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Mobile Wallets' Business Models: Refining Strategic Partnerships

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Background and Purpose: Though Mobile Wallets have the potential to entirely substitute their physical predecessor, many Mobile Wallets narrow their operations to one particular feature. This might be because of strategic business-model design choices to position themselves strategically as intermediates between users and business partners (third parties) in more delimited markets. Thus, Mobile Wallet Applications (MWAs) often represent platforms in narrow two-sided market structures.
Design/Methodology/Approach: The paper focuses on the economics of such platforms by the means of a business model analysis. It examines how business partners are integrated in four MWAs' strategies: Key Ring, FidMe, Apple Passbook and Qustomer.
Results: The paper shows that MWAs strive to incorporate not only a large quantity of partners but also such with a high brand value (quality of partners) in their organization design. These partners shape their service design since none of the platforms offer products or services themselves. Hence, MWAs are dependent on the third parties' capacity and willingness to fulfill engagements and meet the customer demands.
Conclusion: MWAs - though concerned with the inclusion and management of loyalty points and schemes - do not leverage the possibility to generate revenue via third parties' loyalty points. Theoretically, MWAs could reward or redeem loyalty points themselves.

Keywords: *mobile wallets; mobile wallet applications; loyalty schemes; business models; two-sided markets*

1 Introduction

This paper proposes an exploratory study of Mobile Wallets' (MW) business model features through the thorough analysis of a few cases. This will allow to provide some insights on the fact that while mobile payments are nothing new (Ross, 2012), MW have not been able to revolutionise the payment market (comScore., 2013).Understand MW first requires to define it. However a unique definition of what a MW consists of does not exist. MW are the results of an industry-driven movement towards multiple new services that a mobile device has to fulfil.

These would include payment- or access facilitation using Near Field Communication, financial transaction processing, storage of conventional money, credit or debit cards, loyalty cards and loyalty points, coupons or even medical records (GSM Association, 2012; Mallon, 2013). In other words, a MW contains "a virtual copy of the contents of a consumer's physical wallet to facilitate online or offline retail transactions" (comScore., 2013).

Different to this vision, current MWs are by far not substituting all content and functionalities of their physical equivalents. One can see instead narrower approaches being adopted with apps specialized on a few MW features. This has led to specialized Mobile Wallet Applications (MWA). PayPal's mobile payment app for example is based on the incorporation of credit or debit cards; FidMe allows to collect and use loyalty cards; CamCard processes business cards by linking the demographics of the cardholder to an imprint of the business card in the telephone book.

This paper argues that one motivation for such a limitation and tailoring – and renunciation from an all-encompassing solution - roots in business model design choices. Actually, such a choice allows the app provider to position its app in a less complex ecosystem compared to the one that a comprehensive MWA would face. Thus a specialized MWA can target particular customer segments, retailers of

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goods and services, and payment service providers. These MWAs can for example bundle the (often similar) efforts of separate third parties and build the sole point of intersection with customers.

Often, such apps position themselves as the intermediate, or gatekeeper, of a two-sided market (Hagiu, 2014). In this position, the app actually acts as a *platform* that intermediates two sides (Rochet & Tirole, 2002), i.e. "technologies, products or services that create value primarily by enabling direct interactions between two (…) customers or participant groups" (Hagiu, 2014, p. 71). One side are third parties or businesses with loyalty programs that can be incorporated in the MWA; the other side consists in their loyal customers (and users of mobile applications). MWAs compete to be adopted by both user groups. Such competition takes place in a context where there are positive network effects or network externalities.

Network externalities can be differentiated according to whether they are direct or indirect. There are direct externalities when the number of users has a direct positive impact on the utility derived from the product (Liebowitz & Margolis, 2002), e.g. the higher the number of phone users, the more utile for one to have a phone. Indirect externalities are such where the impact is mediated by another market (Liebowitz & Margolis, 2002). Farrell and Klemperer (2006) distinguish the effects even further, speaking of network effects if "one agent's adoption of a good (a) benefits other adopters of the good (a "total effect") and (b) increases others' incentives to adopt it (a "marginal effect")" (Farrell & Klemperer, 2006, p. 44).

Operating under this particular situation, platforms usually aim to spur the rate of adoption (i.e. "the relative speed with which an innovation is adopted by members of a social system", Rogers, 1995, p. 23) for one side of the market to grow to an attractive number. Thus they leverage network effects on the same market side. Such effects can be enforced by the platform e.g. by enabling interchange and networking between users. By this, as discussed previously, the weight of one side of the market can define the attractiveness for the other side of the market (cross-side network effects) (Eisenmann et al., 2006).

