



Review Article

MONITORING NATIONAL PAYMENT SCHEMES: SOME GLOBAL PRACTICES AND TURKISH PAYMENT SCHEME – TROY

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ABSTRACT

Since the beginning of 21.st century, disruptive innovations in technology have ushered a new era in payment systems. This article has been inspired by TROY, which is the “Turkey’s Payment Method” in Turkish, and it aims to put the local payment schemes on the map of Turkish Academia by exemplifying some best practices, why have been needed and what are the expectations lying behind them. It consists of five chapter which starts with the historical framework of modern cards payment industry and popularized concept; “cashless society”. In the second part, the answer to the question of “who are the key participants in a payment system?” is examined. In this context, modernized definition of the payment is made by shortly introducing some of new and ever-changing payment methods, namely mobile payments or crypto-currencies. Meanwhile, some countries have established their own payment schemes to gain advantages in the forthcoming technology race. Major national payment schemes are listed and occasionally analyzed in terms of implementations. Hereby, TROY is reviewed concisely and explained in terms of main features as a noteworthy implementation. Finally, despite of the mighty global payment actors, basis of existence and future value of national schemes are summarized.

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1 | INTRODUCTION

Since the trade has begun, the concept of payment has been an important part of the business life. It has started with the reciprocal exchange of goods, lately called barter, in the primitive ages and the result of this evolution is today’s modern payment methods, outcomes of which cannot be anticipated even 20-30 years ago. Because the information technologies and communication networks have triggered innovative developments in the banking system and caused immense changes and diversification in payment methods in a very short period. Nowadays, as an answer to the question of “what are the payment methods in the world?”, there are twelve different and widely used methods. These are; cash, cheques and/or promissory notes, debit cards, prepaid cards, gift cards, credit cards, mobile wallets, contactless payments, online payments, bank transfer, peer-to-peer payments (P2P) and crypto currencies. This article aims to make some contribution to academic

literature especially after the launch of TROY in Turkey, about the formation of local payment schemes by explaining the expectations lying behind them and why they have been needed despite all the others’ existence.

The concept of “Cashless Society” is a popular concept in recent years and has been the target of many institutions and organizations, especially governments. Because, there are some direct and indirect costs out of printing. For instance, logistic cost is not only a burden for governments but for every party who uses cash. In addition to heavy cost factor, cash also oil the wheels of shadow economy. Taking the aim at cashless economy is not a big surprise, because it was the expectation of experts since the first day the card payments began. “Cashless society” is defined as a period in which banknotes and coins are in circulation but not used in practice. “What you can now do without cash?” is an article published in the US News and World Report in 1958, said that

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the cashless days were so close, and it is described pretty well how the world would be (Arango et.al, 2015, p.137). However, after over half a century, VISA, which is accepted as one of the biggest actors of payment systems, has initiated an incentive system under the name "Visa Cashless Challenge" to small businesses by encouraging to refuse cash payments in the United States. By this way, VISA is trying to push the digital payments and releasing a digital footprint by giving premiums of \$10,000 to each of 50 winners (VISA, 2017). In this context, the most promising community seems to be Sweden. At the University of Pennsylvania, the Wharton School of Business conducted an interview with Jonas Hedman from the Copenhagen School of Business Digitalization Department and he said that with his colleagues Professor Niklas Arvidsson and from KTH Royal Institute of Technology, who is a well-known expert on payment systems, and Björn Segendorf, Sweden's Central Bank adviser, they expect Sweden to become the world's first cashless country on March 24th, 2023 (Knowledge@Wharton, 2018). This is the outcome of wide range of credit and debit card acceptance in Sweden.

