



# Nature Manitoba Technology Committee

Comparative analysis of digital wallets

# Objective

The research's objective in this context is to determine which digital wallet option is more suitable for meeting the specific needs and goals of Nature Manitoba. The research focuses on evaluating the features, advantages, and limitations of the current and most popular digital wallets in Canada to make an informed decision about adoption.

# Executive Summary

A digital wallet, also known as a mobile wallet, is a software-based system that securely stores users' payment information and other digital assets. Digital wallets serve as a convenient, secure, and versatile solution for various financial transactions, including online purchases, in-store payments, peer-to-peer transfers, and more.

The most popular digital wallets in Canada are Apple Wallet and Google Wallet. These wallets can be downloaded on Apple and Android devices, providing users with a variety of features and functionality. While both wallets offer similar basic services, they have different advantages and limitations.

Apple Wallet is available on Apple and Android devices, Google Wallet is compatible with Android devices, Apple devices and various web browsers and both wallets support a wide range of credit cards, debit cards and membership cards. Both wallets support NFC payments in stores, allowing users to make contactless transactions. In terms of security, Apple Wallet offers biometric authentication (Touch ID and Face ID) for added security. Google Wallet provides multiple layers of security, including biometrics, PIN, and tokenization.

Apple Wallet is limited to the Apple ecosystem, while Google Wallet is available on Android devices, making it more versatile. Apple Wallet does not widely support online payments in web browsers, while Google Wallet allows online payments in supported web browsers. Apple Wallet integrates seamlessly with the Apple ecosystem, while Google Wallet offers integration with Google services such as Google Maps. Apple Wallet is limited to Apple devices, while Google Wallet can be accessed on Android devices and select web browsers.

Due to the immediate objectives of Natura Manitoba and the nature of this organization and the aspects reviewed, the use of Google Wallets is recommended.

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# What Is a Digital Wallet?

A digital wallet (or electronic wallet) is a financial transaction application that runs on any connected device. It securely stores your payment information and passwords in the cloud. Digital wallets may be accessible from a computer; mobile wallets, which are a subset, are primarily used on mobile devices. In general, digital wallets offer the following functionalities:

**Fund storage:** They allow users to securely store financial information, such as credit cards, bank accounts or cryptocurrencies.

**Making Payments:** Users can use their digital wallets to make payments online or in physical stores.

**Fund transfers:** They facilitate the transfer of money between users, whether person-to-person (P2P) or between a person and a company.

**Transaction management:** They provide a detailed history of transactions made, which helps keep track of expenses and income.

**Security:** They must have security measures, such as two-factor authentication, encryption and personal data protection, to ensure the security of the user's financial information.

**Integration with other services:** Some digital wallets integrate with other applications and services, such as online shopping applications or investment services.

Digital wallets can also store:

- Gift cards
- Membership cards
- Loyalty cards
- Coupons
- Event tickets
- Plane and transit tickets
- Hotel reservations
- Driver's license
- Identification cards
- Car keys



# General Pros and Cons of Digital Wallets

## Cons

- Payment method may not be accepted everywhere
- May not work if Bluetooth or WiFi isn't available or your device isn't charged
- Privacy: Some individuals are concerned about privacy and data collection by tech companies.
- Limited compatibility: Not all merchants accept digital wallets, limiting their utility.
- Dependency on mobile devices: They require a smartphone or compatible device, excluding those without access to these devices.
- Vulnerability to cyberattacks: If not adequately protected, the information stored in the digital wallet could be vulnerable to cyberattacks.
- Device loss: If the device is lost or stolen, access to the digital wallet may also be lost.
- Fees: Some digital wallets may charge fees for certain services or transactions.
- Regional variations: The availability and features of digital wallets may vary by region, which can be confusing for travelers.