An innovation that is well adopted and has gained numerous adherents represents an asset for the platform with a certain control over this market side. Generally, on two-sided markets, a critical mass of users on one side provides a strong appeal for the other side to join (Rochet & Tirole, 2002) – even under paying conditions. Besides, one side is often used as a revenue source. This is a beneficial situation, especially for a sector that mainly provides free services to their end users – like most mobile apps do (Gordon, 2013).

This paper focuses on MWAs that are concerned with the digitisation and management of third parties' loyalty programs. In previous research, Buchinger, Ranaivoson, & Ballon (2014) show the purpose of traditional loyalty programs. Formerly applied and operated mainly by traditional businesses in their direct and bidirectional interaction with their customers, their digitalization now allow (i) users to collect at one third party and spend at another; (ii) the strategic decision of an (mobile) intermediary to position themselves between customers and third parties to either only coordinate the two sides or to redeem loyalty points themselves in return for good and/or services; (iii) third parties to have some flexibility in terms of rewarding and redeeming loyalty points. The authors moreover show that such a position may be leveraged by the MWA to generate revenue (e.g. by charging third parties when they are rewarding loyalty points) and, more importantly, increases the lock-in of both sides of the market to the MWAs operations and loyalty schemes in the ecosystem.

In the remainder of the paper, Section 2 describes the methodology and the conceptual framework. Section 3 analyses and compares the business model design choices for four cases of MWAs. Section 4 concludes and suggests ways for further research.

2 Method

2.1 Case Study analysis

The case study approach was chosen for its ability to describe "a contemporary phenomenon in its real-life context" (Yin, 1981, p. 59) eligible for the economic analysis of MWAs. Four cases of MWAs were chosen: Key Ring, FidMe, Apple Passbook and Qustomer. All four case studies were chosen because, besides the fact that they are positioned as intermediates in two-sided markets, they have similar business operations as MWAs that are concerned with the management of loyalty cards and –schemes. For most cases this is the central business operation while Apple Passbook expands this focus to include other, increasingly digital wallet functionalities, such as storage of tickets or airline boarding passes.

While various data collection methods can provide evidence; this paper combines findings mainly from observations. It thus addresses the objective to describe current procedures in the industrial field. Set-up as a cross-case analysis, examples can then be compared upon several factors. The authors have followed the process of i) collecting data, ii) analysing cases separately, iii) making a cross-case analysis with deriving overall findings, iv) drawing conclusions (Eisenhardt, 1989).

2.2 The Business Model Analysis

For the economic analysis of the cases, this paper relies on the business model circle developed by Braet and Ballon (2007) based on Barney (1991), providing a holistic approach for the examination of business design choices in network architectures. Several business modelling meth-

odologies have been developed in the last decade (for a systematic analysis of business modelling methodologies, see Casier et al., 2014). However, few allow the analysis of business ecosystems and the exchange of value within. The four parameters constituting the circle provide the framework to analyze how value is generated in a business (*service design* towards the stakeholders; and *finance design*) and also how control is exercised (by the configuration of *organizational design* and through *technological design*) – see Figure 1.

More precisely the organization design corresponds to the value network, i.e. a framework consisting of business actors (physical persons or corporations mobilizing tangible or intangible resources), roles (business processes fulfilled by one or more actors with according capabilities), relationships (the contractual exchanges of products or services for financial payments or other resources). The technology design includes aspects such as modularity, distribution of intelligence and interoperability. The service design refers to the intended customer value. Finally, the finance design includes issues related to costs and revenues (Ballon, 2007).

