



2017

Canadian Payment Methods and Trends



PAYMENTS
CANADA



Canadian Payment Methods and Trends: 2017

Payments Canada Discussion Paper No. 8 – December 2017

Author notes

Michael Tompkins

Research Lead, Research Unit, Payments Canada

mtompkins@payments.ca

Viktorija Galociova

Research Associate, Research Unit, Payments Canada

vgalociova@payments.ca

A number of organizations assisted Payments Canada by providing data and information, guidance on assumptions and feedback on this or past reports. Payments Canada would like to acknowledge the contributions provided by the following organizations:

Bank of Canada

INTERAC®

INTRIA

Symcor


Technology Strategies International


Euromonitor

RFi Group

The views expressed in this report are those of the authors and should not be attributed to the organizations named above.

Payments Canada discussion papers concern a variety of issues relevant to the role of Payments Canada/of the organization. The views expressed in this paper are those of the authors at the time of publication and do not necessarily represent those of Payments Canada.

 @paymentscanada

 Payments Canada

RESEARCH AT A GLANCE



In 2016, the total payments market in Canada grew to **21.3 billion** consumer and business transactions worth more than **\$9.2 trillion**.

Key themes:

Credit cards pave the way for **friction-free payments** and lure new customers with **lucrative rewards programs**

Online and **mobile banking** gain the trust of Canadians, as **electronic** finally overtakes paper

Social media payments are just around the corner, thanks to new partnerships in **FinTech**



Credit cards

Continue to dominate the POS in transaction value, totalling more than \$462 billion in 2016.

Canada has become a global leader in credit card use as growing numbers of Canadians use their credit cards for larger portions of their monthly spending.



Online banking

Online transfers up nearly 51 per cent to \$68 billion;

and electronic fund transfer surpasses cheque value for the first time.



Social media payments

Current pilot projects leverage traditional payment methods on social messenger services,


to offer a new level of convenience for banking and payments.



CONTENTS

ii	Author Notes
iii	Research at a Glance
1	Executive Summary
5	Introduction and Methodology
6	Industry Environment
6	International environment
9	Domestic environment
12	Findings
12	2016 ACSS Transactions
13	Overall Canadian Transactions Trends
15	Payment Environment and Channel Analysis: The Trend Drivers
15	A. Proximity Transactions and the Changing POS
15	Cash
16	The tug-of-war between credit and debit cards
17	The rise of contactless in Canada
18	E-commerce payment channel dominated by credit cards
20	B. Remote Transactions
20	Cheque and paper items falling behind
20	EFT surpasses cheques for first time
21	Online transfers continue high growth
21	Remote credit card transactions
22	More credit card rewards sought with remote consumer transactions
23	Remote commercial transactions
25	C. Business Payments
25	Canadian businesses shifting to credit card use
26	Business cheque use
27	Conclusion
28	Appendix I: Additional charts
28	Figure A1. All segment annual totals
28	Figure A2. All segment average annual growth
28	Volume (1, 5 and 8 year CAGR)
29	Value (1, 5 and 8 year CAGR)
28	Figure A3. Average transaction size
30	Appendix II: Methodology, definitions and segment descriptions
30	A. Methodology
31	B. Definitions and segment descriptions

PDF Navigation

This is an interactive PDF. Click on any listing in Contents to be taken to that page. Click on  from any page to return to Contents.



EXECUTIVE SUMMARY

As part of its commitment to be a centre of excellence in payments, Payments Canada provides an annual overview of the payment methods and trends observed in Canada. For our 2017 research, we worked closely with payment service providers, payments consultants and researchers to compile a comprehensive 2016 data set and insightful analysis on consumer and business payment habits.

Overall, the payments market in Canada grew to 21.3 billion consumer and business transactions worth more than \$9.2 trillion (in 2016). Both international and domestic environmental trends are reflected in the 2016 payments data. The 2016 data suggests that the main forces in play were the continued migration away from paper based transactions, consumer and business use of more credit cards, and the influence of FinTech providers as catalysts for innovation (e.g., social media payments).

Depending on if the volume (number of transactions) or value (summed value of transactions) is viewed, we find very different payment trends in the data. The main factor in explaining the dichotomy between transaction volume and value, is the fact that Canadians transact in two very distinct environments: the point-of-sale (POS) and remote payment environments. Each environment reveals different insights on Canadian payment habits.



Overall, the payments market in **Canada** grew to

21.3 billion
consumer and business
transactions worth more than

\$9.2 trillion
(in 2016).

The 2016 data suggests that the main forces in play were the continued migration away from paper based transactions, and consumer and business use of more credit cards.



EXECUTIVE SUMMARY

The Point-of-Sale (POS) Transaction Environment

POS includes transactions that take place in either physical or virtual payee locations (e.g., merchants or vendors), including in-app and online store fronts. **POS instruments include cash, prepaid, debit and credit card transactions, which combine to account for about 80 per cent of the total Canadian volume, but only about 10 per cent of the total transaction value.** POS volume is high because it consists of mostly consumer-initiated payments for lower value shopping and commerce. At POS we observe these trends:



Cash is still the most widely used payment method in volume terms, but only represents

13 PER CENT

of POS value.



Credit cards continue to dominate **POS value** with over

\$462 BILLION

in transactions in 2016.

Debit cards represented

\$226 BILLION

or **28 per cent** of all POS value.



Prepaid transactions

are the **fastest growing** POS transaction type, with a **7 per cent** year over year growth in value, totalling approximately **\$20 billion**.





The Remote Transaction Environment

Remote transactions include all transactions that are not made at physical and virtual payee locations (i.e., via payee provided apps or store fronts). Instead, they use financial institutions or payment service providers as intermediaries that accept payment instructions and move funds to payees through their services. Remote transactions enable payors to initiate transactions virtually anywhere via cheques, electronic funds transfers (EFT) and online transfers (e-wallets and electronic P2P transactions). These transactions represent 90 per cent of the total Canadian transaction value, but only 20 per cent of the total volume. A major factor why remote transactions account for so much value is because remote transactions consist of many payments moving to and from commercial enterprises (e.g., businesses, non-profits and government) for relatively large amounts.



Remote transactions represent
90 per cent
of the **total Canadian transaction** value, but only
20 per cent
of the **total volume**.

Remote transactions enable payors to initiate transactions virtually anywhere via cheques, electronic funds transfers (EFT) and online transfers (e-wallets and electronic P2P transactions).

EXECUTIVE SUMMARY

We observe the following trends in the remote payment environment in 2016:



In 2016, electronic funds transfer **(EFT)** value surpassed cheque value for the first time.



Cheques remain a large portion of remote transactions. The rate of cheque volume decline was at negative **9 PER CENT**, up from negative **8 PER CENT** in 2015.

Consumers made about **1 out of 4** remote bill payments and routine household expenditures using **Credit Cards** in 2016.



Commercial cheques remain prominent in payments for rent, payments to governments and **B2B** payments.



Online transfers topped all payment methods in growth: transactions rose to nearly **48 PER CENT** to **177 million** and value increased by **51 PER CENT** to **\$68 billion**.



INTRODUCTION AND METHODOLOGY

The Canadian economy depends on the exchange of billions of dollars each day. Payments Canada is responsible for the clearing and settlement infrastructure, processes and rules essential to many of those transactions. As the owner and operator of the Automated Clearing and Settlement System (ACSS) and the Large Value Transfer System (LVTS), Payments Canada underpins the Canadian financial system.

To support its objective to be a centre of excellence in payments, Payments Canada is pleased to present the 2017 Canadian Payment Methods and Trends (CPMT) report. This year's report analyzes 2016 and historic data, to provide for a holistic view of the payments market in Canada. The general methodology involves a combination of industry data collection and market research analysis.¹ The CPMT includes ten streams of distinct research that form the report's methodology, including ACSS data, data from service providers, five separate market research initiatives, subject matter expert (SME) input and others. Actual payments use data is used where possible, and experts and market survey research are used to fill data gaps (such as for cash) and to provide for more detailed insights.

The report combines data from previous reports, allowing for a multi-year analysis for the trends observed.² We focus on the most common domestic consumer and commercial transactions, which include "on-us" transactions.³ Certain Canadian transactions are excluded from our analysis as they have yet to reach volumes that would substantively impact the national payments market. This would include instruments that do not make up at least one percent of the volume or value of either remote or point-of-sale transactions. Securities and derivatives transactions (and trades) and virtual currencies (e.g., Bitcoin) are not included.⁴ Transactions cleared and settled through the Large Value Transfer System (LVTS) are also excluded. LVTS transactions amount to less than 10 million transactions (less than 0.1 per cent) of the total payments volume observed in this research. LVTS transactions are also very large in value which may obscure the value trends from other payment segments of interest.⁵

This paper also includes transactions that may not specifically be used for the exchange of goods and services. For example, ABM transactions are used to obtain cash, where the cash is used for actual payments. Both types of transactions fall within the scope of this research, as each forms an important element of the payments market in Canada, however, we recognize how this might pose a form of double counting.

1 Please see **Appendix II** for details on methodology and assumptions, including consumer and business survey market research methodology.

2 Canadian Payment Methods and Trends: 2016, Payments Canada Discussion Paper No.7, November 2016;
Canadian Payments Methods and Trends: 2015, Payments Canada Discussion Paper No.4, December 2015;
Examining Canadian Payment Methods and Trends, October 2012.

3 **Appendix II** includes definitions on a variety of terms used throughout this paper.

4 Where a payment is made to purchase investments (e.g., cheque, credit card or AFT credit), the transaction will be counted among the appropriate payment segments. When derivatives, securities, and other assets are exchanged and no payment is required or results, the exchange of value is not included.

According to the 2016 market research data, only about 0.3% of respondents indicated having used either Bitcoin or other virtual currencies (Ipsos CFM consumer survey data).

5 For analysis on the LVTS, please see [Payments Canada's Annual Report](#).





INDUSTRY ENVIRONMENT

A. International environment

Today, Canada's domestic payment environment is being influenced by international payments industry developments, in unprecedented ways. For the most part, these influences stem from interventions by regulators and oversight bodies in other jurisdictions, and payment service providers using technology to bring innovative payment products to market across jurisdictional boundaries.

Regulator or oversight body interventions in payment systems in other countries can have cross-border impact, as other regulators take notice and assess whether to take similar actions. If the regulatory actions become more prevalent across multiple jurisdictions, it can increase the pressure for similar actions elsewhere. Some recent examples of this include the credit card interchange fee regulation and regulation for payment system competition in response to the growing influence of FinTech.⁶ Regulatory interventions from other jurisdictions can be felt today in Canada in a wide range of areas, including the next phase of the Department of Finance Canada's interchange fee review, to the designing of a real-time payment system, and even the risk management features of modernized core settlement systems.

The international environment is also influencing Canada's payment systems through international payment service providers. Internationally based payment service providers have the capability to reach Canadian payment users like never before. These providers have become more adept offering remote payments across borders online (e.g., Bitcoin and Transferwise), and offering proximity payments through mobile devices (e.g., Apple Pay and Samsung Pay). Payment service providers from other countries are also beginning to reach Canadian users through online social networks facilitated through social media (e.g., WeChat Pay and Facebook payments). See **Featured Analysis A** (below) for more details.

⁶ In the case of interchange fee regulation, Switzerland was an early adopter (2011) followed by Australia (2012), China, U.K., Europe, and South Korea, etc. See *Public Authority Involvement in Payment Card Markets: Various Countries*, FDRB Kansas City (Aug. 2015). Regulation supporting payment service provider competition can be traced to European PSD1 and PSD2 regulations (The PSD1 directive became law in 2009 and PSD2 entered into force in 2016) with a number of other jurisdictions at varying stages of regulation development (e.g., U.K., U.S., Australia). Please see: <https://www.ft.com/content/ff5b0be4-7381-11e6-bf48-b372cdb1043a>



Featured Analysis A: Social Media Payments Coming to Canada

China is leading the world in the growth of payment instruments linked to social media providers. WeChat Pay and Alipay payments experienced explosive growth as their payments created new payment use cases (e.g., tiny payments for games and communication) and expanded transactions in physical point-of-sale environments. While WeChat Pay and Alipay have designs to move into North America, it is the use of more ubiquitous Facebook, Google, and Apple messenger services that hold the most promise for social media payments in Canada. Here, a new payment channel is emerging through the use of messenger services and “chatbots” that promise to deliver a whole new level of convenience for banking and payments. The messenger channel enables users to simply provide text or voice instructions to chatbot recipients that will initiate transactions on behalf of users.

