



Innovation, Science and  
Economic Development Canada

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Canada

# 2018 Private Sector-led Survey on Digital Technology Adoption by Canadian Businesses

# Outline

- Context
- Key Takeaways
- Survey Methodology
- Analytical results
- Conclusion

# Context

- Innovation is happening quickly and digital technologies have become critically important in the success of Canadian businesses.
- Digital technologies are central to improving innovation, productivity and enabling business growth in an increasingly competitive knowledge-based economy.
- However, Canadian businesses, particularly SMEs, lag in adopting digital technologies, impeding their innovation and growth potential.
- Information and Communication Technology (ICT) investment estimates are the most common indicators to measure the level of digital technology adoption in a country. ICT investment represented 2.1 per cent of Canadian GDP in 2015. It was lower than that of the United States (3.2 per cent) and below OECD average (2.5 per cent)\*.
- Encouraging businesses to increase their investment into digital technologies is necessary to improve the efficiency and productivity of Canada's economy. A federal initiative, the Digital Technology Adoption Pilot Program (DTAPP), delivered from 2011 to 2014 by the National Research Council's Industrial Research Assistant Program, successfully supported SMEs in their digital technology adoption.

\* Source: OECD Science, Technology and Industry Scoreboard 2017

## Context (Cont'd)

- Building upon the components and success of DTAPP, in Fall 2016 ISED submitted a proposal to provide SMEs with a suite of digital adoption supports to unlock their innovation and productivity potential.
- The proposed approach called “Tech for Business” would enable SMEs to access a suite of supports aligned with their specific needs and state of digital transformation, including: in depth digital adoption advisory support and financial contributions for SMEs; financial contributions for not-for-profit organizations to implement SME-targeted digital adoption initiatives; and survey data to measure digital adoption progress.
- Only the component related to national surveys on digital adoption was included in Budget 2017 as part of Canada’s Innovation and Skills Plan.
- Budget 2017 allocated 5 million dollars over five years, starting in the 2017-18 fiscal year, for Statistics Canada and private sector-led surveys to fill Canada’s existing data gap. The 2018 private sector-led survey on Digital Technology Adoption by Canadian Businesses is one of four surveys undertaken with the funds received.

## Context (Cont'd)

The 2018 private sector-led survey on Digital Technology Adoption by Canadian Businesses measures:

- Adoption of Digital Technology, with a particular focus on emerging technologies.
- Business access to e-government services.

# Key Takeaways

## 1. Digital Technology Adoption and Internet Use by Business

- Smaller and medium businesses lag behind their larger counterparts in the adoption of digital technologies and internet use.
- Most Canadian businesses have an Internet connection (98%) and a website (85%).
- Most businesses use their web presence to provide information and engage with their clients through social media, rather than conducting transactions online.
- More businesses are buying online (73%) than selling online (27%).
- There is a significant increase in the number of businesses using ICTs (78% in 2016 to 96% in 2018).
- Vast majority of businesses (95%) recognize the benefits of ICT, however, 73% of them cite barriers to implementing and maintaining ICTs.
- Cloud computing and data analytics have become commonly used technologies, especially for large firms. AI, Blockchain, and advanced robotics are used by a small proportion of businesses in Canada.
- Small and medium businesses rely more on external technology specialists, while larger businesses rely more on internal technology specialists. Most small businesses (56%) do not have access to technology specialists.
- Vast majority (96%) of Canadian businesses have some form of ICT security measures in place.

# Key Takeaways (Cont's)

## 2. E - Government

- Businesses mostly use government websites to download forms, do their taxes, and obtain data or information.
- Businesses access government online services mostly through websites and Email, using desktop/laptop computers.
- Most businesses face barriers interacting with government online, largely due to inability to find current/accurate information.
- Businesses identify online support, convenience, and simpler access as factors that would encourage more interactions with government online.

# Survey Methodology

- The survey was administered by R.A. Malatest & Associates Ltd. between January 14th and May 7th, 2019.
- People who have the best knowledge of utilizing digital technology in the business were surveyed to complete 35 questions.
- A total of 3,060 private businesses responded to the survey, either over the phone or online. The survey response rate was 17%\*.
- Weighted results are representative of the population of Canadian businesses across industry sectors and various sizes of businesses.

\* Note: Using the Marketing Research and Intelligence Association (MRIA) Empirical Method, calculation of  $R/(R+NR+U)$ .  
R – Responding units, NR – non-responding units, U – unresolved (e.g. busy, no answer, partial completion).  
Total cases accessed was 29,486.



# Survey Methodology (Cont')

**Table 1: Survey Completions by Sector**

Sector	Number of Firms across Canada		Survey Completions		Margin of Error at Confidence level of 95%
	#	%	#	%	
Construction (NAICS 23 excluding NAICS 238)	52,000	6%	295	10%	5.7%
Manufacturing (NAICS 31-33)	51,000	6%	400	13%	4.9%
Wholesale trade (NAICS 41)	58,000	6%	113	4%	9.2%
Retail trade (NAICS 44-45)	143,000	16%	518	17%	4.3%
Finance/Insurance & real estate (NAICS 52-53)	92,000	10%	206	7%	6.8%
Professional, scientific and technical services (NAICS 54)	143,000	16%	412	14%	4.8%
Information and cultural industries & Arts, entertainment and recreation (NAICS 51 & 71)	37,000	4%	274	9%	5.9%
Accommodation and food services [72]	81,000	9%	375	12%	5.0%
Other industries (NAICS 11, 21, 22, 48-49, 55, 56, 81)	240,000	27%	467	15%	4.5%
<b>Total</b>	<b>897,000</b>	<b>100%</b>	<b>3,060</b>	<b>100%</b>	<b>1.8%</b>