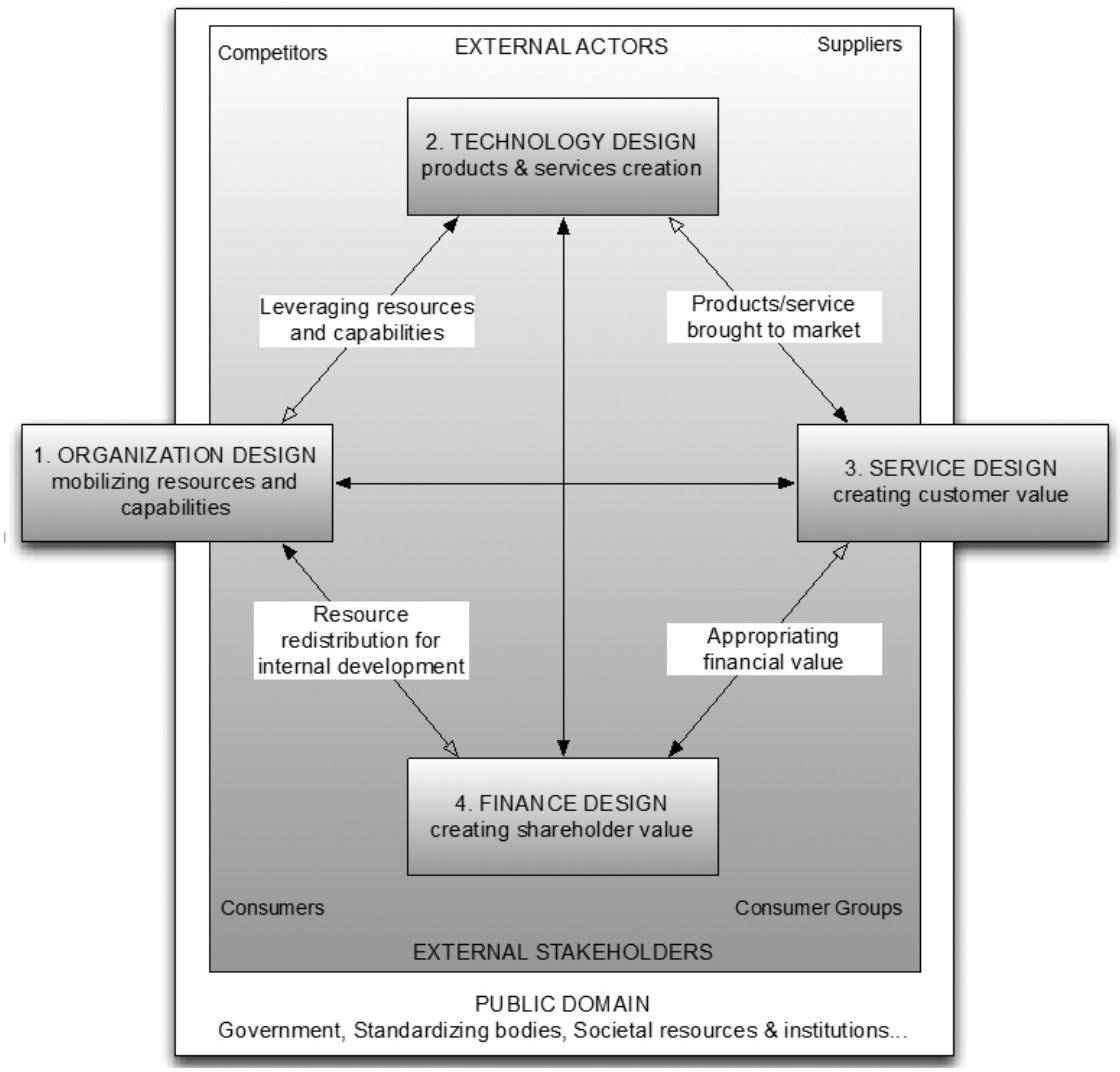


Figure 1: The business model circle (Braet & Ballon, 2007 based on Barney, 1991)

This framework builds the basis of the case study analysis and comparison by imposing a structure and definition of relevant business model parameters. However, the business model framework does not sufficiently consider the particularities of the cases, which are platforms in two- or multi-sided markets competing to be adopted by the users. Hence these parameters demand some specification and concretization to be applicable to the studied use cases. The following section discusses a second framework that largely overlaps with the one discussed while aiming to particularly emphasize the characteristics of and for platforms.

2.3 Platform particularities for Mobile Wallet Applications

Influencing the adoption potential of platforms, Hagiu (2014) addressed four strategic decisions that Multisided Platforms need to consider. This section describes Hagiu's (2014) typology and proposes one way to merge both approaches to build the theoretical framework used for case studies.

The number of sides to bring on board. The first challenge for platforms is to make a trade-off whether to attract more or fewer sides. Attracting more sides leads to potentially larger cross-side network effects, larger scale and potentially diversified sources of revenues. On the other hand, fewer sides bear less the risk of conflicting interest and complexity between the stakeholders. Moreover, the independent existence of one (or several) sides might not be feasible or economically viable. This parameter corresponds to the organizational design of the business model circle.

