

TRANSFORMATION OF WORK



“In Canada, mobile technologies are impacting the structure of the workday, our interaction with colleagues, our requisite skills, and the physical design of our work environment”



Acknowledgements

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Executive Summary

Transformation of Work explores the role of mobile technologies in the rapidly evolving Canadian workplace. New technologies, including wireless and mobile devices, strong network infrastructure, web-based collaboration tools, Machine-to-Machine (M2M), pervasive and scalable cloud-based IT solutions, as well as analytics and applications can lead to dramatic improvements in productivity, development of new products and services, and more engaged employees and customers.

However, our research shows that in spite of the potential benefits, many Canadian organizations lack the capacity for adoption. While organizations say that mobile technology is a strategic priority for them, they also indicate that they are challenged with privacy and security concerns, integration with legacy systems, the costs of implementation, and the policies, processes and talent required to implement them effectively. *Transformation of Work* demonstrates that a strategic approach supported by management and operational policies and a culture embracing innovation are essential.

Transformation of Work integrates the findings from several research studies, complemented by interviews with experts and key informants from organizations across sectors such as manufacturing, retail, health care, transportation and financial services.

Organizations leading the way in the adoption of mobile technology had well-defined mobile strategies linked to corporate objectives and the policies and structures needed to support their implementation. This is consistent with other studies demonstrating that companies with clear mobile strategies consistently outperform their peers.¹ Organizations reported significant benefits from their use of mobile technologies. This was consistent with studies linking ICT investments and productivity generally² and those suggesting that networking technologies can improve employee productivity by up to 25%.³

Only half of managers surveyed had clearly integrated mobile technologies into their business strategy. *Transformation of Work* reinforces the findings from other reports that suggest that a disjointed approach

to managing technologies in Canadian organizations is limiting adoption and impeding productivity and innovation.⁴

Overall, our findings are as follows.

1) Mobile technology adoption is important and growing in Canadian organizations:

- Almost all (96% of) companies are using mobile technologies.
- Canada has a higher rate of smartphone adoption than the United States, yet is behind the US in the adoption of mobile apps in the workplace.⁵
- 70% of Canadian employees are mobile in some way (physically) and this is expected to increase to 73% by 2016.⁶
- The Information and Communications Technology Council (ICTC) estimates that every 1% increase in mobile technology adoption will lead to 0.08% of GDP growth.⁷

2) Mobile technology is clearly impacting and transforming the Canadian work environment:

- Mobile technology is improving access to information and changing the very definition of the workplace.
- The workforce is becoming more mobile and workers increasingly expect flexibility and support for their use of technology.
- Organizations reported improvements in effectiveness, collaboration, and access to information.
- Fewer than 30% of organizations see a clear value proposition for the technology.
- Half of managers reported more research is needed on impacts and metrics.

3) The adoption of mobile technologies is being driven by a number of factors, but understanding and measuring the value remains elusive:

- Change is coming from both the needs of management and the demands of employees.
- There is an unclear return on investment (ROI) for mobile adoption.
- Businesses do not completely understand the potential of the technology as it applies to their workplace — less than 30% of companies saw a clear value proposition for the new technology.

4) Obstacles remain to maximizing the value of mobile technologies in the Canadian workplace:

- Privacy and security concerns are the most talked-about barriers to adoption.
- Mobile technology management has been ad-hoc or opportunistic and differentiated across organizations.

5) Businesses are just starting to understand and manage the opportunities in mobile technology and need help to develop management processes that drive value:

- Many Canadian organizations are just starting to develop mobile strategies.
- Too often, technology is adopted without a deeper assessment of organizational needs and goals.

Introduction



The contemporary workplace is undergoing profound change driven in part by the adoption of new mobile technologies that include but are not limited to:

- wireless internet & mobile devices
- strong network infrastructure
- web-based collaboration tools
- Machine-to-Machine (M2M)
- pervasive and scalable cloud-based IT solutions
- analytics and applications

The ubiquitous nature of mobile devices is supported by “enabling technologies” such as broadband and cloud infrastructure, which allow for the seamless delivery of personalized content and services. While cell phones and laptops are now a common part of everyday life, areas of new growth in workplace mobility include cloud-based applications, sensor technology, and analytic tools that can offer meaningful interpretations of big data.

Mobile technologies provide different forms of value across a range of industries and can impact every stage of business operations. The workplace is now dealing with not just personal mobility but also “enterprise mobility,” which allows for greater potential collaboration.⁸ It is this type of wider, enterprise-level adoption that has thus far proven elusive in Canada.

Mobile technology has the potential to increase productivity, transform business processes, and drive the growth of new products and services. The wide-reaching effects of mobile technologies are relevant to several business processes, from customer outreach to delivery of service. The Canadian experience in this global movement has generated some successes, but with clear avenues for improvement.



**“ Management style
must transform to
encourage mobile
innovation ”**



Methodology

This report employs quantitative and qualitative methods in its review of mobile technologies in the Canadian workplace. Interview participants include those from managerial positions as well as front-line staff in a range of public and private Canadian organizations. The project design draws from primary and secondary literature sources, online surveys, and structured interviews.

To complete this study, two approaches were employed.

First, third party research was reviewed, including industry reports, high level surveys, academic articles, and other publicly available information. This data was used to develop a robust understanding of the

high-level impacts that mobile devices are having on Canadian businesses and their employees, including adoption rates and the perceived benefits of mobile devices in the workplace. Further secondary data was collected from public information (e.g., websites, press releases) to gather information on corporate culture and the Canadian use of mobile technologies.

Second, primary research through interviews was used to augment the third party data. Industry analysts were interviewed to gain perspective on broader industry trends. Key informant interviews were conducted with 38 senior managers and employees from both large and medium-sized companies in various sectors, including Manufacturing, Retail, Healthcare, Transportation, and Financial Services.

“ Mobile technology has the potential to increase productivity, transform business processes, and drive the growth of new products and services ”





Current Adoption

To gain perspective on the potential growth opportunities for wireless in the workplace, it is necessary to take an assessment of the current state of mobile adoption. Levels of adoption vary between countries, so *Transformation of Work* draws upon recent literature to offer a snapshot of the current state of mobile technology in Canadian business. This is followed by data derived from surveys with participating Canadian industry representatives, who have identified the areas within organizations where mobile technology is currently being applied.

Canadian Context

Mobile data use in Canada is experiencing exponential growth. According to Cisco, Canadian users generated over 77% more mobile data traffic per subscriber in 2012 than the global average.⁹ However, this mobile growth has not been clearly reflected in the Canadian work environment.

In a recent Canadian survey, 71% of respondents stated that increased adoption of mobile technologies in all facets and among all staff is a priority for their company.¹⁰ Despite this expressed commitment to mobile adoption, recent studies have consistently demonstrated that Canada is lagging behind many other OECD countries in the adoption of mobile technologies in the workplace.^{11,12,13,14} In particular, Canadian business has seen great uptake in mobile communications devices (e.g., laptops, smart phones), but research indicates that Canada lags in areas such as M2M and cloud-based infrastructure technologies.^{15,16} Our research also identifies opportunities for increased development in analytics and mobile applications.

Notwithstanding the Canadian public's clear appetite for broadband and mobile data, the Canadian workplace has not seen the same explosive growth of mobile technology adoption. As Jesse Duggan, Founder and President of Fluid Mobility, observes,

“The Canadian market is tough, eager to adopt at the consumer level, not corporate.”

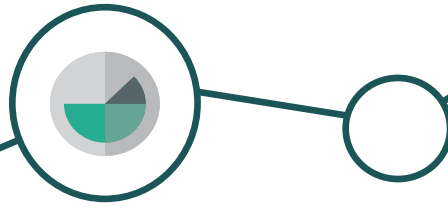
Organizational Context

Mobile technologies provide different forms of value across a range of services. Figure 1 (below) is derived from respondents to this study, offering an illustrated value chain to identify the most commonly used technologies and where they are being applied in Canadian organizations.