China

Social messenger giants Alipay and WeChat Pay are vigorously competing to grow their payment volumes, which reached nearly \$3 trillion (USD), and accounted for about 20 per cent of all retail payment volume in China (2016).⁷ The Chinese still completed the vast majority of retail transactions through cash and cards (about 80 per cent in 2016), however the growth rates suggest a future where social media payments play a very prominent role. Using messenger services, Alipay and WeChat Pay are dominating in P2P payments, and have created new payment use cases for users to send each other tiny payments to socialize and to play games with each other.

WeChat Pay and Alipay funds can also be used for in-app products and services (e.g., such as ride services) and can be moved into bank accounts. Perhaps most intriguing is that both services also leverage QR code technology to enable physical merchant payments. About half of the users connect to their bank accounts to fund their social media “wallets”, while others use credit and debit cards, or prefund with cash.

Both WeChat Pay and Alipay are expanding into other jurisdictions, including Europe, Africa, and Asia. So far, North American expansion efforts have been focused on providing Chinese tourists with some WeChat Pay and Alipay acceptance at merchants and hotels, in select tourist destination cities in the U.S. and Canada.

Featured Analysis A continues...

⁷ Social Network Payments Now Reach Nearly \$3 Trillion in China. Accessed: April 25, 2017.
<http://www.paymentscardsandmobile.com/social-network-payments-now-reach-nearly-3-trillion-china/7>

North America

Social media payments are moving forward in North America, led by Facebook, which offers its own payments platform (in the U.S.) and recently began providing its messenger application for other payment services' APIs, via "chatbots". Chatbots are programs designed to simulate conversations between software and human users. These conversations can be used to initiate software commands; for example, users can instruct Siri (on Apple devices) to add appointments to their calendars through voice commands. Using chatbots and messenger services, where users are already fluent and spend considerable amounts of time (50 minutes per day on average), will open a whole new payments channel in Canada.⁸ Many payment services have already announced their integration into Facebook messenger, leveraging chatbots, including PayPal, TransferWise, and Stripe.

Canadian Banks and FinTech Collaborating to Enable Social Media Payments

In Canada, where cash use is relatively low and card use is very high, social media is providing a new channel through messenger services, to access traditional card and payment methods.⁹ As such, this channel is expected to not disrupt, but to accentuate existing consumer habits, which could usher in a new level of convenience in banking and payment services for Canadians.

In the short term in Canada, we expect many bank customers will start to see better integration of Interac e-Transfers with social media. For example, RBC recently began enabling the initiation of Interac e-Transfers through Siri voice command (in Apple devices).¹⁰ In addition, several Canadian FinTechs have begun to partner with Canadian banks to enable "chat bot" banking services, which will include the ability to make bill payments and send Interac e-Transfers through iMessage or Facebook messenger.¹¹

Using existing social messenger services provides payments industry incumbents with a highly convenient new payment channel, which will not require users to prefund, or link bank accounts to new apps or service providers. One such service, which was the winner of the 2017 Payments Canada FinTech cup, is called Finn.ai. The company has already partnered with ATB and BMO, and is currently running a pilot program using Facebook messenger to perform a variety of online banking services for ATB customers. As more service providers move into this new channel (including Apple Pay) the prospects for success of the channel are growing stronger.¹²

8 Facebook has 50 Minutes of Your Time Each Day..., NYTimes.com, accessed on June 12, 2017:

https://www.nytimes.com/2016/05/06/business/facebook-bends-the-rules-of-audience-engagement-to-its-advantage.html?_r=0

9 Developing countries that are cash intensive, are ripe for service providers to facilitate financial inclusion and to help digitize payments. For example in 2010, 61 per cent of Chinese transaction value was made in cash, compared to Canada where only 2 per cent of total transactions were made with cash. See: Social Networks, e-Commerce Platforms, and the Growth of Digital Payment Ecosystems in China: What it Means for Other Countries, Better than Cash Alliance, Apr. 2017.

10 Hey Siri, send some money..., Financial Times, accessed June 12, 2017:

<http://business.financialpost.com/news/fp-street/hey-siri-send-some-money-rbc-launches-e-transfers-via-apples-virtual-assistant>

11 Finn.ai Partners with ATB Financial to Build Banking Chatbot, betakit.com, accessed June 12, 2017:

<http://betakit.com/finn-ai-formerly-payso-partners-with-atb-financial-to-launch-banking-chatbot/>

12 You can Now Send Your Friends Money inside iMessage, Techcrunch.com, accessed June 12, 2017: <https://techcrunch.com/2017/06/05/you-can-now-send-your-friends-money-inside-imessage/>



B. Domestic environment

Canada's domestic environment is changing due to a number of forces including Payments Canada's core system modernization efforts, service provider innovation, increased regulator interest in payment systems, and continued expansion of credit card use in Canada.

As the Canadian payments industry continues on its modernization journey, the payments landscape is being altered in significant ways. For its part, Payments Canada has led the industry in enabling cheque imaging technology and the migration towards the adoption of ISO 20022, through its rules and standards. Payments Canada is also working with the industry to design and implement three new core clearing and settlement systems, including a new high value payment system, a new batch retail payment system, and a real-time retail payment system.

With over 25 established Fintech companies identified in the Canadian payments ecosystem in 2016, the influence of new payment service providers continues to rise.¹³ While FinTech adoption rates appear lower in Canada than in other jurisdictions, a variety of FinTechs are enjoying success through collaborations with Canadian financial institutions.¹⁴ These collaborations are bringing new payment products and services to market in Canada. There were several high-profile examples in 2016, including for identity management tools (using IBM DLT), the agreements reached on debit card tokenization and issuing, enabling Apple Pay and Samsung Pay in Canada, ATB piloting Facebook messenger payments via "chatbot" and several distributed ledger pilots (e.g., Project Jasper).¹⁵ In its role as regulator of the financial system, the Department of Finance Canada has published details of a planned oversight framework for retail payments. The new framework will apply to payment service providers and will further influence the evolution of the retail payments market in Canada.¹⁶

While exciting new payment offerings are in development and trying to gain traction with Canadian consumers and businesses, it has been the international credit card companies that are dominating the new payments landscape and emerging payment channels. For many innovative mobile or in-app services, credit cards are the only viable payment option. Credit cards have evolved to become the most ubiquitous payment instrument in the Canadian ecosystem offering unrivaled incentives for users. As such, credit cards present an undeniable environmental force that is shaping current payment instrument options, and the types of innovative payment products that are able to take root. Please see **Featured Analysis B** (below).

¹³ PayTech is defined as a sub set of Fintech, which is centered on the provision of payments.

¹⁴ Canada's adoption rate of 18 per cent is low compared to the 33 per cent average observed globally. Please see: *EY FinTech Adoption Index 2017: The rapid emergence of FinTech*. Available at: [http://www.ey.com/Publication/vwLUAssets/ey-fintech-adoption-index-2017/\\$FILE/ey-fintech-adoption-index-2017.pdf](http://www.ey.com/Publication/vwLUAssets/ey-fintech-adoption-index-2017/$FILE/ey-fintech-adoption-index-2017.pdf)

¹⁵ *Project Jasper* - Payments Canada, the Bank of Canada, financial innovation firm R3 Lab and Research Centre and seven financial institutions have come together as an industry to investigate distributed ledger technology (DLT) – a shared database – for interbank payments.

¹⁶ The policy objectives for retail payments conducted by service providers, such as banks and payment card networks, are currently supported by legislation and codes of conduct. Other retail payment service providers are not subject to such a comprehensive oversight framework, which can create risks and potential confusion to end users who expect a similar service from these service providers. Please see: *A New Retail Payments Oversight Framework*, Department of Finance, 2017; Available at: <https://www.fin.gc.ca/activity/consult/rpof-cspd-eng.asp>



Featured Analysis B: Why is Canada a Global Leader in the Use of Credit Cards?

Canada's credit card use has become so prolific that we are the second largest user of credit cards per capita in the world (see **Figure B2** below). In 2016, Canada's POS environment was dominated by credit cards in terms of transaction value, and credit cards began to seriously erode consumer use of EFT to pay their routine monthly bills and utilities. The trend for Canadian credit card growth began in about 2010, around the advent of contactless cards and the proliferation of premium cash back and rewards cards. By 2016, about 82 per cent of credit cards issued provided some form of rewards incentive.

Credit cards have thrived in Canada due to various environmental factors, including a relatively stable economy, a mature market for credit card use, and relatively high interchange fees, which fund generous rewards.¹⁷ In 2016, about 90 per cent of adults owned a credit card, and 47 per cent of these adults are considered heavy credit card users. Heavy credit card users are the engine of credit card growth, as these cardholders use their credit cards for more than 50 per cent of all of their monthly purchases.¹⁸ See **Figure B1**, below, which illustrates how closely credit card volume growth corresponds with growth in heavy credit card users.¹⁹

On top of the heavy credit card user segment, is another 25 per cent of Canadians that are medium credit card users, or those that make 25 to 50 per cent of all of their purchases using credit cards. Together, the medium and heavy credit card user groups form a majority of adult Canadians (about 20 million).²⁰ The survey data suggests that these segments are highly satisfied with credit cards (due to positive perceptions of credit cards security, costs, and rewards), and show little interest in payment alternatives (e.g., prepaid, virtual currencies, or new payment services). This can be seen as contributing to a low demand for innovations such as might be provided by Fintechs or real-time direct payments.

¹⁷ Reward rates correspond very closely with interchange rates (e.g., premium cards in Europe offer .2% rewards on purchases, slightly less than the .3% interchange rate). Canada's average voluntary interchange rate of 1.5 per cent is higher than most other jurisdictions that have regulated interchange fees, for example, China (.05%), UK (.3%), Europe (.3%), Australia (.88%), South Korea (.8%), and Switzerland (.44%), hence, larger rewards are feasible. See: *Public Authority Involvement In Payment Card Markets: Various Countries*, Fed Bank of Kansas City, Aug. 2015

¹⁸ *2016 Personal Cardholder Syndicated Survey (PCS)*, Ipsos 2017. Note: this references proprietary market research acquired by Payments Canada, please see **Appendix II** for survey methodology.

¹⁹ *Passport: Financial Cards and Payments in Canada*, Euromonitor, Oct. 2016; and Ipsos PCS market research data (2016)

²⁰ The 2016 census showed there were 33 million Canadians over the age of 18. Our market research suggests that 90 per cent of adult Canadians own a credit card, of which 47 per cent are heavy users and 25 per cent are medium users of credit cards (or total of 72 per cent). This would equate to about 20 million adult Canadians.

Figure B1: Heavy Users and Credit Card Volume Growth

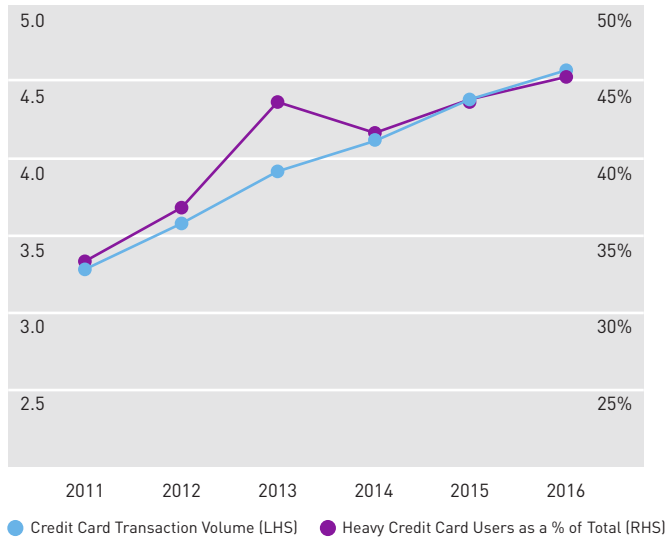
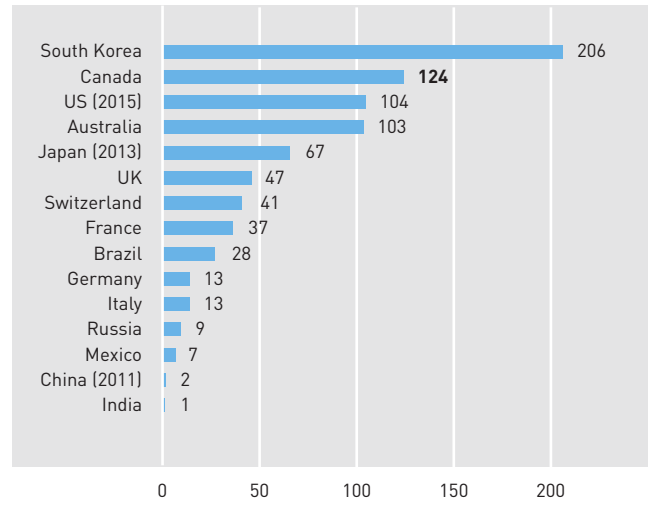