In his framework, Hagiu (2014) did not consider the quality of each of the sides that are on board. For a comprehensive business analysis, it is advisable to take both aspects into consideration. Two concepts are therefore useful. A first important concept is *Referral Power*. As such, we define the power that a strong customer basis gives a platform as an argument for addressing the other market side (here: incorporating third parties). This term will be used to express the power of the MWA, gained from possessing an adequate *quantity* of adopters of one side in order to attract the other side, i.e. to enforce or encourage cross-side network effects.

The second important concept is the one of *Brand Value*. Some stakeholders can be declared "marquee users" (Eisenmann, Parker, & Van Alstyne, 2006; Parker & Van Alstyne, 2014), i.e. partners with an attractive profile and high *quality* for the other side of the market. These are companies with high brand equity. In this paper, we follow the definition of Keller, (1993): "A brand is said to have positive (negative) customer-based brand equity when consumers react more (less) favorably to an element of the marketing mix for the brand than they do to the same marketing mix element when it is attributed to a fictitiously named or unnamed version of the product or service*"* (Keller, 1993, p. 1). Harnessing the brand equity of a well-perceived supplier and increasing the value for the other side of the market (here: customers) equally raise the value of the platform. Cooperation between platforms and marquee users can be established by exclusive agreements. The author argues that brand value also influences the same side of the network – e.g. a well-knows retailer that cooperates with a MWA might cause a competitor to follow the lead.

Platform design possibilities (e.g. functionalities and features) seem theoretically endless. A rudimentary cost-benefit analysis might be enough to decide in favor or against the implementation of a feature: "If the cost of building and implementing is less than the value created for the multiple sides served, include them" (Hagiu, 2014, p.74). Some features might put the interest of different sides of the platform at odds, thus require especially careful consideration. This parameter corresponds to the value proposition or service design in the business model circle. *Pricing structures*. Given the diversity of customers or stakeholders, platforms often have multiple revenues and profit sources.

Therefore it is common that in two- or multi-sided markets, one side is included for free or benefits from subsidized prices. In this case profits are derived from the other side(s) (Bolt & Tieman, 2008). According to Buchinger et al. (2014) loyalty points can be leveraged as revenue sources. Since in this paper, the focus is on MWAs that deal with the organization and management of loyalty points and schemes; the variable corresponds to the financial design parameters applied to business platforms.

Governance rules. Platforms facilitate interactions between third parties and help them capture value. Consequently, some rules and regulations for the latter's actions should be key part of their strategy (Boudreau & Hagiu, 2009). Governance rules apply for i) regulating the access to the platform; and ii) regulating the interactions on the platform and regulates the terms and conditions.

This parameter does not have a counterpart in the business model circle. It represents an overarching parameter impacting the constitution of each of the others. For example, the platform decides *how* to attract and subsidize one side and *which amount* to charge the other side for the privilege of having access (governing the financial flow in the network). This parameter finds application implicitly via the analysis of the former.

This particular reconcilement of the business model design features and the choices for platforms is only missing one parametrical equivalent, namely the technology design. Hagiu (2014) does not provide any platform-specific correspondent to this parameter.

Table 1 compares how the parameters correspond. The parameters of the business model circle enriched by Hagiu's typology of strategic decisions of multisided platforms will be used in the succeeding analysis of the four use cases.

Table 1: Comparison and merger of business model frameworks

The business model circle (Braet & Ballon, 2007)	Strategic decisions of Multisided Platforms (Hagiu, 2014)
Organization design Mobilizing resources and capabilities	**Number of sides** to bring on board (added: quantity and quality of partners)
Technology design Products & services creation	-
Service design Creating customer value	**Platform Design** possibilities Functionalities and features
Finance design Creating shareholder value	**Pricing structures**
-	**Governance rules** Rules and regulations

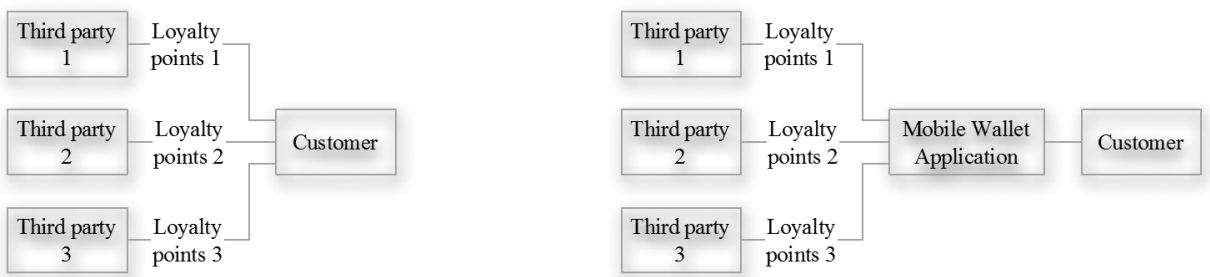


Figure 2: Traditional Loyalty Scheme (left) vs. Loyalty Schemes intermediated by MWAs (right)

