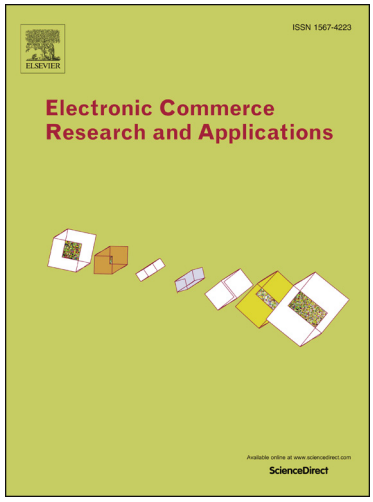

Exploring The Growth Challenge Of mobile Payment Platforms: A business Model Perspective

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EXPLORING THE GROWTH CHALLENGE OF MOBILE PAYMENT PLATFORMS: A BUSINESS MODEL PERSPECTIVE

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ABSTRACT

The power of platform business models has grown as our economies become increasingly digital, but how companies address the challenge of platform growth to achieve a critical mass of users remains unclear. In this study, we take a *business model* (BM) perspective to understand how mobile payment platform providers go about addressing such a challenge. We studied how mobile payment providers engaged in innovation of their business models, and thus identified three pertaining aspects: rethinking the relationship management with retailers, creating partnerships with other actors in the payment ecosystem to complement and deliver the proposed value, and integrating and using front-end mobile technology. Furthermore, our study suggests that mobile payment providers need to adapt their role within the ecosystem to scale the platform, and that it will depend on their choice of scope of geographic availability. Finally, we suggest that mutual adaptation of BMs of platform-associated actors leads to improved diffusion of the platform offer, which also hints at the need for researchers to revisit innovation diffusion and technology adoption theories by acknowledging the importance of the BM of the offer side of technology.

Keywords: Business model; case study; digital transformation; fintech; mobile payment; platforms

1. INTRODUCTION

The current digital transformation carried by omni-present internet access and the vast usage of mobile phones has brought massive development opportunities for payment services. One example is the emergence of sophisticated digital payment applications installed on consumers' mobile devices, offered by emergent mobile payment providers that strive to propose more value to consumers and retailers, than payment incumbents (e.g., banks) have done in the past (Kazan et al., 2018). These mobile payment services, conceptualized as digital multi-sided platforms (de Reuver et al., 2015; Kauffman and Ma, 2015) are governed by a platform provider that aims to facilitate transactions through some form of digital technology mediation (Hedman and Henningsson, 2015; Stabell and Fjeldstad, 1998) between two or more distinct types of platform users, and therefore create value for all. Some of these have been successful, while others still fail to address the different challenges embodied in platform business models (Cennamo and Santalo, 2015).

One of the main challenges facing multi-sided platforms is growth – creating a critical mass of users and thus unleashing the potential of network effects (Hagiu and Rothman, 2016). Since mobile payments (m-payments) are seen as platforms within the broader financial technology (fintech) ecosystem they are no exception (Kauffman and Ma, 2015; Milian et al., 2019). Mallat (2007) points out the importance of network externalities, while Apanasevic et al. (2016) indicate that inability to achieve critical mass constitutes a reason for m-payment service failure. Moreover, there are several documented examples (e.g., Bart, Valyou, Mokipay) in which the low number of users has led to services being discontinued (Apanasevic, 2018). Therefore, the simultaneous adoption of m-payments, by consumers (B2C) and retailers (B2B), has been identified as the key to success for m-payment platforms (Heijden, 2002; Rochet and Tirole, 2003). However, while a majority of research has focused on the adoption of m-payments by consumers, only a few have looked into retailers' adoption patterns (Dahlberg et al., 2015).

Additionally, ongoing digitalization processes in the payment industry have increased the already inherent complexity of digital platform dynamics (de Reuver et al., 2018; Iman, 2018). This is mainly due to the fact that the involvement of different actors within the ecosystem is needed (Gaur and Ondrus, 2012), and that m-payments are a complementing service, often coupled with non-payment ones (Kazan and Damsgaard, 2014). Therefore, the governance of different collaborating actors (e.g., retailers, local payment partners) around the platform, and pertinent complexity, are two of the major sources of challenges for m-payment platform providers (Arvidsson, 2014; Au and Kauffman, 2008; Dahlberg et al., 2015; de Reuver et al., 2015).

Further, this complexity is one of the primary reasons for slow market adoption, along with issues regarding the business models (BM) of actors (Chea et al., 2015). Iman (2018) states that the growth of m-payment platform depends on the presence of a viable BM on the part of the provider, and Weichert (2017) argues, in her discussion on future of payments, that fintech companies tend to engage in designing new BMs that would better align payment solutions with customer needs. More-

over, Teo et al. (2005) claim that BM represents an important question for each of the actors in an ecosystem and that it impacts the success of an m-payment service (Chea et al., 2015). To address these challenges and advance research in the m-payments field, Dahlberg et al. (2015) call for multi-sided platform research with a focus on adoption by retailers as well as on related issues regarding BMs in ecosystems.

We, therefore, aim to understand different aspects that m-payment platform providers engage in so as to change a BM built on an m-payment platform, with the intention of obtaining a critical mass of retailers and platform growth. In other words, we strive to identify and understand m-payment platform providers' approaches and BM innovation activities as ways to engage a critical mass of retailers (as one of the sides of a multi-sided platform) and foster cumulative positive network effects. In particular, we pose the question: *How do m-payment providers redesign their BMs to address the growth challenge of an m-payment platform?*

To address this question, we studied the value architecture of two m-payment platform providers that redesigned their value distribution within the payment ecosystem with the aim of addressing the growth challenge of the platform pertaining to the service adoption by retailers (business users). This value architecture which revolves around change and innovation is the providers' BM (Massa et al., 2017; Teece, 2010). In other words, we employ a BM perspective to analyse the process of change of an m-payment platform provider's business (which we refer to as an m-payment provider in this text). Particularly, we used Osterwalder et al.'s (2005) representation of a BM in order to illustrate the challenges that emerged, and the BM innovations that aimed to meet these challenges. This BM representation provided us with nine building blocks that were adjusted to represent two-sided platform-specific characteristics, such as multiple actor collaboration and governance, as well as two customer groups with two pertaining value propositions (de Reuver et al., 2015). In this way, we achieved a holistic perspective on the changes connected to the platform characteristics, while at the same time being able to focus on the m-payment provider as the platform leader (Gawer, 2014).

Against this background, we make three contributions in the effort to understand the use of BM as a tool to address the growth challenge of the m-payment platform. Firstly, we highlight the importance of the choice of partners within the payment ecosystem, grounded in the approach to the scope of the geographic availability of the m-payment platform. Secondly, we identify that just having users affiliated with the platform is not enough, and highlight the need to rethink and maintain relationships with retailers through different activities, including the constant communication of incentives for being part of the platform and assisting the integration of in-store technologies. Finally, we find that the analytics of big data gathered via mobile technologies is an essential factor behind the success of platform BMs.

2. TWO-SIDED PLATFORM BUSINESS MODELS

The seed of a business organization as a platform already resides in common conceptualizations of a BM at a network level, which alternately focused on: an activity system perspective on BMs (Zott and Amit, 2010), ecosystem BM (Van der Borgh et al., 2012; Westerlund et al., 2014), value networks as systems of interconnected BMs (Ghezzi, 2013), open BM (Chesbrough, 2006; Frankenberger et al., 2013) network-embedded BM (Bankvall et al., 2017) or network-centric BM (Laya et al., 2018). However, the platform business model literature recently evolved as a research field *per se*, in order to account for these BM's peculiarities, logics and archetypes (Ritter and Lettl, 2018), where market intermediary platforms or transaction platforms that bring together two (sometimes multiple) sides of a market represent one particular stream (Evans and Schmalensee, 2008; Thomas et al., 2014).