For Canadian organizations to fully capture the benefits of mobile technologies they must work to understand the technologies that they are currently using and where new technologies can be added to deliver maximum value.

- 
1. Communication Tools (**Personal Productivity**)
 - mobile devices (smartphones, mobile phones, tablets, laptops)
 - audio conferencing
 2. Managed Mobility Services (**Firm Infrastructure**)
 - managed wireless connectivity
 - hybrid hosted solutions (cloud & on-premises)
 3. Network Infrastructure (**Firm Infrastructure**)
 - Wi-Fi networks (employee or guest)
 - in-building signal enhancing solutions
 4. Task Management (**Operations/Logistics**)
 - mobile forms (work orders, field reports, data capture, etc.)
 - fleet management (tracking, dispatch, analytics)
 5. Customer Interaction (**Marketing and Sales**)
 - digital signage
 - mobile advertising (pricing, availability)

Figure 1 - The most commonly adopted mobile technologies, listed from most to least common, and how they are being applied in the value chain.



Measuring Impact: How Mobile Technologies are Transforming Business

In many businesses surveyed for this study, mobile technology is fundamentally changing traditional conceptions of the office space. The ubiquity of information and collaborative online tools has proven to be a catalyst for the reassessment of the design and function of the office. Some changes are dramatic: one company who participated in *Transformation of Work* has transitioned from eight floors of an office building to three, and another company is consolidating from seven buildings across the Greater Toronto Area to one. These changes are largely attributable to the transformative impact of mobile technology.

The impact of mobile technology goes well beyond the physical construction of the workplace. A senior manager noted that we are in the midst of the greatest moment of upheaval in the office since the industrial revolution. Given that much of the technology in question is less than a decade old, this transformation is still in its relatively early stages. With proper management, even greater transitions lie ahead.

The impacts of mobile technology have already resulted in significant transformations of work for employees. Across the organizations consulted in this project, changes for employees include foundational elements such as the following:

- where they work
- how they work
- when they work

Our surveys for *Transformation of Work* revealed the following data concerning specific areas where mobile communications are changing the Canadian workplace.

The current data reveals that mobile technology is having demonstrable impact in the following areas of the Canadian workplace (listed from most to least significant):

- improved anytime/anyplace access to information
- time efficiency

- improved communications among employees
- improved collaboration among employees
- process improvement
- improved employee engagement and satisfaction
- reduced costs
- reduced physical infrastructure requirements

While these impacts are undeniably significant, very few companies in this study have experienced extensive influence in all categories. According to industry analyst Krista Napier of IDC, most organizations

report a more ad hoc approach. The research clearly demonstrates the need for a more cohesive business strategy to maximize impacts across organizations.

This is not a uniquely Canadian phenomenon. A 2014 study by Accenture, which surveyed 1500 executives in 14 countries, found that only half of these executives described their adoption of mobile technologies as effective, while 85% said they did not have metrics to measure.¹⁷

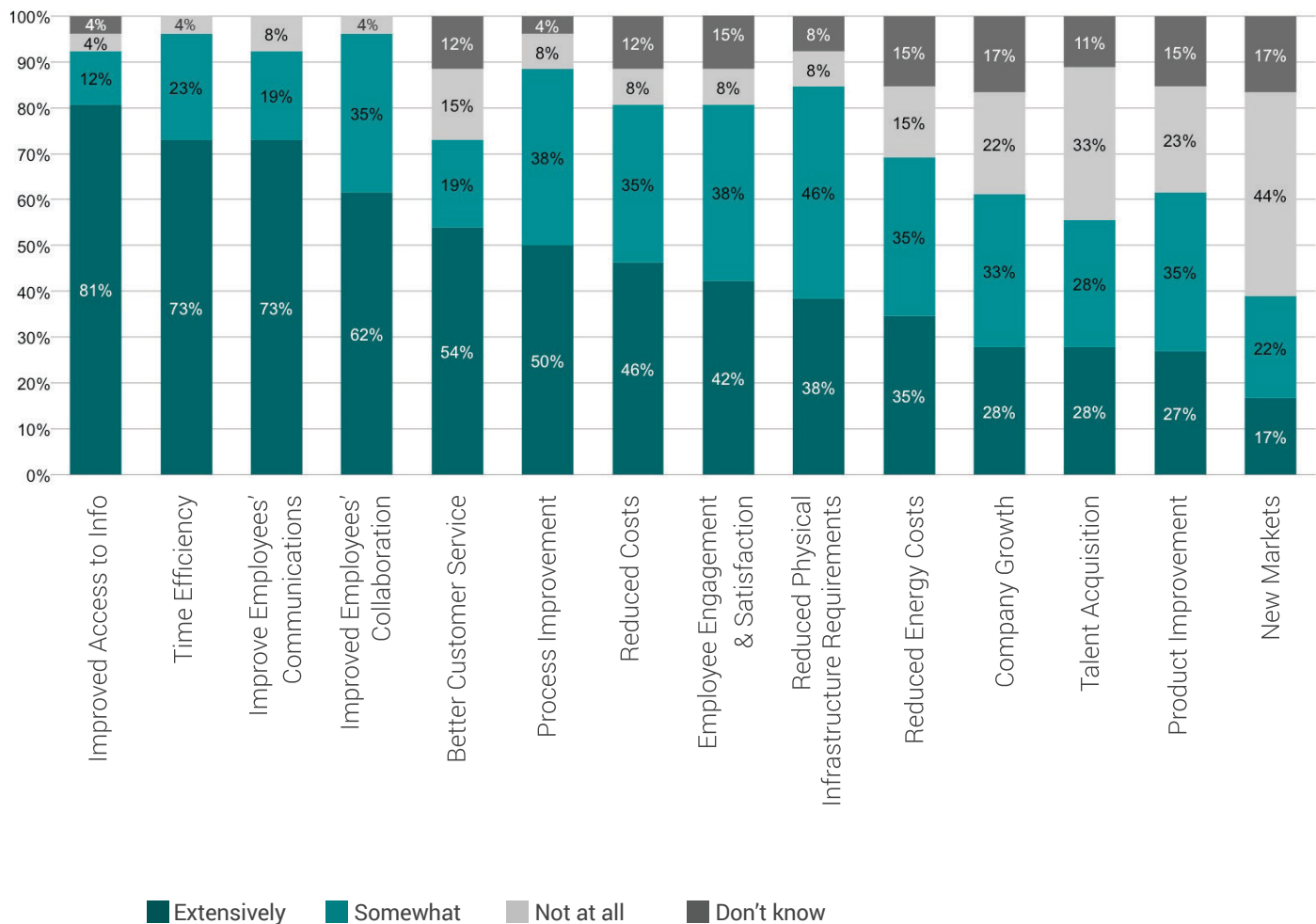


Figure 2 - The Impact of New Mobile Technologies in the Respondents Workplace

Understanding Value: Drivers



Since clear metrics are often lacking, what drives businesses to deploy mobile technologies within their workplaces? A 2013 KPMG Technology Outlook Report, surveying 102 technology industry executives in the United States, found broad support for the idea that mobile and cloud computing will be the biggest drivers of revenue growth in the next three years.¹⁸

Transformation of Work identifies five key drivers for the adoption of mobile technologies among surveyed Canadian companies. The following is a list of these leading drivers (from most to least significant):

- strategic investment to drive productivity
- expectations of existing workforce
- senior management knowledge and support
- competitive pressures
- perceived Return on Investment (ROI)

Strategic investment to drive productivity

Brian Platts, an Associate with NBI/Michael Sone, observed that the driver for increasing mobility is

always financial. According to surveys conducted for *Transformation of Work*, productivity gains are the primary driver for mobile technology investment. 67% of respondents identified this as the key incentive for mobile investment, more than 20% higher than the next significant driver. Productivity via mobile technology reveals the wide range of gains that are possible via mobile investment.