3 Implementation and Results – Four Case Studies

The following chapter provides an analysis of the four selected MWAs: Key Ring, FidMe, Apple Passbook, Qustomer. They all position themselves as intermediates of loyalty points exchange streams between purveyors (i.e. third parties such as retailers and groceries) and their customers. Figure 2 illustrates the transformation from the traditional loyalty program to the intermediation of a MWA and thus creating a two-sided market.

While MWA generally provide their service for free to their users, they eventually follow (or prepare to follow) different strategies in leveraging third parties as a source of revenue. In the following examination of cases, the relation between the platform and third parties are emphasized (in disfavor of the customer side). This supports the economic perspective of the analysis. One possibility is to use the circulating loyalty points as a valuable asset.

3.1 Key Ring

Key Ring (www.keyringapp.com) is an application for iOS and Android devices that enables its users to store and manage loyalty cards, join new loyalty programs and receive mobile coupons. The main functionality of the free app is the simple scanning of barcodes of loyalty cards issued by third parties. The Key Ring app stores the digital imprint in the wallet. Discounts are automatically deducted when scanning the in-app-portrayed barcode at the checkout.

Key Ring does not run its own loyalty program or manage proprietary points. The app is only working with third parties' concepts. The latter are themselves responsible to manage and promote their loyalty program, inscribe customers and administer their customer database.

The app enables third parties to link their customer cards to personalized digital coupons. Users can directly login to their accounts of those companies where they are

registered as loyalty card holders. If enabled by the retailer, the application can assist the user to verify e.g. his/her status of points or other customer information. Three forms of coupons are supported by Key Ring: (i) Customers receive *exclusive coupons* when they join a new loyalty program via Key Ring (e.g., new subscribers to the Mattel® loyalty program get a coupon for 50% off on a Mattel® item); (ii) *printable coupons* are a selection of offers that Key Ring gathers from web search.

These coupons are presumably not exclusive to subscribers of a loyalty program but they can only be accessed via the Key Ring app; (iii) *grocery coupons* are a type of "digital grocery coupon clipping" available for 27 chains indicated by an icon next to the digital loyalty card. Users actively select a coupon and "clip" it to the respective digital card. The saving amount is automatically deducted at the checkout after the payment.

It can be assumed that Key Ring and its third parties make agreements to set up exclusive coupons or grocery coupons. Conditions are arranged bilaterally according to the added value for the retailer (additional sales channel to the customer base) and for the app (broader offer for their users). The third party is however not obliged to make use of this service. Theoretically, any loyalty card can be scanned in order for the user to store and use it from within the app.

In March 2014, the application website claimed to support 13,000 brands and retailers, which lets assume that some form of verification of barcodes or third parties' loyalty cards is required.

In terms of *qualitative* cooperation, the relevant agreements are the ones with third parties upon exclusive coupons and grocery coupons. In March 2014, according to the WMA provider's own statements, over 30 retailers are supported for grocery coupons. Two of them are respectively ranked 5th (The Kroger Company) and 20th (Lowe's) in the 2012 *Global Powers of Retailing report*. This ranking is based on revenue figures, compared to other retail chains and companies worldwide (Deloitte, 2012).

3.2 FidMe

FidMe (www.fidme.com) claims to be the mobile loyalty wallet leader in Europe with 2.6 million users. The application is available on the Apple App Store, Google Play, Samsung Apps, Nokia Store, BlackBerry World and Windows Store as well as for Amazon Kindle and Windows 8. The system resembles the previous one in its main functionality - the scanning of loyalty cards that are automatically stored in the MWA. The website of the company claims to support 4,200 retailers and over 10,500 local shops. If a user scans the card of a non-affiliated retailer, FidMe asks the user to report the desired party to enable FidMe the validation of the card.