That particular archetype of business organisation as a platform, which intermediates transactions between two different customer groups and appropriately charges each of them (Rochet and Tirole, 2006), is a way to conceptualise the business of an m-payment provider (Staykova and Damsgaard, 2015). Furthermore, business models of these companies intrinsically need two different kinds of customers on distinct sides of a platform in order to create an idea of the service itself (Muzellec et al., 2015; Täuscher and Laudien, 2018). In particular, the customer segmentation of two-sided platforms is a different type from a "multiple segments" one, since the latter does not imply mutual interdependence between two or more customer segments (Osterwalder and Pigneur, 2010; Trabucchi et al., 2019).

Therefore, important determinants of an m-payment provider's business success are, on one hand, the ability to attract enough customers on different sides of the platform on time (Gaur and Ondrus, 2012) and, on the other hand, nurture the relationships with the customers on each of the platform sides (Ondrus et al., 2015). However, growing too big too early can have a reverse effect (Hagiu and Rothman, 2016). It is, thus, important to balance the growth of the different sides in the platform's initial period, which is sometimes referred to as an ignition stage (Evans, 2009). Achieving a critical mass of customers on each side is paramount for platform ignition (Ondrus et al., 2015) and creation of positive network effect as a cornerstone of a platform business model (Rochet and Tirole, 2003). When different customers affiliated with a platform appreciate the platform based on the number of customers either in the same group (direct effects) or in another customer group (indirect effects), the network effects arise and the platform becomes valuable and viable (Hagiu and Wright, 2015).

In addition, these network effects create customer lock-in and increase switching costs (Santoso and Wahyuni, 2018), which are known sources of value creation in BMs of companies leveraging digital technologies (Amit and Zott, 2001). Finally, achieving critical mass is argued to be dependent on m-payment provider's BM (Iman, 2018) as well as on the actions of m-payment platform provider's partners as facilitators of payment infrastructure (Contactless Forum, 2017; Van Puyvelde, 2015). Therefore, studying an m-payment provider's BM leads to further understanding of the ways

BM innovations can be used to address challenges pertaining to ignition stage and achieving critical mass (Staykova and Damsgaard, 2016).

In order to analyse an m-payment provider's BM, it is essential to have an adequate formal conceptual representation of how a BM functions. One of the most comprehensive frameworks according to Teece (2018) that has already been used within the m-payments domain (Pousttchi et al., 2009), is the *Canvas* BM, in which Osterwalder and Pigneur (2010) explain how the framework can be used for two-sided businesses. It follows Osterwalder et al.'s (2005, p.17) argument that a BM should express the business logic of a specific firm by describing "*the value a company offers to one or several segments of customers […] and its network of partners for creating, marketing, and delivering this value and relationship capital, to generate profitable and sustainable revenue streams*."

Having in mind that the business organisation of an m-payment provider is a two-sided platform and that it is based on the existence of two interdependent customer groups, the *Canvas* BM takes a particular form (Osterwalder and Pigneur, 2010), as depicted in Figure 1. There are (still) nine design elements vis-à-vis four pillars, but what is particular here is that the customer segment design element and value proposition (as a design element and a pillar in itself) both have two distinct pairs.

As represented in Figure 1, for each customer group (or side), A and B, there is a value proposition (VP A and VP B). It is important to highlight that value propositions that cater to the needs of each of the customer groups are interdependent, just like the customer groups (Osterwalder et al., 2014). In other words, it is not possible to deliver one value proposition without the other (Hayashi, 2012). In addition, customer relationships (represented through a BM design element in Figure 1) that an m-payment provider has with each of the customer groups plays a vital role in the viability of the platform itself (Ondrus and Lyytinen, 2011). Some authors within the m-payments domain further the discussion into the importance of partnerships within the design of a platform BM by extending it to include key partners and relevant actors in the payment ecosystem as well (e.g., Dennehy et al., 2015; Miao and Jayakar, 2016; Zolnowski et al., 2014).

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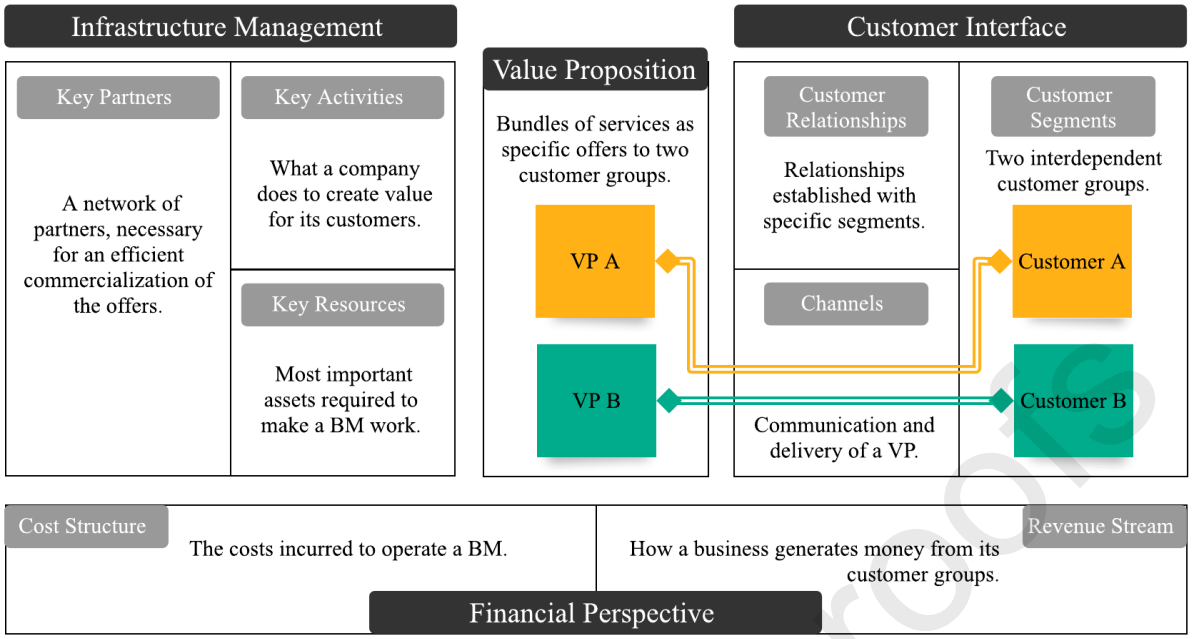

Figure 1– *Canvas* BM of a two-sided platform business, based on Osterwalder et al. (2005), Osterwalder and Pigneur (2010), and Pousttchi et al. (2009)

Finally, another aspect that is not explicit in the presented BM framework, but is sometimes considered as part of a BM itself and a general strategic approach to platform growth, is the geographic scope of the platform. Täuscher and Laudien (2018) attribute the scope of geographic availability, in terms of the local, regional, or global availability, to the value delivery dimension of a BM. Similarly, Pousttchi et al. (2009) discuss the rollout of an m-payment platform as part of the channel design element. For them, the rollout as a geographic coverage (physical locations where the m-payment service may be used) is an aspect of the delivery of the proposed value, too. Other authors implicitly relate the importance of the geographical coverage of the m-payment service with the business logic behind it. For example, Iman (2018) highlights the importance of understanding of the context of a local market for the deployment of an m-payment platform in a way that ensures that an m-payment provider's value proposition would meet the expectations of the local customer groups and incentivise them to join the platform.

Finally, in their efforts to understand the adoption of *digital* two-sided platforms through the terms "reach" and "range", Staykova and Damsgaard (2016) drop the connotation of geographic scope from the original use of the terms. However, even though the reach, as a number of users of one distinct customer segment, as they use the term, is an important element in the discussion on digital two-sided platform, we believe that geographic aspect is especially relevant when studying digital services that can cover large geographical distances.

