MOBILE PAYMENTS
A Comparative study between European and Non-European Markets

Student
Siddharth Rathinam Karthikeyan

Supervisor
Jan Markendahl

Examiner
Mark Smith

School of Information and Communication Technology, KTH-Royal Institute of Technology
Stockholm, Sweden.

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ABSTRACT

‘Mobile Payments’ is a new technological mantra not only for researchers, innovators, company executives, but also for every household across the globe. True to the statement, Mobile payments are in the verge of taking a giant leap towards a cashless society. Accordingly, mobile payment services are still followed in both developed and developing countries. In the developing economies, mobile based payment services has reached a pinnacle of success in a short span of time due to the favouring conditions such as very few banked people with more mobile phone penetration etc. But in the developed markets such as Europe, USA etc., with more advanced technology and payment solutions find it difficult to reach a steady growth.

In this thesis, the main objective is to find out the factors that are hindering the uptake of mobile payments in European market. This is done by comparing the Non-European market with the European one and analysing the factors for success in the developing market and this success factors are considered for the European market which can be the lessons learnt for a better uptake of mobile payments. For this, four countries are selected in each of the markets. This analysis is made by diving into two phases. In the first phase, different cases of mobile payment present in both the markets are taken and analysed. In the second phase, factors considered for influencing the success of mobile payments such as Socio-economic conditions, Technology and Hardware used, Actors involvement, Pricing, Regulatory issues and Consumer acceptance are collected, analysed for both the markets.

The analysis is done for two phases and for each phase a separate framework is used. Once the analyses are done, a summary of the results are produced. Based upon the summary of both the phases, the overlying factors causing success in Non-European market are identified and explained. Then they are compared with the European market to identify where certain suitable lessons can be learnt from the developing market. The identified factors are considered as the lessons to be learnt for a big break in mobile payment industry. In the future work section, Contactless mobile payments (CMP) is explained and their future scope in mobile payment ecosystem is discussed.
This thesis has been written as a part of the curriculum for the completion of the master’s program in Network Services and Systems at Kungliga Tekniska Högskolan (KTH), Stockholm, Sweden. It has been composed at Wireless@KTH Research Lab under the guidance and supervision of Prof. Jan Markendahl from February 2012 to August 2012.

I would specially like to thank Associate Professor Jan Markendahl for his consistent guidance and support throughout my work. His supervision helped me to amend and improvise making it much better.

At this moment, I would also like to thank Professor Mark Smith, Professor Per Andersson and Docent Niklas Arvidsson of Kungliga Tekniska Högskolan (KTH) for their valuable ideas, which helped to shape up my final thesis.

Last but not the least, I would like to extend my warm thanks to my parents, friends, colleagues, without whom it wouldn’t have been possible to accomplish this thesis.

I also hope that this thesis will help researchers and other companies trying to find out the hindering factors present in the European market for mobile payments.

Siddharth Rathinam Karthikeyan
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<td>CMP</td>
<td>Contactless Mobile Payments</td>
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<td>NFC</td>
<td>Near Field Communication</td>
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<td>PDA</td>
<td>Personal Data Assistants</td>
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<td>GSMA</td>
<td>Groupe Spéciale Mobile Association</td>
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<tr>
<td>GSM</td>
<td>Global System for Mobile Communications</td>
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<td>PoS</td>
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<td>MC</td>
<td>M-Commerce</td>
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CHAPTER 1 INTRODUCTION

1.1 BACKGROUND

In recent years, the growth for the need of Information and Communication Technology (ICT) has become enormous and it is predicted that the growth will be multiplied to multi-folds in the future years to come (Juniper Research, 2008). The usage of mobile phone is considered to be one such growth in the domain of ICT. These factors coupled with exploitation in e-commerce industry and growing m-commerce for consumer’s better and quick access has resulted in a new technological advancement, called Mobile industry (Paavilainen 2002). Mobile phone which was previously used for making phone calls and sending text message has evolved so fast that it is right now being used as mini-computer for performing various day to day life activities like making video conference calls, reading eBooks, listening to music, playing games and also to do online purchases (Grief/Mitrea/Werner 2007). This is the birth of Mobile Payments.

In the recent years, it is evidently seen from the survey of emarketer (2008) that mobile phone penetration is increasing for each quarter in both segments of the people, rich and the poor. Many researchers and other mobile payment specialist, made use of this mobile phone growth to develop a mobile based payment model where each and everything can be carried with a simple basic mobile phones (Karnouskos S. & Vilmos A., 2004). This is the phase where the mobile phones are used to make payments in remote and proximity areas by forgetting their cards and wallets.

Figure 1 Growth of Mobile Internet Users from 2007 to 2012

Source: www.emarketer.com

In recent times, mobile phones are in the verge of replacing the wallets to bring the concept of mobile wallets, where all the payments for purchasing, online ticketing, online shopping, point of sale purchase, person to person money transfer etc. are done through their mobile
phones. Mobile Payment is considered to be the future business model, as it has the ability to reduce the time factor where people don’t have to wait in the long queues to pay their bills (Hu/Lee/Kou 2005).

It has also increased the security factor among the users where people don’t have to carry money with them all the time. The customer can just purchase their product by sitting at home. For implementing a successful mobile payment system, a concrete business model based upon the consumer behavior is necessary. It is believed that a successful mobile payment industry’s growth not only depends upon the good technology that has been developed but also mainly on the collaboration made by different factors of the same field to further enhance the growth of it (Tom Birgersson/Viktor Eriksson 2011).

There were many innovative startup mobile payment models which completely failed in the development phase due to inefficient business model and lack of standardization (Carat, 2002). So far mobile payments have only been successful in certain countries. There is a lot of difference in the usage of mobile payments among the developed and developing countries. In most of the developed countries like UK and France, mobile payment in majority are done through Near Field Communication (NFC) based technology where a NFC enabled phones are needed to carry out this contactless transactions (NFC 2012). Whereas in the developing nations like Kenya, Philippines etc. a basic mobile phone is more than enough for carrying out their transactions. This large difference in variation is basically due to the financial and the technological developments present in these countries.

1.2 PURPOSE AND RESEARCH QUESTIONS

The mobile payment system in developing and developed nations is totally different as the economic standards of the people are completely different. The European market is considered to be one of the most advanced one with respect to technology, socio-economic conditions of the people etc. This market is already in the verge of developing a next generation of mobile payments called as Contactless Mobile Payments (CMP). This contactless payment is made by using NFC based technology where the consumers have to just swipe the NFC enabled phone near the NFC enabled Point of Sale (PoS) terminal (Juniper Research 2011). But the scenarios present in non-European market such as South-East Asia, Africa, and North-East Asia etc. is totally different where they have a developing economies with poor banking facilities. So, mobile payment systems present in these countries are totally different in which the main focus of these markets is to cover the unbanked population by providing banking facilities through mobile devices. A basic mobile phone is used to do their payment for meeting up their daily requirements. It has to be noted that developing countries are considered for Non-European markets, as they have a huge success stories in mobile based payments.

Even though the European market is advanced, usage of mobile payment is not as successful as it is there in Non-European market. There is always a million dollar question that has been asked for long time among the researchers, technocrats, and all the actors involved in the mobile payment ecosystem is,

**Why is mobile payment not taking up in the European market but in non-European market?**

The answer for this question is still a big question mark and research is going on to find out where there is a flaw that makes for a slow uptake of mobile payments in the European regions. In order to fill up the big gap, one way is to compare the European market with the Non-
European market. It’s already known that Non-European markets are success and growing rapidly in the mobile payments domain, so by comparing both markets, the lessons that can be learnt from the Non-European cases can be set as an example for the European countries.

So the main purpose of this thesis tends to compare the European and Non-European market and to find out what all lessons can be learnt. For taking a first step in to it, a research question is framed such as,

\textit{RQ1. What are the major factors that led to the success of mobile payments in Non-European markets?}

By analyzing and answering this question, the major factors for success can be identified and with the help of it, another research question can be framed which would help to learn the lesson from the Non-European market’s cases,

\textit{RQ2. From the success in Non-European markets, what can be the lessons learned for the European market that can help in the better uptake of mobile payments?}

The answer for this research question will help to identify the hindering factors and reasons for mobile payments not picking up in the European Market. In future, this paper will also help the researchers to get a clear idea why mobile payment lacked in the better uptake. In order to avoid sticking up to a single factor, as in the major scientific and white papers do where actors involvement and consumer behavior are alone considered, the author decided to have an in depth analysis of all the factors which is found to be essential for influencing the success of mobile payments.

1.3 RESEARCH METHODOLOGY

The working process of this thesis consists of a number of phases and was designed to be continuous. The crucial factor is this thesis is that it is dynamic and overlapping. In order to maintain so, a research process was developed based on the works of Davidsson and Patel (2003) and Bell and Bryman (2007). The author believes that by having a set of working process not only increase the quality of the report but also increases the readability for a new reader.

The initial stage of the thesis project was devoted to developing an overview of the study. This was followed by a parallel process where the theoretical framework and the empirical investigation was created, which lead to a refinement of the purpose and research questions, before the analysis of the study. At the end, the analysis was used to identify the conclusions of the thesis.

The author decided to divide the research into two phases where in each phase a set of cases and factors are considered, studied, analyzed and concluded. In the Phase I, case studies are taken up to know the payment characteristics in both markets are studied. In the Phase II of the research, factors such as Socio-economic conditions, pricing, technology and hardware used, actor’s involvement, Marketing Strategy, Consumer Acceptance and Legal regulations influencing the success of mobile is taken studied.

An overview of the research methodology is shown in the Figure 2 below,
1.3.1 DATA COLLECTION

This thesis is mainly based on the Qualitative methodology. The research topic that has been selected is debated upon constant changes, so action research methodology has been considered as a suitable one. The philosophical assumption that underpins an action research is that the subject is part of a constantly changing social world and that the research and researcher are part of that change (Mary/Patrick, 2009). The collection of data’s is in twofold.

1.3.1.1 COLLECTION OF SECONDARY DATA

The majority of the secondary data collected for comparing both the market is obtained through Internet research. The research papers needed for the analysis is mainly collected from respective company websites, regulators website, market research papers, technological review reports, website relating to mobile payments and from the organization sites like Mobey Forum, NFC forum, GSMA association etc. where white papers for the specific topics can be downloaded and studied. Articles written by Mobile payment specialists are also considered to support the theory. Apart from the white papers, case studies reviewed by various authors on mobile payments on specific regions and countries are also taken into consideration for a better analysis of different market scenario. In addition to it, a comparative study made by the
MasterCard on Mobile Payment readiness Index is also taken into consideration for getting minute details. Based upon the needs, the research papers and case studies are downloaded, and an in-depth analysis is made.

1.3.1.2 NORDIC PAYMENTS FORUM 2012, STOCKHOLM, SWEDEN

During the month of March 2012, author attended the Nordic Payments Forum conference held in Stockholm, Sweden. It was a platform, which provided the mobile payment companies, experts, and researchers to exchange, communicate and view their ideas. In this conference, the future developments of contactless mobile payments in Europe were discussed. Added to it, various mobile payment companies exhibited their payment model to be introduced in near future.

The purpose of the author to attend this conference was mainly to get a broader view of mobile payment happening in and around Europe. Futuristic plans were discussed which helped the author to analyze the hindering factor in the past and present. The useful information was gathered from the seminars given by the following speakers (NPF 2012),

- **Contactless payment projects in France - from pilot to commercial projects** by Nicolas Houery, Director, European Mobile Payment Association
- **The business case for contactless payments – the factors for a successful solution** by Mark Austin, Head of Market Development, Visa Europe
- **Successful Implementation Strategy for Mobile Payments** by Didier Durand, Mobile Contactless Services Director, Orange
- **Why invest in NFC and how can you leverage on new opportunities with mobile wallets?** by Rene Batsford, Head of IT, EAT.

1.3.2 DATA ANALYSIS

As the mobile payment industry is vast and in an infancy stage, the author narrowed down the research by selecting four countries in each market. By selecting these countries, we studied various affecting and driving factors for adoption of mobile payments in both the markets. Countries such as France, England, Sweden and Poland are taken under European market and India, Kenya, Turkey and Philippines are taken under Non-European market. The main reasons for selecting these countries are that they had the blend quality of success stories of uptake of mobile payment cases and in parallel they also had failure cases. Author believed that by choosing countries of such blended quality would lead to a better analysis of the mobile payment characteristics.

The data analysis part is divided into two phases. In the Phase I, various mobile payment case study present in the eight countries is taken and information relating to it are collected in the data gathering phase. In the data analysis phase, based upon the framework selected, analysis is made and a summary of the results are discussed. In the phase II, the factor that is believed to influence the success of mobile payments in a market is chosen, and the respective data for each factor are collected. Based upon the proposed framework for this phase, a deep analysis is made and summary is obtained. A final conclusion is derived based upon the results of the both the phases.
PHASE I OF THE ANALYSIS

In Phase I of the analysis, cases of mobile payment present in each country of both the markets are collected and studied. Information such as a brief description about the payment model, technology/ Hardware used type of services provided, involvement of actors, cost for the usage, security issues are taken for case analysis. Based upon the case studies, characteristics of mobile payment models present in European and Non-European market are analyzed in detail.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Instances</th>
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<tr>
<td></td>
<td>MC</td>
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<tr>
<td>Payment scenarios</td>
<td></td>
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<tr>
<td>Payment levels</td>
<td></td>
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<tr>
<td>Service scope</td>
<td></td>
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<tr>
<td>Payment provider</td>
<td></td>
</tr>
<tr>
<td>Data receiver</td>
<td></td>
</tr>
<tr>
<td>Pre-registration</td>
<td></td>
</tr>
<tr>
<td>Technology required</td>
<td></td>
</tr>
<tr>
<td>Basis of payment</td>
<td></td>
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<tr>
<td>Payment frequency</td>
<td></td>
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<tr>
<td>Deduction time</td>
<td></td>
</tr>
<tr>
<td>Method for settlement</td>
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</table>

Figure 3 Morphological box of payment characteristics and instance


For a better understanding of each of their characteristics, a modified framework is created based upon the works of Kreyer N., Pousttchi K. & Turowski K., 2002; Kreyer N., Pousttchi K. & Turowski K., 2003; Pousttchi, 2003; Zwicky, F., 1966. Furthermore, framework proposed by Agnieszka Zmijewska/Lawrence/Steele, 2004 on the paper named “A model for classification of existing M-Payment systems” is also used for framing the own framework. The figure 3 represents the original framework.

