

DETERMINING THE INFRASTRUCTURE AND CREATING THE NEED TO ESTABLISH MOBILE PAYMENT IN IRAN

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Abstract

Purpose of the study: The purpose of this study was to explain the infrastructure and the need to establish a mobile payment in Iran in the form of a phenomenological study.

Methodology: In this study, experts active in the first mobile organization in Tehran have been selected as the statistical population of the study. In this study, sampling was continued until the research structures reached the data saturation level. So that newer interviews did not add a new variable to the previous variables. This saturation is achieved in the fifteenth interview. However, to ensure the expressed saturation, four more interviews were conducted and the number of sample members reached 19 of these people. To improve the validity and reliability of the research, all interviews were recorded with the knowledge of the participants, and key points were reviewed to extract. After announcing the agreement, an interview was held with the focus on perception, perception, and desired indicators for an infrastructure model and the need to establish a mobile payment in Iran.

Results: According to the findings, two models were presented to explain the need for mobile payment deployment in Iran with three main factors of deployment strategies, technical strategies, and management-marketing strategies, and a model to explain mobile payment deployment infrastructure in Iran with four main cost factors. Infrastructure, management infrastructure, hardware infrastructure, and software infrastructure were designed and developed.

Applications of this study: Finally, it was suggested that by modeling the models presented in this study at the level of national strategies, it is possible to provide the grounds for the establishment of mobile payment in Iran.

The novelty of the study: The novelty of this research is the establishment of mobile payment in Iran in the form of phenomenology.

Keywords: *Necessity of Mobile Payment, Mobile Payment Infrastructure, Mobile Payment, Iran.*

INTRODUCTION

Recent developments in mobile and wireless communication technologies have changed our daily lives. Mobile and wireless technologies offer a wide range of mobile applications. Mobile payment has been one of the fastest-growing services. Mobile payment is defined as the use of mobile tools to perform a payment transaction in which money or cash is transferred from the payer to the recipient through an intermediary bank or directly without an intermediary. Mobile payment was proposed as a way to facilitate micro-payments in e-commerce and mobile as well as provide an alternative to reduce the use of cash at the point of sale. The development of mobile payment solutions is based on the proliferation of communication technology, the widespread use of mobile phones, and the success of mobile content and basic services (Mallat, N. J. T. J. o. S. I. S. 2007). In e-commerce, mobile payment was created at a time when the use of the Internet was growing worldwide. Despite this growth, issues such as security, privacy, and usability issues have always remained unresolved and have been a barrier to further business growth in this area. Therefore, mobile service providers need to consider these issues from a customer perspective when developing business and mobile payment plans (Chen, J. J., & Adams, C. 2005). Considering the needs of consumers is essential for success. According to the theoretical frameworks of acceptance theory, low costs are easy to manage as well as the possibility of cancellation as essential requirements for payment systems (Stroborn, K., et al. 2004). The widespread penetration of mobile phones and their near-stable proximity to users, in addition to their storage and transfer capabilities, make this tool ideal to pay and store anything normally carried in a physical wallet. These characteristics, which are successfully combined with mobile payments for basic mobile content services, indicate that mobile payments have the potential for wide acceptance (Slade, E. L. et al. 2013).

Comparative advantages for mobile payments include the independence of time and place, availability, ability to shop remotely, and avoid queuing. Much of this comparative advantage depends on situational factors such as the lack of other payment methods or urgency. There are several barriers to mobile payments, including fee-fees, the complexity of the payment process, lack of widespread acceptance by buyers, and perceived risks. Findings show that the relative benefits of mobile payments are related to the special benefits provided by new mobile technologies, including the

temporal and spatial independence of payments, remote and ubiquitous access to payment services, and the possibility of avoiding Cash payments have the usual queues and compliments. Also in special user situations such as queuing or unexpected need for payment, time pressure and lack of cash, etc., these benefits become more important. The most compatible program areas for mobile payments are e-ticketing, vending machine purchases, mobile content and services, and low-value point-of-sale payments ([Mallat, N. J. T. J. o. S. I. S. 2007](#)). When trying to understand the process of accepting mobile payments, the strategic position of the seller in the economic market must be taken into account. In the mobile payment ecosystem, vendors are supposed to acquire knowledge about their partners through the exchange of information within the network, including resources, needs, capabilities, strategies, and other relationships. Accordingly, internal and external resources are needed for the organization to position itself in the market and the business ecosystem. In addition, external resources affect the competitive advantage of the organization and help them in strategic selection ([Guo, J., & Bouwman, H. J. T. P. 2016](#)).

