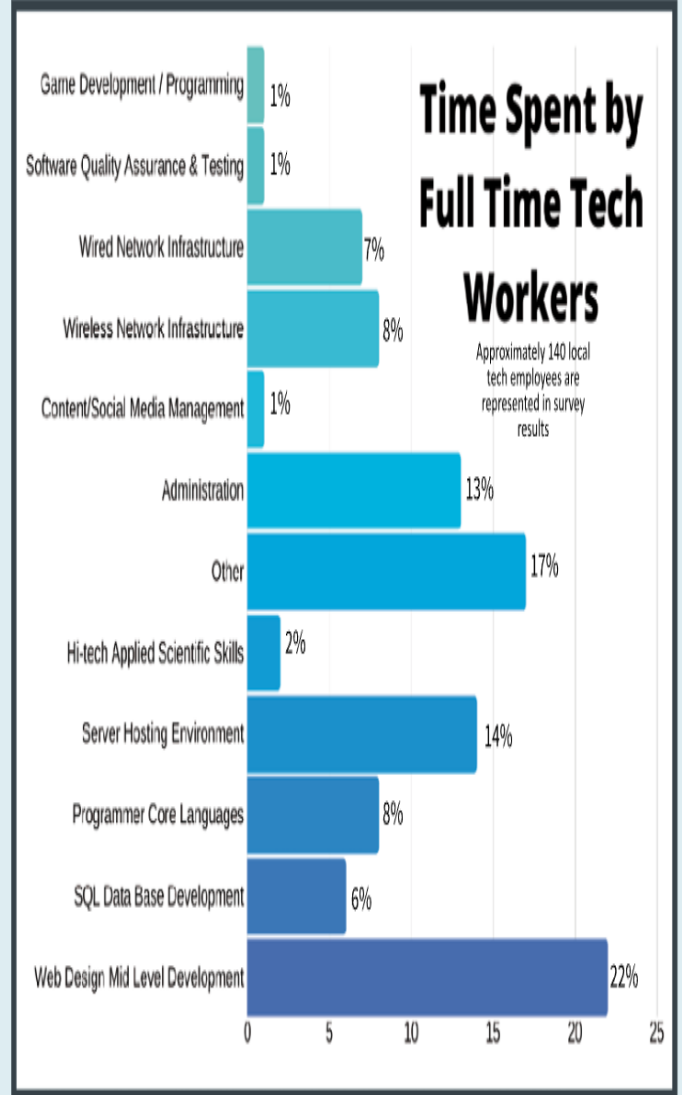
ALMOST ALL COMPANIES SURVEYED WERE PREDICTING STEADY BUT SOMETIMES LIMITED GROWTH

Microsoft Visual Studio - C#

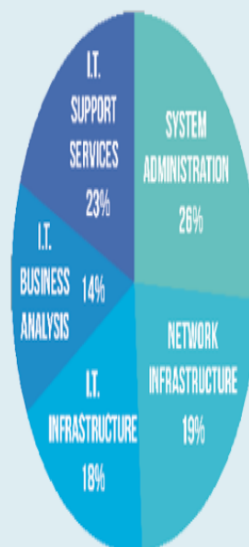
55%

14%

ASP.net



ADMINISTRATION FUNCTIONS



SOFTWARE AS A SERVICE WAS IDENTIFIED AS A GROWING SECTOR OF FOCUS AMONG LOCAL FIRMS

SaaS



SURVEY HIGHLIGHTS

Additional survey findings:

- Most respondents' workforce were working with Microsoft (MS) products running on MS operating systems/environments using MS development tools.
- There were fewer workers using Linux than MS. They were found to be working in some of the smaller businesses.
- Losing people because of retirement did not seem to be an issue.
- Finding qualified new people can be difficult but not impossible.
- Companies are experiencing varied results with outsourcing. Some rely on outsourcing and others avoid it due to previous negative experiences.
- There were a larger number of people involved in wired and wireless infrastructure than expected.
- Most local high-tech firms overlapped with the manufacturing sector having some manufacturing aspect to their business. Overall these firms were harder to locate perhaps because of a customer focus outside the region.

Part of the research Launch Lab undertook designing the survey was to look at technology courses offered by Loyalist College and two Colleges in the 'tech corridor', Centennial and Conestoga Colleges. After subjectively selecting what they considered were tech courses, they looked for commonality in terms used to describe and/or brand these programs.

- | | | |
|---|--|--|
| Current programs at Loyalist College that Launch Lab took into consideration for the survey were: | <ul style="list-style-type: none"> • Biotechnology • Biotechnology - Advanced • Cannabis Applied Science • Chemical Engineering Technician • Chemical Engineering Technology • Computer Systems Technician • Electrical Engineering | <ul style="list-style-type: none"> • Technician - Industrial • Interactive Media Development - Animation & Game Development • Interactive Media Development - Film and Television • Manufacturing Engineering Technician |
|---|--|--|

LOYALIST COLLEGE POTENTIAL PROGRAMS

Fulfilling Future Workforce Requirements

The Bay of Quinte's ICT companies are, in general, smaller operations with employees that have multiple software development skills. They are not big enough yet to require employees who specialize in one area of software development. The current industry term for these multi-skilled developers is Full Stack. Definitions and examples of Full Stack vary substantially. However, by using the survey results we arrived at the following:

- Brower Programming (JavaScript, HTML5, Angular)
- Server Programming (PHP, ASP)
- Database Programming (SQL, MySQL).

