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Mobile Payments in Turkey (as of 2013)

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Introduction: Overview of Electronic Payments in Turkey

With a population of over 77 million, Turkey is an attractive market for new products and services. As of 2014, gross national income per capita is 18,884 USD and over 17 % of the population is within the age range of 15–24, while it is 12 % for most European countries. At 62.9 %, Internet use is the highest among the 16–24 age category. Moreover, 72.1 million people have a mobile phone, reaching a penetration level of 90 % of the population.

Cash payments, however, still play a significant role. According to the Central Bank of Turkey, banknotes and coins in circulation account for approximately 40 % of the total money supply. The unbanked popula-

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tion is estimated at 27 million, which is another factor for high dependence on cash payments.

Nevertheless, with the development of ICT and technological infrastructure, electronic payments started to gain momentum. Internet users reached 35.3 million in 2014. The numbers of credit and debit cards reached 57 and 113 million respectively (Interbank Card Centre, 2015). Online banking is offered by 25 retail banks, 15 of which offer mobile banking. People using online banking at least once in September 2014 number 32.3 million.

In comparison, the mobile phone market is dominated by three GSM operators: Turkcell, Vodafone and Avea. Initiated by Turkcell in April 2009, they all offer mobile payments to their subscribers. Since their introduction in 1994, mobile phones have been on a steady increase. As of June 2015, 72.1 million people have a mobile phone, reaching a penetration level of 90 %. Over one million people are estimated to have used their phone for banking transactions.

Mobile Payment Concept

The mobile payment concept has various meanings. The main understanding in Turkey is "direct carrier billing" (DCB), which refers to a scenario where GSM carriers' billing infrastructure is connected to merchants who sell virtual/physical goods through online platforms.

According to industry sources, over 10 million consumers initiated a payment in Turkey via their mobile phone, while around 50 % successfully completed a payment. For consumers who wish to perform a mobile payment transaction through their GSM operator, the only requirement is to own a mobile phone that allows the user to send and receive SMS messages. They do not need to have a bank account, which is one of the main strengths of the Turkish DCB. A 27-million unbanked population now has access to an electronic payment method as long as they own a mobile phone. Mobile payments are not allowed to corporate GSC subscribers. If the customer is on a pay-monthly plan, the purchase price is charged to the customer's mobile phone bill. Alternatively, if the customer is on a pay-as-you-go line, the purchase price is deducted from the prepaid account. In this system, the mobile device merely acts as a tool

to confirm the order. Other than the price of the purchased product, the customer needs to pay the standard fee for the text message (SMS) they send in order to confirm their purchase.

How Does Mobile Payment Work Through GSM Operators?

There are currently over 500 merchants offering mobile payments ranging from small-scale firms to large ones, trading locally or internationally (such as Facebook, Nokia, bilyoner.com, peakgames.com, binnazabla.com, mybilet.com). Ninety-nine per cent of them are virtual merchants while some offer both virtual and physical transactions. In order to partake in the DCB, the given merchant first needs to contact a GSM operator or the technology platform to open a merchant account. When an agreement is signed between the merchant and DCB, the merchant account is activated. At this stage, DCB defines a unique identification code for the merchant as well as their products and services. Then, the merchant integrates DCB APIs to their website, which allows adding in payment options of "Pay Now by Sending an SMS" and "Pay Now through Web Site" (Fig. 22.1).

