



The Business Model of Apple Pay and Apple Card

Roel Wieringa

Jaap Gordijn

June 30th, 2020

Copyright © 2020 by The Value Engineers

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the publisher, except in the case of brief quotations embodied in critical reviews and certain other noncommercial uses permitted by copyright law. For permission requests, write to the publisher, addressed "Attention: Permissions Coordinator," at the address below.

The Value Engineers
contact@thevalueengineers.nl
Soest, The Netherlands
KvK: 69731101

Table of Contents

1.	Introduction	4
2.	The basic economic transaction	5
3.	Credit card transactions	6
4.	Apple Pay	8
4.1	Value propositions	8
4.2	Value network	9
4.3	Profit model	9
4.4	Elaborated value propositions	10
5.	Apple Card.....	11
5.1	Value network	11
5.2	Profit model	12
5.3	Value propositions	13
6.	Strategic analysis	15

1. Introduction

In the past five years, digital platform companies such as Google, Apple, Amazon and Facebook have entered the financial industry, not with advanced fintech, but with traditional services, such as credit card services.

In our previous [White Paper](#), we analyzed the business model of credit cards, on which all these initiatives rely. In the current White Paper, we analyze the business model of Apple Pay and Apple card.

The analysis in this paper is based on public information found on the web. If you think we have misinterpreted the information that we found, or that we missed important information, please contact us at info@thevalueengineers.nl.

2. The basic economic transaction

In the simplest possible economic transaction, we pay for a product with cash. The following diagram represents this in e^3 value. The diagram also shows the legenda of the symbols used.

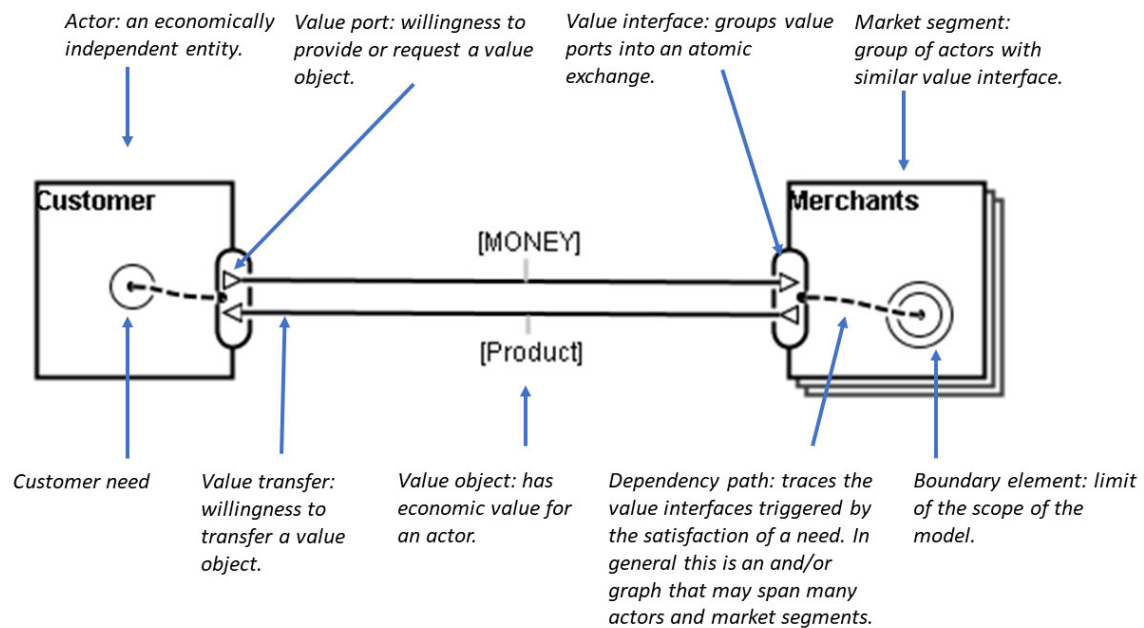


Figure 1 The basic economic transaction

A customer feels the need for a product and buys it from a merchant. The group of merchants is called a market segment and the customer freely chooses one of them. In the economic exchange, the customer acquires ownership of the product and the merchant receives the money.