However, even though the high percentage of use of credit cards in Turkey, recent statistics shows that Turkey is far from this point. According to the "Card Monitor" Research organized by the Interbank Card Center in 2017, there are 20 million people in Turkey that have not registered in Banks, yet (Interbank Card Center, 2017, p. 2). Another statistic in this topic shows that the share of digital payments in household expenditures in Turkey is approximately 40% as of 2016 (Bruggink, 2016, p.232). Although cash still seems to be king among people in Turkey, studies for the goal of "being a Cashless Society by 2023" continue in full swing. The basis of this goal is that 50% of the population is under the age of 30, and almost all the urban part of the population is a technological device user and/or registered in banking system. Despite all these efforts, the use of cash in the world is still known to have a large share. According to a study conducted by Mastercard Turkey in 2015, 85 out of 100 transactions in the world were made with cash and more than 3 billion people were not registered in the banking system, yet (Payment System Magazine, 2015).

2 | THEORETICAL BACKGROUND OF CARD PAYMENT SYSTEMS

To examine the concept of credit card as a definition, it is better to apply for the law of 5464 Bank Cards and Credit Cards Law which entered into force in Turkey in 2006. "Credit Card: the card number which does not necessarily have a printed card or physical presence that allows the purchase of goods and services or cash withdrawals without requiring the use of cash" is defined in the clause-e (Resmi Gazete, 2006). The idea of shopping malls, paying by card and

even online shopping was first revealed in 1888 in the science fiction novel called "Looking Backward" by Edward Bellamy (Ozkan, 2015, p. 29).

2.1 | Short History of Credit Cards in the World

In the present sense, the use of a card has started with the signing of the business card instead of paying the account by cash in a restaurant by a merchant named Frank Mc Namara in the 1950s. By this innovation, Frank Mc Namara who is the founder of Diners Club, he marked the era by introducing one of the most important innovations of the century. After this revelation, because of its ease of use American banking system has quickly began to develop this product. In order to make it more profitable they have added a credit limit on the card which would lead to an unprecedented rate of demand. Meanwhile, the interest-free period (grace period), which was being applied differently by different banks, has been fixed for 30 days. Moreover, the overdue interest has been implemented as a result of the unpaid balances in the early 1960s to sustain the system. Thus, the most basic functions have been completed and the credit card has reached the widely used form of today (Liu et.al, 2015). In 1990's card payments have evolved and led to the emergence of electronic money. The phenomenon of electronic money was first officially investigated by the European Central Bank in 1993 and was published in its report in 1994. However, electronic money at that time only included prepaid cards. In the report, they use the term "electronic purse" for the first time. For better understanding about electronic money, some criteria of Juho Heikkila and Markku Laukka from Helsinki University of Technology should be applied which are security, anonymity, portability, off-line capability, divisibility, scalability, reliability, efficiency and reusability (Gurkaynak & Yilmaz, 2015, p. 402). During 2000's, another ground-breaking technology has paved a way for the evolution of the payments which is called "Near Field Communication". With help of raising star of smart phones in every aspect of daily life, people, just by approaching their smart phones to contactless POS terminals, started to use NFC technology for paying small amounts. It was 2004 and VISA was the first adopter of this technology in 2005 and thereby first-generation mobile wallets were in daily use. During 2010's, mobile wallets are not necessarily used via a plastic card or a mobile phone anymore but wearable devices like a watch, a wristband even a ring can be used as a mobile wallet to carry the electronic money and personal data. Contrary to first generation mobile wallets which can be used only for one party, nowadays, it is possible to collect all the official and financial data in one digital wallet via a multi layered chip. In 2016, India has launched first national mobile wallet in the world, called India's Unified Payments Interface (UPI), which gives a way to cashless society.

The platform has multiple functions and allows not only digital money transfer but also including real-time peer-to-peer (P2P) transactions, barcode-based in-store payments, bill pay, delivery payments, public transportation tickets, tax payments and more (Business Insider Intelligence, 2016). Periodical development of payment schemes is shown below.