When a consumer wishes to make a payment using their mobile phone, there are several ways for authenticating their mobile payment transaction although the essential principle remains the same: confirming that the order is placed and confirmed by the MSISDN (i.e. GSM number) that is inserted into the mobile device used, and that the user is fully notified and informed about the transaction before they approve it. Currently used authenticated methods are as follows:

- SMS-Keyword Scenario: The user texts a pre-defined keyword to a short code (for example by texting MC to 7979 in order to subscribe to *Marie Claire* magazine). Following this, DCB sends a text to the consumer informing the transaction to be made. The payment process is completed after the transaction is confirmed by the consumer. The transaction is itemised on the consumer's mobile phone bill (unless they are a pay-as-you-go customer). The total balance for the phone

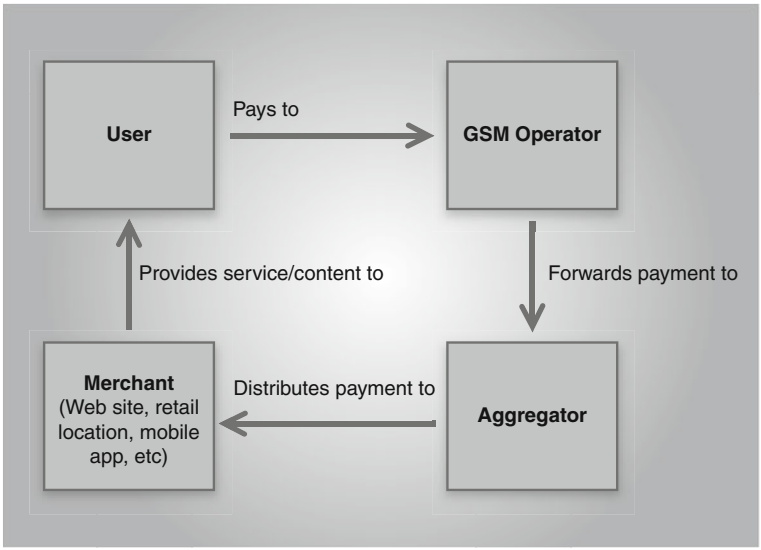

Fig. 22.1 An illustration of how the mobile payment system works (Source: authors' own)

bill needs to be paid in full by the due date. The mobile device and GSM operators simply provide an alternative payment method and hence do not deal with any product, order or delivery-related queries.

- Web Scenario: User enters their mobile number on the payment screen of the website where they want to make the purchase. Then the shopper receives an SMS requesting confirmation for the order. When the user replies to the incoming SMS with "EVET" (i.e. YES), the payment is approved. No PIN is required.
- MSISDN forwarding: This is a relatively new technique mainly used for purchases made for mobile apps. In this system the mobile device needs to be connected to the Internet through GSM Carrier's connection (EDGE, 3G, and so on). The Carrier automatically detects the mobile phone number and bills the customer with no need for an SMS confirmation, which basically enables a "one-click-purchase" flow from the end-user perspective.

If the mobile phone is lost or stolen the consumer needs to inform the mobile operator. The consumer is responsible for any mobile pay-

ment made until they inform their operator. If the payment does not go through, the merchant does not provide the product. Prepaid subscribers do not constitute a risk for merchants. However, if a post-paid subscriber does not pay their monthly bill, the GSM operator does not pay the amount to the payment aggregator. In that case, the risk is on the aggregator and the merchant. Since the transaction limits are rather low this is not considered to make a significant impact on the take up of mobile payments.

Mobile Payment Aggregators (Technology Platforms)

Connecting GSM carriers' billing gateways with online companies, enabling payment infrastructure, and managing the money flow are done by third party companies, which are referred to as "payment aggregators", or "third party payment processors". To be able to perform as a payment aggregator, a company needs to be certified as an "official solution partner" of the GSM Carrier, meaning that the payment processor is capable of successfully integrating its platform to the carrier, and providing this service to merchants on behalf of the carrier.

Acquisition and retention activities, legal, technical and financial connections with merchants are mostly handled by payment aggregators, who are official solution partners to GSM carriers.

In Turkey, there are seven active mobile payment aggregators. Among those, 3pay.com is the first and the largest company (50 % of the market share as of 2011), operating as a technology platform for all GSM operators in Turkey. 3pay is also the local partner of US-based social gaming company Zynga and the payment provider of Nokia for in-app purchases.