The merchant will have interfaces to other actors, for example to acquire the product from wholesalers, to rent the shop, to pay employees, etc. The model in Figure 1 ignores these other actors and interfaces, as indicated by the boundary element.

A dependency path connects the customer need with all the transactions that need to occur to satisfy this need. In general, a dependency path is an acyclic and/or graph that starts from a customer need. Dependency paths can partly coincide, creating a dependency graph starting from two or more needs.

3. Credit card transactions

In our earlier [white paper](#), we presented a value network of the basic credit card transaction.¹ Issuing banks issue credit cards to their customers, who use them when they buy a product from a merchant. The credit card association provides its brand and a payment network. The merchant can display the brand logo to show that he or she accepts cards of this brand. The credit card transaction is registered by the merchant's bank, also called the acquiring bank. The issuing bank pays the merchant through the merchant's account at the acquiring bank, using the credit card network to route the payment. The cardholder pays the amount back to the issuing bank, plus interest. The following diagram shows the payments taking place.

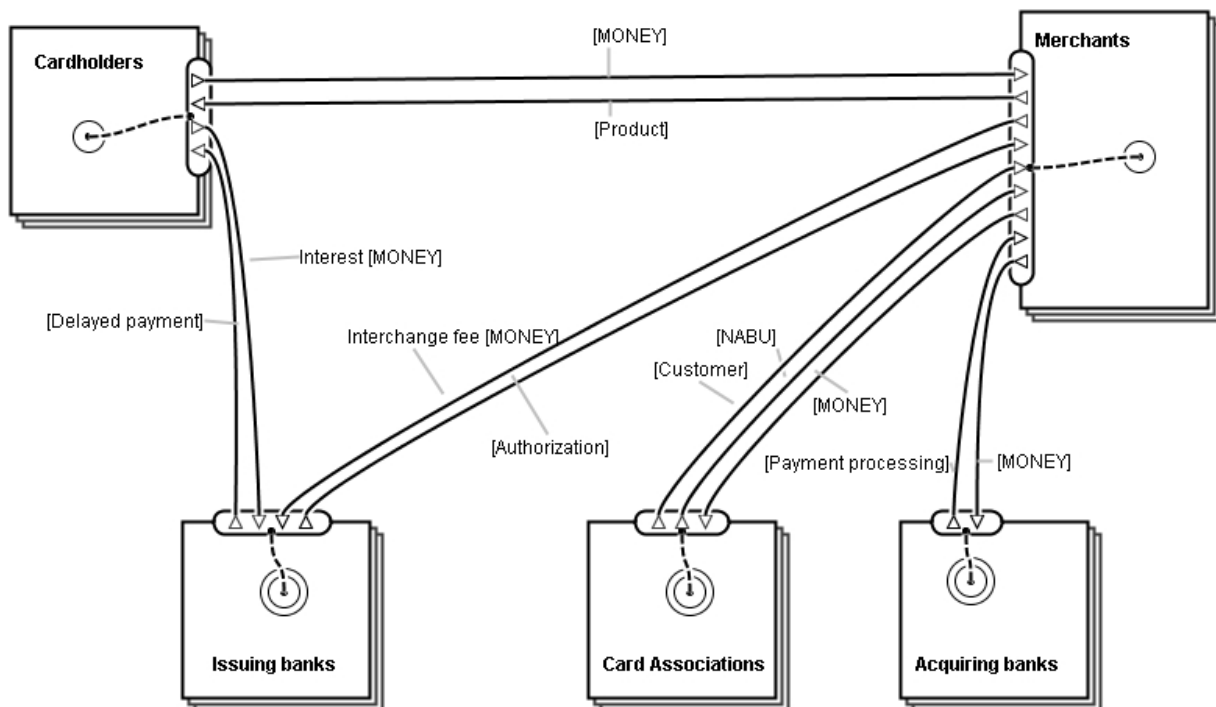


Figure 2 The value network of a credit card transaction.

