

Retail Payments Tokenisation in Canada

The Paths to Success forCanadian Payments Stakeholders –





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TOKENISATION OF RETAIL PAYMENTS IS SET TO CHANGE THE RELATIONSHIPS BETWEEN RETAIL PAYMENTS STAKEHOLDERS IN CANADA. UNDERSTANDING THE REAL BUSINESS CASE FOR YOUR STAKEHOLDER GROUP IS ESSENTIAL FOR CREATING A PATH TO SUCCESS FOR YOUR ORGANIZATION.

Introduction

Tokenisation of payments can have a profound impact on retail credit, debit and prepaid payments, and possibly business to business payments as well. Tokenisation schemes can fundamentally change the relationships between the networks, issuers, merchants, application providers, payments processors – and the cardholder. Key stakeholders in payments including card issuers, transaction processors, payments technology providers and merchants recognize this, and are furiously positioning for their new roles in this new world of payments tokens, by bringing forward their tokenisation schemes.

What are the true business, product, service and strategic impacts of the new tokenisation services for merchants, issuers and payments solution providers? And how should stakeholders to respond to the drive towards tokenisation?

This Navigation Report examines payments tokenisation from the perspective of their fit with the strategic and business objectives of these key stakeholders. This report provides a critical assessment of the real value, shortcomings and implications of entering into a tokenisation program. As a result, this Navigation Report provides an essential guidance and direction for the tokenisation business case and strategies of issuers, merchants and payments services.

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Navigation Report Organization

This report is organized in a way to support informed decision making regarding:

- 1. whether or not to proceed with a tokenisation strategy, and
- 2. the factors to consider in planning that strategy.

This is accomplished through the following sections of the Navigation Report in the following order:

- WHAT payments tokenisation really is, from a payments stakeholder's business perspective
- WHO does what to which stakeholders, from a business relationships perspective?
- **WHY** should payments stakeholders consider getting involved with regarding tokenisation, from a business strategy perspective
- **WHEN** should the stakeholder consider moving forward on tokenisation, from a business case perspective?
- **WHERE** is the path through the minefield, to help ensure success in your tokenisation related business?



Research Methodology

This Navigation Report was developed using the following inputs:

- Three decades plus experience of the author, in retail and business payments product strategies, planning, management, specification, development, operation and management,
- Based on Canadian Consumer Payments Surveys conducted by TSI in 2017, 2018 and 2019, which use an online survey of 2,000+ adult Canadians drawn from a demographically balanced online panel, with a survey accuracy of +/-2.2%, 19 times out of 20,
- Market analysis conducted by TSI
- In depth review of online commentary, review and analyses from approximately 100 payments experts, payments information services, regulatory agencies and card schemes (hereinafter, 'schemes' being Visa, MasterCard, Interac, Union Pay, Amex, Discover, etc.). The author is particularly grateful for the input of Alex Woda, Pierre Roberge, Guy Berg, and others,
- Review of key tokenisation product developments, positioning and strategies,
- Review of technical standards and specifications from EMVCo, The Clearing
 House (hereinafter 'TCH'), National Automated Clearing House Association
 (NACHA), Payments Canada, Visa, Mastercard, Amex, Interac, ANSI and Payment
 Card Industry (hereinafter 'PCI'),
- Reviews of tokenisation related products, services, whitepapers and value propositions,
- The author's presentations at conferences and follow up discussions.

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The material and learnings from approximately 200 sources were distilled into a series of integrated perspectives on payments tokenisation, including:

- The Canadian Market for Tokenisation,
- Process Flows in Tokenisation,
- Scheme APIs and Specifications for Tokenisation,
- Visa, MasterCard and Interac Tokenisation Program Comparative Matrix,
- Stakeholder Roles in Tokenisation,
- Strategic Perspectives for Tokenisation,
- Tokenisation and Payments Security.