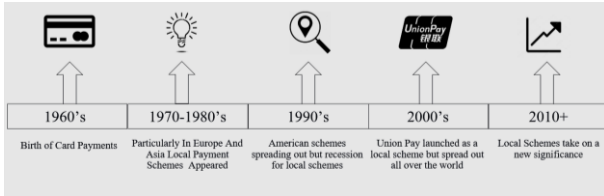


Figure 1 History of national schemes (Turkish Card Payments Report, 2018, p. 26)

2.2 | Credit Card System in Turkish Market

Credit cards have been introduced in Turkey in 1968 by a Koç Group Company, Servis Turistik Corporation. It was Diner's Club Charge Card and henceforth due to political and economic instability in the country, it was not easy to growth for credit cards. However, the market developed after 2002 with the launch of loyalty schemes. The installment lending on credit cards was introduced by Pamukbank in 1987 with "Prestij Card". This was the result of the success of store cards like Çarşı-Advantage or Atalar. At beginning of 2000's, this feature has evolved and pave the way for loyalty programmes on credit cards. In addition to installment feature, rewards and loyalty schemes have been bundled on credit cards and make the Turkish banks a shining star in the international arena. This feature made easier for clients to accept the credit cards. Credit card programmes namely World, Bonus, Maximum and Axess have offered numerous rewards and bonuses in addition to widen the range of last payment date for several months through installment, when the card is used, as well as the option for customers to. Moreover, Turkish Banks have established partnerships with many sectors to give some reward points in their programmes (Edgar&Dunn, 2015, p. 4). Examples are diversified. Garanti has a partnership with of Turkish Airlines called the Miles&Smiles and in the subsequent years, thanks to this partnership, American Express has been positioned as an affluent card scheme in Turkey. Thus, airlines inspired other banks and ING signed a similar deal with Pegasus, Turkey's second largest airline. Consequently, other banks grab the importance of airline miles and they introduced some focused-cards into that subject. For instance, Yapı Kredi's Adios Premium, Akbank's Wings and İş Bank's Maximiles cards have very powerful offers which promises to get free airline tickets with the reward points from credit cards. Some of the state-owned banks have similar attempts. Vakıfbank's Rail&Miles has a loyalty programme in railways and Halkbank

Parafly are the current collaborations (Edgar&Dunn, 2015, p. 8). During this period, another sector become popular and even 2 banks have been derived benefit from it in a decade which is cinemas. First Garanti had introduced Cine-Bonus program for the Gen-Y and millennials and then İş Bank's Maximum card has paid the price and changed the name of programme as Cine-Maximum. In sum, Turkish card industry has operated under the domination of banks for almost four decades. However, in 2013 banking domination in the payment industry has been distressed by e-money legislation.

The number of credit cards increased from 13.4 million in 2000 to 65,5 million in 2018, which makes Turkey the leader country in Europe in terms of number of credit cards (Milliyet Daily Newspaper, 2018). Total outstanding balances and total transaction volume increased similarly during this period. In 2017, total volume that is spent via credit cards is USD.375 Billion, total number of transactions are 5 billion. Debit cards are issued with a connection to card holder's account and are mostly used in ATMs. They are positioned as an efficient choice instead of waiting for a que in the branch. 10 years ago, debit card transactions were almost 3% of the total transactions, but today more than 25% of all transactions are made via debit card (Bruggink, 2016). Garanti Bank has introduced "Bonus Trink" in 2004 which is the most well-known brand for contactless payments in Turkey. In 2018, contactless acceptance merchants are more than 1,000,000 which means 40% of the 2.5 million terminals all over the country. (Turkish Card Payments Report, 2018) According to The ING International Survey on Mobile Banking, New Technologies and Financial Behavior in 2015, 56% of mobile device owners have used a mobile payment application. Regarding these rates, it is possible to assume that consumers are eager to use mobile payments when they become widely available (Kart Monitor, 2017, p. 31).