Only the smaller scale Microsoft and Linux platforms were represented in the three functions above. We found no businesses developing on or for Oracle database software.

Of the Canadian college programs that were looked at, only Selkirk College was using the term "Full Stack Web Application Developer" to market one of their programs. Their program expands on the definition of Full Stack by including an aspect of software development management like version control.





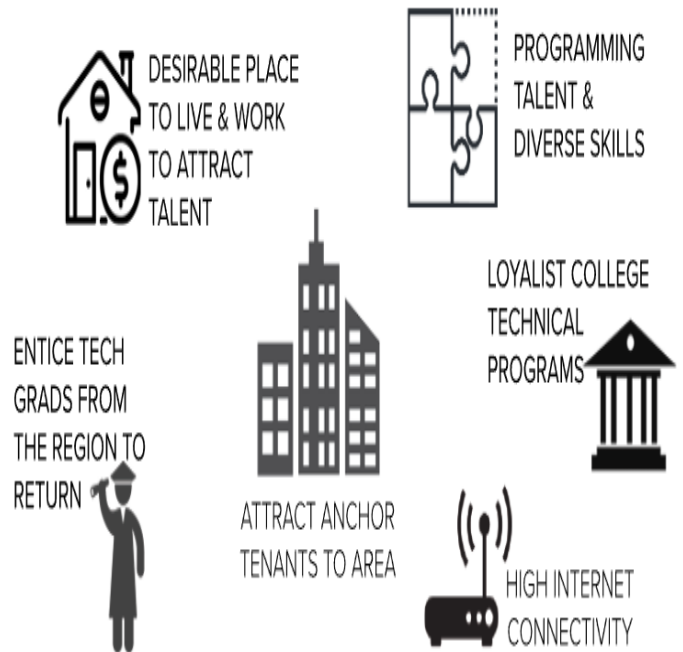
BAY OF QUINTE TECHNOLOGY FORUM FINDINGS

This section contains proceedings from the Bay of Quinte Region Technology Forum held on October 18, 2019. The purpose of the forum was to develop a community strategy to address workforce challenges in order to grow and strengthen the technology sector. The Forum began with some preliminary findings from the employer survey. The group was then asked to assess the current state of the regional workforce by identifying assets and gaps.

A desired future state was defined that articulates what success with our workforce would look like in five years. The group then brainstormed over 60 potential strategies and actions. These were parsed and prioritized into five priorities for the next two years. Participants were invited to express interest in being involved in the key priority areas.



DESIRED FUTURE STATE



VISION FOR THE BAY OF QUINTE TECHNOLOGY WORKFORCE

The Vision: For the Bay of Quinte region's tech sector to be recognized across the country and for it to continue to grow and attract business and talent. We will have earned this reputation by:

1. Being known as a desirable place to live for tech workers by offering a lifestyle and amenities that attract young technology workers.
2. Enticing tech-related graduates to return to the region to work in a growing, vibrant local technology sector that offers a range of diverse career opportunities with recruitment starting in year 1 of post-secondary education.
3. Attracting multiple "anchor tenants" based in the region with a well-defined cluster of companies supporting each other.
4. Ensuring Loyalist College has the capacity to offer technical programs that meet the changing demand.
5. Attracting an overabundance of programming talent, with a diversity of skill sets.
6. Ensuring high internet connectivity, with rural internet addressed and solved.

CURRENT GAPS

In order to create a path forward, it was important that during the Bay of Quinte Technology Forum the group identified gaps or areas of opportunity for the region.

1. Lack of tech programs at Loyalist College that can feed the current and future workforce demands of the local technology sector. Educators need greater ability to understand and respond to industry workforce demands.
2. Increased awareness required of Bay of Quinte's current tech sector: the region has not been focused on developing tech but rather more on manufacturing, agriculture and tourism.
3. A more robust social and professional network is required for new Canadians and international students to encourage them to stay in the region.
4. Regional transit is identified as a need as well as the need for affordable housing.
5. Improvements are still required in bandwidth for rural internet.
6. Lack of awareness in grades K-12 of local tech opportunities of current trends and technologies.
7. Lack of elements that will keep young people (ages 20-30) from moving away from the region, or that keep them from returning after post-secondary.



STRENGTHS & ASSETS

Some of the strengths and assets for the Bay of Quinte region's industrial sector are mirrored in the technology sector.

EXISTING ASSOCIATIONS

The newly-formed Quinte Technology Association (QTA), Quinte Economic Development Commission (QEDC), Centre for Workforce Development (CFWD), Community Futures Development Corporations (CFDC), Human Resources Professional Association and The Ontario Association of Certified Engineering Technicians and Technologists.

AFFORDABILITY

Housing costs and professional space cost are relatively low. The average home price is \$350,000.