Once a BM is represented with the help of a framework, such as *Canvas* BM, it should not be seen as a static image: on the contrary, it is subject to change and innovation due several internal and external factors, for instance, the digitalization processes that happen within the payment ecosystem

(Schneider and Spieth, 2013). The innovation of a BM refers to "the search for new logics of the firm and new ways to create and capture value for its stakeholders" (Casadesus-Masanell and Zhu 2013, p.464). Also, Sosna et al. (2010) conceptualise the BM innovation (BMI) as a trial-and-error process, and Foss and Saebi (2017) define BMI as novel changes to the BM design elements of a firm and/or the architecture that links them. They point out that BMI has been perceived in the literature as a process that can help firms to improve performance outcomes, such as profitability and competitive advantage.

The literature also suggests that BMI can support the commercialization of new technologies (Chesbrough, 2010; Chesbrough and Rosenbloom, 2002), such as mobile technologies, that bring profound changes to the payments industry and set new paths for digital transformation. In addition, new value can be unlocked through technology advancements, influencing the BM and monetisation for different actors associated with it; while the interoperability with previous technologies also has to be taken into consideration (Baden-Fuller and Haefliger, 2013). Therefore, BMI as a response to a changing environment is essential for understanding how m-payment provider's BMI activities may foster creation of critical mass of users and thus platform growth at a proper pace.

3. RESEARCH DESIGN

This study uses a case study research design (Yin, 2014), which is used extensively in research on payment services (Chea et al., 2015; Kshetri, 2007; Ondrus and Pigneur, 2006). The approach allows us to obtain field-based insights into the actions of a key actor in the payment ecosystem – m-payment platform provider – and also to explore processes relating to mobile payments. In addition, Myers and Avison (2002) state that a case study design is suitable for studies where capturing the knowledge of practitioners is needed, and this study bases its contribution on data collected from two m-payment platform providers that operate in Sweden. The approach was exploratory and "abductive" in nature, which means that the logic of inquiry into the two cases of an emerging phenomenon included a systematic combining of different activities in the research process (Dubois and Gadde, 2002). In other words, without set hypothesis prior to data collection, but with strong understanding of the theoretical concepts, researchers aimed at data collection that would enrich the understanding of both theory and empirical phenomenon through the process of going back and forth between framework, data sources and analysis.

There are many actors involved in the mobile payment ecosystem, and researching interactions among them is a demanding task due to the challenge of platform and ecosystem boundaries. However, the focus of this paper is on a less researched user side of the platform, or the relationship with a customer segment that represents B2B – retailers. Therefore, reducing the challenge of boundary creation, but on the other hand facing the challenge of gaining access to the business strategies of the focal actors in this ecosystem – m-payment providers (Hedman and Henningsson, 2015). Similarly, de

Reuver et al. (2018) restated the challenge by pointing out that there are only a few empirical studies that have gained such access in the past.

3.1. Case selection

Given the exploratory nature of the study, the information-oriented case selection that maximises the utility of information and variety in a small sample of cases is employed (Eisenhardt, 1989; Flyvbjerg, 2006; Yin, 2014). In other words, cases are selected based on expectations about their information content that can shed light on the investigated phenomenon (Flyvbjerg, 2011). Therefore, we study two cases, which at the commencement of this research were going through a phase of change that was reflecting the investigated growth of mobile payment platforms pertaining to the adoption by retailers, that is, growing the acceptance network. One is a business that was launched in 2012 under the parent company Seamless. The original name was SEQR, but has changed the name to Glase during this research. The other one – Beam Wallet, which was launched in Dubai (2012), has been operational in Gothenburg, Sweden since 2016.

These two organizations, emerging around the same time, have after several years of operations engaged in some business logic changes, which we saw as a potential to help to further the understanding of how BM and BMI can be used in addressing one of the core properties of a two-sided platform business – the growth challenge. On one side, these changes included choices of partnering with actors with different roles in the payment ecosystem, and on the other, referred to the venturing into new geographic locations with different dynamics. Glase aspired to grow fast, internationally, and early on, while Beam Wallet opted for slower, geographically bounded growth. Therefore, in some ways, the paths have been similar; both companies had affinities with global scaling, they have relied on using mobile technology as a mediator, but have been built on different payment infrastructures. There is also the difference that Glase was developed within a parent company, and Beam was a business on its own from the beginning.

In addition, our selection process was also influenced by data availability (e.g., de Reuver et al., 2015; Iman, 2018) and traditional accessibility (Saunders et al., 2016). Therefore, organisations in Sweden were selected, since in that way author observations were possible to take place, and direct access to key executive-level respondents was enabled (c.f. Sabri, 2019). Furthermore, Sweden is interesting from a point of view that it is globally one of the leading countries in terms of user penetration of proximity mobile payments (i.e., those used in physical stores) (McNair, 2018), and a country where steady decrease of cash in circulation in favour of different types of e- and m-payments was observed in the last years (Arvidsson, 2018; Erlandsson and Guibourg, 2018).

3.2. Data collection

The data collection process included the identification of multiple sources of evidence, which gave us robustness and the ability to maintain a chain of evidence to support our findings (Yin, 2014). For this article, we used data from documents, interviews and observations as empirical sources, collected over a period of nineteen months. The primary source used to gain knowledge of the phenome-

non includes author observations and a broad range of documents, such as consultancy reports, official web pages, annual reports, press releases, presentations, news reports and published interviews with the founders and stakeholders of the companies. This archival data helped us to gain insights into the firms' functioning, to become aware of their recent changes, and create an overall picture of their current strategies. Furthermore, data collected through three interviews, conducted with the payment platform CEO, a co-founder and a local manager, allowed us to form a richer picture of the business models of these two m-payment platform providers and their history.

The interviews lasted on average 79 minutes, and whenever it was possible, they were conducted by at least two researchers to avoid the investigator bias. In addition, by acting as observer-as-participant (Easterby-Smith et al., 2015), the authors engaged with the retail environment by using the payment services, observed what activities unfolded in the store, and engaged in informal in-store talks with employees, which all resulted in field reflections and brought an experiential perspective to the discussion (cf. Healy et al., 2007). See Appendix A.1 for a list of data sources used in this study.

The three interviews that were conducted took place face-to-face, and were semi-structured, which made it possible to start with some key issues identified previously through the literature, but also allowed any innovative issue to emerge from the open discussion (Yin, 2014). We used a protocol that covered three topics, mainly focusing on questions related to BMs and their design elements (see Appendix A.2). One referred to general information about the discussed m-payment platform, associated provider's business (e.g., the firm's organisation, involved stakeholders), and the businesses' role in the ecosystem over the years. Then, informants were asked about different activities in regard to the business model and changes that have occurred since the start of the operation of their respective mobile apps. The third theme was dedicated to questions about future development, ideas and expectations of the mobile payment ecosystem, including their relationships with retailers. In this way, the interviews facilitated a holistic understanding of the complex phenomena which are often intertwined within this context.

In order to avoid too strong an academic push, these questions were inspired by vocabulary from *Canvas* BM since it is widely understood by practitioners. This approach later enabled us to map relevant elements of their BMs into the BM pillars. In other words, it allowed us to create Figures 2 and 3 as process representations, bracketed into sequential time segments (Langley, 1999) and needed for data analysis part. As the objective of the study was not only to map the BMs, but also to understand the BM innovation process and what it entails, the informants were asked to provide answers that were as detailed as possible, discussing their strategic actions and market activities. Not only that, but they were also asked to discuss concrete events, rather than reflect upon abstract concepts, so as to reduce the risk of cognitive bias (Miller et al., 1997).

3.3. Data analysis

As previously mentioned, the collected data was organised with the help of *Canvas* BM design elements and relevant pillars (presented in Figure 1) in order to get snapshots of the BMs at various moments in the lifetime of businesses (e.g., Muzellec et al., 2015). Later on, these snapshots were used to understand how different BM innovation activities address the challenges that m-payment providers faced by employing the *explanation-building technique* (Yin, 2014).

