



**Task Force for the
Payments System Review**

Going Digital: **Transitioning to Digital Payments**





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FOREWORD

Payments are a passion of mine. When I was asked to chair the Task Force for the Payments System Review, I accepted without hesitation.

My views and, to a lesser extent, my background certainly predispose me to this challenge. But the fact that I have pursued it as vigorously as I have stems from something much closer to home: my 15-year-old son, whose mobile phone has become a shopping platform and much more. In this Task Force, I saw an opportunity to create the foundation for a digital economy for the next generation to build upon and to thrive in.

Our mandate asked us to examine a variety of public policy dimensions – competition, innovation and the state of current regulatory and governance structures – and to report, with actionable advice, to the Minister of Finance.

As the Task Force pursued its mandate, we learned that the payments system does not exist in isolation. It is connected to our lives, institutions and economy in very fundamental ways. I believe that a successful digital economy requires a dynamic digital payments system that meets the needs of its people, businesses and governments. And a thriving digital economy is something that matters to all Canadians because it can substantially improve our quality of life.

The fact is, the digital economy is already here, buoyed by technology that has evolved more quickly and dramatically than I ever could have anticipated. Payments, once understood as the strict transfer of money, are no longer merely that. Technology has begun to foreshadow not just how we will pay in the future, but how all manner of transactions – value and information – will be made. Change has been more rapid and profound than we had ever thought. The last 18 months alone have seen the advent of new payment products and services that marry payments to mobile-based apps, cloud computing and tap-and-go technology such as Near Field Communication (NFC).

Innovation like this is inspiring, and Canadians, who have traditionally been early adopters of technology, have responded positively. Basic behaviours are changing as Canadians opt to “tap” their payments at some of the most popular retail outlets, where NFC terminals now accommodate chip-enabled cards and smartphones.

But not everyone has been able to begin the transition. As a small business owner, I still write cheques to my suppliers, even though exchanging money between friends and family can be done via email. I cannot understand why simple bookkeeping has not already been automated, especially when most of the information comes from my already electronic bank statement.

When I hear about other countries, especially northern European ones, boosting their Gross Domestic Product by one percentage point by automating payable and receivable processing, alongside other administrative activities, I cannot help imagining how a similar productivity gain would affect the quality of life here.

If there is great potential in *Going Digital*, there is also risk. My son’s mobile phone has become his passport to the world around him; he rarely carries his wallet. My mother, well into her seventies, enjoys the ease and convenience of paying online. I ask myself: Are these tools safe for my family? Are their privacy and security protected by these new technologies? The implementation of a digital identification and authentication regime would make me much more confident that our information is protected in the online world.

These are important considerations, with implications for everyone, including the businesses, financial institutions, telecommunications companies and all manner of new players making their way into the payments industry.

As responsible managers, policy makers and citizens, we should seek every opportunity to invite this conversation, try to understand the transformation under way and make necessary decisions together on how best to help Canada transition to digital payments and the digital economy. And we need to work together on initiatives that will help us move forward.

Continuing the Dialogue

The Task Force embraced dialogue early on by participating in the Scenarios Roundtable, which brought together stakeholders from across the system to develop four different but plausible scenarios for the future of payments. This exercise broadened our perspectives, showed us firsthand the advantages of collaboration and inspired us to continue the dialogue beyond the Roundtable.

To that end, the Task Force created eight working and advisory groups, drawing on the strengths of over 250 professionals to work together on options and solutions to some of the most difficult challenges facing the industry.

Going Digital is a continuation of that dialogue and offers an initial report on the findings of three of these groups:

- **Electronic invoicing and payments, to help move businesses and institutions away from paper-based payments;**
- **Mobile payments, to help Canadian consumers engage through wireless devices; and**
- **Digital identification and authentication: a new way of protecting people's increasingly online identities.**

Most importantly, it urges immediate action through wide-scale collaboration, because change is not a choice but a reality. *Going Digital* is the first step toward a digital payments future and offers our views on how best to advance the transition. It assesses the risks and benefits of *Going Digital* and proposes roles for governments, industry and Canadians alike.

Although the ideas in *Going Digital* are critical, they are inextricably linked to the broad policy dimensions of the payments system: governance, legislation, competition, innovation, infrastructure and the needs of users. These issues take centre stage in our final report, to be presented separately to the Minister of Finance. The final report is our response to the task handed to us. *Going Digital*, by contrast, presents the challenge that we ourselves are issuing.

Nowhere are both the threat and the opportunity of technological transformation clearer than in Canada's payments system. In this period of economic uncertainty and in the face of radical technological change, the time is now to rethink the very nature of payments and the potential they hold for reducing costs, improving services, capturing efficiencies, increasing productivity, spurring innovation and bringing about a thriving digital economy. Canadians deserve no less.

Going Digital would not have been possible without the outstanding contribution of the Task Force members who chaired the working and advisory groups over a period of several months. I would personally like to thank Brad Badeau, John Chant, Lili de Grandpré, Laura Gillham, Stéphane Le Bouyenc and Terry Wright, whose efforts exceeded expectations.

A special thank you is also owed to Barbara Stymiest, Aran Hamilton, Judy McCreery and Jacques St Amant, whose outstanding contributions to the various working and advisory groups have paved the way for the Task Force and without whom this enormous undertaking would not have been possible.



Pat Meredith

Pat Meredith
Chair, Task Force for the Payments System Review

CHAPTER 1: CHARTING THE COURSE

As our world changes fundamentally and forever, the opportunities of rising to the challenge far outweigh the risks of falling behind. The time has come to take a longer-term view of how stakeholders, including consumers, can work together to achieve a secure, innovative online payments system that serves the needs of a digital world.

*The Way We Pay: Transforming the Canadian Payments System,
Task Force for the Payments System Review*

A digital economy depends on digital payments.

In a world of cloud computing, touch-screen tablets and regime-shifting social media, the basic act of payment has already been radically transformed. Change has been more rapid and profound than many of us ever anticipated. Canadians everywhere reach for phones instead of wallets to pay for parking, buy a coffee and even transfer funds to friends and family.

But Canada's payments system is not ready for this change. Although they have admirably met the needs of the 20th century, the system's networks, institutions, infrastructure and legislation were designed for yesteryear. Moreover, a huge percentage of the payments in Canada are still made by paper cheques—relics of the industrial age that cost both time and money in today's technologically-enhanced reality.

Our current clearing and settlement infrastructure does not meet user expectations for immediate, information-rich transactions. Entire segments of service providers, and governments in particular, will not be able to offer technology-enhanced services if our payments infrastructure cannot handle the digital reality.

As a result, businesses, governments and consumers continue to waste time and money. Small businesses continue to rely on paper cheques. Larger entities, including provincial and territorial governments, face uncertainty in transitioning to digital payments and are reluctant to change in the absence of consensus on the right standards and protocols. Institutional change has been slow.

Not so for individuals. Technology has radically changed Canadians' behaviours and expectations. We are early adopters of smart phones and tablets, and we are the world's heaviest users of the Internet.

Yet mobile payments are largely absent in Canada. It does not make sense that vastly complicated tasks such as navigating cities and highways involve a simple keystroke, but the basic act of payment does not.

The untapped potential of mobile technology will continue to transform society, bringing speed, convenience and a personalized lens through which to access commerce. Real-time information linked to client preferences, loyalty programs and coupons is opening new avenues of business and marketing. Governments, especially municipal ones, are using mobile technology to extend services such as transit and parking. Canada's federal government even intends to pilot Internet-based voting in just a few years' time.

But Canadians are understandably concerned about the advent of mobile payments and Internet technology; headlines reporting fraud, identity theft and system failures are a regular feature of the mainstream news. Security and privacy are not yet completely assured. Without a regime to protect identity and authenticate senders and receivers, Canadians cannot be expected to embrace the digital marketplace.

In the absence of a coordinated and systemic approach to change, entities move at their own pace, and the gap between users' expectations and the services provided continues to grow. If we are to meet the evolving needs of Canadians, we require a system designed for innovation and interoperability.

WHAT IS THE PAYMENTS SYSTEM?

The payments system refers to arrangements that allow consumers, businesses and other organizations to transfer value from one party to another.

It includes the institutions, instruments and services that facilitate the transfer of value between parties in a transaction.

Just because the payments system still functions does not mean that it does not need fixing. Payments are the lifeblood of the Canadian economy. Without the ability to exchange value in a way that takes advantage of new and emerging technological tools, we will struggle to keep pace with other countries that have embraced competition and innovation.

Change is no longer coming—it is here. Technology has inspired a fundamental global shift, and Canadians cannot simply react to it. We need to find a way to embrace and harness this change. And we need to do it now.

Other countries, where industry and government have collaborated on payment initiatives, have addressed many of these issues. We are optimistic that Canada can match and exceed gains made elsewhere. We need only rediscover the shared objectives of a modern payments system and approach payment's change with a commitment to working together.

Collaboration in the Face of Change

Payments run on multiple networks that operate independently. Still, in the most efficient payments systems, common standards ensure that transactions move seamlessly among networks. Collaboration between owners and users is required to advance the interests of all. A mix of collaboration and healthy competition is the path to a positive digital payments future.

A HISTORY OF COLLABORATION

Collaboration has been successful in bringing about change to the payments system:

- The Canadian Payments Association (CPA) owns and operates Canada's national clearing and settlement system. The CPA has 119 members, including the Bank of Canada, chartered banks, trust and loan companies, credit union centrals and *caisses populaires*.
- The emergence of credit cards in the 1960s transformed our economy, extending benefits to users and leveraging economic activity. Thanks to an alliance of banks that agreed to issue credit cards under a single banner, ChargeX, Canada emerged as a global pioneer in credit card use.
- The case of Interac: In 1984, five financial institutions decided to link their automated banking machine networks, allowing cardholders to withdraw cash from other financial institutions. Interac at point of sale became a reality in 1990; by 2000, debit surpassed cash as Canada's preferred way to pay¹.

Collaboration is crucial. Technological change, shifting risks and opportunities and the imperative for governments to protect the public interest are challenges that can best be resolved through stakeholder collaboration.

Collaboration does not mean groupthink. Individual players still operate with self interest. But with common goals like developing standards and codes of conduct, a collaborative process helps in navigating choppy waters. Harnessing the strengths of Canada's diverse payment providers, each with valid competitive and self-interest aspirations and characteristics, is to everyone's advantage.

1. Interac Association, About Us, <http://www.interac.ca/about.php>

Scenarios for the Future: Collaboration as a Tool

To showcase the potential of collaboration, the Task Force participated in a Scenarios Roundtable, where leaders from a cross section of interests, including payment service providers, merchant and consumer groups, technology firms, government officials and others, gathered to develop visions of the future. By developing a range of plausible outcomes, participants came to understand where common interests lie, and what steps could be taken to realize shared benefits.

The report *Scenarios for the Future of the Canadian Payments System* offers compelling insights. All scenarios identify collaboration as essential.

Scenarios were framed by two critical uncertainties that would shape the future of the Canadian payments system:

- 1) The degree of alignment of the payments ecosystem (aligned, or fragmented) and; 2) the extent of user adoption (rapid, or moderate).

The different combinations of the two key uncertainties resulted in the following four scenarios:

GROUNDHOG DAY

Like the movie of the same name, this scenario replays the recent past. Canada's payments system moves forward as it has for the past two decades. Not much changes in its infrastructure. The system is not strongly aligned; governments, financial institutions (FIs), businesses and telcos are all charting their own course and protecting their own interests, with few or no universal standards.

The regulatory environment responds slowly and, as a rule, offers only basic protection. Consumers and businesses are slow to adopt new technology; concerns about authentication, privacy and security remain high.

"TECH-TONIC" SHIFT

Technology companies develop alternative payments platforms and become major players. Success is helped by high consumer adoption and cheap new platforms. Government is slow to regulate and competition is fierce. New entrants take advantage of cloud computing and collaborative networks to create low-cost scalable businesses. The proliferation of new financial services and applications is phenomenal.



The traditional FIs find themselves under great pressure. Although consumers and businesses benefit from convenient new products, at the same time, fraud rises and security breaches become more widespread, as do legal cases involving liability. Responding to growing pressure, the government moves to regulate the new entrants more actively, leading to eventual consolidation in this market. In the space of a decade, innovative new technologies and market forces have fuelled a tectonic shift in the way Canadians transact.

CANADA GESE

Like a flock of Canada geese, the payments system is strongly aligned and co-operative. Over the course of the decade, this high level of collaboration reduces friction in the system: all players work together to agree on the rules and standards, spurred by the understanding that if they do not, government will act with a heavier regulatory hand.

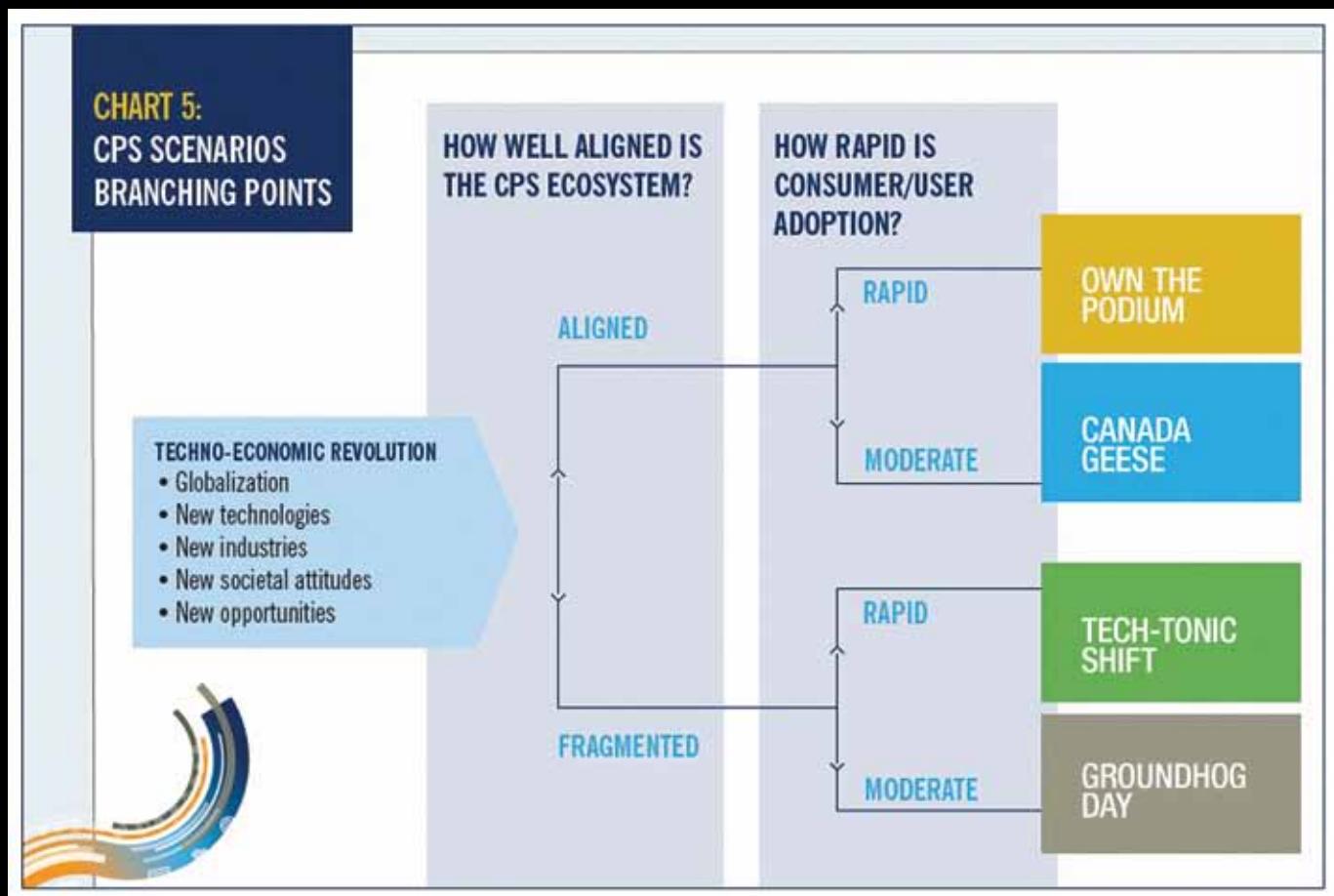
Because the system is reasonably efficient, there is limited push toward new technology, and the cost of meeting standards and regulatory requirements slows innovation. Instead, the payments system prioritizes gradual, thoughtful evidence-based reform that embraces the best of the technologies being tested in other systems. This allows Canada to benefit from innovations while avoiding the risk and disruption of working on the bleeding edge.

OWN THE PODIUM

There is growing awareness of the magnitude and speed of the changes being fuelled by the convergence of computing and connectivity into the smart phone, which disrupts existing business models and ways of working while creating huge new opportunities. Industry comes together to facilitate the rapid development of a set of standards in key areas of payment—privacy, security, digital ID and authentication, and mobile payments—that encourage competition and innovation, and enable Canada to lead developments elsewhere in the world.

Canada sees remarkable shifts to new ways of processing payments and other transactions. The principle that Canadians “own their own data” and the accompanying robust digital identification and authentication systems that are developed are crucial in encouraging rapid consumer adoption and enabling Canada to capitalize on the massive changes under way. Companies use cloud computing and collaborative networks to set up payment businesses quickly in response to consumer needs. Lessons learned in payments quickly flow to other sectors, such as health. In FIs and other industries, there is much disruption and considerable job loss, but also the creation of new industries and new jobs. By 2020, Canada is a global leader in this new online world, exporting its expertise and systems to the global community.

—Scenarios for the Future, Task Force for the Payments System Review, www.paymentssystemreview.ca



MANDATE OF THE TASK FORCE

Given the importance of a safe and efficient payments system and the need to ensure that the framework supporting the payments system remains effective in light of new participants and innovations, the government is appointing this task force to conduct a review of the payments system. Specifically, the Task Force will:

- Identify public policy objectives to be pursued in the operation and regulation of the payments system;
- Identify and assess the regulatory and institutional structures best suited to achieving these public policy objectives;
- Assess and report on the safety and soundness of the Canadian payments system;
- Assess the competitive landscape by identifying any potential barriers for new entrants and mechanisms that can improve the competitive landscape of the domestic payments system;
- Assess the degree of innovation in the domestic payments system and report on the challenges and opportunities involved in bringing new and innovative products to market in Canada; and
- Assess and report on whether consumers and merchants are well served by the domestic payments system.

Through the above assessment, it is expected that the Task Force will provide concrete, actionable advice and recommendations to the Minister of Finance to help guide the evolution of the payments system in Canada.

Charting the Course

The relentless pace of technology means that every day there is something newer, faster, better. To succeed in the global economy, Canada must keep step as the world races forward.

–2010 Speech from the Throne

Going Digital is a road map to guide Canada's transition to digital payments.

Our call for change features three interrelated elements that we believe are fundamental to responding to the transition: electronic invoicing and payments (EIP), to help move away from paper-based processes; the development of a Canadian mobile ecosystem, to transform how Canadians engage in a wireless world; and digital identification and authentication (DIA), to help protect Canadians' identities online.

There are clear and compelling benefits to choosing this path:

- Canadians will see radical improvements in the ease and convenience with which they engage the world around them. They will spend less time filling out forms and standing in line for essential government services like healthcare or social security programs. Even services that are less essential, like parking or public transit, will depend less on correct change and more on a digital credential built right into a card or phone.
- Automation of accounts payable and receivable will help small business owners spend more time running successful businesses rather than reconciling numbers on ledgers. Larger entities like corporations and governments will maximize cost savings by radically transforming service delivery for their customers and citizens, while offering faster and more personalized experiences.
- New entrants into the payments system will bring choice to consumers and businesses looking for new approaches. And financial institutions, which have long inspired the trust of Canadians, will enjoy being on the frontier of payment innovation and bringing customers to the forefront of exciting new ways to pay.

- The financial benefits are substantial. Supported by work undertaken by McKinsey & Company, we estimate that direct annual savings from EIP, combined with a reduction in the use of cheques, will be between \$7 and \$8 billion (or 0.3% of Gross Domestic Product (GDP)).
- Governments will realize massive savings through the reduction of paper-based processing costs. Most governments have already invested heavily in making services available online. Automating service delivery from end to end will deliver even greater efficiencies.
- Other segments will also benefit. Large enterprises will capture \$5 billion in savings, with small and medium enterprises (SMEs) and financial institutions capturing \$700 and \$600 million respectively. Additional benefits accrued from products, as well as better and timelier information, will also result.