Paying with cash has begun to shift more and more towards cashless payment systems and the ratio of using cashless payments systems among household consumption has reached 40 per cent (Bruggink, 2016, p. 234). Nowadays, Turkey's banking market goes beyond the expectations. Here are some of the examples which shows the futuristic vision of Turkish Banks. Credit automation kiosks that can scan ID documents and print loan contracts, Beacons monitoring clients in branches, mobile banking apps integrated with Facebook, and loan applications via Twitter (Turkey Advanced Payment Report, 2015, p. 3).

3 | NEW PRACTICES IN PAYMENT SYSTEMS

As it is detailed above, after 1950's card payment industry has evolved towards widening of debit and credit cards network and increasing the number card

holders. In addition to POS terminals ATM usage has gained importance but branch banking was still the dominant method in the system until the end of 80's. However, another disruptive innovation of 20th. century has come at the beginnings of 90's which is internet. With introduction of internet banks have started to pronounce the term of electronic payments. By the way, internet banking is growing, and banking sector has understood the advantages of out-of-branch banking in terms of costs. For example, utility payments were the subject of online payment anymore and clients were more satisfied because of the disappearance of the queues. However, the more people make shopping through internet caused some security issues on card industry and then virtual credit cards have been stepped in to scenario. In this context, alternative payment choices were becoming popular, like Paypal. This company which is established by Elon Musk et al. and sold to e-Bay in 2002, changed the perception of card holders and became an inspiration for a new development in the next decade. Paypal lead the online brokers and they stimulated the development of non-bank financial intermediaries (Liu et al., 2015, p. 373).

3.1 | Mobile Payments

Starting with the definition of mobile payment which is a kind of payment triggered by a mobile device for authorization of financial value for buying any goods or services according to Karnouskos. In 1997, first mobile payment was authorized via SMS in Finland in Coca-Cola vending machine (Liu et al., 2015, p. 381). As it is mentioned before, because of the evolving technology electronic money was not limited only to plastic cards anymore. During the last decade, mobile payments gained ground due to the regulatory efforts for explaining electronic money. But contactless system which is the basis of advanced mobile payments technologies are based on the EMV system, the spread of "chip and pin" has caused major delays for the adoption of Near Field Communication (NFC) mobile payments (Pourghomi et al., 2015, p. 157). European Union has initiated this official effort in 2000 with the Directive 2000/46/EC. However, due to the loose order as the nature of technology, it would not be possible to sort-out until Payment Services Directive (PSD) in 2009/110/EC "E-Money Directive" (Gurkaynak & Yilmaz, 2015, p. 403).

The first generation of electronic money solutions; electronic checks named NetCheque, smart cards of Gemplus, digital coins like DigiCash, and finally e-wallets by CyberCash paved the way for contactless payments to be used in public transportation. The most well-known example for smart card usage in public transportation is London's "Oyster Card". It has been introduced in 2003 by the London Public Transportation Office. For the future "cashless London" project, they have made immense investment and in 2014 with the enthusiasm of

Mastercard, Oyster became the first contactless credit and/or debit card and Apple Pay or Android Pay accepting system for fare collection in the world. In other words, Oyster is the first "open-loop" transportation system and one of the largest merchants of the world. Since then, cash is not accepted on buses. In 2016, the size of the system was described as such in the press release of London Mayor. "more than 500 million journeys have been made by more than 12 million unique credit and debit cards from 90 different countries, as well as using contactless-enabled mobile devices. Around one in 10 contactless transactions in the UK are made by Oyster" (Verma, 2016).