In the Office: Keith Skiffington, COO of the Halifax-based company Office Interiors, notes that productivity, not competition, is the key driver for mobile adoption in his workplace. He cited numerous gains in productivity since his company made a stronger commitment to mobile use both in the field and in the home office.

The Media: CBC and Radio-Canada report reduced costs and greater agility of their employees when reporting the news. This great gain in productivity is largely enabled by mobile devices and a unified communications system across all CBC offices in Canada.

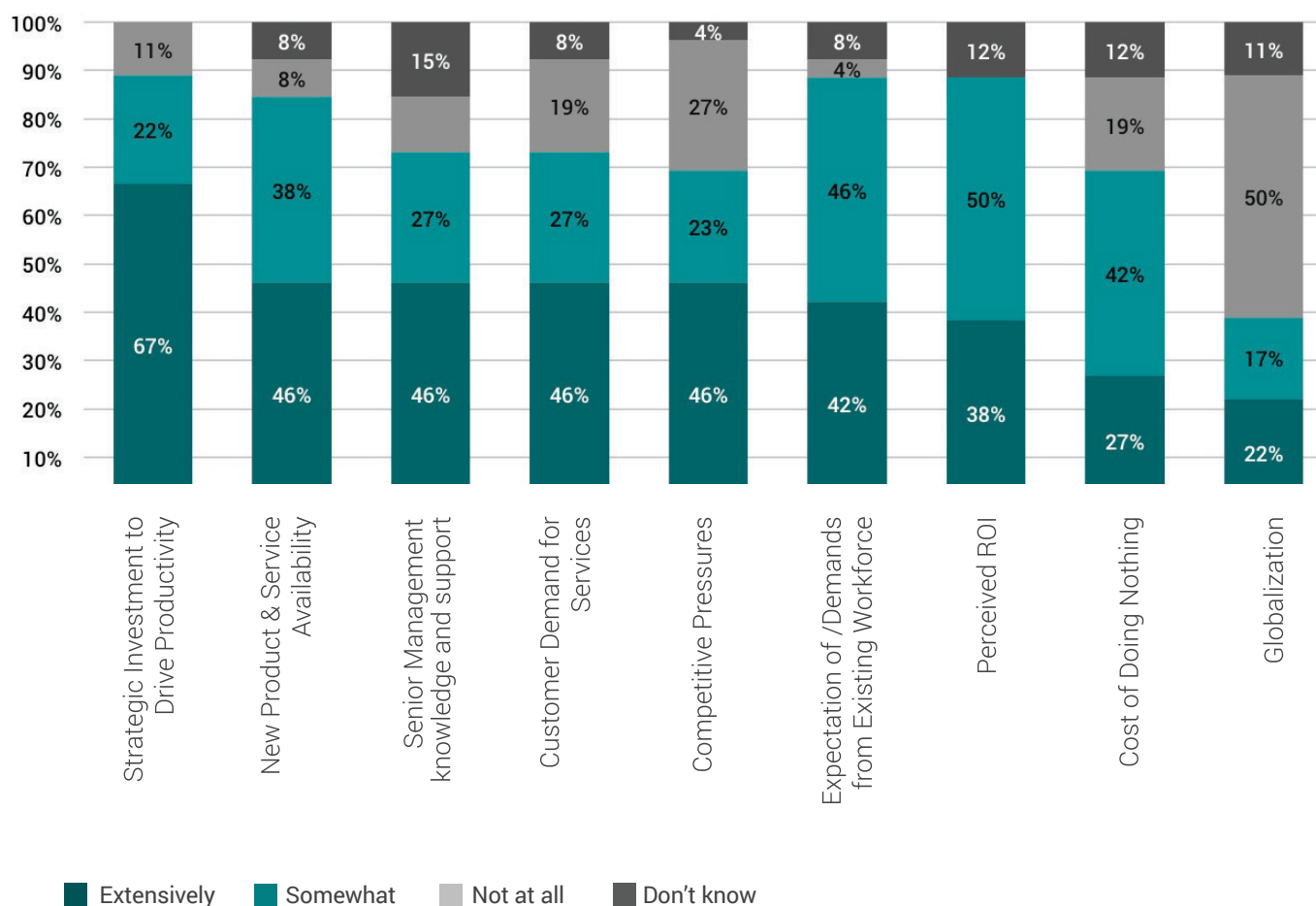


Figure 3 - To What Extent do the Following Drive the Adoption Of Mobile Technologies in your Business?

Public Safety: Novotech is a leading Canadian distributor of M2M hardware services, including mobile asset tracking. Novotech's implementation of stronger mobile service with Hamilton police vehicles resulted in police officers showing a 30% increase in car time in the field over 10 years.

Real Estate: Deloitte Canada is in the process of a substantial physical restructuring of their workplace in the Greater Toronto Area, consolidating several buildings into one downtown building. This physical shift is facilitated by increased mobile flexibility, and Deloitte representatives indicated that gains in productivity are a key driver.

Public Infrastructure: Mobile technology is contributing to the reduction of waste when delivering services. Loreto Saccuci, CEO of Blue Rover noted that the city of Guelph, Ontario discovered they were wasting 25% of their water via leaks in their water

system. Mobile sensor technology discovered the problem, resulting in great gains in efficiency.

Despite these stories of significant gains via the deployment of mobile technology, there still remains room for growth in the ability of mobile technologies to deliver on productivity. A 2013 ICTC study observed that 28% of businesses in their survey reported productivity gains via mobile technologies – a substantial number, but one which leaves great potential for further improvement.¹⁹

Expectation of existing workforce

IDC analyst Krista Napier noted that employees are often the drivers of mobile technologies. She observed that many workplaces had mobile technologies thrust upon them when employees brought tablets to work that they had received as gifts. Employees are increasingly demanding leeway to make better use of

mobile technology, including higher adoption of mobile devices used at work and increased opportunities to work outside the physical confines of the office itself.

Patrick Spencer, Technology Advisor at EY, notes that an office that clearly values innovation and a co-working approach will be able to keep young talent more effectively.

Senior management knowledge and support

Given the expectations of employees for greater mobility, it should come as no surprise that they also have opinions on future directions for mobile use. Across a range of large Canadian workplaces (Horizon, Deloitte, Women's College Hospital), a common refrain was that mobile adoption and application was an ongoing dialogue between employees and management.

Diraj Goel, Vice President of Business Technology at Vision Critical, a cloud-based customer intelligence company, noted that workplace mobile demand is coming from management and employees. Listening is an essential management strategy of the mobile era.

Competitive pressures

A range of views from the workplace can strengthen a company's position and help it gain an advantage in an increasingly competitive economy. Mobile technology adoption is becoming an essential element of marketplace survival. Natasha Mascarenhas, Head of Human Resources at Tangerine, noted that mobile adoption has allowed her financial company to be increasingly innovative and nimble. She cited the fact that Tangerine was first to market with remote photo depositing of cheques, a service other banks now increasingly offer. Deloitte echoed this desire to be a first mover and noted that competition is "absolutely" a driver.

Revera Inc., a company providing retirement and long-term care in Canada and the U.S., sees the competition factor as more pronounced in the U.S. This is supported by the literature that puts Canada at a disadvantage against American businesses in adopting mobile technologies in the workplace.²⁰

67% of respondents identified productivity gains as the key incentive for mobile investment

As Canadian investment in mobile technology continues to grow, competitive pressures to strategically deploy it will increase.