These benefits are just the beginning. Northern European countries, furthest along in the transition to digital payments, have projected savings of 1 to 2% of GDP. Significantly, most savings accrue to governments through refinements in their internal processes and their service delivery that can save their citizens billions of dollars.

Actualizing these benefits will require massive change—from consumer behaviours and accounting systems to the very procedures governments rely on in delivering services. Incumbents have not yet acted on this change. For that reason, governments must rise to the challenge, championing the transition to digital payments by:

- Requiring EIP for all government suppliers and benefit recipients in a manner that takes into consideration the unique needs of users;
- Supporting the build out of a DIA regime; and
- Partnering with the private sector to create a mobile ecosystem to deliver both commercial and public services to citizens.

Chapter 2 begins with a description of the state of digital payments in Canada. It explains our ongoing reliance on paper cheques, while outlining the potential cost savings of EIP for governments and businesses. The consequences of doing nothing are set against the benefits of coordinated change.

Chapter 3 lays out the road map. We call on governments to establish momentum in implementing EIP and on various industry segments both within the payments system and elsewhere, to follow suit.

Governments are well suited to this role because of their ability to overcome the network effect: benefits materialize only if a critical mass of participants joins in. The value of a network, like a fax machine, is only fully realized if many people use the same technology. The volume of government payments allows it to create a network, to which other participants can then subscribe.

Chapter 4 addresses mobile payments. Canadians are rapid adopters of technology and will expect to be able to use smart phones in new and dynamic ways. Mobile devices now proliferate, but we have only scratched the surface of their full potential.

Chapter 5 reports on digital identification: authenticating payors and payees in the intangible digital world. Emerging technologies combined with the Internet make it easier to interact in the virtual marketplace. However, building business and consumer confidence in digital identification is essential if this marketplace is to thrive.

Here the story is similar to EIP and nascent mobile payments, but further along: governments across Canada are carving out a pan-Canadian DIA regime and must now find ways to partner with industry in implementing the strategy.

We believe that *Going Digital* can help stakeholders envision a future where the shared goals of today become the shared benefits of tomorrow. However, Canadians themselves are the true agents of change. How well the Canadian payments system rises to the evolving needs of a digitally awakened nation will be our ultimate measure of success.

CHAPTER 2: REDISCOVERING OUR PLACE

The digital economy is upon us, driven by the Internet and the transformative power of instant information. The future in payment's innovation is payment as information, not just money. The information revolution is indeed manifest in payments. This shift is taking place globally. If Canada is to capitalize on the potential of the information revolution, we must begin making changes now.

USING THE SCENARIOS FOR THE FUTURE

The Scenarios Roundtable (see pp. 10-11) allowed the Task Force to consider a range of potential outcomes for the Canadian payments system. Of the four scenarios described, two in particular help illustrate the ends of the spectrum: *Groundhog Day*, a never-ending cycle of insignificant changes; and *Own the Podium*, the gold-medal payment option.

Groundhog Day assumes that for the next decade change is uncoordinated. Government does not take a leadership role, universal standards are not agreed upon and cooperation among major players does not happen.

Own the Podium imagines instead a decade that recognizes the potential of mobile payments and sees secure digital authentication as integral to its success. Standards are developed in step with government leadership on e-invoicing and payments and legislation guided by high-level principles puts users first, giving Canadians the confidence to embrace change.

The potential cost benefit of broad-based action is substantial: by 2020, Canada could capture annual cost savings of \$7 to \$8 billion (0.3% of GDP) by transitioning to digital payments and the automation of end-to-end accounts receivable and payable processes.²

Evidence suggests this estimate is conservative. A recent Capgemini report that looked at 16 European Union countries estimated the overall cumulative market impact from 2006 to 2011 at about €238 billion².

And that is just the beginning. Through implementation, we are confident that ancillary benefits, such as online services, renewed workforce productivity, greater interoperability, new technology products and widespread consumer adoption, will push benefits as high as 1 to 2% of GDP.

Opportunities for Cost Savings in Going Digital

Transitioning to digital payments will require well-supported evidence that doing so is in the interest of all participants—businesses, governments, financial institutions, merchants and consumers. Investment will be required to update systems to replace paper payments and facilitate electronic processing of invoices. None of this will happen without first presenting a tangible case for future success.

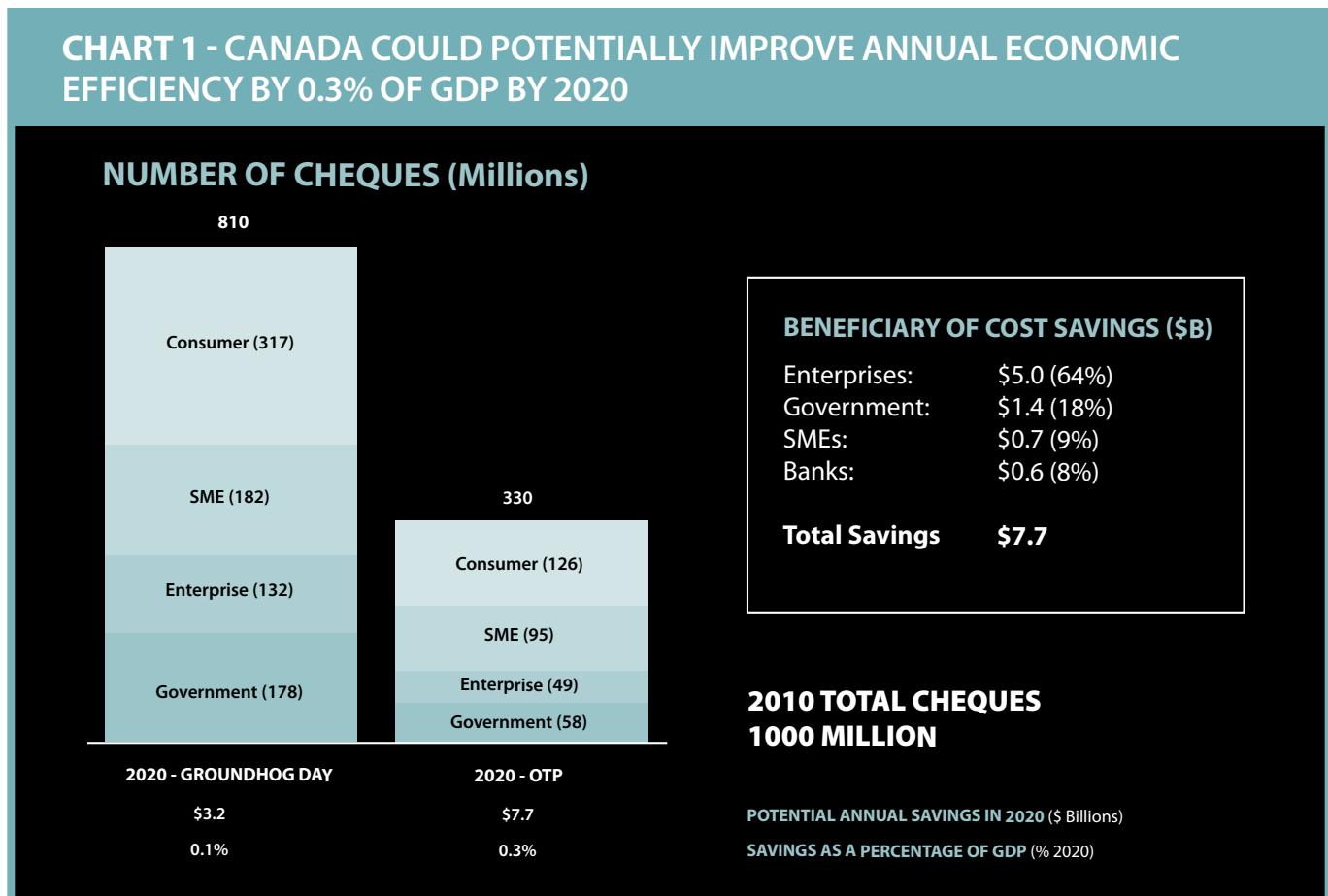
With the help of McKinsey & Company, the Task Force projected the potential savings of transitioning to digital payments. Drawing on the optimal conditions required to achieve the *Own the Podium* scenario, the findings give only a small sense of the tremendous opportunities at hand. The motivation for change is made clear.

Results of their work appear throughout *Going Digital* and, in particular, in Chapters 2 and 3. Please refer to Appendix A for more detail on the McKinsey & Company payments models.

LAGGARD AND LEADER: CANADA'S PAYMENT DUALITY

Payments have different characteristics, depending on the parties involved. Payments between people and businesses, typically in-store (point-of-sale, or POS), enjoy a variety of electronic options, while in business-to-business (B2B) and government-to-business (G2B) transactions, reliance on cheques is high and using electronic alternatives presents challenges. Consumers are also relatively heavy users of cheques when paying other people, small businesses and non-profit organizations. Canada might therefore be considered both a laggard and a leader in the area of payments. This requires urgent action to address problem areas while ensuring we do not fall behind in POS where we have historically shone.

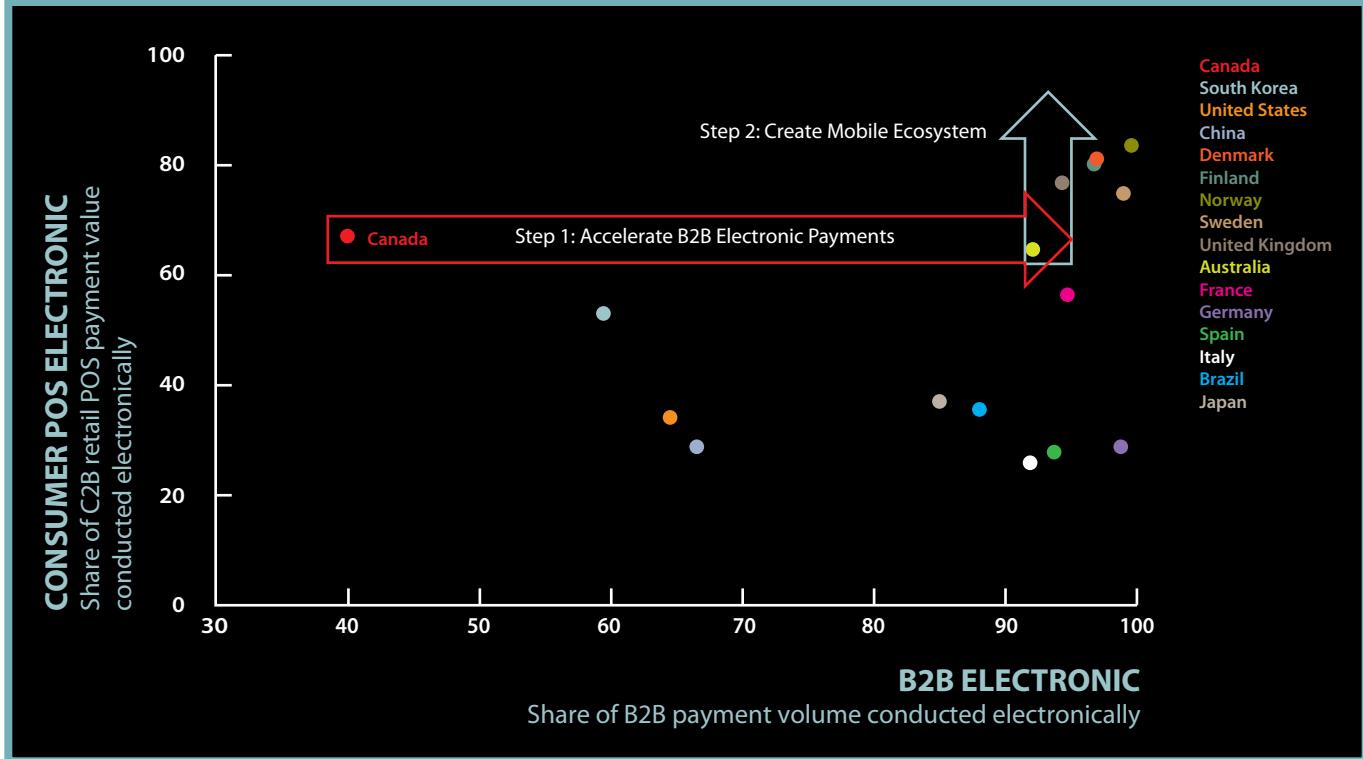
2. Capgemini Consulting, *SEPA: Potential Benefits at Stake—Researching the Impact of SEPA on the Payments Market and its Stakeholders*, 2007, http://ec.europa.eu/internal_market/payments/docs/sepa/sepa-capgemini_study-final_report_en.pdf



COMMON ABBREVIATIONS		
Person-to-Person	P2P	A transaction in which funds are exchanged between two individuals (e.g. money transfer).
Business- or Government-to-Individual	P2I	A transaction in which funds flow from a business or government to an individual (e.g. social benefit).
Business-to-Business	B2B	A transaction in which funds flow from one business to another (e.g. purchase of input materials).
Business-to-Government	B2G (also B2B)	A transaction in which funds flow from a business to the government (e.g. corporate taxes).
Government-to-Business	G2B (also B2B)	A transaction in which funds flow from the government to a business (e.g. procurement).
Government-to-Government	G2G (also B2B)	A transaction in which funds flow from one level of government to another level of government (e.g. funding for transit transferred from federal government to regional government), or between parallel levels of government.

* For the purposes of *Going Digital*, B2G, G2B and G2G payments are referred to as B2B.

CHART 2 - CANADA MUST WORK TOWARDS B2B ELECTRONIFICATION AND KEEP UP WITH MOBILE PAYMENTS



Source: McKinsey Global Payments Map: 2010 data

CRITICAL STEPS TO THE SUCCESS OF DIGITAL PAYMENTS

Canada enjoys strong electronic payment options in retail POS, where 65% of payments are electronic. This exceeds the rates achieved by most countries.

In B2B the story is not as rosy. Due to our reliance on cheques in business and government transactions, only 39% of payments are made electronically. Canada trails behind most comparable countries, including the U.S. and China. Germany and the Nordic countries are leaders, having achieved upwards of 95% B2B electronic payment rates.

Taking into account the payments evolution under way, Canada must work to overcome our lagging status in B2B while setting the right conditions in consumer payments so that payment innovations such as mobile can thrive.

Digital payment success is a two-step process:

1. Immediately take steps to increase electronic payments in B2B, replacing old accounting processes with new

electronic invoicing and payments (EIP) capable of bringing efficiencies to businesses and governments.

2. Support the adoption of mobile payments through initiatives that enable a broader mobile ecosystem.

LEADERSHIP IN RETAIL POS DIGITAL PAYMENTS

Lessons can be drawn from past successes and failures. Due to the availability of Interac, a low-cost retail POS payment option, Canada has achieved one of the highest levels of electronic consumer payments in the world. Credit and debit card payments combined account for about 65% of all retail POS payments, compared with about 40% in many other developed markets³.

However, other countries are closing the gap with investment and innovation. In the meantime, Canada's payments system has not exhibited the collaboration that might allow Canadians to take advantage of new forms of digital payments like mobile and Near Field Communication (NFC).

3. The World Payments Report 2011 from Capgemini Consulting, The Royal Bank of Scotland and Efma estimates Canada's share of the non-cash transaction market at 68%.

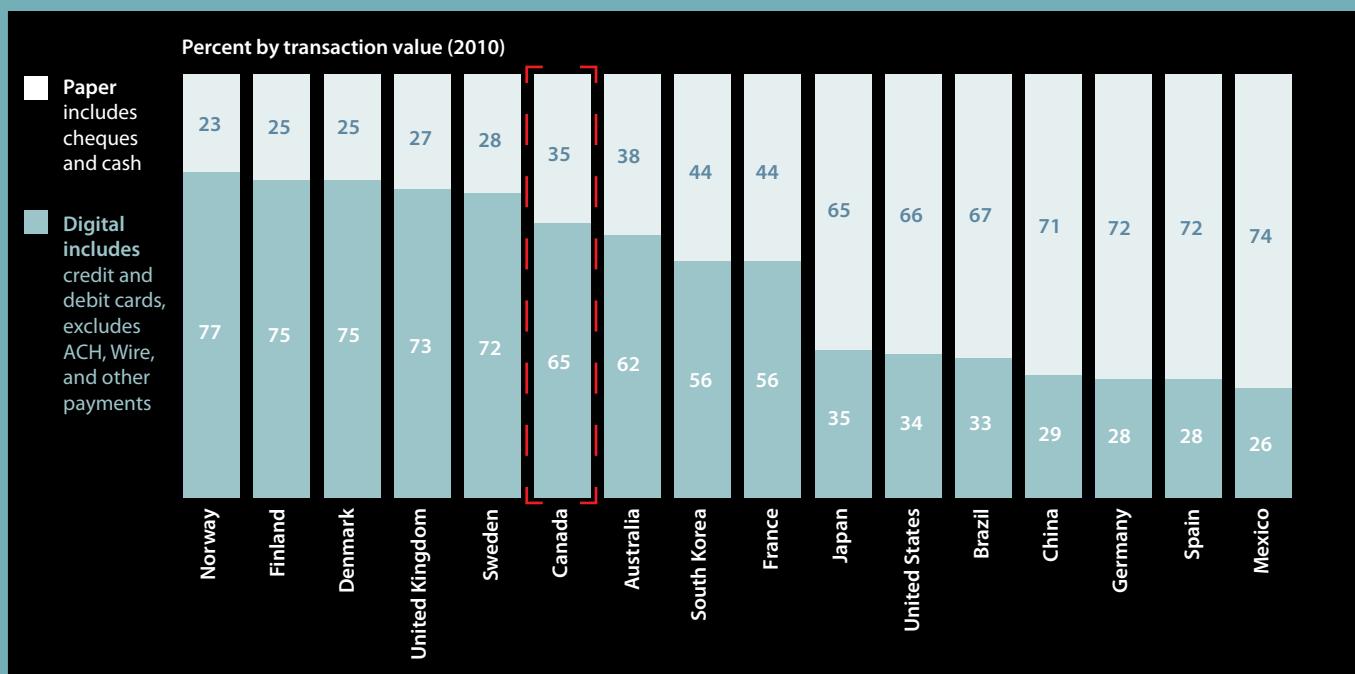
LOOKING AHEAD: THE FUTURE OF PAYMENTS

The next wave in consumer payments will come from new technologies such as NFC and mobile⁴. To take advantage of these innovations, government and industry must create the right conditions for the technology to thrive.

A necessary precondition for EIP and mobile payments is generating the trust, access and cost-saving efficiencies that compel consumers to use them. A digital identification and authentication regime (DIA) that allows parties to transact with greater certainty and confidence is necessary.

These interrelated elements require the right combination of government leadership and partnership with the private sector. It is only through the collective success of all three elements—EIP, mobile and DIA—that Canada can achieve payment excellence in the digital marketplace.

CHART 3 - CANADA IS A LEADER IN POS PAYMENTS, WITH ONE OF THE HIGHEST RATES OF DIGITAL PAYMENTS



Source: McKinsey Global Payments Map

4. 2011 KPMG Mobile Payments Outlook, <http://www.kpmg.com/ca/en/issuesandinsights/articlespublications/pages/mobile-payments-outlook-2011.aspx>

The planned rollout of Interac Flash has been constrained by uncoordinated decision making on the part of financial institutions.

LAGGING BEHIND IN BUSINESS AND GOVERNMENT PAYMENTS

While debit and credit cards led to a wave in electronic consumer payments, Canadian businesses and governments have not kept pace. Transitioning to digital payments presents numerous challenges.

Cheques: Reducing the Paper Burden

Canada is one of the most cheque-reliant countries in the world. Over one billion cheques are written annually. Large corporate enterprises, small and medium enterprises (SMEs) and governments account for almost 60% of the total volume of cheques, while consumers account for the remaining 40%.

In the past decade, the use of cheques declined on average by 5% annually, but the rate of decrease has slowed to approximately 2% and is forecast to continue on this trajectory. Canada now trails behind Peru and Romania in the race for

businesses to convert from cheques to more efficient electronic payments. At the current rate, by 2020 Canada will still be heavily invested in the cheque business: over 810 million will remain in the system, acting as a productivity burden on businesses and governments.

The prevalence of cheques is explained by the absence of alternatives. While retail POS payments have thrived with innovation, consumers businesses and governments have not enjoyed the same options in migrating away from paper cheques.

Canadian financial institutions have invested in the infrastructure that supports existing B2B payments. This infrastructure favours paper, a highly reliable revenue stream for financial institutions up to this point. Reluctance to replace legacy systems, especially when a digital alternative does not necessarily promise the same revenues, is understandable.

However, reducing cheque usage does not mean lost revenues. Nordea Bank in Finland reports reduced costs related to processing less paper and has also created new revenue streams from the development of innovative information-based products.

