Virtual Currency for Online Platforms
Business Model Implications

Uschi Buchinger, Heritiana Ranaivoson and Pieter Ballon
iMinds-SMIT, Vrije Universiteit Brussel, Brussels, Belgium

Keywords: Loyalty Schemes, Virtual Currency, Business Models, Two-sided Markets.

Abstract: Since the first loyalty program was introduced in the 1980s, many sectors and industries have adopted and configured these schemes to meet their specific requirements. But it is just recently that technological innovation has enabled the transfer of these schemes into the online environment, and, more concretely, to the increasing number of online platforms. Operating on two-sided markets, platforms started to deploy loyalty programs to address customers and Third parties such as retailers or merchants alike. Additionally they profit from the embedding in the digital environment, which enables the expansion of loyalty points to become a Virtual Currency with the power to affect platforms' business strategies. Based on the analysis of four case studies, this paper focuses on the effect of the implementation of a Virtual Currency scheme on the platforms' organizational, financial and service business model parameters. It shows how Virtual Currency schemes enable platforms to encourage loyalty of not only their customers but also in some configurations of third parties, sometimes to the extent that one or both sides of the market are locked-in. Second, Virtual Currency can be deployed as a source of revenue and thus play a role in the platform's financial design.

1 INTRODUCTION

Since American Airlines established the first loyalty program in the 1980s, various industries such as hotels, retailers, financial services and leisure sectors followed the concept of rewarding loyal customers (O'Malley, 1998); (Palmer et al., 2000). It is contended that this results in a positive influence on the financial performance because of the higher value of customer retention compared to new customer acquisition (Christopher et al., 2008); (Reichheld and Sasser, 1990); (Webster, 1992).

One of the most common measures is the issuing and redeeming of company-related loyalty points bound to a customer card which is implemented by many industries (Wright and Sparks, 1999). Over time loyalty programs became more and more a standard in certain industries, which results in a loss of its competitive advantage (Palmer et al., 2000).

While this is true for conventional businesses, the development of Information and Communication Technology (ICT) stimulated new industries in the electronic business, who see a potential in the loyalty concepts to bind customers and thus increase the switching barriers in the online sector.

In addition, online businesses profit from the embedding in the digital setting, where loyalty points merge with the technology-driven rise of digital money. Rewarded points loose their status of simple loyalty measures to become Virtual Currencies (VC), which have potential to change the business' economics. Unlike points, VC answers multiple purposes e.g. payment methods accepted by other Third parties and thus exceeding the sole B2C relation.

Hence, the creator and coordinator of the VC is on the one hand confronted with the building a network of Third parties around the VC scheme, while on the other hand, it aims at the original intention of binding customers and encouraging loyal behaviour. The purveyor can be placed as a mediator of a two-sided market.

Platforms are already operating on two-sided or even multi-sided markets with or without providing own services on top of their platform activities (Ballon, 2009); (Rochet and Tirole, 2002a). As a platform, Rochet and Tirole (2002a) determine for example software (videogame platforms, operating systems), portals and media platforms or payment systems. An essential characteristic of such markets is that the utility for any user derived from a good or service correlates to the number of users of this good

Buchinger U., Ranaivoson H. and Ballon P..
Virtual Currency for Online Platforms - Business Model Implications.
DOI: 10.5220/0004506601960206
In *Proceedings of the 4th International Conference on Data Communication Networking, 10th International Conference on e-Business and 4th International Conference on Optical Communication Systems* (ICE-B-2013), pages 196-206
ISBN: 978-989-8565-72-3

or service on the other side (Varian, 2000). Hence, platforms (acting as intermediates) need to take care of both sides in an equivalent way. The choice of the business model is of utmost importance. Many platforms follow the strategy of treating the two sides differently, e. g. while one side of the market is included for free - or is even incentivized to join - the other side, who is interested in getting access to the former, needs to pay (Rochet and Tirole, 2002a). VC, which emerges from loyalty concepts but addresses financial aspects likewise, has potential to address both sides of the market simultaneously.

This paper will, by the analysis of four case studies, focus on the configuration of such VC concepts by online platforms that operate on such two-sided of the market. This include customers on the one hand and Third parties on the other hand.

Contrasting conventional loyalty schemes, little research is conducted to examine how VC schemes can affect platforms' business models in order to meet the two-folded objectives of online platforms, namely to encourage loyalty (or lock-in) and open revenue streams on one or both sides of the market.

Against this backdrop, VC strategies are thus examined primarily upon their impact on financial and service design parameters while also reaching out to give insights to the organizational design via representative value networks.

In the remainder of the paper, Section 2 describes the applied business model methodology. Section 3 explains how platforms have taken over loyalty points schemes invented and implemented by various organizations. Section 4 describes in detail how VC has been implemented in four case studies describing the organizational design by the means of representative value networks; Section 5 analyses the impact of such an implementation on two further business model parameters, the service and financial design aspects. It thus focusing specifically on the revenue sharing model and the loyalty concept. Section 6 concludes and suggests ways for further research.

2 METHODOLOGY

This paper adopts the methodology of business modelling in order to analyse disperse interests of actors in a value network, their respecting resources, roles and relationships. The authors rely on the framework developed a.o. by Ballon (2007) and Braet and Ballon (2007), providing an holistic approach for examination of network architectures. They define the business modelling cycle as consisting of four parameters (see Figure 1): organization, technology, service and finance. 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 technology design is taken as granted and therefore considered with less details in this paper). The service design refers to the intended customer value. Finally, the finance design includes issues related to costs and revenues.

