Exploring Prospects and Challenges of Mobile Payment for Iranian banks: Using SWOT and AHP Hybrid Model

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Abstract

With the fast developing mobile commerce, mobile payment is springing up as a new industry. It is obvious that replacing traditional cash or bank card with mobile will cause a payment revolution. Success in this new arena is not automatic. Prior to entering m-commerce managers must evaluate the current situation with respect to mission, goals, and strategies. Then, they must scan the organization's internal and external environments and evaluate the likelihood that a m-payment strategy will succeed. In this research, a combined method based on the Strengths, Weaknesses, Opportunities and Threats (SWOT) and analythic hierarchy process (AHP) is proposed to investigate the challenges and prospects of mobile payment faced by Iranian banks. The relative significance of each SWOT indicator and its related SWOT group in Experts opinion is quantified by AHP technique.The quantified significance of SWOT indicators provide excellent insight for formulating strategies. Afterwards, the alternative strategies towards success in m-payment are recommended.

JEL Classification Numbers:

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I. Introduction

Since 21st century, with the rapid development of internet and e-commerce, e-banking as an emerging industry, has made a great progress. Mobile payment, as a subset of mobile e-commerce has flourished too. Regarding to the impact of evolution of M-commerce and the explosive use of mobile communication devices on wealth creation and economic growth in developing countries, every developing country like Iran needs to apply mobile commerce and mobile payment to achieve profit and revenue and better social and technological conditions. Although has a bright prospect, there are still many problems existed in this industry. Issues with respect to emerging technologies which leads to standards and business process change and their considerable impact on industry require care and consideration on the part of senior management strategists and financial services leaders.

Due to aforementioned facts, banks m-payment strategies are essential as one of major stakeholders in m-payment. The purpose of this research effort is to provide an overview of the nature of m-payment and to present the basics of a SWOT analysis that can be used by banks planning to enter the m-payment arena. In the first section of the paper the nature of m-payment is discussed. Then, an overview of the value of a SWOT analysis in the strategic management process, and using it in a hybrid method with AHP is provided. This is followed by a SWOT analysis of elements that are considered critical to the success of banks in the m-payment arena from experts' opinions and the factors are ranked using AHP. Finally, alternative strategies that may be necessary to insure the success of m-payment are discussed.

II. literature review

- **M-Payment**

Developments in mobile handset technology and use of mobile devices by consumers have made the mobile commerce market, more global in scope. As a result, consumers can reap the benefits of their handsets or other mobile devices at anytime, anywhere. Mobile technology has become increasingly common in today's everyday life. However, mobile payment is surprisingly not among the frequently used mobile services, although technologically advanced solutions exist.

M-payment can be defined as a device that allows users to "make payments using mobile devices including wireless handset, personal digital assistants(PDA), radio frequency (RF) devices, and near field communication (NFC) based devices"[2]. In other words, mobile payment or m-payment is any payment where a mobile device is used to initiate, authorize and confirm an exchange of financial value in return for goods and services [5].

An alternative definition for an m-payment is that it is a type of electronic payment transaction procedure in which at least the payer employs mobile communication techniques in conjunction with mobile devices for the initiation, authorization or realization of payment [10]. Mobile devices include mobile phones, PDAs, wireless tablets, and any other devices that can connect to mobile telecommunications networks and make it possible for payments to be made [4].

Multiple reasons motivate consumers' support for m-payment which is regarded as an important emerging payment system because of its improved transaction speed and convenience [2]. The advantage of using m-payment derives mainly from the benefits of using m-commerce. M-commerce carries the benefits of mobility and reach. As a consequence, when using m-payment consumers have unrestricted access to transactions and are reachable at any time by their banks to authorize transactions. M-payment is therefore regarded as an electronic purse.

Payment service providers are typically financial institutions, such as banks and card issuers. In a mobile payment context, mobile network operators (MNOs) are considered to be natural candidates to offer payment services. They form the dominant actors present on the mobile payment market. They can choose to collaborate and cooperate, but also compete [6]. As MNOs are more likely to collaborate than compete with financial institutions, the success of mobile payments is in the hands of the banks.

The structures of financial services markets within various countries may support or inhibit the development of mobile payment services. In bank-centric financial systems most entities have bank account, payment transactions are typically transfers between accounts, and banks have a strong mediator role. In market-centric financial systems, the proportion of bearer-held instruments (issued and traded through capital markets) is important, cash and cheques could be used frequently for payments, and banks have a less dominant role. It is important for mobile payments research to understand how different financial systems and also how the degree of electronification of financial services influences mobile payment services market [9]. Since Iran's' financial system is bank-centric entering and providing services of m-payment is quite expected. In spite this expectation; currently these services in Iran are limited to electronic payment to other persons account in the same bank with a limitation in amount and payment of bills [8]. M-payment in Iran commenced about 3 years ago, and about half of the banks provide this service. In order to use m- payment, special software, which is available in banks websites, should be installed on user's mobile phone. There is not any appropriate software with complete security and support of central bank for m-payment. Since banks created software packages individually, there is no integration between them and intra-banks transactions are not possible except limited cases.