The consumer still pays the price for the product, but additionally pays interest over this price because they borrowed the money from the issuing bank. The merchant pays fees to the issuing bank, the card association, and the acquiring bank. The issuer asks an interchange fee for transferring money to the acquiring bank. The card association asks a fee for network access and brand usage (NABU) and for delivering a customer to the merchant. Without the credit card logo, some customers would pass the shop by. The acquiring bank asks a fee for credit card transaction processing.

¹ Ref toevoegen @@@@

The fees paid by the merchant are called *merchant discount fees*. In the USA, they may amount to 2-3% of the price of the product. In the EU the interchange fee is capped at 0.3% so that the total fee paid by the merchant is lower.

4. Apple Pay

Apple introduced Apple Pay in 2015 after several years of preparation.² It uses Apple Wallet to store encrypted credit cards. Apple Wallet was previously called Apple Passbook and was used to store coupons, gift cards, member cards, etc. It was renamed into Apple Wallet in 2015, when Apple Pay was introduced.³ Apple Pay works with iPhone 6 or higher, Apple Watch and a few other Apple devices as well as with the Safari browser. We use the iPhone as example in the rest of this white paper.

A cardholder can scan her physical credit card using Apple Pay, after which Apple contacts the card association to generate a unique token that represents the credit card in the iPhone. The token is stored in the Apple Wallet.⁴

To use the digital version of the credit card in Apple Wallet as contactless payment card, the cardholder identifies herself with fingerprint or FaceID and keeps the iPhone close to the Apple point-of-sale (PoS) terminal of the merchant. The PoS terminal sends the token to the acquirer, who forwards it to the card association, who forwards the token and the account ID to the issuer to authorize the payment.

The interface is very convenient to the cardholder and it is more secure than the physical credit card. When registering a credit card, the iPhone stores a token that represents the card and works only on that iPhone. If the user loses her iPhone, then Find My iPhone can be used to lock the phone or wipe it completely.

4.1 Value propositions

- For **cardholders**, payment is faster and more convenient.⁵
- **Merchants** hope to attract more of the relatively affluent Apple users.
- **Card associations** benefit because the increased convenience of Apple Pay compared to physical credit cards may increase traffic.
- **Issuing banks** benefit because Apple Pay payments are more secure than their counterparts with a physical credit card, and they too will benefit from increased transaction numbers.
- **Apple** benefits in two ways:
 - The convenience of Apple Pay may cause more consumers to buy an iPhone and it will motivate their existing users to keep using an iPhone.
 - Merchants will display the Apple logo on a PoS next to credit card logos on other PoS terminals.
 - Apple has entered the payment ecosystem at an important point, the user interface, from where they can expand their business model.

² https://en.wikipedia.org/wiki/Apple_Pay

³ https://en.wikipedia.org/wiki/Apple_Wallet

⁴ <https://gandal.me/tag/payment-cards/>

⁵ <https://www.slideshare.net/Strategyzer/apple-pay>

4.2 Value network

Apple Pay is a front end for credit card transactions that delivers convenience to cardholders and security to issuers. Issuers pay 0.15% per transaction.⁶ In the EU they pay less because the EU has put a cap of 0.3% on the interchange fee.