Besides the focus on the impact of VC on the business model parameters, the product/service offer by the platform and Third party is taken into consideration and linked to the VC scheme.

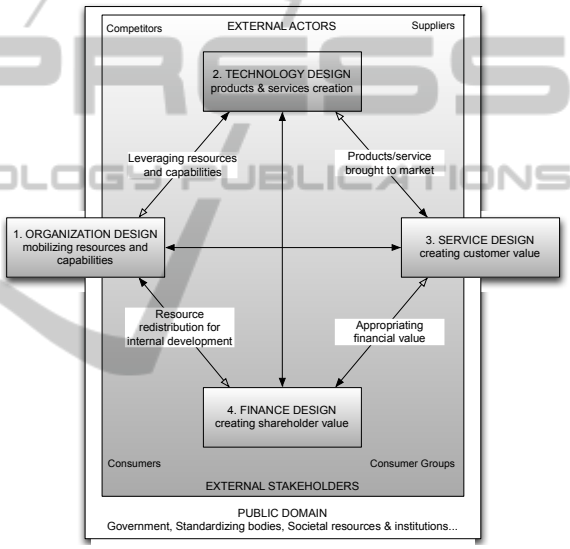

Figure 1: The business model cycle (Source: Braet and Ballon, 2007).

3 DEVELOPMENT OF VIRTUAL CURRENCY SCHEMES BY PLATFORMS

3.1 Platforms' Role between Customer and Third Party

ICT markets are characterized by far-reaching platformisation (Ballon, 2009). A platform can be defined as a product, technology or service that is an essential building block upon which an ecosystem of firms can develop complementary products or services (Gawer and Cusumano, 2002). In ICT markets, crucial gatekeeper roles and functionalities are often conducted by platform leaders. Various

business models have emerged that help them to exercise a form of control over the wider network, and to add and capture significant value in the process.

An essential characteristic of platforms is their operation on two-sided markets. Two-sided markets exist as soon as the utility of any customer A is correlated to the number of customers B. These models were first applied to credit card markets (Rochet and Tirole, 2002b). Actually on such markets, the higher the number of credit card holders, the more interesting it becomes for the shops to be equipped with devices that allow to pay by card. Conversely, the higher the number of equipped shops, the more utility one cardholder derives from having such a card (Borestam and Schmiedel, 2011).

The value network can thus be broken down to three actors, represented in Figure 2, building the base of each case study: the platform, which purveys VC, the customer and the Third party. The platform facilitates the interactions between both sides.

Relations are displayed as arrows between the actors. In the following figures, three forms of arrows will be depicted: black lines indicate financial streams; dotted lines indicate product/service streams (selling and receiving of products or services), grey lines depict the VC stream. Relations are bidirectional (exchange between actors) or monodirectional (from one actor to another).

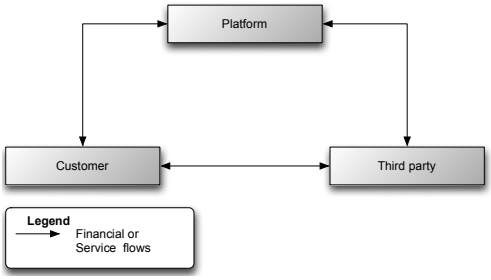

Figure 2: A stylised representation of Two-sided markets.

Rochet and Tirole (2002a), examining the financial relation between the actors of a two-sided market, derive that many platforms choose either side for revenue generation. One side of the market is then treated as a profit centre that concurrently needs to cover the loss (or financial neutrality) that is accepted for the other side of the market.

It is hence a balancing act of generating revenue and attracting and keeping stakeholders (concretely encourage loyal behaviour or even enforce it by locking stakeholders in). Especially in the online environment, which is characterized by its low switching costs (Shimizu, 2012) and the culture of free services (Anderson, 2009), addressing this objectives is still difficult and drives the need to find new concepts.

3.2 From Loyalty Schemes to Virtual Currency

The paper follows Sharp and Sharp's (1997) definition of loyalty program as "*structured marketing efforts which reward, and therefore encourage, loyalty behaviour*" (Sharp and Sharp, 1997, p. 474). Different types of rewards have been developed throughout B2C sectors, notably the implementation of incentives such as points that are redeemable for rebates or prizes within the loyalty scheme (Dowling and Uncles, 1997); (Sharp and Sharp, 1997). Organizations implement according measures to acquire competitive advantages. Such programs however might become a standard, diminishing the competitive edge of rewards (Palmer et al., 2000).

One possibility to counteract this tendency is to expand the industries or brands participating in the loyalty program, a method pioneered once again by various airlines. The cooperation scheme, defined also as coalition loyalty or cross loyalty, describes the facilitation of members' loyalty cards at multiple - sometimes competing - retailers. For the customer, every industry or brand in the network adds incentives for the customer to join (Baird, 2007).