Perceived return on investment

ROI clearly matters to Canadian industry but it is not the primary driving factor for mobile adoption: 38% of survey responses for managers cite ROI as the primary driver for increased mobility, with a larger group (50%) identifying ROI as "somewhat" of a driver. Drivers such as expected productivity gains are leading managers to perceive a ROI that has yet to be fully established for many mobile technologies. Most corporate adopters of M2M solutions expect ROI within 2 years.

It is a paradox that the desire for increased productivity drives mobile adoption, yet few companies track impact. In spite of their shortcomings, metrics such as ROI are required. Mike Cuddy, Vice President and Chief Information Officer of Toronmont, a company that provides large machinery for construction projects, noted that data on ROI is scarce but essential to justify large-scale mobile investments.



“ Online security has become a greater issue since the acknowledged widespread use of government surveillance of internet communications²³ ”

Barriers to Adoption



Despite the clear examples of business impact and strong drivers pushing mobile technology adoption forward in the Canadian workplace, clear barriers to further growth and adoption remain. It is important that these barriers be addressed to ensure future growth. The insights obtained through both the primary and secondary research identify barriers to mobile technology adoption among our sample group, which are described below in order of importance (from most to least important):

- privacy and security
- cost of implementation
- integration with legacy systems and services
- weaknesses in infrastructure
- unclear value proposition of technology
- technology reliability
- unclear and fragmented policies and procedures

The numbers from survey respondents offer further support to the barriers facing Canadian business in adopting mobile technologies in the workplace.

Privacy and Security

Privacy and security remain key issues in decisions to use or issue mobile devices. Some managers see personal devices as a security of information concern.^{21,22} Online security has become a greater issue since the acknowledged widespread use of government surveillance of internet communications.²³ Another security concern for some businesses is the chance of technical problems such as temporary shutdowns at central data centres. For example, in 2008, Amazon's S3 cloud service was down for six hours.²⁴

As one senior manager noted, data security "is top of mind for everyone" and is slowing adoption of wireless technologies, particularly in the financial sector. This data is in line with other recent studies that have emphasized the monetary consequences of poor privacy protection online. A 2014 survey published by Vodafone noted that security is by far the largest barrier to more widespread adoption of cloud

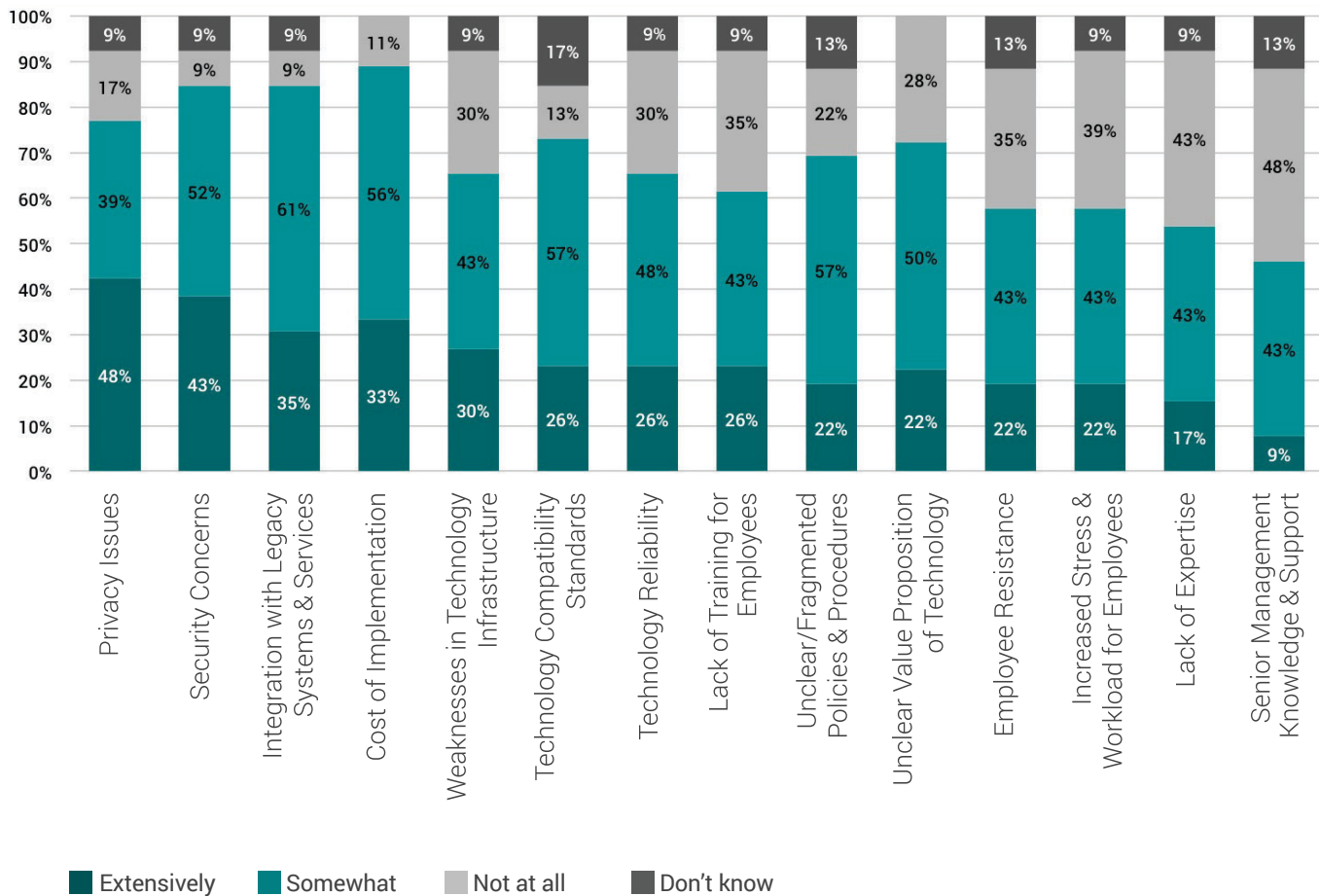


Figure 4 - To What Extent do the Following Barriers Limit your Ability to Adopt Mobile Technologies?

computing: “72% of respondents said that security breaches are a major concern.”²⁵

A representative of mobile sensor company Blue Rover also noted that clients have expressed concern about knowing where their data is going given that it may make their information susceptible to foreign laws.

Cost of implementation

In Canada, the Information and Communication Technology Council (ICTC) noted that costs (resource allocation for adoption of technology) and security were the main barriers to increased adoption.²⁶

Required investments can be substantial. At Ryerson University, one building alone (the Ted Rogers School

of Management) invested \$1 million in wireless upgrades in one year. In some areas such as health care, it can be difficult to justify mobile investment on a limited budget. Women’s College has seen growth in mobile technologies, particularly in their new building, but they still face difficulties convincing decision-makers to examine the long-term potential of mobile investment.

There is limited ROI data to offer an absolute assessment of mobile technology’s financial impact, but participants in this study have offered convincing anecdotal examples of the powerful bottom-line impact of mobile technology.

Integration with legacy systems and services

A large part of the cost of investment involves overcoming the restrictions imposed by legacy systems. Brian Platts noted that legacy systems are a major impediment to mobile adoption among Canadian business. This was echoed by Women's College representatives who expressed dismay at too many software vendors and how this posed a problem with often dated legacy infrastructure. When asked what they would like to see in the future, employees at Women's College expressed a desire for further integration of the systems in 3-5 years. This position supported Krista Napier's observation that the health sector often struggles with legacy technology when adopting new technology.