The morphological box of payment characteristics and instances are modified in such a way, that information collected on this morphological box based upon each payment model gives a clear picture of how that each cases work, who are the dominant actors present, what kind of transactions make consumers to use mobile payments, based upon what brand consumers opt for mobile payments etc. This model also enables the author to easily interpret the difference and similarities present between both the markets. By knowing the gap between both the markets, a conclusion can be derived which would be implemented in later stages for a better uptake of mobile payments in European countries. The Figure 4 represents the modified morphological box.
In the Phase II of the analysis, in order to obtain a broad perspective about the mobile payment characteristics, apart from looking into the specific case studies, the author took up several factors influencing the success of mobile payments in a particular market. In order to analyze all the factors, a conceptual framework was created based upon Yoris & Kauffman 2007 and Dahlberg & Mallat, 2002; Javalgi & Ramsey, 2001; Jayewardene & Foley, 2000 work. Javalgi & Ramsey (2001) proposed that Information and Communication technology (ICT), Socio-economic conditions (Ondrus/Kalle/Pigneur 2009), commercial and legal regulations gives a great impact on the diffusion of mobile payments in the market. So, the framework is recreated according to the need of this project. Factors such as pricing and the business models present are included into the framework, so that a border aspect of the success factors in the Non-European market can be obtained.

FIGURE 4  MODIFIED MORPHOLOGICAL BOX OF MOBILE PAYMENT CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Payment levels</th>
<th>Service Scope</th>
<th>Payment Scenario</th>
<th>Brand Visible to Customer</th>
<th>Pre-registration</th>
<th>Technology required</th>
<th>Hardware required</th>
<th>Basis of Payment</th>
<th>Method for Payment</th>
<th>Transaction Cost for Consumer</th>
<th>Change of Phone requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A1 Picopayments</td>
<td>B1 Regional</td>
<td>C1 P2P</td>
<td>D1 Mobile Operator</td>
<td>F1 Yes</td>
<td>F1 SMS</td>
<td>G1 Feature Phone</td>
<td>H1 Token based</td>
<td>I1 Electronic cash/digital wallet</td>
<td>J1 None call</td>
<td>K1 None</td>
</tr>
<tr>
<td></td>
<td>A2 Micropayments</td>
<td>B2 National</td>
<td>C2 PoS</td>
<td>D2 Banks</td>
<td>F2 No</td>
<td>F2 Internet-enabled phone(WEB/WAP)</td>
<td>G2 Smart Phone</td>
<td>H2 Account Based</td>
<td>I2 Direct Debiting</td>
<td>J2 Cost of phone</td>
<td>K2 Any WAP-enabled</td>
</tr>
<tr>
<td></td>
<td>A3 Macropayments</td>
<td>B3 International</td>
<td>C3 Ticketing</td>
<td>D3 Collaborative Model</td>
<td>F3 Yes</td>
<td>F3 Special Payment Software</td>
<td></td>
<td></td>
<td>I3 Credit Card</td>
<td>J3 Cost of SMS</td>
<td>K3 New handset needed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C4 B2B</td>
<td>D4 Top-ups</td>
<td>F4 No</td>
<td>F4 Voice call</td>
<td></td>
<td></td>
<td>I4 Telephone Bill</td>
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<td></td>
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</tbody>
</table>

PHASE II OF THE ANALYSIS

In the Phase II of the analysis, in order to obtain a broad perspective about the mobile payment characteristics, apart from looking into the specific case studies, the author took up several factors influencing the success of mobile payments in a particular market. In order to analyze all the factors, a conceptual framework was created based upon Yoris & Kauffman 2007 and Dahlberg & Mallat, 2002; Javalgi & Ramsey, 2001; Jayewardene & Foley, 2000 work. Javalgi & Ramsey (2001) proposed that Information and Communication technology (ICT), Socio-economic conditions (Ondrus/Kalle/Pigneur 2009), commercial and legal regulations gives a great impact on the diffusion of mobile payments in the market. So, the framework is recreated according to the need of this project. Factors such as pricing and the business models present are included into the framework, so that a border aspect of the success factors in the Non-European market can be obtained.
The seven factors are considered to be the major determinants for the success of mobile payments in this project. After deciding up the factors, in order to analysis and determine the major factors affecting the uptake of mobile payments in the European market, a different framework is created based upon Yoris & Kauffman (2007) work by using the same seven factors. It proposes a robust framework for analyzing the economic issues for disruptive technologies. This framework gives different level of impacts relating to mobile payments using a series of concentric circles.

The innermost circles contain the factors that give a direct impact to the success of mobile payments. The next concentric circles contains the first-order impacts of Network externalities such as technology/hardware used, Business models such as actors involved and consumer acceptance. The second layer of the concentric circles has the switching costs, accessibility, marketing and branding. The layer three contains the legal regulatory issues affecting the disruptive technologies success. The figure 5 describes the modified framework of Yoris & Kauffman’s work,
Based upon the factors, a set of question each of the seven factors is framed to get a detailed picture of the payment characteristics present in each of the markets. The questionnaire are answered based upon the data’s collected from the internet resources and based upon the statistics obtained and with the level of impacts the factors create on the market, the major factors can be concluded.

These frameworks are mainly so that it gives a wide perspective to the literature and to collect a diverse point that can be used for comparing the factors. The main reason for selecting this framework is that (1) it gives exact factors to be considered for the success of mobile payments in particular market. (2) It tends to provide granular information of these topics by avoiding the vagueness present in other mobile payment literatures.

1.3.3 CONCLUSION

This section explains answering the research questions that was put forth in the beginning of the project. The summary obtained from the analysis of phase I and phase II is used to frame the results. Based upon the summary and results, the author tries to explain the research questions in a detailed and organized way. By answering the research question, a solution for the problem that has been discussed in the earlier chapters can be obtained. The author also tried to give a future research work that can be carried out in near future based upon this project. This discussion will also help the researchers and other companies in the mobile payment industry to find out the hindering factors present in European market and solve the issues to find a better market.
1.4 STRUCTURE OF THE THESIS

This thesis is structured to have totally seven chapters. Chapter 1 (Introduction) tries to give the details and existences of mobile payments in European and Non-European market. This chapter also gives the purpose of the author to carry out this thesis project by questioning the research questions that have been raised. The research methodologies that have been used to answer the research question have also been included and explained in this chapter so that the readers can get an idea about the approach used.

Chapter 2 (Major definitions) includes the brief description about various terminologies and technologies that are frequently being used in Mobile payment industries. This chapter also tries to explain about various types of mobile payments and actors involved in the ecosystem.

Chapter 3 (Mobile Payment Market) gives a wide view of mobile phone and mobile penetration in the developed and developing countries.

Chapter 4 (Case study of Mobile Payments) covers the various mobile payment models used in both European and Non-European Markets. Countries such as United Kingdom, France, Sweden and Poland are taken under European region and countries such as India, Kenya, Philippines and Turkey for Non-European Market. These case studies cover all the aspects of that particular payment model. After the study, analysis is made and a summary of the analysis is produced.

Chapter 5 (Factors considered for success of mobile payment) gives the detailed information about the factors that are considered to influence the success of mobile payments in particular market. The data are collected and based upon the collected information, a detailed analysis is made by the framework selected and a summary is obtained according to the analysis.

Chapter 6 (Conclusion) tries to answer the research questions from the overall analysis made on the two phases by comparing the two different markets and finally the lessons that can be learnt from the success factors of Non-European market is discussed.

Chapter 7 (Future Research) explains about the mobile payment system that will be introduced in these two markets in the near future. The figure 7 explains the whole structure of the thesis in a diagrammatic way.
Figure 7 Structure of the thesis

Source: Own Illustration
1.5 CONTRIBUTION OF MY WORK

The main contribution of my work in this thesis project is to find out the hindering factors and the possible ways to overcome those by comparing with Non-European market, which have been proved to be successful in mobile payment system. The following methods used for arriving to the conclusion are also considered to be the part of my contribution towards this thesis work,

(i) Initially literature study was done and based upon the study, the methods and ways to analysis the factors were determined.

(ii) Then in the first phase, mobile payment models present in all the countries were selected, studied and analyzed. The results were interpreted.

(iii) In the next phase, several factors that are considered to influence the success of mobile payments is studied and analyzed. In the similar way the results were interpreted and discussed.

(iv) Based upon both of the analysis, the major success factors that influenced the Non-European market are identified. Based upon it, the lessons to be learnt for the European market are sorted out and discussed.
CHAPTER 2 MAJOR DEFINITIONS

2.1 E-COMMERCE

Electronic Commerce or e-commerce was one of the first steps in the evolution of technology bundled with business transactions. It swapped away the old traditional method of exchanging money for the purchased goods with exchange of information between two computers (E-commerce, 2010). E-Business created a new trend in companies of all sizes to handle a new approach in the transaction by reducing the time and costs inspite of distant geographical boundaries and with different time zones.

E-commerce is generally incorporated with the business development where the customer doesn’t have to wait for a long time to purchase a product. They just have to fill up their personal details and purchase the products they want to buy with a click. By doing so, the company doesn’t have to maintain a separate paperwork since the customer fills it up during the purchase (Cooper 2005). The business is also kept open throughout the day by giving the customer the facility to access the company’s site all time and the necessary information can be viewed from the respective sites. This will mutually benefit the consumers and the merchants in a wide angle. Author Gerry Haller, describes “e-commerce is the embodiment of new technology.”

The birth of M-Commerce took E-Commerce to the next step, where people can purchase and transact products whenever they are on their go (IPEC 2000). It also facilitates to purchase offline. M-commerce in recent years is grabbing huge attention from all sectors of people due to its convenience and accessibility.

2.2 M-COMMERCE

M-Commerce is generally referred to as “Mobile E-Commerce” where all the electronic transactions are carried out using a mobile terminal or a wireless device (Zhang et al.2004). The mobile terminals can be mobile phones, Personal Data Assistants (PDA) and any wireless medium that has the ability to perform mobile transactions (Karnouskos S. & Vilmos A., 2004). Though M-Commerce is not fully matured in the market, it is preferred more among the consumers, as it has the potential to make them spend money and purchase the product on the go. M-Commerce can also be said to be a derivative of E-Commerce since the products are bought and sold through the web. M-Commerce is considered to be more advantageous than E-Commerce, because of its connectivity. In M-Commerce, the transaction can be carried out on the go and doesn’t have to depend on the limiting factors such as size and weight if the device is laptop. So nowadays in the day-to-day transaction, M-commerce is more preferred. According to Rajnish et al., M-Commerce is defined as,

“M-Commerce is any transaction, involving the transfer of ownership or rights to use goods and services, which is initiated and/or completed by using mobile access to computer-mediated networks with the help of an electronic device”

The major driving factor for M-commerce in the market is the high penetration of mobile phones. This wide spread of mobile phones have given an opportunity to bridge the gap between the consumer and merchants by using the M-commerce platform. Another factor is the development of technology such as high bandwidth in the internet usage which has led to
the increase in the usage of M-commerce. This driving factor has enabled the users to opt for M-commerce in order to make their business more competitive and a unique one.

There are some unique features of M-Commerce making it distinct from the traditional ones [Müller-Veerse, 2000; Buse, 2002]. They are,

1. **Simplicity**: The authentication of user is simple as it has an in-built Subscriber Identity Module (SIM) where the user details are known to respective Mobile Network Operator (MNO) and further transaction is carried out by entering the Personal Identification Number (PIN).

2. **Ubiquity**: In M-Commerce, the transaction can be carried out at any place independent of the location, if the user possesses a mobile phone.

3. **Accessibility**: It gives an easy access to the data relating to the transaction and other details as the data is in hand.

4. **Personalization**: The person can personalize their data according to their needs.

### 2.3 MOBILE PAYMENTS

The Mobile Payment is a payment method where a mobile device is needed for initiating and confirming a payment. Various terminologies have been used to define the Mobile payments. The more formal formulation is stated by (Huber, 2004),

“A mobile payment is the transfer of an electronic means of payment from the payer to the payee through the use of an electronic payment instrument, which is a mobile device held by at least one participant, which is not bound to any place and sends and receives information over a wireless link”.

The mobile payments are one of the rapidly evolving businesses, changing the way it functions among the consumers and merchants. It has given a new phase of life to the people who have seen mobile just as a device for communication. The mobile payments produce big impacts on both the economies, developed and developing one (Mobile Payments 2012). In the developing economy, it raises the standards, pace of living by displacing the cash economy and increasing the electronic transactions. In the developed economies, the mobile payments changes the cycle of economy and this can be done only by the reach of availability and convince the user by overtaking the traditional payment system (Mobile Payments Survey 2011). Mobile payments are considered to be the next generation technology as it makes the transaction very simple by paying for the goods just from the place where we are.

Future technologies are based on Near Field Communication (NFC) where a contactless method of payment is done, saving a lot of time without having to stand in long queues. The major factors involving in this mobile payment industry are Mobile Network Operators, Financial institutions, Trusted Service managers, Merchants, Consumers, third party providers etc. The mobile payment business model is considered to be complex, as it is new and the existing players in market are on the verge to find out their responsibilities (Mobile Payments 2010).

It is estimated that by the end of 2020, mobile and contactless payments will be completely deployed in both developed and developing markets. It is also believed that a successful
The mobile payment industry’s growth not only depends on the good technology that has been developed but also mainly on the collaboration made by different factors of the same field to further enhance the growth of it.

Figure 8 Mobile Payments Ecosystem

Source: Based upon www.searchengineland.com

2.3.1 TYPES OF MOBILE PAYMENTS

2.3.1.1 PROXIMITY MOBILE PAYMENT:

This type of payment is made using the contactless Near Field Communication (NFC) enabling the customers to purchase or transact for their good at the point of Sales terminal (PoS). This method works in such a way that NFC enabled mobile phones are kept near the NFC terminal and the amount that has to be paid is deducted from their mobile wallet or bank account or from their pre-paid account. This method of payment is gaining attraction among the consumer because of its less time constraints, so that people don’t have to wait in the long queues. It has one important disadvantage, as there are not many NFC enabled mobile phones it will take minimum of ten years to get it implemented in a full phase.

Examples: Cityzi-Nice project in France, Quick Tap in United Kingdom are some of the examples of proximity payments.

2.3.1.2 REMOTE MOBILE PAYMENT:

Remote mobile payment is one of the common mobile payment method used by majority of the population around the globe. This is a type of mobile payment where the customer needs a basic featured phone for transaction and purchase of their products. In this type of payment method, there are two different ways of paying.

(i) In this method, the customer can purchase their products like ringtones, wallpapers, credits for online games etc. through their subscriber or their party provider and get it
billed in their mobile account. These kinds of transaction are mainly carried out through SMS or USSD type of technologies.

(ii) This method enables the customer to purchase the products through their mobile website by using the credit/debit card, PayPal account etc. This type of transaction is carried out by loading their credit or bank account into their mobile wallet account.

Examples: *M-PESA in Kenya* and *G-Cash in Philippines* are some of the payment methods worth mentioning.

### 2.4 TECHNOLOGIES USED IN MOBILE PAYMENT SYSTEM:

#### 2.4.1. SMS/DIRECT MOBILE BILLING:

SMS based payment means paying for goods and other purchased items and the means of sending a message to the merchants from the mobile phone. It is one of the simplest mobile payment systems where transaction is carried out even through basic phones without any need for a smart phone. The payment system works like a usual Short Messaging Service in which the purchaser sends a text message to the provider for the purchased product (Porter Research 2008). The mobile payment provider clears the transaction between the merchant and the customer and once it is done, a confirmation message is sent to the purchaser. The customer’s purchase bill will be added to the monthly phone bill or it will be deducted from the account that has been credited.