While Baird (2007) refers particularly to the card as the most common form of a rewarding design, multiple approaches have arisen that changed the establishments in the sector. An important trend is the rise of applications allowing customers the online coordination of loyalty programs. Applications can have all necessary functionalities to make a physical loyalty card obsolete. Hence, platforms are developing adequate systems for points collection and storage (Perez, 2012). At the same time, they profit from the technology-driven emergence of digital money which makes it possible to treat loyalty points like a currency embedded in the virtual setting. The European Central Bank defines Virtual Currency as "unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community" (European Central Bank, 2012, p. 13) While this definition raises the impression, that the community is only the customer, in this paper it consists of both sides of the market (customers and Third parties).

Nevertheless, VC acts, like plain loyalty points, as a loyalty measure towards customers by binding them to this particular currency (and hence the related organization). But while pure loyalty programs are mainly implemented to reward customer behaviour (Kumar and Shah, 2004), Virtual Currency allows several uses, i.e. they are tools for multiple usage options granted to the different types of stakeholders in the Value network. VC thus differentiates from conventional loyalty concepts insofar as it can, besides binding customers to the organization, have the same incorporating effect on Third parties.

It is thus essential that the VC circulates in the entire Value network. This can be ascribed to whether Virtual Currency leaves a partner's account (i.e. a partner issues VC) enters the account (i.e. the actors get VC) or fulfils tasks in the account. Following options emerge:

Sell: Issuing VC in exchange of conventional money,

Reward: Issuing or awarding VC,

Redeem: Taking back VC, i.e. accepting it as a payment,

Create: build up and coordinate the network around a VC,

Buy: Purchase VC for conventional money,

Spend: Using VC as a payment instrument instead/alongside conventional money,

Get rewarded: Conduct a (qualifying) activity that is awarded with VC,

Store: Accumulating and saving VC in personal accounts or wallets.

Some roles can be performed by only one type of actor in the network while others can be performed by two or more types of actors. This paper assumes certain preconditions: i) The creator of the VC is in all cases represented as the platform. It manages and coordinates the VC as well as the customer base and user accounts and intermediated the two sides of the market; ii) only the customer gets rewarded and stores VC. Therefore customers need to create a customer account on the platform; iii) Third parties encompass all entities that sell products or services by the means of the platform and are included in the VC insofar as that they can either buy, reward, redeem or sell the VC.

The exact configuration of the relationships (organization design) and its impact on the platform's financial and service design will be issue of the succeeding analysis.

4 VC IMPLEMENTATION IN PLATFORM SCHEMES – FOUR CASES

The section provides a detailed study of four cases of platforms that have implemented a Virtual Currency approach. They were selected based on their different implementation strategies of VC and thus the multiple options ascribed to VC implementation that they represent. The diversity of the actors, and their related business models, that adopted such VC allows to draw conclusion based on a broad view: Miles & More, Groupon Bucks, Facebook Credits and Mobile Viking Points.

All value networks are reduced to three actors: platform, Third party and customer. Each actor fulfils certain roles that emerge from its daily operations plus additional roles that emerge from the implementation of a VC in the network. They are illustrated as white boxes in the following value networks and are reduced to two representative roles for each actor: a role for product/service operations (platform and Third parties provide products and services, customers receive them) and VC operations (platform creates and manages the VC, Third parties and customers participate in the scheme). The exact construction will be explained in a narrative way and subject to a detailed analysis.

Relationships are displayed as arrows in the value network including i) financial flows, ii) product/service flows iii) Virtual Currency flows. VC flows will also represent whether an actor receives VC (i.e. customer gets rewarded, Third parties buy or redeem and the platform redeem the VC) or issues VC (i.e. customer spends VC, Third parties and platform reward or sell VC)

The analysis of the relationship thus takes into account: the exchange of money for products/ services, the exchange of money for VC, the exchange of VC for products/services.

4.1 Miles

The native intention of the Miles & More program implemented by the German airline Lufthansa is to raise customer loyalty towards the airline while the extension of the VC to Third parties increases its value for customers. The platform targets both sides of the market: Miles are rewarded to the customer and sold to Third parties (e.g. banks, retailers, hotels) Miles are only valid 36 month of the date of accrual (e.g. date of flight) and expire at the end of the respective quarter (Miles and More, n.d.). In

2011, 20 million members from 234 countries participated in the program, with 250 partners (Lufthansa, 2011). Figure 3 illustrates the relations.

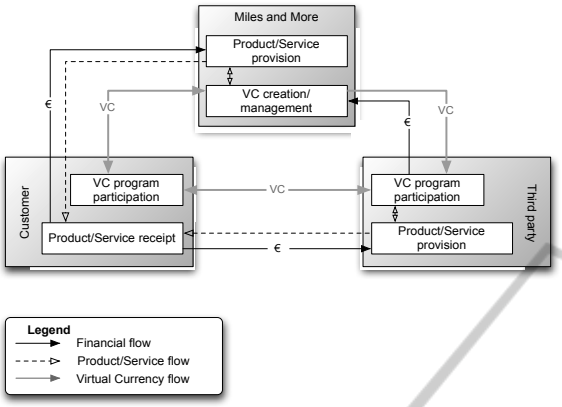

Figure 3: Miles and More Value network.