We used texts from primary data sources, and the responses from interviewees were first recorded and then transcribed. Later, following the recommendations of Eisenhardt (1989) a *within-case data analysis* was carried out, to generate the necessary insight into the issues under scrutiny. One of these recommendations was to use an appropriate display of information about each case – which in our case was a carefully constructed chronological timeline of a series of key activities and events vis-à-vis each provider's BM changes. For the synthesis of these representations (see Figures 2 and 3), we used statements given by our informants, and described activities within publicly available documents as an illustration of managers' focus at that particular time. By doing so, all the authors became familiar with the cases separately, which allowed us to understand each case as a stand-alone, before investigating them in a cross-analysis manner.

Furthermore, we conducted a cross-case analysis, which allowed us to perform a comparison between the different responses from informants belonging to the two different organisations. During this phase, data from different sources were summarised and mapped, first against *Canvas* BM design elements, and then against BM pillars (e.g., Nardelli and Rajala, 2018). As a result, we were able to distinguish how the change of different BM design elements and pillars occurred over time, and identify each provider's activities in line with emerging challenges. Finally, our explanation of the course of events of BM innovation and its entanglement with innovation adoption might not have been unique throughout the data analysis process (Yin, 2014). Following the chain of evidence, the authors have considered alternative explanations in order to eliminate the rival ones that emerged with each new item of data; finally leading the analysis to the final one.

3.4. Methodological limitations of the study

Some limitations of the present research should be mentioned, such as the unbalanced availability of data in each of the discussed case examples. As can be seen from Appendix A.1, there is only one interview in one of the cases. However in that case an interviewee was a person in a position that could shed light on a range of activities related to the BM and the researched phenomenon. In the other case, during the first interview we encountered a cognitive access issue (Saunders et al., 2016), which refers to the amount of relevant information that can be accessed via the interviewed person (considered as a particular source of information). Therefore, an additional interview was conducted, which also provided a means to fact check some pieces of information and to provide interpretations of specific reports.

These interviews, as particular sources of information, just like annual reports, blog posts (as official commentary on events or perspectives at an organizational or societal level), and author observations, represented multiple sites for data collection for building a comprehensive understanding of the phenomenon (Nadai and Maeder, 2013; Saunders et al., 2016). In other words, these various secondary data and author observations allowed us to address respondent bias (i.e., limited number of interviews per case) and enabled triangulation of data and creation of chain of evidence that would increase the trustworthiness of findings (Shah and Corley, 2006; Yin, 2014).

4. TALES FROM THE FIELD: TWO EXAMPLES OF MOBILE PAYMENT PLATFORMS

In the academic literature, the discussion of m-payments has been growing over the last decade and a half, and in several studies various success and failure stories of m-payments have been described (Dahlberg et al., 2015). We investigated two examples of primarily proximity m-payments, in order to understand how they faced the challenge of achieving critical mass of business users.

4.1. The case of Glase

Since their establishment, Glase (SEQR at the time) was offering two distinct value propositions to two customer segments. The main offer to consumers was a payment service via a mobile app (by scanning a quick response – QR code), and to retailers it was a means of payment with lower pertaining costs. Building their service around established payment infrastructure, they focused on settling all transactions via banks. Consequently, for each transaction consumers made, Glase charged retailers less than if the payment had been made using traditional digital payment methods (e.g., card payment). Also, Glase offered to connect retailers' loyalty programmes to consumers' purchases, and help with analysing the aggregated data. Growing into four other markets in 2014, they launched a new service, *Shop on the Spot*, apart from existing app features. This meant that a customer could scan a QR code with their mobile device, on any supported web page or printed advertising, and order the product almost instantly.

By 2015, they were operating in 12 countries and offered many features, such as: shopping in physical stores and online, rewards, coupons, loyalty-card integrations, international remittances, person-to-person transfers, parking services, and allowing other services to use the payment system. The primary challenge was making bilateral agreements with retailers and explaining them the benefits of being associated with the platform (e.g., developing better sales techniques, lower cost per transaction).

Moreover, Glase's marketing activities were costly, they were integrating their system with retailers for free, and revenue was not increasing along with the transaction volume. A new approach was needed, and the parent company acquired new technology and made a new partnership, which allowed Glase (SEQR at the time) to be accepted wherever a Mastercard with near field communication (NFC) technology was accepted. In other words, Glase payments were accepted at the same locations that Mastercard contactless payments were. This change occurred in 2016 and it actively contributed

to the increase in potential locations where consumers could use their app (i.e., the acceptance network) and reduced costs for Glase, while at the same time alienated a customer segment – retailers. In addition, this change also meant that retailers would now have to integrate (on their own) their POS system with Glase's in order to take advantage of all their value-added services, for example, customer data analytics. The main incentives for retailers – cheaper transaction fees and rich data-driven insights – were gone.

Since this change occurred after Period I and throughout 2017 (see Figure 2), Glase was focusing more on its consumer base and growing markets (e.g., Germany). A new consumer segment was identified – younger than 18 years. A new and separate mobile app was developed for young people older than 13, and with this move they were hoping to increase the chances of gaining momentum on the adoption rate with consumers. In addition, the company launched *MyShop*, a feature by which consumers could generate their own QR code and have a personal "shop" to sell, for example an old bike. This was done in order to foster omni-channel payments, or to "*turn any form of media into a check-out opportunity*". However, in 2017, when Glase was present in 16 countries, it was thought that it was creating substantial cash outflow by the Board of Seamless; which then decided to divest their B2C offer (i.e., SEQR at the time).

At the end of that year, the *Shop on the Spot* and *MyShop* services were discontinued, leaving the app focused mainly on providing an m-payment service. The implication of this was that cross-channel shopping, that is, shopping on the spot with a mobile phone and having the product delivered at home, a feature increasingly implemented by many retailers today, was abandoned. At that point, it was bought by its former CEO, who then co-founded Glase. This became a standalone business, and a year later (December 2018) an announcement was published on their webpage stating that the service would be shut down due to a failure to "secure funding for continued growth and operations".

During its lifespan of seven years, there were several radical attempts by management to revitalise the company through working on an omni-channel approach to mobile commerce, partnering with different actors in the ecosystem, and building a rewards scheme for loyal users of the service. In Figure 2, the structure of its BM is shown, with different aspects mapped to each of the pillars at respective time periods in which they were implemented. Emergent challenges after each of the periods are also shown in Figure 2.

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Time period		Period I 2012–2015	Period II 2016–2017	Period III 2018
Business Model Pillars	***Value Proposition***	• M-payments and Shop on Spot, for consumers • Lower transaction charges, for retailers	• MyShop and international remittance, for consumers	• Top-up with a card
	Infrastructure Management	• Bi-lateral agreements with retailers • Consumer data analysis and product development • Platform maintenance	• Supports contactless (NFC) • Expands through • Mastercard's acceptance network • International payment licences	• Becomes issuer of virtual Mastercards
	Customer Interface	• Predominant focus on business user side (i.e., the retailers	• Predominant focus on consumers	• Rebranding to *Glase* and launching a new app
	Financial Perspective	• Up to 3% back to end consumer • Retailers pay per transaction	• Additional 15% fee for retailers that use ShopSpot • Same fees as other actors in Mastercard scheme	• Facing problems with funding
	Emergent Challenge	• The tedious process of bilateral agreements with retailers to adopt the payment platform • NFC technology picks up momentum	• Parent company (Seamless) changes focus away from B2C, highlighting that SEQR creates substantial cash outflow	

Figure 2 – BM changes in the case of Glase

4.2. The case of Beam

In the case of Beam Wallet (Beam), the main value propositions were acquisition and retention of relevant consumers, for retailers, and finding offers from relevant retailers, for consumers. Thus, based on rich data and trained algorithms, Beam could suggest specific offers to the consumers who were most likely to be interested in them. These offers were designed as programmatic objectives – proprietary smart contracts in the original platform design. As such, once the conditions from a retailer were met (i.e., an objective was fulfilled), the consumer would unlock the monetary reward and could choose where to spend it on the Beam platform. This approach alone is innovative when compared to traditional payment service providers' approaches and introduces a gamification aspect to mobile commerce.