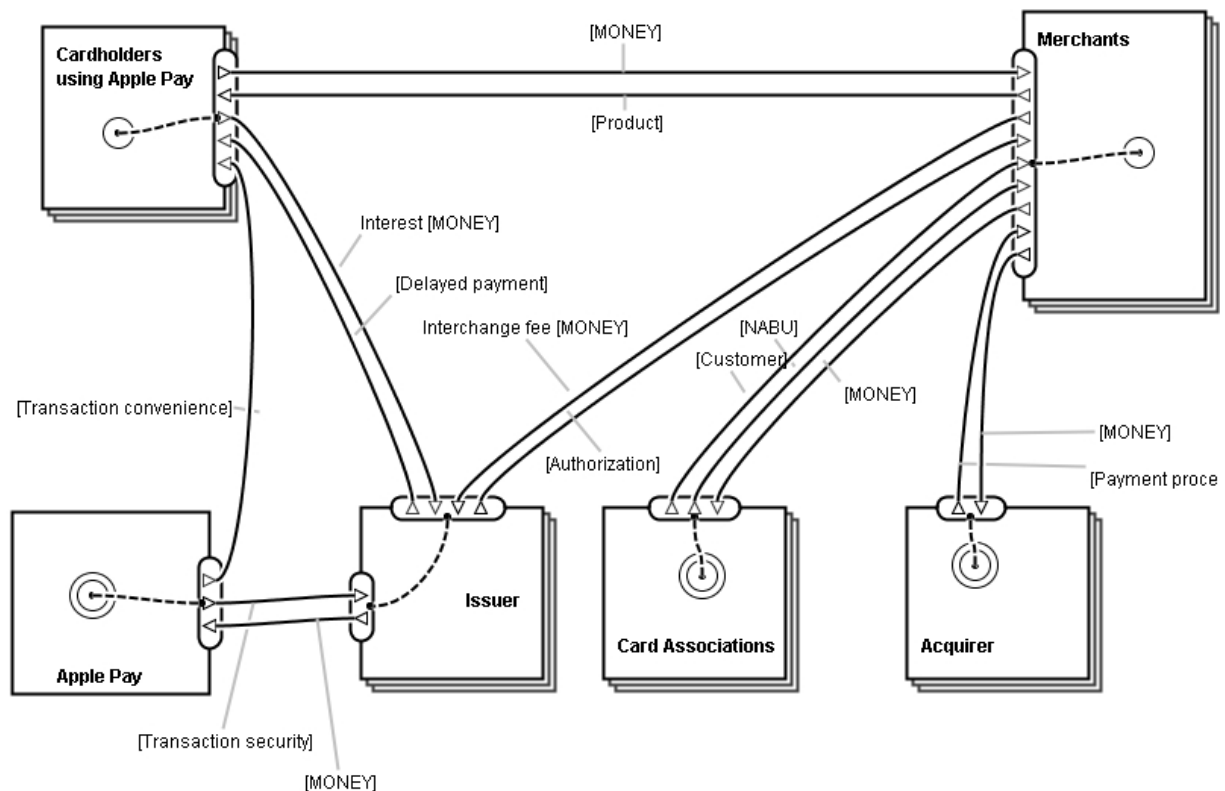


Figure 3 The value network of an Apple Pay transaction

Transaction convenience is a service delivered by Apple pay every time a user performs an Apple Pay transaction. Transaction Security is a service delivered to the Issuer whenever Apple Pay is used. It causes the credit fraud cost of the Issuer to go down.

4.3 Profit model

⁶ <https://financial-alchemist.blogspot.com/2019/04/apple-aapl-apple-pay-revenue-estimates.html>

Apple **Pay** is accepted at 220K merchants and also by a number of public transport companies around the world.⁷ 85% of Apple users have at least one card registered to their Apple Pay account and 63 percent of those cards are credit cards. At stores where consumers might have used debit more – like grocery – with Apple Pay, those transactions now show a more than noticeable tip toward credit card usage.⁸

Apple takes 0.15% per transaction in the USA and much less in the EU. For the issuer this is deducted from the interchange fee. The Financial Alchemist estimates a revenue of US\$330M in 2019 and US\$775M in 2020 in the USA.⁶ The estimation assumes an average transaction amount of US\$25 and a growth from 100M transaction in 2017 to over 1B transactions in 2018 and 10B transactions in 2019.

If we add revenue outside USA the revenue is likely to reach US\$1B in 2020. This is negligible compared to Apples net revenue of US\$55B in 2019.⁹

4.4 Elaborated value propositions

We can now refine the value propositions for the various stakeholders into cost/benefit/risk statements.