Miles & More as well as Third parties offer products/services for selling to the customer. Money flows from the customer to either representative role and creates a product/service flow back (e.g. for the receipt of a travel ticket). A purchase initiates the rewarding of VC (arrow from *product/service provision* to *VC creation* respectively *VC program participation* and reverse: the VC can be redeemed for products/services). The VC stream is bidirectional between platform and customer and customer and Third party (both partners can reward and redeem the VC) and monodirectional between the platform and Third parties. Third parties need to have some form of payment agreement with the platform (black arrow) to receive the VC that they can reward (Mason and Barker, 1996). The relationship between the three entities is as followed:

Platform/Customer: The primary intention of the VC program is to reward VC to (and redeem VC from) customers for purchases of flights. This results in an indirect income stream for the platform – indirect since it is unattached to the direct purchase of miles. Customers' purchased miles, unlike rewarded ones, can solely be used for an immediate redemption in form of a flight or service provided by the airline (not by a Third party). Given the divergent characteristics, purchases of miles are not exposed as a possibility for the customer in the table. Participation in the program is free for the customer, but he/she is needs to set up a customer account.

Platform/Third Party: The platform cedes control to Third parties by giving allowance to reward and redeem miles. The platform generates revenue directly by selling the VC for every mile that the Third party rewards.

Third Party/Customer: Third parties conduct the same rewarding process as the platform making use of the VC acquired from the latter. They are mainly unrestricted in their decisions upon applying terms and conditions for rewarding (e.g. one mile for every Euro spend on a purchase). A risk for the platform is that none of the gathered miles are redeemed for a ticket-purchase but merely for partner's services.

4.2 Groupon Bucks

Groupon Bucks, executed by the group-buying platform Groupon, solely reinforce customers' loyalty. Groupon is an online platform that allows Third parties to sell own products and services to customers at a discounted price that can be set by the means of economies of scale emerging form group buying. Registered customers are given the possibility to subscribe for offers that are validated once enough customers have subscribed. Financial movements pass via the platform. For its service, Groupon retains a certain amount from each deal sold but does not charge the customers to create their customer accounts. Customers receive products or services directly from the Third party. Groupon Bucks do not expire (Groupon, 2012).

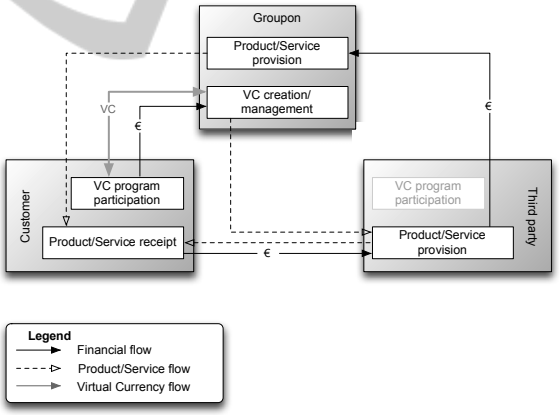

Figure 4: Groupon Value network.

The description of the figure is done in the following analysis of the bilateral relations:

Platform/Customer: The platform offers its free online service to the customer but does not have own products for sale (dotted arrow from product/service provision to receipt by the customer). The implemented VC encourages solely interactions between customers and the platform. A customer who has performed, or participated in, a *qualifying user activity* (e.g. referring someone to Groupon who then conducts a purchase on the platform) are rewarded with Groupon Bucks. The VC can be

redeemed for any deal at the platform. Additionally, Bucks can be bought in form or gift cards as presents for other customers. The redemption of the Virtual Currency can however only pertain Third party products/services, facilitated by the platform (dotted line between the VC creation/management and product/service provision of the Third party).

Platform/Third Party: The platform serves as a mere sales channel for Third parties' offers, not providing services or products itself. The revenue model consists of a fee taken by the platform on every deal made by a Third party but yet unrelated to the VC.

Third Party/Customer: Products/services can be bought by the means of the platform; the VC does not affect their relationship.

4.3 Facebook Credits

Facebook Credits, the platform's Virtual Currency, answer the purpose as loyalty measure towards Third parties but moreover creates as a source of revenue since the customers are charged for the receipt of the VC. Credits are studied in this paper in the case of game applications. Launched in 2004, the free platform Facebook gathered more than 1 billion active users in 2012. Since 2007, Third party developers are able to provide apps, including games, usable via the platform (The Associated Press, 2013) while Facebook offers support in terms of monetizing strategies. Together with the partner company TrialPay, Facebook has implemented a mechanism to rewarding customers for conducting *qualifying user activities* (e.g. completing advertiser offers). Credits are subject to expiration, which takes effect when they are not used for three years. The platform my redeem the VC for activities on behalf of the user (sending virtual gifts to friends) or donating it to charity. Standard redemptions fees are however charged. Facebook Credits' use is constantly evolving. The paper works with the terms and conditions of Facebook credits they were in place in 2011/2012 (Facebook, 2013a); (Facebook, 2013b).

Platform/Customer: Facebook's service provision consists of the facilitation of Third party services that can be uses via the customer accounts. Within the game set-up, purchases of virtual in-game items are supported, demanding however the utilization of VC, that a customer stores in his game items from Third party games, the actually need to have a sufficient amount of Credits.