CHART 4 - WITH 1B CHEQUE TRANSACTIONS ANNUALLY IN CANADA, CHEQUES ARE WIDESPREAD, THOUGH INTENSITY OF USAGE VARIES BY PAYOR

PAYORS	NUMBER OF CHEQUE TRANSACTIONS IN 2010	CHEQUE USAGE INTENSITY [†] IN 2010	PAYEES OF CHEQUES
Consumer	430	Low	<ul style="list-style-type: none"> • Large businesses (eg. utility bills) • Small businesses (eg. gardener) • Government (eg. income taxes) • Other consumers (eg. repaying small loans)
SME's	180	High	<ul style="list-style-type: none"> • Other small and large business (eg. goods and services from vendors) • Government (eg. taxes, workers' compensation)
Enterprises	280	High	<ul style="list-style-type: none"> • Consumers (eg. insurance benefit payments) • Other small and large businesses (eg. goods and services from vendors) • Government (eg. taxes, workers' compensation)
Government	125	High	<ul style="list-style-type: none"> • Consumers (eg. Canada Pension Plan) • Businesses (eg. tax refunds)
TOTAL CHEQUES: 1015 MILLION			

[†] Number of cheque transactions as a percentage of total payment transactions; Low 0 - 15%, Moderate 15% - 30%, high 30% - 50%

Source: McKinsey Canadian Payments Map

Creating the Conditions for Paper-Free Payments

Studies show cheques are inefficient. Cheques involve manual steps, such as keying in information, printing and mailing and reconciling payment and invoice. There are also time and value delays in the processing and settling of cheques as well as in their physical transportation. EIP eliminates inefficiencies, allowing invoices to be processed and paid faster at less cost.

Canada still has a substantial gap to close to become paper-free. In our interconnected, automated world, paper-based payments have the potential to limit our global competitiveness going forward.

Success in reducing our reliance on cheques lies in ensuring there are adequate alternatives in place. The UK example provides an important lesson. The Payments Council attempted to set a hard date for the elimination of cheques, only to rescind its decision in July 2011 in the face of mounting public outcry and parliamentary opposition.

A report issued by the UK House of Commons Treasury Committee describes the reversal as follows:

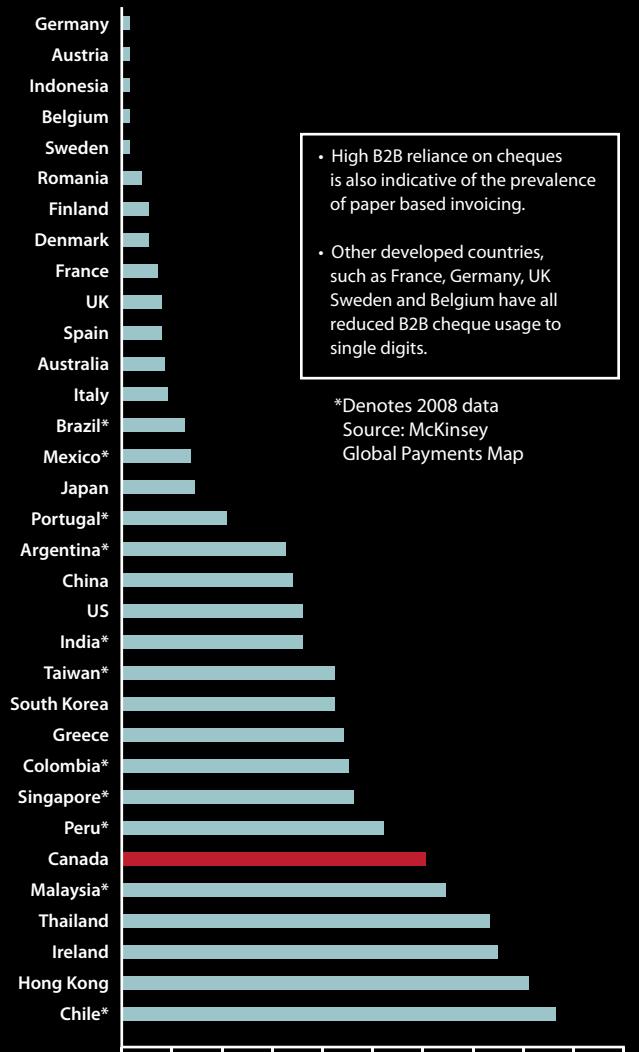
The Payments Council accepts that its original decision to set a target date for cheque abolition was poorly communicated. Worse, banks have on occasion given the impression to their customers that the end of cheques was a foregone conclusion [...]. The Payments Council must ensure that banks do not in the future attempt to abandon cheques by stealth, or deter customers from using cheques⁵.

The UK lesson is pertinent to Canada. Eliminating paper outright is a dubious initiative in the face of our reliance on cheques. We should instead pursue the necessary improvements to our B2B payments infrastructure so that those who are reliant on cheques can find alternatives that exceed the benefits currently offered by cheques.

Under the most optimistic scenario, Canadians will still use over 300 million cheques in 2020. Reducing the use of cheques is not simply a matter of setting a target; it requires building alternatives and ongoing flexibility by administrators and suppliers, who can offer superior new products and services, to accommodate the cheques remaining in the system.

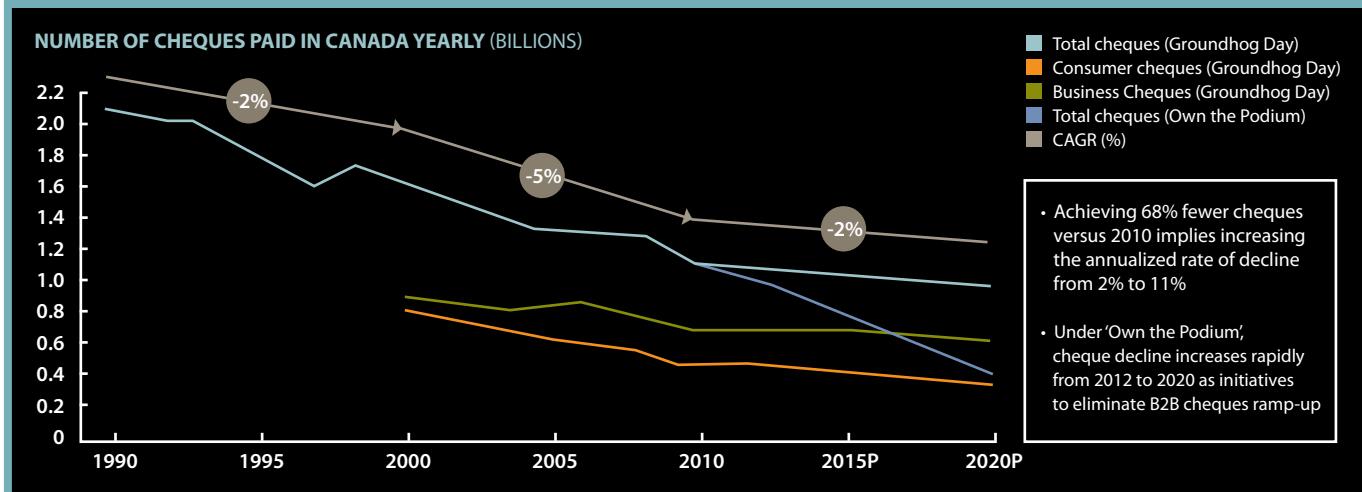
CHART 5 - CANADA'S BUSINESSES ARE AMONG THE MOST CHEQUE-RELIANT OF MAJOR ECONOMIES

PERCENTAGE OF B2B PAYMENTS MADE WITH CHEQUES, 2010



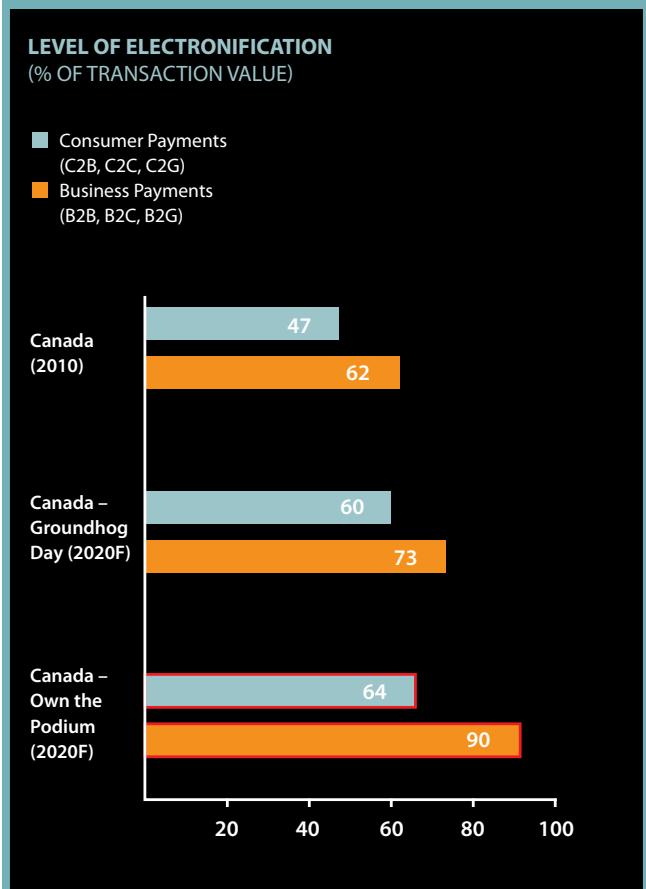
5. *The Future of Cheques, Eighteenth Report of the Session 2010-12*, House of Commons Treasury Committee, London, England, 2011, <http://www.parliament.uk/business/committees/committees-a-z/commons-select/treasury-committee/inquiries1/cheques/>

CHART 6 - A COORDINATED APPROACH WOULD ALSO BE REQUIRED TO INCREASE THE RATE OF CHEQUE DECLINE TO 11% ANNUALLY



Source: McKinsey Canadian Payments Map

CHART 7 - CANADA WOULD BE A GLOBAL LEADER ACROSS BOTH CONSUMER AND BUSINESS SEGMENTS



Source: McKinsey Payments practice, team analysis

That said, *Going Digital* does not propose a laissez-faire approach, and the cost savings profiled in the following section are based on the optimistic view that the *Owning the Podium* scenario is the payment future Canada expects.

Many factors must come together for the transition to a digital economy. Industry and governments must align behind common standards and make the necessary investments. Canadians must be exposed to new payment tools and be convinced that they are safer, faster and better.

Businesses still use a lot of cheques. Not surprisingly, reducing cheque reliance in B2B has the potential to yield the most significant cost savings.

Drawing again on the *Groundhog Day* and *Owning the Podium* scenarios, the Task Force sought to discover what would happen if little action was taken to remove paper cheques and, conversely, what might happen if we rose to the challenge of strategic reduction.

The comparison is instructive. While the do-nothing scenario (*Groundhog Day*) will result in an annual rate of decline of about 2%, coordinated efforts to reduce B2B cheques (*Owning the Podium*) could be deployed to expedite this decline to the optimal level of 11% annually.

The transition to electronic payments and automated processing of accounts receivable and payable will result in a major decrease in the use of cheques—68%—to take Canada's annual cheque volume from over 1 billion today to 330 million in 2020.

Alongside cheque reduction, increasing the use of electronic payments will be necessary.

Though EIP is a powerful agent in this effort, it does not address cheque and cash payments individuals make to other individuals (such as paying relatives, painters, schools, etc.). E-transfer and future mobile payment services will help to reduce the ongoing reliance on paper between individuals, but this will take time and will require the development of alternatives that are as easy and accessible as cash or cheques.

As we have stated in this report, 65% of all retail POS payments are electronic. When we consider consumer retail POS payments together with payments between individuals, the overall level of electronic payments is less impressive, falling to a combined 47%. Levels of electronic consumer and business payments would need to increase significantly to bring Canada in line with other leading nations.

THE IMPORTANCE OF CASH

Cash is a vital payment instrument that will be around for a long time. Canadians trust and understand their currency, and it has remained a highly effective means of instant payment.

Despite advances in electronic payment products in the past twenty years, the use of cash has risen in Canada and around the world. While payments solutions like debit, credit and online transfers work well for many consumer transactions, their design prevents them from being used in every instance. Sometimes, you just need cash.

As we hurtle toward a new era of digital economy, there will be many payment options available to Canadians. Digital currency, as the electronic cousin to physical coins and bank notes, will likely be one of those options.

One day, Canadians might enjoy a sound, efficient and cost-effective digital currency that could fuel certain types of transactions (e.g. low value) in the digital economy and create greater efficiency in the existing marketplace.

BENEFITS FOR STAKEHOLDERS

Cost savings and other benefits will accrue to all stakeholders, but the type and degree of savings will vary. The following summarizes benefits and obstacles for major stakeholders. Its projections are based on the Own the Podium scenario.

LARGE ENTERPRISES	
Benefits	Cost savings of straight-through processing (elimination of manual steps) for invoices and payments, higher workforce productivity from reallocation to higher-value activities, reduction of invoicing errors and improved cash management. Large enterprises are forecast to capture approximately \$5 billion in savings.
Obstacles	Trading partners may use different standards, making interoperability difficult and costly. Return on investment is typically significant, but costs and benefits are distributed across different areas of the company (accounts payable, accounts receivable and cash management), making it difficult to develop a cross-enterprise business case. Because some large enterprises and many SMEs persist in using cheques, paper processes need to be maintained in parallel by enterprises that have digitized parts of their processes, reducing short-term benefits of investment.

SMALL AND MEDIUM ENTERPRISES	
Benefits	SMEs represent a large proportion of the number of vendors with whom enterprises trade. A vibrant business e-invoicing and digital payments system cannot be established without addressing the needs of SMEs. Small and medium enterprises are projected to capture \$0.7 billion in total savings per year. Small businesses will benefit most from saving owner or employee time devoted to manual processing. Time saved can be reinvested in the business. Medium enterprises benefit from cost efficiencies from straight-through processing. Small and medium businesses enjoy reduced invoicing costs and errors, improved cash flow and a better chance to do business with large and global buyers.
Obstacles	Limited digital payment and e-invoicing options. SMEs may not have the ability to adopt the complex solutions built for larger enterprises and thus require solutions targeted to meet specific requirements.

GOVERNMENTS

Benefits	Reduced paper-based processing costs, with a projected savings of \$1.4 billion. Transitioning to e-invoicing and payments addresses impending challenges in dealing with rapidly changing demographics. Demand for payments for retirees will grow in the next decade. Government workers delivering these services will themselves reach retirement age.
Obstacles	Governments conduct transactions with many businesses, thus making the adoption of standards essential. Governments must also strike a balance between providing consumers and businesses with payment options and playing a leadership role in the development of standards and protocols.

FINANCIAL INSTITUTIONS

Benefits	Expected to accrue \$0.6 billion in cost savings related to cheque handling. Additionally, revenues for the payments industry under the <i>Own the Podium</i> scenario are projected to increase by \$3 billion, with strong growth in commercial credit card and person-to-person (P2P) transfers. Financial institutions have the opportunity to create new businesses around e-business services.
Obstacles	Have invested heavily in systems and processes that support existing B2B payments, which feature high volume of cheques. There has been resistance to replacing those legacy systems, as well as uncertainty around whether digital alternatives can match revenue levels of existing paper-based services.

CONSUMERS

Benefits	Generally, consumers will enjoy more convenience, reliability, security, reduced costs and faster funds availability by using alternatives to cheques.
Obstacles	Not all consumers are willing or able to adopt alternatives to cheques, owing to a number of critical factors, including demographics, habits and ability to access financial services. Until such alternatives are developed and widely proliferated, both geography and cost will also hinder consumer migration from cheques.

Conclusion

This chapter offers a glimpse of what can be achieved by *Going Digital*, creating the conditions for electronic invoicing and payments. Doing so unburdens a system that has struggled to stay relevant in the face of dynamic new technologies it was never designed to serve.

The road map outlined here suggests where we need to go and what is at stake if we do not. Clearing the way for innovation must be our priority. Our efforts will be handsomely rewarded: \$8 billion annually and potentially much more, could be saved for reinvestment in innovation, development and training.

CHAPTER 3: TRANSITIONING TO DIGITAL PAYMENTS

Chapter 2 demonstrates the benefits of moving from paper cheques to digital payments. Still, merely forecasting savings would not be enough to ensure change, nor are cost savings the only benefit. Users in particular can expect to enjoy faster, more convenient and innovative new payment tools as paper is replaced.

It is in all Canadians' best interest to take part in this transition. But specific groups—governments, SMEs, large corporate entities, financial institutions and other payment services providers—have distinct roles, unique to their ability to influence change and receive benefits. That is why the Task Force created the Electronic Invoicing and Payments (EIP) Working Group.

The Working Group's mandate is to put users' needs up front. Over the last eight months, with the help of McKinsey & Company, the group developed eight initiatives to be shared among government and industry players. This chapter is a report on the group's findings.

The group's goal was to create a strategy that provides Canada with the payment efficiencies and cost savings currently being enjoyed by other forward-thinking nations.

This task is not simple. Changing the payments systems used by Canadian businesses and governments requires ongoing coordination. That said, the right combination of government leadership and industry participation will yield tremendous gains.

Electronic Invoicing and Payments (EIP): A Primer

The move to electronic invoicing and payments requires replacing manual and paper-based accounting systems and processes with automated, electronic ones. This includes all steps of the purchase-to-pay and order-to-receive cycles: sending and receiving invoices, dispute handling, acceptance, payment and collection, reconciliation and archiving.

Because the steps between purchase and final remittance currently alternate between electronic and physical formats and require manual re-entry of data, a great deal of time is wasted. For businesses to remain competitive, addressing lags and redundant efforts within the current supply management chain becomes crucial.

Through automation, managing information becomes easier, as manual tasks are eliminated. Reconciliation rates and processing cycle times improve. Quality control and responsiveness are enhanced because information is real time. Simply put, EIP unlocks the potential for a much higher standard of service—for both user and supplier.

Governments, too, gain from automating service delivery. A Capgemini report evaluating a cross-section of 16 European Union members recently estimated a per-unit operation cost reduction of 70 to 75% and a cumulative market impact of over €238 billion in the last five years by removing paper.

Inherent in EIP is the fundamental need to find common ways of doing things. Businesses and governments must be able to process secure electronic payments, accompanied by remittance information. Different standards and data criteria make coherent interoperability nearly impossible. Businesses and governments cannot carry the structured information necessary to make the process fluid from start (purchase order) to finish (reconciliation).

CHART 8 - ACHIEVING SAVINGS THROUGH EIP MEANS AUTOMATING THE ENTIRE B2B PURCHASE-TO-PAY PROCESS



- Supply chain management
- E Invoicing and payments space

- Sending invoices electronically would eliminate delivery costs, reduce manual processing and reduce Days Sales Outstanding (DSO)
- Purchase Order (PO) and invoice can be automatically reconciled, reducing manual processing
- Cheque payments delivered by mail can be sent by AFT, reducing manual processing, cheque fees and fraud
- With AFT and e-invoicing, receivables can be reconciled automatically, reducing manual processing and errors

Source: Industry Interviews

ABOUT THE EIP WORKING GROUP

Of all Task Force Working Groups, the EIP Group represents the largest and most diverse constituency.

Tasked with a mandate to recommend efficient and secure end-to-end electronic payment alternatives for business and governments, the Working Group is structured around a single Steering Committee, headed by Lili de Grandpré, and the following subcommittees:

- 1. Large Corporate and Governments:** Established information requirements for the largest entities in the Canadian economy, thereby considering implications of automated processing on a large scale.
- 2. Small and Medium-sized Enterprises (SMEs):** Reported on the readiness of SMEs for e-invoicing and payments, with a view to designing a medium-term strategy for building greater acceptance. The subcommittee's findings are supported by research from the Canadian Federation of Independent Businesses.
- 3. Payments to Individuals (P2I):** By focusing on payments by governments and insurance companies – the largest paper cheque issuers to individuals – this group worked on ways to break down barriers to Going Digital.
- 4. Digital ID and Authentication (DIA):** A separate Working Group within the Task Force, their work is studied in Chapter 4.
- 5. Standards:** Has begun establishing payment data standards that support electronic payments for Canadian businesses and governments, with the appropriate amount of remittance information to achieve automation.
- 6. Technology Roadmap:** To begin when other subcommittees finish. Its mandate is to provide a detailed strategy for implementation of recommended technologies.
- 7. Integration and Proof of Concept:** This subcommittee's work was given to McKinsey & Company and the Secretariat of the Task Force to quantify the economic benefits of EIP.

