

COVID-19: Key Issues for Atlantic Canada's Economy

March 2021

Highlights

Digitalization and automation has accelerated during the pandemic including remote working and ecommerce

Atlantic Canada is falling behind in the adoption of advanced and emerging technologies

Companies should prioritize and find ways to fund investments in digitalization and automation or risk falling further behind

The skills required to support these technologies need to be upgraded for many workers

The supply of workers available to support the transition to a more digital economy is lacking and must be improved

Funding and training programs to support increased investments in digitalization and automation must continue to evolve in a post-pandemic economy

Improving broadband access and cybersecurity are critical to future success



The Role of Digitalization and Automation in Supporting the Recovery

Firms in Atlantic Canada are increasingly looking at digital technologies to improve business processes or in some cases to completely transform their businesses.

The digital industry is one of the fastest growing components of Atlantic Canada's economy. APEC estimated that revenues of Atlantic firms producing digital technology totalled \$6.1 billion in 2017.

Canada trails many leading countries in the adoption of new technologies and spending on innovation. Atlantic Canada currently lags Canada in key measures of innovation, including investment in machinery & equipment, research & development and the adoption of emerging technologies.

COVID-19 has negatively impacted many businesses. However, automation

and digitalization have accelerated to support physical distancing and reduce future shutdown risk.

According to ICTC, Canada's employment in core digital occupations such as web developers, software engineers and computer/information systems managers was up over 30% between January and December 2020.

Many firms have already made significant changes to their business processes including remote working, incorporating cloud based platforms, and adding ecommerce solutions. These digital solutions have helped to support revenues and operations during the pandemic.

Challenges remain including increased cybersecurity risk and an expanding digital divide, especially for those in rural areas or with lower incomes and skills.

Digitalization - is the use of digital technologies to change a function or a business process. Digital transformation is restructuring the business model with digital processes to increase revenue or improve productivity.

Automation - is a process that minimizes human assistance in a task. Increasingly digital technologies are being used in conjunction with mechanical technologies to automate tasks. In other cases, the technology is completely digital.

Atlantic Canada is Falling Behind in Technology Adoption

Digital and automation technologies are critically important to the future growth of Atlantic Canada's economy. They will drive productivity growth and improve the standard of living.

Use of business intelligence technologies such as cloud computing and big data analytics tools has been growing strongly in firms globally. Atlantic Canada has been trailing the rest of the country in the adoption of these technologies. The region also trails in using Internet of Things technologies (ie sensor technology), cybersecurity and artificial intelligence.

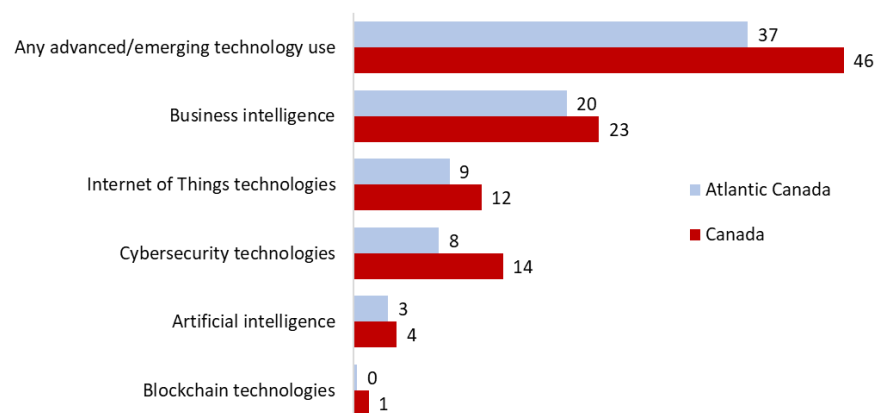
There are many reasons why firms struggle to adopt these technologies. For Atlantic firms the uncertainty and risk, lack of skills, and financing are the key reasons. These barriers are often interconnected and are more challenging for small- and medium-sized enterprises. Smaller Atlantic firms have fewer staff and other resources to lean on to help support these investment decisions.