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As always, it has been a matter of the business case. The business case for tokenisation has recently evolved for the key payments stakeholders. Some of the drivers of this emerging business case include:

- PCI security standards ratcheting up compliance costs to merchants, so long as sensitive card data is accessed or stored by those merchants.
- Smart card and EMV standards that failed to deal with payments fraud in the burgeoning online world, while simultaneously creating significant implementation challenges.
- Massive data breaches such as Target and others, that emphasized the need for a robust enhancement to payments security as it currently exists.

Tokenisation of payments was initially promoted by processors such as First Data via their TransArmor product, in the early 2000's. As a result, one of the first broadly promoted U.S. payments tokenisation platforms was offered by a processor, and the second broad based tokenisation platform was offered by U.S. banks through the TCH American bank consortium's Quick Response token protocol. That is, the schemes were not first out of the blocks on payments tokenisation. First Data is now a certified scheme token service provider that also offers additional value adds as part of its token provisioning services, including private label card credentials management and integrated enhanced fraud control. TCH has dropped its token program and is now offering services for its member banks as a scheme certified token service provider.

The Game of Stakeholders

It is a theme throughout this Navigation Report that payments are a game between six stakeholder groups, with each group exercising varying levels of control and influence over the other groups. The stakeholder groups included the four parties in the standard payments four party model, plus two additional groups:

- Merchants, as one of the parties in the four-party model,
- Processors, as one of the parties in the four-party model, and including acquirers and other service providers,
- Issuers, as one of the parties in the four-party model,
- settlement networks, including Visa, MasterCard, Amex, etc., as well as national payment settlement networks,
- Account holders, as one of the parties in the four-party model, and
- newly emerging 'Service Providers' that are inserting themselves into the payment processes, often at the 'front office' or the 'back office' of the merchant.

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By 2013, the payments tokenisation game of stakeholders was rapidly evolving. The schemes were threatened by the processor and issuer stakeholders taking control of payments tokenisation. With fits and starts, Visa and MasterCard then settled on their respective payments' tokenisation standards, rules and platforms.

And this is where we are today. Visa, MasterCard and Interac have published their respective payments tokenisation specifications and Application Programming Interfaces (hereinafter, 'APIs') for interfacing to their tokenisation services. These tokenisation services are evolving and are by no means the only payments tokenisation options available. The schemes' tokenisation specifications and compliance programs contemplate third party tokenisation service providers.

Third party payments tokenisation services are available, that comply with the schemes' requirements for settlement of the payment. However, these third-party services face a significant challenge competing with the scheme offerings, which have dominated the marketplace.

Definitions

This Navigation Report addresses payment tokens that follow the applicable EMVCo standards, and scheme standards required for settlement through those schemes' settlement networks. This report does not address 'proprietary' or private label tokens that may be offered by acquirers or issuers.

It is necessary to be clear on what payments tokenisation does and does not encompass, in order for stakeholders to develop appropriate business plans and service relationships for tokenisation. Payments Canada defines payments tokenisation as follows:

"Tokenisation 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."

ACTION ADVISORY 1: Txns.
Can Qualify for Settlement
without Scheme Tokens

There are in house and thirdparty alternatives to the scheme token services, that would still qualify the underlying transaction for settlement by the scheme networks.

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Payment Tokens in Canada

As much as Canada likes to consider itself ahead of the U.S. in implementing next generation payments, Canadian developments in payments tokenisation have been driven in large part by the stakeholder games played out south of the border.

Canada took a number of runs at mobile device based, subscriber identity module (hereinafter 'SIM') secure element based contactless payment. These initiatives included Enstream known at the time as Wireless Payment Services which is a joint venture of Bell, Rogers and Telus, followed by SureTap as a follow-on Rogers initiative, and UGO as a TD and PC Financial joint venture. Once Visa and MasterCard in the U.S. agreed on the EMVCo tokenisation standard, these SIM based initiatives were upended by Apple Pay's device-based token, stored on the iPhone's secure element (hereinafter 'SE'), that leveraged the Apple device's biometric user verification capabilities. Google Pay also introduced host card emulated (hereinafter 'HCE') tokens. HCE tokens are tokens that are remotely stored in the cloud, rather than on a local device.