Second generation m-payments are called cloud-based mobile payments. The most important and hesitance causing issue of NFC technology was security. That's why, the terms "Secure Element", "Tokenization" and "HCE" have attracted the attention of users. After 2010 telecom operators and smart phone vendors were following the most secure way of electronic money transfer through devices. In 2011 Google Wallet was launched but some US telecom operators were already planned to sell new android phone devices pre-loaded by their wallet called SoftCard which would soon cause disappearance of Google Wallet. In September 2012, a small start-up company called 'SimplyTapp' proposed to store secure elements in the cloud. "Instead of storing private data, namely payment card details, in a secure element (SE) on the phone, they proposed to store data as a "remote secure element" in the cloud. This is officially the birth of Cloud-based mobile payments. Visa is the first global actor with its PayWave implementation that is VISA's contactless payment application for cloud-based payments by adding a new feature in the Android. This allows any NFC application on an Android device to emulate a smart card, letting users to pay via smartphones, while permitting financial institutions to host payment accounts in a secure cloud structure (Pourghomi et al., 2015, p. 159). Regulatory efforts started again, and MasterCard and VISA have announced the functional and security requirements of HCE in 2014. This made a smooth way for e-wallets and proliferation of many e-wallet applications began. Today, most of the top-rated e-wallets including Ali Pay and Softcard using this secure cloud technology. The only exception is Apple Pay which holds the secure element on the phone.

Transformation of payments didn't stop here, e-money evolved into m-payments through plastic cards or wallets which can be on a watch or a ring. It is possible to load some amount into e-wallets that payments can easily be made at anywhere which has a contactless POS reader just with a tap, with NFC or by just scanning QR codes. Nowadays, a disruptive challenge has been occupying our agenda, because

the more secure lines are needed cryptocurrencies joined the race. These were called, a decentralized system that no one could trace the payment, but it is not fully functional yet.

3.2 | Cryptocurrencies

In order to understand crypto-currencies, it should briefly be looked at blockchain technology which might be accepted the biggest invention of 21st. century, until now. Blockchain is basically a gigantic decentralized and shared e-ledger works on a network on which everyone can right about anything, not just for financial transactions but for example songs in Mycelia which is the P2P version of Spotify, and the chained system updates and reconcile itself regularly. Blockchain database isn't stored in any single location, meaning the records it keeps are truly public and easily verifiable. No centralized version of this information exists for a hacker to corrupt because it is hosted by millions of computers simultaneously, its data is accessible to anyone at the same time. By allowing digital information to be distributed but not copied, blockchain technology created the skeleton of a new type of internet (Hurriyet Daily Newspaper, 2018).

Blockchain was originally invented by Satoshi Nakamoto later understood that it is an alias, to be used as a digital money, bitcoin. In 2008, the mysterious "Satoshi Nakamoto" published an article called "Bitcoin: A peer-to-peer Electronic Cash System". And then he made the first bitcoin transaction on January 2009. In 2010 bitcoin mining and peer-to-peer transactions became popular and rival currencies appeared soon. In 2013, some countries attempted to put crypto currencies under regulation. For instance, Thailand bans bitcoin, declaring that trading in the cryptocurrency is illegal. Germany's ministry of finance would not accept it as an official currency but rather as a "unit of account", paving the way for a future framework to tax bitcoin-based transactions. The People's Bank of China prohibits financial institutions from using bitcoins at all, prompting another drop-in value. In Vancouver, Canada, the first bitcoin ATM is launched (The Telegraph, 2018). Since then, it is getting more attention and governments are trying to regulate this loose-tided system. Lately, Japan has accepted bitcoin as a legal payment method and Argentina declared bitcoin as the second official currency in order to avoid the effects of fluctuation in their money.

4 | A NEW FORMATION IN CARD PAYMENTS: NATIONAL PAYMENT SCHEMES

As it is discussed above, payment system is growing immensely and thanks to disruptive technologies, payment methods are the indispensable part of globalization. However, since 1960's some countries have been trying to implement their own local schemes. Reasons are mostly specific to the related

market but long-term value propositions of each one, are generally very similar. Common characteristics of these schemes are shortly;

- Financial benefit of low-rate commissions per transactions
- Inclusion of non-bank citizens to financial system
- Quick adaptation of value-added technological services

Yet, the major obstacle is also common for these local practices. That is; the difficulty of coping with global card schemes in terms of giving incentive for issuers to persuade them to change the existing brand.