**Table 2: Survey Completions by Firm Size**

Firm Size	Number of Firms (Statistics Canada)		Survey Completions		Margin of Error at Confidence level of 95%
	#	%	#	%	
Small: 1 to 19	769,500	86%	1,502	49%	2.5%
Medium: 20 to 99	113,000	13%	993	33%	3.1%
Large: 100 to 199	10,000	1%	237	8%	6.3%
Very Large: 200 and more	5,500	<1%	328	11%	5.3%
<b>Total</b>	<b>897,000</b>	<b>100%</b>	<b>3,060</b>	<b>100%</b>	<b>1.8%</b>

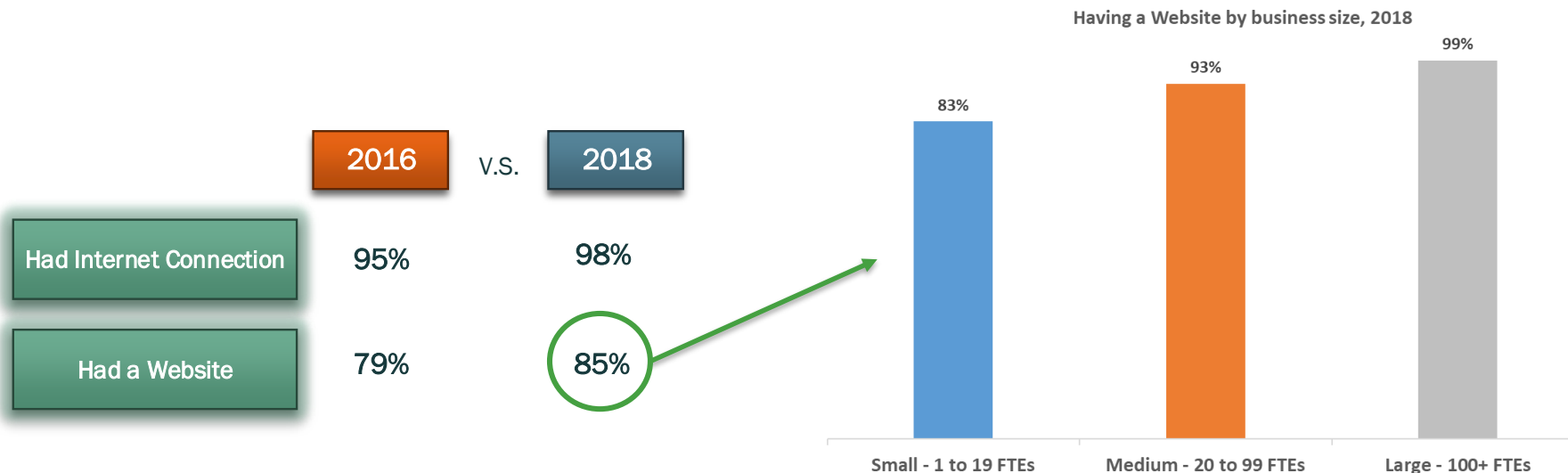
Source: Statistics Canada. CASIM Table 33-10-0092-01 - Canadian business counts, by employment size and North American Industry Classification System (NAICS), June 2018.

# Analytical Results

Digital Technology Adoption and Internet Use by Business

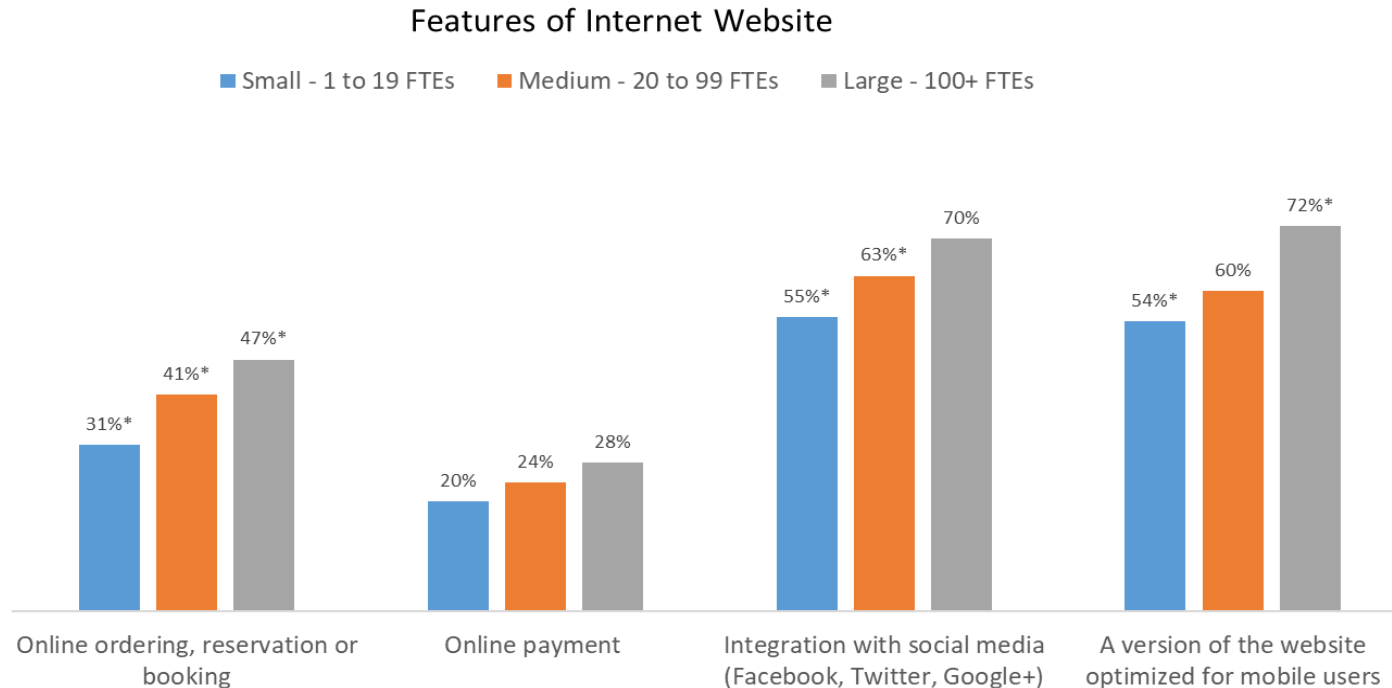
# Most Businesses had an Internet connection and a Website