Figure B2: Credit Card Volume per capita (BIS, 2016)



FINDINGS

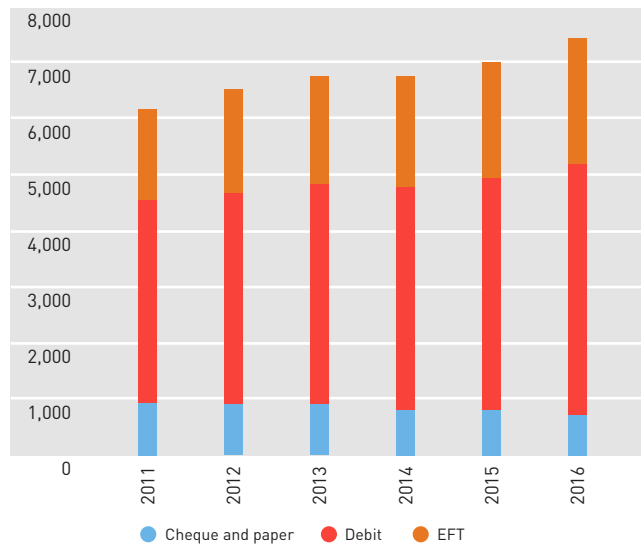


A. 2016 ACSS Transactions

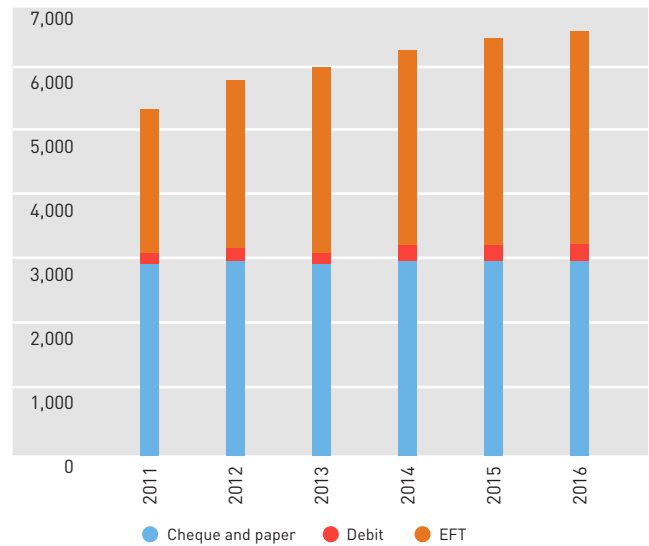
The national retail clearing system, the Automated Clearing and Settlement System (ACSS) cleared and settled 7.4 billion payments worth \$6.6 trillion in 2016. The ACSS clears both paper-based and electronic payment items, through various payment streams, all of which are based on the use of deposit accounts. The transactions are mainly low-value, high-volume retail payments, which can be categorized into three main types: cheque and paper, debit and electronic funds transfer (EFT).²¹

Figure 1: Historic ACSS volume and ACSS value

(in millions of transactions)



(in billions of dollars)



ACSS data provides for a reasonable proxy of the payments market in Canada, as these payment types combine to represent nearly half of all of the non-cash payments volume (with the other half clearing in other retail systems or networks). **Figure 1** illustrates the steady historical growth of transaction volume and value in the ACSS and how each of the three streams have evolved over time. As cheque and paper items have declined, debit and EFT have historically grown to keep pace and provide new volumes for the ACSS. For example, in 2016, ACSS volume benefitted from the growth in contactless debit transactions. However, as will be discussed later, EFT is facing some strong headwinds from credit cards and growing online transfers offered by non-bank payment service providers.

Below, we build upon the ACSS data, to include all of the consumer and business payments that are in our scope, and form a holistic view of the payments trends in Canada.

²¹ Debit includes ABM, POS and Interac® Online; EFT includes AFT debits and credits, EDI and electronic remittances. For more details on the ACSS please see our ACSS web page: <https://www.payments.ca/about-us/our-systems-and-rules/retail-system>

B. Overall Canadian Transactions Trends

Based on our full 2016 data, we analyzed a total of 21.4 billion transactions worth more than \$9.2 trillion. Total Canadian transactions have grown each year since 2011, at an average rate of one per cent in volume terms and five per cent in value terms. As a result, the overall average transaction size has increased by a total of about 19 per cent in 2016 compared to 2011 (\$431 and \$362 respectively). The higher growth in value can be partially explained by favourable economic conditions and higher costs of goods and services observed during this time period (the inflation rate was 1.4 per cent annually, or 9 per cent compounded during the period).²² Card payment growth, also results in more transaction value, as there exists a multiplier effect as card payments frequently require multiple transactions as part of their payments cycle, this results in the appearance of higher overall transaction value than volume.²³

Figure 2, below, illustrates the changing payment market through a breakdown of Canada's payment instruments (as a percentage of the total transaction volume and value, respectively) for the years 2011 and 2016. Also below, **Figure 3** shows the year-over-year (YOY) payment stream annual growth rates. These perspectives help to highlight several payment instruments that appear poised to start new trend trajectories.

In Canada, most of the emerging payment channels, including mobile, online, and in-app transactions can be seen taking place with credit cards, and in the case of contactless, with debit and credit cards. These growing segments preclude the use of cash, and are observed helping to diminish cash use overall. Still, cash was the largest single volume stream in 2016 at 31.2 per cent of all transaction volume.

Cash appears to be starting a new trend, breaking from the years of negative growth that quickly diminished the volume and value of cash transactions by about a third since 2011 (see **Figure 2**). The rate of decline in cash use, in both volume and value terms, slowed markedly in 2015, and further in 2016, to only a negative 2 per cent (see **Figure 3**). Below, we offer an explanation of how the growing "underground" or "gig" economy may be buoying cash use.

Another notable trend is the convergence of credit and debit card volumes. **Figure 2** shows how credit cards have slowly been catching up to debit card volumes (22.5 and 25.6 per cent of total volume in 2016, respectively). Credit cards gained ground from 2008 – 2014, as credit card volume overshadowed debit card growth. That trend has abated as debit card volume growth has come on par with credit cards in 2016 (at 5 per cent annually — see **Figure 3**). In terms of transaction value, credit cards are still growing at a faster rate than debit cards, continuing a trend that started in 2012. Here credit cards occupy over two times the total value of transactions as debit cards do. We provide more details on the drivers of credit and debit card use below.

Figure 2: Payment categories: Percentage of total volume and value

Transaction Volume	Percentage of total volume		Transaction Value	Percentage of total value	
	2011	2016		2011	2016
Cash	41.8%	31.2%	EFT	39.4%	45.4%
Debit Card	20.4%	25.6%	Cheque & Paper	50.1%	43.5%
Credit Card	16.9%	22.5%	Credit Card	4.4%	5.6%
EFT	10.5%	12.4%	Debit Card	2.5%	2.5%
Cheque & Paper	5.8%	3.8%	Cash	2.0%	1.3%
ABM	3.7%	2.6%	ABM	1.2%	0.8%
Prepaid	0.7%	1.2%	Online Transfers	0.1%	0.7%
Online Transfers	0.1%	0.8%	Prepaid	0.1%	0.2%

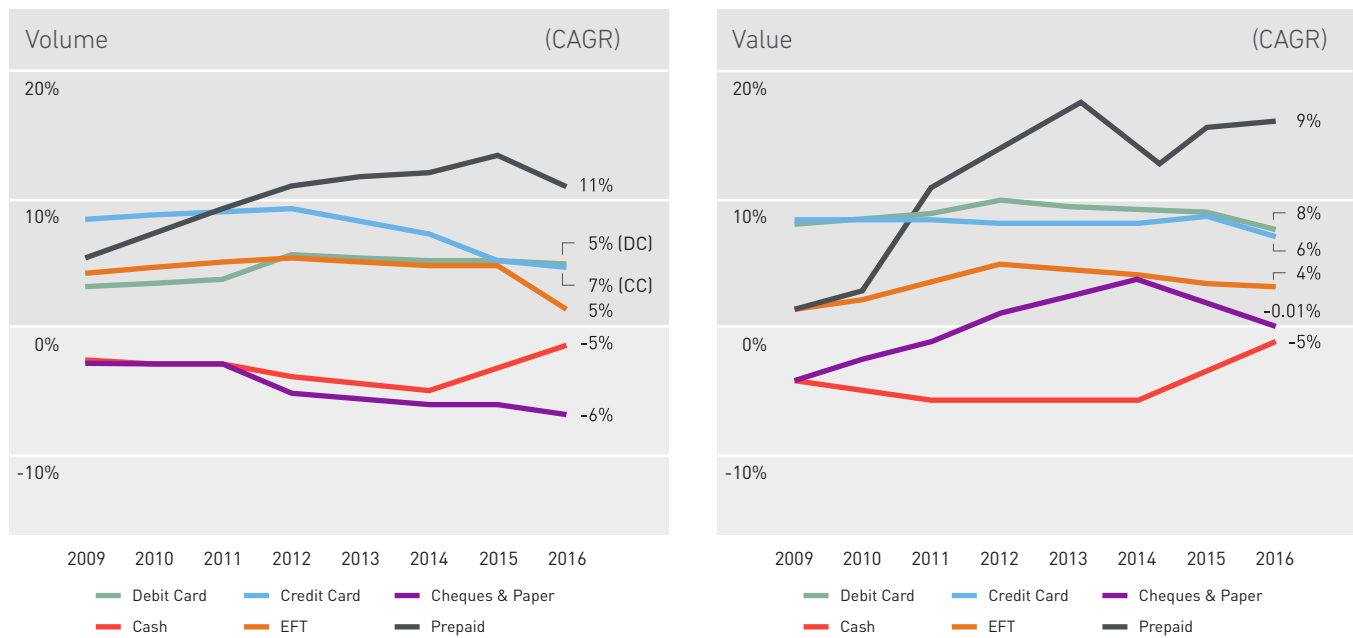
²² Bank of Canada inflation calculator figures from 2011 to 2016: accessed on Oct. 19, 2017. <http://www.bankofcanada.ca/rates/related/inflation-calculator/>

²³ For example we can compare a cheque transaction to a prepaid card transaction paid to a merchant. With a cheque, the single cheque transactions is all that is needed to fulfill the payment cycle that results in funds being paid into the merchant's account. The prepaid card must first be purchased in a transaction, then used to pay the merchant in another. The prepaid payment would then require a third transaction to move funds from the card scheme involved to the merchant's deposit account.

In 2016, a major payment industry milestone was reached, as EFT grew to become the largest instrument in terms of transaction value (45.4%), moving paper-based payments to second place. EFT includes electronic bill payments, pre-authorized debits, and direct deposits, which have combined to provide for alternatives for transactions that had traditionally been cheque intensive.²⁴ However, the 2016 data indicates that EFT growth was quite low in 2016 (only 1.5 per cent), due to credit card growth from businesses and with remote consumer transactions (e.g., bill payments). We provide details on this topic below in the Remote Transactions Section.

The five-year comparison also illustrates how newer forms of payments continue to grow, but remain a small piece of the overall payments market. Online transfers, led by Interac® e-Transfers, have demonstrated significant growth in terms of transaction value, and are now poised to surpass the total value of transactions performed at ABM machines—yet online transfers still represent less than 1 per cent of overall payment volume and value.²⁵ Online transfers formed a key component of Canada’s remote transactions in 2016, which is a development we discuss in detail below.

Figure 3: Annual YOY Payment Segment Volume and Value Growth Rates



²⁴ The Role of Automated Funds Transfer Payments in Canada’s Declining Use of Cheques, Payments Canada (2015)

²⁵ Online transfers are not depicted in Figure 3 due to their large growth rates in comparison to the other payment methods. Online transfers maintained their growth pace in 2016 at 48 per cent annual growth.

PAYMENT ENVIRONMENT AND CHANNEL ANALYSIS



The Trend Drivers

The main factor in explaining the dichotomy of the different trends for transaction volume and value is the fact that Canadians transact in two very distinct environments: proximity and remote payment environments. Each environment involves different payment use cases with distinct payment options, and payment behaviours.