LITERATURE REVIEW

Traditional models were tailored to fit the organizational context in which innovation is introduced by management and acceptance by employees is measured. Mobile payments in the realm of daily life are different and more complex than the new information system in organizations because the actors include mobile operators, banks, and third-party providers who do not necessarily work together. There are more legal and regulatory issues that need to be considered. There is a huge difference between mobile tools, which shows the importance of standards, and network effects may also play an important role in mobile payments; because the more customers use the system, the more sellers will accept it and instead create more value for each user ([Zmijewska, A., & Lawrence, E. 2005](#)). Situational factors and the benefits of companionship are influential in the adoption of such technologies in general. From a managerial perspective, we need to pay more attention to the usability and pricing of services and creating a critical mass ([Mallat, N. J. T. J. o. S. I. S. 2007](#)). Critical mass is defined as: a small segment of the population that chooses a large participation in collective action, while the masses have little or no involvement in this area ([Guo, J., & Bouwman, H. J. T. P. 2016](#)). One of the best strategies for creating mass is to create a new payment service in an area with a large fixed user base, such as public transportation, and then gradually expand the market to include other areas of use and services. Factors that indicate the use of mobile payments show the immature state of the mobile payment market and include complex strategies, initial pricing, low utilization rates, perceived risks, and perceived incompatibilities in higher-value purchases. To build capacity in this sector, we need payment systems to be better integrated with existing financial and communication infrastructure. Dedicated systems do not have much chance of success with proprietary service providers and infrastructure in the long run. Instead, adaptation to existing user services and existing standards between different service providers should facilitate the deployment and development of emerging markets ([Mallat, N. J. T. J. o. S. I. S. 2007](#)).

A security arrangement that can be utilized to safely set up versatile installment exchanges over the Near-Field Communication (NFC) radio interface was portrayed ([Badra, M., & Badra, R. B. 2016](#)). A safe indoor situating based portable installment confirmation convention with BLE innovation and the comparing versatile installment framework configuration are proposed ([Yohan, A., Lo, N. W., & Winata, D. 2018](#)). Given the directing impact of sex, organizations should start promoting efforts focusing on ladies sentiment pioneers in ads, which can thusly energize and instruct other ladies to appreciate the accommodation of portable installments ([Humbani, M., & Wiese, M. 2018](#)). Intellectual trust and passionate trust move from web installment (WP) to versatile installment (MP) administrations with the accentuation on the impact of the web-portable installment relationship, in particular, seen entitativity was examined ([Gong, X., et al. 2020](#)).

Despite the fact that so far the experience of mobile payment projects in Iran has not been small, but none of them have been able to achieve the success of mobile payment projects in Japan or even Afghanistan and Pakistan and become operational. Perhaps in recent years, when we did not see the spread of mobile phones, we could not expect mobile payment to become widespread in Iran; but today the situation has changed. For this reason, in the last two decades, there has been a rapid move towards mobile payment projects, especially in the development and strengthening of infrastructure, the provision of new electronic services and innovations. Equipped infrastructure is constantly evolving, which has made transactions more popular, both in number and quantity. However, not all projects, innovations, and projects have been successful. But the fact that the penetration rate of smartphones in Iran has reached above 80%, can be one of the points of increasing the speed of mobile payment acceptance among the people because people may forget their bank card or wallet to take with them, but less It happens that they leave their mobile phone ([Basci, E. 2016](#)). While mobile payment projects have been completed, they have been very successful in some underdeveloped countries such as Afghanistan, Kenya, and Nigeria. Therefore, given Iran's power in financial and technological infrastructure over these countries, extensive research seems to be more vital than ever. Most research in this area so far has focused on consumer acceptance of innovation and the development of technology adoption models that have examined the factors influencing acceptance as well as its barriers, while the existing gap is related to Consumer acceptance is not. Most of these studies have been quantitative and focused on explaining user acceptance from a technology perspective. If the establishment of this method of payment is not confirmed only by users' understanding of technology. Therefore, conducting more in-depth research in this area and determining the parameters affecting the establishment and implementation of mobile payment is critical ([Edwards-Joseph, A., & Baker, S. 2014](#)). Now that there is the potential to