Critical Factors for Success

To achieve the benefits of e-invoicing and payments, two critical factors must be in place:

1. STANDARDS

Standards are crucial to EIP. Consistent application of standards, as well as agreed-upon criteria for the type and amount of data sent along with payments, requires businesses and governments speaking a common payment language.

The Standards Subcommittee concluded Canada would be best served by adopting a new benchmark: ISO 20022. These standards support transmission of large data, are neutral so as to allow for natural evolution and to align with international standards. SEPA (Single Euro Payments Area) is leading the development of this standard, which is gradually being accepted internationally.

To achieve this change requires leadership and collaboration. The understanding and adoption of a common data transmission is crucial to the success of any transition strategy, and this knowledge must be widely shared.

The CPA has been leading the development of these standards and recently the CPA Board approved the adoption of ISO 20022.

(See Appendix B for information about the Standards Subcommittee and ISO 20022.)

2. INFRASTRUCTURE

The combination of (a) digital identification and authentication (DIA) and (b) a core payment infrastructure that can provide remittance information is essential to EIP.

Our current payment infrastructure cannot deliver the extended remittance information necessary for e-invoicing and reconciliation. Canada's payment infrastructure must be upgraded quickly to ensure we do not fall further behind. The Task Force's recommendations on infrastructure are included in the final report.

Leadership and Vision: Eight Initiatives Proposed by the EIP Working Group

For eight months, the EIP Working Group sought to find ways to bring Canada into the digital age. Its work led to eight initiatives. The first three fall under the domain of government. Initiative four is directed at SMEs, which are at the heart of EIP. Five and six pertain to financial institutions. The final two address large corporations and insurance companies.

Governments

The success of the fax machine in the 1970s was predicated on universal adoption: one fax machine would have been of little value. Connected to other fax machines employing similar technology, the machine became a prominent communication tool. This dynamic is referred to as the network effect: benefits materialize only if a critical mass of participants joins in.

In the early stages of any network, there is reluctance to invest. Those who adopt a new technology—"first movers"—pay more. And because the service is not widely available, its application is limited. Benefits are not realized until the network becomes established.

To overcome this disincentive, the Working Group believes the role of first movers in EIP should be undertaken by government. Because of their size, and the tangible benefits,

governments are ideally positioned to act as the catalyst, giving industry the push needed to take the next step.

Government leadership can create conditions for broad industry alignment as well as widespread adoption of EIP. And governments have much to gain: an estimated \$1.4 billion from payments alone. This is just the tip of the iceberg. Factoring in radical new ways of delivering e-services, benefits extend well beyond cost savings. The real benefits to government come from automating the services they deliver from end to end. Citizens benefit from better, cheaper, faster services and governments can save up to 70%⁶ of the cost of providing those services.

Governments have the opportunity to create a powerful incentive for change by payment suppliers and users. If the digital economy is truly upon us, then governments—federal, provincial and municipal—must lead by example, setting the high-water mark.

By implementing EIP, governments enjoy reduced costs, ushering in improved services whereby citizens are able to make and receive payments efficiently. In choosing protocols and standards for electronic payments, the federal government can help ensure we move in concert with the rest of the world, prioritizing systems and approaches that maximize interoperability, an essential criterion for trade with other nations.

Government leadership in bringing advanced, universal standards on EIP can send a message that Canada intends to move in the same direction as the rest of the world.

CHART 9: SUB-COMMITTEES MANDATES FIT WELL WITH THESE 8 INITIATIVES

Focus of B2B sub-committees

Suggested actions	Large Corporate and Government	SME's	Payments to individuals	Standards	Integration and Proof of Concept (economic model)
1. Support phase out of consumer cheques issued and received by governments	●		●		
2. Drive government adoption of e-invoicing and payments	●				McKinsey Team conducting payments industry modelling and economic impact analysis
3. Launch campaign to communicate a vision for the digital economy			●		
4. Provide enablers for SMEs to adopt B2B e-invoicing and digital payments		●			
5. Support vertical industry adoption of B2B e-invoicing and digital payments	●				
6. Support Insurance Industry in phasing out cheque payments to consumers	●		●		
7. Improve capabilities of existing clearing and settlement infrastructures	Infrastructure Working Group				
8. Enable e-payment by providing incentives and supportive regulation	●	●	●		

6. Capgemini Consulting. 2007. SEPA: Potential Benefits at Stake: Researching the impact of SEPA on the payments market and its stakeholders. Available from http://ec.europa.eu/internal_market/payments/docs/sepa/sepa-capgemini_study-final_report_en.pdf

INTERNATIONAL EXPERIENCES IN GOVERNMENT LEADERSHIP

Experience in other countries indicates government leadership is critical to accelerating the shift to digital payments. No country has successfully made the transition without government intervention.

CHART 10 - GOVERNMENT LEADERSHIP IN OTHER COUNTRIES HAS BEEN INSTRUMENTAL IN RAPID E-INVOICING ADOPTION

ACTIONS TAKEN IN COUNTRIES THAT ARE LEADERS IN E-INVOICING.

	E-invoicing standards	Government mandate and legal framework	Solutions and education	E-Invoicing progress
Denmark	<ul style="list-style-type: none"> Single standard for government procurement (OIOUBL) 	<ul style="list-style-type: none"> E-invoicing to government mandated since February 2005 	<ul style="list-style-type: none"> Government developed online platform for SME's to create e-invoices Created network for e-invoice distribution Launched extensive marketing campaign through TV and direct mail 	<ul style="list-style-type: none"> Penetration rate increased from 10% in 2007 to 20% in 2011
Finland	<ul style="list-style-type: none"> Two standards for government procurement, Finvoice and e-invoice 	<ul style="list-style-type: none"> E-invoicing to government mandated since end of 2010 Significant penetration was achieved before mandated deadline 	<ul style="list-style-type: none"> Brand and service provider partnerships led move to e-invoicing E-Pioneers (selected large public and private organizations) drove partners to adopt e-invoicing 	<ul style="list-style-type: none"> Penetration rate increased from 10% in 2007 to 20% in 2011
Spain	<ul style="list-style-type: none"> Single standard for government procurement (Factura-e) 	<ul style="list-style-type: none"> E-invoicing to government mandated since November 2010 	<ul style="list-style-type: none"> €50M+ in government funding provided to help SMEs switch to e-invoicing Government offered open software application for SMEs to create e-invoices 	<ul style="list-style-type: none"> Penetration rate increased from 1% in 2007 to 10% in 2011

- Other countries with well-developed e-invoicing initiatives: **Brazil, Belgium, Netherlands, Sweden and Switzerland**
 - Brazil has the most stringent regulation with e-invoicing mandatory for all shipments and tax reporting
- Countries with e-invoicing initiatives underway: Russia, Italy, Mexico and Argentina
 - Italy started initiatives in 2004 but progress hampered by lack of defined standards

INITIATIVES FOR GOVERNMENT

The EIP Working Group believes governments can help propel Canada toward digital payments as follows:

Initiative #1: Support phase-out of consumer cheques issued and received by government

The Payment to Individuals Subcommittee, comprised of representatives of the federal and provincial governments along with three insurance companies, advocates gradual reduction of cheques issued by such organizations to individuals.

Taking a phased approach over five years, three parallel actions are recommended:

- Payments to new recipients should automatically default to direct deposit unless they are “unbanked” (individuals who have been refused a bank account or who live in areas where banking is not accessible).

- Unbanked individuals should be supported through partnerships with financial services providers and service delivery personnel that facilitate remote sign up or offer pre-paid cards as an alternative to direct deposit.
- Payments to existing recipients should be transitioned to direct deposit as quickly as possible.

Other actions that support this initiative:

- Streamline enrolment process for digital payments (e.g. quick link prominently displayed at online banking portal).
- Ensure all government areas provide electronic payment options.

The impact of this initiative is two fold: the combination of a cost-saving benefit to taxpayers as governments reduce or eliminate cheques issued and the convenience of faster payments without interruptions, along with greater consumer confidence in digital payments.

The subcommittee continues to develop a roadmap for governments. It has met with the Consumer Advisory Group⁷ with regard to segments of the population that cannot easily adopt EIP for such reasons as geography and disability. We must ensure no one is left behind.

Internal to government, change is also required. Canadians cannot be expected to go out of their way to receive digital payments from their governments; administrative systems and front-line procedures must be updated so that signing up for direct deposit is easy, obvious and free. Research has demonstrated that uptake of digital payments is most successful when it is personalized. Government service staff is ideally positioned to make this essential introduction.

Initiative #2: Drive government adoption of e-invoicing and payments

The EIP Working Group recommends the federal government announce a deadline after which organizations doing business with the government will be required to submit invoices and receive payments electronically. Other recommendations:

1. The federal government should invite proposals from bidders to establish an EIP portal through which organizations doing business with the government submit invoices and receive payments electronically. This portal would emphasize low costs and minimal technology, based on standards, so businesses would be able to connect without significant changes to existing systems.
- In creating the portal, government departments would provide the necessary tools to receive and make payments electronically.
2. As soon as possible, the portal should be made available to provincial and municipal governments so they can also align with EIP.
3. Responsibility for operating and maintaining the portal will be quickly downloaded to entities that manage payment infrastructure.
4. Once under the purview of a focused payments industry, the portal could be made available to facilitate all B2B e-invoicing and payments based on consistent standards that achieve interoperability and allow benefits to be distributed equally.

The demographic changes under way align well with the need for immediate action by governments. As older Canadians leave the workforce, demand for social security programs such as Old Age Security (OAS), Canada Pension Plan (CPP) and healthcare is expected to grow. All levels of governments will need to find ways to respond to higher volumes of applications

and demand. This is especially pertinent in a period of austerity, where governments are seeking to reduce costs while still providing citizens with the services they are entitled to.

Initiative #3: Launch campaign to communicate a vision for the digital economy

Governments must support an education campaign, providing information, raising awareness and dispelling myths about EIP for consumers, SMEs, large corporate enterprises and even other levels of government. Marketing and communications experts would work with stakeholders to identify the concerns of Canadian users, emphasizing the benefits of EIP, including reliability, security, convenience and cost savings for everyone, including consumers.

Industry

Governments alone cannot bring about EIP. Businesses and the broader payments industry must also take an active role by investing in EIP solutions. The Working Group has defined roles for small and medium-sized businesses, corporations, insurance companies and financial institutions.

SMALL AND MEDIUM-SIZED ENTERPRISES (SMEs)

Electronic payments for SMEs are crucial. They account for a large portion of Canada's GDP and they send and receive more cheques than any other segment. This has also proven to be a challenging target market as the lack of existing electronic payment alternatives, such as online bill payment and B2B e-transfer, has contributed to the continued use of cheques.

SMEs also stand to gain the least, in financial terms, from adopting EIP. Benefits must accrue from other sources: reduced accounting errors, less manual reconciliation and so on. The benefits to SMEs will come from better information that enables them to run their business more efficiently, such as cash-flow forecasts, daily (or weekly) profit and loss statements and improved sources of financing such as factoring of payables and receivables. However, the real benefits will come from working with suppliers, financial institutions, accountants, software developers and more to create information-rich products and services that help SMEs manage and finance their businesses.

Working with the EIP Working Group, the Canadian Federation of Independent Business (CFIB) recently surveyed SME payment practices.

7. Three advisory groups have also supported the Task Force, focusing specifically on consumer issues, governance and legislation.

The CFIB collected 8,200 responses to questions that examine SME payment habits and preferences, opportunities for advancement and obstacles. The report concludes as follows:

“The good news is that most entrepreneurs see the opportunities and benefits of moving to electronic forms of invoicing, payment and acceptance. It is a matter of getting it right. [...] Any migration from cheques to electronic payments solutions will not be simple. Any such transition must take into account and deal with the unique needs and concerns of SMEs. [...] Proposed solutions must recognize and address the limited resources available to SMEs to move forward. Solutions must be affordable, accessible, transparent, user-friendly while providing adequate tracking for record keeping and documentation and ensuring security.”⁸

According to the results of CFIB’s survey, the following obstacles are frequently cited in making and accepting payments electronically:

CHART 11 - OBSTACLES CHART

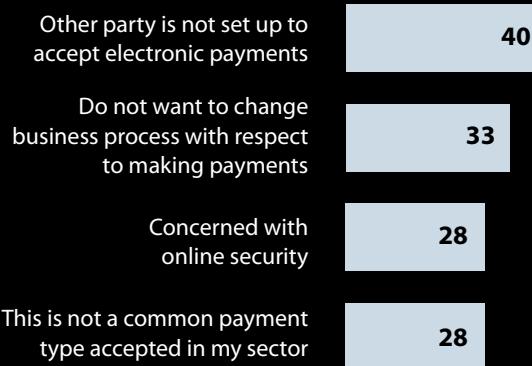
Figure 1a:

Top Obstacles to Accepting Electronic Payments (% response)



Figure 1b:

Top Obstacles to Making Electronic Payments (% response)



⁸. Canadian Federation for Independent Business. *Changing the Way We Pay: Getting the Transition Right for SMEs* (Prefacing Letter to the Task Force). 2011. Brien Gray, Executive Vice President. Available from http://paymentsystemreview.ca/wp-content/uploads/Task-Force-on-the-Payments-System-review_Oct-2011.pdf

The Working Group's fourth initiative therefore speaks to SMEs:

Initiative #4: Provide enablers for SMEs to adopt B2B e-invoicing and digital payments

SMEs live in a very fragmented world. Their payments providers, accounts and technology suppliers do not talk to each other.

In light of the lack of financial motivations, concerns about cost and the current fragmented approach to offering services to SMEs, a collaborative solution will be required to increase e-invoicing and digital payments within the SME segment by

- **Highlighting the opportunity for governments to lead the development of a “zero investment, zero IT expertise” e-invoicing service for SMEs, leveraging other banks and technology service providers’ experience.**
- **Offering open software applications to SMEs for creating standards-based e-invoices.**
- **Convening payment providers, accountants and technology suppliers to discuss lessons learned and successful business models for SME e-invoicing from other countries.**
- **Supporting payment providers in creating digital credit push payment services aimed at SMEs.**
- **Educating SMEs on the rationale for e-invoicing and digital payments.**

LARGE COMPANIES AND GOVERNMENTS

Research by McKinsey & Company suggests that large corporations stand to reap the greatest benefit, with annual savings of over \$5 billion. The bulk of the savings would be generated through automated processing of accounts receivable and payable.

Corporate enterprises face unique challenges. Trading partners may use different standards, making interoperability of existing electronic data interchange (EDI) systems costly or impossible. The biggest roadblock may simply be that the urgency to transform has not yet reached critical mass. Like all sectors, large corporate enterprises need a push – and indeed, due to risks inherent in change for larger entities, this push must come from governments.

There is also a need for increased awareness of the benefits of EIP in large corporations and governments as well as a better understanding of how existing systems can be integrated into the emerging standards. Finally, education and training, ideally in cooperation with key industry groups, is a critical foundation for the implementation of any national EIP scheme.

SUCCESS STORIES: BENEFITS OF GOING DIGITAL⁹

DHL: Accounts Receivable Processing

- 88% reduction in invoice processing cost, from €5 to €0.60 per invoice.
- Faster and more accurate invoice processing.
- Staff members spend more time on mission-critical tasks that deliver real benefit.

Heineken: Accounts Payable Processing

- 93% of e-invoices and 75% of paper invoices matched automatically.
- Time to approval for order-related e-invoices reduced by 95%.
- Reduced accounts payable personnel headcount by 40% in two years.

9. Source: BasWare (OB10)

Initiative #5: Support vertical industry adoption of B2B e-invoicing and digital payments

Implementing EIP in Canada is a challenge due to the complexity of invoicing data requirements across different industries. Developing national EIP standards is the ideal first step, as organizations with existing EIP systems can form the initial critical mass.

The EIP Working Group has identified four “verticals” to foster collaboration in defining standards: (1) governments, (2) oil and gas, (3) retail and (4) telecommunications and utilities. Using the ISO 20022 schema as a starting point, the group has begun identifying common data elements required to enable e-invoicing and payments.

A migration strategy to help industries adopt ISO 20022 will be critical as will a bridge to the current U.S. standard.

INSURANCE COMPANIES

The Working Group expressed hope that early collaboration with insurance companies will help bridge their evolution toward electronic payments.

Initiative #6: Support insurance industry in phasing out cheque payments to consumers

As some of the largest issuers of paper cheques, insurance companies face unique challenges in transitioning to electronic payments. Their advice, and that of the P2I subcommittee, is to ensure any transition is done in a coordinated fashion that does not inadvertently affect the day-to-day business of issuing claims to their clients.

Insurance companies must collaborate to digitize payments, claims and benefits remittance information, leveraging government initiatives on consumer education to create momentum. Initial discussions are under way to explore this approach with the Canadian Life and Health Insurance Association (CLHIA), which is positioned to offer leadership.

FINANCIAL INSTITUTIONS

Financial institutions (FIs) are integral to the payments system and have a critical role in transitioning to digital payments.

Canadian FIs have not invested in the core infrastructure supporting digital payments in B2B payments.

CHART 12 - ELECTRONIFICATION ENABLES THE INTRODUCTION OF NEW SOLUTIONS THAT COULD DRIVE FUTURE BANKING PROFITS

Product example	Description	Business model
e-invoicing (Nordea)	<ul style="list-style-type: none"> Sending and receiving electronic invoices through the e-banking portal Transactions can be executed online for low volume (SME) or via file transfer for high volume (enterprise) customers 	<ul style="list-style-type: none"> Fees: \$10/month + transaction fees for additional services e.g., 60¢ for electronic format conversion
Real-time electronic payments (Lloyds)	<ul style="list-style-type: none"> Online and phone based direct money transfer in near real time Push credit system integrates well with e-invoicing solutions to achieve one-click invoice payments 	<ul style="list-style-type: none"> \$2-\$10 for business users Free for personal customers
Invoice financing and invoice factoring (RBS)	<ul style="list-style-type: none"> Invoice financing: advancement of money against the invoices issued by the bank Invoice factoring: receivables collection service with additional services such as legal charges also available 	<ul style="list-style-type: none"> Arrangement fee 1% of the facility Service fee of 0.5% to 3% of turnover Interest charges of prime + 1.5% to 3.5%
e-identification and e-signature (DnBNOR)	BankID service enabling consumers to identify themselves and digitally sign documents from authorities, companies and other organizations on the internet	<ul style="list-style-type: none"> Drives down costs for loan, credit and insurance transactions e-signature use by merchants additional revenue stream

Source: www.nordea.fi, www.lloydtsb.com, www.rbs.co.uk, www.dnbnor.no, interviews and McKinsey Payment Task Force Combined Story

This infrastructure favours paper, a reliable revenue stream for financial institutions to this point. Reluctance to replace legacy systems, especially when a digital alternative does not necessarily promise the same revenues, is understandable. And so FIs have favoured a go-slow approach.

This caution is misplaced. Finland's Nordea bank extols the benefits of e-services, citing increased revenues from letting go of old, inefficient processes and replacing them with value-added innovative services. Other European banks that have embraced EIP have found similar opportunities for new revenue streams.

FIs have an important role in responding to the changing expectations of business and consumers. The instant-information world created by the Internet means people expect more of traditional services, even in the banking sector. The wait-and-see approach adopted by many Canadian FIs will not benefit our economy. As new entrants join the payments system in Canada, FIs have more to lose by hanging back than by embracing change already well under way.

INITIATIVES FOR FINANCIAL INSTITUTIONS (FIs)

While caution in the face of uncertainty is understandable, FIs will ultimately go digital. To this end, the EIP Working Group recommends two final initiatives:

Initiative #7: Improve capabilities of core payments infrastructure

Our current infrastructure does not facilitate straight-through processing. Canada's core payment infrastructure must be brought up to speed if electronic invoicing and payments are to thrive.

Industry collaboration is essential to improving this core infrastructure. The creation of the CPA (Canadian Payments Association), Visa Canada and Interac are examples of past successful alliances. Collaboration will again be required as the industry undertakes the following critical actions:

1. Define requirements for a world-class small value payments system including adoption of ISO 20022 as the payment standard, ensuring certain fields of information are attached to all transactions. Additional fields should be added to reflect Canadian needs, carving out a domestic version of an international standard.

2. Ensure governance structures and mandates of core infrastructure organizations are aligned and actively participate in the broader payments industry in an open manner that favours collaboration.

Initiative #8: Enable e-payment by providing incentives and supportive regulation

For digital payments to grow, they must be attractively priced. FIs should

- Explore options to make digital payments more attractive than cheques on a cost basis.
- Make digital payments easier to use than cheques.
- Increase the limit for individual electronic transfers.
- Make users more aware of the true cost of cheques.
- Work with government to ensure regulation supports growth of e-invoicing and digital payments.
- Resolve obsolete payments regulation that hinders the adoption of digital payments.