The POS (proximity) includes transactions that take place in either physical or virtual merchant locations, including online store fronts and in-app purchases. POS instruments include cash, prepaid, debit and credit card transactions, which combine to account for about 80 per cent of the total Canadian volume, but only about 10 per cent of the total transaction value. POS volume is high because it consists of mostly consumer-initiated payments for lower value shopping and commerce.

Remote transactions include all transactions that are not made at physical and virtual payee locations (i.e., via payee provided apps or store fronts). Instead, they use financial institutions or payment service providers as intermediaries that accept payment instructions and move funds to payees through their services. Remote transactions enable payors to initiate transactions virtually anywhere via cheques, electronic funds transfers (EFT) and online transfers (e-wallets and electronic P2P transactions). These transactions represent 90 per cent of the total Canadian transaction value, but only 20 per cent of the total volume. A major factor why remote transactions account for so much value is because remote transactions consist of many payments moving to and from commercial enterprises (e.g., businesses, non-profits and government) for relatively large amounts.

A. Proximity Transactions and the Changing POS

This section examines payment segments that are associated with POS (point-of-sale, or point-of-service) environments. For the purposes of this research, the POS includes both physical and virtual merchant locations, including online and in-app transactions. Our data indicates that in 2016 there was a total of 16.1 billion POS payments worth nearly \$814 billion.

Overall, most of the changes in the POS are occurring as Canadians opt to use payment card based instruments in lieu of cash for more transactions. The market research suggests that convenience and rewards are an important driving force behind this trend. Transactions using prepaid, debit and credit cards are now easier, speedier, more available (in emerging channels), and in many cases, more rewarding than using cash. Over time, these trends have been to the advantage of credit cards at the POS, especially in terms of transaction value (see **Figure 4** below).

Cash

In 2016, there were a total of about 6 billion cash transactions worth \$106 billion at the POS, which accounted for about 38 per cent of the volume of all POS transactions. Cash volume was followed closely by debit and credit card volume which were 34 and 27 per cent of POS volume, respectively. As such, debit, credit and prepaid cards combined for 63 per cent of all POS transaction volume. Looking at cash use from the value perspective, cash was only used for 13 per cent of the total value of POS transactions in 2016.

The five year average rate of cash decline is negative 5 per cent, however, the rate of cash in 2016 was only about negative 2 per cent (in both volume and value). If the cash decline continues at this slower rate it may signal that cash use is plateauing. One likely contributor is Canada's thriving underground economy. The underground economy is believed to be mostly cash based, and grew to be worth \$45.6 billion in 2013 (the latest year that figures were available).²⁶ The underground economy seems to grow relative to the size of the overall economy, hence as Canada experiences more economic growth, so too will the underground economy, and a key area for cash use.²⁷

The tug-of-war between credit and debit cards

Debit cards at the POS have been undergoing significant growth in recent years. In 2016, debit card volume grew by 5 per cent. While last year's analysis showed debit cards starting to outpace credit cards in terms of volume growth, in 2016, the credit card growth rate pulled even with debit cards. Nonetheless, debit cards maintained an overall higher transaction volume in 2016 than credit cards, with over 5.4 billion transactions compared to 4.7 billion total credit card transactions.

Credit cards continue to rule in the value of POS transactions though, with over \$462 billion worth of transactions in 2016. **Figure 4** illustrates credit cards' command of the POS in transaction value. Credit cards' POS value is higher than all the other instruments combined. The reasons for this dominance include growing commercial card transactions, rewards, positive perceptions, and pre-eminence in online and in-app payment channels.

Credit card use by commercial entities, including businesses and various levels of government, is a notable source of credit card growth. Canadian business preference for credit cards is ascending, as businesses are increasingly being offered similar levels of rewards and benefits that credit cards have traditionally offered consumers. The growing use of credit cards by businesses has the potential to be particularly disruptive to innovative payment instruments and FinTech companies that wish to target commercial transactions for their products and services. For more details see the Section on Remote Transactions, below.

As is discussed in the **Featured Analysis B**, Canadians are highly motivated by the relatively generous rewards credit cards offer in Canada, owing in part, to high interchange fees. Further, rewards also encourage consumers to use their credit cards for larger value purchases than debit cards, where we find the average transaction size of credit card transactions is more than double that of debit cards (\$107 and \$42 respectively).

In addition, consumer perceptions favour credit cards in areas such as perceived costs, convenience and security.²⁸ Despite the interest charges associated with credit cards, many debit card users encounter chequing account transaction fees, which tilt perceptions of cost towards credit cards. Credit cards are viewed by many as convenient as they enable users to consolidate their monthly transactions into a single bill payable each month. Positive credit card security perceptions are gained by consumer-friendly zero liability policies and enabling some distance between users' deposit accounts and untrusted online transaction environments.²⁹

Another boost to credit card use is that for online and in-app transactions, credit cards currently provide the only widely available payment option for Canadians. As we discuss below, online and in-app transactions are among the fastest growing channels for payments. This critical emerging channel presents merchants with few other viable payment options than credit cards. As a result, we see over 92 per cent of online commerce and over 95 per cent of in-app purchases being conducted by credit cards in Canada. **Featured Analysis C**, below, provides an overview of the early steps being taken to try to bring forth more debit based transactions into these channels.

²⁶ The underground economy in Canada, 2013, Statistics Canada.

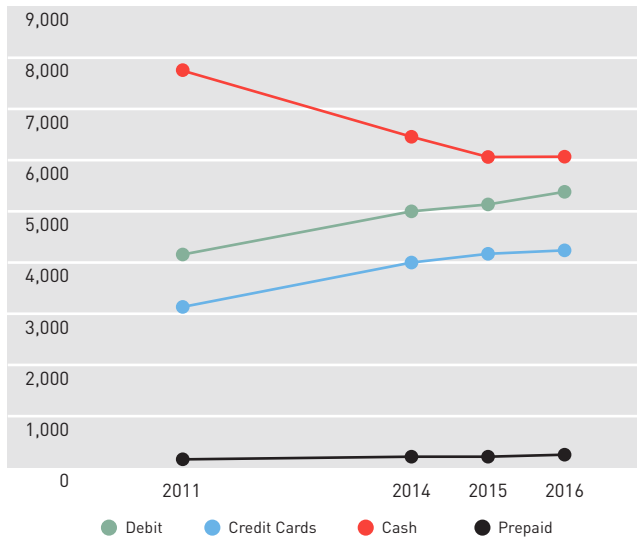
Available at: <http://www.statcan.gc.ca/daily-quotidien/160620/dq160620b-eng.htm>

²⁷ In 2011, the underground economy (valued at \$40.9 billion) might have represented upwards of 30 per cent of the total cash value of payments in the year. The underground economy has been about 2.4 per cent of total gross domestic product since 2002. See: <http://www.statcan.gc.ca/daily-quotidien/160620/dq160620b-eng.htm>

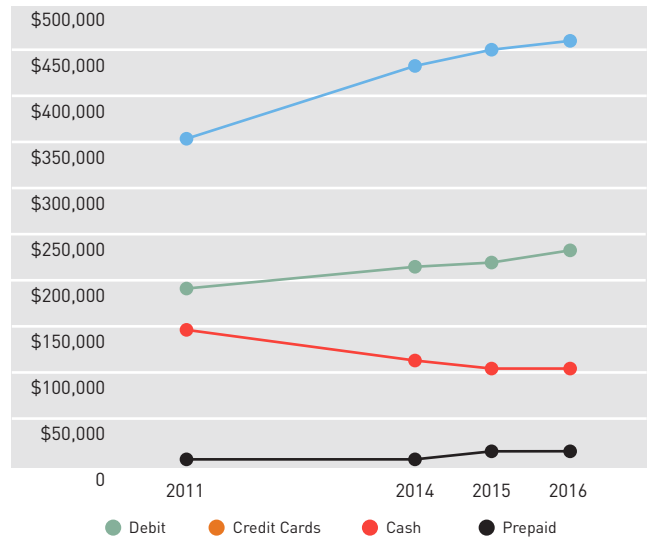
²⁸ Ipsos, 2016 Personal Cardholder Syndicated Study, 2017. Note: this references proprietary market research acquired by Payments Canada, please see **Appendix II** for survey methodology.

²⁹ *Lost in Transaction*, PaySafe, Oct. 2017

Figure 4: POS Volume and POS Value
Volume (in millions of transactions)



Value (in millions of dollars)



The rise of contactless in Canada

Contactless transactions are defined as using a payment card or mobile device tap to initiate a payment through a POS reader (in physical merchant locations). In 2016, the number of contactless transactions increased significantly, to almost 2.1 billion transactions worth \$67.1 billion. This represents an 81 per cent and a 78 per cent increase over 2015, in both volume and value terms (respectively). **Figure 5**, below, illustrates the remarkable growth of contactless transactions in Canada. Credit card contactless accounted for about 1.1 billion transactions and debit card contactless, about 1 billion transactions – presenting a fairly even split in 2016. Credit cards have a distinct advantage in contactless transaction value though, where credit cards’ average contactless transaction size was \$46, while debit cards’ average contactless transaction size was about \$17 in 2016.

With the recent rate of cash decline slowing, most of the contactless growth is coming at the expense of chip-and-PIN transactions. Indeed, the data shows that contactless grew to account for about 21 per cent of all POS card payments in 2016. This is up from only 7 per cent in 2014. As such, future PIN based POS transaction migration to contactless is expected over the next several years.³⁰

Figure 5: Contactless volume and value
 (in millions)

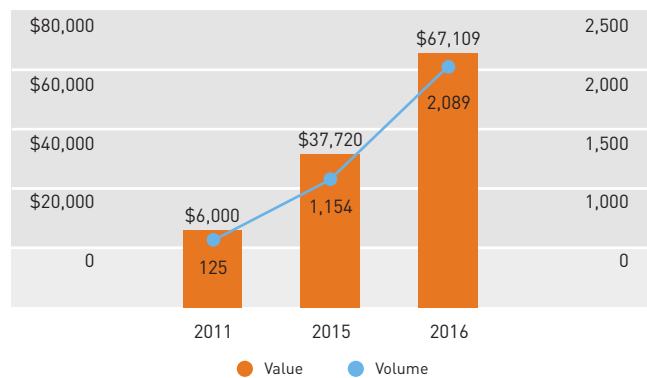
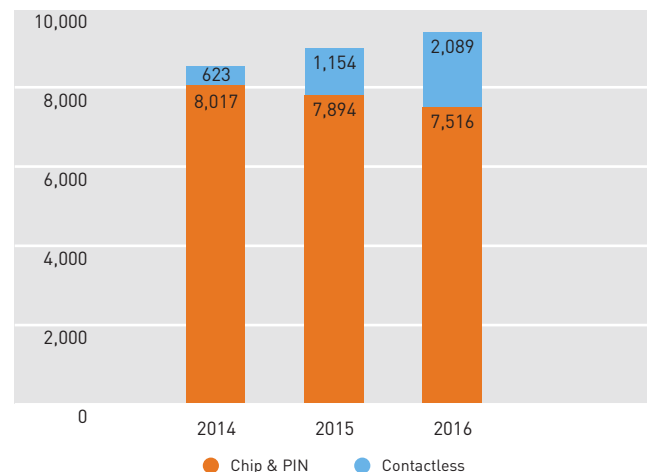


Figure 6: Total POS Card Contactless and PIN Transactions
 (in millions)



³⁰ Moneris metrics suggest physical merchant POS contactless was already approaching 40 per cent of total POS volume in Q2 2017. *Q2 Moneris Metrics*, Moneris, July 2017.