Large companies also grapple with legacy issues. A multinational company surveyed for *Transformation of Work* makes extensive use of global networks. Yet, despite investment in technology in main offices, they still struggle with internet connections in other countries where the infrastructure is less robust. In the public sector, the Ministry of Transportation for Ontario (MTO) is employing a wide range of mobile applications in their monitoring of Ontario's transportation system, but report difficulties with legacy infrastructure such as older bridges and buildings that are weak links in the current mobile service chain.

Weaknesses in infrastructure

Some workplaces do not have the infrastructure in place to handle the larger data requirements of new mobile technology systems. Ryerson University has had difficulties managing access point usage as demand grows for wireless data on campus. A Ryerson representative said they have considered a tiered system, since many students use wireless for video downloading purposes.

For other industries, the infrastructure problems are external. Companies noted that mobile providers are often not as agile as industry requires. Both Revera and Office Interiors expressed difficulty in dealing with multiple wireless service providers in Canada. As Revera expands nationally, they have encountered problems given that different regions often have different wireless incumbents. This can lead to disjointed service within the organization.

On Canada's East Coast, Office Interiors deals with multiple wireless providers due to limited coverage from any single provider. There is no one carrier that can cover all of their organizational requirements. In the Hamilton region of Ontario, Horizon Utilities field workers mentioned losing mobile signals while working in basements or rural areas but noted that new LTE wireless systems are easing that barrier.

“Clearly, not all mobile technology is appropriate for all workplaces”

Unclear value proposition of technology

Despite these weaknesses in infrastructure, 70% of Canadian businesses clearly see mobile as a priority.²⁷ Canada will need more tracking of success (metrics) to ensure further growth in mobile technologies in the workplace. 50% of industry managers who responded to the *Transformation of Work* survey stated that more information about the business case was the most important measure needed to advance the adoption of mobile technologies

in the Canadian workplace. This finding supported a statement by industry analyst Brian Platts who observed that Canada lacks rigorous studies of business cases for mobility investment.

Companies also struggle with connection between devices, but technological improvements are fast appearing. For example, the Metrolinx system uses an “integration of information” response that automatically adapts to different devices.

There will not be one clear path to maximizing value. Stuart Sherman, Founder of IMC Brands Applied, compared workplace mobility adoption to the difference between parking a car and docking a boat: the car is to fit in the desired spot in one motion, but adopting mobile is like parking a boat, which requires constant small adjustments for the ideal fit. Maximizing value will require adjustments to suit particular business needs.

Technology reliability

Finding the appropriate fit is difficult enough, but new technologies can bring unforeseen obstacles. Much mobile technology is still relatively new (the iPad was only introduced in 2010) and there are still challenges in workplace deployment. A clear example in the *Transformation of Work* research was provided by a Women's College Hospital representative who noted that tablet computers pose particular difficulties in health care since the gloves required by employees make the typing of passwords to access programs difficult. The same interview revealed that biometric eye scans are problematic for jobs that require goggles.

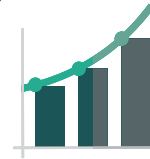
Novotech, a distributor and solution provider of M2M devices, has seen growth impeded by problems in standardization. Sensors, gateways and middleware in their system can have trouble talking to each other. Clearly, not all mobile technology is appropriate for all workplaces.

Unclear and fragmented policies and procedures

Despite widespread adoption of mobile technology in the workplace, many organizations suffer from a disjointed approach to mobile technology adoption. One area of the organization may have a different approach than another, even though they are part of the same wider enterprise. Despite efforts at Ryerson University to expand wireless access, in the end, much of it still depends upon individual professors and departments.

Women's College has also grappled with a fragmented approach, with a representative saying that "greater efficiencies could be found if everyone were on one platform." Though Women's College is making progress on this front, managers must work to overcome mobile divisions in the workplace and create a coherent, goal-driven strategy across the organization.

Successful Practices



With the number of barriers outlined above, it is necessary to understand how organizations are currently working to mitigate or remove these barriers. *Transformation of Work* has yielded many examples of

how Canadian industry is making mobile technology part of the Canadian business experience. Managers and employees have shared their knowledge and experience, demonstrating how creative approaches

1.Strategy

- enterprise-level strategies for adoption

2.Management

- mobile business strategy applications committee
- effective mobile device management and security
- effective mobile applications management
- work-life integration management policies for mobile devices
- effective procurement processes for mobile technology products and services

3.Operations

- BYOD Policies
- strong technical support systems for mobile technologies

4.Culture

- focus on addressing millennial workers and customer demands

Figure 5 - Successful Management Practices Organized by Categories

are assimilating mobile communications into how Canadians do their jobs. We have organized these successful practices into four categories in Figure 5 to illustrate how they are being applied in organizations. This list, while not exhaustive, highlights practices that organizations have used to produce positive outcomes.

Strategy

Enterprise-level strategies for adoption

Overcoming the disjointed approach common to many Canadian workplaces requires a broader managerial strategy. Compass Group Canada (a leading food services and support services company employing 30,000 people) has been very successful in the