## Pros

- Convenience: Digital wallets enable users to make quick and easy payments online or in physical stores.
- Security: They offer additional security measures, such as biometric authentication and tokenization, to protect financial information
- Card storage: Users can store multiple credit, debit, and loyalty cards in one place.
- Transaction history: They facilitate tracking transactions and expense control.
- Discounts and rewards: Some digital wallets offer exclusive discounts and rewards to users.
- Integration: They integrate with other applications and services, such as loyalty programs and navigation systems.
- Reduced cash usage: They help reduce dependence on cash, which can be more hygienic and secure.
- Can improve access to financial services in underserved areas

# Types of Digital Wallets by Platforms

Digital Wallet	Description
Apple Pay	Offered by Apple, it's a digital wallet that allows users to make payments in physical stores and online using Apple devices like iPhone, Apple Watch, and Mac.
Samsung Pay	Provided by Samsung, it enables users to make mobile payments on Samsung devices and is compatible with a wide range of payment terminals.
PayPal	Initially an online payment platform, PayPal has expanded its reach to support payments in physical stores and mobile apps.
Venmo	Owned by PayPal, Venmo is an app commonly used to send and receive payments among friends and family.
Square Cash	Offered by Square, it allows users to quickly and easily send money through its mobile app.
Stripe	An online payment platform that enables businesses to process payments online and in mobile apps.
Alipay	A leading digital payment platform in China, widely used in the country.
WeChat Pay	Offered by WeChat, it's a popular payment platform in China and a key feature of the WeChat messaging app.
Cash App	Owned by Square, it lets users send money and buy Bitcoin through its app.
Amazon Pay	Amazon customers can use this digital wallet to make payments on other websites and apps.
Google Pay	Offered by Google, Google Pay allows users to make payments in physical stores and online using Android devices and on compatible web browsers.



Most wallets attempt to distinguish themselves from their competitors with different methods. For example, Google's digital wallet service allows you to add funds to the wallet on your phone or device. Then you can spend this cash in-store and online at businesses that accept Google payments. Apple, on the other hand, entered into a strategic partnership with Goldman Sachs to issue Apple credit cards and expand its Apple Pay services.

<https://www.investopedia.com/terms/d/digital-wallet.asp#citation-6>

# Types of Digital Wallets by User Fund Control

Refer to the degree of control and access users have over their funds and services within a digital wallet. Here are examples of each type:

## **Prepaid Wallets:**

- **Digital Gift Card:** A digital gift card wallet allows users to load a specific balance, which can then be spent at retail stores or online. For example, an electronic gift card from a fashion store.
- **Prepaid Travel Wallet:** Prepaid travel wallets enable travelers to load funds in foreign currency before a trip. They can use the wallet for overseas expenses, such as meals and transportation.
- **Online Gaming Wallet:** Some gaming platforms offer prepaid wallets to purchase virtual items within a game. Players load a balance into the wallet to make in-game purchases.

## **Credit Card-Connected Wallets:**

- Online Shopping Wallet
- Travel Wallet with Credit Card
- Subscription Services Wallet

## **Bank-Connected Wallets:**

- Mobile Banking Wallet
- Investment Wallet
- Shared Expenses Wallet

<https://www.digipay.guru/blog/closed-loop-and-open-loop-wallet-for-merchants-and-customers/>

[https://www.youtube.com/watch?v=iZz\\_8N9WPVA&t=273s](https://www.youtube.com/watch?v=iZz_8N9WPVA&t=273s)



# Types of Digital Wallets by merchant limitation

Refer to the degree of control and access users have over their funds and services within a digital wallet. Here are examples of each type:

## Closed Loop wallets

- Starbucks Rewards: The Starbucks Rewards program is a closed loop wallet that allows customers to pay for their purchases using their mobile app.
- Disney MagicBand: The Disney MagicBand is a closed loop wallet that is used at Disney World parks and resorts.
- Subway Card: Paying for Subway sandwiches and other menu items is made easy with closed loop wallets. Customers can load funds onto the card and use it to make purchases at any participating Subway location.



## Open Loop wallets

- PayPal: It allows users to link multiple payment sources, such as bank accounts and credit cards, to their accounts and use them to make purchases with a wide range of merchants.
- Apple Pay: Apple pay wallet allows users to make purchases with their iPhone, Apple Watch, or iPad at a variety of merchants, both online and offline.
- Google Pay: Google Pay wallet allows users to make purchases with their Android phone or other compatible devices. It can also be linked to multiple payment sources and used at a variety of merchants.