- For **cardholders**:
 - Payment is faster and more convenient.
 - But by using credit cards more often, even when there is the alternative of cash or a debit card, they are worse off financially because they must pay interest.
- **Merchants**:
 - They hope to attract more of the relatively affluent Apple users.
 - However, they do have to upgrade their PoS technology to accept Apple Pay — this does not make their life simpler nor does it reduce their cost.
 - And there is a risk that interchange fees may increase, as will become clear when we look at the value network.
- **Card associations**:
 - They benefit because the increased convenience of Apple Pay compared to physical credit cards may increase traffic.
- **Issuing banks**:
 - They benefit because Apple Pay payments are more secure than their counterparts with a physical credit card
 - They will also benefit from increased transaction numbers.
 - However, they will have to pay Apple a fee. If they refuse to pay a fee, Apple will exclude them from their ecosystem. As a token requester, Apple has the power to do this.¹⁰

⁷ <https://www.barrons.com/articles/apple-credit-card-apple-pay-revenue-growth-transit-transportation-51567105628>

⁸ <https://www.pymnts.com/in-depth/2015/apple-pays-business-model-blues/>

⁹ <https://sec.report/Document/0000320193-19-000119/>

¹⁰ <https://gandal.me/tag/payment-cards/>

- **Apple** benefits in four ways:
 - The convenience of Apple Pay may cause more consumers to buy an iPhone and it will motivate their existing users to keep using an iPhone.
 - Merchants will display the Apple logo on a PoS next to credit card logos on other PoS terminals.
 - Being a token requester gives Apple leverage on issuers, because Apple may refuse to accept an issuer's card unless they pay a fee.
 - Apple Pay generates relatively little revenue but it has gained Apple a place in the financial ecosystem where most of the money is to be made: at the user interface.

5. Apple Card

In 2019 Apple introduced the Apple Card, a titanium credit card with a digital counterpart stored in Apple Wallet.¹¹ Signing up costs a few minutes, and you can use the digital card wherever Apple Pay contactless payment is accepted. The titanium card can be used where Apple Pay contactless payment is not accepted.

Apple card comes with financial management software that gives an overview of where and when you used the card, how much you spent, what you need to pay back, when to pay it back and how much it costs you if you delay your payment further.¹² Apple charges interest to the cardholder and interchange fees to the merchant but there are no other fees.

Apple card also operates a cashback program, in which the cardholder is rewarded for using the card by returning a percentage of the price of the product to the cardholder. The money is delivered daily to the cardholder's Apple Wallet, from which you can spend it using Apple Pay or transfer it to your bank account.¹² Apple calls this Daily Cash.

The value propositions of Apple card to the different stakeholders can be given after we model the value network and profit model. So we present these first.

5.1 Value network

Apple card uses Goldman Sachs to issue the card and the Mastercard network to transfer funds from the issuer to the merchant. Details of these contracts were not available to use and here we assume that the Apple card is *issued* by Apple and uses Goldman Sachs as *issuing processor*. This gives us the following value network for Apple card transactions (Figure 4).

Apple card is one of the credit cards virtualized in Apple Pay. Apple Pay provides security to Apple card and usability to the user, as it does for other credit cards.

¹¹ https://en.wikipedia.org/wiki/Apple_Card

¹² <https://9to5mac.com/2019/08/06/hands-on-apple-card-approval-more/>

Apple has become a credit card issuer now and uses the services of Goldman Sachs for that, or more precisely, of the online consumer bank Marcus started by Goldman Sachs in 2016.¹³ As issuer, Apple card receives an interchange fee for each transaction. There will be some revenue-sharing agreement with Goldman Sachs, so part of this will be transferred to Goldman Sachs.

Mastercard provides network services for Apple card and receives a fee for this from merchants.