These retailers eventually can sign up and create a retailer account, either a free – or a paid premium account. The creation of stamp cards (e.g., 5 stamps = 5 € off) happens via a dashboard and needs approval from FidMe. The successively generated, printable QR code has to be placed visibly in the store. In operation, the receipt of a stamp on the stamp card requires that the customer launches the FidMe application after paying and scans the aforementioned QR code in the store. FidMe mentions well-known brands such as McDonalds, Quick, Subway, Pizza Hut as well as AccorHotels and Marionnaud as their third parties (Bourgitteau-Guiard, 2013).

Apart from retailers' loyalty points that can be earned through shopping, the app runs its own points program: pts FidMe. The points can be earned for adding cards, sponsorship, checks. FidMe foresees to exchange these points for rewards. At the time of research, it was not concretized how this is going to be configured in daily operation.

3.3 Apple Passbook

The Apple Passbook goes beyond a loyalty cards wallet: besides the regular cards and coupons, it aims at housing e.g. movie tickets or boarding passes. Different from an application in the diverse mobile app stores, the 'Passbook' wallet cannot be downloaded as a stand-alone feature but comes pre-installed on iPhone 6 or iPhone 6 Plus, iPad Air 2 or iPad mini 3, for the operating system iOS 8.1 or later. It then relies on incorporated third party-apps (Passbook-enabled apps) that fill the wallet with respective loyalty schemes, boarding passes, tickets, coupons, gift cards, etc. Companies get support for the development of compatible apps.

The user will typically need to download and create an account for the third party app the same way he/she would become a subscriber of a loyalty program at a grocery or retailer. For example it might be required that the customer has a Starbucks account and is logged-in before he/she is able to add the digital Starbucks gift card to Passbook. Tickets and passes can additionally be included to the Passbook using e-mails or URLs (Widder, 2013).

Although it was launched in September 2012, the provided options of the Passbook are still limited, albeit this fluctuates for each country. In January 2015, 41 apps could be found optimized for Passbook in the US app store, whereof 8 are applications from airlines.

Given the special focus of airline and other travel applications, it stands to reason to emphasize them: 7 airlines that are represented as brands in the app store are in the list of the most valuable airline brands of 2013 released by http://skift.com, a portal specialized on travel news and –information. Partners include Lufthansa (ranked Nr. 2), Fly Delta (Nr. 3), United Airlines (Nr. 5) and British Airways (Nr. 11) and American Airlines (Nr. 17) (Ali, 2013). Other brands entail (in brackets their ranking in Deloitte, 2012) The Kroger Company (5th), The Home Depot (8th),

Macy's (36th) (Deloitte, 2012).

The relationship between Passbook and third parties are confidential but it can be assumed that at the moment the cooperation does not generate a revenue stream, neither for their services to third parties, nor by leveraging loyalty points in the system. Most naturally, the companies work together to improve the adoption, quality and functionality of the tool. Apple profits from the fact that partnerships with high-valued and respected companies make the Passbook more attractive (brand value). In return, companies profit from the link to the broad customer base of Apple and a positive reputation spills over to their own brand.

In 2014, Apple launched Apple Pay, a payment functionality supporting in-app purchases as well as Near Field Communication for payments in brick and mortar stores. The usage of the Passbook is required for this functionality. But though the initial adoption seemed successful (Gokey, 2014), many big third party brands objected to support the new technology (Nield, 2014). This conflict of interests probably spills over to the loyalty card functionality and impacts the adoption and development of it. However, the changings are still recent and the final effect remains to be seen.

3.4 Qustomer

Qustomer (www.qustomer.be) is a Belgian company that aims at helping merchants and retailers developing loyalty programs. Though a mobile application is available on iTunes and Google Play, Qustomer has chosen to initially promote the physical card. One reason may be that it is closer to the familiar way of collecting points and rewards. Customers create a Qustomer profile online and opt for the virtual (mobile app) or physical (card) solution to collect points and rewards in-store from merchants. Participating merchants get equipped with a tablet for the checkout with software to create loyalty concepts and define rewarding mechanism such as points, discounts or goodies. Points are saved separately per merchant. Each participating third party is an accelerator in communicating the idea of the concept and handing out cards. Both app and customer card have a unique QR code per customer that is scanned on a merchant's tablet. Following this, points are rewarded to his/her account.

370 third parties in 14 cities in Belgium are revealed on the website in April 2014, which include restaurants, shops, boutiques, snack bars, etc. The concept has attracted approximately 240.000 users. The concept was launched in September 2012, with the first version of the iOS application released on Dec. 8th 2012, making it a rapid expansion in its yet short lifetime.

Amongst the third parties listed on the website, no chains or multiple-outlet stores are named. Instead, the system strives for locality and singularity of third parties. Not one particular partner can be declared the "top seller". The provider does not reward or manage their own loyalty program.