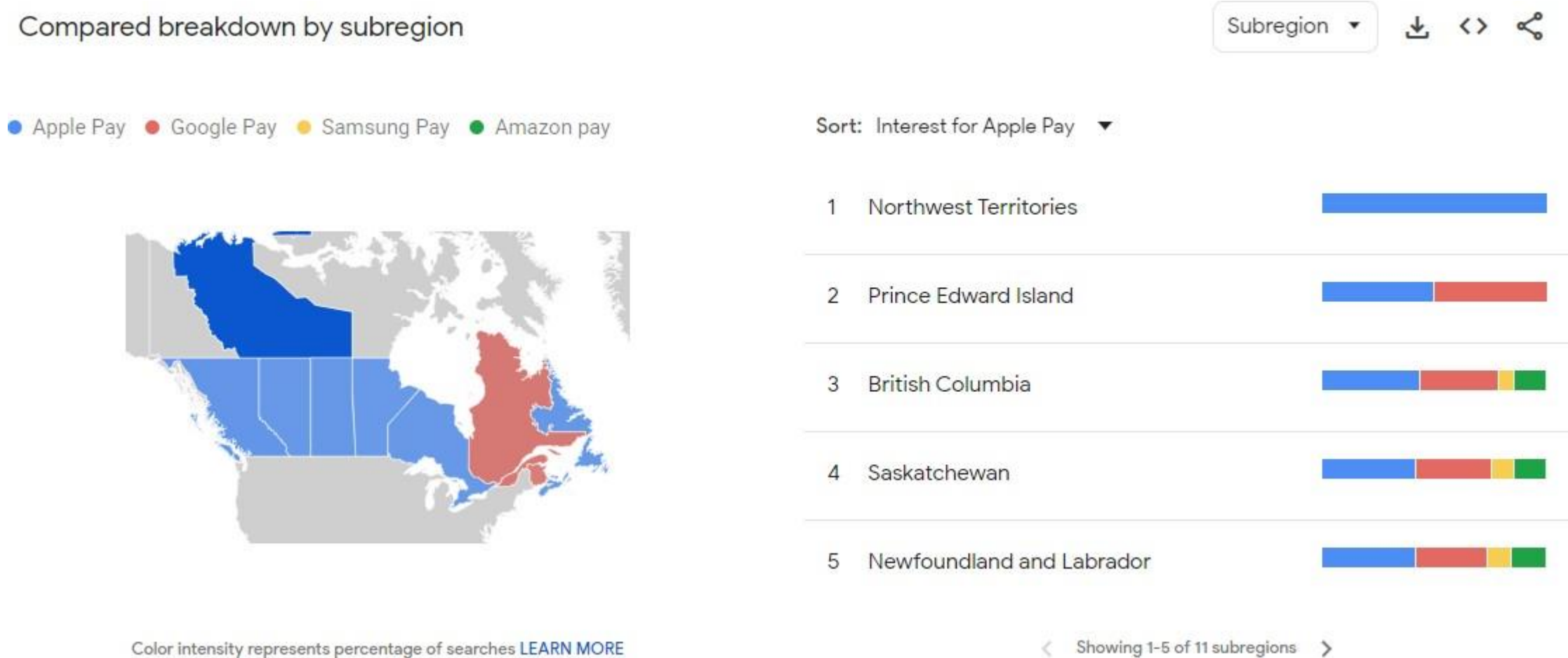


<https://www.digipay.guru/blog/closed-loop-and-open-loop-wallet-for-merchants-and-customers/>

[https://www.youtube.com/watch?v=iZz\\_8N9WPVA&t=273s](https://www.youtube.com/watch?v=iZz_8N9WPVA&t=273s)