DCB is an alternative payment system to a virtual card. The virtual card is designed to be used as a credit card specifically for online transactions. It is not a physical card, so cannot be used to pay for store transactions. The customer sets the limit on the card for each transaction depending on the value of transaction they wish to undertake. After each transaction, the card limit can be reduced to zero, which is the most popular feature of a virtual card.

There is a significant difference between a virtual card and mobile payment. A virtual card is accepted by any online merchant who accepts a credit card whereas only merchants with a contractual partnership with one of the GSM operators can accept mobile payments. Since significantly more Turkish customers own a mobile phone than a payment card issued by a bank, the target customer base for mobile payments is potentially much larger.

DCB targets merchants to sell their technology rather than promoting the system to end-users (i.e. mobile owners). DCB does not require a traditional POS terminal. While marketing their technology, DCB highlights the advantages of their mobile payment platform from the merchant and consumer perspectives

Characteristics of the Turkish Mobile Payment Systems

DCB started in Turkey by Turkcell in April 2009. The driving forces for this technology are GSM operators and their technology partners (such as Mikro Odeme—ie Micro Payments) with no collaboration with financial institutions. Mobile payments do not aim to be a substitute for credit or debit cards. Their purpose is to provide a supplementary payment system particularly for online transactions that are underutilised. DCB wishes to increase their market penetration by taking advantage of low-value high-volume online entertainment transactions such as gaming and dating.

The merchant gets their payment for the product they sold from DCB. DCB charges the merchant a commission for their service, which is determined by GSM operators changing from 8 % (for store purchases) to 40 % (online games).

It is likely that all three GSM operators offer mobile payments due to competitive pressures in the market (a 'me too' approach). There is limited evidence that operators have made substantial investments to promote their DCB in particular to their customers, which will be elaborated in the next section.

Starting with the strengths of DCB, customers do not need to use a smart phone. While most contactless payments require an NFC-enabled

smartphone, any mobile phone that allows sending and receiving an SMS is compatible with DCB. Secondly, the purchase value is debited to a consumer's mobile account (or deducted from a prepaid credit balance) mostly after a confirmation SMS is sent by the consumer. Some mobile phones are initially locked to make a mobile payment (which requires a call to customer services to unlock the phone) while other providers offer their telephone unlocked. Although DCB can be used for store as well as online purchases, store purchases are rather limited, which takes us to the shortcomings of the Turkish DCB.

One important limitation is that each GSM operator builds up their own merchant network and restricts consumer purchases to their merchants only. In other words, consumers can use their mobiles with merchants that display their GSM operators' payment system logo. The market share for each GSM operator is likely to be limited and fragmented. It feels it is more important for operators to be seen as a player in this financial innovation rather than considering it as a long-term strategic initiative.

Another limitation of the DCB is that only low-value (i.e. micro) payments are allowed in the system, which differs across GSM Operators. Once the limit is reached no further payment is allowed. Lower limits are set for store transactions as well as for contractual subscribers. This can also be considered a strength since it limits consumers' financial loss when their card is lost or stolen and used fraudulently.

Customers need to build up a history with their mobile operator before they can participate in DCB. Normally the requirement is to be a customer of the given mobile operator for at least three months and no payment defaults. Promotion credit balances cannot be used to make mobile payments.

Other Mobile Payment Methods in Turkey

AVEA with a Bonus (Bonuslu AVEA)

With a partnership between Garanti Bankasi, GSM operator AVEA, MasterCard and digital security company Gemalto, AVEA subscribers can use their mobile phones like a credit card for contactless payments.

Transactions up to 35TL (9 GBP/11 USD) are allowed to proceed. Having started on a pilot basis in May 2010, the technology was extended to all AVEA subscribers in December 2010. Although the system requires an NFC-enabled smart phone, an ordinary mobile phone can also be used for contactless mobile payments by replacing an existing SIM card with an AVEA NFC SIM card. AVEA NFC SIM cards are sold at AVEA shops for 20TL (5 GBP/7 USD) to pay monthly customers and it is 40 TL for pay-as-you-go customers. The target market for AVEA with a Bonus system is the unbanked young population that own mobile phones. From a merchant perspective, this system eliminates the need for a POS terminal, and hence potentially more merchants can be included in the system.