SMS based transaction are secure, safe and quick with premium SMS based transactions where the user sends an SMS with a keyword and a unique number to premium short code (Mobile Payments 2012) SMS based payment is a kind of transaction which is very commonly used in South-Asia, Latin America; India etc. as the main transaction made are person to person transfer, cash withdrawal, remittance etc. Porter’s research comments about the SMS mode of transaction as,

> “SMS is not dead. SMS is still the king and will remain so for some time to come”

#### 2.4.2. UNSTRUCTURED SUPPLEMENTARY SERVICE DELIVERY (USSD):

USSD is a protocol that is mainly used in GSM phones to communicate with the service provider. It can be communicated with the service provider by sending a text message. The applications enabled by USSD are menu based by including services like chat and prepay. It is similar to SMS based system but in USSD, the transaction occurs to the specific session only (USSD 2007). USSD is supported in Wireless Application Protocol (WAP) by supporting 182 alphanumeric characters as a single session. This mode of transaction is more secure than SMS based one, as the connections are open for the exchange of data between the two users. This can also be used in conjunction SMS, where the customer sends a request via USSD and a response is pushed through an SMS. The main advantage of this system is that they have a fast communication between the sender and receiver (USSD 1).

This mode of payment is used by *Airtel Money in India* and *MPay in Poland*. 
2.4.3 MOBILE WEB PAYMENTS/MOBILE WALLETs:

Mobile web based payments is used by the consumer by downloading the specific applications to their mobile phones and making payments through the specific application. This is also generally referred to as ‘Mobile Wallets’ as the account details of a user is connected to the mobile. This works on the Wireless Access Protocol (WAP). WAP is a technical standard protocol developed to transmit the information through a wireless mobile network. In this payment system, the wallet is linked to the bank account or to the credit/debit card of the user. When a purchase is done, the amount is deducted from the mobile wallet which is connected to the account. The security concern is double folded in this payment system when compared to that SMS based payment system. Phone manufacturer Nokia offers Wallet service in the phone to make online payments a safe and secured one.

This kind of Mobile wallet payment system is gaining momentum in European and North American market, as E-retailing companies like PayPal, Google Wallet are making use of this concept to make transaction, which makes them a new entrant into the mobile payment ecosystem (Portio Research 2008).

2.4.4 CONTACTLESS NEAR FIELD COMMUNICATION (NFC):

Near Field Communication is considered to be the future of mobile payments, as the research about this is still going on (NFC 2010). This is a kind of communication where the NFC enabled mobile phones are kept near the Point of Sales (PoS) terminal and the transaction is completed. The total transaction gets completed soon and the consumers don’t have to stand in big queues to pay their bills. For paying through this, a merchant specific or provider specific application is downloaded and the amount is loaded into it and has a link with the user’s account or credit/debit details. The transaction is well secured as the distance between the terminal and mobile phone is less than a meter and the data’s between them are highly encrypted. This contactless based payment system is currently deployed in Japan, North America and in Western Europe. In rest of the parts, pilot projects have been implemented, gaining the customer’s satisfaction to implement it in a large scale.

Cityzi Nice project in France and Quick Tap in England are some of the cases that are being introduced.

2.5 PLAYERS INVOLVED AND THEIR ROLES IN MOBILE PAYMENTS

The mobile payment market is not only dominated by financial institutions and credit card companies, but depends upon the telecom operators which play a vital role in the growth of mobile payment. The network operators are also one of the dominating players in the industry, as they form the backbone of the customer database and at the same time they possess a high threat to new market entrants. In order to maintain a healthy competition among the competitors, the new entrants should have a good knowledge about the strength and weakness in parallel with the consumer needs.
2.5.1 MOBILE NETWORK OPERATORS (MNO’S):

Mobile Network Operators are the ones who provide telecom service to the mobile phone subscribers. They form the backbone of the subscribers for the mobile payment system, as they have all the information about the customer, their data plans and other details etc. (Lai et al., 2000). As they form the centralized one, all the transactions have to pass through their network for further billing. MNO’s has the access to authorized payments on both the supplier and demand side. So it forms a source of revenue for the mobile phone operators, where they became an attractive value proposition factor for achieving the revenue from the investments in the infrastructure development of the company.

The MNO’s also have the authority over the SIM, which helps them in further enhancing a strong hold for creating their own mobile payment system. MNO’s can make use of this opportunity to introduce premium SMS based transactions that will help them to stand out from their competitors. In this, MNO’s doesn’t have to depend upon the banks and financial institutions and there won’t be hopping between the acquirers, network and other service providers, thereby helping to reduce the service cost in large extent (Porter Research 2008).

Example: M-Pesa in Kenya is an Operator centric business model, where the network operator Safaricom controls all the transactions. Premium SMS based transaction is used and a separate SIM is used for using this facility. M-Pesa is a system where the customers can change the real money into virtual money and can send it to another person, where that person can take it as real money. M-Pesa has more than 4 million subscribers.

2.5.2 FINANCIAL INSTITUTIONS:

Financial institutions are the other dominating players in the mobile payment system. In general, they take a defensive play against the system, as they follow, wait and watch strategy, as their primary focus is to maintain the customer’s current account and their trust (Saji/Aditya). Because of tough competition in the market and decreasing opportunity in the core business, financial institutions are in the verge to find a unique business model to fit into the market. These financial institutions have greater added advantage i.e.; the customer’s bank accounts and loan payer who used to access the banking facility through cheques and credit cards (Mobile Payments 2010). They can easily make the customers use the mobile, to pay the loan and remitting the money by using their own mobile payment system, which will help them to ensure a pre-eminent position at the center of the loop.

Example: Barclay’s Pingit is one of the examples of Bank centric business mode, where there is a person-to-person, balance check, remittance; deposit facilities are available through mobile phones. This model doesn’t have to depend upon any particular mobile network operator and any customer can have access to it, provided the customer should have a bank account in Barclay’s Bank.
CHAPTER 3 DEVELOPED VS DEVELOPING COUNTRIES

A country is said to developed or developing based on the criteria of the economic development called as Gross Product per Development (GDP), income per person, level of industrial development, volume of export and import, amount of widespread infrastructure and general standard of living etc. There are no absolute criteria to define whether a country is developed or not. Based upon the above factors, in general, majority of the countries in Europe, United States of America, Japan, Singapore etc. are considered to be the developed countries while rest of the countries in Africa, South Asia, Latin America, Eastern Europe are considered to be having a developing economy.

For our thesis project, countries from the European Market that are considered to be developed like France, United Kingdom, Sweden and Poland are taken and in the similar way, developing countries like Kenya, Philippines, India and Turkey are taken into account. In our perspective, the former countries are developed one, as they are in the implementation stage of future technology called Near Field Communication (NFC) whereas the developing countries are still using the basic mobile payment and mobile wallet system.

3.1 MOBILE PHONE USAGE INDEX

The necessity for mobile phone is increasing day by day; nowadays it is common to see a teenage girl carrying a Blackberry to bed along with her or farmer in Africa using the mobile phone to check the current price of the crops. The need for the mobile phones is increasing day by day with the evolvement of mobile payment system and contactless technology. This kind of payment system has kindled the consumer to purchase mobile phones in order to go along with the flow of technology. It has been estimated that currently the mobile penetration around the globe is about 80% (Mobile 2010) that is 5.6 billion people have adapted to the mobile way of life. There is a variation between the European and Non-European market as the penetration of smart phones is more in European market than the basic mobile phones.

The Western Europe is considered to have the high usage of mobile phone penetration, reaching 130%, where people having more than two mobile phone connections can be seen. This is also considered to be one of the major factors for influencing contactless NFC based payment system. European economy is considered to be a developed one and the penetration rate of smart phones is more. According to Netsize Guide survey, out of 44% of the total smart penetration rate in Europe, United Kingdom is considered to possess a high percentage of smart phone penetration by constituting 52%, with France contributing to 40% and Sweden mounting to 35%. Poland has a less penetration of smart phones of 14% in the global market (MasterCard 2012).
The scenario of mobile phone penetration is different in Non-European market due to the Socio-Economic conditions of the people. The overall usage of mobile phones in these regions constitutes up to 47% by the Asia-Pacific region users. India is considered to be the biggest contributor to this, with 76% of mobile subscribers. Next comes, Kenya having a share of 63% of mobile phone users. The mobile phone usage is booming drastically in Africa, as it is evident that it has increased 20% annually in the last five years (Mobstats 2011). Currently the usage is about 65% due to the unbanked population, using their mobile phone as Point of Sales.

The same scenario is present in Philippines, where the people are mostly emigrants and unbanked people, depending on the features of their mobile phones, to make their banking transactions. The market is same in India but the penetration rate of smart phone is increasing in the recent years. Previously only 10% of the youth was reported to have smart phone and the rest 90% possessed feature phone but now the trend is changing. In the Middle East, Turkey has healthy usage of mobile phones and similar ratio when compared to that of India and other developing markets (Smartphone 2011).

![World wide mobile phone growth](image)

*Figure 9 Mobile Phone Penetration around the globe*

<table>
<thead>
<tr>
<th>Region</th>
<th>Smartphones</th>
<th>Feature phones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia-Pacific</td>
<td>1,15</td>
<td>605</td>
</tr>
<tr>
<td>Europe</td>
<td>153</td>
<td>1 9</td>
</tr>
<tr>
<td>Africa, Middle East</td>
<td>37</td>
<td>172</td>
</tr>
<tr>
<td>North America</td>
<td>109</td>
<td>63</td>
</tr>
<tr>
<td>Latin America</td>
<td>28</td>
<td>19</td>
</tr>
</tbody>
</table>

*Figure 10 Smart Phone and Featured Phone Penetration rate*

*Source: Sarah Perez, [www.techcrunch.com](http://www.techcrunch.com)*
3.2 MOBILE PAYMENT PENETRATION RATE

Mobile payments are considered to be at the tipping point where without any denials they are becoming hot or even hotter than any recent technology. The mobile payment penetration rate is more in Non-European market when compared to European Market due to the financial and economic conditions of the people. Gartner research had predicted that there will be 212.2 million m-payment users in 2011 (up from 160.5 million in 2011), m-payments will total US $171.5 billion in 2012 (up 61.9 percent from $105.9 billion in 2011) (Mobithinking 2012). This number of mobile payment users would represent merely 2.1% of all mobile users worldwide, which suggests there is still much room for growth. Especially regions where there is a lack of alternative payment methods are seen to have strong potential.

Most of the people in these regions don’t have access to basic banking facility, so they have to depend upon an alternate system which provides similar services just like the ones provided by the banks. This led to a mobile payment which gained huge popularity among the people from rural areas. This system was also way cheaper than the traditional payment method. But it depends to the operators to define specific strategies, to specific local communities since the same business models don’t bring success. Added to it, it involves only a basic mobile phone with SMS method of payment and was easy to use. So, the mobile payment penetration rate started to increase from 2007 onwards in Kenya.

This scenario is applicable for Philippines and Kenyan market, where people have got them adopted to this way of mobile transactions. With respect to Indian market, there is equal distribution of people with banked and unbanked facilities. Instead, the rural people have started using mobile payment method and it has mounted to 8% of the total rate where still many researchers predict that India has large potential in mobile payments (MasterCard 2012). Turkey has similar strategy where the penetration rate of 3% as the focus is on the contactless based system and all such systems are in development phase.

In European market the condition is totally different where these countries have good banking infrastructure and these forms a major hindering factor for growth of mobile payments. The usage of mobile payments in these regions is very less and this might be due to lack of standardization among the actors and absence of clear business models according to local market. United Kingdom and France have the highest mobile payment usage among the European countries selected and it is seen that the consumer readiness index is more (MasterCard 2012).
Figure 11: Mobile Payment Usages across the selected countries
CHAPTER 4 CASE STUDY OF MOBILE PAYMENTS

4.1 EUROPEAN MARKET

In this section the case studies of mobile payment products present in the different countries of European market are discussed. The market here is fragmented with a lot of competitors competing for their products to reach the leading position. The country is seeing a revolution in mobile payments by using contactless based mobile payments.

4.1.1 UNITED KINGDOM

The mobile payment in UK has seen a better development than rest of the European counterparts in terms of the technological and innovative business models. There are different kinds of mobile payment method where in a few scenarios; there is no active involvement of Mobile network operators and financial institutions etc. The various types of Mobile payments systems present in the High Street market and the involvement of the actors in the payments methods are briefly discussed.

PAYFORIT: (http://www.payforituk.com/)
Payforit is one of the innovative collaboration between all the major mobile network operators Vodafone, three, T-Mobile, Orange, and O2. This system more or less acts like a gateway system between the user and network operator. This is basically a web based service mainly targeted for micro based payments. Transactions less than 10 pounds can use this kind of service.

The system works in such a way that either a credit card or prepaid account is used to make a payment by pressing the ‘Pay Now’ or Subscribe, where the payment request goes directly to the respective mobile operator for validation. After the payment, the amount will be deducted from the credit card account or added in the monthly phone bill.

There is no need for a registration, as the user using this method, just needs to type in his/her mobile number. Payforit automatically detects your number from your mobile network as soon you reach the payment page. No downloading of any specific Payforit application is needed because when a user browses the internet, it can be found as an option for making the payment.

There are no specific charges for using this application. Only the rate of transaction that you have to pay is debited from your account. Apart from that no extra transaction costs are made.

RINGGO MOBILE: (http://www.ringgo.co.uk)

RingGo is the first mobile based parking system developed by Cobalt Telephone Technologies (CTT), a leading automated business process solution provider in UK. They are mainly concentrated on providing service to public transports, capable of managing and handling million pounds of transactions every year. This service is offered all over UK and
Oxford is considered to be one of the most important cities in their project as it has more than 7000 transactions. This payment method works such that the credit or debit card is enabled into their phones by downloading this application. Interactive voice calls and text messages are used to make the payments complete. Credit card providers such as Visa, MasterCard, Switch, and Delta are the financial institutions involved in making the payments.

The unique feature of this payment method is that it notifies the user with a text message, if the parking time expires and allows the user to extend the time, by automatically deducting the money from the credit/debit card account thereby providing an easy, convenient and user-friendly method of parking system.

The registration process is needed, as the user fills up his/her credit/debit card details so that it can be used in future. Special charges are charged for using this application.

RingGo is also getting into the business of cashless payments where person to person money transfer is enabled.

4.1.2 FRANCE

The mobile payments in France have been taken to the next level by introducing a new technology NFC based mobile payment solution. The recent project named Cityzi, Payez etc. In collaboration with all major MNO’s, banks, technology providers and merchants is creating a wave among the consumers in the French market. Under this section, two basic mobile based payments and a NFC based payment method are discussed.

PAYBYPHONEnote

Paybyphone is a new innovative mobile based parking system introduced by Parkeon and Parking operator Vincipark SA. It was first deployed in Issy-les-Moulineaux, France by the year of 2009. The application of tariff, back office operations and enforcement are all controlled by Parkeon Parkfolio networked systems thereby linking all the Parkeon Pay and the display machines to the central PC.