4.1 | General Characteristics of National Schemes

Every country has some unique challenges which are constantly shifting and evolving. A complete understanding of technological trends, regulatory landscapes and cultural practices is very important to access the market. This is the starting point of the idea of establishing national or domestic scheme. Moreover, technological evolution specifically mobile payments have accelerated them. Especially in developing countries, mobile applications through smart phones are pushing unbanked people to use financial services. In other words, this is a tool for some developing countries to beat down shadow economy. Freedom from the risk of foreign political interference in domestic payments is also going to be increasingly important in future (Chaplin et al. 2014, p.24). Domestic payments schemes give the ability to integrate easily with other domestic services. For instance, integration with public utility services give them to support for combatting poverty. There are also some examples that the domestic schemes because of their in-depth knowledge about market can develop some country specific facilities. Portuguese Multibanco ATM network and the Nigerian Quick Teller system are good examples for local schemes (Chaplin et al. 2014, p. 14). Data gathering from domestic schemes are much easier for central banks to handle the financial system than international giants.

4.2 | Best Practices of National Schemes

4.2.1 | China – Union Pay International

China Union Pay has been established in 2002 by 85 Chinese banks as a domestic bank card organization and still the only interbank network in the country. Despite of the crucial role in the opening of China to global market, Union Pay is still a state-owned entity. Reason for being of Union Pay is different from the other local schemes. It is established solely for the result of political policies. But the expected outcomes are all the same which are lower cost than the global peers and efficient management of monetary system. In 2004, UnionPay, not satisfied with the domestic market, expanded its business globally (Yip and Yaa, 2015, p. 3). Today, due to the population of China, UP

is the largest card network both in terms of numbers and volume, in the world. Number of cards in 2016 was around 7 billion.

4.2.2 | India – Ru-Pay

Ru-Pay is the local debit-card system of India since 2012. Like the peer in China, it is an initiative of a governmental entity NPCI (National Payment Corporation of India) Initial aim was to cooperation of some local rural banks with the payment system by decreasing the costs of clearing and settlement. Share of unbanked citizens is 52% mostly because of these regions (Gupta, 2017, p. 3). Secondly, supporting the utility system namely public transportation, by customizing cards easily. So that, they would have access to unpenetrated rural areas. In Bangalore and Kochi, Ru-pay's implementation to public transportation have started in 2017. The other reasons are; without a domestic scheme, Indian banks have to bear the high cost of clearing and settlement of global card associations, and around 90% of card-based transactions are routed through a switch located abroad (Deokar & Krishnan, 2012, p. 23). With three explicit value propositions - pricing, governance and control - the RuPay scheme will further strengthen the payment system of India and will prepare the community for extensive use of national mobile payment solutions. In 2016, India has introduced UPI (Unified Payment Interface) within the scope of Ru-pay. UPI will provide opportunity for real time peer-to-peer transactions, bill payments and barcode based in-store payments. According to Abhaya Prasad Hota, Ru-Pay ex-CEO, the major difference of Ru-Pay from its peers is the ability to create 35% cost advantage (Turkish Card Payments Report, 2018, p. 30).

4.2.3 | Italy – Bancomat

Bancomat is originally the Italian ATM network system, established in 1983. Owner of the system is a consortium based in Rome. Despite of almost 40 years of past, Bancomat card is issued only by Italian Banks and used only in Italy. The word "bancomat" is used as a synonym for ATM in Italian. Since the Bancomat network is not used outside Italy, almost every Bancomat debit card is co-branded with an international scheme.

4.2.4 | France – Cartes Bleue

Cartes Bleue is the pioneer of the Chip&PIN debit card usage among the national schemes. It is established in 1967 by six major French banks. Even though Cartes Bleue is a debit card, it doesn't authorization from the cardholder's bank. The card works like a credit card but without fees for the advantage of cardholder. These cards do not operate outside of France. That's the reason for Cartes Bleue to make a partnership with VISA, for international usage.