In practical terms, what this meant was that for consumers Beam provided shopping, payment and earning rewards at a single instance, as well as allowing them to rate retailers and leave comments directly within a digital receipt (only since the latest version of the app). For retailers who joined the platform, Beam provided insights and data analytics (e.g., demographics, customer behaviour); however, according to the quotes of the representatives, many did not use the platform to its fullest extent. In addition, with an attitude of forming close relationships with both customer segments, the relationships Beam established were quite personal and allowed the co-creation of the app; namely, when it comes to consumers. A lot of customisation of the app was allowed to retailers as well, but was discontinued. The app had become more standardised, thus limiting the customisation by retailers, so that the constant changes would not confuse consumers. However, since Beam sees a lot of value in

retailers using and liking their services, there have been examples when the app version has been updated based on retailers' feedback.

Interestingly, unlike many payment providers, Beam decided in 2015 to use Bluetooth Low Energy (BLE) technology in the front-end part of the payment process, and therefore enabled consumers to perform payments under different scenarios. This meant that one could pay by "tapping" in a physical store, but also from the car at the gas station, or a table in a restaurant. Finally, the cost of end consumers' rewards (of up to 30%) was not a cost to Beam; this money came directly from a retailer's budget. Similarly, the revenue did not come from payment processing fees, but rather from different charges that retailers faced, based on new, recurring and infrequent shoppers that Beam connected them with. That is why m-payment providers' revenues were not fixed. These particularities are depicted in Figure 3.

After testing its platform in Dubai (Period I), Beam launched in Sweden in 2016 so that the company could "prove" its BM and see how it would work in different countries. It was then decided that the company would develop a local partnership in each country where it offers the service, and that it would then be the partners' responsibility to grow the acceptance network (i.e., attract retailers to join the platform). For this, local partners would get a percentage of the revenue that the platform would generate. In the case of the Swedish market, the local partner Pagero started working with Klarna – a leading fintech company that specialises in online commerce. Having in mind that Beam relied on BLE technology, security needed to be guaranteed differently than for NFC technology. Therefore, while Beam offered location verification (a benefit of m-payments and BLE technology), Klarna's system combined it with its own security efforts. In other words, Klarna was in charge of the complete back-end activities as a payment gateway company.

Thanks to this platform's architectural design, Beam was agnostic about the funding source of the consumer, and thus had fixed costs to its back-end payment partners. In the last (third) period, new activities towards development are still important for Beam. After reflections done by the representatives during the production process of the white paper that the company published in 2018, there was a clear idea to scale globally and move the platform to blockchain technology within the following five years. Nevertheless, operating in a few locations but with the aim of achieving high adoption among both customer segments Beam still planned to grow city by city. Details of the changes in the structure of the BM and emergent challenges can be seen in Figure

Time period		Period I 2012–2015	Period II 2016–2017	Period III 2018
Business Model Pillars	***Value Proposition***	• Mobile payments • Relevant suggestions of retailers to consumers • Relevant consumer acquisition and retention for retailers	• Pay for fuel from car • Real-time data for retailers • Gamified shopping process	• Any app can integrate with Beam
	Infrastructure Management	• Proprietary smart contracts • Platform maintenance • BLE technology	• Local partner – Pagero in Sweden • Klarna (Sweden) as a payment gateway	• Recommendation engine
	Customer Interface	• Co-creation of the app • Helping out with installation in physical retail spaces	• Re-designing the app for the new Swedish market • Retailers' employee education	• New app version allows customers' feedback within the digital receipts
	Financial Perspective	• 1–30% back to the consumer (paid from retailer's budget) • The retailer pays according to a programmatic objective	• Local partners get a part of the total revenue	• Planning for public initial coin offering for local partners
	Emergent Challenge	• A need to grow and validate the product in a different context • Having local partners responsible for relationships with retailers	• The decision to scale globally, but still city by city	

Figure 3 – BM changes in the case of Beam

5. DISCUSSION

Given the previous description of two cases, three distinct time periods can be observed in Figures 2 and 3. Between each of these time periods, m-payment providers engaged in different BMI activities that addressed emerging business challenges that were almost exclusively related to the "chicken and egg" platform issue – the growth challenge. On the one hand there is Glase that encountered the challenge of convincing retailers to join the platform due to its design in terms of its underlying payment infrastructure (Period I), and that later on had financial troubles related to scaling among the consumers and sustaining the platform (Period II). On the other hand is Beam, a company that in order to grow its customer base and further test its BM in a different context, launched the service in Sweden after the Period I, adapting its operation to that context (with the help of local partners). Later on, after Period II, in order to scale globally, but still one city at a time, Beam continued to work through local partners in different countries, but with a new long-term idea of moving the underlying infrastructure to blockchain.

In Table I, we present brief descriptions of each of the four BM pillars for both firms after addressing the challenges encountered in the Period I, in which the significant change of their BMs was in the infrastructure management pillar (back-end of the service). These changes had consequences for other pillars as well – the value proposition, the customer interface (front-end of the service) and the financial perspective. Based on these different ways of addressing emerging challenges (see Table I), we have identified three overarching aspects that make up for the discussion on how BM as a tool may provide a way to face an m-payment platform growth challenge. Namely, these are, rethinking

the relationship management with retailers, creating partnerships to complement and deliver the proposed value, and integration and use of front-end mobile technology.

Table I – Case comparison after Period I challenges have been addressed

BM Pillars	GLASE	BEAM	Ways to address emerging challenges
Product / Value Proposition	Focuses on providing a payment service via a mobile app and peer-to-peer money transfer	Focuses on matching retailers and consumers through m-payments and data analytics	Communicating clearly adaptations and incentives of the proposed value
Infrastructure Management	Partners with a card provider – Mastercard – and taps into its card scheme network	Partners with a local fintech – Klarna – and leverages its services and security measures	Choosing key partners in order to deliver proposed value, based on a geographic approach to platform growth
Customer Interface	Focuses on consumers and exploring various mediums of interaction	Engages in re-designing the app and adapting it to the geographical location	Rethinking relationship management towards each customer segment, bearing in mind offered incentives
Financial Perspective	Focuses on reducing costs and unlocking of new revenues by being part of a card scheme	Uses effective sales and marketing to local consumers, striving for a balanced appropriation of value among actors	Designing adequate financial resource allocation that would accommodate the partnership choice

5.1. Rethinking the relationship management with retailers

Customer relationships are a design element of the *Canvas* BM and establishing and maintaining good relationships with both customer segments is an important factor in the success of a firm organised as a two-sided platform. However, this is not always an easy task, and in order to deal with it, we distinguish two aspects that can notably contribute to establishing and strengthening the relationships with retailers. The first aspect is proper communication of the proposed value and incentives for the retailer, and the second is training the retailers' staff to better understand the new payment service and how it operates.

Customers on both sides of the platform need to see new added value, and to understand how and why using m-payments in comparison to standardised card schemes is beneficial to them. Beam's representative put this very clearly: "*There is the end consumer, the business that we connect to [retailer] and there is us – all three must be happy.*" Or, in other words, retailers, as one side of the platform, need to understand what adopting m-payments would mean for them, and to be willing to pay for it; and consumers, as the other side (the other customer segment), need to see the benefit of having another app on their phone and must use it. Without addressing issues of customers' trust in the service and proposed value, success of an m-payment provider's BM is questionable. It is of utmost importance that retailers understand the extra value and see it, as well as to feel a sense of belonging and to have a developed relationship with the payment provider (and consumers).