Overcoming Barriers to Adoption

Lowering the level of **uncertainty** in the investment decision would encourage more businesses to move ahead. This is especially important in the current environment as the unknown duration of COVID-19 makes every business decision more challenging. Greater awareness of the available technologies and how they could help their business would also raise the likelihood of new investment.

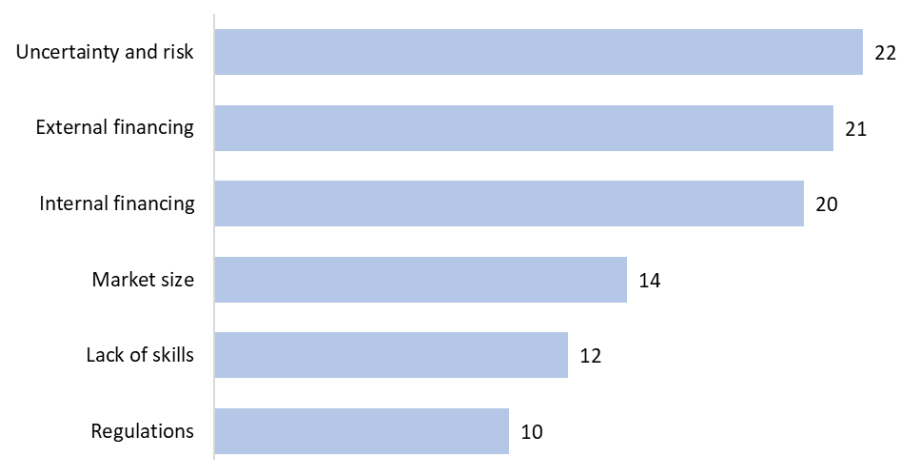
Many companies forego investments in new technologies because they do

Share of Firms Using Advanced or Emerging Technologies, 2017 (%)



Source: Statistics Canada, Survey of Innovation and Business Strategy

Barriers to Innovation, Atlantic Canada, 2017 (% of total)



Source: Statistics Canada, Survey of Innovation and Business Strategy

not have the internal **skills** to support implementation. While an outside consultant can help with the initial implementation, having internal support is crucial to maximizing the potential of an investment.

Upgrading skills either internally or by hiring new people to support a technology transition will help reduce those barriers. Programs to support skill upgrades or external hires to help with technology implementation should be considered.

Most firms will compare the business case of several investments before

financing a project. A lack of understanding of how digitalization and automation can help a firm is a challenge. Educating firms on how digitalization and automation technologies improves productivity can help firms to increase the priority of these investments. A modest level of financial support from government can also improve the likelihood of proceeding with a project.

Impact of COVID-19 on Digitalization and Automation

Digitalization

According to the OECD, “the COVID-19 pandemic has amplified all aspects of the digital transformation”

E-commerce sales boomed during the initial shutdown. In April and May total retail sales fell while retail e-commerce sales doubled over the previous year. Much of that growth was from traditional brick and mortar retailers that accelerated or introduced ecommerce solutions.

Amazon and other e-retailers also boomed but traditional retailers found ways to adapt to the changing environment. Those that improved their online offerings quickly were able to establish increased market share. Grocery purchases moved online, curbside pickup options increased and home delivery of meals and other retail goods grew. Some of that momentum subsided as stores reopened, but September and October ecommerce sales were still 60% above the 2019 level.

Working from home became a necessity during the shutdown and remains an important part of business activity. Working from home peaked at 42% nationally in April and fell to 26% in September. As cases

picked up in the fall the number of people working from home increased to 29% by December.

While these numbers will fluctuate in the coming months there are firms that have made the decision to fully or partially embrace remote working. New technologies have been implemented to support this shift. Most businesses will return to their offices but will now have increased flexibility for their workers. Many workers will now request a choice in their work environment.