4.2.5 | Nigeria – Quick Teller

Quick Teller works in coordination with Verve Card which is originally Nigerian since 2008 but today it is also used by some other region countries. Quick Teller has used the local expertise and created some value-added offers for Nigerian people, for instance reward points from utility payments, cable TV payments, travel bookings, event tickets (Chaplin et al. 2014, s. 12).

4.2.6 | Portugal – MultiBanco

It is established in 2005 by the local banks as an ATM set up project. However, in the last decade, it turns out to a card system that supports mobile payments via phones and come up with some other features, to be more accurate, paying social security contributions, income tax and VAT, utility bills, event tickets and recharging of mobile phone credits (Chaplin et al. 2014, s. 12).

4.2.7 | Canada – Interac

Interac formed in 1984 by 5 Canadian financial institutions as the domestically run debit card network for cost saving purposes. 60% of payment activities were conducted by Interac in 2015. Since 2008, Canadian payment system is using chip and PIN technology even in debit cards. Interac is the main sponsor of Canadian Retail Institute and focuses on strengthening the retail industry by encouraging education and career awareness through educational programs, scholarships and partnerships.

4.2.8 | Australia – EFTPOS

In 2001 Australian Reserve Bank started to develop a national credit card scheme to lower the credit cards inter-charge fees. The objectives are set as; (1) mandating the new entrants for issue credit cards or provide merchant services; (2) establishment of a cost-focused standards for the determining of interchange fees; and (3) Getting rid of the restrictions imposed by global actors; (4) preventing merchants from recovering the costs of accepting credit cards (the "no -surcharge" rule) from cardholder (Bos, 2006, p. 741).

4.2.9 | Russia – MIR

In the late 2015, Russian national payment system called MIR is launched as the subsidiary of Central Bank of Russia. The system was planned out in 2014 in order to overcome potential blocks of payments, after several Russian banks were denied by US-based Visa and MasterCard because of the politically imposed sanctions. To overcome the reluctance of banks, on May 1, 2017, the law mandating all banks to use Mir for welfare and pension payments entered into force.

4.3 | Turkish Payment Method – TROY

TROY; the acronym of Turkish words for Turkey (TR), Payment (O) and Method (Y). Before explaining TROY, it is better to take a glance at Turkish market. Turkey, as of September 2018, is the largest market in Europe, with its 140.2 million debit cards, 65.5 million credit cards and 2.5 million terminals. (Milliyet Daily Newspaper, 2018). BKM is Turkey’s domestic interbank clearing & switch institution owned by 13 public and private Turkish banks which have strong infrastructure and innovative products in terms of card payments. As a part of the plan for “Cashless Society” BKM (Interbank Card Center of Turkey) has introduced world’s first national e-wallet, BKM Express in 2012.

There are many reasons behind the need of payment method in Turkey. These can be listed as:

- Despite of the global experience and enormous size of the international schemes, it is not very easy for them to adopt to local expectations of Turkish financial market. The most important example is the loyalty programmes of credit cards that is unique for Turkish Card Payment System.
- 91% of the card volume and 98% of the number of unique cards are used in domestic market (Turkish Card Payments Report, 2018, p. 42)
- Another important determinant factor is the cost of cash. Even if almost %40 percent of household consumption is paid via cards today, cash is still the dominant mean of payment and more than 4 billion Turkish liras (around US\$22bn) per year. This cost includes printing and distribution costs to the government, distribution and management costs for institutions, fraud costs, as well as financial costs.
- Heavy use of cash feeds the shadow economy, which paves the way for fiscal evasion and reduced tax revenues (Bruggink, 2016, p. 234).

These are the reasons of being for TROY. Member banks have reached the verdict that national scheme would give freedom and increase efficiency that are needed for quick adaptation of technology in Turkish highly competitive payments market (Bruggink, 2016, p. 231).

TROY has growing pertinaciously with the support of member banks and Ministry of Treasury and Finance. By April 2016, merchant acceptance rate of TROY has reached to 100% which is the major advantage comparing to its global peers. Today, number of cards is above 3 million.