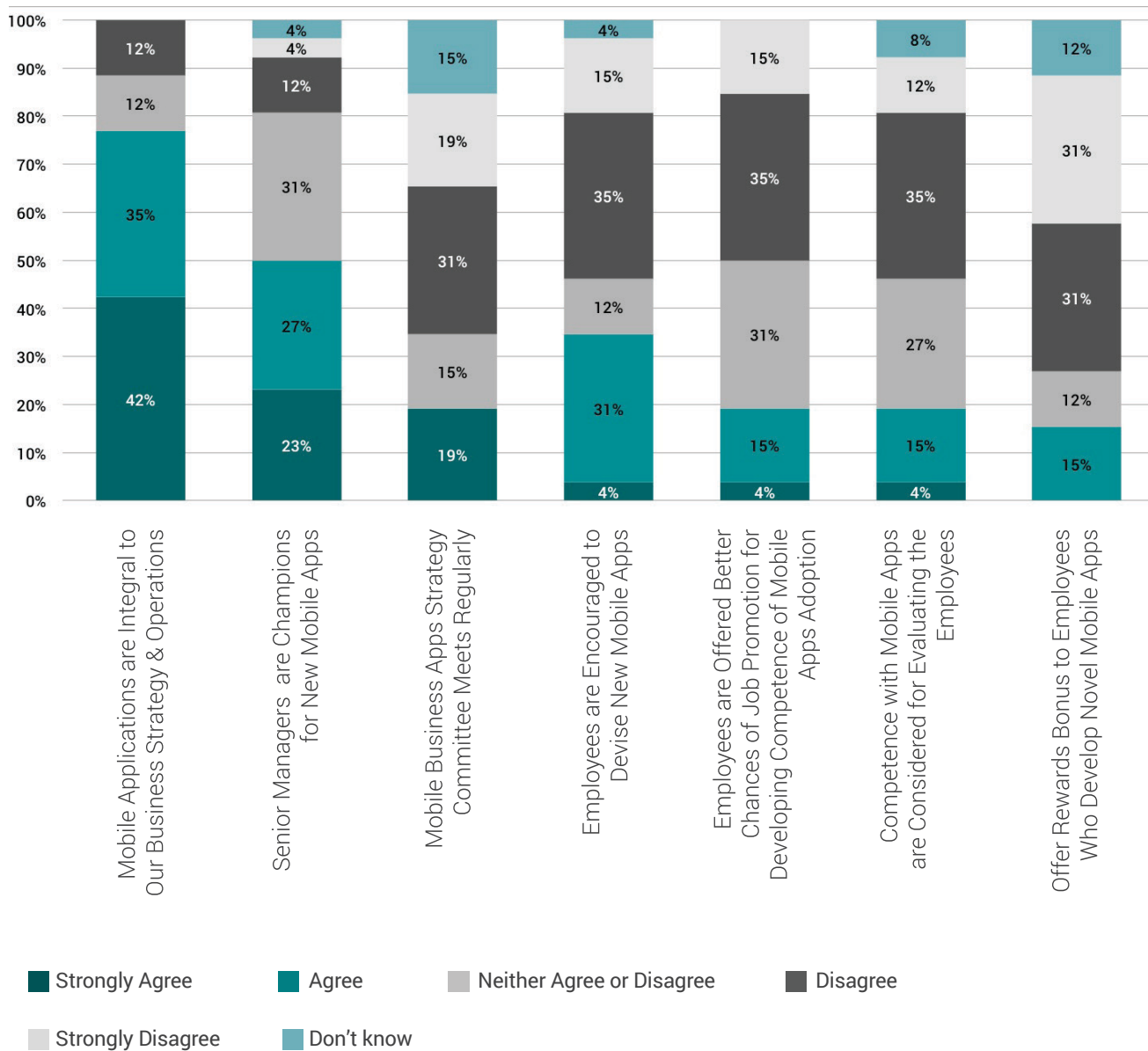


Figure 6 - Please Help us Understand your Organization's Innovation Climate

incorporation of mobile technology into wider business practices. In fact, they see no difference between the two. A Compass representative said in an interview that there are no technology projects at Compass, only business projects. Technology is embedded in all areas of their company. Scheduling, costs, prepaid food orders, and mobile payments are all processed via supply management software. Compass strongly believes that a better, more connected retail offering will bring back more customers.

Much of Hamilton-based Horizon Utilities' success can be attributed to the strong implementation of a wide range of mobile technologies, including unified communications, mobile and wireless, M2M, and a powerful network. Mobile technologies lie at the heart of Horizon's success as a utility provider.

The unified mobile system at Horizon has overcome previous silos of communication, allowing for data to be seamlessly transferred between stations. Time stamps ensure accuracy of data. Workers, management, and customers have enthusiastically embraced the mobile approach to hydro services.

An enterprise-level approach has clear benefits for easier recording of essential data. Several companies across a range of sectors observed that a strong enterprise-wide integration of mobile technology can help gather data necessary for compliance with government regulation.

Management

Transformation of Work demonstrates that the primary driver of workplace implementation of new mobile technologies is senior management knowledge and support. 46% of companies in this study claim that their workplace implementation of new mobile technologies is extensively driven by senior management knowledge and support, and 26% say "somewhat." This reflects the literature, which is clear that strong leadership from management is essential to workplace adoption of new technologies.^{28,29}

However, the data collected for *Transformation of Work* reveals a disconnect between the importance placed upon mobile applications in the workplace and the implementation of managerial strategies to encourage wider development.

Management style must transform to encourage mobile innovation given that workers are now less likely to be physically present. In an interview, Deloitte, who are in the midst of a large restructuring of their physical workplace, had a representative speak of the necessity for management by objective, not oversight.

A representative of a multinational company with offices in Toronto observed that a hard policy framework may be an impediment to productivity and encouraged managers to adopt a more flexible approach. Part of that managerial flexibility must include opening the door to a variety of inputs.

As noted by the Conference Board of Canada in 2015: "By listening to employees about how they work, what would make it better, and what opportunities they see for technology adoption, firms can gain valuable information and earn engagement and trust from the very people whose roles will be affected by the changes."³⁰

Start with privacy as a principle

Mobile business strategy applications committee

A working group is one way to facilitate technological change in the workplace. Women's College Hospital, for example, is pioneering the use of mobile technologies to support ambulatory care. Clinical working groups, physician working groups, and other councils bring forward ideas for technological innovation. The rapid growth of mobile technologies in Women's College Hospital has been accompanied by near-constant reappraisal of the system as well as efforts to improve efficiencies and patient care.

Similarly, a major multinational organization is using its Toronto office for a bold new initiative largely based upon the transformative effects of new mobile technologies. In their switch to Office 2.0, this company canvased ideas for technical innovation from all levels of the organization.

Effective mobile device management and security

Increasingly, employees are bringing their own devices to work, which raises a number of security and privacy concerns, as Krista Napier of IDC has noted.

“Managing mobile IT becomes an increasingly complex task and necessitates specific software and new IT management strategies”

There are no easy answers to addressing security and privacy issues. Firewalls and encryption technologies required in some Bring-Your-Own-Device (BYOD) policies offer greater security but may be resented by employees whose devices may perform more slowly. In some workplaces, some employees are allowed to participate in BYOD, but managers are not because of their access to sensitive data.

There are also technological issues, as BYOD policies must work in tandem with cloud-based infrastructure to ensure data security.

Security issues are paramount in health care. Women's College Hospital is working to overcome concerns about security in wireless systems, guided by the idea, “start with privacy as a principle.” Data storage is also an issue. Tangerine, for example, uses a mix of on-site and cloud data storage to ensure necessary security.

Effective mobile applications management

Mobile security is intertwined with the wider perspective of mobile applications management. Krista Napier notes that some companies have a chief mobile officer, “but most don't.” This poses problems when companies are trying to create a coherent approach to workplace mobile technology adoption.

In our survey, most (65% of) respondents claimed strong mobile apps management, but only 42% of respondents strongly agreed that “Mobile Applications are Integral to Our Business Strategy & Operations.” Most research suggests that “managing mobile IT becomes an increasingly complex task and necessitates specific software and new IT management strategies.”³¹

Work-life integration management policies for mobile devices

Mobile technology is changing the traditional view of work-life time management. When does the workday end? Or does it? As one employee observed, she saw “little difference between work life and home life.”

There are clear benefits to mobile use, but if mismanaged, they can clearly infringe on work/home boundaries.³² This can lead to resentment of mobile devices by employees and hinder the growth of their use in the workplace.^{33,34,35}

Most employees recognize that communications technology blurs this previously distinct work/life division. Mobile technology allows for fundamental changes to what constitutes the workplace. Companies such as Deloitte are offering options to allow employees to choose where they work and focus on clear work objectives rather than requiring employees to be at assigned desks. The idea of the office as a specific physical place has clearly changed.

The approach to managing the work/home division differs between organizations and among employees.

Increasingly, organizations are recognizing flexibility is key, particularly for younger employees.

Effective procurement processes for mobile technology products and services

Obtaining new mobile technologies is relatively simple, but selecting the product that is the right fit for a business’s needs requires careful planning and analysis.

Office Interiors has seen great gains in productivity under an increasingly mobile regime, in which calls for servicing have decreased from 45 to 10. However, as COO Keith Skiffington notes, “A lot of stuff sounds

good but doesn’t have application... the key is to find the stuff that really works and makes you better.”

This approach was echoed by a representative of Women’s College Hospital who noted that the fastest and biggest technology is not always best. She noted that what is key for Women’s College Hospital is to focus on positive patient impact.