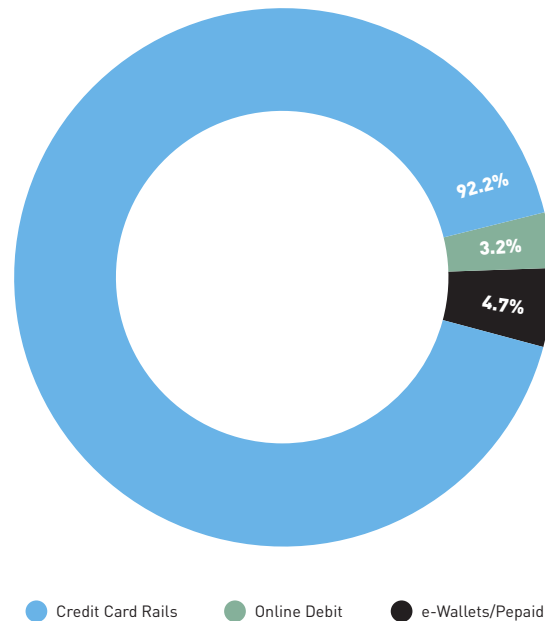
E-commerce payment channel dominated by credit cards

E-commerce is defined as the use of web-based store fronts and applications to procure goods (including digital items) and services from businesses. E-commerce payments result from completing transactions through merchant (payee) provided online store fronts and software applications, via computers, tablets or mobile devices. This payment channel has become increasingly popular, and we estimate that e-commerce accounted for about \$116 billion in Canadian transactions, or about 14 per cent of all the POS transaction value in 2016.³¹ We estimate that at least two-thirds of the value is attributable to commercial transactions (or about \$77 billion), where we find growing numbers of businesses of all sizes procuring and spending online.³²

In 2016, credit card networks accounted for about 92 per cent of the volume and value of e-commerce transactions in Canada. E-commerce credit card transactions are distinguished by the network rails used, as such, some of the transactions may in fact be debit instruments offered by credit card companies. Alternatively, Interac® Online Debits, prepaid, and e-wallet funds, such as through PayPal and prepaid app store cards (or virtual cards), combined for about 8 per cent of Canadian e-commerce transactions. In addition to the reasons provided above for credit card growth, security takes on a heightened sense of importance in e-commerce. The perception of credit card security is high, with nearly two thirds of cardholders indicating their primary credit card provides for a safe and secure payment method.³³

A critical area for e-commerce growth in North America is through mobile online and in-app transactions.³⁴ These transactions take place mostly using phones and tablets and often require the use of application store fronts (e.g., the Apple or Google App Stores). In this environment a “card on file” payment scheme is leveraged to complete transactions, which is done by loading credit card information that is stored for future payments. In-app transactions take place almost entirely via credit card payment products in Canada today, where we find about 95 per cent of transactions use credit card company rails for credit, debit, or prepaid transactions (the remainder uses store brand prepaid cards particular to each app store).³⁵

Figure 7: E-Commerce Payment Stream Use (by Transaction Value)



31 Our e-commerce estimates differ from other published sources (e.g., StatsCan) in several notable ways. We include figures for travel, accommodation, entertainment, and online transactions originating from businesses.

32 Our look at business use of e-commerce indicates that we may be understating the value of business e-commerce. The vast majority of small to medium sized businesses regularly procure goods and services online, while about half of larger businesses indicated they do online procurement. For those that do procure online about 35 per cent indicated that a majority of their expenditures were done online in 2016. RFI Group business survey market research (2016 and 2017).

33 Ipsos, 2016 Personal Cardholder Syndicated Study, 2017. Note: this references proprietary market research acquired by Payments Canada, please see **Appendix II** for survey methodology

34 Mobile commerce has been identified as the fastest growing segment of e-commerce, with 15 per cent annual growth, see: <https://www.ecommerce-nation.co/the-rise-of-m-commerce-is-your-site-ready/>; and recent market research suggests nearly 60 per cent of U.S. shoppers are using mobile devices, this amounted to about \$1 out of \$6 of every consumer e-commerce dollar spent in 2016. *Cross Platform Future in Focus 2016*, ComScore (2016).

35 About 25 per cent of online shoppers indicate they have used store brand prepaid products online. Please see Canadian Payments Forecast – 2016, TSI, 2016.



Featured Analysis C: Payments Canada Enabling Use of Deposit Accounts for Emerging POS Channels

The Point of Service (POS) ecosystem is rapidly changing, especially with regards to the use of mobile devices for proximity payments and in e-commerce. These devices have enabled new environments to conduct transactions and provided methods to make traditional card payments more secure.

Technology can be used to help mitigate card fraud by removing sensitive account information as part of transaction message exchanges, such as has been the case with INTERAC Online for many years.³⁶ Mobile devices introduce the potential to offer similar levels of security for more kinds of transactions. For example, mobile devices enable the use of cell phone numbers as account identifiers and can be used in physical merchant payment environments, instead of plastic cards. Mobile devices also offer additional measures of security through passcodes or biometric information (e.g., fingerprint or voice recognition) to authenticate users.³⁷

An important part of payment system modernization is updating payment system rules. Payments Canada system rules can enable new payment technologies and processes, which enable innovative products to arise in the marketplace. Seeing the opportunity to use mobile devices to shift traditional card payments to more secure processes, Payments Canada has worked closely with the payments industry to provide a rules framework that facilitates emerging payments via the mobile channel. Tokenization is central to the new rules, which consists of enabling the removal of sensitive account information and data from transactions that might be used in card fraud.³⁸

In 2016, Payments Canada rule amendments cleared the way for tokenized mobile debit transactions. The rules now enable the tokenized technology for domestic debit transactions in physical merchant environments, as well as in the expanding in-app and e-commerce payment channels. The amended rules facilitate payments initiated via mobile devices, using a mobile wallet, and using a broader range of authentication methods, including biometrics, while keeping bank account information well protected. The amendments have already supported innovation in the market, with new mobile wallet services in physical Canadian merchant environments, including Apple Pay and Samsung Pay, now offering mobile device contactless debit payments.

Featured Analysis C continues...

³⁶ Interac Online payments are conducted through existing online banking access, where no account information such as card numbers are shared with online merchants or third parties. For more information, see: <http://interac.ca/en/interac-online-consumer>

³⁷ 14 per cent of Canadian merchants reported using biometric or voice activated payment security features. See Lost in Transaction, PaySafe, Oct. 2017.

³⁸ Tokenization refers to the process whereby a customer's banking credentials are replaced by a surrogate value (referred to as a token), which may occur prior to or at the time when the customer initiates a payment with a merchant. The token is transmitted through the necessary channels until reaching the Token Service Provider, where the surrogate value is de-tokenized into the customer's banking credentials before being passed to a customer's financial institution (FI). With the banking credentials, the FI is able to identify the customer and authorize the transaction request. After authorization, the Token Service Provider re-tokenizes the banking credentials and transmits the token along with the authorization back to the merchant.

While e-commerce and POS contactless transactions can be said to have already emerged, one channel with plenty of room to grow is in-app mobile commerce. In-app shopping is the fastest growing form of commerce, and in 2016, in-app payments made up 1 out of every 6 dollars of e-commerce.³⁹ Our analysis reveals that credit cards are currently involved with about 95 per cent all the in-app shopping and commerce, making credit cards the only widely used payment option.⁴⁰ In Canada, in-app transactions can exclude people without credit cards, and leave merchants with little options for offering viable payment alternatives.

Looking ahead, the new Payments Canada mobile payments rule framework provides for a secure and efficient process for using tokenization for in-app and online transactions. Payment service providers can now securely build upon the rules framework to develop payment options using deposit accounts, however, it remains to be seen what payment products will be forthcoming. In any event, the rules form a foundation that provides the potential to someday bring deposit account transactions that can be used with popular in-app and mobile commerce merchants such as Uber, or the Apple and Samsung App Stores.

B. Remote Transactions

The following sections discuss remote transactions, which include all transactions that are not made at physical payee locations or virtual payee provided apps or store fronts. Since remote transactions do not have a POS device or application, they require a third party to direct funds to payees on behalf of the payors. These intermediaries are usually financial institutions, using payment methods such as cheques, AFT and electronic remittances. These transactions use payment service providers and financial institutions as intermediaries to enable bill payments, P2P and B2B transactions. Cheques and EFT dominate the remote transaction environment, but credit cards and online transfers are showing strong growth, especially with consumers.

Cheque and paper items falling behind

Cheque usage has been drastically decreasing in the last few years, resulting in 553 million fewer cheques being written in 2016 compared to 2008 (a 41 per cent decrease). In 2016 alone, cheque and paper items declined by almost 9 per cent, compared to 2015. The 2016 data indicates a slowing decline with consumer cheque volume (negative 5 per cent YOY) and a faster decline in Canadian businesses cheque volumes (negative 10 per cent YOY), in comparison to previous years. In 2015, the decline for both consumer and business cheque volumes was about negative 8 per cent.

Cheque and paper items are much more prevalent when considering payment value, where cheques continue to move large values of remote transactions with the largest average transaction size of all the payment categories (\$5,000). Cheque values are bolstered by commercial cheques, which have a high average transaction size (\$7,128).⁴¹ Growing online transfers and remote credit card transactions can be seen replacing consumer cheques from a volume perspective but have had a much less discernable impact on the value of cheque transactions.

EFT surpasses cheques for first time

The EFT payment category contains remote transactions made through deposit accounts held at Canadian financial institutions, including direct deposits, electronic remittances, pre-authorized debits and other online bill payment transactions. EFT had enjoyed a period of strong growth between 2008 and 2015, increasing by an average annual growth rate of 5 per cent in volume and 8 per cent in value. This trend lost steam in 2016, as EFT growth was limited to only 1.5 per cent in volume terms and 5 per cent in value terms. Despite the slowing of EFT growth, EFT reached a significant milestone in 2016, surpassing the total value of cheque and paper payment items for the first time. However, in another first in 2016, the data shows that the extensive use of remote credit card transactions contributed to a decrease in consumer EFT transactions (this is discussed in more detail below).

³⁹ Based on U.S. market research, a recent report finds that desktop computer e-commerce grew by 8 per cent, while mobile e-commerce grew by 56 per cent in 2015. See *Cross Platform Future in Focus 2016*, ComScore (2016).

⁴⁰ See **Featured Analysis B** (above) for more details on the credit card market in Canada.

⁴¹ The average transaction size for personal cheques was only \$396.

Online transfers continue high growth

Online transfers include online e-wallet and electronic P2P transactions initiated through online services and providers, which are either prefunded or linked to deposit accounts at financial institutions (e.g., Interac e-Transfers, PayPal and Tilt). This category is mostly dominated by Interac® e-Transfers which account for about 90 per cent of the category volume. In 2016, online transfers only accounted for 0.8 per cent and 0.7 per cent in terms of the total volume and value of Canadian transactions, respectively. However, both e-wallet and e-P2P payment volumes are growing as Canadians are becoming more inclined towards the convenience of electronic payments and more comfortable with online/mobile banking and e-commerce channels. As such, online transfers are the fastest growing payment segment, growing by an average annual growth rate of 44 per cent in volume and 48 per cent in value terms since 2011. In 2016, online transfers continued their remarkable growth expanding to 177 million transactions worth \$68 billion.

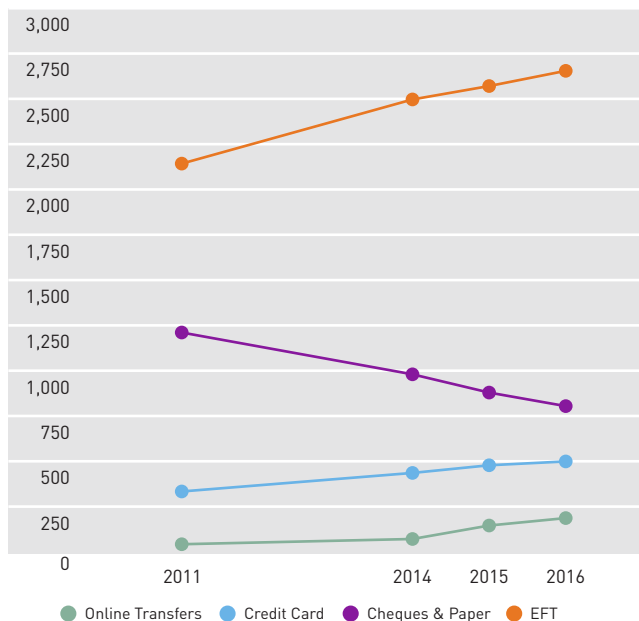
2016 marked an important year for online transfers in terms of their use by Canadian businesses. The 2016 market research showed that about 16 per cent of small to medium sized business used online transfers to make payments.⁴² Prior to 2016, business online transfers made up less than 5 per cent of online transfers (2011 to 2015). However, in 2016, business use of online transfers grew to account for about 10 per cent of the total, as efforts to target business payment use cases started gaining momentum. For example, Interac e-Transfers recently began batch payment processing and PayPal enabled B2B invoicing and payments.