- The vast majority (98%) of businesses had an Internet connection.
  - The proportion of businesses using a fibre optic line to access the Internet has increased significantly from 19% in 2016 to 25% in 2018.
- Most businesses (85%) had a website, a notable increase since 2016. However, small businesses still lagged behind.



# Businesses Offered Different Features on Their Website

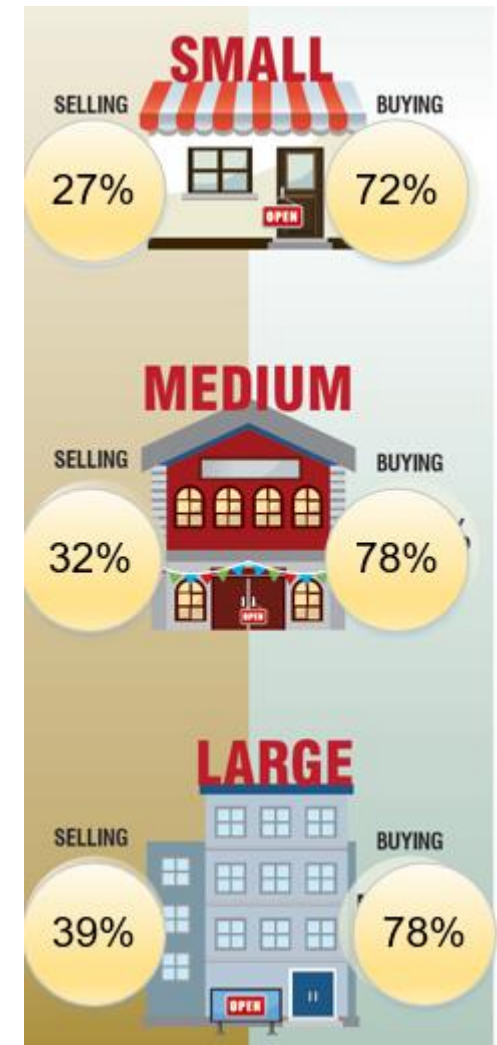
- Most businesses used their web presence to provide information and engage with their clients
  - Most businesses utilized social media networking tools (such as Facebook, Twitter, Google+) to attract new customers, and optimized the site for mobile users.
- A comparably smaller proportion of businesses used their websites to conduct transactions such as online ordering, reservation or booking and online payment.



Note: Statistically significant difference between estimates with \*

# More Businesses Buying Than Selling Online

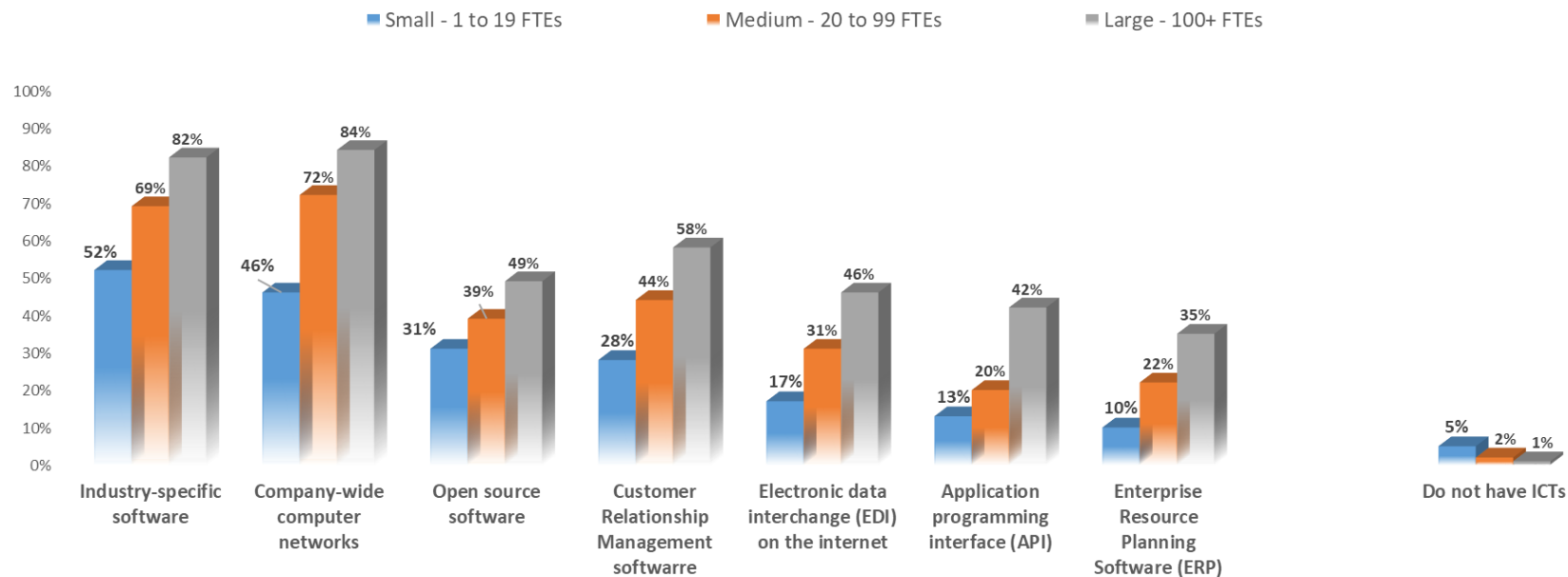
- Overall, 27% of businesses made sales of goods or services via the Internet in 2018 (25% in 2016).
  - For majority, online sales accounted for less than 20% of total sales.
  - 88% of online sales were domestic.
  - Retail trade and accommodation and food services dominated the value of online sales.
- However, nearly three quarters (73%) of businesses made purchases of goods or services via the Internet (68% in 2016).