Conclusion

EIP represents an exciting opportunity for Canada to move forward. While investments must be made, benefits are significant. Governments have a historic opportunity to lead in this transformation, with EIP as the catalyst.

EIP must be championed by federal and provincial governments. Critical momentum must be encouraged to continue. But *Going Digital* goes much further than EIP; many initiatives are designed only to bring Canada in line with nations that now enjoy its benefits. To bring about the conditions needed to thrive in the digital economy, the Task Force has looked beyond the present opportunity to take advantage of the coming wave to make payments and other services mobile.

CHAPTER 4:

ESTABLISHING A MOBILE PAYMENTS ECOSYSTEM

Canadians need go no further than the corner for evidence that the mobile wave is here. Smartphones have become such a part of our lives that we depend on them for things only tangentially related to the telephone.

Already, augmented-reality apps that “see” and interpret the physical world shorten the distance between what is real and what is digital. Today, a smartphone finds nearby gas stations for us or identifies the catchy tune at the coffee shop. Only our imagination limits where these tools may take us.

Unlocking the Potential of Mobile Payments

It's easy to understand why mobile technology is relevant to payments. Many banks offer apps that allow consumers online access to accounts. Near-field communications (NFC) chips that enable contactless “tap” payments will soon be standard. Going to movies and buying coffee can now be done “on the phone.”

In retail, opportunities abound. Consumers will expect personalized experience, with apps that align time and location with coupons and loyalty points, offering downloads in the palm of your hand.

But true mobile payments in Canada are only in their infancy. Though the interface is now a hand-held device, routing of payments from one account to another remains the same. The hand-held payments app is misleading for the average consumer, who believes instant payment is a touch away. Until we are able to upgrade what happens behind the screen, the full potential of this payment evolution remains elusive.

In talking to industry stakeholders, the consensus is that mobile will be the next driver of payment change. That change is coming fast. Most international companies believe mobile payments will go mainstream in two to four years – a conservative estimate, according to one report¹⁰. Remaining on the sidelines will continue to limit our success in the digital economy. Mobile technology in payments must be embraced.

And yet, evidence suggests payments will not be enough to spark this revolution. Japan, where mobile technology is further advanced, has seen only limited adoption. While there are social and economic reasons for this, it belies an important truth: the ability to make payments on a mobile device in itself is too weak a proposition to ensure change.

On mobile, as on electronic invoicing and payments (EIP), governments must spark change.

But to suggest that the end goal is payments does not provide the necessary scope for action. Nor can governments disassociate the mobile ecosystem from the interrelated elements of EIP, discussed in Chapter 3, and digital identification and authentication (DIA), covered in the next chapter.

Governments must understand that, while EIP is the necessary transition between paper and electronic processes, a secure mobile ecosystem is the revolutionary agent that will transform Canadian lives. With mobile payment, we can finally be two or more places at once, registering our kids for swim lessons over the phone while taking public transit to work.

Industry, by contrast, must aspire to mobile commerce, organizing in a way that optimizes the commercial application of mobile technology. Collaboration amongst payments providers, wireless carriers, retailers and users is necessary.

Underpinning all of this is the digital identification and authentication regime that will ensure these enabling technologies help to enhance personal privacy, streamline the exchange of data and inspire trust in the digital economy. (See Chapter 5.)

This chapter seeks to capture the preliminary work of the Mobile Payments Working Group. Its findings are intended to give industry and government the tools necessary for the mobile age.

Mobile Payments: A Primer

Mobile banking and payments encompass services that can be done through mobile devices (for example, phones, tablets). Services include the following:

- Carrier billing – The practice of adding purchases onto wireless carrier bills. Often restricted to things that can be downloaded and used on the phone (music, games and other mobile content), this payment form was an important driver in South Korea and Europe, where consumers needed cashless ways to download without using a credit card.
- Mobile banking – Applications that help you transfer money or pay bills.
- Remote mobile payments – E-commerce transactions such as purchasing a movie ticket by typing payment card information into any e-commerce website on a mobile phone.
- Proxy account payments – Payments made by phone billed to a credit card. Most parking payment systems that allow payment by phone designate the phone as proxy for credit cards.
- Proximity payments – Purchases made at a point of sale via cell phone using technology such as Near Field Communication (NFC). The same technology is embedded in the newest credit and debit cards, allowing the card or phone to be tapped or waved as a contactless transaction.

10. KPMG. 2011. *Mobile Payments Outlook*.

ABOUT THE MOBILE WORKING GROUP

To take advantage of mobile payments, governments and industry must think seriously about creating conditions for this new technology to thrive.

The Mobile Working Group evolved in response to stakeholder interest.

The Group began by bringing in subject matter experts from countries with experience in mobile payments. Leaders from the bank-wireless carrier joint venture in the Netherlands, French wireless carrier Orange, the GSM Association, Citibank and the European Payments Council along with experts in emerging retail trends provided perspectives.

By arranging a venue for conversations on mobile payments, the Task Force sought to empower the ecosystem, allowing stakeholders to develop solutions to their own needs.

CHART 13 - MOBILE PAYMENT PIE CHART

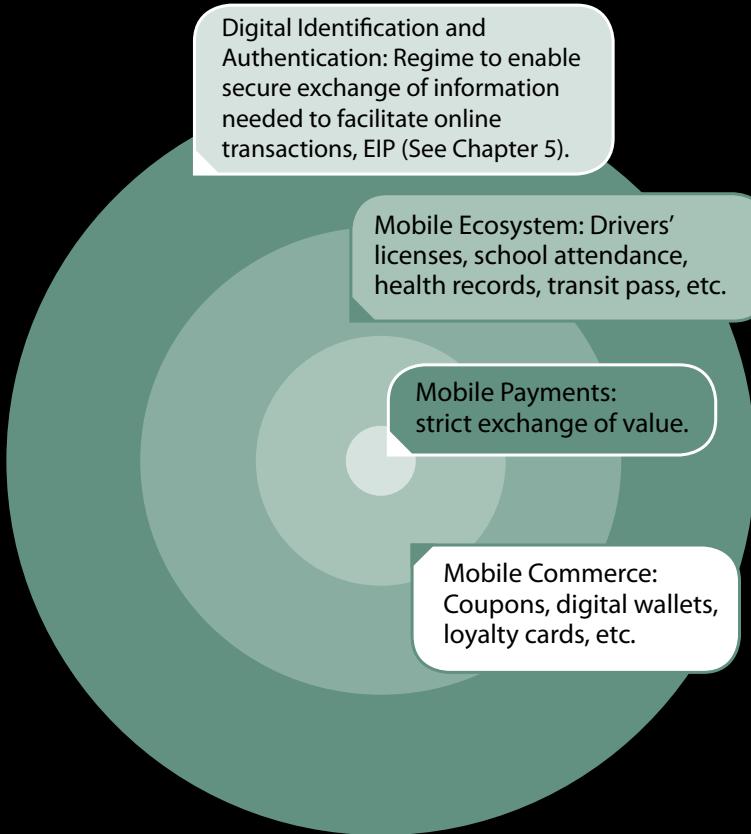


CHART 14a - Proximity mobile payments

In-person payments
(~90% of total retail commerce)



Typical uses

- User makes payment by waving handset with contactless NFC at a point of sale
- Users bump phones for person-to-person (P2P) payment using NFC or bluetooth

Examples

- NFC tap-and-pay checkout at a retailer
- Square Inc. smartphone app enabled in-store purchase via online tab
- Smartphone apps for in-restaurant purchase (eg., PayPal, Tabbedout)

CHART 14b - Remote Mobile Payments

Payments made away from point of sale
(~10% of total retail commerce)



Typical uses

- User makes e-commerce transaction by accessing a mobile website or through a smartphone application

Examples

- Mobile ticketing via MMS/SMS (e.g., Rogers Wireless Box Office)
- Transfer money via mobile browser or SMS (e.g., PayPal send money)

Mobile Around The World

Mobile payments are nothing new. Consumers in Kenya, Afghanistan, Japan and South Korea have been making phone payments for years.

The first generation of mobile payments was less secure; the handset choices were poor or non-existent. The systems were rolled out to solve particular problems in the market where they were deployed. In Kenya, the key driver was lack of access to bank accounts.

Wireless carrier Vodafone invested in M-PESA, allowing people to use low-functionality phones to send money transfers or make payments anywhere, bypassing the banks. Since M-PESA launched in Kenya in 2007, the need for cash has been reduced by 40%. Vodafone has since copied the model into other markets, including Tanzania and Afghanistan¹¹.

In Japan, transportation was a driver of smart cards. Collecting cash fares from commuters proved cumbersome in Tokyo and Osaka. To address this problem, Japanese wireless carrier NTT DoCoMo used its dominant market share to develop a portable contactless solution and drive adoption¹².

In the Netherlands, the three largest wireless carriers formed a joint venture with the three largest banks to develop a mobile payments platform¹³.

In the US, Isis, a joint venture representing wireless carriers Verizon Wireless, AT&T and T-Mobile, announced in 2010 its intention to offer mobile payments on the rails of Discover Card, bypassing mainstream financial institutions. This venture arose after efforts among banks and wireless carriers failed to resolve who owns the customer relationship¹⁴. Recently Isis has indicated it plans to open itself to all networks and banks.

11. Hughes, N., & Lonie, S. 2007. *M-PESA: Mobile Money for the "Unbanked": Turning Cellphones into 24-Hour Tellers in Kenya*. *Innovations: Technology, Governance, Globalization*, Pages 2(1–2), 63–81.

12. Sony Corporation. 2009. *Spinning the Wheel: Japan's Mobile Ecosystem*. Available from http://www.mobilemondayoulu.com/wp-content/uploads/Tadashi_Morita_MobileMondayOulu_31082009.pdf

13. The Paypers. 2010. *European premiere: Dutch banks, mobile operators join forces for contactless m-payments initiative*. Available from <http://www.thepaypers.com/news/mobile-payments/european-premiere-dutch-banks-mobile-operators-join-forces-for-contactless-m-payments-initiative/741943-16>

Google, Apple, Microsoft, Amazon, Facebook and PayPal have made inroads into mobile. And it is not just about value exchange any more. The recently-announced Google and PayPal Wallets hope to recreate the shopping experience.

This is an important distinction, as evolutions taking place right now need not be payments-exclusive. Indeed, industry partnerships allow a multi-pronged approach to capture all of a wallet's contents, from credit cards to loyalty points to driver's licences.

While it may appear Canada has not kept up with mobile payments, the good news is that countries everywhere are still struggling with the approach. The absence of mobile-specific regulation can result in fractious transitions. Canada is ready to proceed in a smart, synchronized fashion. Discovering how to do so is the mandate of the Mobile Working Group.

MOBILE PAYMENTS IN CANADA

Canadians love technology.

Canadians are the biggest users of the Internet—by far. The research firm comScore reports the average Canadian spends 43.5 hours a month on the web—twice the worldwide average of 23 hours¹⁵. Canadians clearly care about being connected to the world around them.

Now that the Internet is portable, it is no surprise that smartphone use in Canada is growing exponentially. We have over 25 million cell phone subscribers, and 33% are for smartphones¹⁶, which account for half of new wireless subscriptions.

Without prodding, Canadians have shown to be early adopters of banking apps. About 20% of smartphone owners have used phones to bank or to pay for products. Among Canadians from 18–34, the use of banking and payment apps is higher: one third have paid for something on a mobile phone¹⁷.

Canadians remain prudent, however. The greatest barrier to the use of banking services on mobile devices is concern about security. Creating a Canadian mobile payments ecosystem requires that Canadians feel confident that the system has been developed with user safety in mind.

14. T-Mobile News Release. 2010. AT&T, T-Mobile and Verizon Wireless announce joint-venture to build national mobile commerce network.
Available from <http://newsroom.t-mobile.com/articles/isis-joint-venture-mobile-commerce-network>

15. comScore. 2011. *comScore Launches Mobile Measurement in Canada*.
Available from http://www.comscore.com/Press_Events/Press_Releases/2011/6/comScore_Launches_Mobile_Measurement_in_Canada

16. Quoros Consulting Group. 2011. *Cell Phone Consumer Attitudes Study*. Available from http://www.cwta.ca/CWTASite/english/facts_figures_downloads/Consumer2011.pdf

17. Quoros Consulting Group. 2011. *Cell Phone Consumer Attitudes Study*. Available from http://www.cwta.ca/CWTASite/english/facts_figures_downloads/Consumer2011.pdf

18. Burnaby, BC; Calgary, AB; Edmonton, AB; London, ON; Nanaimo, BC; Regina, SK; Richmond, BC; Saskatoon, SK; Whistler, BC; Winnipeg, MB; Vancouver, BC; Victoria, BC

19. TD Canada Trust. 2011. *Canadians prefer online banking to manage everyday finances*. Retrieved from <http://www.smrmediaroom.ca/TDEverydayBanking.html>

Marketplace Readiness

A key to the success of mobile payments is receptive retail point-of-sale terminals. Canada is leading the world with terminals that provide NFC or contactless functionality. While 10% penetration may appear modest, these contactless-ready terminals are among the busiest in Canada and can be found in outlets we rely on: grocery stores, gas stations, quick service restaurants and coffee shops.

Municipalities are among the first adoptees¹⁸. Some Canadian cities now enable parking and bicycle rentals through proxy accounts online that link phones to credit cards. Canadian companies Enstream, which offers the Zoompass mobile wallet, and Presto card, which enables transit fare payment via smartcard, have been operating in Canada for a few years. That Rogers has applied to become a bank suggests carrier billing may soon be widely available.

Financial institutions have pursued a variety of ways into mobile: mobile banking apps rolled out early in 2010, and nearly 10% of Canadians have used them to check balances, pay bills and transfer funds¹⁹. Contactless stickers that enable NFC payments have also been launched. And Visa has made inroads on a mobile wallet that brings together NFC, e-commerce and couponing.

GOVERNMENT LEADERSHIP IN MOBILE: CITYZI PILOT, FRANCE

Launched in May 2010, the CityZi project piloted NFC commercial and government services in Nice in advance of a national rollout in 2012. The project involves eight banks and four wireless phone service providers.

The ecosystem is being launched under the single brand 'CityZi' to convey the message that service is not dependent on a particular bank or wireless phone service provider. Similar to the Interac logo in Canada, CityZi logos are apparent anywhere a NFC service exists.

Advantages Offered by Mobile Commerce

STAKEHOLDER BENEFITS	
Consumers	Consumers will enjoy greater convenience and efficiency by using mobile technology in a variety of capacities. The mobile commerce environment will deliver personalized shopping experiences that give consumers greater control over payment tools at their disposal. And the broader mobile ecosystem, underpinned by a robust DIA regime, will mean transactions could be safer than they are today, protecting and enhancing Canadians' privacy.
Merchants	<ul style="list-style-type: none"> • Reduce costs: Eliminates need for cash, reduced fraud. • Revenue growth: Better conversion of browsers into buyers, drive traffic to stores through strategic touchpoints, greater consumer convenience. • Marketing and promotions: Efficient coupon redemption and loyalty programs, better targeted personalized campaigns (one-to-one); also, customer is more likely to redeem gift cards and coupons as they are always on them (in phone), not home in a drawer. • Real-time customer analytics: Collect demographic data, gather information on shopping habits, greater ability to measure campaigns/product placement effectiveness. • New customer experiences: customers will check into stores, not just check out, extend the length of relationship with better customer engagement.
Financial institutions	Financial institutions can reduce cash-handling costs as customers make fewer paper-based transactions; improved customer relations thanks to innovative, tailored payment products.
Wireless phone service providers	<p>Become integrated in users' lives as the mobile handset replaces wallet:</p> <ul style="list-style-type: none"> • Hold a user's payment credentials, digital ID, loyalty cards and other credentials to support trusted transactions. • Increase customer loyalty as consumers may be reluctant to switch mobile phone service providers after loading their credentials on a phone. <p>Mobile payments also establish a potential channel for new B2B revenues through the rental of secured space on the phone for credit cards and other credentials.</p>
Technology companies	<ul style="list-style-type: none"> • Leverage mobile payment platforms to innovate on and around point-of-sale transactions. • Create end-to-end retail purchase experiences that benefit consumers and retailers. • Develop and enhance user experiences based on trusted transactions.
Governments	<ul style="list-style-type: none"> • Reduce cost of printing money. • Streamline government services.

Excerpt from the Mobile Working Group

The Working Group has identified six high-level principles.

Vision: Mobile payments in Canada will be implemented in a convenient, open, safe and secure ecosystem supported by a standards-based operating framework. This framework will increase user choice and accelerate the adoption of mobile payments.

The following principles are required to achieve this vision:

1. OPEN AND INCLUSIVE

- A. To credential issuers and payment networks operating in Canada.
- B. Canadian consumers will be able to use their mobile proximity payment service with
 - i. Canadian mobile carriers;
 - ii. Credential issuers operating in Canada;
 - iii. Enabled mobile devices (mobile devices certified by carriers);
- C. Allows for different business models.
- D. Fosters innovation.
- E. Ensures competition among market participants.

2. STANDARDS BASED

- A. Establishes and communicates clearly defined standards essential for interactions between financial institutions and the mobile payments ecosystem.
- B. Aligns with Canadian regulatory environment.
- C. Clearly defined standards (EMVco, NFC and GlobalPlatform) are essential to interoperability.

3. SAFE AND SECURE

- A. Protects confidential personal, financial and transactional information within the mobile payments ecosystem.

- B. Facilitates secure interactions between financial institutions and the mobile payments ecosystem.

4. RESPONSIVE TO CONSUMER AND MERCHANT NEEDS

- A. Consumers can easily move mobile credentials among handset platforms and carriers.
- B. Provides for ease of use, speed, availability, security, transparency, choice (including the priority of credentials on a mobile device) and consistency.
- C. A consumer payment experience that maximizes global use.

5. FOCUSED

- A. On mobile device proximity payments, with the understanding that non-payment credentials (government ID, loyalty, physical access and transit) will be expected to follow.
- B. Also examines payment transactions, multiple payment types and enabling capabilities.
- C. Considers pre-payment and post-payment services that enable transactions.
- D. Initially focuses on mobile NFC enabled devices and NFC enabling technologies.

6. SUSTAINABLE

- A. Creates a path forward to support the long-term viability of mobile payments.
- B. Adapts over time as technology and the ecosystem evolve.
- C. Allows for viable business models that accelerate mobile payments adoption for the ecosystem.
- D. Supported by ongoing collaboration across industries to leverage existing governance and risk management structures. New policies/rules should be introduced only as required to maximize innovation and safeguard participants.

Establishing Mobile Commerce

The Mobile Working Group began by drawing in experts from other jurisdictions that could help contextualize challenges unique to Canada.

The most important lesson the group took from international players was the value of collaboration. Mobile payments are more likely to gain meaningful traction in a market where there is cooperation among key players: wireless carriers, financial institutions and retailers.

Collaboration is not easy. Carriers and financial institutions face challenges in bringing about mobile services. Carriers must consider the capital-intensive needs of building out the network, while financial institutions typically favour Internet, telephone and mobile delivery platforms supported by existing networks. Retailers face opportunities for online sales as well as challenges from new competitors such as Apple and Facebook.

To galvanize support, the Working Group set about defining a framework for collaboration. This framework identifies barriers and lays the groundwork for players to join together to create a mobile commerce ecosystem open to innovation and responsive to change.

The Group also canvassed participants in an effort to understand potential business requirements and operating models.

Inroads made by the Working Group are a laudable first step, but there is much to do. Mobile commerce requires checks and balances—ways for participants to resolve issues in a constructive manner. Codes of conduct may be necessary.

Policy issues, including privacy, must be explored in partnership with governments. And the need to bring retailers and consumers up to speed suggests that outreach and engagement efforts must also be developed—but by whom, and in what context?

These unanswered questions lend support to one of the Working Group's primary recommendations: that its work should be continued beyond the Task Force, and with the added benefit of a broader range of perspectives, including industry, government, consumers and merchants.

The Digital Wave: Implications for Governments

Digital payments have an important role in a digital economy, and the Task Force's interest in mobile relates to its payment application. But mobile devices can radically change how we

engage the world. They can deliver both public and private sector services conveniently, and at less cost.

The power of the Internet, social networks and portability have been linked to global social movements, even as the idea of embedding mobile technology into the very function of democracy takes root at home: Elections Canada intends to pilot Internet voting in the next general election.