Remote credit card transactions

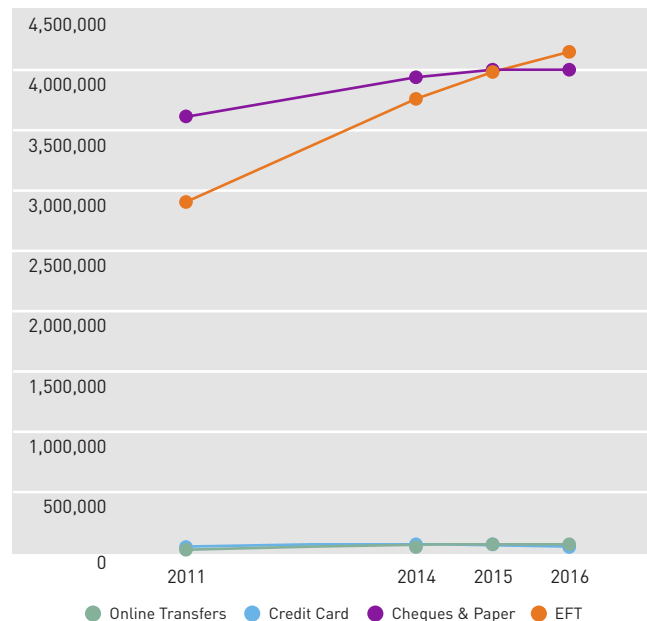
Credit cards are predominantly used in POS environments. However, we find that about 10 per cent of all credit card transactions are used to pay bills, including memberships, subscriptions, insurance, and utilities (what we consider to be remote transactions). We infer that the vast majority of remote credit card transactions are consumer initiated, as most commercial credit card transactions would fall under our definition of POS (i.e., using physical card readers for travel, transit, and entertainment, and payee online environments for completing orders for supplies and materials). The market research confirms that remote credit card transaction use has been showing healthy growth, with the percentage of cardholders using credit cards for recurring bill payments at 42 per cent in 2016 (up from 30 per cent in 2011).⁴³ Our analysis indicates that much of this segment growth is coming at the expense of cheques and EFT transactions (see **Figure 8** below).

Figure 8: Remote transactions volume and value

Volume (in millions of transactions)



Value (in millions of dollars)



⁴² RFI Group business survey market research data (2016 and 2017).

⁴³ Ipsos, 2016 Personal Cardholder Syndicated Study, 2017. Note: this references proprietary market research acquired by Payments Canada, please see **Appendix II** for survey methodology.

More credit card rewards sought with remote consumer transactions

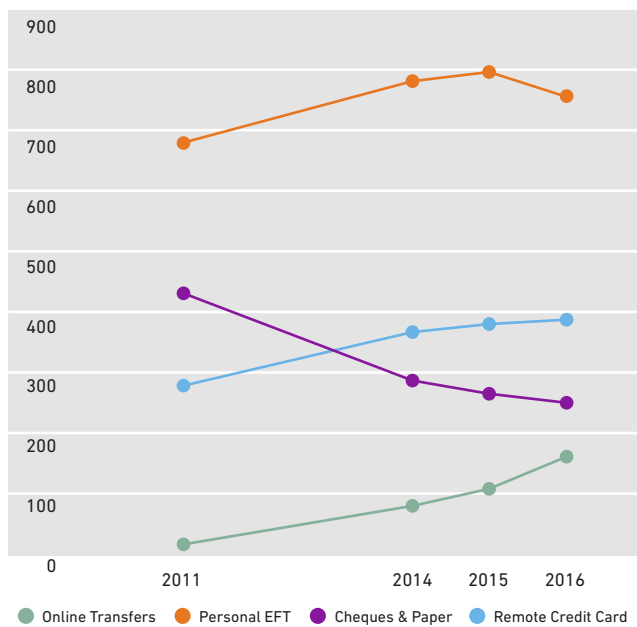
The largest segment of remote consumer transactions is EFT. Consumers opt to use EFT transactions to pay commercial entities often without even knowing it. For example, EFT is leveraged whenever consumers use their online/mobile banking services to pay their utilities or transfer funds to accounts held at other financial institutions. Similarly, most consumers are unaware that when they set up pre-authorized debits (using their deposit accounts) to pay federal taxes or for bills such as insurance or car payments they are also choosing to use EFT. As EFT transactions move funds directly from payor to payee deposit accounts, they are among the most efficient transaction methods.⁴⁴ All told, consumers made roughly 743 million EFT payments in 2016, which were valued at almost \$336 billion.

There was an important development with remote consumer transactions in 2016. For the first time, consumer EFT decreased. Consumer use of EFT dipped below the volumes observed in 2015, as a result of lower consumer bill payments and pre-authorized debits being made through their deposit accounts. The data points to a migration towards the use of credit cards for routine household bills such as insurance and utilities.⁴⁵ For the same reasons noted above for the POS environment, rewards are driving increasing numbers of consumers to use their credit cards for more of their monthly bills. There were about 383 million consumer remote credit card payments, worth nearly \$41 billion in 2016.

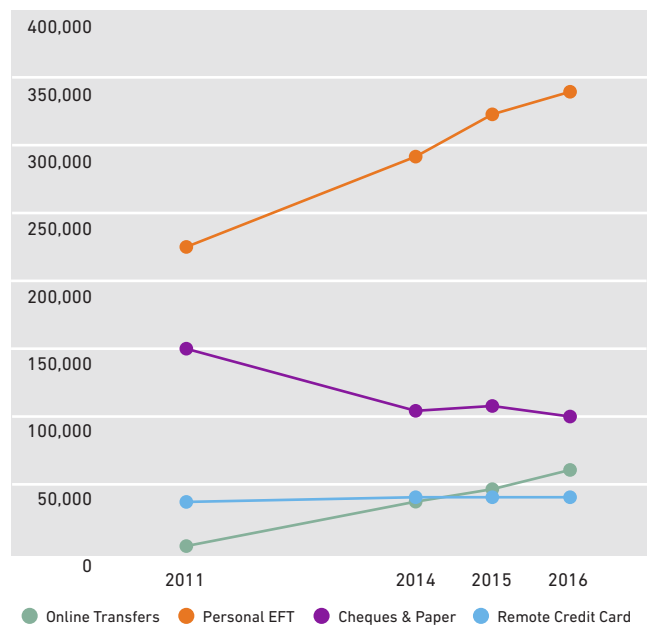
In 2016, consumers completed about 252 million cheque transactions worth about \$100 billion. This represented about a 5 per cent decline in personal cheque use in both volume and value terms over 2015. There was little consumer cheque migration to EFT in 2016, as consumer cheque migration shifted more towards remote credit card transactions. Some consumer cheque volumes also appeared to migrate to online transfers, where consumer-initiated online transfers grew to nearly 160 million transactions valued at \$62 billion in 2016.

Figure 9: Personal (Consumer) Remote transactions volume and value

Volume (in millions of transactions)



Value (in millions of dollars)



⁴⁴ *The Role of Automated Funds Transfers in Cheque Reduction in Canada*, Payments Canada (2015).

⁴⁵ Remote consumer EFT and credit card transactions are direct substitutes for many expenses and pre-authorized bills paid to larger businesses. Online transfers were used mostly in traditional cheque uses (i.e., P2P and paying small businesses), and were not an important factor in the EFT decline in 2016.

Remote commercial transactions

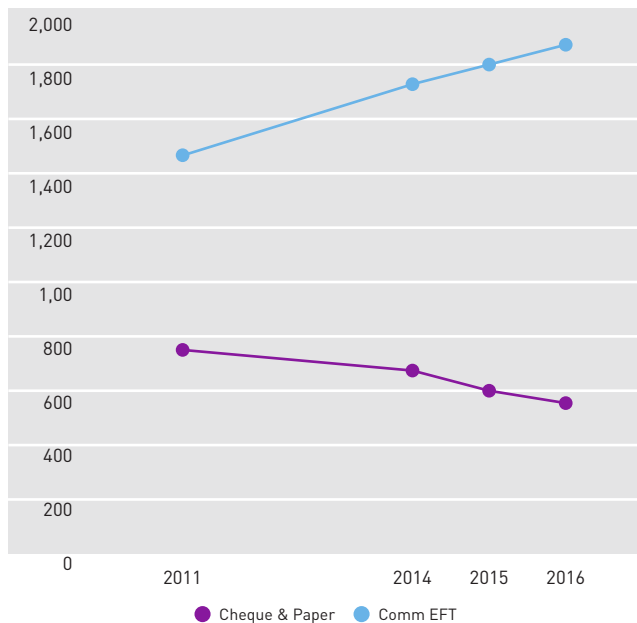
Many transactions made by corporate entities, financial institutions, businesses and government agencies, are made remotely. In 2016, there were about 2.5 billion commercial remote transactions identified, valued at \$7.7 trillion. EFT payments have become the most common form of remote commercial payment, growing to account for more transaction volume than cheques by a large margin. On the value side, EFT and cheques jointly dominate the total of commercial transactions, with each constituting about half of the total value (48 per cent and 51 per cent, respectively).

In 2016, commercial cheque decline was over 10 per cent, continuing a trend of rapid cheque decline in this segment, which began in 2014. We estimate that there were about 550 million commercial cheques written in 2016 worth more than \$3.8 trillion. Despite the recent uptick in cheque decline, cheques remain an important payment instrument for certain commercial transactions, including business-to-business (B2B) payments and real estate transactions (for more details please see **Section C** below).

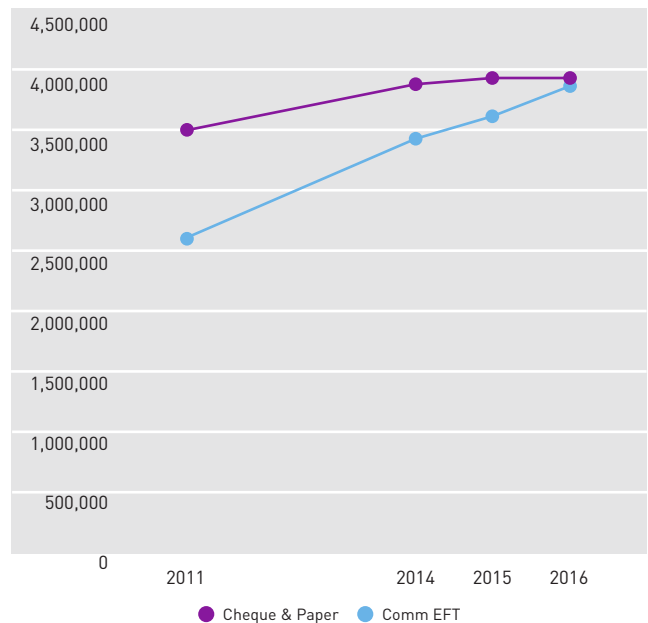
Commercial use of credit cards and online transfers is significant but is well below the volumes and values of EFT and cheques, hence these segments are not charted below in **Figure 10**. For a closer look at the use of these items by Canadian businesses please see **Section C** below.

Figure 10: Commercial Remote transactions volume and value

Volume (in millions of transactions)



Value (in millions of dollars)





Featured Analysis D: Real-Time Payment System under Development in Canada

Real-time payment systems (also referred to as instant or fast payment systems) have expanded rapidly around the world. Real-time systems exist or are now in development in 34 jurisdictions (including Canada).⁴⁶ Real-time or fast payments have been defined as payments in which “the transmission of the payment message and the availability of final funds to the payee occur in real time or near-real time and on as near to a 24-hour and 7-day basis as possible.”⁴⁷ Successful real-time system implementations are oriented for future growth and innovation, by including three main design features: 1) speed and irrevocability; 2) standardization; and 3) an overlay service model.⁴⁸

The most common use cases for real-time payment systems are in remote transaction environments, for irrevocable expedited direct credit transactions for bill payments, person-to-person payments, or large purchases where payees want guaranteed funds before they allow goods or services to be provided to payors. The use of real-time systems for consumer oriented POS transactions, such as for loading prefunded payment schemes, e-commerce transactions, and for mobile POS transactions have also evolved quickly in jurisdictions where credit cards do not dominate these use cases.⁴⁹ Some examples of this include Denmark (Straksclearing), the Netherlands (Equens), the U.K. (FPS), and China (IBPS).

For remote commercial transactions, real-time systems have also included the use of the ISO 20022 standard. This standard is starting to provide rich transaction information that is bringing new functionality, including improved reporting and reconciliation for direct commercial payments. Real-time systems with ISO 20022 are being rolled out in Australia (NPP), Europe (RT1), and the U.S. (The Clearing House RTP) and have been in place in countries such as Denmark (Straksclearing) and Poland (Express ELIXIR) for several years.⁵⁰ Improved transaction information is considered a key element to offer viable business-to-business direct payment alternatives for common cheque use cases (e.g., rent, taxes, stock and inventory) and key commercial credit card use cases (paying suppliers, raw materials, and stock).⁵¹

In addition to providing quick and standardized transactions, a number of real-time systems are looking to support multiple overlay services. These real-time systems serve as overlay service platforms, where the system enables, but does not provide the actual services that are used by end-users. Application programming

Featured Analysis D continues...