# Businesses Increasingly Used ICTs

- The percentage of businesses that reported using information and communication technologies (ICTs) has significantly increased from 78% in 2016 to 96% in 2018.
- Smaller businesses continue to lag behind their medium and larger counterparts in using ICTs.

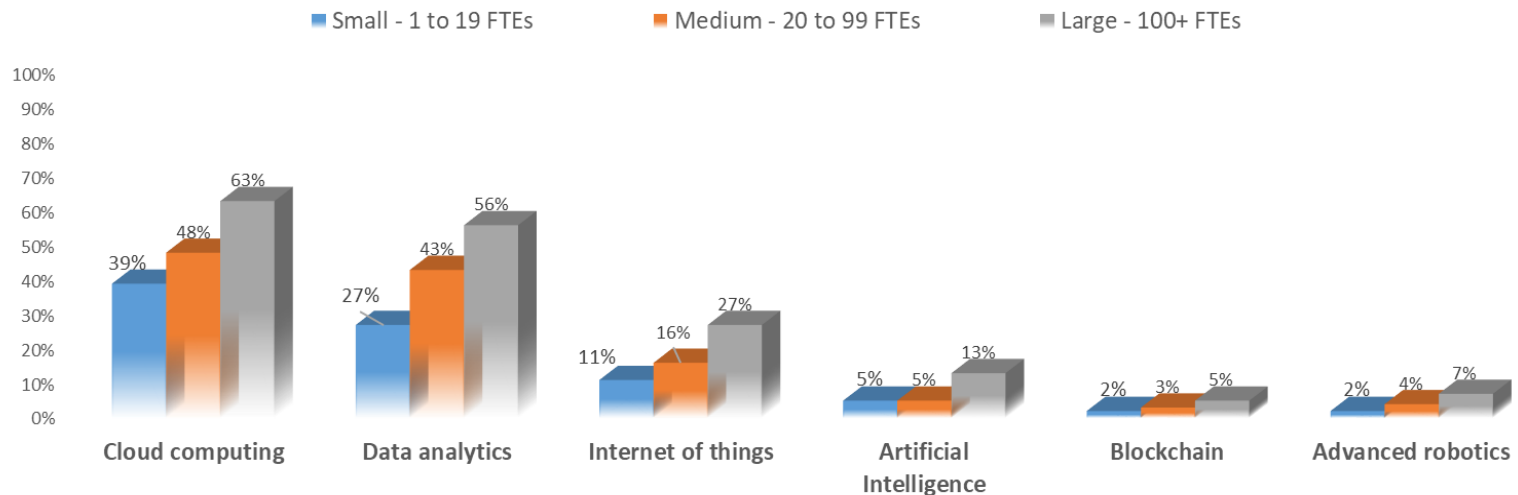
PERCENTAGE OF BUSINESSES USING THE MOST COMMON TYPES OF ICTS, BY EMPLOYMENT SIZE



# Businesses Increasingly Adopted Emerging Technologies

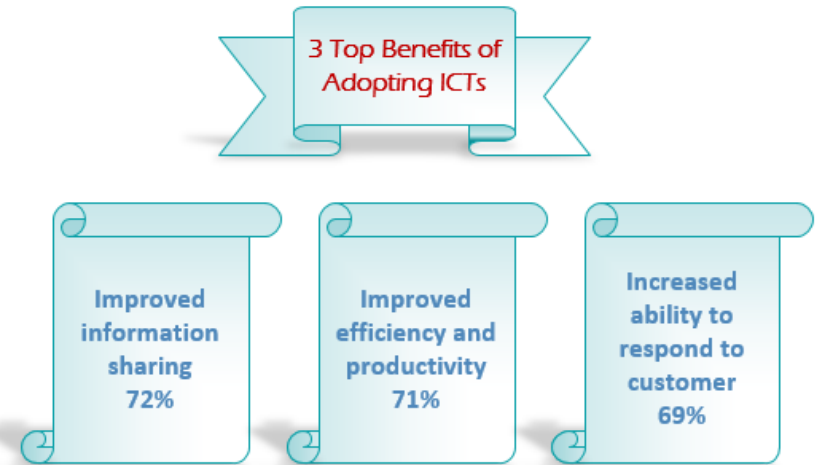
- Cloud computing and data analytics have become more common technologies used by business, especially for larger firms. The adoption rates increased significantly between 2016 and 2018 (31% vs 41% for cloud computing, 21% vs 30% for data analytics).
- AI, Blockchain, and advanced robotics were used by a small proportion of Canadian businesses.