Turkcell Mobile Wallet (Turkcell Cüzdan)

Recently, Turkish banks have started to offer mobile payments as part of mobile wallet. Turkcell, in partnership with four leading financial institutions (Akbank, Denizbank, Garanti Bankasi and Yapi Kredi Bankasi), offers their customers the use of their mobile phones for a range of services from shopping to bus passes and corporate ID cards. Owing to NFC technology, a mobile phone can also be used for contactless transactions. In this system, Turkcell subscribers first need to transfer information about their Akbank, Garanti Bankasi and Yapi Kredi Bankasi credit cards to their mobile phones. Then when they shop they can choose any of the credit cards transferred to their mobiles to make the payment. Customers need to own an NFC-enabled smart phone and also to buy a special SIM card.

PayMobile

Launched in 2011, PayMobile is a contactless technology offered by collaboration between Yapi Kredi Bankasi and Turkcell, which aims to enable a smart phone to act as a credit card. Customers download their credit card details onto their mobile. No more than three credit card details can be downloaded. This technology enables customers to use

their smart phone like a contactless credit card. PayMobile uses two systems: iCarte (for Visa transactions) and Sim Kart (for MasterCard transactions), which allows for transactions up to 35TL (9 GBP/11 USD). In addition to making a payment, customers can use PayMobile for a range of services such as viewing payment details, card limit, statement balance and access to previous statements. There is a one-off start-up fee which is 79TL (21 GBP/26 USD). In terms of refunds and exchanges, the policy that applies to credit card payments is valid for PayMobile. The transaction is charged to the chosen credit card statement.

Consumers' View on Mobile Payment Systems

Consumers' awareness of mobile payment services is rather low in Turkey. Despite receiving monthly phone bills, most customers do not recall receiving any direct mail regarding to DCB. Similarly, there are limited advertising and promotion campaigns through mass media. According to MO sources, payment providers should operate in a B2B2C context, rather than B2C, players being themselves, merchants and end-users. It is the merchant who markets this service to their customers. Potential customers are informed of the new payments system at the point-of-sale.

Another factor behind the lack of consumer awareness of mobile payments is related to the target market. The system targets relatively young people who are frequent users of online gaming sites, social networks and e-commerce. Especially, the online gaming industry in Turkey has been popular in recent years reaching 200 million USD transaction value in Turkey. According to MO, this market offers a good potential for cashless payments.

When we explained the features of DCB, customers did not seem too enthusiastic about mobile payments. Firstly, transaction limits were commented as highly restricting. Secondly, in Turkey the volume and value of virtual purchases are still behind most European countries. Online shoppers tend to use a virtual card, which is relatively more secure than a credit card. Therefore, customers were not sure what benefits they would receive when making a virtual payment by their mobile phones in comparison with a virtual card. Lastly, this was a time in Turkey when most

banks were promoting new products and services such as mobile banking, mobile wallet, mobile signature, contactless cards and so on. Customers felt there was an information overload, suggesting issues with customer segmentation and direct marketing. Out of such frustration, as pointed out by one of our interviewees, customers viewed mobile payments "as another technological fad". If mobile payments are to be expanded to a wider consumer segment, these are some of the issues that need to be addressed by GSM operators and their business partners.

To conclude, the power of the Turkish DCB is related to their potential to contribute to a cashless society by tapping into a market that is underserved. Turkish DCB supplements, rather than substitutes, other payment methods since the system targets a consumer segment which is not exploited by other electronic payment methods: the *unbanked population*. DCB is still in its early stages; hence it is too early to comment to how successful the system has been in achieving its objectives. Nevertheless, our interviews with industry sources and the coverage in Turkish media suggest that the popularity and market share of mobile payments are likely to increase and hence will promote a further step towards a cashless society in Turkey.

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