This project is also partnered with the credit card providers such as Visa, MasterCard etc along with the mobile payment service provider SAS. The system is encoded within the mobile phone account by filling up the credit/debit card details and the information is stored, so that it can be used in the future. Added to it, a user’s vehicle registration number and the type of vehicle have to be filled up.

The whole system is secured through digit security code called as CVV present at the back of each payment card. The registration is free and its pricing is based upon the SMS cost.

The main advantage of this system is that it has a better ergonomics, it is possible to buy a ticket from a remote place, and parking fee is paid only for the parked time etc. All these features are creating demand among the consumers.
**BUYSTER:** (https://www.buyster.fr)

Buyster is a product developed by three main French mobile carriers Orange, Bouygues and SFR teaming with an IT company Atos Origin to start a new electronic payments system. The main aim behind Buyster is to become a key payment player in e-commerce and the leader in mCommerce in France.

Buyster offers the possibility of associating bank card with his/her mobile phone number. From now on, it will be possible to pay over the Internet using a fixed or mobile phone even without releasing bank details. Each transaction undergoes double security, firstly by a secret code and secondly by mobile phone.

Buyster is available free for all mobile devices, regardless of the operator. Buyster uses WAP based technology which is more secure as all operations have double security and banking information will not be sent over the Internet. For completing the transaction the user has to enter a six digit PIN code.

Buyster is more practical, as completing payment becomes simpler, especially for m-commerce kind of applications.

As a payment firm approved by Banque de France, Buyster also makes a commitment to preserve the privacy and confidentiality of personal information.

**PAYEZ MOBILE:** (http://www.payexmobile.com/)

Payez Mobile is considered to be one of the largest trials made on NFC based contactless payment method developed by four major network operators i.e. Mobile Network Providers: Bouygues, Orange, NJR Mobile and SFR, six major banks: BNP Paribas, CIC, Credit Mutuel, Groupe Caisse d’Epargne, La banque Postale, Societe Generale, LCC, card Providers such as Master Card Worldwide, Visa Europe and technology providers such as Gemalto, Ingenico, Inside Contactless, Oberthur, Pole-Tes and Sagem Monetel.

The main aim of this solution is to simplify proximity payments by providing customers with a fast, handy and safe telephone-based tool for their daily transactions. The Payez Mobile payment application is based on bank card technology, installed in the customer's mobile phone SIM card and on NFC technology.

The first pilot project was initially taken in cities like Nice and Strasbourg and have been planned to extend all over France. Once the people are registered, the users will be getting a NFC enabled mobile phones with choice of their own operators.

This mode of payment is mainly used to make micropayments less than 20 euros without enabling PIN security feature and if the transaction exceeds 20 euros, extra security feature can be enabled in it.

The main advantages of this application are that it is more fast, secured and convenient than the traditional mode of payment. This had attracted a large population of people and tourist as it is one of the most innovative and new technology of its kind to be introduced in France.
4.1.3 SWEDEN

Mobile payments in Nordic regions especially in Sweden has always have seen a substantial growth when compared to the rest of the Europe. By the year of 2009, Sweden set a record of 298 numbers of non-cash transactions per inhabitants. Apart from it, the government and other banking institutions are taking a number of driving steps to introduce the adoption of new electronic payment system.

MOBILL (http://www.mobill.se)

Mobill Scandinavia AB is private equity-backed software and Services Company within M-Commerce started of its first service with Mobile parking. After the success of it Mobile parking, it started to open its market for various application like issuing tickets for public transport, vending machine solutions and point-of-sale environments etc.

Mobill’s technology includes Mobill Service Platform, Mcode tickets and coupons where the sent SMS are scanned and validated from the mobile phone screen at the point of redemption.

Mobill provides several of application and in these case studies, a particular application is studied. Mobile parking is taken because it is their first product and first mobile based parking facility launched in Sweden.

The mobile parking used by Mobill is of through SMS based payment for the user with a basic featured phone and parking app for the smart phone users. The main feature about this system is that it doesn’t need any pre-registration process.

The service is advertised in the parking sign boards and each sign board is identified by a unique zone numbers. The user has to send a SMS to a particular number with the unique zone number and vehicle license number. When the message is sent, the mobile network directs to Mobile Service platform.

The M-Parking application in the MSP scans the message and once after the identification of the exact parking company, the tariff and the exact location, the applications looks for that area’s parking rules. After verified, it is then sent to the respective network operator. The exact fee is taken based upon the network operators charges. The payment can be made through carrier billing or by pre-paid account. Payments also can be made through credit cards but the user has to store the necessary details for later usage.

Other unique feature about this model is that it sends a reminder message to the user before its gets over where the recharge of the parking can be done instantly.

Mobill’s parking app has the feature of finding out the cark from the maps, and also can easily track where the car has been parked. This app is available only for the users with android or IPhone based phones.
**WyWallet:** ([http://wywallet.se/](http://wywallet.se/))

WyWallet is a mobile payment service developed by 4T, a company formed by the joint venture from Swedish telecom’s Telia, Telenor, Three, and Telia. It is aimed to provide mobile wallet service to about 97% of mobile users in Sweden. It’s still in a development phase and full deployment is expected by end of 2012 and the first pilot project was tested on July 2012 in Visby, Stockholm.

The major functions of this payment method are

- Person to person money transfer just by knowing their phone number.
- Load all Swedish pre-paid directly in the app.
- Pay SMS purchases (local traffic, parking, ringtones, etc.).
- Recharge of airtime offers
- Make purchases in other apps.

The Registration process has to be done before using this payment method. For doing it, the application has to be downloaded from the respective site and once it’s downloaded, the application has to be linked with the credit/debit or pre-paid cards. Automatic recharge feature is one of the unique features in WyWallet.

Smart phone users are the prime targets of this service. The users who don’t possess smart phones also can use this service by doing a separate registration where the payment method will be completely SMS based.

Due to the recent regulatory changes in the Swedish law, previous mobile payment model introduced by Telia as Telia Mobil Plånbok was synchronized with the mobile phone accounts to make SMS based payments. The law enforced that SMS payments should be made from a registered organization. Later due to the partnership of major network operators, Telia Mobil Plånbok was merged with WyWallet.

### 4.1.4 Poland

The mobile payments in Poland have a different situation when compared to the rest of the Europe. As Poland constitutes to the Eastern Europe, the unbanked population is higher than the people with banking facility. As Poland is considered to be a developing economy, more banks and network operators are keen to open their operations in the country, apart from that, network operators and other service providers have started the pilot project of providing banking facility to the unbanked population by using the mobile payment technology.

**mpay:** ([http://www.atm.com.pl](http://www.atm.com.pl))

Mpay S.A founded in 2003 is a subsidiary company of Polish IT and communication technological company ATM S.A capital group. Mpay has taken it to the next level of cooperating with the mobile network operators, banks and other major financial institutions for providing cash free payments to the society. By 2007, mPay S.A along with Polkomtel S.A
launched its first service in the Polish market by letting the customers to make the payments through their mobile phones.

Mpay enables the customers to carry out business to business, business to customer, Person to Person and Person to machine transactions.

Mpay payment methods use the USSD method for carrying out the transactions. It does the transaction through two ways of communications,

a) Text: for carrying out in the text based, USSD method is implemented.

b) Voice: It is carried out using the IVR system.

Registration is needed and each transaction is carried out by filling up the PIN code, which can be set by the user depending upon their needs. The end users don’t have to pay any charges and the merchants receives the commission during the transaction.

The main actors involved in mPay are the mobile network operator Polkomtel, Polish bank Citi Handlowy and mPay, an acquirer and developer of the mobile payment method. Customer’s Citi Handlowy bank accounts can be linked with their mPay account where they can be used for the transaction. Recently, mPay has partnered with MasterCard Visa where the user can link their card details with mPay and pay for the goods they are purchasing.

Mpay is responsible for

(a) It manages the whole system and arranges for the settlement that has to be made among the mobile network operators, banks and merchants.

(b) It is responsible for building the network among the merchants. Mpay takes care of contacting the merchants for accepting their mobile payment system.

4.2 NON-EUROPEAN MARKET

4.2.1 KENYA

M-PESA: (http://www.enterprise.vodafone.com/)

M-PESA (M for Mobile and PESA for Money in Swahili) is a mobile payment transfer service offered by the network operator Safaricom which is affiliated to Vodafone. M-PESA was initially developed by Vodafone in support with Sagentia Technologies. M-PESA is considered to one of the successful business model in m-commerce as it provides mobile payment transfer for unbanked people with a simple SMS based transaction. This model works on a simple concept, where even an unbanked customer can send money from person to person, from person to business, cash withdrawals, loan repayments etc. by just having a basic mobile device and M-PESA account.

The system works in such a way that a customer without bank account can access this payment method by opening an M-PESA account with Safaricom outlets or with the M-PESA agents. The customer has to be a Safaricom user.
The registration can be done by showing valid id proof like national ID card, passport etc. Once the customer registers, an M-PESA embedded SIM kit is provided to the user, where they can find the in-built application for accessing M-PESA.

This application works even on the basic mobile devices where there is no need for smart phones. The user can load their money on to their mobile wallet by purchasing an ‘e-float’ in exchange for the money to be deposited into the wallet. This is done with the registered Safaricom agents. When the money is deposited, it is confirmed with an SMS to both the customer and to the agent. For withdrawing the cash from M-PESA account or if unregistered customers want to get the cash, the customer has to make an electronic deposit to the M-PESA agent, who will in turn exchange with the money.

The transaction message between the two users is highly secured with the encrypted data, so that eavesdropping can be avoided. At present IBM Global Service is running the whole system on behalf of Vodafone.

The main actors involved in this mobile payment system are the network operator Safaricom. Safaricom and Vodafone have split revenue deal thereby helping the Safaricom to build a strong customer base and increasing the revenue in time. The Safaricom has made a tie up with Commercial Bank of Africa (CBA) where the M-PESA accounts are held like a current account. It was accumulated as a single current account and after the turn over made by the M-PESA; the account was distributed among the different region of bank. But CBA was not at all affiliated to the M-PESA, as they are just another partner. The figure 12 represents the actor and their roles in M-PESA ecosystem. This diagram also gives a clear idea about each role towards their customers.

![Figure 12 Actors involved and their activities for M-PESA](source: Own Illustration)
Eazzy 247 is Equity Bank’s mobile banking product launched in September 2008 where consumers can perform online banking access to accounts and other banking services worldwide by using their mobile phone.

The initiative of this payment method is based upon the M-PESA infrastructure. Safaricom is partnered with Eazzy 24/7 for using the platform. Eazzy 247 has a well-structured framework in financial and non-financial transactions. Added to it, it also has a unique feature where utility bills can be paid from the customer’s mobile phone.

This payment model uses SMS based payments which makes it available to all classes of people by having the basic registration process and secured PIN for completing the transactions.

The major actors of this payment model are Safaricom, the dominant network operator and Equity bank initiating this model.

The pricing is designed in such a way that the transfer of money between the Equity bank accounts is subjected to KES 50 (EUR 0.50) and transfer to other bank accounts is subjected to around KES 150-200 (EUR 1.50 –EUR 2.00).

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The Indian economy is considered to be second fastest growing economy after China by making a yearly turnover of USD 1.3 trillion dollars. This growing economy has paved way for the mobile payment solution providers, as it is been estimated that by end of 2015, the number of mobile phone users will be around 95%. This is more compared to that of the people without bank accounts, as only 59% of the urban people have access to bank accounts. All this factors led to a development of a mobile payment solution where it can overcome the banking problem to rural and lower income people as mobile phone penetration is more than the banks.

**AIRTEL MONEY**

Airtel is the third largest mobile operator in the world. It is also the largest cellular operator in India with about 180 million subscribers till the end of March 2012. By April 2012, Airtel launched the India’s first mobile payment system called “Mobile Money” soon after Nokia shutting down its mobile payment service “Nokia Money”.

The major positive part of this system is that a basic handset is needed for using this, and it doesn’t use any GPRS connection for carrying out the payment. This new mobile payment platform allows the customer to use mobile phones to pay, instead of using cash or debit/credit cards. It is more or less like recharging our mobile wallet and using it to pay for our electricity and phone bills, book online movie and train tickets, pay for our supermarket, etc.

Airtel has partnered with Infosys, a global leader in consulting and technology as their technology partner where their main aim is to provide wallet management applications. This application works on the WalletEdge Platform, where all the process are delivered through a private cloud involving consumers, merchants, telecom operators, banks, government
organizations and enterprises to do to the financial transaction efficiently. Airtel Mobile Money uses USSD based payment system where all transactions are carried out with simple text messages and provides secured and encrypted message on both sides.

Airtel is also partnering with other biggest financial institutions such as SBI, to extend their service to the banked population, where consumers holding SBI bank account can carry out their transactions through their mobile devices.

Airtel Mobile Money is the first commercially launched mobile payment system in Gurgaon and has been planned to implement in 300 or more cities in coming years. The figure 13 clearly explains about each actor and their role in the Airtel Money mobile wallet system. This diagram also explains from the supply side to demand side in the Airtel Money ecosystem.

![Figure 13 Actors involved and their activities for Airtel Money](Source: Own Illustration)
**PAYMATE:** ([http://www.paymate.co.in/](http://www.paymate.co.in/))

PayMate is a third party mobile payment solution provided by a Mumbai based wireless transaction platform provider founded by entrepreneurs Ajay Adiseshann and Probir Roy. PayMate is funded by Venture Capital Firms Kleiner Perkins Caufield & Byers, Sherpalo Ventures and Mayfield Fund.

It is a like a mobile wallet system linked to a bank account, prepaid account, or to a credit card account. The money is debited from the mobile wallet account.

PayMate has collaboration with all major network operators, financial institutions, merchants, technology providers to promote their product where the end users don’t have to pay any extra cost for using this application.

This system uses SMS and Voice based confirmation secured by a four digit PIN to complete the transaction.

As person to person money transfer is gaining popularity among the unbanked population, PayMate introduced a payment method called ‘Green Money Transfer’ in collaboration with Corporation Bank and Tata Indicom to gain more attraction among the consumers.

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**4.2.3 TURKEY**

Turkey is considered to be one of the fastest growing countries with respect to its innovative payment technologies. After the economic crisis of 2008, it is evidently seen that financial institutions play a pivotal role in the development of mobile financial services. The country at present is in the next stage of development with their NFC technology and all actors putting all their effort into it. In this section, a basic payment model introduced by one the major actor is discussed

**TURKCELL:** ([http://www.turkcell.com.tr/](http://www.turkcell.com.tr/))

Turkcell and Garanti Bank have previously introduced the simple mobile payment system and in order to take it to a next stage, NFC technology is used.

The pilot project was first launched in 2008. For pilot phase, the Turkcell and Garanti employees were provided with NFC phones and merchants were provided with the terminals to accept the payment. The pilot project is part of the “Pay-Buy-Mobile” initiative of the GSM Association (MPW 101, 108), which wants to support the SIM card-based NFC technology. It is the first pilot project of such kind.

The technology providers Giesecke & Devrient, E-Kart and Venyon are also part of this pilot project.

The major function of this model is to provide Mobile Point of Sales (PoS) payment method using NFC based technology. The registration initially for the pilot phase is free of cost and once the customers are registered, they are provided with the NFC enabled SIM kit.