provide the conditions and also the users feel the need for this technology, given the speed and intensity of competition, there must be a special acumen to not only establish and upgrade the required infrastructure, but also the maximum efficiency of end consumers. And how to meet their needs. Therefore, the main weakness in the current businesses in this field is market-based mobile payment research, lack of accuracy and comparability (lack of deployment capabilities), and problems in the necessary infrastructure. From this perspective, the need to develop a comprehensive framework for the analysis and engineering of payment business models, taking into account all its dimensions that anticipate the need to establish this system and the necessary infrastructure is understandable. Therefore, the present study was conducted to explain the infrastructure and create the need for the establishment of mobile payment in Iran in the form of phenomenology.

METHODOLOGY

This study is a qualitative research. From Creswell's point of view, qualitative research is a process of examining understanding based on specific methodological traditions that discovers a social problem with a multitude of human problems (Baltar, F., & Brunet, I. 2012). The purpose of this study is to provide a comprehensive model and process for infrastructure and the need to establish a mobile payment in Iran. This is done by conducting qualitative phenomenological research whose method is exploratory. In this research, in order to eliminate the shortcomings of previous researches, with a qualitative approach and using the phenomenological method, a comprehensive model has been developed that includes internal and external factors affecting the explanation of infrastructures and creating the necessity of establishing mobile payment in Iran. This research also focuses on the phenomenological approach. This approach can be considered as the dough of the present research that the researcher intends to understand the work experience of teachers, to reveal it and to be able to describe and explain the factors influencing this experience from their perspective, so this study is a research method. Qualitatively done with a phenomenological approach. Phenomenological research is a type of interpretive research that focuses on human perceptions and experiences, and the results and descriptions of these perceptions, as they appear directly in the experience of individuals, have been studied. Phenomenology is a method of qualitative research that, although the starting point is philosophy, but soon reached the fields of social sciences, psychology, and nursing. This method of systematic and accurate research is one of the research approaches, which deals with the manifestation and presentation of human experience perceptions about various phenomena (Brown, J. W., et al. 2007)

In this research, through exploratory interviews, the underlying aspects of the factors affecting the infrastructure are identified and the necessity of establishing mobile payment in Iran is analyzed through a Grounded theory method and in a systematic manner (open, axial, and selective coding). In this study, purposive sampling, which is a non-probabilistic sampling method, is used to select the sample. The concept of purposeful sampling used in qualitative research means that the scanner selects people and place of study for study because they can be effective in understanding the research problem and the central phenomenon of study (Havard, C. T., & Eddy, T. 2013). In this study, experts active in the first mobile organization in Tehran have been selected as the statistical population of the study. In this study, sampling was continued until the research structures reached the data saturation level. So that newer interviews did not add a new variable to the previous variables. This saturation is achieved in the fifteenth interview. However, to ensure the expressed saturation, four more interviews were conducted and the number of sample members reached 19 of these people.