**PERCENTAGE OF BUSINESSES USING EMERGING TECHNOLOGIES, BY EMPLOYMENT SIZE**

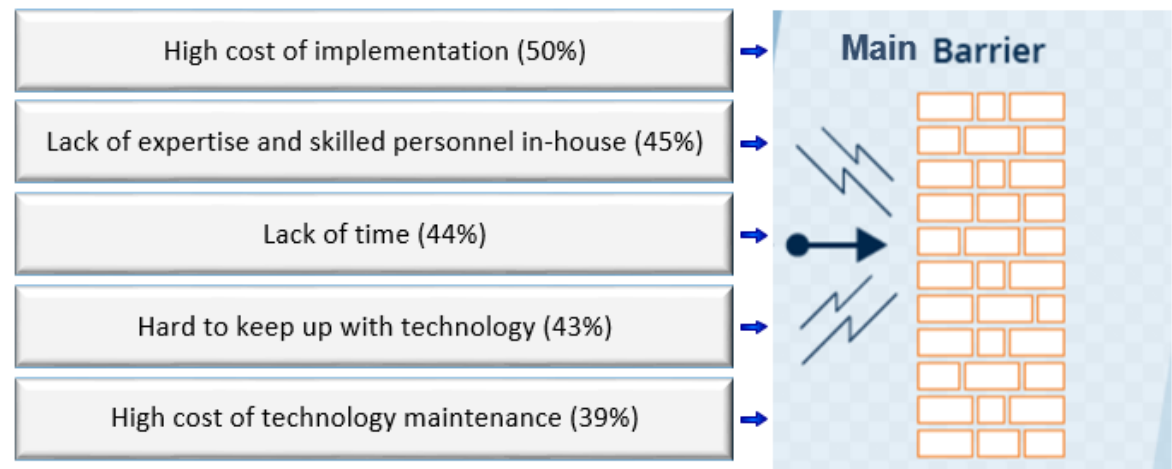


# Businesses Recognized Benefits of ICTs But cited Implementation Barriers

- Vast majority of firms (95%) reported that adopting ICTs benefited their business.



- However, about three out of four businesses (73%) experienced multiple barriers to implementing and maintaining ICTs.

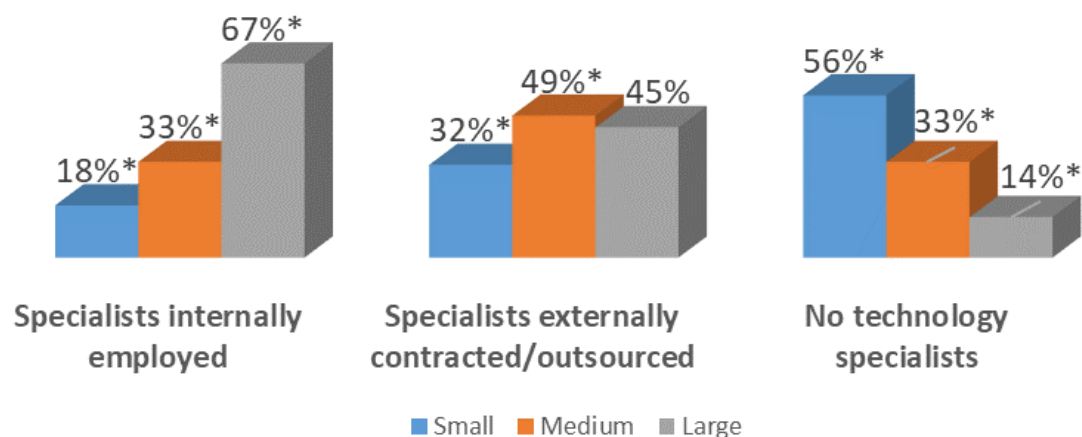




# The presence of ICT specialists varied substantially among businesses of different sizes

- Large businesses were significantly more likely to use in-house technology specialists, than external technology specialists.
- In contrast, small and medium-sized businesses were more likely to use external technology specialists, than in-house specialists.
- Most small businesses did not have access to any type of technology specialists.