Operations

BYOD Policies

A manager at EY observed that bringing your own device is increasingly popular and expected from the workforce. As he noted: “You don’t want to be the

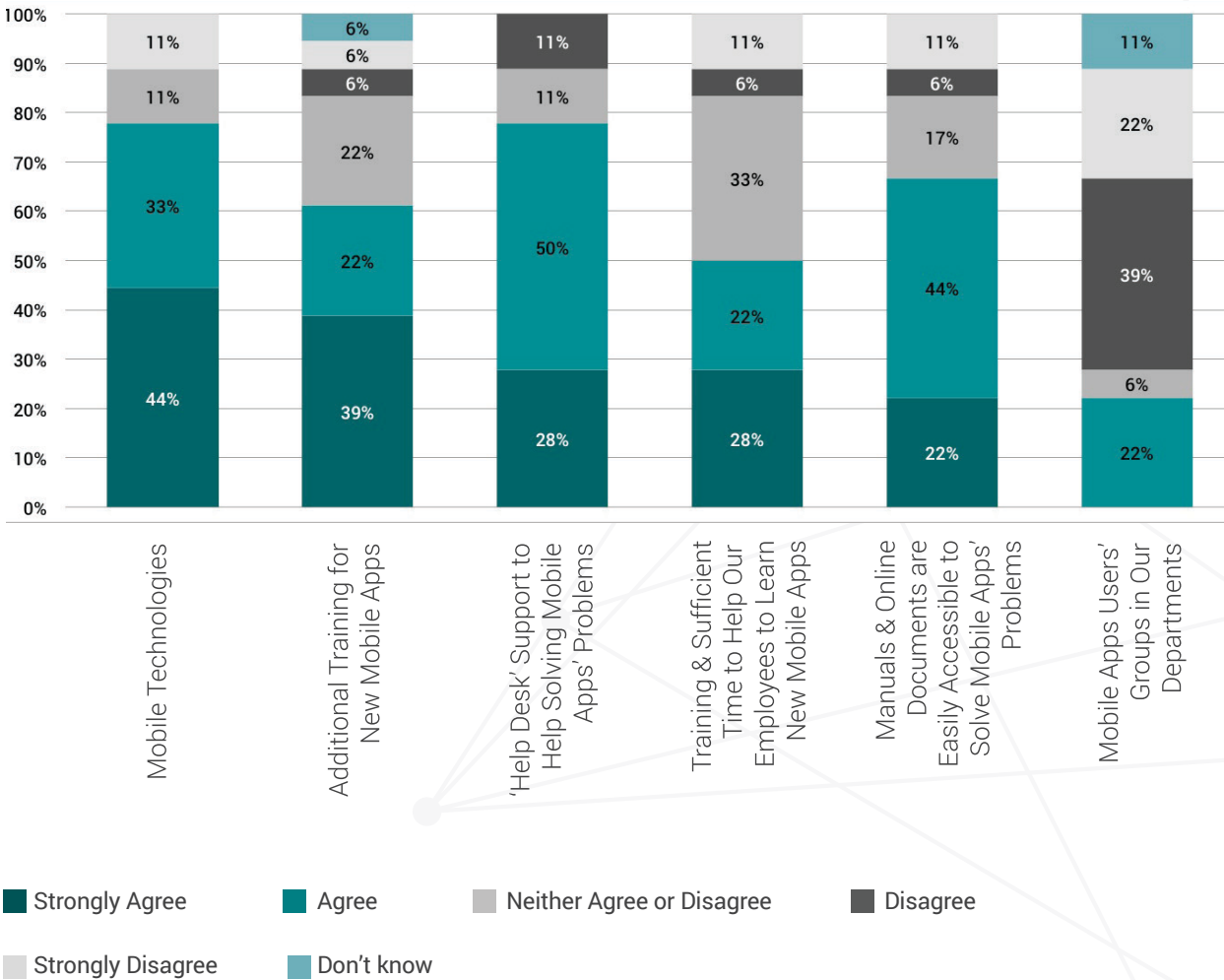


Figure 7 - How Tasks are Supported in your Organization

“Half (50%) of Gen Y full time employed Canadians are willing to sacrifice something in order to work remotely more often”

company without BYOD.” Many businesses install corporate apps directly onto their employees’ mobile devices instead of providing a corporate device.

While BYOD numbers are rising, a 2013 Rogers-Harris Decima study shows that BYOD policies are in place in only about 30% of companies. Increasingly, evidence suggests that this affects employee engagement. Almost 50% “of those who have a BYOD policy indicate they are ‘very satisfied’ with their current employment situation” compared to 30% among non-BYOD employees.³⁶

The catalyst for growth of the number of employees using their own devices is on the rise in cloud-based applications. *Transformation of Work* found a trend of movement away from company-issued mobile devices, toward a more flexible approach where employees bring their own devices but with necessary company software embedded in the device. Some workplaces are offering employees a monthly allowance toward a smart phone plan instead of requiring a work device. This change is made possible via the use of cloud technology.

Strong technical support systems for mobile technologies

Adopting mobile technology across an organization requires support systems. Too often, strong formal technical support mechanisms are lacking within Canadian organizations.

The stories shared from Canadian industry demonstrated the link between employee support and the successful deployment of mobile applications. Horizon Utilities provided mobile tech support for

field employees who deal directly with customers and has seen great success from both younger and older employees.

Mobile health is more than a buzzword; it is the reality of the new Women’s College Hospital building. Electronic patient records went live in 2015. Classes were offered to employees to train staff in the use of the new mobile-based system. Almost everything is connected to wireless and the speed and security far surpasses the previous system. The new facility has Wi-Fi throughout and has built-in redundancies that ensure there is no single point of failure in the wireless system – if one piece fails, backups are already in place.

CBC/Radio Canada noted that mobile is engrained in the culture of the institution, and once a month, a booth is set up for IT questions from employees.

Culture

Successful companies nourish a culture of technological innovation. Workplace cultures should be open to evolution and new activities to avoid becoming entrenched in unchallenged habits.³⁷ The industry literature recommends that companies engage in regular training on mobile technologies in order to hone the variety of skills necessary to be truly mobile in the workplace today.^{38, 39}

This is too often the exception in the Canadian workplace. Most companies identify as somewhere in the middle of the pack when it comes to technology adoption, with a minority identifying as early adopters. Over half (52%) “of FT Employed Canadians are ‘in the middle’ when it comes to technology adoption with a quarter (25%) stating they are either ‘the first’ or ‘among the first’ to try a new technology product.”⁴⁰

Employee input is dependent upon the company culture. Mobile technologies can act as a democratizing agent for problem-solving in the workplace by harnessing employee insights and collaboration.⁴¹ This is a trend that is increasingly recognized by business leaders. For instance, Patrick Spencer, Technology Advisor at EY, reiterated the importance of collaborative workspaces in the building to encourage a shift from a “me first to we first” culture. Despite the distance-defying elements of new wireless technology, Stuart Sherman of IMC

noted that human interaction is a “universal human truth” that does not change with technology.

Focus on addressing millennial workers and customer demands

Increasingly, workplace culture involves focusing on the needs of those who have grown up with the internet. Younger Canadians increasingly expect connectivity in the workplace and are rejecting traditional work structures. A 2013 study notes that “half (50%) of Gen Y full time employed Canadians are willing to sacrifice something in order to work remotely more often, compared to 28% of those aged 30 and above.”⁴² Workplace flexibility is increasingly necessary to acquire and keep new talent.

Like many workplaces, Hamilton’s Horizon Utilities has a divide between employees who had little previous interaction with computers and younger employees who are more comfortable with technology. One employee noted that there is a “big time” generational divide in the workplace, but also noted that Horizon has made great improvements in this area in recent years.

To bridge this divide, Horizon offers training for members of their workforce who are more uncertain of new technology devices. They also keep lines of communication open between field workers and IT personnel to ensure that mobile devices are meeting the needs of workers and customers. Employees recognize this open communication as contributing to the success of Horizon’s technological growth.

A more senior Horizon employee, who describes himself as “old school” and a poor typist, recognizes that the transition to a fully wireless work life was not always easy for him, but he is convinced of the benefits. He notes that in the beginning there were “some growing pains... but now I think it’s a good thing. I’m definitely sold on it.”



A blurred background image showing several people in a meeting or office setting. In the foreground, there is a desk with a smartphone, a tablet, and a cup of coffee.

**“ 50% [of respondents]
reported having an
organization wide mobile
strategy ”**

Mobility Management



Our research confirms past studies that suggest that organizations benefit most from mobile technologies when they have well-developed strategies, policies, and procedures in place.