Various projects relating to NFC based payment methods are emerging and recently the major network operator Turkcell has introduced Cep-T Cüzdan, the most advanced mobile wallet, where fourteen major banks have singed to work together which is one example of contactless payment growth in Turkey.
Philippines is considered to be one of the most developing markets in the field of mobile payments. The number of mobile phones users has been estimated to reach 90 million by the end of 2012, in a country with a population of 94 million: another major reason for the increase in the mobile phone payments is the fact that it has surprising performance of SMS message. In average, around 1.8 million messages are sent every day. Philippines is also called as ‘Text Capital of the world’.

**G-CASH**: (http://www.gcash.globe.com.ph/)

Globe Telecom often referred to as Globe is one of the leading mobile network provider in Philippines. It is also responsible for providing mobile, fixed line, mobile broadband connection. It introduced G-Cash by 2004. G-cash more or less works on the principle of M-PESA where it provides financial help to the unbanked people by making use of their mobile phones as mobile wallet. By 2005, it had approximately 2.5 million customers.

Globe Telecom by 2010 made another remarkable move by partnering with Boku Inc., a global leader in Mobile Payments. By partnering, it made G-Cash to be used outside Philippines and purchase Boku merchant network’s online goods. Boku partners with about 1000 merchants covering 190 carriers worldwide.

The major service provided by G-Cash is,

- Over the Air prepaid recharges
- Banking facility to the unbanked people in the form of Mobile Wallet
- Cash Withdrawal, remittances, cashless purchasing in the retail stores.
- Person to Person over the air credit transfers.
- International transfers and online purchasing
- Automatic deposit from the employer payroll.

The transactions are generally SMS based. For accessing the G-Cash Menu, the customer has to download it. They are carried out using the message structures. A SMS has to be sent, and once the confirmation is got, the G-Cash is ready to use. For the initial registration process, a valid ID is not necessary.

For a customer to access their account number the mobile number of the customer can be used as their account number and they can be used to withdraw money from the G-Cash accounts in an ATM machines.

Globe Telecom is partnered with many other international banks around the globe to provide internal remittances as there are a lot of Filipino workers working outside Philippines.

**SMART MONEY**: (http://www.smart.com.ph)

Smart Communication is another large mobile network operator in Philippines providing mobile payments to the unbanked population. It started its first cellular service in 1999 with GSM service. As Globe telecom occupied the large population, Smart Communication
was forced to come up with an innovative model to compete with them. So they came up with an innovative model of the prepaid system where the recharging was even less than 4 cents.

They introduced Smart Money in collaboration with Bancode Oro (BDO) which helped them to be relieved from the banking regulator (BSP) and the Anti-Money Laundering Council (AMLC) rules because BDO will be taking care of the transactions of Smart Communications. This helped them to have the daily transaction of about P50,000 at any one time (US$950) whereas it was only P10,000 (US$180) for Globe Telecom.

The function of this payment model is similar to that of G-Cash and the transactions are done with a preinstalled menu called as Smart Menu. When the customer wants to access the Smart Money, they have to go to Smart Menu first.

First registration is done through Smart Menu or by SMS. For using this service, the customers have to obtain a Smart Money Master Card; a valid ID has to be submitted to the nearest Smart Wireless center. It will take about 7 days to obtain such card. But recently in order to simplify it, once the registration is done, a 16 digit Smart Money number will be generated, which can be used instead of a Smart Money Master Card.

It’s basically a Debit Card, so it can be used to withdraw money from any account and at the same time, online purchase can be made. It has a security feature where it has an unlock facility where it prevents the user from unwanted online purchases. If a customer doesn’t use the phone for more than 10 minutes in the on-line portal, it automatically gets locked. For unlocking the customer has to pay Php 2.50/unlock.

4.3 ANALYSIS

In the analysis of Phase I, based upon the modified morphological box for determining mobile payment characteristics, the data’s are filled up according to the payment models. Based upon the information collected from each case study, they are filled in the box. This differentiation is mainly done to know the exact characteristic behavior of mobile payment model present in each countries and how different they are from their counterpart. The meanings of symbols relating to it are clearly explained in the figure. The colors indicated for each country represent each factor and their characteristics.
The meanings of the symbols relating to it are shown in Figure 4

### 4.3.1 SIMILARITIES

In Phase I of the results, it can be clearly seen that existing mobile payment system in both European and Non-European markets are account based (H2) and for this pre-registration (E1) process is one of the mandatory task. From the table it can also be seen that for both the markets, micropayment (A2) level of payments are most prominent and a common strategy for mobile based payment. It can be seen that consumers in both the markets are very concerned about the security features even if it’s for micropayments by having pre-registration check. This is mainly because it is more desirable to make efficient and repeated payments of small amounts and also reduces the computational and communications overhead, whereas the Macropayments have a less transaction overhead making it impossible to make repeated transactions.

It is evident, that consumer is more comfortable with the SMS based payments (F1) and remaining set of people are using to transfer the data through internet enabled phones (F2). With respect to the figure it can said that SMS is more preferred in the non-European markets because of constraints of mobile devices and the ubiquity of SMS. In European markets, the reason is of two fold, one major reason is that it’s very simple and easy to use and another reason is that mobile Internet is commonly available and activated on user
It is also expected that Web/WAP based access to mobile account for about 80 percent in Western Europe by 2016 (Gartner 2012).

It is also clearly seen that the key players in both the markets introduce the payment models, so that there won’t be a need for change in their mobile devices, thereby making use of the existing mobile devices they have. For the transaction cost, it is seen that most of them prefer it to be as a Separate fee (J4) in both the markets.

### 4.3.2 DIFFERENCES

The Table shows that even though there are similarities between the two markets, the difference among them is large. The first difference that can be spotted out is that in European markets most of the service is limited within Regional (B1) or National level (B2), but in Non-European market, majority of the cases are having an International (B3) service. This is mainly because of the consumers in these market get international remittances as most of the people using these services are immigrants or working class of people living their family in their home country.

Other major thing that has to be noted is in the payment scenario. In the Non-European countries, consumer prefer P2P (C1), Prepaid top-ups (C7) and paying their utility bills (C6), but whereas in European market P2P is less preferred among the people, and they give more importance to Point of Sales (C2), Ticketing (C3) and in Parking /Vending machines (C5). Along with this Added to it the Electronic cash (I1) is the most preferred option of storing the money but in the European market all the models, are by loading the credit/debit (I3) details into their account.

The major reason for big difference between both the markets is that in the European countries, the use of internet based banking facility is very common, and majority of the banking services through mobile devices such as PDA’s, WAP enabled phones etc. Along with it, the traditional card based payment method is more convenient and secured than the mobile based payments, where a long registration process has to be undergone. So, the consumers in these markets prefer to opt for mobile payments as a value added service to their daily activities. But in the Non-European market, the situation is totally different, where the user in these markets doesn’t have excellent penetration of card payment system or even good banking facilities. Consumers tend to make use of mobile payments as one of the basic necessities of their day to day life. This makes the usage of P2P transfer more when compared to the value added services.

Another notable difference is the payment service providers. In the non-European markets, majority of the payment models are introduced by the mobile network operators (D1). If collaboration is made, banks and other third party providers tend to make collaboration with the existing mobile payment model. For example, Kopo Kopo is a platform running on M-PESA, where a consumer can at anytime and anywhere can request a settlement directly to a bank account or M-PESA account. This is mainly because the consumers totally rely on their network operators than the financial institutions or banks. This is again because the user’s information database is largely with network operators than with the banks and financial institutions, because of the poor banking facilities. Apart from this, mobile network operators have established good market share and brand recognition among the consumers.
The European market is not same in this scenario, as the market is equally divided among the actors, with no player taking the dominant position. It can even been seen from these case studies that the payment providers is equally divided among the Mobile Operator (D1), Banks (D2), Collaborative model (D3) and new actors (D4) involving in this market. This is because of presence of large obstacles to develop a non-banks or card-less mobile payment inspite of high proportion of mobile subscribers. Added to it, developing a heterogeneous competition is a very limited region because of the low amount of subscribers or paving a way to a new payment method by leaving a matured and highly developed card payment system.

### 4.3. SUMMARY

In the current market situation, because of high penetration rate of mobile devices and credit/Debit cards makes a possibility of introducing mobile payments along with the financial and banking solutions in both European and Non-European market. It can be summarised by saying that the matured traditional card based market are challenged by the entry of mobile network operator and other new third party payment providers. Mobile network operators have started to see mobile payments as their new profit sources because of the long term price competition, but the fact is that mobile network operators alone can’t gain the trust of consumer fully when it is concerned with the developed markets like EU.

From the analysis of similarities and differences, it can be summarized that there is great need for convergence of financial and mobile networks at this moment, so that an integrated model of traditional and electronic commerce business model can be developed. This can eventually led the customers to use mobile payments as key for mobile while there is a roaming between the different infrastructures with different networks. So, it can be said that the development and dispersion of mobile payments is mainly based upon partnering between the mobile network operators, financial institutions and other third party payment providers through a proper integration of various networks and services along with a healthy competition and regional development.
CHAPTER 5 FACTORS CONSIDERED FOR THE SUCCESS OF MOBILE PAYMENTS

5.1 DETAILED DESCRIPTION OF THE FACTORS

The seven factors such as Socio-economic conditions, pricing, technology and hardware used, actors involved, marketing strategies, consumer acceptance and legal regulations present in the eight different markets are studied in detail. This topic not only deals with the selected case studies but also includes the overall scenario present in these eight countries. These factors are considered for analysis in the chapter 5.2 which will help the author to get a conclusion on the scenario present in both different markets.

5.1.1 SOCIO-ECONOMIC CONDITIONS:

European Market:

The European Market is fully developed and has well-structured banking facilities, as it can be seen that most of the people have bank accounts. This market predominantly supports majority of debit/credit based transactions and even this feature is considered to be one of the inhibiting factors for implementing mobile based payments in European Market.

United Kingdom is considered to be one of the most developed economies, as the percentage of banked population is very high due to the well-connected banking facility around the country. From the survey it has been estimated that in UK, only 1.75 million households are unbanked (Unbanked 2012). That is about 4% of the people are unbanked who don’t even have access to basic banking facility. Rest of the population is banked with access to basic accounts and with at least one bank account (Banked 2011).

Similar condition is prevalent in France where the banked population is 96%. Sweden has a more advanced banking system than UK and France, in which, out of 9 million people, 99% of the population have bank account. The survey from World Economic Forum, states that Sweden has the best banking system next to Canada. The main success of Swedish banks is due to solid funding and conservative consumer lending. Out of the league is Poland, where there is not an excellent banking facility, as it is considered to be the developing economy with a GDP growth of 10%. About 66% of the people are banked with proper banking accounts.

Sweden uses credit/debit cards more due to well-structured banking facility as there is found to be a drop in the cash flow transaction from 9.6% to 2.9% in the Swedish GDP. They prefer to use debit card systems more than cash and mobile based payments as almost all the merchants have the Point of Sales (PoS) acceptable for the cards (Rasmus, 2011). In contrast to Swedish market, UK’s usage of cash and credit/debit card is more when compared to the payment made through mobile phones for purchase.

According to the British Retail Consortium (BRC), 58% of the consumers use cash for payment and debit cards are used as the next prominent payment option, whereas 29% by volume and 46% by value (BRC Reports). France also joins the same league of cash and cheques transactions, as people having credit card is very rare, due to strict regulations implemented by the government on banks after the economic depression, they mainly use
debit cards for transaction. The main problem with debit card based transaction is that all the merchants won’t accept debit cards for small amounts, because of the minimum fee charged by the merchant’s bank for each transaction.

**Non-European market:**

The non-European Market is totally different in the aspects of Socio-Economic conditions where the countries in these regions don’t have a proper banking facility. So they have to depend upon the micro finance institutions for the transfer of money from person to person. It can also be seen that remittance and withdrawal of money, type of transactions are very high. This is one of the major advantages of the drastic usage of mobile payments in this region as people don’t have any other choice of transactions.

In Kenya, only 19% of the people have banking options with proper banking accounts (Kenya 2010). The major reason is that low economic quality of the people prevented them from opening an account as a minimum balance has to be maintained. This led to a new method of payment where all these drawbacks were overcome. At the same time, the penetration of basic mobile phones constituted nearly up to 63% of the total population. It led to the birth of mobile payments, where the unbanked set of people was ready to use the new method as their needs were met. Similar conditions are present in India and Philippines where the banked population is very less when compared to the unbanked. Another factor for the usage of mobile payments is because of the low internet penetration in these countries.

Kenya recorded only 25% of internet penetration as of 2011(Internet 2011). Similarly, India and Philippines have internet penetration at the rate of 11% and 33% respectively (Internet 2011). It is very low when compared to the other European market. Kenya and Philippines being an example for mobile payments to the rest of the countries can be claimed to have a high percentage of emigration population. As there are no good banking facilities in these countries, they tend to opt for a new technology since they find it catering to all their needs. Mobile payments helped them to bridge this gap and their family members who live abroad can easily send the money and receive it just by a click. This is another reason for the usage of mobile payments in the Non-European market.

### 5.1.2 PRICING

Cost effectiveness is one of the major factors in determining the success or failure of the mobile payment system. If the pricing for a mobile payment is expensive than the traditional payment method, then consumers won’t opt for such an expensive payment method. This may eventually lead to the failure of mobile payment. The one of critical factor for the huge success in Kenya is the Pricing factor, which stood out and people had no choice rather than opting for it. But the same situation is not prevalent in the European market. This topic discusses about the pricing factor present in European and Non-European markets.

**Non-European market:**

Kenya’s M-Pesa is one of the models suited as an example for European market in the case of cost effectiveness. The mobile network operator Safaricom and Vodafone found out that the traditional payment systems in Kenya is to send it through the bus, friend/known persons and by Post offices (Gunnar/Emil, 2009). The first two systems were found to be secure from theft or loss and the later one was way too expensive. M-Pesa provided a cheapest and
secured way of sending the money from one person another. In these developing markets, person to person money remittances and withdrawal were used in a large ratio than the Point of Sales (PoS) (MasterCard 2012)

The pricing benefited both the consumers and the agents. Depositing cash in their account is for free and depositing to a registered M-Pesa user is 30 Ksh (US$ 0.39) for Ksh 1000 (US$ 13.06) (M-Pesa Tariff Chart). The recipient pays 25 Ksh (US$ 0.33) to make the withdrawal. If the recipient is not an M-Pesa registered user, they charge the sender 75 Ksh (US$ 0.33), making it free for the recipient, so that the recipient can join the M-Pesa (Ignacio/Radcliffe, 2010).

In a field research by Olga Morawczynski, it is found out that sending Ksh 1000 (US$ 13.06) through M-Pesa is said to be 27% cheaper than the post office’s PostaPay (US$ 0.52) and 68% cheaper than sending it through local transports (US$ 1.16) (Olga, 2008). The other major factors influencing this are that, it is faster and more secure than other means. Similar conditions are present in Philippines and India.