Consider, too, the biggest barrier to smartphone users' adoption of financial banking apps: perception of security²⁰. The onus to protect Canadians' security and privacy suggests governments have an important role to play if Canadians continue to embrace mobile phones as essential tools.

The use of mobile devices to access services will soon be as basic as the use of a health card or driver's licence. As governments begin to offer more and more services online, there is a growing need for policymaker input into the mobile ecosystem, as well as a solid digital identification and authentication regime that will help Canadians trust and embrace the digital world.

As the benefits of mobile for both government and industry become apparent, we expect there will be a growing interest in developing common standards. Doing so will further encourage Canadians to access these services.

Conclusion

Work done on mobile gave the Task Force the chance to think outside the world of payments and the strict movement of value and to conceive a reality where mobile phones might be used not just for payments, but for daily tasks.

That is why it is time to build a mobile ecosystem that meets payment needs, while remaining open to innovation and change. In meeting the payment needs of Canadians, we will be able to safeguard and enhance a new way of engaging the world around us. We also have the opportunity to put in place the infrastructure necessary to deliver commercial and government services on mobile phones.

That is why the Task Force recommends that governments partner with the payments industry to create this mobile ecosystem. The Task Force has set in motion some of the pieces needed to carve out this new ecosystem; finishing the job requires collaboration, willingness to lead and a dynamic governance framework. It will also require a vision of the future that appreciates the tremendous transformation taking place both around the world and in the palm of our hands.

20. Quoros Consulting Group. 2011. *Cell Phone Consumer Attitudes Study*. Available from http://www.cwta.ca/CWTASite/english/facts_figures_downloads/Consumer2011.pdf

CHAPTER 5: DIGITAL IDENTIFICATION AND AUTHENTICATION (DIA)

When we perform in-person transactions, we take identification for granted. We do not ask for ID when being paid in cash, and when dealing with a teller representing a bank or a store we never question whether it is in fact a real business. We rely on physical cues to judge risk, performing real-time authentication ourselves.

In the online marketplace, ID and authentication are more complicated. Physical cues are not available to guide decisions. Consumers assume the risk that the merchant they are buying from is legitimate. When something goes wrong it is not clear how the problem can be fixed.

Nowadays, breadcrumbs of our digital trail are everywhere. Email, online banking, social media, usernames and passwords across a myriad of online services provide personal information that, until now, we volunteered in exchange for convenience.

As online services increase, so too does the information we are required to transmit. Security breaches, even amongst popular online service providers, are common. Simply put, it is risky to engage services online, even as those services proliferate. This undermines our confidence in the digital marketplace.

Confidence in the digital economy is fundamental to future economic success. As discussed in Chapter 4, we want technology to enhance our lives. Service providers in government and industry have taken steps of varying degrees to provide the tools to help us do so. These services will not succeed, however, if we face uncertain risks every time we use them.

Online services should not require Canadians to surrender unnecessary data. Agreed-upon standards to which all parties are accountable must balance the need to prove ID with confidence that personal information is not used indiscriminately. This principle is at the heart of a robust digital ID and authentication regime.

DIA is a new way of conceptualizing identity. It is not a technology solution. No program or app can handle the complexity of managing identity. Instead, it is a policy solution—a paradigm that allows us to navigate a digital world with maximum potential and minimal risk.

Maintaining public confidence within the digital sphere is paramount. Without a progressive DIA regime, Canadians may not have the confidence they need to participate in the digital marketplace; online businesses will struggle, digital payments will stall and Canada will simply fall behind.

A robust DIA regime is fundamental to digital payments. Without a strong DIA regime as a universal starting point, and with digital payments evolution and adoption risks being fractious, Canadians' safety and security are needlessly compromised and large segments of the economy potentially crippled.

Payments and the DIA Working Group

Trust in both the policy objectives of DIA and in service providers—banks, hospitals, cities, provinces—will be the difference between an efficient, thriving digital marketplace and one in which Canadians are reluctant to participate.

In DIA, we must find a way to conceptualize identity that allows the consistent application of societal norms, in the interests of Canadians, within the digital world. For this reason, the Task Force has taken a proactive approach, assembling leaders responsible for bringing about DIA in Canada to begin the task of establishing roles and responsibilities, collectively discovering the necessary footing to move forward.

The DIA Working Group has sought to establish a blueprint for a pan-Canadian, public-private DIA regime. This chapter contextualizes this effort while setting the stage for potential benefits to be found in carving out Canada's first national DIA regime.

IDENTITY AND AUTHENTICATION – A PRIMER

Canadians intuitively understand how ID and authentication works. To secure a blood test, one must present a provincial or territorial health card. The card gives the blood services office the necessary assurance a client is who they say they are and the authority to release those tests: ID and authentication are manifest together in that health card.

The need to present a card with credentials is problematic in the digital age; Canadians want to transact online and many service providers would like to extend their services in dynamic, digital ways. Unlike the physical world, there are no accepted norms, and if something goes wrong the burden of proof lies with the individual.

Current ID and authentication procedures were not designed for a non-physical world, and those in use today have evolved in a patchwork fashion. This fragmentation has created unacceptable risk to the point that existing authentication procedures may not meet acceptable standards of service or security.

A robust digital ID regime is one where identification is accomplished without paper documents or face-to-face visits, and in a way that protects sensitive information and the privacy of the individual.

DIA IN CANADA

Developing a DIA regime will protect the use of personal information while capturing efficiencies and fuelling the online marketplace.

In early 2011, the Task Force invited representatives from the private and public sectors to develop a DIA implementation blueprint. Leaders in payments, technology, telecommunications, privacy, consumer protection and public policy gathered to form the Working Group for DIA, with the goal of establishing a pan-Canadian public-private digital ID and authentication regime.

The groundwork for DIA in Canada was already in place. Creating a collaborative forum allows the Working Group to develop standards and solutions that can be trusted across the many sectors of the Canadian economy and society.

LEADERSHIP AND COLLABORATION IN DIA

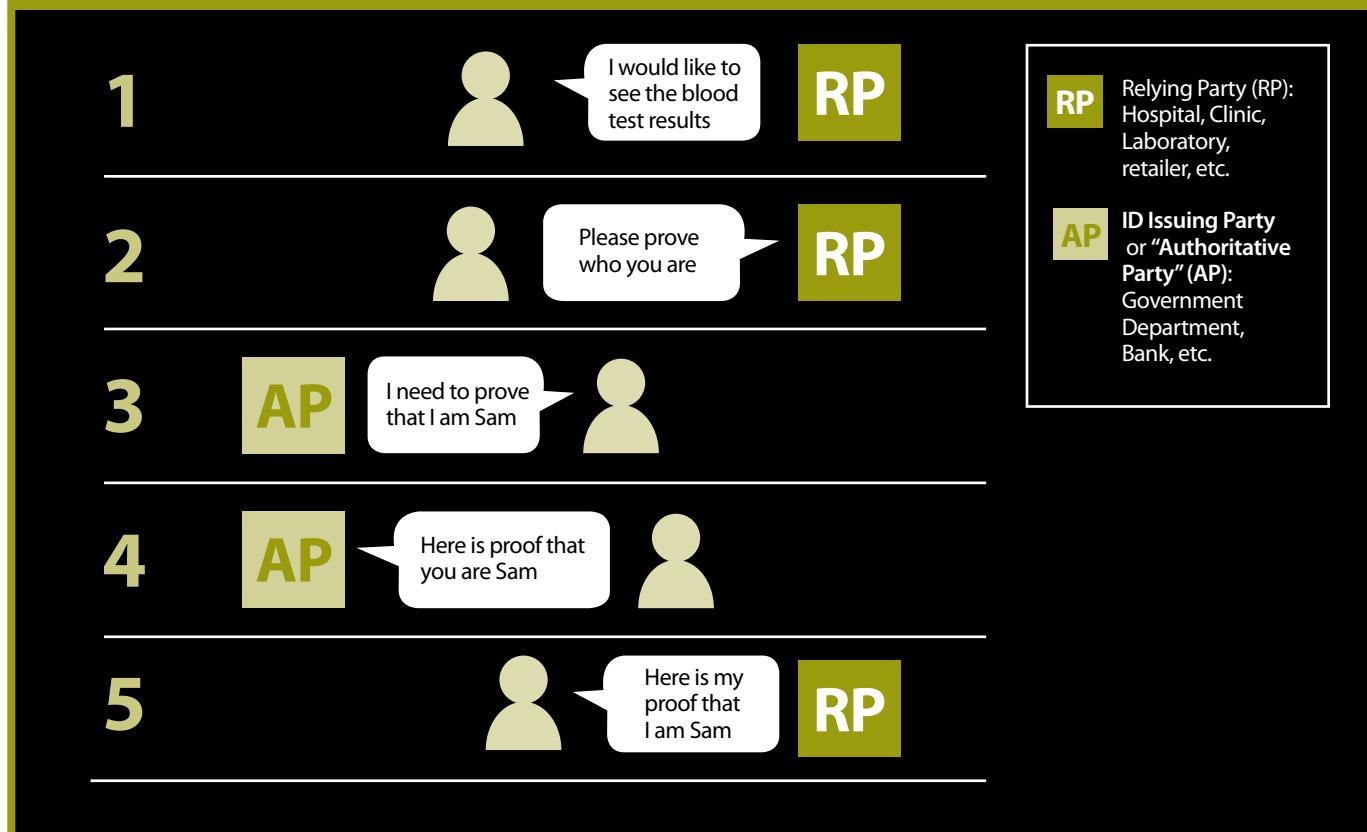
A premise of this report is that government leadership, with stakeholder collaboration, can bring about changes needed to realize the potential of the digital economy. This applies to EIP, mobile and DIA in equal measure.

In every instance, governments can instigate change, encouraging alignment among sectors while providing the necessary momentum for industry to follow suit.

What this chapter shows is that governments have understood the challenge of digital identity as far back as 2004. Grassroots and stakeholder goodwill have already laid the foundation. The next step is to build on this solid beginning and move forward: through public-private partnerships.

Governments clearly indicate they understand the need to unlock the potential of DIA. It is time to widen their circle of experts, drawing on the private sector to begin the task of implementation.

CHART 15 - SAM REQUESTS A BLOOD TEST RESULT



BENEFITS OF A DIA REGIME

In the physical world, a driver's licence can be used to verify that a person is "entitled" to drive or vote, but it also contains non-essential personal information – eye colour and weight, for example – that are not needed to verify identity. When consumers present their driver's licence as a form of identification, they accept this trade-off, even if it is an intrusion of their privacy.

The proposed DIA regime overcomes this trade-off by distinguishing between the essential piece of personal information required for any transaction—availability of funds, age or residency—without relaying other details.

DIA puts personal information back into the hands of individuals. Because specific information can be disclosed and unlocked only by the intended relying party, there is less risk of identity theft and fraud caused by the unnecessary flow of personal information through the participating systems.

Trust in the online marketplace will determine its success. If Canadians feel confident their information is safe when they are accessing services online, there is every reason to believe they will do so. As consumers shift behaviour, many services traditionally offered by governments and industry will move online, where they can be done more efficiently.

With consumer demand, innovation will flourish. Because the implications of DIA extend beyond payments, other sectors will reduce fraud and costs. In the healthcare sector, the potential to reduce fraudulent claims will save Canadians hundreds of millions of dollars.

In British Columbia, a province with 4.5 million people, 9.1 million BC health cards are in circulation. Fraudulent use of health services is one of the drivers behind introducing a new, secure BC Services Card that will utilize a secure contactless smart-chip. The smart-chip will operate as an authentication credential for DIA. It will allow people to obtain and provide trusted digital statements of their identity information for both in-person and online services.

DIA will also improve our lives. Many services—health cards and driver's licences for instance—can be renewed and used online. DIA would allow for many essential services—tax filings, health records, education transcripts—to be managed with greater ease and convenience.

And that is the tip of the iceberg. Imagine the scale of manual, paper-intensive labour and costs that would be removed if everything from insurance claims to social benefits could be managed electronically. EIP, in combination with mobile's

portability and DIA, will allow for revolutionary changes in government service delivery.

Citizens, for their part, would be empowered, confident that a system capable of protecting their information was simultaneously allowing them to do more with that information. Intrusive registration processes and multiple passwords would no longer be required.

DIA Around the World

In 1999, Finland introduced national electronic identification (eID). Since then, other countries have undertaken work on DIA. A recent OECD report²¹ on DIA management strategies highlights key developments:

- There are two primary drivers for DIA: (1) to allow organizations and government to deliver more services online and to benefit from cost efficiencies and (2) to reduce fraud.
- Countries with national identity cards are likely to use a centralized approach to DIA. Conversely, countries like Canada with a history of specialized, decentralized identification databases (driver's licences, health cards, social insurance cards) are less welcoming toward a centralized approach.
- Most countries tackling DIA accommodate the private sector.

WHERE CANADA STANDS

Canada's early progress on DIA is a welcome endorsement of the Task Force's desire to see governments take the lead. Governments must be first-movers on pan-Canadian initiatives like EIP, mobile and DIA, after which industry collaboration becomes a necessary next step.

But while such leadership has yet to be fully articulated on EIP and mobile, Canadian governments have already taken proactive steps, with a specific focus on the public policy dimensions related to identity.

Governments are not at all new to the issuance of documents used as identity credentials for other services. Passports, health cards and driver's licences, to name a few, are exclusively managed by different levels of government. It makes sense that governments continue to advance identity as a priority in the emerging digital environment, especially in light of the increased dangers of identity fraud.

21. OECD. 2011. *National Strategies and Policies for Digital Identity Management in OECD Countries*. OECD Digital Economy Papers, No. 177. Available from <http://dx.doi.org/10.1787/5kgdzvn5rfs2-en>

Work done to date by governments crosses a variety of jurisdictions. Industry Canada took an early lead in 2004 when it published *Principles for Electronic Authentication*, which emphasize privacy, security, proportionality and interoperability²²:

Excerpt

All Canadians – individuals, businesses and governments – share an interest in ensuring that electronic communications are secure. As use of public electronic networks continues to evolve, from searching the Internet for information to exchanging information and money online, we need greater assurance that these messages and transactions are secure and that our privacy is protected.

Authentication of electronic communications can make a significant contribution to meeting this need and to building user confidence. The Principles for Electronic Authentication are designed to function as benchmarks for the development, provision and use of authentication services in Canada. The Principles are intended to form the basis of codes of conduct, voluntary initiatives and guidelines tailored to the requirements of specific industries and government.

In November 2006, the Federal-Provincial-Territorial Deputy Ministers' Table on Service Delivery Collaboration (FPT DMs' Table) commissioned the Inter-Jurisdictional Identity Management Task Force (IATF) to develop a Pan-Canadian Identity Management and Authentication strategy and framework. The IATF presented their final report²³ to the FPT DMs' Table in Halifax November 2007.

In June 2008, the Identity Management Steering Committee (IMSC) was created by the FPT DMs' Table. The IMSC membership consisted of representatives from the federal government, provinces, territories, and municipalities and its mandate was to oversee the development of a flexible identity management framework and to encourage adoption among Canadian jurisdictions. The IMSC built upon the 2007 IATF framework to develop detailed conceptual models. These models are now being used by jurisdictions to develop their identity management solutions.

22. Industry Canada. 2004. *Principles for electronic authentication: a Canadian framework*. Available from [http://www.ic.gc.ca/eic/site/ecic-ceac.nsf/vwapi/authentication.pdf/\\$file/authentication.pdf](http://www.ic.gc.ca/eic/site/ecic-ceac.nsf/vwapi/authentication.pdf/$file/authentication.pdf)

23. Inter-jurisdictional Identity Management and Authentication Task Force. 2007. *A pan-Canadian strategy for identity management and authentication*. Available from http://www.cio.gov.bc.ca/local/cio/idim/documents/idma_final_report.pdf

INTERNATIONAL EXAMPLES OF DIA

Netherlands

The Dutch "DigiD" national DIA scheme facilitates electronic transactions between citizens and public agencies. Its primary goal is reducing the complexity and cost of government services. Private sector use of DigiD is forbidden.

New Zealand

New Zealand has a two-phase DIA management service. The first phase, "igovt Login" allows citizens to use a username and password to access government services. The second is an ID system called "igovt ID," a trust frameworks system that allows citizens to authenticate themselves to non-government service providers. Registration for igovt is facilitated by the New Zealand Post Office and is voluntary.

Australia

Australia launched its National Identity Security Strategy (NISS) in 2007 with the concern that weaknesses in identification might lead to terrorist and criminal activities. NISS aims to improve citizen enrolment processes, heighten security, develop a robust electronic authentication system and plan for biometric interoperability.

United States

The U.S. released the National Strategy for Trusted Identities in Cyberspace (NSTIC) in April 2011. The U.S. approach establishes digital ID as a cornerstone for online transactions and identifies standardized credentials for physical and digital authentication and increased use of biometric ID credentials. Of all DIA strategies, the U.S. proposal would assign the largest responsibility to the private sector. The government plays a supporting role by leading the development of interoperable standards, providing clarity on national policy concerning liability and privacy.

In 2009, Treasury Board Secretariat published *Federating Identity Management in the Government of Canada: A Backgrounder*²⁴, which describes a vision for identity management involving a federation of organizations. The model supports multiple public and private providers across jurisdictions, through multiple service delivery channels. This model also makes a clear distinction between credentials and identities to allow for anonymous credentials to protect privacy and enable a phased approach to implementing a federated solution across Canada.

Recently, the IMSC released *Trusting Identities: The IMSC Pan-Canadian Approach to Enabling Better Services for Canadians*²⁵. This report promoted the pan-Canadian identity federation model, where ID credentials issued by one jurisdiction are accepted by another.

At the government level, two major projects are under way:

- 1) British Columbia is building a DIA regime that addresses payments, banking and healthcare. Consumers will be able to confirm they are the account holder with a bank, the owner of a registered business and a valid user of the provincial healthcare system with the same credential.
- 2) The Government of Canada, as part of its Cyber Authentication Renewal Initiative, is transitioning from a proprietary authentication system to a standards-based authentication service. This service enables individuals, using their credential of choice, to access government applications and services.

The Task Force applauds the work done by governments to evaluate and understand DIA and supports the BC government in bringing about DIA in a meaningful way. Nonetheless, governments alone cannot create a pan-Canadian DIA regime; its benefits extend much further than cost savings and fraud reduction within governments.

Industry players have an important role to play in developing a DIA regime. It was on this role, and in the particular context of payments, that the DIA Working Group was asked to report.

24. Treasury Board of Canada Secretariat. 2009. *Federating identity management in the Government of Canada: a backgrounder*. Available from <http://www.tbs-sct.gc.ca/sim-gsi/publications/docs/2011/fimgc-fjigc/fimgc-fjigctb-eng.asp>

25. Pan-Canadian Identity Management Steering Committee. 2011. *Trusting identities: The IMSC pan-Canadian approach to enabling better services for Canadians*. Available from http://www.iccs-isac.org/en/km/transformative/docs/IMSC Paper_Trusting Identities Consultation Draft_EN.pdf

The DIA Working Group

There is great stakeholder optimism that a pan-Canadian DIA regime is within reach. Our relatively small population means the number of parties needed to drive adoption is low, thus making this initiative more feasible.

The most difficult hurdle may be awareness. Users, merchants and even governments need to be convinced of the benefits of DIA. Demonstrating how the technology enhances privacy is essential. The scope of DIA must also be explained.

The DIA Working Group has identified and advanced work on three key elements:

1. Trust Frameworks.
2. Developing a shared DIA vision.
3. Developing and implementing a suitable Governance Framework for DIA.

THE TRUST FRAMEWORKS APPROACH

Identity online can be distilled down to one principle: trust. Because of its high value, identity requires trust at the outset of any transaction or relationship. Can a user trust that an online system will not abuse personal information? Can an organization trust that other systems in different jurisdictions will apply the same rigour in protecting personal information?

In Canada, however, a centrally-controlled trusted identity model is not only undesirable but impractical. Canada is a country made up of multiple jurisdictions—provinces and territories—that collectively govern by maintaining autonomy around information. Moreover, digital identification and authentication models have already been implemented across a range of government services, such as renewing health cards and driver's licences.

These existing systems were not designed to transcend jurisdictions; various levels of government use separate systems that are based on non-standard terminology and architecture and the unique needs of a given service.

A pan-Canadian system must be cross-jurisdictional. Independent systems must trust each other. That is why the DIA Working Group has adopted a federated trust framework that is consistent with models developed by other countries.

Technical Requirements of a Trusted Framework

Trusted framework models conform to two characteristics:

1. There are generally three agents: Authoritative Parties such as government, Relying Parties, such as public and private service providers, and Clients, including individuals, businesses and governments. Sometimes called an identity federation model, they are well suited to countries with multiple jurisdictions, like Canada.
2. There are generally four levels of assurance to accommodate the different levels of risk associated with authentication. A simple message between friends may not require the same level of authentication as making a payment or accessing health records, for example.