In the present study, in order to determine the validity of the measurement instrument, the expert judgment approach on the face and content validity has been used. The decision was made based on the opinions of seven academic experts. The face validity score and the content of the interview protocol were 87.42%. This value is very desirable for Chin, W. W. (1998). Hence the validity of the interview protocol is supported. To evaluate the reliability of the interview protocol, the percentage agreement method between the two coders was used. A research colleague with experience in coding qualitative data was first asked to participate in the research; from the results of the interview, three interviews: third, tenth, and fifteenth were selected and coded separately by two coders (researcher and research colleague). In each interview, codes that two people think are similar are labeled "agreement" and dissimilar codes are labeled "disagreement." The researcher then coded the three interviews with this research colleague and the percentage of agreement within the topic that is used as an indicator of the reliability of the analysis (Malomi, N. 2012), based on this study, the reliability coefficient for the interview protocol in this study is equal. With 74.12%. This amount is a desirable amount from the researchers' point of view.

Ethical considerations were also taken into account in conducting the research, which in fact shows the extent and how the researcher respects the participants (Goulding, C. 2000). In this regard, along with the interview questions, a letter was sent signed by the researcher stating that he/she has a moral obligation to maintain the contents of the interview and the details of the participants and not to publish it. Also, with the knowledge of the participants, all interviews were recorded and reviewed to extract key points. After announcing the agreement, an interview was held with the focus on perception, perception, and desired indicators for an infrastructure model and the need to establish a mobile payment in Iran. In the interviews, the respondents commented on the question about presenting a new component or index or confirming the collected components and indicators.

RESULTS AND DISCUSSION

In order to analyze the data using the thematic coding method. First, the interviews were written and then the subject coding was done during the same previous stage. In this study, Smith's proposed method was used to analyze the data. Smith proposes three steps for analyzing data in the phenomenological method:

1. Data generation
2. data analysis
3. Compilation of cases ([Tschopp, M. K., et al. 2011](#))

Data analysis consists of 4 steps:

- Initial exposure: reading and re-reading an item
- Identifying and label themes
- Listing and clustering themes
- Creating a summary table

In this way, after recording the interviews on an audio file, they were converted into text and the researcher read and re-read the text of each interview frequently, and then the minor and sub-topics were determined and named. The researcher then organized and clustered the themes. In other words, by continuing to compare and take into account the differences and similarities of the sub-themes, more general themes (themes) have been extracted. For each interview, a summary table of organized topics was compiled, and finally, a complete list of topics was extracted through a combination. To obtain useful and meaningful results in qualitative research, the researcher has tried to analyze the data in a methodical way. In this study, a thematic or thematic analysis method was used to analyze textual data. Thematic analysis is the act of coding and analyzing data with the aim of what the data says. This type of analysis is based on analytical induction in which the researcher achieves an analytical typology through data classification, input and output modeling, and seeks modeling in the data. Once a data pattern has been obtained, it should be thematically or thematically supported. In other words, themes are derived from data.

In basic theory, the analysis consists of three types of coding, which are:

The first step of open coding: In the open coding stage, the data were formed into categories (classification) of information about the studied phenomenon by fragmenting the information.

The second step of axial Coding: Doing this through the coded diagram of a category as the main category or phenomenon is considered in the center of the review process and then the other categories - the factors that link the main factor to it and its consequences in relation to it is done with the main category and the contextual conditions that affect these actions were examined.