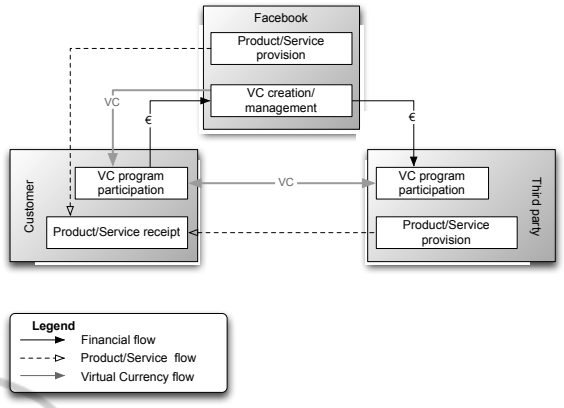

Figure 5: Facebook Value network.

Therefore, the customer must purchase the credits (money stream from the VC participation to VC creation/management and a VC flow back). The VC cannot be redeemed at the platform itself. Besides conscious, provident purchase of VC preliminary to playing, it is possible to buy Facebook Credits whilst playing when the account is not sufficiently filled. Again Facebook Credits are bought, which are then automatically converted into the requested item or in-game currency. In other words, customers think they buy the Third party's currency whilst actually buying Facebook Credits. Facebook thus creates a direct revenue stream from the customer.

Platform/Third Party: While the platform creates and operates the main service offer for the customers, for the gaming applications it relies mainly on the enrichment of assets via Third parties. The platform empowers and supports Third parties in the development of game applications and embedding of payment mechanisms. Through the implementation of Credits, an obligatory payment method for gaming, Facebook has introduced loyalty measures towards Third parties. Payments are collected from customers. For each transaction, Facebook credits Third parties with the proceeds from the sale minus their service fee of 30 % + any applicable tax (Facebook, 2013b); (Kincaid, 2011).

A partner company of Facebook enabled a rewarding mechanism that allows Third parties to award *qualifying user activities* with Facebook Credits.

Third Party/Customer: The compulsory VC scheme locks in game developers who want to address and sell in-game items to the customer base of Facebook. Customers are locked-in likewise since they can solely purchase Third party in-game items via Facebook Credits.

4.4 Mobile Viking Points

The MVNO (mobile virtual network operator) Mobile Vikings implemented Viking Points as a loyalty measure towards their customers who are included for free in the VC program. Additionally they incite Third parties to use this VC thus contributing to customer loyalty towards both, themselves and the platform. Active in Belgium and the Netherlands, Mobile Vikings counts 160.000 members whom they sell mobile services such as call minutes, SMS and data packages on Viking SIM cards. The Viking Points can be exchanged in these mobile services. Mobile Vikings additionally operates a service to register Third party locations (thus creating a ”Spot”). The location is thereupon shown on a virtual map to all customers of Mobile Vikings, with possibly related deals made available. Information is missing about an expiration data. Since it is however mentioned, that the customer is free to use the VC whenever he wants, it can be assumed, no expiration date is set (CityLive NV, 2012); (Mobile Vikings, 2013a), (Mobile Vikings, 2013b).

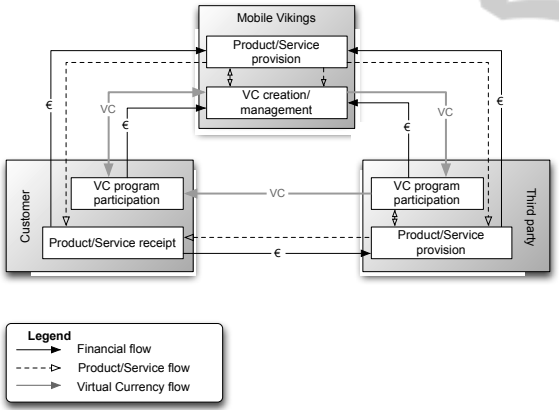

Figure 6: Mobile Vikings Value network.

Platform/Customer: Comparable to Miles & More, Mobile Vikings offer products/services for their customers (depicted as a money flow from the customer in return for the products/services). Regarding the VC, Viking Points set up a reward mechanism for certain *qualifying user activities* (e.g. convincing someone to join Mobile Vikings). Optionally they can be bought in form of gift cards mainly as a present for other users. Rewarded points are redeemable for services/products of the platform Mobile Vikings (bidirectional stream from the platform to the customer).

Platform/Third Party: Solely the platform provides the services/products that customers get in exchange for the VC, i.e. its various mobile services. Mobile Vikings however provides to Third parties the possibility to gratis register venues such as shops and stores on their virtual map. In addition, Mobile Vikings runs a business-focused product bundle for € 375 (VAT incl.) per year, permitting Third parties to create deals connected to the ”Spot”. Such deals aim at attracting customers due to price cuts and rebates on products. Third parties buy this tool from the platform for their own product/service provision (money stream from Third party’s product/service provision and a respective service/product stream back). With the product bundle, Third parties also receive 3000 Viking Points that they are asked to reward their customers with every concluded deal (illustrated as a VC stream from the VC participation of the Third party to the customer in the illustration). The Third party decides upon the height of the rebate and the volume of points rewarded for each deal. Third parties have even options to purchase further Viking Points for their rewarding intentions. Mobile Viking charges then the price for the VC plus 25% (CityLive NV, 2012).

Third Party/Customer: Third parties expand their options with the purchase of the product bundle like the localization and coordination of “Spots” (i.e. shops and stores) and the creation of deals that the customers can conduct. Third parties decide upon the creation and exact configuration of deals. They are obliged however to issue VC with every deal conducted by customers.