4 Case Comparison and Analysis

The comparison of the case studies follows the classification into the parameters of the business model circle enriched by Hagiu's typology of strategic decisions of multisided platforms: (i) the organization design with the quantity and quality of third parties; (ii) the technology design; (iii) the finance design with a focus on pricing structure and loyalty points; and the (iv) service design with platform design possibilities. The parameters define crucial cornerstones of the applications' business models. Preceding, general characteristics are compared: the focus of the MWAs and the spatial coverage or place of operation. A detailed itemization is shown in Table 1.

Key Ring and Apple Passbook are both operating internationally, but Key Ring focuses strongly on the U.S. market. Apple Passbook on the contrary leverages its global position to incorporate partners internationally divided into country-specific app stores. FidMe is the European equivalent of Key Ring. Finally, Qustomer's strategy is focused on Belgium.

The *organization* represents in all cases a two-sided market. Regarding its business partners, it firstly takes the *quantity* of partners into account. Key Ring and FidMe exceed the others by incorporating more than 13.000 third parties using this level of diversification and comprehensiveness to harness referral power and attract users. Different to Qustomer, the platforms include third parties via the barcode-scan also in absence of their explicit consent. It is thus possible to expand their third party base with less effort. Qustomer enters into bilateral agreements with all its third parties, which requires time and effort in developing and maintaining trusted relationships. It only incorporates around 370 merchants.

Direct comparison renders difficult given that they have operation merely in Belgium. The quantity of partners seem less an objective for Apple Passbook, given that it includes only 38 third party apps in the U.S. iTunes store and even less in other countries.

In terms of *quality* of partners, FidMe encompasses international brands as well as local merchants. Amongst them are internationally operating chains with high brand equity, prominent in - but not limited to - restaurants or beauty stores. In this position, the brand value of the well-known third parties might be the factor to attract not only customers to the platform, but other third parties that do not want to leave this communication channel exclusively to their competitors (same side network effects).

Apple Passbook has in particular cooperation with airline companies, and thereunder internationally recognized brands. Hence, the Passbook is presumably attractive for frequent fliers taking mostly the same airline (alliance).

Table 3: Comparison of MWAs

		Key Ring	FidMe	Apple Passbook	Qustomer
Characteristics	**Mobile Wallet Focus**	Loyalty Cards	Loyalty Cards, Fid-Me Points	Tickets, Boarding Passes, Loyalty Cards	Loyalty Cards, Loyalty Programs
	Spacial Coverage or Place of Operation	International; U.S.	Europe	International	Belgium
Organization design	**Quantity of Partners**	++ 13.000 retailers	++ 4.200 retailers, barcode scan for 10.500; stamp cards not indicated	- 41 third party apps	+ 370 merchants in 14 Belgian cities
	Quality of Partners (leverage brand equity from partners)	+ Big U.S. retail chains Exclusive agreements with > 30 partners	++ Big intl. brands and local merchants	++ International airlines and big U.S. retail chains	+ Local merchants
Technology design	**Configuration**	Mobile App	Mobile App	preinstalled Mobile App	Card and Mobile App
	New technology to be implemented by third parties	Optional	Optional	Yes	Yes
Finance design	**Income source**	Third parties	Third parties	Software component	Third parties
	Leverage Partners' Loyalty Points	No	No	No	No
	Own Loyalty Points	No	Yes	No	No
Service design	**Platform offers services/ products**	No	No	No	No
	Customer lock-in	No	No	No	Yes

The connection to the newly launched Apple Pay might accelerate the adoption if the third parties gain confidence and trust in the payment mechanism. Key Ring's partnership strategy is remarkable for its focus on retail chains, mainly U.S. brands – amongst them well-firms. Qustomer's targets solely local or regional merchants; hence it is lacking to leverage the brand value of big chains and well-known brands. On the other hand, each of the third parties is an accelerator of the program though the radius might be smaller and a personal contact point.

Given the *technology design* parameters, all cases are mobile apps, although the Passbook is a pre-installed application on Apple devices and not openly available. Qustomer chose a parallel strategy by adding a physical card to compensate the yet faltering mobile adoption rates. With this parallel strategy, they draw on long-known, established patterns and eventually drive or reeducate the users over time to get more familiar with the mobile version.