While models and implementation philosophies vary, all models conform to the one proposed by the DIA Working Group.

DIA is a policy solution, not a technology solution. Nevertheless, both enabling infrastructure and technology solutions will be instrumental in creating trust frameworks. Like trade guilds, providers must conform to standards set by policy makers from public and private spheres and so will be subject to independent certification as well as dispute resolution mechanisms. Solutions will be in line with federal legislation respecting privacy and identity.

At this juncture, however, it is more important to secure an agreement amongst stakeholders on a shared vision for the development, creation and deployment of DIA across public and private sectors.

DEVELOPING A SHARED VISION FOR DIA IN CANADA

To achieve interoperability, the Working Group has developed five criteria to guide implementation of trust frameworks in both public and private sectors. Frameworks should be federated, phased-in, user-centric, standards-based and open.

Federated

A federated framework allows different jurisdictions to create unique frameworks while maintaining interoperability with other frameworks. This is done through levels of assurance commensurate with risk. The framework specifies what obligations must be met by parties involved in a transaction.

Just as an Ontario driver's licence is respected in Nova Scotia, a federated framework should recognize a credential across digital borders.

Phased-In

The DIA ecosystem will evolve. Organizations join at their own speed. A phased-in approach permits action by some while allowing less agile entities to benefit from trailblazing organizations.

User-Centric

Canadians must be able to choose and control their own credentials. In the same way that age can be confirmed through a choice of physical credentials, Canadians must be able to choose which credential they use online. The Office of the Privacy Commissioner in Canada participated in the Working Group to ensure proposals are in line with privacy principles.

Standards-Based

The DIA ecosystem will be built on common, established norms. The latter will include technical standards specifying hardware and software, along with organizational and service standards.

Standards should represent the collective knowledge of the industry and be agreed upon and complied with by the DIA ecosystem. The Working Group agrees that technical standards must be

- Robust enough to be of international standards quality.
- Flexible, so that organizations can 'plug in' to the DIA ecosystem at their own pace.

The Working Group agrees that, while technical standards are necessary, process and semantic standards are also required for the DIA ecosystem to interoperate.

Open

The DIA ecosystem will need to accommodate various participants. Entrants will need to be aware of the policy and technical requirements and processes required to join the ecosystem. To ensure adoption, entry should be inexpensive and barrier-free, with no penalties for opting out or not joining.

CHART 16 - THE DIGITAL ID AND AUTHENTICATION ECOSYSTEM

Policy Makers define rules by which trust frameworks are adopted, used and certified. Policy Makers (or governance authorities) represent the communities of trust involved (e.g. public sector, broader public sector or commercial), which may be subject to specific legislation or legal/contractual frameworks.

Framework Leaders provide expert counsel for parties in the DIA ecosystem.

Compliance Assessors are an independent assessment body that ensures the DIA ecosystem follows standards.

A Credential Provider issues and manages the lifecycle of a credential used by or associated with an individual.

Regulators ensure the DIA ecosystem complies with Canadian legislation.

An Authoritative Party, usually a government department or a bank, verifies claims made by an individual. When an individual makes an identity claim, he/she makes a request to the Authoritative Party, who is responsible for issuing a verified claim.

Relying Parties control access to a resource or provide a service and rely upon an Authoritative Party to provide accurate identity information.



Authoritative Parties & Credential Providers
Authentication Credentials

Relying Parties

Users

Supporting Infrastructures (i.e: Digital Identification)

DEVELOPING AND IMPLEMENTING A SUITABLE GOVERNANCE FRAMEWORK FOR DIA

Considerable work has already been undertaken by governments in considering digital ID.

Implementation and the development of common standards require input. For this reason, the Task Force supports the Working Group's call for the creation of a Canadian Digital ID and Authentication Council (DIAC) to lead the development of DIA in Canada, ensure collaboration and interoperability and recommend the necessary changes to federal and provincial governments with respect to legislation and regulation.

DIAC would be a responsive governance body that could oversee the implementation of DIA in public and private sectors, both within Canada and between this nation and the rest of the world.

(See Appendix C for information on DIAC, including proposed mandate and governance structure.)

Conclusion

Reorienting our identity to fit the digital world is no small feat. That governments in Canada have been proactive is a good sign. The time has come to draw in the private sector and start transforming policy into action.

A Canadian's digital identity is a basic right and need. Privacy and security must be protected. Technology has now pushed us to the exhilarating edge of a new digital marketplace, where services offered online transform how we live. This new way requires a fresh approach to identity. DIA is a solution within our grasp.

Payments are just the beginning—a way to engage DIA. In helping Canadians trust the most basic of daily digital transactions—payments—we can inspire the trust needed for Canadians to embrace the digital world.

EIP is the process of moving away from paper. Going mobile transforms how Canadians engage in a wireless world. DIA underpins the success of both endeavours. These three interrelated elements form the compass that will guide us toward a prosperous, successful digital economy.

CONCLUSION

The Digital Future

Payments are the backbone of the economy. Without the means to exchange value, there simply is no marketplace, digital or otherwise. It is not enough to treat payments as a corollary of an emerging digital economy because the economy itself depends on payments.

Canadians, through rapid adoption of new technology, have shown themselves to be ready for this transition. Governments, already seized with creating the conditions for the digital economy in policy terms, now have the opportunity to use their considerable influence to motivate broad change by:

- 1. Requiring electronic invoicing and payments for all government suppliers and benefit recipients;**
- 2. Supporting the build out of a digital identification and authentication regime; and**
- 3. Partnering with the private sector to create a mobile ecosystem to deliver both commercial and public services to citizens.**

The successful championing of the three interrelated elements of EIP, mobile and DIA will mean SMEs, large corporations, financial institutions and users are able to more easily transition to digital payments, helping to kick-start reform in a system that has avoided uncertainty by avoiding difficult change.

The time has come for Canada to rise to the challenge of the emerging digital economy by putting in place the necessary elements that will allow us to become full participants in it.

This is just the beginning.

COLLABORATION IN THE FACE OF CHANGE

Stakeholders delivered a clear message throughout our work: collaboration is essential to a healthy payments system. Technological change, new entrants and competitors, shifting risks and opportunities and security and privacy considerations: all of these issues provide a challenge to which stakeholder collaboration is the key response.

With the momentum we have gained, buoyed by the energy of countless participants, we feel industry has the tools needed to reinvent itself within its grasp. We are grateful to the members of the EIP, Mobile and DIA Working Groups, who have collaborated with us to this end.

We believe *Going Digital* can help stakeholders envision a future where the shared goals of today have become the shared benefits of tomorrow. Working together, as we have historically done, will help to move this plan into a version of reality to which we can all subscribe.

NEXT STEPS

A road map serves little purpose unless all parties recognize the benefits. *Going Digital* takes us quite a distance along this path, setting out in tangible terms what can be done, and by whom, to achieve significant cost savings and efficiencies.

But it is only a start.

Going Digital is the beginning of a long-overdue conversation that Canada must have if it is to succeed in the digital economy. It captures the growing noise within the payments system that is a result of the technological change taking place around us. It asks that we consider this transformation as one that has profound implications for the economy, Canadians and our future way of life.

The interrelated elements of EIP, mobile and DIA represent ways to address some of the critical symptoms we have observed. However, pursuing the path laid out in *Going Digital* will truly be successful only if we are prepared to treat the underlying conditions.

To do that, we must return to the prescriptive elements of our mandate: governance, legislation, competition, regulation, innovation and the needs of users. This essential analysis provides the backdrop for our final report, where we will provide specific recommendations on how these key aspects can be realigned with the demands of a digital world.

While *Going Digital* advances the need for government leadership on EIP, Mobile and DIA, in step with industry collaboration, the final report goes one step further, by considering how best to ensure the success of these three elements, through enabling governance frameworks, new legislation and the infrastructure upgrades needed for digital payments.

In preparing our final report, we take the spirit of *Going Digital* to heart. Stakeholder input into our work merits fulsome evaluation, in a manner that balances their views with those of our most important stakeholder: Canadians themselves, who, in responding to the changes around them, make the choices to which a well-functioning payments system must respond.

It is this task in particular that we will bring to bear as we work to finalize our recommendations on the essential remaining questions: how best to bring together a disparate payments system in a manner that enshrines the voice of users and how best to empower them to lead.

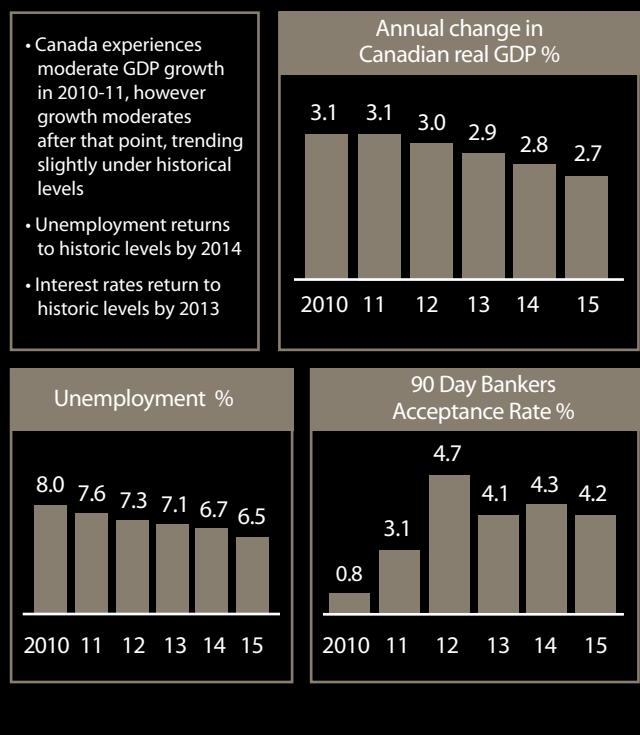
APPENDIX A: MCKINSEY PAYMENTS MAPS

About the McKinsey Global and Canadian Payments Maps

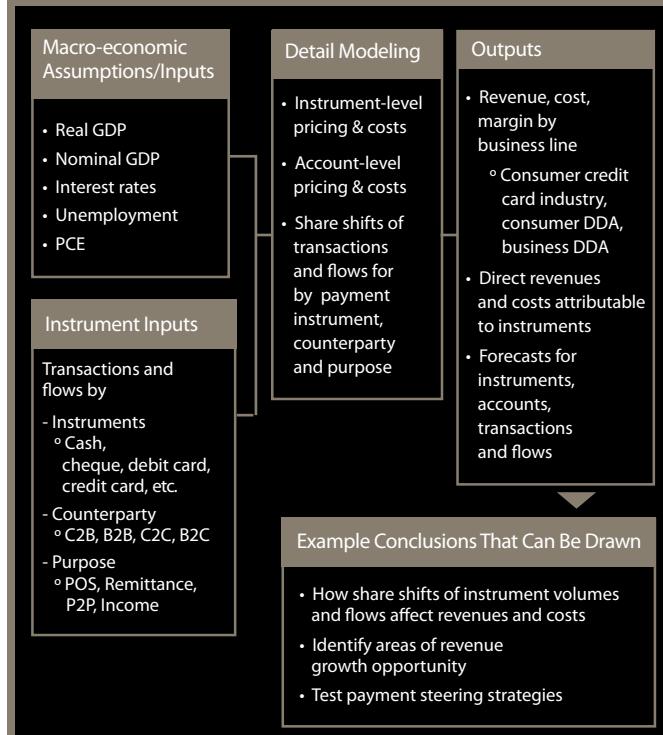
McKinsey's assistance in modelling different scenarios and its extensive research on consumer and business payments trends globally provided key foundational facts for the Task Force.

APPENDIX A CHART 1

THE MACRO-ECONOMIC INPUTS INDICATE A GRADUAL RECOVERY FROM 2010-2011, WITH MODERATE GROWTH IN OUT YEARS.



APPENDIX A CHART 2 - THE CANADIAN PAYMENTS MAP PROVIDES A FULL PICTURE OF THE TRANSACTIONS, \$ FLOWS, AND PROFITABILITY OF THE PAYMENTS INDUSTRY



The McKinsey Canadian Payments Map provides a granular market view across all product categories and subcategories, including estimated transaction fees, maintenance fees, penalty fees and NII (net interest income), both historically and prospectively. Its Global Payments Map profiles 43 countries that represent 90% of global GDP. The Global Map uses a consistent approach for segmenting both flows and transactions by instrument and counterparty for the last five years. The data are derived from both public and proprietary sources, including industry benchmarking and other field work. The data are then augmented by executive interviews to ensure that the appropriate insights are derived. These outputs were used to calibrate Canada's present and future standing in relation to other world economies.

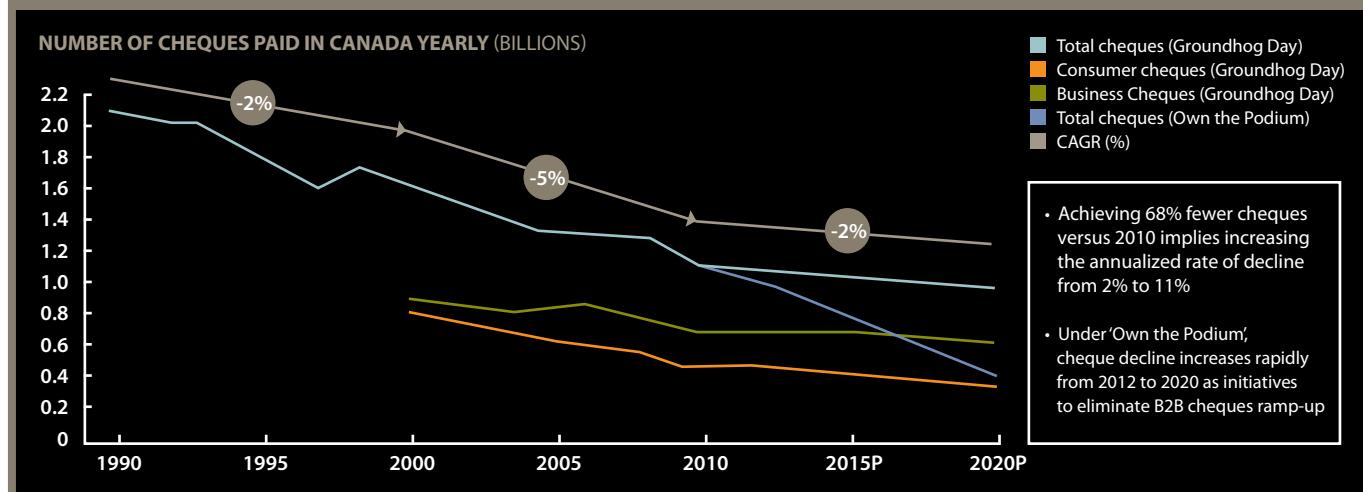
The analysis provided in *Going Digital* is based in part on the McKinsey Canadian Payments Map. Specifically, it estimates the potential economic implications of various policies using assumptions established by the EIP Working Group.

The Canadian Map was leveraged to model various scenarios based on the following three assumptions:

1. FORECASTING TOTAL PAYMENT FLOWS

- Canadian payment flows were forecast to grow in line with historical trends, based on correlations with macroeconomic factors (e.g. GDP, interest rates)
- Relative shares of individual product lines were also forecast to grow in line with historical averages

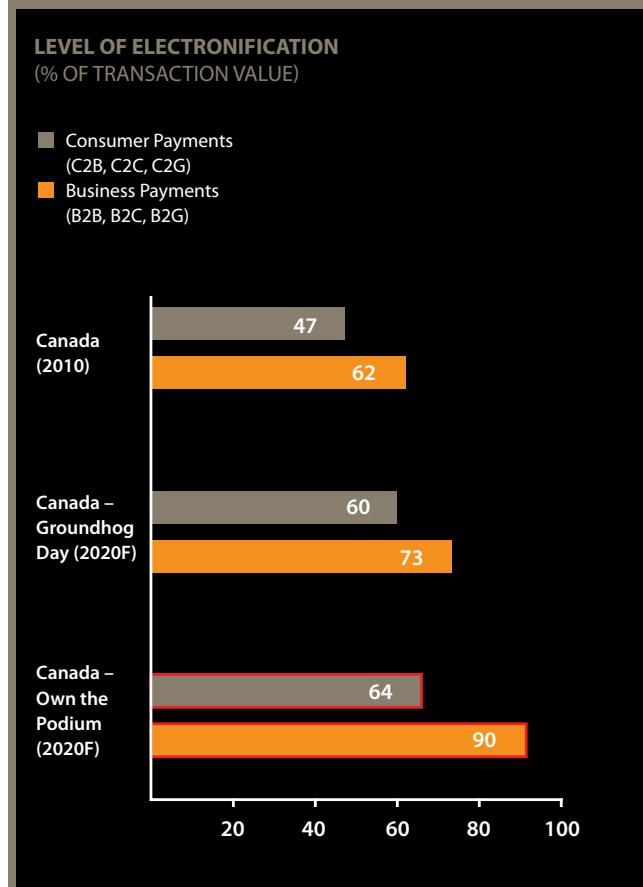
APPENDIX A CHART 3 - A COORDINATED APPROACH WOULD ALSO BE REQUIRED TO INCREASE THE RATE OF CHEQUE DECLINE TO 11% ANNUALLY



2. SETTING GOALS FOR ELECTRONIC PAYMENTS AND ESTIMATING THE RESULTING SHARE SHIFTS

- The Task Force set a goal to be as electronic as the leading countries globally (e.g. Finland). With this goal in mind, paper-based transactions were forecast to migrate to electronic forms in the same proportion as historic trends. Pricing was kept constant, and the resulting revenue was forecast through 2020:
 - An incremental \$2.8B in revenue was estimated for the Canadian industry
 - \$2B of this was in commercial cards, driven primarily by increased interchange revenue
 - New entrants were also expected to capture a share of electronic transactions

APPENDIX CHART 4 - CANADA WOULD BE A GLOBAL LEADER ACROSS BOTH CONSUMER AND BUSINESS SEGMENTS



3. ESTIMATING INDUSTRY-WIDE COST SAVINGS

- A detailed McKinsey U.S. benchmarking study on transaction costs as well as Canada-specific interviews were used to estimate the potential for cost savings by migrating from paper to electronic payments and invoicing. The expected change in paper transaction volume was multiplied by the estimated cost savings to derive the \$7 to \$8B in industry savings:

- Enterprises would see the majority of savings given the elimination of the highly manual A/R (Accounts Receivable) reconciliation process
- Governments would also save on manual costs but more importantly would avoid the trap of increased payments demand from retiring baby boomers coinciding with decreased supply of labour given their own employee retirement rates

APPENDIX A CHART 4 - ASSUMPTIONS DRIVING INDUSTRY ELECTRONIFICATION AND COST SAVINGS

Electronification assumptions

Invoicing & payments volumes
pmt share by bus. size

- SME
 - Micro
 - Small/medium
- Enterprise

Invoicing electronification
% electronification

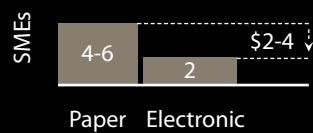
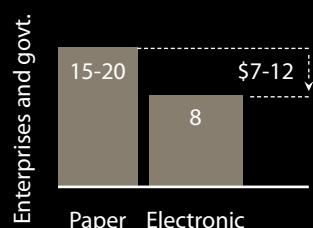
- SME
 - Micro
 - Small/medium
- Enterprise

Payments electronification
% electronification

- SME
 - Micro
 - Small/medium
- Enterprise

	2010	2020
SME	30%	30%
Micro	10%	10%
Small/medium	20%	20%
Enterprise	70%	70%
Invoicing electronification % electronification		
SME	30%	50%
Micro	10%	20%
Small/medium	10%	40%
Enterprise	10%	
Payments electronification % electronification		
SME	10%	50%
Micro	35%	80%
Small/medium	50%	93%

Cost assumptions¹ \$ per payment/invoice combo



\$1 in savings for each cheque replaced (eg., processing, branch/teller costs)

Relevant quotes from interviews

"We save \$10-15 per transaction by moving electronic"
- Large Canadian retailer

"Enterprises could drive \$30/transaction in savings through e-invoicing and payments"
- Large technology provider

"Smaller SMEs could save 5-10 hours per month of manual work"
- Mid-size technology provider

"SMEs value saved time above everything else"
- SME association

"Electronic mediums cost us cents per transaction, versus a fair bit more on paper"
- Canadian Bank

¹ Includes cost of invoicing, A/R and A/P

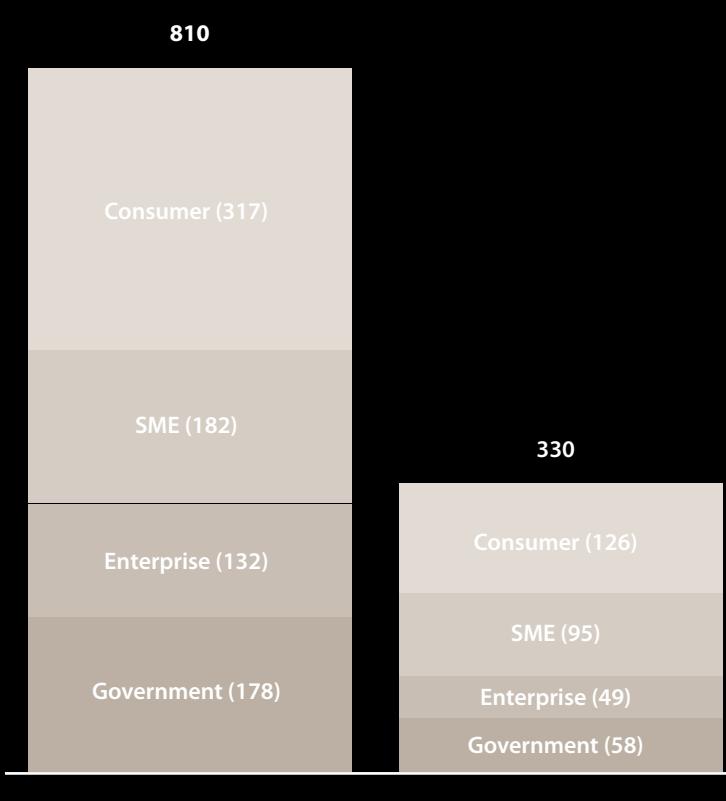
SOURCE: McKinsey Payments Practice, USA case study examples, industry interviews, team analysis.