Figure 2- The milestones of TROY
(Turkish Card Payments Report, 2018, p. 43)

According to reports and interviews about the targets of TROY, it is expected to be one of the main tools for the domestic fiscal policies. In addition, if TROY gets full support of the government, it would have the power to give some attractive incentives especially for the unbanked population. Another expected outcome is to support to struggle with the shadow economy which is an acute problem of Turkey. However, due to the lack of compulsiveness, Turkish banks are reluctant about choosing local scheme as it is all over the world. As it is confirmed in the White Paper of Anthemis Group, seen below, local expertise is the last item to decide what scheme to choose for issuers.

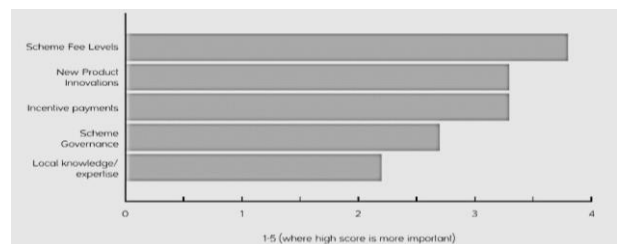


Figure 3- Effective Factors for Choosing Scheme
(Chaplin et al., 2012, p. 11)

5 | CONCLUSION

Cyber security and data confidentiality are gaining importance day by day. Under this circumstances, importance of local data is becoming more evident. Obvious benefits of national schemes can be summarized as such; (1) Increase the regulatory control of central banks in the market, (2) attract the unbanked citizens and shows the benefits of registered in the system, (3) Support the plans for Cashless Society, (4) Strive with the fraud, (5) Minimalize the cost of payment especially for the banks.

According to a report of McKinsey & Company as of 2016, number of cards from national schemes have reached to 2.5 billion which take 15% of the total volume of 26 trillion USD. That means some of the local schemes are bigger that the international schemes. Same report shows that number of Union Pay cards are bigger than the sum of MasterCard and VISA, as seen below figure. It is possible to say that

Russian payment scheme, MIR, has the similar potential.

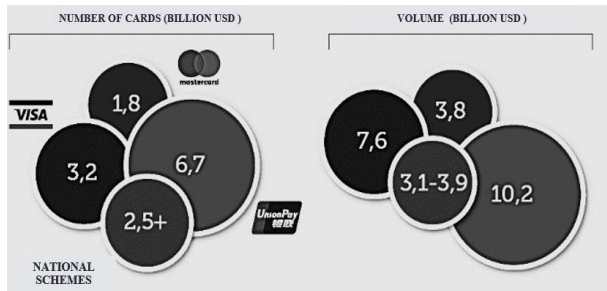


Figure 4- Global Card Payment Figures
(Turkish Card Payments Report, 2018, p. 27)

As a result, under convenient circumstances national schemes may create big differences. But it is for sure that they must be financially and officially backed up by public and private authorities. This would expedite the process and cause quick wins for financial point of view.

For Turkish case, it might be suggested that some financial incentives would be given to encourage banks to issue TROY due to lack of awareness among the end-user. Despite of the all efforts of BKM, governmental authorities, BDDK (Banking Regulation and Supervision Agency) and / or TCMB (Turkish Central Bank), may give some endorsements through tax reduction or provisional favors. Thus, banks may offer reduction on annual card fees or on interest rates specifically for TROY. State owned banks may prefer to use this scheme especially for the payments of retired citizens. All types of immigrant payments might be done via TROY. This immigrant welfare payments are in the agenda of Turkish Government since the Syrian Refugee Crisis. Municipalities should be informed about TROY and public transportation in every city, in fact some cities have already open loop systems with MasterCard, might be automatized with the support of TROY card. So that, both systems, transportation and financial systems, would interact each other and percentage of unbanked citizens would decrease. Moreover, universities might be added to study groups of TROY development process and also universities might push post-graduate students to do researches about national payment system.

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