The second technology aspect looks whether or not a new technology needs to be implemented or mastered by the third parties – which supposedly raises the threshold for adopting the new service. For FidMe and Key Ring this is the case for their strategic partners, but in general this is noncompulsory. Apple and Qustomer on the other hand postulate technical alterations.

There is less diversity among the studied MWAs in terms of their *finance design*. All four offer their service for free to end-users. It can therefore be assumed that third parties constitute the income source or are valued enough because they constitute strategic partnerships. Passbook may stand as an exception here, as part of the pre-installed set of apps with iOS. It does not have to sustain competition since it is a stand-alone application.

Though there would be possibilities to introduce platform-proprietary loyalty points, only FidMe claims to make use of this possibility. And even there, these points have no use yet since they cannot be exchanged or spent. None of the studied MWAs leverage loyalty points from third parties. Potentially, leveraging loyalty points that circulate in the network, platforms could find a new income stream or increase value for themselves and other stakeholders (Buchinger et al., 2014).

Finally, the *service design* of the discussed platforms resembles each other in their absolute dependence on third parties. None offer any products or services themselves apart from the intrinsic service of managing loyalty cards. Without the third party activities, the apps' value would be smaller. Secondly, Key Ring, FidMe and Apple Passbook can be eluded by alternatives yet providing the same benefits. This alternative can be simply the original, physical loyalty card. Either way, the customer is not locked in to the system. Apple Passbook is a special case since it relies on a proprietary technological system that customers must use (i.e. users need to have a Starbucks account and be logged-in before he/she is able to add the digital Starbucks gift card to Passbook). Still it is mentioned since the authors assume that people can also leverage other possibilities to gain the same benefits. Only Qustomer users are locked in and will – without the app – not obtain the same benefits in any other way.

5 Discussion

The aim of the paper has been to analyse the business models of Mobile Wallet Applications (MWAs) taking into account their nature as intermediates of two-sided markets and thus platform features and particularities. MWAs react on the moderate mobile wallet adoption of users with narrowing and perfecting their service offer to a particular mobile wallet feature. This analysis examines MWAs that are concerned with the inclusion and management of loyalty points and schemes of third parties. To do so, it has focused on four cases: Key Ring, FidMe, Apple Passbook and Qustomer. All four allow customers to manage loyalty schemes from different brands and retailers (third parties) but they differ in terms of their business models.

An important finding is that MWAs have an interest in reinforcing their position as platforms mediating between customers and third parties targeted to a delimited mobile wallet feature instead of trying to substitute *all* features of a physical wallet. As such they aimed at appearing as unavoidable gatekeepers, i.e. actors that give access to the most and the 'best' third parties of this delimited market; and that have an important number of users.

Regarding their financial situation, MWAs do not leverage the potential of loyalty points. This has strategic implications in terms of their capacity to attract and lock-in third parties and their aptitude to use all potential revenue streams. As shown in previous research, loyalty points have an intrinsic value that can be leveraged in a value network of business partners. This could result in a coalition loyalty scheme where both platform and third parties reward and redeem the same loyalty points. A coalition loyalty scheme encourages customer loyalty not only towards the third party but also the MWA. One consequence is that it raises the switching barriers and might retain customers to the service. MWAs are in an ideal situation to leverage these opportunities.

These possibilities are however largely dismissed by the MWAs: legal restrictions or inexperience with loyalty points – and eventually their transformation into virtual currencies – might deter the MWAs to make use of their possibilities. Besides, offering own services and determining stricter rules of a coalition loyalty concept might jeopardize the trusted relation between the MWA and the third parties and put it at risk. It requires however further research on the governance rules of the MWAs to strengthen these assumptions.

Concerning organization and service designs, the choice of partners is highly important given that none of

the discussed platforms offers services or products themselves – apart from the intrinsic MWA service. The main rationale and unique selling proposition of MWAs compared to using the traditional concept is the convenience and saving of space (i.e. storage of virtual vs. traditional cards).

MWAs have only as much value as the third parties create. This way, platforms are entirely dependent on third parties' capacity and willingness to fulfill their engagements and meet the customer demands. This can be the capability to discount the desired products or find the right height of the price cut. For MWAs it might be worth considering to offer their own services or products to counteract this tendency, regaining some power and value and thus decreasing dependency.

While the authors believe that MWA providers' business models and strategies hold important answers to overcome the limited adoption of mobile wallets; the authors acknowledge that other barriers relate to the users' willingness to adopt such innovation, for example legal constraints, security issues, design or limited functionalities. Further research is thus required in these areas to complete the picture of Mobile Wallets and their current limitations.

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