# Preferences of digital wallets across Canada in 2023

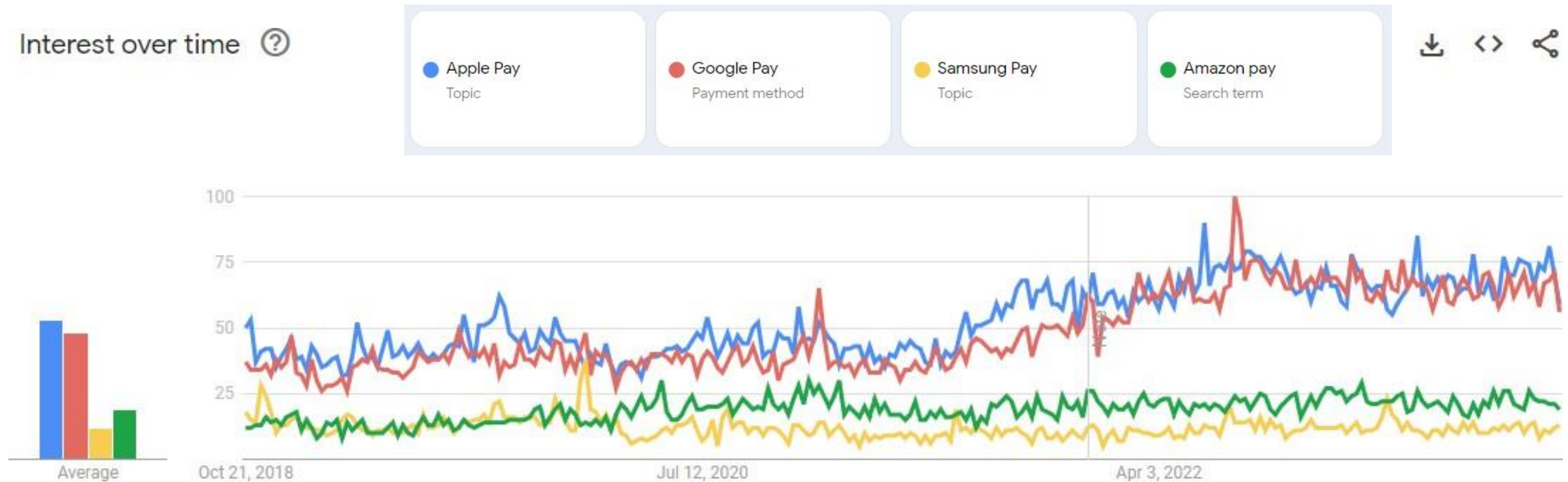
The presence of Apple Pay dominates across the Canadian territory, with the exception of Quebec. Other competitors of Apple Pay do not have a significant presence, except for Google Pay.



<https://trends.google.com/trends/explore?date=today%205-y&geo=CA&q=Google%20Pay,Apple%20Pay,Samsung%20Pay,Amazon%20Pay&hl=en>

# Trends in Canada Over Time

Over time, people have consistently shown a higher level of interest in Apple Pay and Google Pay compared to other payment methods like Samsung Pay and Amazon Pay. This interest has further increased in the wake of the pandemic



<https://trends.google.com/trends/explore?date=today%205-y&geo=CA&q=Google%20Pay,Apple%20Pay,Samsung%20Pay,Amazon%20Pay&hl=en>

# Google Pay and Apple Pay: Overview

## Brief introduction to Apple Pay (Apple Wallet)

- Initial Launch (2012): Apple Wallet was introduced with iOS 6 as "Passbook," initially designed to store digital passes and cards.
- Name Change to Apple Wallet (2015): With the update to iOS 9, it was renamed Apple Wallet to reflect its broader functionality.
- Added Loyalty Cards and Gift Cards (2015): Users were allowed to store loyalty cards and gift cards within the application.
- Integration with Apple Pay (2014): Apple Wallet became the application for storing credit and debit cards for use with Apple Pay.
- Siri and Shortcuts (2018): Integration with Siri enabled access to cards and passes through voice commands, and the Shortcuts feature was utilized to automate actions based on stored cards.
- Car Key (2020): Apple Wallet began supporting digital keys for compatible vehicles, allowing users to unlock and start their cars with the app.
- Identification Cards in Some U.S. States (2020): In some U.S. states, users were allowed to add state identification cards or driver's licenses to Apple Wallet.
- Transit Cards in Some Regions (Later Years): Integration of public transit cards was allowed in select areas.