⁴⁶ Flavors of Fast: A Trip Around the World of Immediate Payments (4th Edition), FIS, Sept. 2017

⁴⁷ *Fast payments – Enhancing the speed and availability of retail payments*, Committee on Payments and Market Infrastructures, Bank for International Settlements, Nov. 2016. Real-time facilitates funds transfers in under one minute, while near real-time provides funds within two minutes. See: *Clearing and Settlement Systems from Around the World: A Qualitative Analysis*, Payment Canada, June 2016.

⁴⁸ *Developing a Vision for the Canadian Payment Ecosystem*, Payments Canada, Apr. 2016

⁴⁹ Some countries have a history of lower credit card adoption, while other jurisdictions have regulated interchange fees such that lower credit card use has resulted. In either event, more deposit account based transacting is observed. See: *Competition Policy Brief: The Interchange Fee Regulation*, European Commission, June 2015; *ComCo Achieves Reduction of Interchange Fees*, Switzerland Competition Commission, Dec. 2014; and *Regulation on Interchange Fees for Card-Based Payment Transactions*, European Commission, July 2013.

⁵⁰ *Clearing and Settlement Systems from Around the World: A Qualitative Analysis*, Payment Canada, June 2016.

⁵¹ Please see Payments Canada’s ISO 20022 Resource Centre: <https://www.payments.ca/resources/iso-20022-resource-centre/faqs>

interface (API) functionality has been deployed to enable this layered model. The objective of this model is to foster agile innovation and delivery of services, as payment products are introduced by the system participants (and not by the common infrastructure). Some key examples where this model is being deployed include India (IMPS), Sweden (BIR), Australia (NPP), Denmark (Straksclearing), and Finland (Siirto).⁵²

Payments Canada is committed to providing Canada with a real-time payment system of its own.⁵³ Features of the envisioned real-time payments capability include near real-time irrevocable transactions, ISO 20022, and a robust risk management framework. These features will enable broader access and make use of the underlying infrastructure to support the delivery of new payment services, for many use cases, which will primarily offer remote transaction options. Canada's financial institutions and FinTechs will be able to leverage the underlying common infrastructure to rapidly deploy new products and innovations via overlay services. As a result, real-time payments could conceivably offer an enhanced user experience over online transfers, EFT, cheques and even remote credit card transactions.⁵⁴

C. Business Payments

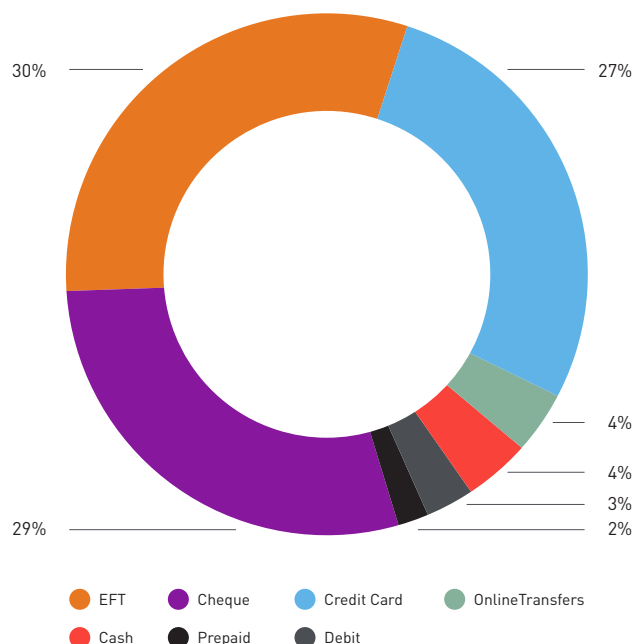
The analysis of commercial payments, above, addresses all non-consumer payments, including those made by local, city, provincial, and federal levels of government. Government payments add large volumes of transactions (For example, the collection of taxes and fees and disbursing benefits and program payments). Below, we only look at business payments to help focus on this key segment of Canadian payment users.

Figure 11 provides a chart of the total value of business expenditures by payment instrument. The market research suggests that, in general, businesses use three main types of payment instruments: EFT, cheques, and credit cards.

Canadian businesses shifting to credit card use

Augmenting the credit growth in Canada is the use of credit cards by businesses, which the data suggests is in the midst of a trend that is shifting more transactions towards credit cards.⁵⁵ Business credit card use accounted for 27 per cent of business value spent in 2016. Small-to-medium sized businesses (SMEs) are using credit cards more than large businesses, where SMEs used credit cards for about 33 per cent of their total spend (compared to 24 per cent for large businesses). SMEs indicate they are mostly drawn to credit cards for rewards, convenience and cost (mirroring the perceptions by Canadian consumers), which they typically use for travel expenses, entertainment, and increasingly for B2B transactions for procuring materials and supplies.⁵⁶ Additionally, credit cards are now accepted by more businesses than cheques: 55 per cent versus 35 per cent (respectively). Further, businesses have indicated that their use of credit cards will continue to expand due to cost, rewards, speed, and reconciliation advantages.⁵⁷ As such, FinTechs that are trying to enter and potentially disrupt business transactions must enter an environment where credit cards are already performing the role of segment disruptors, displacing cheques and EFT.

Figure 11: Business Payment Value Breakdown (2016)



52 An Application Programming Interface (API) – is a set of functions and procedures that allow access to data or a service in order to provide greater functionality to users. An open API is a means of accessing data based on an open standard maintained collaboratively and transparently. *Ibid.*

53 *Modernization Target State...*, Payments Canada (publication pending).

54 *Real-time Payments Are Changing the Reality of Payments*, Deloitte, 2015 (p. 4)

55 Based on an analysis assembled from 2016 RFI Market Research data. EuroMonitor data also shows over 5 per cent commercial card growth on average since 2011.

56 RFI Group business survey market research data (2016 and 2017).

57 *Ibid.*

Business cheque use

Both large corporations and small-to-medium sized businesses (SMEs) reported cheques as their most commonly used payment method overall for business expenses (78 per cent and 81 per cent, respectively, reported making payments with cheques, in 2016). Business cheque use is particularly strong for businesses making payments to government agencies (including for tax purposes), rent payments and payments to other businesses for goods and services (B2B). SMEs differ from large businesses in that they tend to write more cheques for payroll payments to employees (50 per cent and 34 per cent respectively). With the exception of payroll (for SMEs), we find that the vast majority of commercial cheque use involves commercial entities as both the payors and the payees.⁵⁸

Figure 12: Top Areas for Business Cheque Use
(2016)

Rank	Small and Medium Enterprises	Large or Corporate Enterprises
1	Rent (61%)	Rent (48%)
2	Payroll (53%)	Government payments (43%)
3	Tax and government payments (48% each)	Tax (42%)
4	Stock and inventory (42%)	Raw materials (42%)
5	Raw materials (41%)	Insurance (40%)

With cheques and EFT forming important components of business payments, and credit cards poised for further growth, the other business payments instruments can also be considered. Together, cash, debit, prepaid, and online transfers combine for about 13 per cent of business transaction value. This combination highlights how many businesses must use a variety of payment instruments for their different payment use cases. These instruments also highlight a potential segment where an opportunity may exist for more efficient or innovative business transactions. These are areas where speedy, ubiquitous, and standardized transactions, such as those that might be provided with a real-time payment system, may find fertile ground.

⁵⁸ Ibid.



CONCLUSION

Our analysis of Canadian payments data and market research has provided a detailed overview of the 2016 payments market dynamics and trends. Perhaps, the most pervasive trend observed is how slower forms of payments are moving to more expedient and more convenient channels, wherever possible. While this is most clear looking at cash and cheque volumes, faster or more convenient electronic payments are also overtaking slower electronic methods. For example, POS contactless card transactions are growing at the expense of traditional POS card transactions (chip-and-PIN). In-app online transactions on mobile devices are also taking the place of e-commerce using traditional computers. Another obvious example is online transfers (Canada's fastest growing payment instrument), for which appeal accelerated as they have become more mobile accessible. It is clear that continual convenience improvement is becoming a key disrupting force driving Canadian payments behaviour.

We also find that rewards are highly motivating to Canadians. In Canada credit cards offer a compelling combination of convenience and rewards, which have resulted in continual annual growth rates, and expansion into almost every common payment use case. Credit cards present a clear challenge to new payment service providers or payment options that wish to offer more efficient payment alternatives via prepaid or deposit account funds. This challenge now applies to both POS and remote transaction environments, and in near equal measure to consumer and business payment use cases.

A challenge also remains in bringing forth greater convenience for remote commercial transactions. Commercial enterprises find convenience in payment methods that are widely accepted and provide for needed payment information. Today, that means a high reliance on cheques as commercial enterprises look to pay each other, with a high degree of certainty their payments will be accepted and that they can use established processes for reconciliation and reporting.

The Canadian payment ecosystem is poised for disruption by an environment that will bring forth core payment system technology and rule changes, regulator interventions, and FinTech innovations. These influences will seek to change the ecosystem paradigms and challenges we see today. As payment methods and channels adapt, it is unclear how the POS and remote transaction environments will change. However, if there is one area that we can predict with a high probability, it is that Canadians' preferences for ever faster and more efficient transactions will provide a basis for continuing innovation. For now, that translates into more transactions moving to more convenient payment channels for consumers and ubiquitous and data-rich electronic options for commercial enterprises.

APPENDIX I

Detailed Payment Segment Charts

Figure A1: All segment annual totals

Payment Method	Volume (in millions of transactions)				Value (in millions of dollars)			
	2011	2014	2015	2016	2011	2014	2015	2016
Cheques & Paper	1,186.6	950.3	875.5	798.3	3,648,447.7	3,925,570.2	3,989,942.9	3,991,848.6
Debit	4,148.1	4,906.9	5,177.8	5,436.0	184,037.9	214,340.2	220,483.4	225,661.1
ABM	759.3	600.7	583.2	548.5	85,061.9	72,799.5	72,666.7	69,597.9
Prepaid Cards	147.9	208.3	236.1	262.0	9,929.6	15,376.4	18,234.2	19,518.2
EFT	2,124.0	2,476.4	2,592.0	2,631.0	2,868,754.9	3,732,905.4	3,972,263.4	4,167,111.4
Credit Card	3,423.6	4,330.5	4,553.9	4,783.0	391,198.0	467,421.9	490,877.8	510,731.6
Online Transfers	28.7	81.5	119.6	177.0	9,658.6	31,678.4	45,700.0	68,755.4
Cash	8,494.9	7,172.3	6,767.1	6,631.7	154,273.5	126,784.0	118,606.7	116,234.6
Totals	20,313.1	20,726.9	20,905.2	21,267.5	\$7,351,362.0	\$8,586,876.0	\$8,928,775.1	\$9,169,458.8

Figure A2: All segment average annual growth

Volume (1, 5 and 8 year CAGR)