But, as we mentioned, sometimes this is not easy, even when m-payment providers (e.g., Glase) use and promote various channels, as mediums of interaction with consumers, enabling transactions across various channels. These efforts are directly related to growing interest in omni-channel retailing which encompasses elements such as frictionless payment and check out across myriad of channels (e.g., physical, mobile channel), but has not reached its full potential yet.

Retailers' established activities and operations revolve around traditional technologies when it comes to payments (e.g., card schemes). New innovative m-payment services certainly require new technical knowledge and capabilities. This is why m-payment providers need to be aware of the retailers' perspective, provide relevant information to retailers as their customers, and explain the incentives for being part of the platform. A Beam representative explains: "*We are a mobile wallet, but that is not our focus; and I think that any mobile wallet that focuses on being a wallet will fail. You need a [higher] incentive than just substituting something for something.*"

With this attitude, Beam is drafting its communication strategy. The company tends to communicate a new focus to retailers by offering a matching of relevant retailers with relevant consumers, so that it can in turn grow with every new retailer that adopts the solution. Beam has chosen to address retailers, and consumers, at the local level first. "*A hundred end consumers in Gothenburg or a hundred in Sweden is not the same. [That is why] we are not country-based. You need a density of people. You need to start with a critical mass, and then you go beyond.*"

One Glase representative had a different experience. "*It was hopeless […] it was making us braindead to talk to merchants. […] We had a big sales team to talk to merchants. Today, the merchants are there, so we concentrate on end consumer acquisition*." What he meant is that, due to the company's partnership with Mastercard, it is assumed to have solved the challenge of acquiring customers on one side of the platform – retailers. Before this partnership, Glase would talk to retailers and make bilateral agreements with them. But it found these always to be an issue; up until it could have tapped into the Mastercard network. Its approach was to grow global and instantly.

In the past, Glase also offered to connect retailers' IT systems, to explain how things work and help out, but since this approach did not work, the company has withdrawn from all assistance. This had the consequence that retailers were not getting any benefits from the m-payment provider (e.g., data analytics), because they were not connected to the platform directly, but rather through the Mastercard scheme. However, in contrast, Beam would "*send someone for set-up of the service, and gather personnel of the store to explain how things work.*"

The Swedish managing director added: "*The staff behind the counter need to be incentivized as well. If they find our m-payment service discouraging in any way, they will try to promote to people not to use it. And that is the worst thing that can happen to us.*" In essence, it is important to nurture this relationship since it is a part of the network effect mechanism that unlocks a platform's value and an important lever for creating a competitive advantage in the payment ecosystem.

5.2. Making partnerships to complement and deliver the proposed value

In the digital age, and particularly emerging m-payment ecosystems, it is hard to imagine a service that does not rely on partnerships in order to deliver value. The ability to tap into resources and capabilities that originate beyond the confines of a firm, ones that are brought in due to the ecosystem collaborations, is one of the major enablers of complementarity for service offering. Some examples are real-time consumer data, developed algorithms for their analysis and fraud detection, different

licences, brand name (e.g., Mastercard), and the possibility to leverage existing business relationships. Having some of these resources or being able to attain them via partnering companies could present itself as a critical factor of BM change. In both cases, significant shifts in partnerships were made after the same period of time (Period I), however the differentiating element was the approach in which actors (i.e., potential partners) in the ecosystem were targeted and with what resource access in mind.

Glase (SEQR at the time) was making bilateral agreements with each of the retailers that wanted to accept payment through the Glase app. At that point, Glase was even willing to install all the systems, educate staff, and provide data analytics based on transactions, but all of this was in vain according to them. However, retailers did not understand how to leverage the new mobile technology or m-payment platform. Therefore, Glase decided to reposition itself within the ecosystem and rely on a card scheme in order to expand its acceptance network globally and remove the tedious process of making bilateral agreements. Company managers believe that with this action they have solved the issue of engaging one side of their market since retailers have greater trust and better reference to the Mastercard brand.

Their CEO at the time said: "*Merchants had several years to act and make mobile payments and Glase a sales tool […] We don't have to talk to merchants anymore, if they take Mastercard, they take us*." This BM change clearly reflects the company's approach to scaling the platform rapidly and globally. Moreover, due to its collaboration with Mastercard, Glase has enabled retailers to keep using standard ways of accepting payments, especially card payments, only now these are contactless. Moreover, that meant accepting mobile payments that emulate contactless card payments. At that point, they had also developed a new revenue model, under which they stopped charging less since they were partnered with a different payment infrastructure actor – one that was part of a card scheme network. Glase's representative added that they used to be cheaper than standardised solutions, but "*we are not cheaper now, we are a part of the card network. [We] kicked out the bank to [become] a utility, and [are] taking all the money.*"

On the other hand, we find Beam, whose founders decided after the Period I to develop local partnerships and have therefore outsourced payment processing and the complete back-end of payments in Sweden to a fintech company, Klarna. Due to its advanced algorithms and dominance in the Swedish market when it comes to digital payments, Klarna has also proved to be valuable in providing security for digital payments. Beam offers location verification for each transaction performed via BLE technology, but the system combines these security efforts with Klarna's system. Due to its high penetration among the Swedish population, the company holds a large set of data that allows several layers of detecting fraudulent payments, thus helping Beam to offer a more secure and trusted payment platform.

Therefore, Glase had the ambition to grow big and early on, and in order to do so it incorporated a service that was based on an established card scheme, increasing its acceptance network, but at the

same time alienating retailers from the platform. In other words, Glase's customer relationship suffered due to their changing focus from retailers to consumers. Beam had the ambition to revolutionise the retail industry by leveraging mobile technology and what it enables, but still growing its customer base slowly and accumulating a positive network effect in geographically bounded locations. While Glase's approach led to the firm's operations being shut down due to financial reasons, Beam has at the same time reshaped its communication strategy and prepared for an initial coin offering. Basically, these two organisations diverge in their approaches to making partnerships that complement and deliver proposed value. Each has chosen to reposition itself within the payment ecosystem and to make partnerships based on the desired scope of geographic availability, consequently engaging in redesigning their BMs.

5.3. Integration and use of front-end mobile technology

While we acknowledge that the action of paying in both studied cases is performed by using a mobile device in a physical retail store, the in-store technology that is used to enable m-payments and the underlying payment infrastructure technologies differ. A provider's choice of which in-store technology to use was dictated by industry-dominant design, retail physical space layout, and the ease of installation and integration with the retailer's existing IT infrastructure.

In Beam's case, there is a BLE system that enables the retailer's IT infrastructure to initiate a payment, a mobile device from which a consumer would authorise a transfer of money, and Klarna that would mediate this monetary exchange between two customer segments. Beam's representative claims that its BLE beacons are easily installed, and that its partner Klarna takes care of back-end payment operations and potential cases of fraud. Nevertheless, it is vital that the m-payment platform provider also assists the retailer with both back-end integration, and front-end aspects, such as integrating the BLE system with POS terminals.

On the other hand, Glase's approach was the following: "*We offered to pay for integration of the system and the merchant's loyalty programme at the beginning, but now the tables have turned, and they have to pay us.*" As inferred earlier, their approach after partnering with Mastercard was that there would be no special treatment for retailers. While in the beginning, Glase was making bilateral agreements with retailers, after the Mastercard partnership the system relied on standardized card scheme, so no assistance was provided. During Period I, there was also an initiative to help connect loyalty programmes to means of payment (the front-end aspect), which was not part of the service. Later on, retailers were not helped with hardware elements or back-end payment system integration. However, due to the use of the widely used QR code-scanning technique and NFC technology at the front-end, there was no major need for assistance.