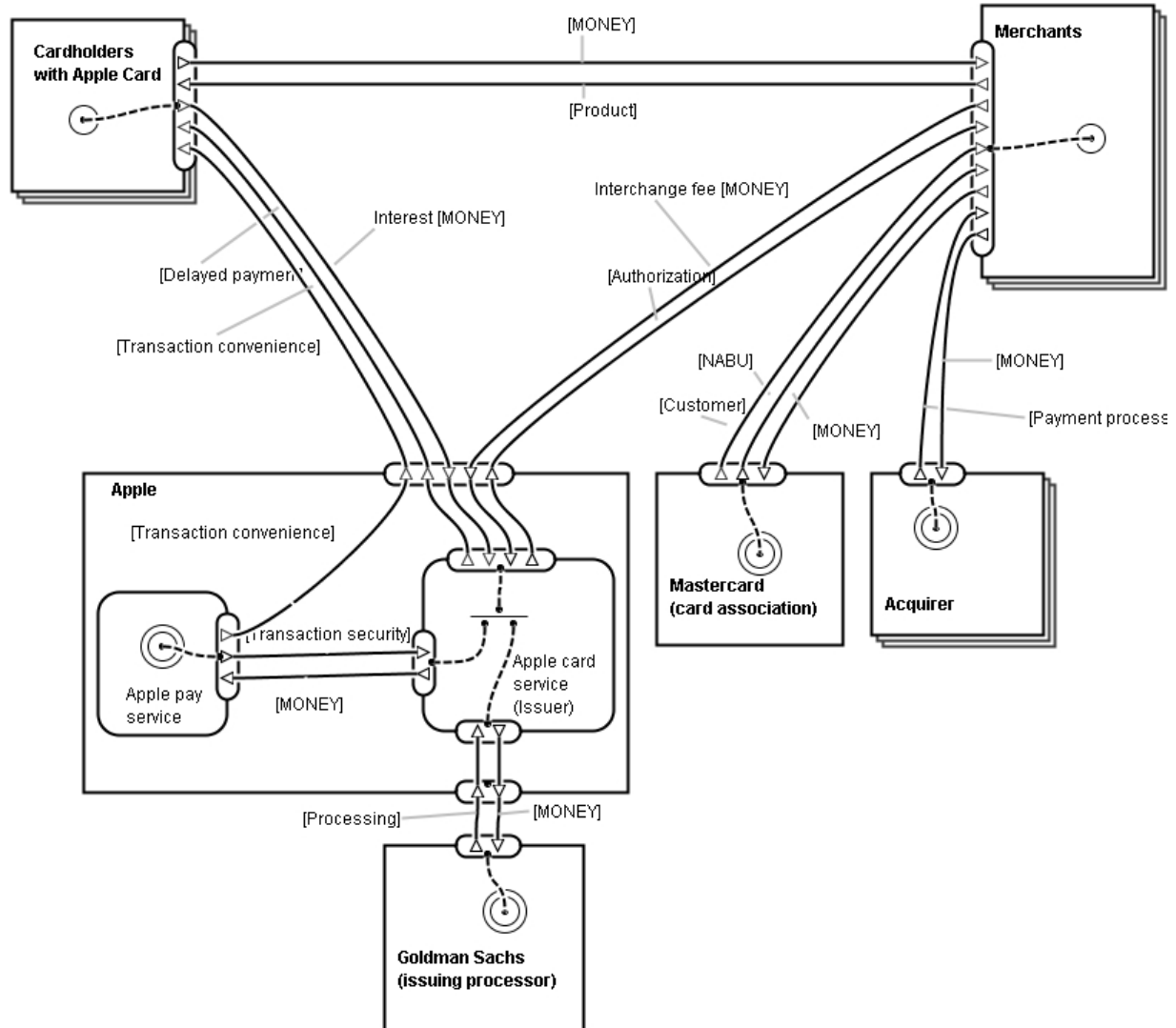


Figure 4 The value network of an Apple Card transaction

5.2 Profit model

¹³ <https://www.forbes.com/advisor/banking/marcus-by-goldman-sachs-review/>

Apple receives interest on the credit card balance and receives no other fees, i.e. no late fees, no returned payment fees, and no foreign transaction fees.¹⁴ However, depending on your credit status and late payment behavior, average percentage rate (APR) —the average yearly interest on the money outstanding to Apple— ranges from about 13% to about 24%. This is similar to what other credit cards ask.¹⁵

The interchange fee is not known. However, under some reasonable assumptions, Forbes speculates that the accumulated interest and interchange fees in 2020 could be US\$1B, rising to US\$5B in 2022.¹⁶ If Apple keeps a 20% cut of this, then revenue would be US\$1B in 2022.