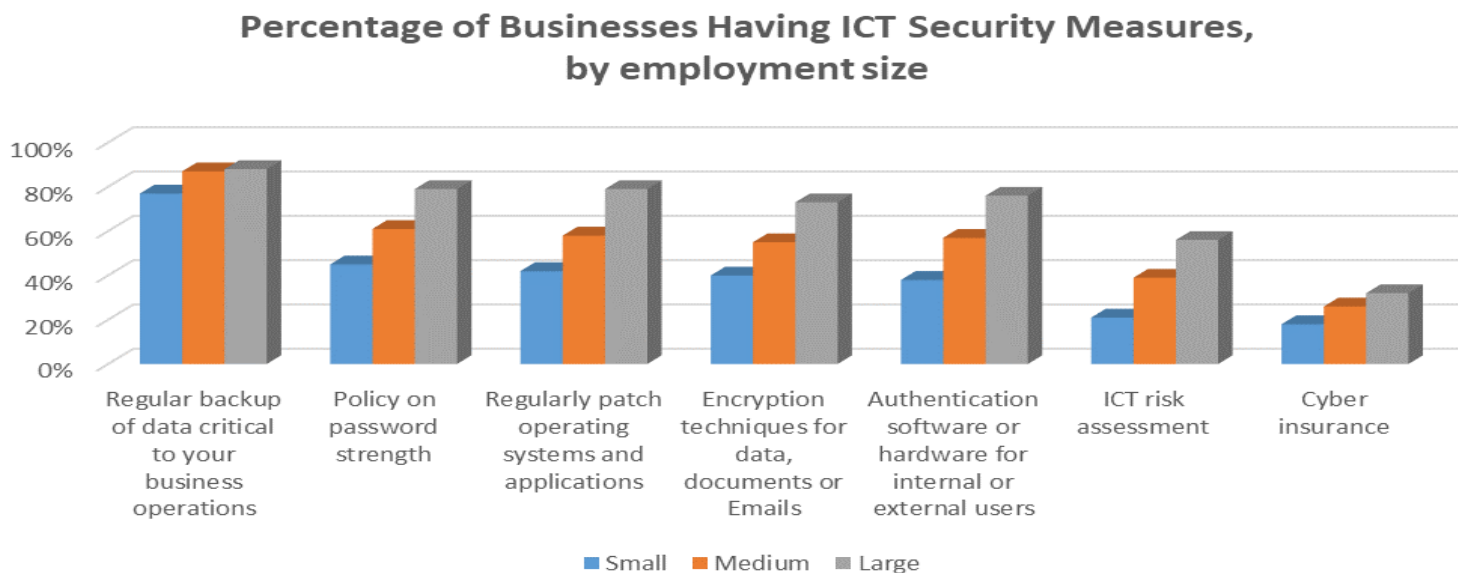
**Percentage of Businesses Having Technology Specialists,  
by Employment Size**



Note: Statistically significant difference between estimates with \*

# Businesses Used Some Form of ICT Security Measures

- Vast majority (96%) of Canadian businesses had some form of ICT security measures in place in 2018, a significant increase from 2016 (84%).
- Similar to access to technology specialists, smaller and medium businesses lagged behind larger businesses in having ICT security measures.



# Analytical Results

E - Government

# Businesses Mostly Used Government Websites to Obtain Information or Do Taxes

- The vast majority (85%) of businesses used the Canadian federal government's online services in 2018.
- Businesses mostly used the government websites to download forms, do their taxes, and obtain data or information.
- However, most businesses did not conduct transactions, other than taxes, on government websites.

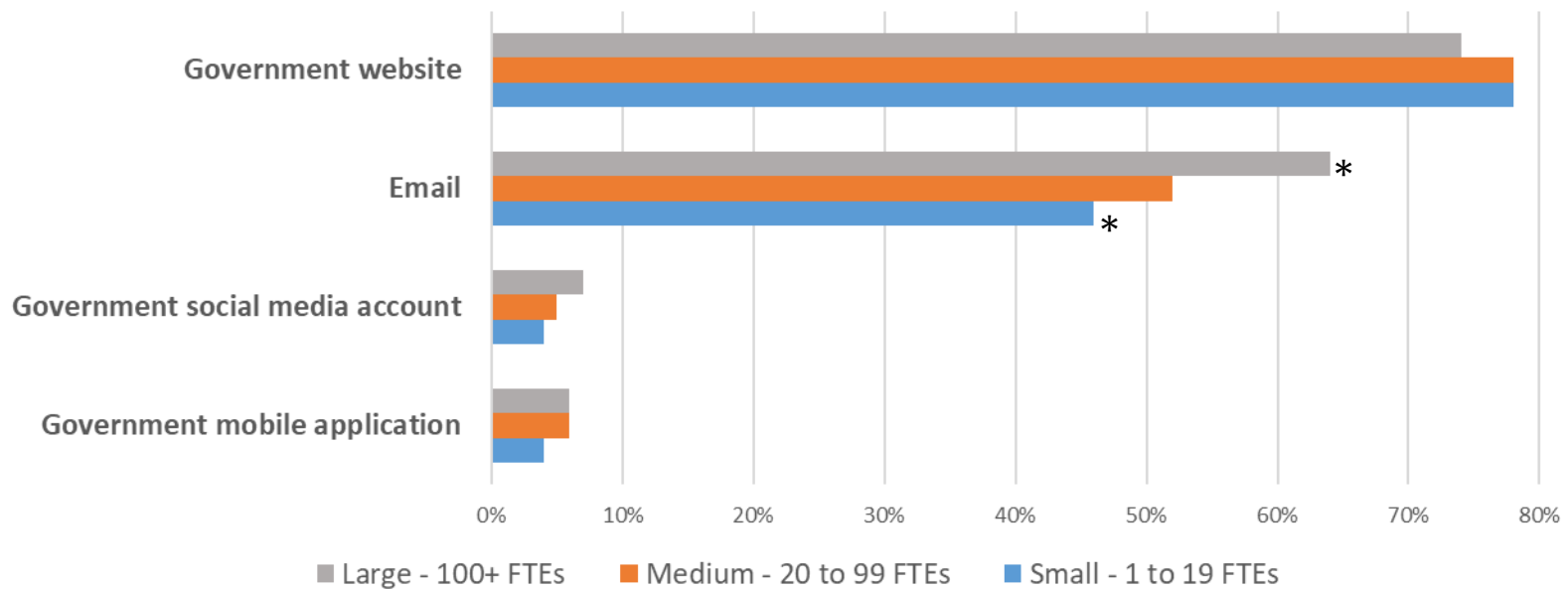
Activities businesses interact with federal government online	2018			
	Small	Medium	Large	
Download documents or forms	63% a	70% b	66% a, b	High
Tax declaration	59%	58%	48%	
Obtain data	44%	51%	45%	
Obtain other information	44%	50%	44%	
Other online payments to government organizations	32%	35%	32%	Low
Apply for business permits or licenses	21% a	29% b	32% a, b	
Register or change a business name, number or tax account	17%	16%	20%	
Apply for grants, contributions or benefits	14%	17%	24%	
File a patent or other intellectual property application	4%	5%	8%	
Other	2%	1%	2%	