The Capability Maturity Model offers an effective structure for conducting maturity assessments in everything from project management to information technologies,⁴³ which we have adopted to create a Mobility Maturity Model that provides organizations with benchmarks for the management of mobile technology in the workplace (see Figure 8).

Our research indicates that despite increased demand for mobile applications in the workplace, the actual deployment of mobile technology remains Ad Hoc or Opportunistic, for the most part, and with substantial discrepancies across organizations. As outlined in

Figure 4, only 50% of respondents reported having an organization-wide mobile strategy. Of the remaining 50%, only 27% had unit-specific mobile strategies and the remaining 23% had thus far not established a mobile strategy (see Figure 9).

Transformation of Work largely supports other reports that have noted a disjointed approach to the adoption of mobile technology in the workplace and raises questions as to whether Canadian businesses are receiving maximum benefit. The research also points to a lack of accepted standards as to how mobile technology can be used to support the transformation of work.⁴⁴

This lack of maturity is also reflected in the finding that “unclear and fragmented policies and procedures” are a leading barrier to current adoption.

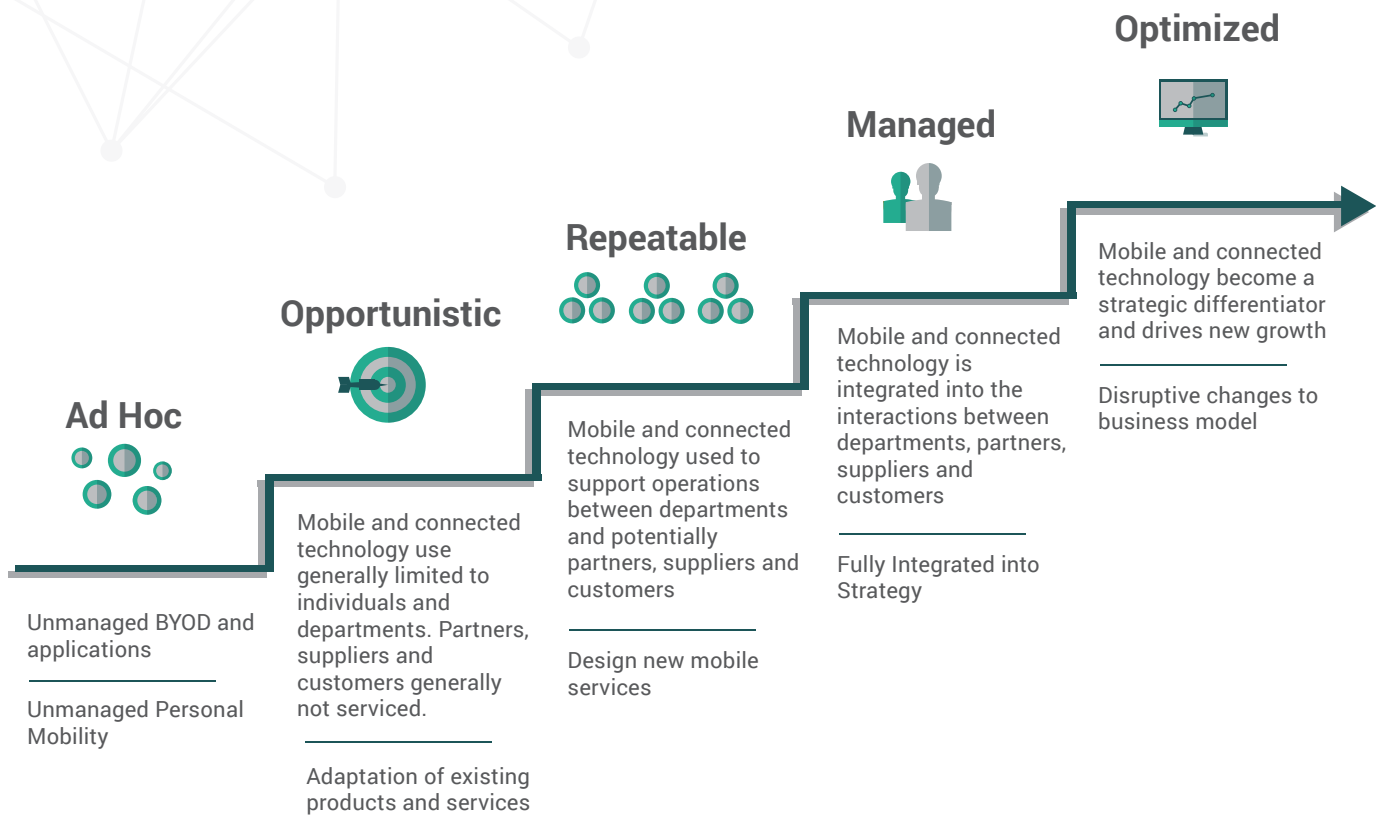


Figure 8 - Mobility Maturity Model Outlining Levels of Mobile Technology Management

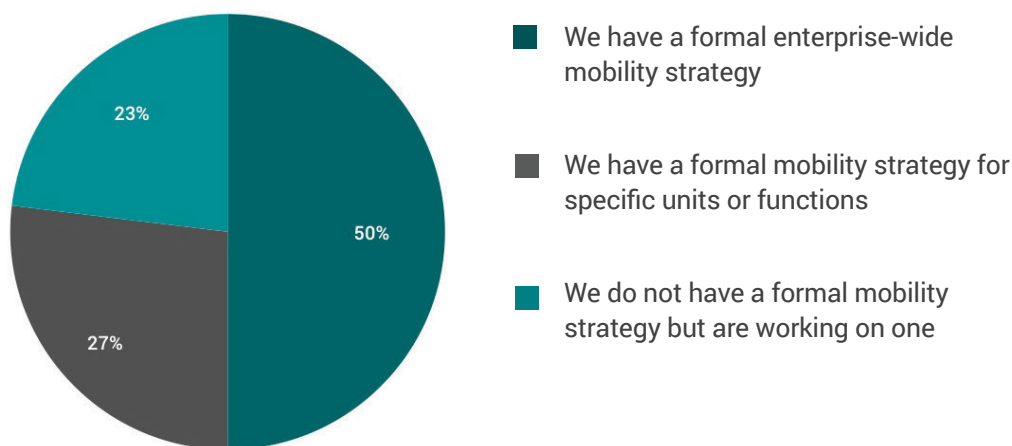


Figure 9 - Describes Respondents Organization's Mobile Strategy for Using Mobile Technology

Conclusions



The impact of mobile technologies on the Canadian workplace is extensive and growing. Mobile technologies are impacting the structure of the workday, our interaction with colleagues, our requisite skills, and the physical design of our work environment.

Transformation of Work has outlined some of the following key trends regarding mobile technology adoption in the Canadian workplace:

- Mobile technology adoption is important to and growing in Canadian organizations.
- Mobile technology is clearly impacting and transforming the Canadian work environment.
- The adoption of mobile technologies is being driven by a number of factors, but understanding and measuring the value remains elusive.

- Obstacles remain to maximizing the value of mobile technologies in the Canadian workplace.
- Businesses are just starting to understand and manage the opportunities in mobile technology and need help to develop management processes that drive value.

It is a time of great opportunity for Canadian businesses. By undertaking a clear assessment of how mobile technology is currently impacting businesses, and then devising a strategy to leverage mobility to achieve wider business objectives, Canadian industry can move beyond simply adopting the tools to optimize the benefits best suited to achieving their business goals.

A grayscale background image of a business meeting. A woman in a light-colored button-down shirt stands and smiles, leaning over a desk. A man in a suit sits at the desk, looking down at a document and holding a pen. Another man is partially visible on the left, looking towards the center. The overall tone is professional and collaborative.

**“It is a time of great
opportunity for Canadian
businesses”**

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