## Brief introduction to Google Pay (Google Wallet)

- Initial Launch (2011): Google Wallet was introduced as a mobile payment application on Android devices.
- Expansion to iOS and the Web (Later Years): Availability was expanded to iOS devices and the web version.
- Integration with Google Pay Send (2018): Money-sending functionality was integrated through Google Pay Send.
- Name Change to Google Pay (2018): Google Wallet merged with Android Pay under the new name Google Pay.
- Focus on Versatility (Later Years): Google Pay expanded beyond mobile payments to include online payment options, storage of loyalty cards, and gift cards, among others.
- Integration of Google Pay API (Later Years): APIs were provided for developers to integrate Google Pay into applications and websites.



Google Wallet  
2014



Android Pay  
2015



Google Pay  
2018



Google Wallet  
2022

# Similarities and differences between Apple Wallet and Google Wallet

Below are the characteristics shared by the most popular digital wallets in Canada in 2023, as well as their main differences.

## Apple Wallet

- Apple Pay Cash on Apple Devices
- Deep Integration with iOS
- Siri and Shortcuts
- Car Key
- Identification Cards in Some U.S. States

- Online Shopping
- Mobile Payments
- Bank Account Transfers
- P2P Money Transfer
- Compatibility with Various Cards and Banks
- Available for download on any app store
- Integration with Applications and Services
- Payment and Transaction Management
- Security and Authentication
- Creation of Cards Using
- Loyalty Card Storage
- Reward Card Storage
- Gift Card Storage
- Transit Ticket Storage
- Vaccination Card
- Digital Wallet Storage for Tickets
- Boarding Pass Storage
- Access Cards and Memberships
- Generic Card Storage

## Google Wallet

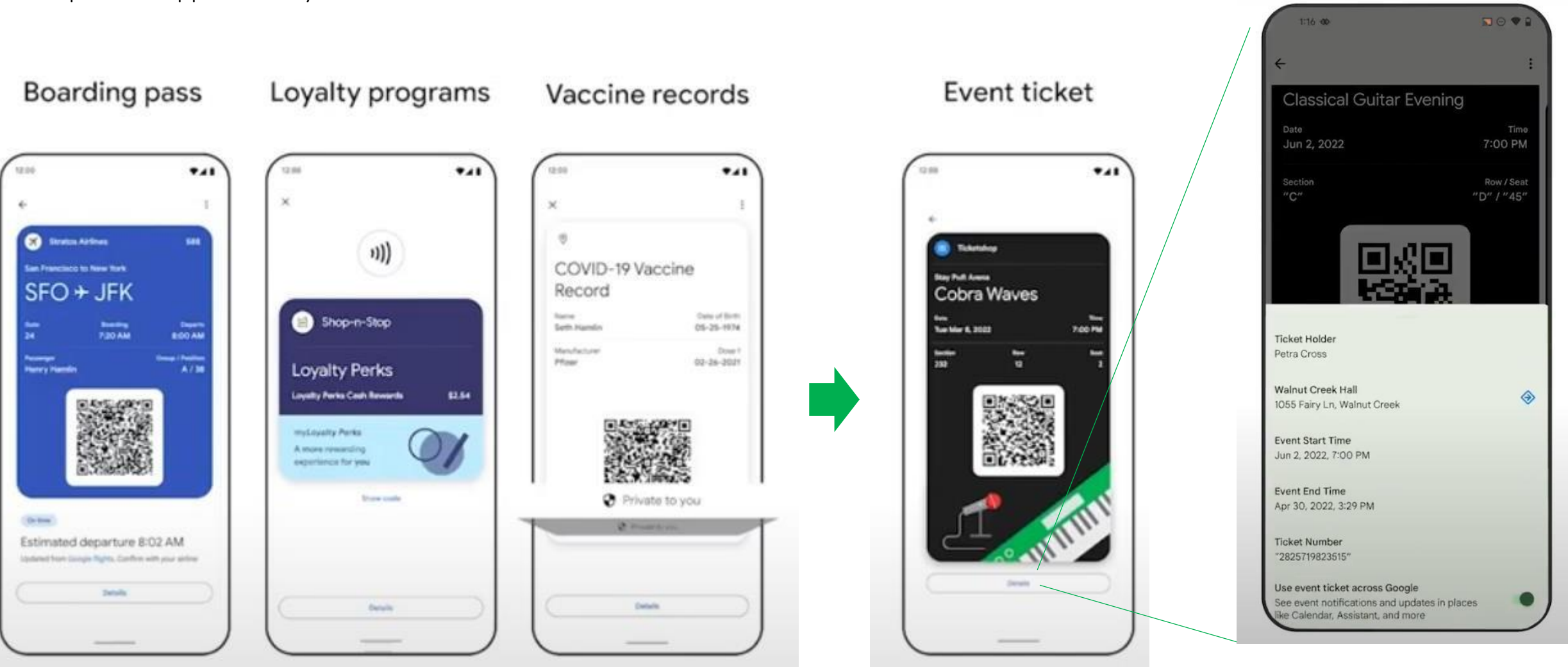
- Direct Bank Transfers using only phone numbers or emails
- Compatibility with both Android and iOS systems
- Enables online payments on supported web browsers
- Integration with other Google services like Google Maps