Note: For a given row, values with different superscript letters are significantly different (95% confidence interval at  $p < .05$ ); whereas values with the same superscript letter or no superscript letters are not significantly different.

# Businesses Mostly Interacted with Government Through Websites and Email

- 91% of businesses used at least one mode to interact with government online.
- Compared to small businesses, larger businesses were more likely to use Emails to interact with government.

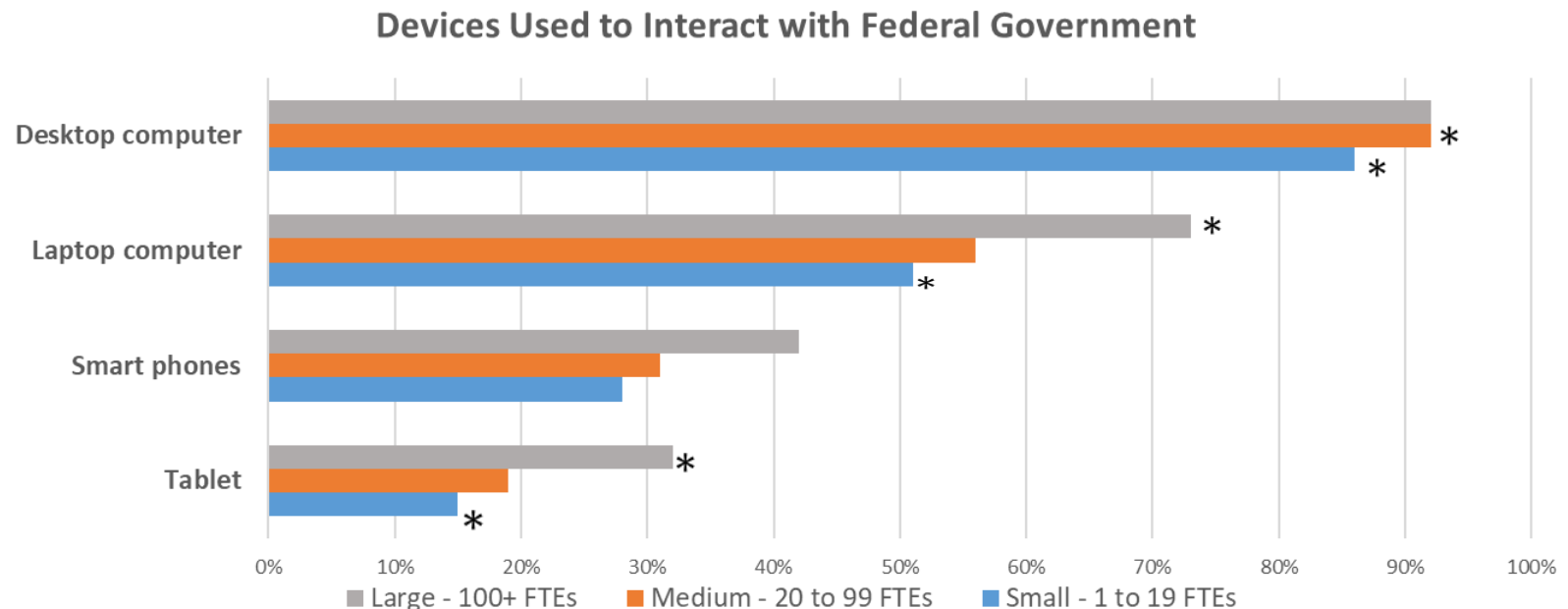
**Modes of Interaction with Federal Government**



Note: Statistically significant difference between estimates with \*

# Businesses Mostly Used Desktop/Laptop Computers to Access Government Online Services

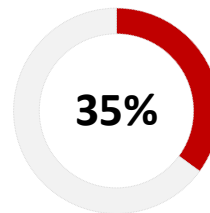
- Half of businesses used more than one device to access online government's programs and services.
- Tablets were used less often than smart phones to interact with government, possibly due to their lower penetration rate (17.4% in 2018).



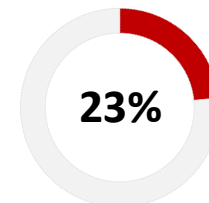
Note: Statistically significant difference between estimates with \*

# Most Businesses Faced Barriers Interacting with Government Online, Largely Due to Inability to Find Current/Accurate Information

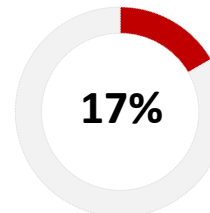
- All businesses, regardless their size, equally faced barriers when interacting with the federal government over the Internet in 2018.
- Overall, half of businesses (52%) reported encountering at least one barrier/problem.
- Other than difficulty finding information on websites, the other leading barrier was unreliable or slow Internet connection.