GEOGRAPHIC LOCATION

Easy access into major urban centres like Toronto and Montreal by car or train.

LIFESTYLE

Short commute times with plenty of after work opportunities provide a sought-after lifestyle.

COLLABORATION

Collaborative business community open to learning about and working with other local companies.

ECOSYSTEM & BUSINESS PARTNERSHIPS

The region's environment provides support to industry and opportunities for employee skill development.



OPPORTUNITIES

Gap analysis identified opportunities to improve the awareness of the existing technology sector companies already operating in the Bay of Quinte region.



CULTURE OF COLLABORATION

Bay of Quinte provides an environment well suited to cross industry collaboration



PRIME LOCATION

The Bay of Quinte's geographic location provides an easy jumping off point to other major urban regions in Ontario, Quebec and the US.



QUALITY OF LIFE

The Bay of Quinte provides a better pace of life with shorter work commutes and four-season fun after 5pm.



VISION

Through the Bay of Quinte Technology Forum, a vision was created for what industry in the region would like to both support and grow the tech sector in the region.

KEY PRIORITIES 2020-2023



Comprehensive attraction strategy for local tech sector

Strategy to increase local awareness of opportunities in the tech sector



Build a sustainable mechanism that better connects Loyalist College and the sector




Build out QTA and involve as many tech businesses as possible

Create and implement a regional immigration strategy



Attract a large anchor firm to the region



PRIORITIES

1. Comprehensive attraction strategy for the tech sector.

Champions:
Loyalist College, QTA, local businesses

Develop a strategy to focus on both the attraction of workforce and new businesses to the Bay of Quinte region. This multi-pronged marketing strategy should develop and include relocation packages targeting individuals looking to get out of the more urban centres like the GTA.

Champions:
QEDC, municipalities, regional marketing board

4. Build support for and momentum at the Quinte Technology Association.

Grow the membership of the Quinte Technology Association and involve as many of the tech related companies/individuals in the Bay of Quinte region as possible. Proactively engage with the Loyalist College programs and students.

Champions: QTA, QEDC, Municipalities

2. Increasing local awareness of opportunities in the tech sector.

The development of a strategy around increasing the awareness of the opportunities in the tech sector. Examples of this could be; the development of a regional maker space, increasing STEM in schools or public workshops for learning programming and more.

Champions:
QEDC, Quinte Technology Association (QTA), Loyalist College, school boards, public libraries

5. Regional immigration strategy.

Create and implement a regional immigration strategy that includes the attraction and retention of tech workers. Focus on 2 or 3 established ethnic cultures, creating cultural ambassadors with a network in established urban ethnic centres.

Champions:
Municipalities with input from QEDC, QTA, Centre for Workforce Development

3. Better connect Loyalist College and the local tech sector.

Build a sustainable mechanism that better connects Loyalist College and the local sector. Developing the relationship between Loyalist College and the industry will allow an opportunity for the college to respond to the local workforce needs.

6. Attract a large anchor firm from outside the region.

Investment attraction strategy activities to increase interest in the region resulting in a mid-to-large sized firm from outside the region setting up a location in the Bay of Quinte.

Champions:
QEDC, Municipalities, local business ambassadors



BAY OF QUINTE

TECHNOLOGY WORKFORCE

SUMMARY

Building upon successful and actionable workforce development strategies that were conducted previously for the local manufacturing sector, we are confident this tech sector strategy will be implemented with actions and results to improve and support the growing tech sector. Thank you to the technology companies that completed the workforce survey. A special recognition of Jacques Pilon from Launch Lab who developed the survey tool and conducted the workforce surveys on half of the Quinte Economic Development Commission. We also want to recognize the community stakeholders and representatives from local technology firms that participated in the Bay of Quinte Technology Forum to review the results of the survey and create this industry driven, community supported plan.

The Bay of Quinte is experiencing growth in the technology sector with many innovative companies taking advantage of the quality of life in the region balanced with a growing business opportunities. The newly-formed Quinte Technology Association (QTA) is providing a vehicle for local technology firms to network, share information, ideas and best practices. The QTA and its members will be an important partner as the region moves forward to further develop and support local technology businesses.

The priorities identified in this document are being shared with stakeholders who are interested in helping to advance this sector. Quinte Economic Development Commission will

continue to be a supporter of this sector and are already looking at ways of moving forward on the identified action items. Loyalist College has received the survey results and are also looking at opportunities to improve the course offerings to support the technology sector. QEDC will report back to the various stakeholders on the progress being made on the strategy.

This study was focused solely on technology related business and their tech-related workers. We know that technology workers are also employed across all other sectors in the economy. Technology is an enabler that is being deployed across every sector from agriculture to healthcare, manufacturing to retail, service to other sectors. Further work and analysis of the tech workers in other sectors would be useful in the future to provide additional insight into this growing sector.

Finally, thank you to the Ontario Ministry of Labour, Training and Skills Development for supporting this project.



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**TECH
WORKS
HERE**

THIS EMPLOYMENT ONTARIO PROJECT IS FUNDED IN PART BY THE GOVERNMENT OF CANADA AND THE GOVERNMENT OF ONTARIO

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ONTARIO**

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