<https://www.youtube.com/watch?v=QVsrrFHjBmw>



# Digital Card Management for Non-Financial Cards

In a digital wallet, you can store not only credit and debit cards but also cards such as Loyalty Cards, Reward Cards, Gift Cards, Transit Tickets, Vaccination Cards, Tickets, Boarding Passes, Access Cards, and Memberships, all in one place. Additionally, each document can provide real-time updated supplementary information.



# Conclusions and recommendations

- According to Google Trends, the dominant platforms for digital wallets in Canada are Apple Wallet and Google Wallet.
- From an end-user perspective, creating a digital card from Google Wallet or Apple Wallet is interchangeable, as both can be downloaded from either an Apple or Android phone through their respective app stores at no cost.
- While Apple Wallet has a stronger presence in Canada, for the features and purposes that Nature Manitoba is pursuing, it would be advisable to initially deploy a closed wallet from Google Wallet. This is because Google Wallet offers greater versatility in integrating other services, such as Google Maps, Google Analytics, and TensorFlow.



# References

1. <https://www.investopedia.com/terms/d/digital-wallet.asp>
2. <https://trends.google.com/trends/>
3. <https://www.apple.com/newsroom/2019/03/introducing-apple-card-a-new-kind-of-credit-card-created-by-apple/>
4. <https://www.youtube.com/watch?v=hLINX2HT6QY>
5. <https://developers.google.com/pay/issuers/tsp-integration/gpay-flows>
6. <https://codelabs.developers.google.com/add-to-wallet-web#0>
7. <https://www.youtube.com/watch?v=cHv8LqkbPHk>
8. <https://www.youtube.com/watch?v=S9d43ljwjFQ>
9. <https://www.youtube.com/watch?v=pZyGYUMZAeq>
10. [https://www.youtube.com/watch?v=G\\_bXjXPyNzc](https://www.youtube.com/watch?v=G_bXjXPyNzc)
11. <https://www.youtube.com/watch?v=tZP0GglBpWw>
12. <https://appinventiv.com/blog/digital-wallet-app-development/>
13. <https://www.youtube.com/watch?v=QVsrrFHjBmw>
14. [https://www.youtube.com/watch?v=iZz\\_8N9WPVA&t=254s](https://www.youtube.com/watch?v=iZz_8N9WPVA&t=254s)
15. <https://developers.google.com/wallet/retail/loyalty-cards/use-cases/updates#python>
16. <https://www.digipay.guru/blog/closed-loop-and-open-loop-wallet-for-merchants-and-customers/>
17. <https://codelabs.developers.google.com/add-to-wallet-web#0>



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