5 VIRTUAL CURRENCY’S IMPACT ON THE PLATFORMS’ BUSINESS MODEL

The section compares the cases studied previously to analyse the impact of Virtual Currency on business model parameters. The cases were chosen for their coverage of divergent VC strategies and the disperse sectors they are operating in. Consequently, general conclusions are not possible. The analysis however allows identifying of a few trends and issues that affect the use of loyalty schemes and VC. The focus thereby will be put on the financial- (revenue generation and -sharing models) and the service design aspect (strengthening of loyalty or even lock-in on one or both sides of the market) whereas the organizational design can be derived implicitly from the value networks and are only described superficially. The business model cycle of Ballon (2007) and Braet and Ballon (2007) is used, which

consists of a further parameters, namely the technology design. This aspect for the implementation of VC is considered as given and won't be part of the analysis.

Seven characteristics are subject to comparison. They can directly be linked up to one or more business model parameters: the side(s) of the market on which the VC is oriented; whether the platform itself provides goods or services for which the VC can be redeemed; the strength of enforcement to use the VC in the network; whether Third parties also redeem the VC; if the scheme rewards customer; if the platform generates revenue by selling the VC and if the VC has an expiration date (financial design). For the second last point, a trade-off is necessary between the Third parties (T.P.) and customers (Cust.). Table 1 depicts an overview on which characteristics are ascribed to which business model parameters and their respective executions in the various use cases.

Before the analysis of each parameter can be made, this paper already revealed a general increase in the range of roles that accompanies the implementation of a VC stream. Expanding plain loyalty points, VC circulation is subject to selling, rewarding, redeeming, creating, buying, spending, getting rewarded and storing by one or more actors in the value network.

Regarding the organization design, one aspect is the opening of the system to both sides of the market. It is described as *Orientation of the VC scheme*: two-sided signifies the issuance of VC (rewarding or selling) to both sides of the market: customers and Third parties. It applies to all cases except of Groupon. Groupon Bucks addresses solely the customer side but does not incorporate Third parties in the scheme. With this limited possibilities, loyalty through the VC is enforced on the customer side only. The other examples are oriented on both sides of the market, which means that the platform needs to make a trade-off between each party's interests. As a result it will favour one side over the other and thus enforce loyalty one side more. The expansion of one side (e.g. by benefits such as free participations or incentives) is normally an argument to encourage the second side to join – wherefore (payment) conditions are set. Miles & More and Mobile Vikings initialize demand for the VC primarily on the customer-side (free participation) and charges the Third party. Facebook targets principally the Third parties to implement the VC standards (free help and support for the implementation) and asks the customers to pay.

Multifaceted redemption describes the possibility to redeem points at the platform as well as the Third parties. Variety can be given throughout industries (e.g. Third parties can be supermarkets, hotels, car rentals, etc.) or within such (e.g. different execution of games for Facebook). Each actor who redeems the VC adds value to the loyalty scheme for the customer but bears the risk that the customer does not spend money (and shop) at the platform. Platforms with their own products/services profit from a system where VC, once issued, can only be redeemed in their respective stores but limit the choice for the customer. Consequently, platforms need to make a trade-off between single (here: Mobile Vikings and Groupon), or multifaceted redemption places (Miles and More, n.d; Facebook).

The second aspect of the organization and service design is the *enforcement to use the VC* in the network. It is weak when no obligations are set for the usage and participation is optional (Miles and More, n.d; Groupon). In case of obligations, they can affect both sidesb(Facebook) or one side (Mobile Vikings) of the market. Facebook

Table 1: Characteristics of business model strategies.

		Miles and More		**Groupon**		**Facebook**		**Mobile Vikings**	
Organization design	Orientation of the VC scheme	two sides		one side		two sides		two sides	
Organization and service design	Multifaceted redemption	Y		N		Y		N	
	Enforcement to use VC	Weak		Weak		Strong towards both sides		Strong towards Third Parties	
Service design	Platform provides services/products	Y		N		Y		Y	
	Option of rewarding Cust.	Y		Y		Y		Y	
Financial design	Direct Revenue Platform	T.P.	Cust.	T.P.	Cust.	T.P.	Cust.	T.P.	Cust.
		Y	N	N	Y	N	Y	Y	Y
	Expiration	Y		N		Y		N	

developers need to use the payment schemes if they want to sell virtual items while customers must use the VC for purchases. Mobile Vikings' Third parties are obliged to reward the VC to every customer for a purchase. The latter can however buy products/ services from the platform for conventional money alike.

A characteristic of the service design is the *platform proposition*. Two types of platforms can be distinguished depending on whether they have their own products/services to exchange for the VC on top of the platform activity. Miles & More, and Mobile Vikings (who have their own products) are independent of Third parties' performance. Their VC is still valuable for the customer without the other side of the market. The VC of the latter (Groupon and Facebook) has only as much value as the Third parties (various types of merchants and game providers) create. The platform is thus dependent on the Third parties' capacity and willingness to fulfil their engagements. If Third parties fail to meet the customer demands, the VC looses its value.