- **AHP in SWOT**

Success in this new arena of m-payment is not automatic. Prior to entering m-commerce management must evaluate the organization's current situation with respect to mission, goals, and strategies. Then, management must scan the organization's internal and external environments and evaluate the likelihood that an e-commerce strategy will succeed. SWOT is a useful technique which is commonly known in strategic management area. SWOT analyses the external opportunities and Threats as well as the internal strengths and weaknesses [1].

In this research a hybrid method is developed to eliminate the weaknesses in the measurement and evaluation steps of SWOT analysis. AHP enables decision makers to quantify intangible factors. In addition, making pair wise comparisons forces the decision maker to think over the weights of the factors and to analyze the situation more precisely and in more depth. One problem with SWOT analysis is in the uncertainty related to the future development and outcomes of different factors. However, AHP analysis is capable of handling decision making situations with some uncertainties and inconsistencies. In the

integrated SWOT-AHP approach, while SWOT analysis uses a diagnostic approach to identify key factors determining the success or failure, AHP measures their relative importance. The relative importance of factors is then used to formulate the proper strategies. The strength of the proposed approach is its usefulness in quantifying, summarizing, and measuring the significance of the indicators, which offers useful insight for policy analysts or decision makers focusing on m-payment adoption and implementation. The adoption of this approach would be helpful especially in developing countries where budget constraints would warrant a more effective and efficient evaluation to ensure success of m-payment implementation

III. Methodology

SWOT Model for M-payment in Iranian Banks

All The SWOT factors and sub factors are determined through the Delphi method. The experts consist of 10 top managers of banks who have enough knowledge about m-payment and have more than 8 years of experience. First an external environment analysis is performed by the idea of experts. In this way, SWOT sub factors which affect the success of the banks but cannot be controlled by the banks is identified. In addition, an internal analysis is performed to determine the sub factors which affect the success of banks but can be controlled by them. After analyzing the first round responses, SWOT indicators are re-established and confirmed by all experts at the second round of Delphi. Using the SWOT factors, the SWOT matrix is developed as shown in the following table and discussed in the following sections.

Table1:
SWOT Matrix

Internal factors	S1: large Customers S2: strong position of the banks in the market S3: deep and long term relationship with customers	W1: Channel conflict W2:Dependent on handset manufacturers and standards W3:Low experience in application programs and the cost of developing and implementing
External factors	O1 : Size and growth rate of the mobile market and great demand O2: Easy reach to customers and select their target audiences O3:Providing customized and personalized marketing	T1: Mobile network operators in micro m- payment act as a competitor which have access to different technologies T2: Low acceptance of m-payment by customers T3: security and privacy risks

- ✓ **Strengths**

Large number of customers, their strong position in the markets, deep and long term relationships with customers, all are considered as vantage points for banks in the arena of providing m-payment services.

- ✓ **Weaknesses**

In experts opinion followings are considered as weaknesses of banks in m-payment.
Transferring into new methods of payment brings about resistance of employees as well as channel conflict problems.
Investing in telecommunication infrastructure, mobile telecommunication operators costs highly and they transfer this cost to customers which are provided by their services like banks. Consequently, banks should attract a large number of users of m-payment to increase traffic volume, thereby generating more revenue to cover the cost. In addition the cost of developing and implementing application for banks are considered as expensive practices since they do not have appropriate experience in this field. What is more, since they are highly dependent on mobile manufactures and standards, they are not able to provide innovative services.

- ✓ **Opportunities**

There has been increasing adoption of m-payments in Iran. Statistics shows that the number of cellular subscribers was about 27 million by 2008, in contrast to just near to 9 billion as early as 2006, which provides an infrastructure for m-payments.
Additionally, by using m-payment methods, banks have an easy reach to their customers and they can provide them with more personalized and customized services. The high quality of services will attract more customers for banks.

- ✓ **Threats**

Mobile network operators, which have their customer bases and may be strong enough in their own right to force banks no other choice but to split their market shares and profits. They provide the infrastructure for m-commerce, metering of downloaded digital goods, and measurement of elapsed time for data sessions, billing mobile phone subscribers for content or service charges, and settling payments periodically with merchants. Banks outside of transforming telecommunications firms are not naturally able to do that. Since the mobile network operators understand the behaviour and profile of their subscribers well, they also can promote and deliver the right services—including m-payment services—to their subscribers. Further, since m-payments can piggyback on the mobile network operators' existing network infrastructure, they also may be in a better position to offer lower commission charges to merchants than are possible through banks.
However, despite all of these advantages, mobile network operators still may not wish to start diversifying into the area of financial services. This is not their core competency— indeed; it is an area that has taken the banks decades to master—and so the mobile phone operators risk unleashing the power of some of the largest financial services firms. The latter may wish to reintermediate in the market for m-payments, just as we have seen with the market for e-billing services.
Low acceptance of m-payment by customers considered as a threat. The majority of payments in Iran are cash-based. Payment by cash has a number of advantages including no transaction costs, privacy and immediacy. However payment using mobile devices presents a

number of issues. Consumers would likely weigh the benefits of paying for a product or service using cash against payment using a mobile phone. What is more, the majority of users will face problems in using m-commerce applications and erroneous or unintended transactions are likely going to be common.
More ever, Security is likely going to be an issue in m-payment. Users would want to be guaranteed on the security of such applications and the associated devices before they can commit themselves to make a payment using a mobile handset since a mobile phone or any mobile hand-held device may easily get lost or stolen. M-commerce applications also present a privacy concern since they leave a trace of one's habits and lifestyle. Additionally, processing of payment may result in delays