In response, Canadian banks took the position in 2015 that the banks must be central to tokenisation services and payments security via the SE and HCE, in their 'Payments Security White Paper'. In this context, the Interac tokenisation service is essentially an extension of the Canadian banks' position on the control or retail payments security. Interac launched a regional bank consortium driven debit payment tokenisation service in 2017, using IBM cloud services, and Rambus tokenisation technology. Whether or not Interac will be able to sustain its own token compliance regime and technical standards for a relatively small regional market, remains to be seen. A previous attempt at a proprietary bank driven account tokenisation scheme by TCH in the U.S. ultimately failed, with TCH going with MasterCard token services as of late 2017.

ACTION ADVISORY 5: Be Aware of the Stakeholders in the Tokenisation Driver's Seat

The 'Pays' (Apple, Samsung,
Google) drove the 1st phase of
tokenisation. In the U.S., Visa and
MasterCard have dominated
payments tokenisation services.
In Canada, Interac tokenisation play
is bank driven.

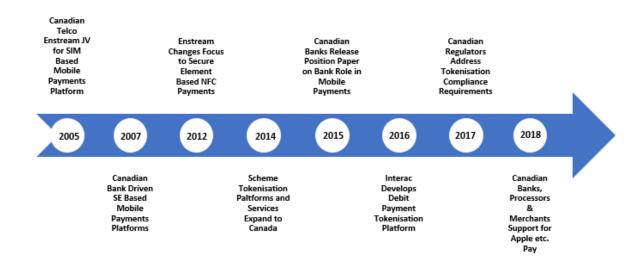
Meanwhile, major banks and other Canadian stakeholders continue to move forward on tokenisation. Some key Canadian developments include:

- TD announced in early 2016 as the first Canadian financial institution (hereinafter, 'FI') to support Visa HCE tokenisation, for the TD mobile payment app,
- Interac Mobile Pay was released as a contactless mobile device app-based EFTPOS payment incorporating tokenisation on the device via the Interac Flash protocol, as of late 2018, supported by 22 Canadian credit unions,
- Payments Canada published their E1 and E4 rules updates encompassing token services in 2016, that apply to Canadian retail debit, online and mobile appbased payments,

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- In mid 2018, the Canadian Securities Administrators organization issued a
 guidance on when tokens are also considered a security, and therefore subject to
 securities regulation. This applies primarily to cryptocurrencies; however, the
 CSA use cases also reference payment tokens,
- The 2017 update to the Canada Code of Conduct for Credit and Debit Card Industry includes tokens under the definition of payment credential, thereby making tokens subject to the code.

DIAGRAM: Canadian Payments Tokenisation Timeline



The Players in the Game

A number of payments stakeholder verticals play one or more roles in the payments tokenisation world:

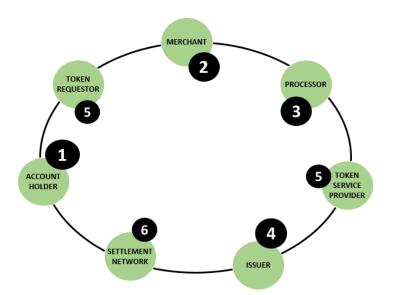
Account Holder

For retail payments, this refers to the consumer or business entity that holds the credit, debit or prepaid account credentials. Tokenisation can also support 'next generation' account holders including: business to business accounts, direct deposit accounts and device-based accounts for internet of things (hereinafter 'IoT') applications. Also included here are aggregator accounts, such as Amazon, eBay, Alibaba etc. master merchant services, and mobile wallets if acting in a stand-in capacity.

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The Six Party Model

DIAGRAM: Tokenisation Stakeholders



- The traditional four party model for payments is being supplemented by additional services.
- TSPs and requestors together participate as a fifth party offering intermediary value adds.
- Settlement networks also play an increasing role as the sixth party.