APPENDIX A CHART 5 - CANADA COULD POTENTIALLY SEE AN ANNUAL ECONOMIC EFFICIENCY OF 0.3% OF GDP BY 2020

NUMBER OF CHEQUES (Millions)

BENEFICIARY OF COST SAVINGS (\$B)	
Enterprises:	\$5.0 (64%)
Government:	\$1.4 (18%)
SMEs:	\$0.7 (9%)
Banks:	\$0.6 (8%)
Total Savings	\$7.7

**2010 TOTAL CHEQUES
1000 MILLION**



POTENTIAL ANNUAL SAVINGS IN 2020 (\$ Billions)

\$3.2

\$7.7

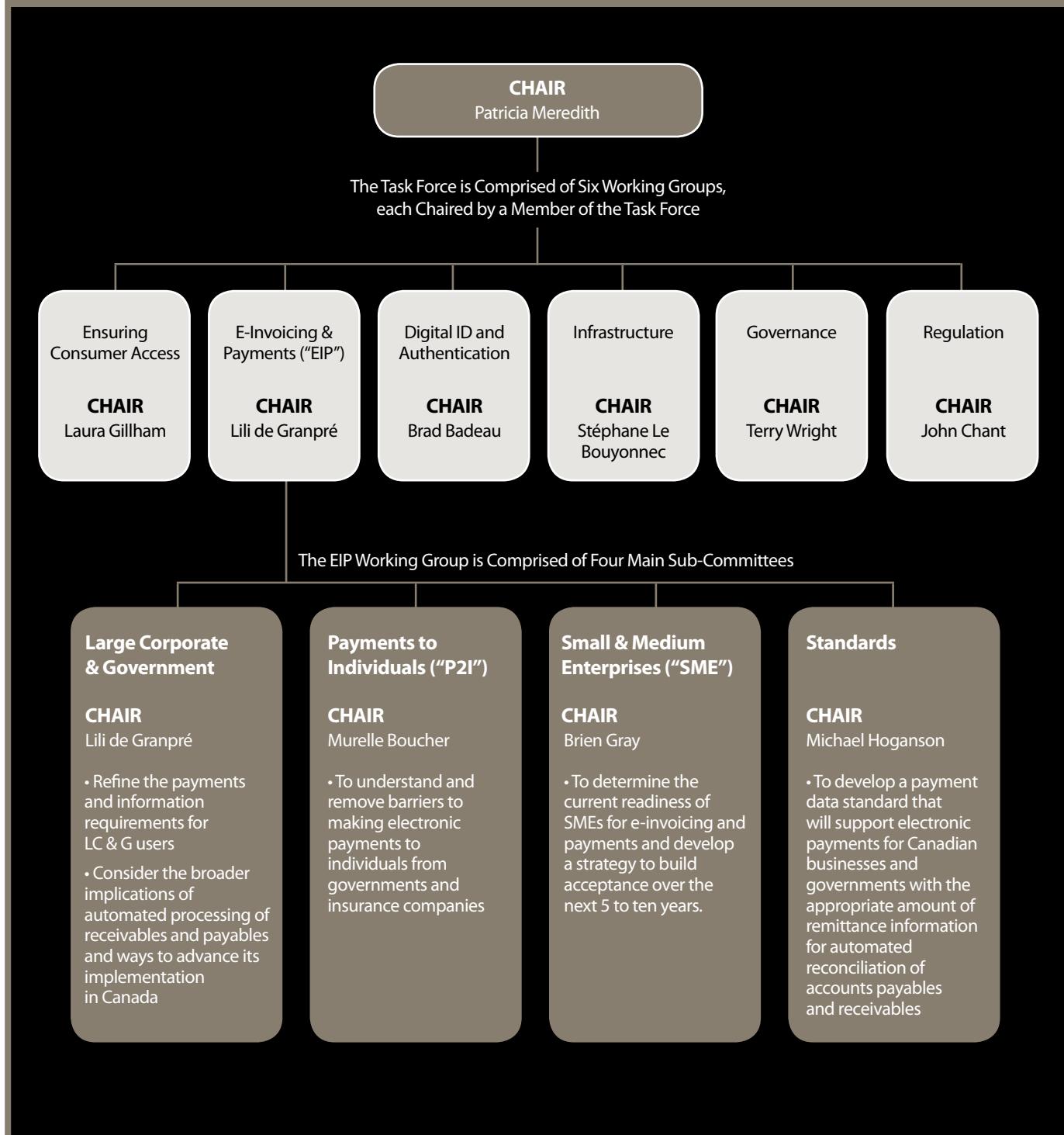
SAVINGS AS A PERCENTAGE OF GDP (% 2020)

0.1%

0.3%

APPENDIX B: ELECTRONIC INVOICING AND PAYMENTS (EIP)

APPENDIX B CHART 1 - EIP WORKING GROUP: WHERE IT FITS & COMPOSITION



EIP Working Group Membership

STANDARDS

Standards play a critical role in EIP. For this reason, we had a subcommittee focus on reviewing, evaluating and recommending Canadian standards going forward.

- The Standards Subcommittee was led by the CPA and comprised a broad range of end-users and payment solution providers. They worked diligently over the spring and summer of 2011 to evaluate existing standards. After extensive review and consultation with experts, we recommend Canada adopt ISO 20022 standards. Key reasons are as follows:
 - They support transmission of large amounts of data along with value in one message.
 - They are payment agnostic, allowing us to move to the standard over time.
 - They are aligned and interoperable with international standards, recognizing the global nature of business and e-commerce.

The Exhibit below provides a summary view of the Standards Subcommittee's work:

DATA ELEMENTS

- Working separately, The Large Corporate & Government (“LC&G”) Subcommittee focused on identifying mandatory data elements to be included in payments. This team adopted the following principles:
 - The data elements must be strong enough to meet the needs of large corporations and governments.
 - Data elements must provide customization flexibility to meet the requirements of different sectors, such as industry verticals and all government levels (federal/provincial/municipal) and departments.
 - “Mandatory” fields should be kept to a minimum to ensure they are not onerous for small and mid-sized businesses.
- Based on work by the Large Corporate and Government Subcommittee, the EIP Working Group recommends three mandatory fields for all Canadian remittances:
 - Remittance originator, including name, address and account number of the remittance originator and originating financial institution identifier.
 - Remittance beneficiary, including name, address and identification number of the remittance beneficiary along with FI information.
 - Total amount: To be included under the remittance beneficiary field.

APPENDIX B CHART 2 - STANDARDS SUB-COMMITTEE

Principles/Criteria	EPN STP 820	ISO 20022	CPA Standard 005
Can Transmit Data & Value in One Message			
Payment Agnostic			
Aligned and Interoperable with International Standards			

STANDARDS EVALUATION SUMMARY

After a review of each Standard, the team evaluated how well each aligned with their stated principles/criteria.

- Satisfies
- Partially Satisfies
- Does Not Satisfy

- Work has started on identifying data elements within the ISO 20022 standard that would be pertinent to Canada. Four groups of end-users organized into industry verticals (Governments; Oil & Gas; Retail; and Telcos & Utilities) are reviewing data elements within the ISO standard to determine which will be used in support of B2B/G2B/B2G payments. By doing this, we will create a truly Canadian version of ISO 20022 that satisfies end users. We are also engaging different user segments (small and medium sized businesses) to determine if they have remittance requirements.
- Finally, the Standards Subcommittee is actively engaged in developing a roadmap to transition to ISO 20022. Solution-providers are participating in this work so that we will better understand their capabilities to support ISO 20022. The options and roadmap will be included in the final report.
- Ultimately a business case needs to be built for ISO 20022. This responsibility will fall to the Self-Governing Organization.

ISO 20022²⁶

ISO 20022 provides a common platform for developing financial industry standards. Financial institutions exchange massive amounts of information with customers and among themselves. Sender and receiver require a common understanding of how to interpret information. This becomes essential if either party wants to rely on computers to process information.

Terminology

- Standard = agreement on what information is expressed.
- Syntax = agreement on how to organize data exchanged.
- Semantics = meaning of data.

The use of different syntaxes and semantics makes it impossible for information to be shared. ISO 20022 is designed to overcome these barriers.

Three separate layers to ISO 20022 method

1. Top layer provides key business processes and concepts: definition of activity, business role, actors involved and business information needed for activity to occur.

2. The middle layer provides *message models*: a description of the information needed to perform business activity. It is composed of message components organized in a hierarchical structure. A message component is comprised of one or more message elements, derived from business components outlined in the top layer. The bottom layer deals with syntax and is the physical representation of the logical message. ISO 20022 uses eXtensible Markup Language (XML), an international open standard that enjoys widespread support across industry boundaries and that is supported by vendors.

Each component described above is stored in a common repository. A dictionary is included in that repository, listing the name of a component, its structure and its meaning. Just like any language, meaning can change with context. A key feature of ISO 20022 is the ability to reuse business and message components across all messages, meaning that *the components are not tied to a particular type of payment – it is payment agnostic*.

Two characteristics make ISO 20022 ideal:

1. It develops well structured financial messages.
2. It unifies the many standards that exist globally.

A logical, structured message definition can be mapped to the business definitions of ISO 20022, critical to making it *interoperable*. Interoperability allows for multiple standards and syntaxes to support the business process. In essence, through a mapping process, *ISO 20022 acts as a translation hub* that enables the transfer of information.

Momentum for ISO 20022 is building. Several large technology suppliers and user groups are committed to ISO 20022. It is now the common standard for SEPA-compliant payments. TARGET2-Securities, the Eurosystem's new securities settlement service and JASDEC, the Japanese central securities depository, have chosen ISO 20022. Many existing standards are being mapped to ISO 20022.

Because of its ability to act as an interoperability hub, connecting and translating many standards, global payment messaging is migrating to ISO 20022.

²⁶All material for this sidebar was extracted from *ISO 20022 For Dummies*, by the SWIFT Standards Team, John Wiley and Sons, Ltd, 2010

APPENDIX C: DIA COUNCIL

Governance Structure for Digital ID and Authentication in Canada

At the April 19, 2011 Working Group meeting, members agreed to implement the pan-Canadian DIA ecosystem.

The Working Group also supports creating a Canadian Digital ID and Authentication Council (DIAC) to ensure collaboration and interoperability and recommend the required changes to federal and provincial governments with respect to legislation and regulation.

The Working Group envisions DIAC as a responsive governance body that will oversee the implementation of DIA in public and private sectors, both within Canada and between this nation and the world.

There are numerous stakeholders in the DIA ecosystem and all share a need for secure transactions. Every stakeholder has unique priorities, however. The DIAC is responsible for ensuring that investments by today's DIA leaders are made in the right places, spurring future investment by those holding back.

STAKEHOLDERS FOR THE DIGITAL ID AND AUTHENTICATION COUNCIL

The number of stakeholders in DIAC is as large as the number of parties requiring identification.

First and foremost are **end users**, who require a compelling reason to adopt DIA.

Governments: All levels of government: federal, provincial/territorial and municipal.

Government Agencies: Industry Canada (Consumer Affairs, etc.), Privacy, CRTC, OSFI, FINTRAC, etc.

Financial Institutions: Payments providers, banks, credit unions and others.

Telecommunications Providers: Incumbents and entrants.

Service Providers: Retailers, businesses, libraries; any organization issuing credentials.

Technology Providers: Hardware and software companies, solution providers, networks and non-FI payment service providers (including entrants, acquirers, payment networks, cards, retail and wholesale payment scheme operators, e-billing firms, IT companies).

MANDATE FOR THE DIAC

The Working Group proposes that the DIAC will

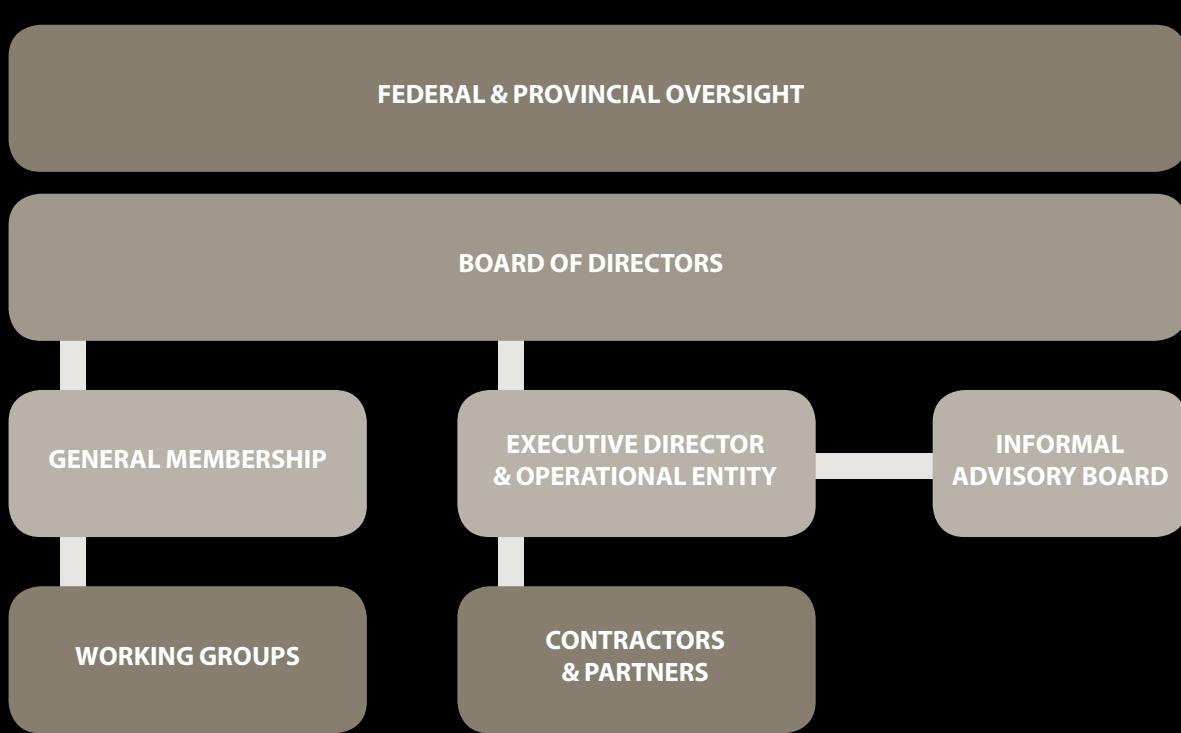
- Set strategic direction for DIA involving public and private sectors.
- Develop harmonizing policies, standards and regulatory changes with international benchmarks that promote stakeholder compatibility.
- Enforce minimum requirements for joining the DIA ecosystem.
- Provide a forum to foster collaboration within the DIA ecosystem and to formalize existing standards and help create new ones, both domestically and internationally.
- Provide marketplace operating guidelines and set certification processes to ensure DIA supports efficient, secure, reliable transactions.
- Ensure our DIA ecosystem is user-focused. DIA must make life easier for Canadians. Even if DIA is implemented in accordance with the best-laid plans, it will fail if consumers do not join.
- Ensure the model is cutting edge. Innovation can be encouraged by allowing a broad number of parties to play meaningful roles in the ecosystem.
- Promote public understanding and accelerate the adoption of DIA.

PROPOSED STRUCTURE OF THE DIAC

The DIAC will bring together the public and private sectors to develop common interoperable standards for DIA both nationally and internationally. The structure of the Council reflects the balance of responsibilities required.

DIAC will be accountable to federal and provincial oversight bodies. Its Board of Directors will include industry leaders with expertise in DIA and/or public policy. Directors will determine DIA strategy. The Executive Director and Operational Entity will implement strategy and establish membership education programs. While setting standards and ensuring certification are Council responsibilities, some activities can be outsourced. An Advisory Board allows for input into DIAC for parties that are not members. The group could include privacy commissioners, trade association representatives and subject matter experts. General Membership will be the stakeholders governed by DIAC. Working Groups will draw expertise from general membership and outside experts.

APPENDIX C CHART 1 - PROPOSED STRUCTURE OF THE DIGITAL ID AND AUTHENTICATION COUNCIL



PROPOSED BOARD OF DIRECTORS

The Board will consist of nine members, including:

- An independent chair.
- Three government representatives: one each from federal, provincial/territorial and municipal groups.
- Three representatives from “Trusted Transactions” industries; potential members include leaders from payments industry, systems and solutions providers and wireless carriers.
- Two independent representatives who are subject matter experts or represent important user groups; potential members include international DIA experts, Industry Canada, Health Canada, or Canada Health Infoway.

DIAC must ensure its actions are impactful, compelling membership to continue. An interim Board must also "catch the ball" from the Payments Task Force, facilitating the transition of the DIA Working Group into a permanent Council.

The Board will create a formal organization. It will be appointed by the DIA Working Group and operate until a permanent Board is elected. While sponsorship is a priority, membership should not be constrained to representatives with the means to fund DIAC.

NEAR TERM PRIORITIES AND CHALLENGES

Phase 1, September 2011 – September 2013

Before an Interim Governance Structure is established, DIAC must find a Chair. The Chair must be able to draw together the Board of Directors and drive membership. The Chair should exhibit exemplary character and be known to business and government. He/she must be a passionate advocate for DIA. It is also critical that the Chair balance the need to gain immediate participation with Council's long-term goals.

The Chair will guide the interim Board to quickly establish DIAC's relevance. The Board must address the following:

Industry Governance

- DIAC membership: the process of joining the DIAC along with rules governing general membership.

- Governance structure of DIAC: voting rights, board of director by-laws.
- Funding model: Where does the money come from? What is the relationship between membership and funding?
- Operating approach (staffing, structure): operation size and transfer of responsibilities.

Ecosystem Planning

- Business model: Who pays for the DIA ecosystem?
- Standards and certification process: Ability to draw new entrants to the ecosystem and establish DIA interoperability between Canada and the world.
- Plan common infrastructure: What investments needs be made and who makes them?
- Regulatory environment: assess regulatory environment and understand how Digital ID and Authentication fits in with Canada's current legislation; recommend changes if necessary.
- Consumer and business-facing aspects of rollout: planning educational campaigns promoting DIA benefits.
- Privacy: anticipate and address key security requirements.
- Liability model: rules for who is at fault when something goes wrong in ecosystem.

Funding Model for the Digital ID and Authentication Council

DIAC's funding requirements can be broken down into two phases. In phase one, projected to last to autumn 2013, DIAC will evolve into a permanent entity, requiring more funding than has been needed by the Working Group. A short-term bridge loan from members is required to allow the DIAC to become fully operational before membership is robust.

In Phase 2, membership fees, licensing and other programs should fund the DIAC. However, the Council's long-term fiscal needs must be defined. To preserve Council objectivity, the Working Group believes there should be no relationship between funding and voting rights/powers assigned.

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