Moreover, what should particularly be communicated to retailers as the benefit of using these front-end technologies and m-payments in general, is the insight that data analytics can be provided based on an agglomeration of consumer transactional and behavioural data. These insights, enabled by digital technologies, and the use of smartphones in particular, can then enable retailers to plan

better operations, production quantities and marketing efforts. It can also serve as a feedback loop for consumers to provide useful comments to both providers and retailers. In essence, it can be a source of new competitive advantage, one that is unlocked through platform organisational design.

Based on previously presented m-payment providers' challenges and our observations on how different approaches to platform growth can be taken to address the encountered challenges related to the adoption of m-payment service by retailers, we identified certain BMI activities, embodied in the three discussed aspects. Figure 4 lists these activities performed by m-payment providers with respect to each of the overarching aspects. Namely, rethinking the relationship management with retailers (red colour), creating partnerships to complement and deliver the proposed value (green colour), and integration and use of front-end mobile technology (blue colour). In essence, the figure summarises within each *Canvas* BM design element a way to engage in redesign of a particular element in order to address m-payment platform growth challenge, pertaining to achieving a critical mass of retailers.

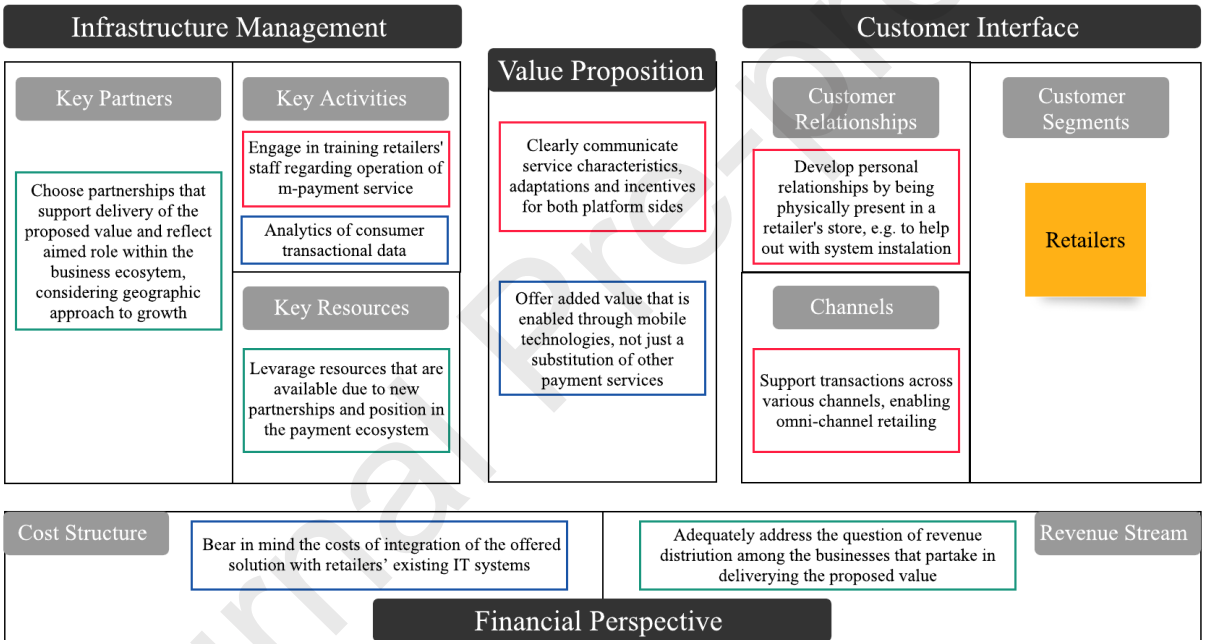

Figure 4 – A representation of a BM in use to address an m-payment platform growth challenge

6. SUMMARY AND THEORETICAL IMPLICATIONS

6.1. Conclusions

In this study, we focused on m-payment providers' BMs and their change in order to understand different activities m-payment providers engage so as to address the growth challenge of the m-payment platform. As shown in Figure 4, within each *Canvas* BM design elements we identified different activities as ways to approach the redesign of the BM and attract retailers to join the platform.

Additionally, we have classified these BMI activities under three overarching aspects: (1) rethinking the relationship management with retailers, (2) creating partnerships to complement and deliver the proposed value, and (3) integration and use of front-end mobile technology. In sum, we illustrated

how m-payment providers engage in redesign of their BM and how a BM may act as a tool for addressing the growth challenge of an m-payment platform.

6.2. Research implications

Building on the idea that adoption rate and the related growth challenge facing an m-payment platform service are two sides of the same coin, and one of the core pitfalls of a platform-based firm's success, we looked at two providers of m-payment platforms, and discussed the BM changes they implemented that were directly connected to the growth challenge. We have shared new insights into how innovation within platform providers' BMs can help them to pursue critical mass and accumulate positive network effects (Hagiu and Rothman, 2016). The question of payment providers' business success and the proliferation of m-payments comes down to providers' ability to convince the majority of people and retailers to join the platform, that is, to convince two customer segments to adopt the service and create both direct and indirect network effects.

These findings extend the claims from by Ghezzi et al. (2013) that the adoption of technological innovation depends not only on the offered products' or services' technical features (e.g., functionalities), or demand-side characteristics (e.g., user demographics and satisfaction), as traditional technology adoption models like TAM (Davis, 1989) or UTAUT (Venkatesh et al., 2003) would suggest, but also on the offer-side's business models as well. Ultimately, the strategic decisions a platform provider makes concerning how to innovate its whole business model, with specific reference to customer relationship management and partnership creation for complementarities, would affect technology diffusion beyond the very value embedded in the technological products and services themselves.

In fact, the approach of exploring network effects and the service provider's side (the offer side), is emerging in adoption-diffusion literature (Oorschot et al., 2018). Therefore, while bearing in mind extensive previous focus on consumer adoption and the recent call for more attention to retailers' adoption antecedents (Dahlberg et al., 2015), our study has focused on a provider's side of the service and its BM redesign efforts towards attracting customers to join the platform. Furthermore, the platform growth challenge discussed in this study stems from the payment providers' endeavour to engage the largest possible number of retailers with the platform and therefore achieve critical mass and the network effects that come along with it. We have seen this challenge addressed by studying the redesign of the m-payment providers' BMs, and therefore have several research implications.

Firstly, through several instances in our study, it can be seen that the m-payment provider – the offer side of the m-payment platform – needed to rethink its partnerships with other actors in the ecosystem in order to create a superior offer and boost the m-payment service diffusion. This is a fundamental part of the *Canvas* BM design element – key partnerships (Osterwalder and Pigneur, 2010) and has also been highlighted by Chea et al. (2015) as an important aspect of scaling and delivering the offer. The m-payment provider, as the platform leader, needs to acknowledge that the ecosystem involves different actors, and be ready to co-evolve through partnerships, customer feedback, and co-creation activities, especially within a digital environment (Gawer, 2014). Also, the complexity of the

payment ecosystem, previously noted by Hedman and Henningsson (2015), needs to be acknowledged and addressed through making and continuously adapting relationships, and streamlining internal resources and capabilities.

Furthermore, the empirical findings from these two examples of multi-sided platforms illustrate different geographic approaches in regard to the choice of key partners, on how one can proceed in addressing and achieving critical mass. One approach is to have partners within a limited geographic scope and grow the customer base locally, leveraging attention to detail and personalisation (Beam) as a customer relationship strategy. The other is partnering with globally established companies to leverage their network and global presence (Glase), but in return lose tight relationship bonds with business customers, who are retailers. In line with previous research (Pousttchi et al., 2009; Täuscher and Laudien, 2018), we see geographic approach as an essential element of partnerships for value delivery in an m-payment platform setting, and thus highlight its importance for design of digital payment platform BMs (c.f. Staykova and Damsgaard, 2016).