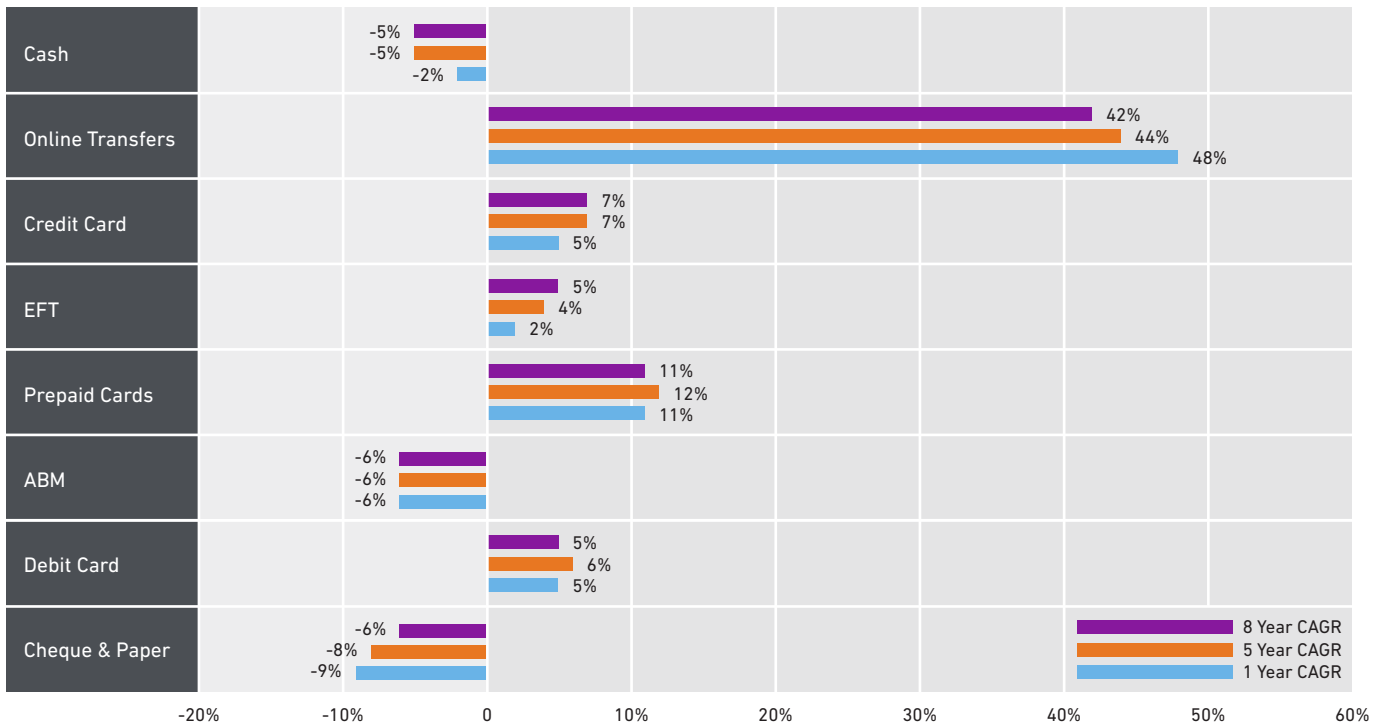


Figure A2: All segment average annual growth

Value (1, 5 and 8 year CAGR)

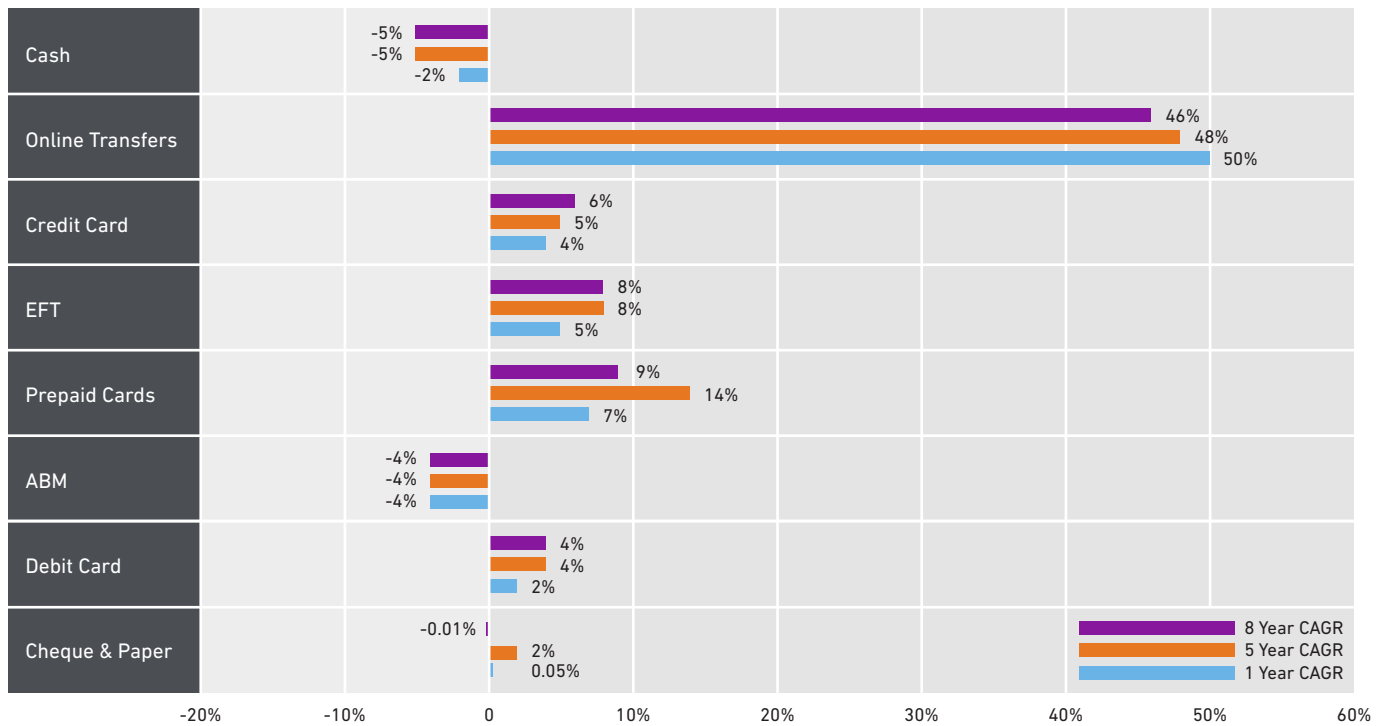


Figure A3: Average transaction size

Payment Method	2011	2014	2015	2016	% Change
Cheques & Paper	3,074.71	4,130.87	4,557.33	5,000.44	69%
Debit	44.37	43.68	42.58	41.51	-9%
ABM	112.03	121.19	124.60	126.89	16%
Prepaid Cards	67.14	73.82	77.23	74.50	-10%
EFT	1,350.64	1,507.42	1,532.51	1,583.85	26%
Credit Card	114.27	107.94	107.79	106.78	-8%
Online Transfers	336.54	388.69	382.11	388.45	28%
Cash	18.16	17.68	17.53	17.50	-5%
Totals	\$361.90	\$414.29	\$427.11	\$431.15	24%



APPENDIX II

Methodology, definitions and segment descriptions

A. Methodology

Notes on methodology

The data presented is a combination of Payments Canada system data, payment service provider and scheme operator data and estimates based on market research and in consultation with industry experts.

Payment service providers contributed either by sharing their internal research and data or by providing expertise that enhanced the data set's accuracy. As was assured during the data collection, Payments Canada has made every effort to keep participant data non-discernable, where asked to do so.

This paper leverages the full data set gathered from past efforts (2011, 2014 to 2016), and contains appropriate updates in methodology, data and findings. As such, this paper represents a full update of the previously published data points (including those provided in past papers) and should be viewed as essentially replacing the previous data sets.

Survey market research details and methodology

1. Ipsos Reid CFM

Payments Canada has subscribed to the payments sections from the IPSOS Canadian Financial Monitor (CFM) survey. The CFM is a continuous syndicated research service that provides detailed information across a wide range of issues related to Canadian household finances. The survey is a source for consumer information on personal banking, investments, credit and insurance. The CFM provides for long-term data, and has been running since 1999. Data is collected each month, forming an annual sample of 12,000 households. Each household completes a detailed questionnaire – providing comprehensive information on all aspects of its financial holdings and activity.

2. Ipsos Reid PCS

The Personal Cardholder Study (PCS) is completed through an online sample of Canadian cardholders, using Ipsos' Internet panel of respondents. For over 20 years, the PCS has provided an ongoing quarterly survey of cardholders and non-cardholders, covering a variety of credit card metrics and payment trends. The total sample size for the 2016 survey was 11,999 respondents.

3. RFi group business surveys

The RFi Group conducts separate surveys on larger corporate enterprises and small to medium sized enterprises (SME). The corporate survey was in field in September 2016 with a total of 362 Canadian commercial banking customers being interviewed online. Basic quotas were applied to the sample to ensure that the data is representative of the Canadian commercial population. All respondents had decision-making powers within businesses operating in Canada with global annual revenue of \$10 million to \$550 million.

RFi's SME survey was completed September 2016 with a total of 512 individuals interviewed online. Basic quotas were applied to the sample to ensure that the data is representative of the Canadian SME market. All respondents had decision making powers within an SME operating in Canada with global annual revenue of less than \$10 million.

3. TSI Consumer Survey

Technology Strategies International Inc. (TSI) provides in-depth assessments of consumer payments in Canada, drawing upon a wide range of information resources including desk research, executive interviews and discussions, consumer research and analysis – compiled into an annual report. In 2017, the 2016 TSI consumer market research data was also analyzed for additional insights. The 2016 consumer survey included a sample size of 2,057.

B. Definitions and segment descriptions

ABM payments

ABM data is derived from data found in published proprietary reports and validated with published payment network and CBA data.

CAGR

Compound annual growth rate calculates the annual average growth over multiple years, while taking into account the effects of average compounding growth experienced in each year.

Cash

Total cash was estimated based upon data from Bank of Canada survey research data (the data was also leveraged for their 2013 Methods-of-Payment Survey).⁶⁶ Estimates from the data establish the mean number of cash transactions per Canadian per day was (.65) and the mean cash expenditure per transaction was \$11.49. We used these numbers to extrapolate to the larger Canadian population to formulate cash payment estimates and adjusted based on the market research suggestion of cash decline in 2014, 2015, and 2016.

Cheque imaging technology

Several Canadian financial institutions offer apps for remote deposit capture, through the digital representation of the front and back of a payment item (the cheque).

Commercial payments

Commercial payments include transactions that originate from Canadian organizations, businesses and governments.

Consumer payments

Transactions that originate from Canadian households and individuals for paying bills, managing accounts at financial institutions and payments for goods and services.

Credit card

Credit card data is a combination of consumer and business credit and charge card payments found in proprietary published reports.⁶⁷ Charge cards differ from credit cards primarily in their application of interest. Credit cards charge interest at an annual percentage rate. Charge cards apply full interest charges after a defined period (typically 30 days) so users are more inclined to pay off balances each month.

Debit payments

Debit payments include Payments Canada POS debit and online debit transaction data, Interac® debit card data and data provided by participants.

⁶⁶ 2013 Methods of Payment Survey Results, Bank of Canada, April 2014

⁶⁷ Euromonitor International (2016), *Passport: Financial Cards and Payments in Canada*, and TSI (2016), *Canadian Payments Forecast 2016*.

EFT

EFT was calculated using a combination of AFT (debits and credits), electronic remittances and EDI transactions.

ISO 20022

ISO 20022 is an international standard designed to simplify global business communication. The standard enables efficient payments clearing and settlement among financial institutions globally through the use of a common set of messages and language. It is an open standard developed by ISO (International Organization for Standardization).

LVTS

LVTS payments were excluded from the analysis because the report is focused on more common payments made by consumers and businesses.

Online transfers

Online transfers include online e-wallet and electronic Person-to-Person (P2P) transactions initiated through online services and providers that are prepaid or linked to deposit accounts at financial institutions (e.g., PayPal). Includes data and estimates for online and mobile environments used to make remote electronic person-to-person payments and payments to merchants, excluding transactions based on credit and debit cards, which are counted in the credit card and debit card categories).

On-us

Refers to transactions drawing upon direct deposit accounts (e.g. bank checking accounts or business accounts) where both the payor and payee reside at the same financial institution. A variety of payment types, normally associated with Payments Canada cleared payments, are impacted by on-us items, including cheques, debit and EFT. On-us payments do not result in a Payments Canada clearing entry (and do not appear in Payments Canada system data). On-us payments data must be determined from sources other than Payments Canada. On-us amounts were derived from participant data and estimates. The analysis determined on-us payments to amount to approximately 20 per cent more transactions than can be found in Payments Canada data. On-us amounts differ by payment type, such as: cheques ~(25 per cent), debit ~(21 per cent), EFT (23 per cent), etc.

Paper/cheques

Based on Payments Canada ACSS data for cheque and paper items, including paper remittances.

Paytech

Paytechs are organizations that provide technology to enable or support electronic payment transactions. This also includes the technology for the acquisition, management, analysis and use of payments-related data.

Prepaid

Credit card company and store-branded prepaid product data (both open and closed-loop) is based on proprietary publication data. We also include virtual prepaid products, such that might be purchased through mobile device application stores, such as, Apple and Android.

Proximity environment

Point-of-sale or point-of-service transactions include both physical and virtual merchant locations, including online and in-app purchases.

Remote environment

Remote transactions include all transactions that are not made at physical payee locations, virtual payee provided apps or store fronts (a.k.a. the POS explained above).