After determining the SWOT factors, AHP method is used to rank the factors. As can be seen in table 2, priority of each group and each sub factor of strengths, weaknesses, opportunities, and threats are evaluated by conducting pair wise comparison using the software Expert Choice. The overall priority of the factor is computed simply by multiplying the priority of the factor within group by the priority of the group. The rate of consistency ratio must be less than10%, which is held in all groups, and the consistency ratio of the comparisons between four SWOT groups was 9.0%.

From table 2 it can be concluded that, The weight of external factors is more important than internal factors. It can be related to high competitiveness which leads to the banks success in m-paymnet highly dependent on their environment factors. By comparing the priority of factors, it can be concluded that opportunities and strengths of banks in the m-payment is high in proportion to threats and weaknesses.
Considering internal environment, In terms of strenghts, having deep and long term relationships with customers considered the most important strength. This is followed by strong position in the market and large number of customers. The highest rank of weaknesses importance goes to low experience in application programs and the cost of developing and implementing them.
On the other hand, in the external environment the opportunity of providing personalized and customized services considered as the most imporant. With respect to treats the highest rank goes to low acceptance of m-payment by customers.

Table2:
applying AHP method to the SWOT matrix

SWOT factors	Priority of factors	SWOT sub factors	Priority of sub factors	Overall priority of sub factors	Consistency ratio
Strengths	0.27	S1	0.059	0.016	2.3%
		S2	0.125	0.033	
		S3	0.816	0.218	
Weaknesses	0.08	W1	0.122	0.010	0.5%
		W2	0.233	0.019	
		W3	0.648	0.054	
Opportunities	0.50	O1	0.090	0.045	0.7%
		O2	0.143	0.071	
		O3	0.767	0.380	
Threats	0.15	T1	0.094	0.015	1.4%
		T2	0.168	0.026	
		T3	0.738	0.0114	

The alternative strategies which are developed by experts' opinion, marketing theories and industry experience are shown in table 3. The strategies identified as SO involves making good use of opportunities by using strength of the organization. The WO strategy seeks to gain benefit from the opportunities presented by the external environment factors by taking into account the weakness of the organization. Similarly, ST is the strategy associated with using the organizations strengths to remove or reduce the effects of threats. The fourth and the last strategy is WT, in which the organization tries to reduce the effects of its threats by taking its weaknesses into account [1].

There seems to be a general understanding throughout the industry that banks and mobile network operators should work together to provide m-payment services, just as economic theory and other theories of strategic competencies, such as the resource-based view of the firm would argue. Some of the major industry groups established by the leading mobile network operators and the major players in the financial sector serve as evidence. The cooperation of mobile network operators and banks, facilitated by the technology producers, should work well to address the issues related to information security, product development, users' requirements, resource and expertise sharing, and so on[11].

Table 3:
strategies based on SWOT matrix

SO(aggressive) 1. Working with strong mobile network operators	OW(change) 1.Making joint investment with mobile network operators 2. Promote the traditional payment transition to modern m-payment 3. Increase related academic disciplines
ST(diversify) 1.Actively developing m-payment based services 2. Improve the mobile e-commerce credit system	TW(defensive) 1. Establish strategic alliance with excellent providers 2.Increase high quality complex m-payment personnel training 3. Planning to develop culture of using m-payment through the media

V. Conclusion

The quantified significance of SWOT indicators provides excellent insight for formulating strategies. The proposed approach helps the participants provide accurate judgment on the significance of various indicators representing the prospects and challenges of m-payment development. It is clear that when strategies that are suggested to convert possible threats into opportunities and possible weaknesses into strengths are applied in banks, the current situation of m-payment will be improved.

According to experts' opinion which were analysed in this paper, the prospects of m-payment in Iranian private banks is promising and opportunities and strengths are much higher ranked than weaknesses and threats. With respect to ranking of SWOT factors, alternative strategies are recommended for banks in order to be successful in the market.

Yet, further modifications and simplifications are possible. Inability to access dynamic environment situations precisely, ignorance of interdependencies, and negligence feedback among hierarchy levels due to AHP usage are the main drawbacks. Despite such drawbacks, the attained outcomes are still proved effective. Combined application of evaluated strategies would be especially beneficial for marketing managers of those banks who are involved in promoting mobile payment as a new service.

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