In Philippines, the major factor for success is due to the Overseas Filipino Workers (OFW) who transfers almost US$50 million/month into the country’s economy through SMART Money. Another factor is that the consumers are able to recharge their prepaid service even by quite small numbers of P2 (US $0.44), where the minimum top up value is P30 (US$0.57) through normal top ups. The initial transaction costs are free and for the card option holder, the fee is minimal and simple (InfoDev 2006). In India, a mobile banking system called as Eko, provides the same, similar to that of M-Pesa in Kenya. The company’s prime motive is to provide banking facility to the unbanked people in a cheap manner.

**European Market:**

In the European market, due to the well advanced banking facility, consumers prefer to do more Point of Sales (PoS) services rather than money remittance and withdrawals. In Sweden, the parking tickets are purchased through mobile payments. The ticketing fair is not same all over the cities. In Uppsala, North of Stockholm, the parking tickets are more expensive than the tickets paid through cash. But the same scenario is not in Västerås, where the tickets are cheaper than cash price (Markendahl, 2011). So, there is a gap between the two cities in Sweden. In the same way, mobile based SMS transactions are used for purchasing local transport tickets and in vending machines.

The consumers have to pay extra transactional fee for purchasing the products and tickets. This makes the consumers to lose interest in mobile payments. The survey conducted on mobile payments in vending machines revealed that 72.8% of people are ready to use mobile payments if there is no extra fee and 59.6% are not ready to use it when there is extra transactional fee (Donny et al, 2009). The same case applies to M-Pay in Poland where there are extra transactional costs for each SMS. In UK, the purchase of public transport tickets is more complex rather than expensive. For purchasing a ticket, the consumer has to register with their name, address and credit card details through phone or online, and its time consuming (UKTrans 2010). Rest of the payments like person to person (P2P) and Point of Sales (PoS) are similar charges to that of the traditional payment systems.
5.1.3 TECHNOLOGY AND HARDWARE USED

In European market, the penetration of smart phones is more when compared to that of the scenario in Non-European Market. It constitutes to about 50% of the whole European Union. So, the actors in the various field of mobile payment are making use of this opportunity for introducing contactless based payment using NFC technology. But the situation is not same in Non-European market, as the penetration of mobile phones is more but there is only 20% penetration of smart phones in Non-European Market. The majority of the consumers in the Non-European market have a basic feature phone with basic messaging facilities and the actors have utilized this opportunity for developing a mobile payment system based upon SMS and WAP services. This analysis is respect to the hardware and technologies used for mobile payments in both the markets and finally the lessons that are learnt will be discussed.

European Market:

In general, in the European market, there is excellent penetration of internet and banking facilities and smart phone usage. So, the actors in this market tend to make use of this opportunity to develop a next stage of mobile payment system which is the NFC based contactless payment. Due to this, basic SMS, USSID and WAP based payment system is very less in comparison. In the UK market, the penetration of smart phones is about 81% of the people who have access to the internet in their phones (UKSmartPhone 2012). Half of the population, about 45% of the people makes use of the internet connection through their mobile phones. This is more common among the youth starting from the age of 17 to 21. Rest of the people didn’t have the necessity to use the online resource from the mobile phone.

The good thing about the UK market is that these percentages of users are ready to try out the new mobile based payment method. Of the different types, 65% of the people are ready to try out the contactless NFC based mobile payment method, with 36% of the people opting to carry out the overseas remittances. The familiarity about the mobile based payment method is more among the UK customer. According to the Master Card Readiness Index survey, it was estimated that 20% of the consumer are familiar with mobile based payment and also stated that they are ready to opt for it when there is a proper security and trust when compared to that of the traditional payment method (MasterCard 2012).

A survey conducted by Google on the Mobile internet user described the usage of mobile phones in France and Sweden. It stated that the smart phone penetration is 38% in France and Sweden having a high penetration rate of 73%. Both the countries have an equal amount of mobile internet usage (Google 2012). It also surveyed that smart phones have changed the way consumers do online shopping. About 70% of the consumers prefer to shop online goods through mobile based system.

At present most of these countries give more emphasis on the fancy NFC technology at the Point of Sales (PoS) terminals, as most of the merchants are enabling NFC based PoS terminals. For Person to Person (P2P) transfer of money, simple SMS based system is used, even though there are not many successful payment models in the market. In Sweden, a survey conducted on the feasibility of Mobile payments stated that SMS and MMS based transaction are more preferred among the consumers using vending and other automatic machines (Donny et al, 2009).. These countries also have a well-developed home based internet facilities. Right now all these countries have deployed the latest 4th generation
connection. About 80% of the people living in these regions have internet connection at home.

Non-European Market:

In general, the smart phone penetration in the Non-European market is in the embryonic stage of about below 15% of penetration rate in and it still has a long time to reach the maximum penetration. This is mainly because of the low economic standards of the people, which force them to meet the basic needs of daily life instead of purchasing a costly mobile phone. So, in these non-European countries, there is large penetration of basic featured phone. So companies made use of the opportunity to implement mobile payments. In these countries, SMS based method of transactions is very prominent for Person to Person (P2P) transfers, air time recharges, Point of Sales (PoS) terminals (Ondevice Research). Added to this, mobile internet users are very less when compared to that of European market.

This method of payment is structured in an easy way for the consumers to get adopted easily and to use it for their day to day transactions. The people in these countries found SMS based payment as a better choice and found it more trustworthy. Another major reason for the usage of mobile payments is that, in these countries there is no proper internet facilities. Only the urban people use internet connection and even in these regions at present only 3G based connections are commercially available in the market which is very expensive. People living in rural regions don’t have access to internet connections. This helped the mobile payment companies to setup a system where they won’t be in need of implementing any complicated systems, thereby getting the attention of the rural people for making person to person transactions. These are the few success factors that helped in the growth of mobile payments.

5.1.4 ACTORS INVOLVED:

The actor’s involvement in both the market are totally different because in Non-European market, there are not many alternative mobile based payment system and the company which introduces the new system becomes a monopoly in the market. They tend to set the model for the rest of the competitors and the remaining actors follow the same model with slight modifications and improvements. But in European market, there are many competing operators and other actors introducing an equivalent amount of mobile payment system which makes the consumer really difficult to choose. This section tends to describe the scenarios present in the both markets and how the actors are involved. In the end of this analysis, the lessons that can be learnt from the developing market can be seen.

Non-European Market:

The main factor driving the mobile payment system to a new height is that, there is no effective alternative payment system. So, the companies introducing an effective and efficient payment system takes up the whole market creating a monopoly kingdom. The rest of the competing actors have to copy the same business model. Another major reason for the huge success in these markets is that these actors know what the consumer’s needs are from time to time. The companies made a detailed research of how to make use of the resources
to provide a better payment system where mobile phone penetration are more than the number of banked people.

At the same time, they also took security, cost effectiveness, accessibility, and convenience into consideration and by satisfying these factors, the mobile payment companies were able to take a big leap of success, amidst the socio-economic conditions of the people. This is evident from the following case: in Kenya, where the mobile network operator had a strong hold with the customer’s base and added to it they had a large market share. As they had a poor banking facility, the consumer’s in these markets relied totally on the mobile network operators. There were basically two reasons for their success (Ignacio/Radcliffe, 2010),

(i) Safaricom had around 80% of market share, making it easy to have a strong brand recognition and trust among the customers. As it has a majority of the customer database, it was easy for the company to convert all the airtime sellers into cash-in/cash-out agents.

(ii) The commission paid by the mobile network operators to airtime resellers is very low and it also helped in the success of mobile money deployment in Kenyan market.

Safaricom used Central Bank of Kenya (CBK) as a bypass channel for their transaction due to the regulatory issues which said that all the customers’ funds had to be deposited in regulated financial institutions. When it was a success, Safaricom, introduced another new product called “M-KESHO” in partnership with Equity Bank, where people can get interest if they have their money in the M-PESA account. This took their system to another stage and it was evidently seen that majority of the consumers were getting adapted to this payment method. A similar case is found in other countries like India, Philippines and Turkey, where people welcome the mobile network operators to introduce the mobile payment system. Airtel, the largest mobile network operator by having about 91% of active subscribers was the first to introduce the first commercialized mobile payment system “Airtel Money” which saw huge success among the Indian customers (Airtel 2012). Now they are partnering with financial institutions to expand their business to people in rural areas.

The same thing is followed in Philippines, as they tie up with financial institutions to meet the exact needs of the customers. In majority, the business models followed here in developing markets are Mobile network Operator centric model, where they establish their market, and once it finds success they get into collaborative model, where they can expand their business interest and attract more customers (PWC, 2011). This type of approach has worked so far but the same thing can’t be applied in the developed markets.

EUROPEAN MARKET:

The approach followed by the developing market can’t be implemented in the developed regions as the needs of the people are different. In these markets, the number of competitors is more and there is no monopoly market where all people have no other choice to follow. The successful way to implement mobile payment is to bring a standardized product with interoperable functions. This can be evident from the following cases, where the launch of Telia Mobile Wallet wasn’t a successful one as there many other mobile wallet system such as WyWallet etc. So, presence of multiple payment system and higher switching costs makes consumers reluctant to adapt to mobile payments. In the developed market, the financial institution takes the lead of attracting more customers into mobile payments as they have
the full database of their customers. People believe that making payment provided by the banks and other financial institutions are more secured than the system provided by other actors such as mobile network operators, handset manufacturers and third party providers etc. (MobileWallet 2011).

5.1.5 MARKETING STRATEGY

Marketing and branding are the two important factors that go hand in hand, as these factors determine the success of a product. If a product is from a good brand and if it’s not marketed properly, it doesn’t turn up as expected. So while designing a product, it should be seen that Marketing and a proper branding is done equally. This is what happened in Non-European markets where the products made a huge success even though the company is popular. But in European market, even though there is a reputed name, a proper marketing channel is not present. This section describes such cases.

**Non-European Market:**

The marketing strategies followed in the Non-European markets created a good wave of response among the consumers and it is one of the reasons for the success of mobile payments. Eko, a mobile based banking payment system did an extensive market research to find out the exact customers to be targeted and what they needed. After its start-up, they followed Bellow the Line (BTL) marketing strategies where they staged street theaters, canopies in front of the agent locations etc. They found it very effective as the ratio of people using the service after seeing these marketing strategies were more (CGAP, 2011).

Airtel Money used a different approach of targeting the youth audience, who were the frequent mobile payment users. Strong one line stance ‘Har friend zaroori hota hai’ literally meaning “every friend is important” was used on social, digital, media campaign which attracted a huge crowd among the youth to see what it means. M-PESA’s one of the prime success is due to Branding of its product (Ignacio/Radcliffe, 2010). M-PESA’s brand development and success in the awareness among the people about the payment system was by a clear and specific message. It also had a good marketing mix, of targeting the wealthier city people with the slogan of “Send Money Home”. The main idea was to create an impression that it wasn’t a low-value product aimed at the poor (CGAP, 2011). When they started to see a wave of success, they changed the marketing strategy with the slogan ‘Changing Lives” which targeted the usage of features of the product rather than introducing new users (Airtel, 2012). It saw two sides of the people opting for this service. This mix of marketing strategy helped to rope in majority of youth and rural people to use this product.

By the end of 2010, M-PESA nearly saw around 9 million users that are above 90% of the whole population. G-Cash in Philippines used celebrities in TV ads and serials to spread the importance of mobile payments (CGAP, 2011). This turned out to be a big success of domestic remittances among the people. They gave more importance to person to person transfer rather than to mobile banking. Turkey started to give more emphasis on contactless technology by marketing it on the social and online portals.

**European market:**

The European market doesn’t follow a stern marketing strategy as it is followed in Non-European markets. Barclay’s Pingit application created a buzz in the market as it was the
first system for person to person money transfer by using a mobile phone. The marketing was done in the social networking site Facebook, where an online video was created. It was about a boy suggesting a man to repay a debt incurred by buying a pizza using the Pingit app. Apart from that it was marketed in online media sources, company websites etc. Sweden’s latest launch of Telia Mobil Plånbok, a mobile wallet was introduced, and it can be seen that so far it hasn’t been into full phase of usage. The product is just advertised in their company website and shared in Social networking sites like Facebook, twitter etc. The demo of the wallet is explained in the respective company website only.

The same situation is present in France and Poland where the information about the payment system is present only in their respective websites. France’s Cityzi project involving NFC technology reached extensively to the people of Nice, France. This was done by creating awareness about the project and the technology used a year ahead of its official launch (NPF 2012). In order to create trust with the brand, the company did promotions among the people to know more about the product. This created a trust and confidence among the people for using this product. As a result of it, currently there are 4000 users using this service and it is estimated that the Cityzi mobile will increase up to 15,000 (NPF 2012).

Consumer acceptance contributes to a big share for the success of a mobile payment product, as obviously it’s the consumer who is going to use the product. The product’s success and failure is proportionally depended upon how the consumers have accepted it by overcoming the traditional method of payments. There are huge factors to be considered for the consumer’s acceptance. The factors are Speed, Safety, Convenience, Accessibility and Cost. The mobile payment companies have to overcome these issues in order to be in consumer’s mind.

5.1.6 CONSUMER ACCEPTANCE

Consumer perception is different between the two markets. As discussed previously, a Non-European market meets the unbanked population whereas in European market, the companies are trying to make mobile payments as an alternative for the cash based payments. So, it is clear that mind set of consumer in these two markets are totally different, but some success factors found in Non-European market can be taken as a driving factor for the European market for a better growth of mobile payments in near future.

Non-European Market:

Non-European markets are considered to be the best example to analyze the consumer acceptance of mobile based payments. This is because; in the emerging market the main challenge is to satisfy the demands of the consumers. The consumer in these markets demands for better payment system than the traditional payment system. So a consumer eye’s for a Speed, Convenience and an accessible payment system. Based upon this, the four factors can be rated as Delivery speed in the top, with Convenience in the second and Safety in third and Cost in the last position. The cost is considered to be the least, as the traditional method of payment is far too expensive and the fact those new mobile payment systems consider this as a major factor that has to be reduced for gaining the customer’s trust. It can be clearly seen from the following cases,
Kenya is one of the best examples for the consumer acceptance to new mobile based payments. Their traditional method of money transfer was through postal service and informal bus and matatu (shared taxi) companies. It doesn’t have any license or government’s permission to transfer money, and it is more expensive to afford and no assurance that it will be reaching its destination. M-PESA was their best alternative and they also readily adapted to it as it is much faster and trustable. From the survey conducted from 3,000 M-PESA users and non-user by (Ignacio/Radcliffe, 2010), it was recorded that 98% of consumer feel it quicker, 96% with more convenient and cost effective and 98% of them stating that its more secured. From the survey conducted by FSD Kenya along CGPA (Mobile Payments 2010), predicted that about 60.96% of consumers feel that it is faster to send and receive the money. Second is the convenience, by about 19.00% persons voting for it Safety comes as their priority, of about 6.71% consumer voting for it and finally about 6.26% saying that it has a cheaper price than the traditional payment system.