Apple offers cashback of 3% on purchases of Apple product, 2% on purchases done with the digital card (which uses Apple Pay), and 1% on purchases done with the titanium card (which does not use Apple Pay). Other cards have higher cashback percentages.¹⁷

Goldman Sachs pays Apple US\$350 for each new Apple card customer.¹⁸ Goldman Sachs is not worried about Apple card's profitability but intends to create a loyal customer base.¹⁹

5.3 Value propositions

- **Cardholders**
 - Have a very convenient card that provides additional financial management services compared to other credit cards.
 - Financial conditions may not be competitive, but usability and status (a titanium card with your name etched in it) is.
- **Goldman Sachs**
 - Grows a loyal customer base for its online bank, Marcus. Marcus behaves like a startup without legacy technology or business models. The Apple card customer base is potentially 900M users large (the number of iPhone users) and relatively affluent.
 - In line with Apple policies, they will not sell the data they collect about cardholders, but they will analyze it, build user profiles, and may offer other payment products to them later.
- **Mastercard**
 - Adds traffic to its network without initially reducing traffic generated by Mastercard credit cards.
- **Merchants**

¹⁴ <https://www.nytimes.com/wirecutter/money/credit-cards/apple-credit-card-review/>

¹⁵ https://www.marketwatch.com/story/heres-everything-apple-isnt-telling-you-about-its-new-credit-card-2019-03-27?mod=article_inline.

¹⁶ <https://www.forbes.com/sites/greatspeculations/2019/03/05/whats-the-revenue-potential-for-apples-proposed-credit-card-with-goldman/#7c81834418b1>.

¹⁷ <https://www.nytimes.com/wirecutter/money/credit-cards/apple-credit-card-review/>

¹⁸ <https://9to5mac.com/2019/08/14/goldman-sachs-apple-card-losses/>

¹⁹ <https://9to5mac.com/2019/06/10/apple-card-goldman-comments/>

- Have to recognize Apple Card. Since the titanium card does not require Apple Pay technology, the cost for them is small.
 - Apple Card may attract the relatively affluent Apple users to their shops.
- **Apple**
 - Provides additional reasons for consumers to buy an iPhone and to keep using it.
 - They gain experience in the credit card industry and function both as an issuer and as a card network. Credit cards were introduced as a brand that allows cardholders to recognize merchants who accept the cards, and merchants to recognize that they can accept the card.²⁰ This creates an excellent position for Apple Card to create the preferred payment environment for all Apple device users.

²⁰ <https://gendal.me/2014/07/05/why-the-payment-card-system-works-the-way-it-does-and-why-bitcoin-isnt-going-to-replace-it-any-time-soon/>

6. Strategic analysis

Through this credit card, Apple learns what it takes to manage a card network. Revenue is relatively small but will grow. For example, Visa has almost 4B customers, which generate US\$10B revenue. If Apple can grow the user base of Apple card to 1B, it may generate a revenue in the order of US\$2.5.

This will not be the main reason for Apple to start a credit card. As a hardware company it wants to motivate its user base to stay in its ecosystem and to motivate others to join it. Adding payment functionality to its devices is required to keep up with the Android ecosystem, which since 2015 includes Google Pay²¹. However, other future possibilities are to start a debit card or to grow into a card network, i.e. to replace or buy Visa or Mastercard.²²

²¹ https://en.wikipedia.org/wiki/Google_Pay

²² https://www.marketwatch.com/story/heres-everything-apple-isnt-telling-you-about-its-new-credit-card-2019-03-27?mod=article_inline