Beyond these key shifts other forms of digitalization are also a priority for business. A recent PwC survey of CEOs showed that digitizing core business processes is the top priority. Shifting to cloud based solutions, improving cybersecurity, digitizing inventories and supply chains and improving employee digital skills are all important areas of growth that are helping firms adapt and become more agile.

Automation

Statistics Canada’s latest survey of investment intentions shows that machinery and equipment (M&E) spending was expected to be down 16% in Atlantic Canada in 2020. This is largely due to the uncertainty caused by COVID-19.

A recent study by Innovation, Science and Economic Development Canada highlights the positive impacts between investments in M&E and research and development and fast-growing firms. While larger firms can prioritize these investments, firms in Atlantic Canada are smaller. However, Atlantic firms cannot risk falling further behind in the adoption of technologies that can improve their productivity.

Many of the industries that have been hit hardest by the pandemic are those where most cannot work from home. These industries are also the ones that offer the greatest potential for automation. This includes accommodation and food services (73% of jobs are estimated to be automatable), manufacturing (60%), agriculture (58%), transportation and warehousing (57%), and retail trade (53%).

More rural industries will be impacted especially in manufacturing and the primary sector. Low skilled and low-income individuals have been hit hardest by COVID-19. Low wage, personal services and high wage, high skilled are less vulnerable. Repetitive tasks that can be automated (whether low wage or higher wage manufacturing jobs) are more at risk.

Improving Broadband Access and Cybersecurity is Key to Future Success

Some rural areas in Atlantic Canada still lack **high-speed internet** access. Increased broadband will bring many health, social and education benefits. It will support businesses who have workers at home and enable rural companies to have more confidence investing in digitalization and automation technologies that require a reliable internet connection. The need for improvements to rural broadband has become increasingly apparent during the COVID-19 pandemic.

The federal and provincial governments along with implementation partners like Bell and XploreNet are increasing investments to support enhanced rural broadband. The federal government is investing \$1.75 billion nationally that will see 98 per cent of Canadians connected to high-speed internet by 2026. Nova Scotia invested \$193 million into a Trust to help address the issue. To date, the approval of \$110 million worth of projects will increase access to more than 95% of Nova Scotia by 2022. Prince Edward Island’s internet plan will see 30,000 additional homes and businesses with broadband access. Over \$130 million will be invested in New Brunswick to bring high-speed access to 73,000.

Cybersecurity must also be improved as businesses become more digital and rely on internet access for automated and other technologies. As firms settle on their new normal around remote working more thought must be given on the cybersecurity implications of employees in multiple locations. Many companies have had to accelerate investments in cybersecurity due to the impact of COVID-19 while others may have had to cut budgets to maintain operations. A recent McKinsey study showed that smaller firms and those in industries negatively impacted by the pandemic are decreasing their spending on cybersecurity. Firms should be encouraged to move ahead with investments in cybersecurity. Firms should also ensure that employees, especially remote ones, are aware of the possible threats and trained to respond if attacked.

Examples of Programs Supporting Innovation, Automation and Digitalization

- The federal government's [Strategic Innovation Fund](#) offers several streams of funding to support innovation and technology adoption. The [Atlantic Growth Strategy](#) has streams that can support businesses in the adoption of new technologies.
- The \$400 million [Atlantic Fisheries Fund](#) is a joint federal and provincial initiative that focuses on investments in new technology, research and development and science partnerships. Skills Training Atlantic Canada is a federal Future Skills Centre program to support skills upgrades in the food manufacturing sector including firms that have adopted new technologies.
- The [Digital Adoption Program](#) by NSBI help Nova Scotia businesses adopt digital tools and innovations to boost overall competitiveness and to manage through impacts related to COVID-19. The New Brunswick government and ACOA are funding the [Digital Boost program](#) through TechImpact that will support investments in enhanced digital technologies. TechNL is running the [Business Tech Solutions Program](#) with support from the Newfoundland and Labrador government and ACOA. Innovation PEI offers programs to support automation and other business development including the [Advanced Marine Technology Tax Rebate](#).