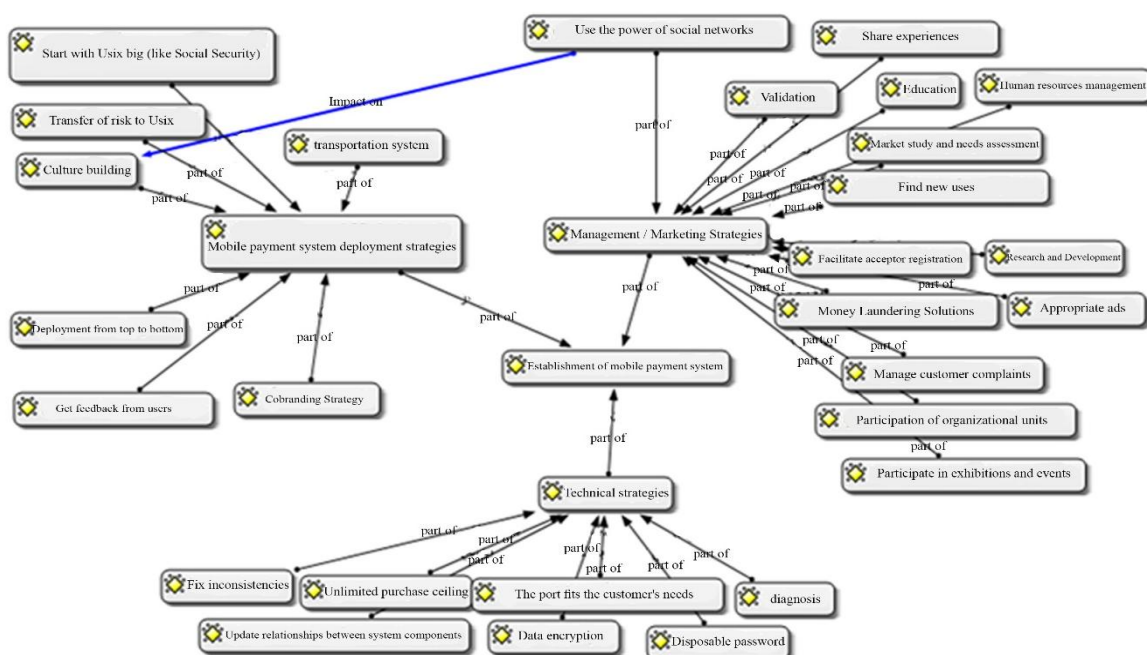


Figure 1: The need to establish a mobile payment system

The third step of selective coding: This step involves linking the categories together, which leads to the presentation of a conceptual research model that was validated by comparison with the research background (Strauss, A. L., & Corbin, J. M. 1990).

Finally, after coding and extracting the tables and pivot codes, the researcher entered all the extracted factors and components into Maxqda software and drew the models related to the infrastructure and the necessity of establishing mobile payment in Iran.

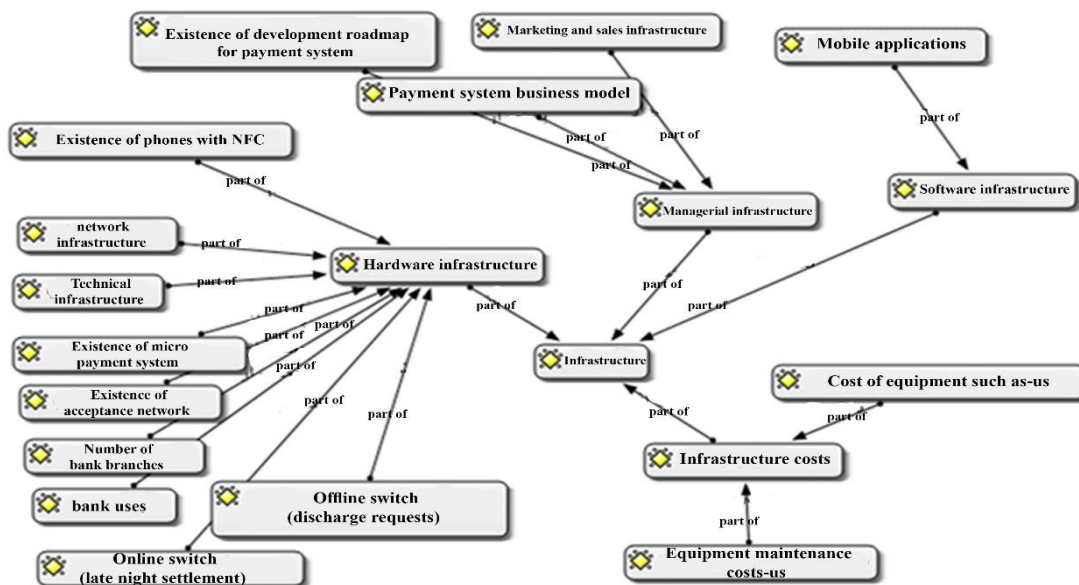


Figure 2: Mobile payment system infrastructure

CONCLUSION

This study aimed to explain the infrastructure and the need to establish a mobile payment in Iran in the form of a phenomenological method. According to the findings, two models to explain the need for mobile payment in Iran with three main factors of deployment strategies, strategy Technical and management-marketing strategies were presented and a model explaining the infrastructure of mobile payment deployment in Iran with four main factors of infrastructure costs, management infrastructure, hardware infrastructure, and software infrastructure was designed and developed.