In the following diagrams, each of the above stakeholder groups is identified as either playing a role in the applicable tokenisation process, or not substantially involved in that process. Participating stakeholders either initiate, or respond to an action from another stakeholder, as indicated by the start and termination of the lines connecting the stakeholders, and the direction of the arrows. Stakeholders that are not significantly involved in that process, are shown behind the line.

These diagrams illustrate which stakeholders are mandated under scheme tokenisation programs to do what, in payments tokenisation.

ACTION ADVISORY 10: Position Tokenisation in a Larger Enhanced Services

Tokenisation Service Providers are one example of the many relatively new stakeholder categories playing important roles in support of next generation payments – all for fee.

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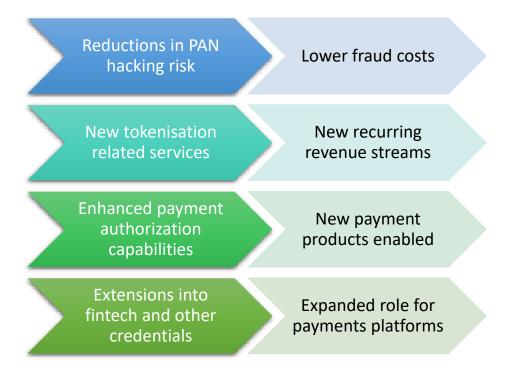
Merchant, Issuer and Processor Paths to Success in Tokenisation

Given the challenges, complexities and still emerging benefits to tokenisation, payments stakeholders should not be implementing tokenisation merely to not be left behind. Merchants, processors and issuers need to carefully evaluate the business case for payments tokenisation on its own merits. Payment tokenisation is a relatively new technology, so timing is also important as the technology, compliance rules and key players will rapidly change.

Opportunities and Risks

Regardless of the role a stakeholder plays in the payments ecosystem for legacy payments issuer, processor and merchant stakeholders, there are common business-oriented opportunities and risks associated with tokenisation:

Common Opportunities



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Common Risks

Disintermediation from customer bases by third party token services

Loss of control of business data to those third parties

Increased compliance and / or system costs for an unproven market advantage

Increased role and reach by the schemes into legacy processes

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Canadian Consumer Perspectives on Tokenisation

The perceptions of Canadian consumers regarding payments security could have a significant impact on the way in which tokenisation will be adopted in Canada. Answers to the following key questions will be instrumental in determining which approach to the market will result in resonance with consumers:

- Does the end consumer perceive a problem in the security of their retail payment credentials?
- If the end consumer does have security concerns, are they willing to share their credentials data with third parties to enable a more secure retail payments ecosystem?
- If the end consumer is concerned about personal impact, do they trust the solutions offered by the key stakeholders in payments tokenisation?

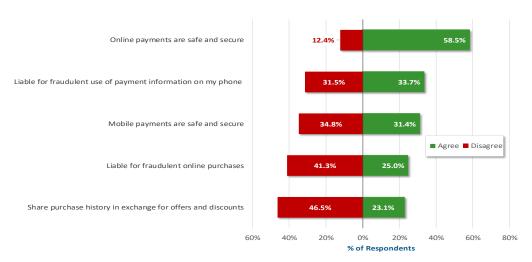


CHART: Consumer Perceptions About Payment Security
Data sourced from Canadian Consumer Payments Survey 2019

Does the Canadian Consumer Perceive a Problem in online Payments Security?

If the typical Canadian consumer feels that their payment data is currently safe and secure, then presumably that consumer does not see an overwhelming need for further security, or at least will be less receptive to marketing pitches that emphasize tokenisation as a security differentiator for merchants or customer facing apps such as mobile wallets.

Almost six out of ten of adult Canadians (58.5%) consider online payments as safe and secure. This would suggest that enhanced security may not resonate as a strong selling point amongst this group. However, this market comfort with online payments is sensitive to concerns about payors' personal liability for fraudulent usage of their payment credentials either in terms of online

MARKET FINDING 1

For Consumers, Tokenisation may be a Solution in Search of a Problem

MARKET FINDING 2

Tokenisation May Have Greater
Perceived Value to the Less
Technical