A second characteristic of the service design is the aspect of *rewarding customers* for desired user actions. It remains a central point in the implementation of VC strategies and presents a consistency throughout all cases. This aspect shows the connection to the initial loyalty schemes that aim in building-up a (long-term) customer relationship.

Influencing the financial parameter, VC can constitute a *direct source of revenue* for some platforms. In general, platforms choose either side of the market for creating revenue with the VC while stimulate the other side via free (or even incentivized) participation and benefits. In the above cases it is the case for Miles & More and Mobile Vikings that charge Third parties for the purchase of VC and thus build the source of revenue for the platform. Third parties need to compensate the "loss" e.g. by additional sales. Facebook directly sells the VC to customers as the only way of receiving products/services from the Third parties. For other platforms (here: Mobile Vikings and Groupon) the option is given to buy VC in form of gift cards or vouchers but it is not obligatory to use them in order to receive products/services. Miles & More allows customers to buy additional miles only under the restriction that they are used for flights or services that are provided directly from the airline.

Miles & More and Mobile Vikings allow Third parties in fact to decide on conversion rates and terms and conditions for rewarded VC, nonetheless, Third parties are not allowed to sell VC (and generate revenue).

A second parameter that affects the financial design is the expiration date. Unused VC that expires does not require an exchange in products/services from the platform or Third party and thus represents income for the respective business without service in return. Miles & More and Facebook implemented expiration dates, both setting a valid period of three years before the implemented terms and conditions take effect.

The counterpart of using VC as a source of revenue is nevertheless that it can slow its adoption process by Third parties or customers. The higher the fee (e.g. per transaction using VC), the less interesting for the customer to use the VC.

6 CONCLUSIONS

This paper uses the business model approach developed a.o. by Ballon (2007) and Braet and Ballon (2007) to draw conclusions upon the impact of a Virtual Currency implementation on a platform's business features. It focuses particularly on the organizational, financial and service design parameters. Concretely, the paper has examined in how far a Virtual Currency strategy is implemented as a solution for two challenges that platform concepts are confronted with in the online environment, namely (i) how to attract and retain stakeholders when switching costs tend to be at a minimum and (ii) how to open new revenue streams.

Starting from conventional loyalty points, the paper first has showed their adaptation to digital requirements and expansion of functionalities. This lays the ground for the transformation into a Virtual Currency. VC answers in its basic functionalities the same purposes as loyalty points. It rewards customers and thereby binds them to a particular platform. However, VC exceeds that by expanding its roles for wider range of usage options than plain loyalty points, namely selling, rewarding, redeeming, creating, buying, spending, getting rewarded and storing.

The paper has analysed four case studies' value networks: Miles & More, Groupon Bucks, Facebook Credits, and Mobile Viking Points. Each value network can be reduced to three actors: the platform, customers and Third parties (i.e. partners that sell products or services by the means of the platform). Certain preconditions were assumed, such as the platform as the creator and coordinator of the VC and responsible party for the customer base. Third parties and customer are involved twofold in the

value network: on one hand in the operations of the selling and purchasing process of conventional products/services. On the other hand, they are included in the VC scheme of the platform.

The four case studies were compared along seven characteristics that are directly linked to the organization-, service and financial design of business models: (i) the side(s) of the market on which the VC is oriented; (ii) whether the platform itself provides goods or services for which the VC can be redeemed; (iii) the strength of the enforcement to use the VC in the network; (iv) whether Third parties also redeem the VC; (v) if the scheme rewards desired customer behaviour; (vi) if and from which side of the market the platform generates revenue by selling the VC; (vii) and if an expiration date is introduced that can build another income stream for the platform.

Each case follows a different strategy concerning the implementation of VC. One consistency is however, the purpose of strengthening loyalty towards the platform on one or both sides of the market. VC can be used as a tool to locked-in Third parties and customers and thus discourage them from switching to competitors. The realization ranges from weak measures, where VC is handled as benefit or bonus program, to strong measures where loyalty is enforced by setting usage obligations in the network.

Second the analysis revealed that all platforms use the VC as a source of revenue, albeit to a different extent. Purchasing VC can either be an additional option granted to customers (besides rewarding) or obligatory for customers or Third parties. In line with the two-sided market theory, in the examples where both sides are included, revenue is generated on one side of the market while the other one is included for free (with the option to buy VC made available as incentive).

Although many more factors influence the success of a platform's business model, it can be concluded that VC has the necessary attributes to support platforms strategies in their service and financial designs by encouraging loyal behaviour (or even enforcing it by locking stakeholders in) and opening a source of revenue for the platform.

The authors acknowledge that industries are still in an early phase of experimenting with new business models concerning VC strategies, in particular with mobile devices opening up new possibilities such as the broader use of location-based services. Further research is thus required reflecting the development of the market, also from a technical point of view.

ACKNOWLEDGEMENTS

CoMobile is an R&D project cofunded by IWT (Agentschap voor Innovatie door Wetenschap en Technologie), the government agency for innovation by science and technology founded by the Flemish Government. Companies and organizations involved in the project are C2P – ClearPark, Alcatel-Lucent, Netolog, CityLive – Mobile Vikings, Colibri, Belgian Direct Marketing Association, K.U.Leuven/COSIC, K.U.Leuven/CUO, K.U.Leuven/ICRI, UGent/MICT, iMinds/iLab.o.