New skills are needed to support the future of work

Automation and digitalization will lead to some jobs disappearing but will create others. However, retraining of many workers will be needed. Low skilled and low-income individuals are most at risk and will need the most attention. A recent OECD report estimates that participation in training by low-skilled workers is 40 percent below high-skilled workers.

Employment for those in industries with below-average wages in Atlantic Canada was still 10% lower in January 2021 than pre-pandemic levels. Those in industries with above-average wages have seen employment recover to a level higher than before the pandemic, up 4% over February 2020.

Employers expect a growing need for new employees especially due to retirements. However, they are

concerned about the shortage of technical skills to support their expected digital transition.

The digital labour force available to support investments in digitalization and automation is in short supply. A [recent APEC report](#) shows that the number of computer science graduates in Atlantic Canada (1,350 in 2017) is well below the projected needs in the economy (2,000). In addition, only 23% of the digital labour force is female. Increased enrollment in technology programs especially for women is key to future success.

While increased automation will support productivity gains it is more likely to lead to job losses and potentially higher unemployment in rural areas as manufacturing and primary firms adopt new technologies. However, in some cases automation can be an effective solution to labour shortages in rural communities.

Some workers will need training to support their new roles or risk transition to early retirement. Firms, educators and policymakers should work together to develop strategies to minimize the impact of automation on rural workers.

Provincial and federal programs have helped to support the economy since the onset of the pandemic but broad-based programs should shift to target those most in need, especially those in hard hit industries, diverse groups and low income individuals.

COVID-19 has pushed education systems to evolve rapidly over the last year forcing the move to online education during the pandemic. Education and training needs to continue to adapt to the changing nature of work including refocusing efforts on supporting firms that need to reskill employees to adopt new technologies.

Firms are Investing in Automation and Digitalization

- Cabot Manufacturing is a drywall manufacturer based in Nova Scotia. With provincial support, the company is investing \$6.5 million to expand the plant's capacity to include a 54-inch wallboard product and to upgrade and automate equipment.
- Maison BeauSoleil of Neguac, New Brunswick received \$800,000 of government funding to support an investment in new robotic processing technology to clean and package fresh oysters.
- Rollo Bay Holdings of Souris Prince Edward Island has invested over \$1 million with support from the federal government in key innovative equipment to increase efficiencies in sorting, washing, packaging and quality control.
- Newfoundland Aqua Service Ltd. of Milltown, NL is spending \$1.8 million on robotic net cleaning systems for aquaculture pens.



Other reports in this COVID-19 series

[The Economic Impact and Recovery Prospects](#)

[Global Value Chains Key to Atlantic Economic Recovery](#)

Learn More

For further discussion on the economic impact of COVID-19 on Atlantic Canada visit:

www.apec-econ.ca/covid

About APEC

APEC is the source for independent research, insights and ideas vital to supporting a healthy, inclusive and sustainable Atlantic Canadian economy.

Business Takeaways

- Improving competitiveness in the face of lower demand for products and service and higher operating costs due to the pandemic is important. Firms must examine the business case for and prioritize investments in digitalization and automation.
- Examine new financing options for adopting innovative technologies that can improve productivity and reduce employee exposure to COVID-19 and future shutdowns.
- Improving the technology skills within the organization is crucial when adopting new technologies. This may include training existing employees, hiring recent graduates or immigrants, collaborating with post-secondary institutions and government, and consulting with technology experts.

Policy Priorities

- Strengthen employment and training programs to support increased investments in digitalization and automation.
- Improve and raise the awareness of programs that can assist firms in investing in digitalization and automation. This should also include helping firms understand the benefits and necessity of investments in new technologies.
- Accelerate high speed internet investments in rural Atlantic Canada. Faster internet speeds will improve the business case for investments in digitalization and automation technologies and improve the ability of rural employees to work from home.
- Ensure that low-wage workers and rural jobs do not get left behind as new technologies take hold. These workers may need to upgrade their skills to stay attached to the labour force.