The similar case is present in the other developing markets such as India and Turkey with accessibility and security attaining the top priorities of the consumer. In Philippines, the migrant workers are more and their process of sending money to their family members is very easy with Smart Money, as it is more convenient and well secured. Speed and Cost are the other two factors considered by the Filipino customers for adopting mobile based payments.

**European Market:**

The European market is totally different from that of the Non-European due to the well-developed banking infrastructure. So, the consumers in these markets are well adapted to credit/debit card based payment systems. So in order to overcome this issue, actors in the mobile based payment industry have to design a system which is more convenient, secured and have higher value propositions. A survey conducted by (Rasmus, 2011) on consumer acceptance of mobile payment stated that the majority of consumers in Sweden find Perceived Compatibility (PC) and Perceived usefulness (PU) as their prime use for getting adapting to mobile payments. Perceived security (PS) finds the next position in their importance list. It is also stated that there is a difference between the younger and older generations. Older generations gives more priority to security while the younger generation gives priority to the usefulness of mobile payments when compared to their traditional method of payment system. In another survey conducted by WorldPay research group, it stated that for UK customers, the top priority for using a mobile payment is how convenient it is than the traditional method.

Then comes the usefulness and the security factors. It was stated that about 39% of the consumers were not happy because of the lengthy transaction process and about 38% of consumers were not happy as they have to provide too much secured information. So, the network operators and merchants can develop an application that can be simple and easy for the consumer to use, and thereby make it an interactive session rather than a normal lengthy and frustrating process. The main key point predicted by WorldPay research group is optimization of the new mobile based payments.

In France, only 8% of the consumers are up for the usage of payment through mobile phones while rest of the consumers are reluctant towards the usage of mobile payment in spite of the government’s huge investment in mobile payment trails. The main reason acclaimed by the consumer for not taking it up is that they saw security as their main barrier (NPF 2012).
Switching cost and complexity played another major role among consumers for not adopting to the mobile payment. About 41% of the consumers are ready to take up the mobile payments, if they find the system more convenience and simpler than their traditional payment system. Then speed and security is their second factor in their priority list for better adoption of mobile payments.

5.1.7 LEGAL REGULATIONS

Legal regulatory issues are gaining momentum, as the mobile payments and mCommerce are on their verge of growth. The legal regulating issues surrounding the mobile payments are taking a new leap, as the government’s bodies understand the need to meet the requirement of the payment industry. As a result of this growth, the government bodies have started to do a framework protocol to put the things in its place, so that it can start working securely. In this section, the legal regulatory issues faced by European and Non-European markets are discussed in detail.

_The lawyers are going to say there’s nothing new, and the regulators are going to say, “Yes there is.”_  
— Richard Field, moderator

Non-European Market:

Regulating the mobile money can ensure certitude in the new system and at the same interval it may be a barrier for the success of that particular payment scheme, if it overpowers the operator’s freedom. The Non-European market is different from that of European market in regards to the regulatory issues and in framing it. The main attractive feature for the actors in these markets are that all the legal frameworks are in the infancy stage, which makes the players along with the regulating body to define a new one. In these markets, as there are no competitive players, the regulating bodies made the framework more flexible to attract the players. Whereas in the European market, as there are more competitors competing for the same payment model, the regulation bodies have to be more strict in framing the rules.

For M-PESA, the Central bank of Kenya (CBK) is the regulating authority and from the beginning Safaricom had a good rapport, and it was given the full space to develop products that will suit the needs of the unbanked population (Ignacio/Radcliffe, 2010). CBK regulated it in such a way that all the customer funds that are deposited are passed through a financial institution thereby maintaining the security breach as mentioned by CBK in its framework. The transaction limit set to meet the anti-money laundering concerns also favoured Safaricom for its growth. Safaricom and CBK also satisfied the request of Ministry of Finance, by providing a report declaring that M-PESA is a secured product and comes under the financial regulations of the country.

The similar case is present in India, where Reserve Bank of India (RBI), a regulating authority has allowed the Business Correspondents (BC) to use the mobile payments instruments for end user (ACCII 2011). This was welcomed by many organizations and this had led to the development of Eko, mobile based banking system. Further to this, RBI has
also removed the daily transaction rate from Rs.50,000 and also enabled the customer to do real time fund transfer between two different accounts (BankTech 2011).

**European Market:**

In the European market, one of the most hindering factors is the absence of definite regulatory framework for mobile payments industry. This section is also considered to be less touched by many researchers as they know about the slow usage of mobile payments in European segment. The main key issue is that the dominant player in this payment industry doesn’t have an exact business model enabling to work on inter-operable payment solutions. The mobile payment market is fragmented due to the presence of more than one dominant player, thereby failing to make standardized regulatory framework. This fragmented market also fails to set a definite framework in security, technology usage, consumer acceptance, partnership between the actors in the market. Another major hindering factor is that, each player has their own regulating bodies.

For example, regulating bodies for banking sector will arise obligations relating to know your Customer (KYC) and Anti-Money laundering factors, whereas the regulation authorities for mobile network operators impose a different Know your customer (KYC) obligation (Karnouskos et al). This framework also differs from countries and each country makes a parallel or more additional framework to the existing one.

In general, European Commission is considered to be a facilitator, so a majority of the actors are claiming for standardization with the European Commission and there a lot of regulating bodies within its network (Karnouskos et al). There is also not a definite legal status as its there for other payments. There are also strict implications on electronic money transfer through mobile phones. According to the e-Money Directive 2009, there is a stringent rules on the authorizing process which can be overcome by identifying the specific actors for using the process and minimizing the level of regulation.

Added to it, there is no exact regulation when it comes to protecting the data’s, as the data can be managed by the mobile network operators, financial institutions and also by any third party providers. By proposing a framework by defining the actors responsible for protecting the data’s can be a road to success in mobile payments, consumer highly depend upon the safety of their transaction. Transparency in pricing for both consumers and merchants is often opaque and its stands as another barrier in mobile payments. A proper framework should be proposed for a transparent pricing between all the actors in the market (GreenPaper 2011).

**5.2 ANALYSIS**

In the analysis of Phase II, the data collected in these seven factors are interpreted and analyzed with the framework proposed by Yoris & Kauffman’s three layer concentric circles. In the three layer concentric circle, each layer consists of one or more factor out of the seven factors considered in the chapter 5.1

Layer one consists of factors such as technology and hardware used, actors involved & their business models and the network externalities comprising of consumer’s choice on mobile payments. This factor appears to impact directly on all the stakeholders that have been in the framework. In layer two, factors such as pricing, switching costs, quality of services,
marketing and branding are included. Finally in the third layer, legal regulatory issues are included.

5.2.1 LAYER ONE

In this section, the three factors are analyzed in details by comparing all the eight countries with a set of criterions. This is done so that a concrete conclusion can be derived on these eight markets on a particular factor that will eventually lead to the lessons that can be learned from both of the markets.

TECHNOLOGY VALUE

In this section, the data collected from the Chapter 5.1 is used to analyze this factor. A number of criteria are chosen under the technological aspects and it is compared with the eight different countries. The criteria such as number of smart phone users, number of mobile internet users, current internet technology used, familiarity with mobile payments, most sorted method for making mobile payments and the most preferred payment scenario are considered under the technological and hardware aspects. Table 1 gives analysis in the technology aspect between European and Non-European Market.

<table>
<thead>
<tr>
<th>Country</th>
<th>No of smart phone users</th>
<th>No of mobile internet users</th>
<th>Internet technology currently used</th>
<th>Familiarity with mobile based payments</th>
<th>Most sorted mode for mobile payment</th>
<th>Most preferred payment scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>70%-80%</td>
<td>&gt;45%</td>
<td>4G and 3G</td>
<td>&gt;30%</td>
<td>WAP / Internet enabled or SMS</td>
<td>13% M-commerce</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5% PoS 4% P2P</td>
</tr>
<tr>
<td>FRA</td>
<td>60%-70%</td>
<td>&gt;50%</td>
<td>4G and 3G</td>
<td>&gt;35%</td>
<td>WAP / Internet enabled or SMS</td>
<td>5% M-commerce</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2% PoS 1% P2P</td>
</tr>
<tr>
<td>SWE</td>
<td>70%-80%</td>
<td>&gt;60%</td>
<td>4G and 3G</td>
<td>NA</td>
<td>WAP / Internet enabled or SMS</td>
<td>11% M-commerce</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3% PoS 2% P2P</td>
</tr>
<tr>
<td>POL</td>
<td>30%-40%</td>
<td>&gt;30%</td>
<td>4G and 3G</td>
<td>&gt;8%</td>
<td>USSD, WAP / Internet enabled and SMS</td>
<td>4% M-commerce</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3% PoS 2% P2P</td>
</tr>
<tr>
<td>KEN</td>
<td>Below 10%</td>
<td>&gt;10%</td>
<td>2G and 3G</td>
<td>&gt;40%</td>
<td>SMS</td>
<td>22% M-commerce</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9% PoS 68% P2P</td>
</tr>
<tr>
<td>IND</td>
<td>20%-30%</td>
<td>&gt;20%</td>
<td>2G and 3G</td>
<td>&gt;25%</td>
<td>SMS</td>
<td>8% M-commerce</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5% PoS 5% P2P</td>
</tr>
<tr>
<td>PHIL</td>
<td>Below 10%</td>
<td>&gt;10%</td>
<td>2G and 3G</td>
<td>&gt;40%</td>
<td>SMS</td>
<td>17% M-commerce</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11% PoS 15% P2P</td>
</tr>
<tr>
<td>TUR</td>
<td>30%-40%</td>
<td>&gt;30%</td>
<td>3G and 4G</td>
<td>&gt;10%</td>
<td>SMS or, WAP enabled</td>
<td>17% M-commerce</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>5% PoS 4% P2P</td>
</tr>
</tbody>
</table>

Table 1 Analysis on the technology value between European and Non-European market
The table clearly explains that the penetration of smart phone users is very high in the developed regions, whereas it is below 40% in the developing markets. It can also be concluded that the penetration ratio of cell phone subscribers is more than 100% in European markets. In these regions the penetration of basic featured phone is quite higher than the smart phones. This also can be due to the low economic status of people in that region. This forces them to make use of the basic featured mobile phones to make their mobile payments. From table 1, it can be seen that the internet technology used by the developing market is one step behind the developed one, as 2G based connections are used in more numbers. So because of this, SMS mode of payment is more prominent than the WAP enabled payments. The situation is not the same in the European market due to high smart phone penetration, where both SMS and WAP enabled mode of payments are made. Depending upon the actor’s choice, the mode of payment is considered.

When it comes to the familiarity of the mobile payments, the developing market is in the leading position with above 40% of the population knowing at least what a mobile based payment is of. This also allows the consumer in this market to make person-to-person money transfer and airtime recharges as their top priorities. Kenya tops with about 68% using P2P whereas in the European markets Point of Sales (PoS) is more than the P2P.

<table>
<thead>
<tr>
<th>ACTORS INVOLVED</th>
</tr>
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</table>

In this section, the actor’s involvement into the mobile payments is analyzed by considering the criteria such as knowing the number of banked population, traditional mode of payment, penetration rate of credit/debit card usage, dominant actors driving the mobile payments and the preference on mobile payments. These criteria are chosen for analysis so that which actors are driving the mobile payments in a market can be known and the consumer’s choice of actors for using the mobile payments can be known in this analysis. Table 2 explains the analysis on the actor’s involvement.
The analysis clearly explains that the European market is well developed when it comes to the banking infrastructure and banked population. Above 80% of the population have bank accounts with a strong foundation for using the account-based transactions. This fact makes credit and debit cards as their traditional mode of payments. In most of the countries that have been selected for analysis, debit cards are used as their primary mode of transactions. But the same scenario is not present in the case of Non-European market, where there is not a good banking infrastructure, so majority of the transactions have to be done through cash.

The concept of International remittances is more common in the developing markets, because of the large ratio of working population working away from their hometown. The unavailability of good banking infrastructure and consumer’s absence to own a bank account has led the trust on mobile network operators to take the initiative in mobile payments for the developing markets. As the European market is a developed one, with majority of international remittances and money transfers among the consumers are done through the banks, there is no notable successful model with operator driven model.
CONSUMER ACCEPTANCE

This analysis section describes about the consumer’s opinion on adopting the mobile payment in both of the markets. The information collected in the chapter 5.1.6 is used to do the analysis. In this part, a general analysis is made between European and Non-European market. All the four countries assumed under European market are taken as a single market and the same is followed for the Non-European market. This is considered because majority of the consumer’s in both markets have more or less similar preferences towards the mobile-based payments.

<table>
<thead>
<tr>
<th>Consumer’s choice</th>
<th>European Market</th>
<th>Non-European Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional payment methods such as credit/debit cards</td>
<td>Mobile based payments</td>
<td></td>
</tr>
</tbody>
</table>

- Consumer’s verdict on traditional payments
  1. Convenient
  2. Easy and simple to use
  3. More secured

- Consumer’s need for using mobile payments (Priority wise)
  1. Parking/Mobile Ticketing
  2. Point of Sales (PoS)
  3. Airtime prepaid top-ups

- Consumer’s need for using mobile payments
  1. Person to person money transfer
  2. Airtime prepaid top-ups
  3. International Remittances

<table>
<thead>
<tr>
<th>Consumer’s preference for using mobile payments</th>
<th>European Market</th>
<th>Non-European Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Convenience</td>
<td>1. Speed of the transaction</td>
<td></td>
</tr>
<tr>
<td>2. A secured and closed system</td>
<td>2. Accessibility</td>
<td></td>
</tr>
</tbody>
</table>

*Table 3 Analysis on the consumer’s behavior between European and Non-European market*

From the analysis based upon the set of criteria, it can be seen that the consumers from the European market are well confident and comfortable with the traditional credit/debit card based payments. The consumers’ verdict on the traditional payment system based upon the analysis is that it is more secured and easy to use, and less time consuming than the payments made through a mobile phone. In contradiction the consumers are more comfortable with the mobile-based payments when compared to their traditional method of payments.

Consumers in the developing markets weigh mobile payments more for the unbanked sector people and cash comes as their next priority for the banked population. The main success among the consumers in the developing markets is mainly speeding of the transaction, very easily accessible, more secured and safe and much more cost effective than the traditional mode of payment. But the situation is upside down in the European market; the consumers’
preference for using a mobile payment system is that the system should be simple, convenient and more secure, as all the transactions are made through a mobile device.

The consumer choice of use in the European market is more inclined towards paying at the Point of Sales (PoS), ticketing and paying for the vehicles, but in the Non-European market they prefer to do person to person money, prepaid top-ups, paying utility bills and international remittances. The table 3 clearly explains the analysis made on consumers’ choice towards adapting to mobile payments.