In order to increase the acceptance of the mobile payment framework among the stakeholders, it is possible to pay attention to the features of the desired payment system from their point of view in order to determine the important dimensions in the acceptance. Maintaining the security and reliability of this system from the perspective of privacy, minimizing the possibility of fraud and transaction error, and the mechanism for dealing with possible fraud are important dimensions in customer acceptance. Payment standards such as preferential ceilings and restrictions imposed by banking regulators, the possibility of offline payment, recharging from various sources, and service fees should be considered as a cost dimension and payment preferences of customers and acceptors. Acceptance must be approved by different users and at the same time by the governance system. Optimal support of services, including the possibility of cancellation and follow-up of payment has an important effect on the continuity of this acceptance. Use of additional features such as providing the necessary reports for the user and the acceptor and using international standards and updating the technology governing the mobile payment system, while adding to the dynamics and agility of the system, accepting and continuing mobile payment for users. The variety of available payment facilities, the speed of creation and operation, the speed of transaction, and the flexibility of the platform used from the perspective of scalability and the speed and cost of this work are other components that are very important for the accepted framework of this system. Some capabilities affect the acceptance of this system by various businesses to run as a payment system provider, such as the ability to integrate multiple cards, integrate with other systems, expand the system and expand its dimensions, and recover after crises. Which helps to create a wide range of services in this area. Peak payment times, such as around New Year's Eve, when more transactions take place on the mobile bed, require support infrastructure to support the transaction load. The downfall of the mobile payment system these days creates an unpleasant experience of this framework in the minds of direct stakeholders, which affects their continued use. The more users, operators, and diversity there are of acceptors, the more popular the system will be. The availability, simplicity, and ease of the payment, settlement, and recharging process address a wide range of users in all age groups.

The expansion of the mobile payment market has led to easy payment services, which have grown the fastest among financial technology services. Mobile payment refers to the use of mobile tools (online, offline and consolidated) to perform far and near payment transactions that transfer the financial value of the transaction from various sources such

as bank account, user credit, or in the form of an invoice from customer to the recipient account. Allow the customer to purchase digital content, physical goods, and services. This system needs software and hardware infrastructures that are provided by the government, regulators, central bank, etc., and Shapark and FATA police also play a role in supporting that system. With the expansion of system acceptors in the form of public and private transportation, restaurants, and customer usage encryption and PSP data encryption help increase the security of the framework of stores, the acceptance of mobile payment among end-users will increase. The macro-policies of the Central Bank in defining the preferential payment ceiling and issuing the necessary licenses to connect the banking system with the communication platform and on the other hand the difficulty or ease of obtaining a license by the acceptor affect the expansion of the framework.

LIMITATION AND STUDY FORWARD

To expand the use of this framework, collections with a large audience can be used as a critical mass. Sectors such as social security, which have a national scope, highlight strengths, weaknesses, threats, and opportunities in this area because they maintain the risk of the framework within a certain range. Long-term mobile payments will reduce the nature of paper and card deletions by reducing the cost of printing money and the transaction costs and operating costs of each stakeholder. The sum of the mentioned factors brings benefits to the society that all stakeholders will benefit from.

AUTHORS CONTRIBUTION

Maryam Safaee, Asadollah Kordnaeij, Seyed Mohammad Bagher Jafari, Morteza Soltani.

M.S; analyzed the results, A.K; collected the data, SM.BJ; wrote the paper, M.S; wrote the paper.

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