REFERENCES

Anderson, C., 2009. *Free: The Future of a Radical Price*, Random House. London.

Baird, N., 2007. *Coalition Loyalty programs: The next big thing?* Chain Store Age, 83(7), 14.

Ballon, P., 2007. *Business modelling revisited: the configuration of control and value.* Info, 9(5), 6–19

Ballon, P., 2009. *The Platformisation of the European Mobile Industry.* Communications & Strategies, (75), 15–33.

Borestam, A., Schmiedel, H., 2011. *Interchange Fees in Card Payments. ECB Occasional Paper No. 131* Retrieved from URL: SSRN: http://ssrn.com/abstract=1927925 (accessed 26.11.2012)

Braet, O., & Ballon, P., 2007. *Business Model Scenarios for remote management.* Journal of Theoretical and Applied Electronic Commerce Research, 2(3), 62–79.

Christopher, M., Payne, A., & Ballantyne. D., 2008. *Relationship Marketing.* Oxford: CRC Press.

CityLive NV, 2012. *Viking Spots.* URL: https://vikingspots.com/en/ (accessed 6.2.2013)

Dowling, G. R., & Uncles, M., 1997. *Do customer loyalty Programs really Work?* Sloan management review, 38, 71–82.

European Central Bank, 2012. *Virtual Currency Schemes*, European Central Bank. Frankfurt am Main.

Facebook. 2013a. *Facebook Sign Up.* URL: https://www.facebook.com/ (accessed 6.2.2013)

Facebook. 2013b. *Facebook Developers.* URL: http://developers.facebook.com/ (accessed 6.2.2013)

Gawer, A., & Cusumano, M. A., 2002. *Platform Leadership: How Intel, Microsoft, and Cisco Drive Industry Innovation.* Boston: Harvard Business Review Press, 1st edition

Groupon, 2012. *Groupon.* URL: http://www.groupon.com (accessed 26.7.2012)

Kincaid, J., 2011. *Facebook To Make "Facebook Credits" Mandatory For Game Developers (Confirmed).* TechCrunch. URL: http://techcrunch.com/2011/01/24/facebook-to-make-facebook-credits-mandatory-for-game-developers/ (accessed: 31.10.2012)

Kumar, V., and Shah, D., 2004. *Building and sustaining*

Profitable Customer Loyalty for the 21st Century. Journal of Retailing, 80(4), 317–330.

Lufthansa, 2011. *Lufthansa Press Releases. Miles & More: 20 million members.* Press release archive. URL: http://presse.lufthansa.com/en/news-releases/singleview/archive/2011/february/11/article/1875.html (accessed 3.7.2012)

Mason, G., & Barker, N., 1996. *Buy now fly later: an investigation of airline frequent flyer programmes.* Tourism Management, 17(3), 219–223.

Miles and More, (n.d.). *Miles & More.* URL: http://www.miles-and-more.com/online/portal/mam_com/de/homepage (accessed 6.2.2013)

Mobile Vikings, 2013a. *Home.* URL: https://mobilevikings.com/bel/en/ (accessed 6th February 2013)

Mobile Vikings, 2013b. *What are Viking Points?* URL: https://mobilevikings.com/bel/en/vikingpoints/ (accessed 6.2.2013)

O'Malley, L., 1998. *Can loyalty schemes really build loyalty?* Marketing Intelligence & Planning, 16(1), 47–55.

Palmer, A., Mcmahon-Beattie, U., & Beggs, R., 2000. *Influences on loyalty programme effectiveness: a conceptual framework and case study investigation.* Journal of Strategic Marketing, 8(1), 47–66.

Perez, S., 2012. *PassRocket Lets Any Business Create Loyalty Cards For Apple's New Passbook App For Free.* TechCrunch. URL: http://techcrunch.com/2012/09/19/passrocket-lets-any-business-create-loyalty-cards-for-apples-new-passbook-app-for-free/ (accessed 2.10.2012)

Reichheld, F. F., & Sasser, E. W., 1990. *Zero Defections: Quality Comes to Services.* Harward Business Review, 14(3), 497–507.

Rochet, J.-C., & Tirole, J., 2002a. *Platform competition in two-sided markets.* Journal of the European Economic Association, 1(4), 990–1029.

Rochet, J.-C., & Tirole, J., 2002b. *Cooperation among Competitors: Some Economics of Payment Card Associations.* The RAND Journal of Economics, 33(4), 549–570

Sharp, B., & Sharp, A., 1997. *Loyalty programs and their impact on repeat-purchase loyalty patterns.* International Journal of Research in Marketing, 14(5), 473–486.

Shimizu, K., 2012. *The Cores of Strategic Management*, Routledge. New York.

The Associated Press, 2013. *Hits and misses in Facebook history over the years. The Big Story.* URL: http://bigstory.ap.org/article/hits-and-misses-facebook-history-over-years (accessed 3.2.2013)

Varian, H.R., 2000. *Introduction à la microéconomie.* De Boeck Université, Bruxelles, 4th edition.

Webster, F. E., 1992. *The Changing Role of Marketing in the Corporation.* Journal of Marketing, 56(4), 1.

Wright, C., Sparks, L., 1999. Loyalty saturation in retailing: exploring the end of retail loyalty cards? In *International Journal of Retail & Distribution Management*, *27*(10), 429–440.