5.2.2 LAYER TWO

In layer two of the proposed framework, following factors such as pricing, switching cost and marketing strategy are taken and analyzed under certain criteria for each factors.

| PRICING, SWICHTHING COSTS AND MARKETING |

In this section, three factors are analyzed by comparing the eight different countries by knowing the scenario present in each country. From the analysis it can be seen that the pricing plays an important role in the success of a mobile payment model. In developing markets, the pricing is less or less equal to the traditional mode of payments. The consumers in this market are ready to accept the mobile based payments even though it is costlier than the traditional one. Their main priority lies in the accessibility and availability. In the European market, there is a cheap traditional payment method. The pricing introduced by the actors should be lesser or it should add some extra value added services to gain the confidence of the consumers. The same situation is present in almost all the countries in European region. Table 4 provides the analysis made on pricing, switching cost and marketing strategy followed.
### Table 4 Analysis on the pricing, switching cost and marketing strategy present between European and Non-European market

<table>
<thead>
<tr>
<th></th>
<th>Pricing</th>
<th>Switching costs</th>
<th>Marketed through</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>European Market</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>Purchasing a ticket is more complex and expensive</td>
<td>Many payment models present, so its high</td>
<td>Through online websites, social sites etc.</td>
</tr>
<tr>
<td>FRA</td>
<td>NA</td>
<td>Many payment models present</td>
<td>Through online websites, social sites etc.</td>
</tr>
<tr>
<td>SWE</td>
<td>For parking tickets and in vending machines, extra fees are charged</td>
<td>NA</td>
<td>Through online websites, social sites etc.</td>
</tr>
<tr>
<td>POL</td>
<td>Extra transactional costs for SMS based payments</td>
<td>NA</td>
<td>Through online websites, social sites etc.</td>
</tr>
<tr>
<td><strong>Non-European Market</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KEN</td>
<td>Less compared to traditional method</td>
<td>Not many system, so majority use a single product</td>
<td>Approaching people and explain the product with powerful taglines</td>
</tr>
<tr>
<td>IND</td>
<td>Less compared to traditional method</td>
<td>NA</td>
<td>Adv. in television and other public media and explain the product with powerful taglines</td>
</tr>
<tr>
<td>PHIL</td>
<td>Less compared to traditional method</td>
<td>Not many system, so majority use a single product</td>
<td>Approaching people and explain the product with powerful taglines</td>
</tr>
<tr>
<td>TUR</td>
<td>NA</td>
<td>NA</td>
<td>Through online websites, social sites etc.</td>
</tr>
</tbody>
</table>

This analysis also shows the scenario present in the case of switching costs among the payment models. In the European market, there is a presence of many payment models provided by the banks and mobile network operators, so when a consumer has to change from one model to another, it costs and makes it ineffective. In Non-European market, in most cases, the mobile payment models are introduced by dominant mobile network operators that possess the majority of market shares in their own country. This leaves the consumer with no choice of adapting to a single payment model, thereby making it a successful one.

The other major factor is Marketing and branding of the payment solution. From the analysis, it can be seen that, developing markets follow rigorous and intense marketing strategies. The product is marketed through powerful taglines framed according to the mindset of people, so that it attracts the consumers easily. Along with it, heavy campaigns about the products benefits were explained to people in real-time. The European market did not impose such heavy marketing strategies to promote their products. It was advertised just...
in the social networking sites and in their respective websites. Branding comprises is not well enough can be seen from the analysis.

5.2.3 LAYER THREE

In layer three of the proposed framework what has been analyzed is the legal regulatory issues present in both of the markets. This factor is less touched by various researchers as this still is in infant stages of development for framing a proper framework both in National and International level.

LEGAL REGULATIONS

The data collected on the legal regulatory issues on each of these eight countries mentions that each market has its own set of regulating proposed by their own regulating authorities. But in general, after a close analysis of the legal regulations, it can be more or less concluded that all the countries in the Non-European market have a flexible regulation in terms of mobile-based payments. The regulating authorities in these markets are still in infancy stage of developing a definite framework. This makes the actors to get into the market and introduce a product without much hassle.

The same situation is not present in the European market, where there are two regulatory bodies, one in a national level and another one in European Union level. The major decision and framework are made in the European Union and based upon it; the national regulating authorities frame their own frameworks. So from the data collected from the chapter 5.1.7, it can be analyzed and summarized that the frameworks proposed by the European countries have strict implications towards e-commerce and m-commerce. There is also no exact regulation framed for data protection and security which makes it more difficult for the new actors to enter the market with their innovative strategies.

5.3 SUMMARY

The analysis made on each of the seven factors based upon Yoris & Kauffman’s three layer concentric circles can be summarized by mentioning the European and Non-European market in separate, so that a clear perspective on the success factors and lessons to be learnt can studied.

In respect to the Non-European markets, based upon the analysis, factors in the concentric circle were exactly hand in hands eventually leading for an uptake in mobile payments. Each layer in the Yoris & Kauffman’s model is interconnected where technology and consumer aspect were the most important. The actors in the mobile payment ecosystem identified the consumer’s need along with the simple technological value thereby creating a perfect interlock among the three factors in the layer one which is the core one for the success in mobile payments. The chains lead to the successful implementation of minimal pricing and executing excellent marketing strategies, satisfying merchants and end consumers. There was perfect flow in the both the layers, paving a way to the regulators in the government sectors to be more flexible on the new actors for welcoming new players. All these factors combined with actors’ innovative business strategies have permanently given them a place in mobile payments.
The European market is totally different in comparison with the Non-European market. All these layers in the concentric circle are always not placed in order. Within the layer one, the technology and the economic conditions of the people are in order, whereas the consumer acceptance towards the mobile payments makes it be out of the flow. The consumers are reluctant to use mobile based payments. When considered the layer two, the pricing and marketing doesn’t go hand in hand, creating a complex ecosystem, and because of this, regulation becomes more stringent towards m-commerce. The conclusion in the chapter 6 will clearly explain the lessons to be learnt for the European market for knowing the definite roles of each actors.

CHAPTER 6 CONCLUSION

The analysis made in chapters 4 and 5 provide the answers to the main research question of this thesis,

RQ1. What are the major factors that led to the success of mobile payments in Non-European markets?

The major factor helping the success of mobile payments in these markets can be described in the following sections.

1. The major reason for a roaring success in mobile payment system, in particular with the Non-European market, is mainly because of the financial status of the people and their respective economic situation. A well-developed banking infrastructure was missing and the consumers were not provided with banking facilities. These factors coupled with high penetration rate of basic featured mobile phone badly demanded for an alternative to the existing payment models. The dominant actors in these markets made use of the opportunity and introduced the mobile based payment using a basic phone.

In all these developing countries, the Mobile network operators were present as omnipresent actors by having a majority of market share in one pocket and consumers’ trust in the other pocket. Mobile network operators are in the driving seat by taking the initiative, asking the rest of the actors in the ecosystem to follow their path. One reason for such presence is also because of strong position and national presence along coupled with consumers’ trust in network operators. It can be seen from analysis in chapter 4 that majority of the mobile payment models discussed and analyzed are introduced by the mobile network operators.

The banks and other financial institutions in order to avoid losing their business made collaborations with the payment models introduced by MNOs. Some banks and third parties made the payment models as their platform for designing their own model. The partnerships with banks further create a trust among the consumers where international remittance and transfers were made easy, causing a demand for the consumers to opt the mobile based payments.

2. The other major factor influencing the success of mobile payments in the Non-European markets is the consumers’ acceptance towards this method. The success can be said to be because of chain of various factors. The main factor is the consumer’s demand towards using a payment model which is more easily accessible and available. The analysis in the chapter 5.2 clearly mentions that people in these markets found this product to be easier, more
accessible and more secure. The operators understood that success was mainly based on people management and not only with technology. So keeping that in mind, the network operators designed the system in such a way that it is easily accessible from the place where they are.

The analysis also clearly mentions that Person to Person (P2P) method is preferred more than other services in m-commerce where many reasons can be mounted for it. Instead of going into it details, how the operators made it possible with the consumers can be studied more. The way of marketing and showcasing their brand were so unique and targeted to the customers they wanted. They marketed the products that they aimed to perform P2P transfers with many value added services such as air time top-ups, paying utility bills as mentioned in the analysis section of chapter 4 and 5.

3. The regulating body presented in these developing markets also constituted to a large ration for the success in mobile payments. The regulating authorities in these markets were quite progressive and allowed the concept of “regulation to follow the innovation” and thereby the can reassure the people with good product. The best example that can be quoted from the analysis made is those regulators agreeing upon the agents with only limited requirements to get into the business even though they are not providing the banking services. Meanwhile, the operators did the periodical financial reports as the banks and other financial institutions do. These factors led the new entrants to enter the markets easily with their new and innovative ideas.

RQ2. From the success in Non-European markets, what can be the lessons learned for the European market that can help in the better uptake of mobile payments?

The analysis made on the chapters 4 and 5 explains that each market is totally different and the success factors from the Non-European cannot be imitated in the European market. But based upon the success factors studied, some major lessons can be learnt for European market which can help in the future market.

COLLABORATING FOR A SINGLE PAYMENT MODEL:

The analysis made in chapter 4 and 5 for European market clearly states that the business models and roles of the key players in mobile payment ecosystem are unclear and undefined. In simple terms, European mobile payment ecosystems could be compared to playing a game of chess with four different boards simultaneously. When one piece is moved in one chess board, rest of the pieces on other board would move simultaneously at the same time. So, instead of actors competing with each other, it is most important to meet the requirements at the supplier as well as the demand side.

The main reason for an unclear business model is that the mobile network operator generally sees this mobile payment just as a value added service in the developed market. The analysis in the chapter 4 and 5 evidently show that most of the payment methods use credit/debit card linked to their mobile wallet for purchases. So from the supply side, banks and financial institutions should take an initiative step in defining a clear business model by distributing the roles and responsibilities to other actors instead of opting for “wait and approach method”. Banks have to put full strength on it to know the customer’s needs and demands by using a clear business model. Mobile payment can be considered as a medium for banks to bring their customers closer to their value chain by providing a more convenient user
experience. Added to it most of the European countries have a large ratio of immigrant population, where they can make use of it for partnering with international banks and service providers for extending their payment method within and outside their nations. This will give a direct impact to the network effect.

As it is seen from the analysis and success factors described in research question one, major banks are collaborating with dominant network operators in Non-European market to make their game still to be on, a major lesson can be learnt in this aspect. Introduction of a solid interoperable payment method by collaborating with mobile network operators, banks, financial institutions, technology providers and merchants to make it as a single payment model can bring a change to the market. This collaborative model will be well suited for the developed market and for a long run in micropayments, banks can be used in an authorized way to make the transfers by partnering with the service providers, helping the consumers and merchants to reduce the cost of use. The interoperable payment method will also help to balance the two sides, supply side and demand side.

This will greatly facilitate the merchants and consumers for getting adapted to the single payment method, where the network effect and value proposition can be drastically increased within a short span of time, as because the merchants are considered to be one of the key players, as they are the prime source of income that would pay for the services provided and making it familiar to the consumers.

UNDERSTANDING THE CONSUMERS NEED:

As the consumers and merchants are the ultimate source using the mobile payment system, they contribute to the other major factor giving an impact to the success of mobile payment penetration. In the developed markets, the tipping factor for a better usage of mobile payment is in meeting the consumer’s need.

Another lesson that can be learnt from the success of Non-European market is meeting the consumer’s demand. At this moment, people in the developed market are more inclined towards the Point of Sales (PoS) purchases than Person to Person (P2P) money transfer and with a better traditional payment method; the edge should be in developing payment models which is faster, more secure and easy to use. One of driving factors can be the recent evolution of Contactless Mobile Payments (CMP) by using NFC based technology which is growing at a rapid rate. The consumers are ready to use the mobile payment methods once the priorities listed in the below figure are met.
The consumers trust can be gained by,

(i) Developing a simple user interface, without a complex registration and usage, so that even laggards can easily opt for it.

(ii) Developing a payment model where all kind of transactions and purchases can be done in a single payment platform.

(iii) The model should possess a secured PIN way of transaction for Macropayments.

(iv) The payment model should be more accessible and should be commonly accepted by the merchants.

(v) Due to more PoS based transactions, the new mobile payment models should offer more value added and loyalty services than the traditional payment method.

A large network of Point of Sales (PoS) has to be created which would accept micropayments, so that consumers will be having many places to pay with their mobile phones. By having a large merchant base, the traditional “chicken-and-egg” problem would be solved.

The other lesson that can be learnt from the consumer aspect of developing market is good marketing of the product to the demand side and creating awareness by showing the value added service and other benefits of using that mobile payment model. The brand image of the product should be projected in such a way, that it makes the consumer to leave with no other options rather than adapting to it. If possible, a live demo to the consumer about the usage of products can create trustworthiness.

**STANDARDIZED LEGAL REGULATIONS:**

The legal regulation factors falls on the level three of the proposed framework, but it also plays a vital role in the success of mobile payment in a particular market. The third main lesson that is learnt from the Non-European market is the legal regulations for mobile payments. In European markets, there is no standard legal framework for technical
standards securing the customers data, revenue sharing among the actors and so on which are making it more complex for the key players involved in the mobile ecosystem. The introduction of ‘euro’ as their common currency is one such positive move by European Commission (EU) towards the standardization process. This enables the people to do cross country transactions with zero commission rates. The countries without ‘euro’ as their currency, an automatic conversion to their local currency has to be introduced by the regulating authorities which further encourages them to do transactions through their mobile phones. It can be seen that any cross-country mobile service can benefit from such a regulatory framework. By doing so, cross country markets can be easily identified offering maximum revenues and more network effect with minimum cost and risk. By doing so,

(1) The consumer will be using a single bank account to pay for their transaction, regardless of their country making it more convenient and adjusting it to the needs of the transactions.

(2) Actors in the mobile payment ecosystem can easily streamline their transaction process and handle centralized operations across Europe that helps in faster settlement of transactions.

(3) This also gives a big impact on the demand side. The merchants and consumers will be benefitted by a cheap, secure and efficient mode of payment methods. This eventually leads to more people opting to mobile payments.

The key factors such as trust, securing consumers’ data and privacy have to be guaranteed through technology as well as with the legal frameworks. For governing and harmonizing the legal framework in protecting the data, the European commission has to take actions accordingly by satisfying the needs of consumers and the service providers.
CHAPTER 7 FUTURE RESEARCH

The intricate problems present in the mobile payment ecosystem and the emergence of contactless mobile payment in European market have paved a way for future research.

For the European market, the major topic that can be discussed further is the collaborative power of different stakeholders in an ecosystem. Even with the emergence of contactless mobile payment, there exists a commotion among the key players whether to collaborate or stay out of the track and have a ‘wait and see’ approach. Current research on MNO’s and banks are trying to answer how an MNO can win the trust among consumers? How can a MNO and a bank collaborate and maintain relations with the mobile device manufactures and who among them is trusted more by the consumer. Answering some of these questions will help us carry forward the research. For example, France’s Cityzi project is the first collaborative approach which initiated the key players in mobile payment ecosystem. This will further help to enhance the uptake of mobile payments in European Market.

There is a huge research space for further study in cross border mobile transactions. It is clear that the single payment method is still in an embryonic stage and the opportunities present for further researches and innovations are maximal. It is evident from The G-Cash, an initiative by Globe Telecom; Philippines partnering with many international banks makes it evident now that the remittance has become extremely easy for their Filipino workers to their home. Further research is also demanding on how European market can be ready to handle such international remittance without a commission fee. Therefore, these hotspot subjects could be relevant to investigate further.
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