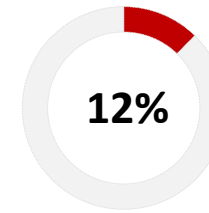
Difficult finding information on the website



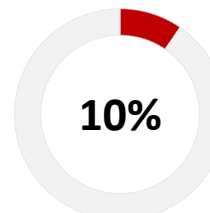
Difficulty finding correct website



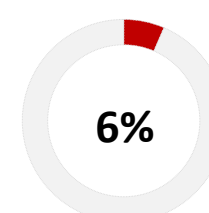
Unreliable or slow internet connection



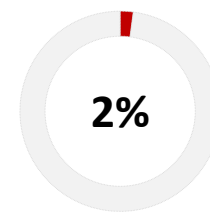
Out-of-date information on the website



Business's technology is incompatible with government systems



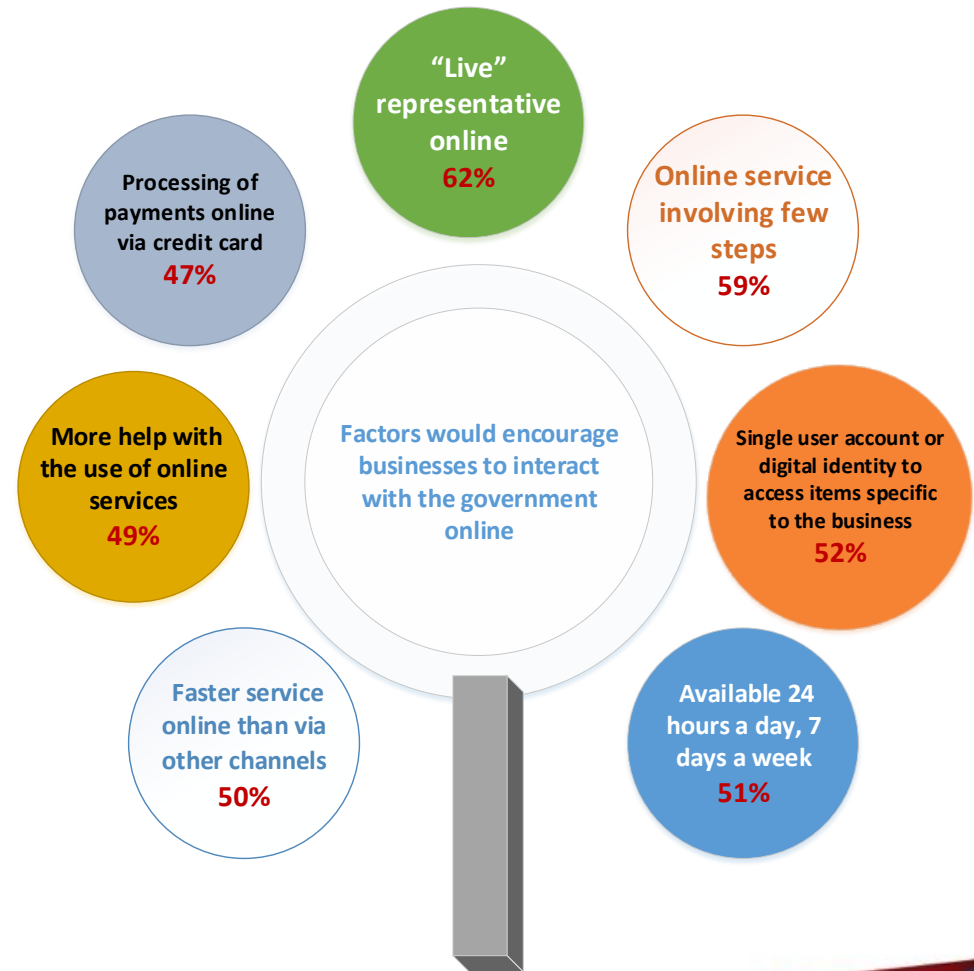
Security concerns (e.g., privacy, confidentiality)



Others (Website down/crashes, difficulty logging in, password issues, account issues, etc)

# Businesses Identified Online Support, Convenience, and Simpler Access as Factors That Would Encourage More Interactions with Government Online

- The vast majority of businesses (88%) reported at least one of these factors that would encourage them to interact with the federal government over the Internet in 2018.
- Connection to a “live” representative and online services involving fewer steps were identified by small and medium sized businesses as the top two “incentives”.
- Other factors included digital identity, faster and more convenient services.





# Conclusion (for discussion)

- Our society and economy are increasingly being shaped by digital technology. In this context, both the government and businesses need to realign themselves around this reality.
- The Government could have a role to play in helping businesses reap benefits of digital technologies in two ways:
  - Supports businesses in implementing digital technologies, either via financial or advisory support, so they can be more productive, reach new markets and grow.
  - Provides easier, faster and smarter digital government services to businesses, so they can focus on innovation and growth.
- This is well aligned with two recommendations related to Technology Adoption in the final report from Canada's Economic Strategy Tables: a network of sector-specific Canadian Technology Adoption Centres, including participation of the government, to pursue a host of objectives aimed to increase digital adoption and; a digital technology readiness tool, drawing on experience from past programs such as DTAPP.