Secondly, building on Gawer's (2014) idea that the roles of actors around a platform evolve over time and that their BMs are tied to the platform, we note the need for a mutual adaptation of the BMs of all the actors concerned (i.e., platform providers, its partners and business customers). Partnerships and customer relationships need to be managed by platform providers as their BM changes, and the governance of ecosystems needs to be followed up. The BM may be used as a tool that organises business relationships and thus enables the platform growth. Everyone's BM needs to be reinforced to sustain their incentive to remain associated with the platform. This finding also reflects on the questions posed by de Reuver et al. (2018) regarding the incentives and insurances to ensure that all user sides of the platform remain engaged. With such arrangements, and shifting patterns of collaboration, we believe that the complexity of the ecosystem could be streamlined and innovation diffusion supported. Therefore, we contribute to the discussion on the drivers of and impediments to technology innovation adoption (Oorschot et al., 2018).

Thirdly, the question of technology and integration, as with any newly emerging technology, is an important factor for the adoption of the service. While employing somewhat different front-end technologies (BLE by Beam, NFC by Glase, and QR codes by both at a point in time), in the back-end both rely on existing payment infrastructures, especially bank accounts and card schemes. Apart from that, the most significant difference is that Beam continued assisting the retailers, helping out with system integration, while Glase abandoned that approach. Additionally, the importance of data generated by users via mobile devices and its analytics was recognised by both m-payment providers as source of competitive advantage and a critical element for crafting a value proposition for retailers.

Finally, we argue for a link between BMI activities that follow different approaches to addressing platform growth and the diffusion of innovation proposed by that platform. Hedman and Henningsson (2015) have pointed out that, in the payment ecosystem, business and technological strategies are inseparable and therefore a retailer's decision to adopt technological innovations, such as mobile

means of payment, is strongly related to the question of BM redesign. Moreover, Osterwalder and Pigneur (2010) define a firm's BM environment, its ecosystem, as a "design space" where the actions of one firm (a payment provider), influence the actions of another (e.g., another retailer). Similarly, Palo and Tähtinen (2013) argued for a networked BM for emerging technology-based services, which addresses customer and partner value by developing a collective understanding of the business opportunities through such interconnected BM.

And so, based on our examples showing how payment providers engaged in redesign of their BMs, we contend that it is through the interplay of technological aspects (front-end technology in use and underlying payment back-end infrastructure) and m-payment providers' BMI activities that the adoption of innovations is fostered. In saying this, we have additionally looked into retailers' adoption barriers reported in the mobile payments literature, and found that the same overarching aspects that would help m-payment providers to address their platform growth challenge would also resolve some of the identified retailers' adoption barriers. Namely, retailers' lack of trust and poor reference to the innovation (Mallat and Tuunainen, 2008), and the lack of a relationship between the technological innovation and the existing product infrastructure (Kazan and Damsgaard, 2013). These two aspects can be addressed by rethinking relationship management with retailers on the one hand, and assisting with integration and support of front-end technologies on the other.

6.3. Managerial implications

Practical implications are also visible in terms of BMI activities around how to address digital platform challenges and could potentially be implemented by other service providers in digital platform industries. Highlighting specific *Canvas* BM design elements within each identified overarching aspect is an effective tool that managers and executives can use to understand which aspects of the BM should be innovated in order to overcome particular challenges and sustain platform growth. We have presented two real case examples of which one (Beam) redesigned its BM and kept focus on both user sides, and the other (Glase) aimed to overcome its retailer-related adoption problem through the network effects of its partner, thus refocusing full attention only to consumers.

We have provided a rare glimpse into the BMI process in a platform organizational setting within the new digital age. We showed that customer adoption and subsequent diffusion of a new digital service like m-payments is fostered not only by the intrinsic value of the service, but by the suitable design of the whole provider's business model. Such findings should lead platform providers to refocus entrepreneurial and managerial attention (Ocasio, 1997) towards making decisions on a BM rather than a product or a service itself. Moreover, we find that in this digital age when consumers generate abundance of data, analytics can be a source of competitive advantage for platform organisations. The ownership and use of customer data as key resources have already become one of the critical societal questions.

6.4. Limitations and future research

Finally, we recognise that our study is not without shortcomings and limitations. We are fully aware that it is based upon few interviews, but we would like to highlight that the interviewees were founders and CEOs of the studied organisations and therefore were the most knowledgeable about changes and the BM redesign process. Furthermore, the presented explanatory discussion and comparison between these two different organisations in the Swedish environment gave an insight into current trends and represented a good base for future research. We believe that looking for similar provider firms in other countries in the same industry, and across different countries, or potentially in different industries, would yield interesting results.

Furthermore, we hinted the idea to revisit innovation diffusion theories in light of emergence of digital multi-sided platforms, by focusing on upstream, offer-side elements such as the platform providers' whole business models. A way to do so is by exploring influence of the interactive process between customers on different sides of the platform (i.e., network effects, upon which platform services are built) on the existing theories on innovation diffusion and adoption, as well as by acknowledging the importance of the BM of the offer side. A concrete option would be a quantitative study that would test causality of retailers' decisions to adopt an m-payment service (i.e., affiliate themselves to a particular platform) based on the particular m-payment platform provider's BM innovation activities. In this paper, we presented several potential BM innovations, which could be used in such study.

Appendix A

A.1 Data sources for the case narratives

	Glase	Beam Wallet
Interviews	Co-founder & CEO • 5 Jun 2017, 100 min	Regional managing director, Sweden • 28 Aug 2017, 80 min Co-founder & CEO • 6 February 2019, 57 min
Author observations	Used apps in stores, observed usage by other consumers, and conducted informal interviews with store managers	
Additional materials	• Firm's official web page: http://www.Glase.com • Customer support portal: http://help.glase.se • Interim and annual reports for all years between 2012 and 2018: https://invuo.com/investors/financial-reports-en • Press releases: http://news.cision.com/invuo-technologies-ab • Example of news web pages: https://www.fintech.finance/01-news/glase-fintech-acquires-seqr-group-and-rebrands-the-mobile-payment-app-to-glase • Third-party reports, such as Internet Retailing (http://internetretailing.net/)	• Firm's official Swedish web page: https://www.beamwallet.com/se • Stories and official announcements: http://engineroom.beamwallet.com, https://engineroom.beamwallet.com/blog-sweden • Dedicated page for business customers: https://www.beamwallet.com/beam-for-business.html • Company blog posts: https://medium.com/@beamwallet • Recorded videos: https://www.youtube.com/watch?v=gwm08YjPwbo • Example of news web pages: https://www.entrepreneur.com/article/243266

A.2. Interview topic list

The following list represents the topics discussed during the interviews.

- Characteristics of the m-payment platform
  a. Core ideas behind the m-payment service and comparison with existing means of payments and competitors
  b. The m-payment platform provider's role in the ecosystem, and particularities of the change of that role over the years
- Business model related questions
  a. Value proposition and its change over time
  b. Marketing approaches towards each customer group, including growth approaches in general, and regarding geographical factor particularly
  c. Payment infrastructure and underlying technology (e.g., QR codes, NFC, BLE)
  d. Financial aspects, mostly regarding revenues and pricing strategies
- Future development
  a. Activates addressing retailers' contemporary omni-channel initiatives
  b. Next steps and future technologies in the payment industry

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Conflict of interest

Declarations of interest: none.

Highlights

Highlight 1:

A case study on an m-payment provider's business model innovation process is performed.

Highlight 2:

The business model is presented as a tool for addressing the challenge of platform growth.

Highlight 3:

Stresses the relationship between m-payment provider's decision to reposition itself within the payment ecosystem and the desired scope of geographical availability.

Highlight 4:

Suggests adaptability of ecosystem actors' business models for an m-payment viability.