ABSTRACT OF THE THESIS

The thesis titled as customer relationship management and digital payments in developing countries (with special reference to Indian scenario).

As the world has become globalized so it is tried to give the whole perspective of digital payments & how THIS is really helpful in our day-to-day life. So that this thesis can give maximum contribution to the knowledge and understanding of students. This thesis has covered some basic points of digital payments & customer relationship management goes to little higher level. So that it can give the overview on its structure & how it works.

In chapter-1 we talks about foundation of E&M with elaboration of their concepts like; Mobile Commerce, also known as M-Commerce or mCommerce, is the ability to conduct commerce using a mobile device, such as a mobile phone, a Personal Digital Assistant (PDA), a Smart phone, or other emerging mobile equipment such as dashpot mobile devices. Mobile Commerce has been defined as follows:

"Mobile 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.

Electronic commerce, commonly known as e-commerce, ecommerce or e-comm, refers to the buying and selling of products or services over electronic systems such as the Internet and other computer networks. However, the term may refer to more than just buying and selling products online. It also includes
the entire online process of developing, marketing, selling, delivering, servicing and paying for products and services. The amount of trade conducted electronically has grown extraordinarily with widespread Internet usage. The use of commerce is conducted in this way, spurring and drawing on innovations in electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems and automated data collection systems. Modern electronic commerce typically uses the World Wide Web at least at one point in the transaction's life-cycle, although it may encompass a wider range of technologies such as e-mail, mobile devices and telephones as well.

And other topics like scope and limitations are also discussed in this chapter.

Internet research is the practice of using the Internet, especially the World Wide Web, for research. To the extent that the Internet is widely and readily accessible to hundreds of millions of people in many parts of the world, it can provide practically instant information on most topics, and is having a profound impact on the way in which ideas are formed and knowledge is created.

**E-Experiment:** Experiment is the step in the scientific method that arbitrates between competing models or hypotheses. Experimentation is also used to test existing theories or new hypotheses in order to support them or disprove them.

An experiment or test can be carried out using the scientific method to answer a question or investigate a problem.
E-Focus Group: The main groups systematically offer a way to collect qualitative data on specific subjects. Each group including between 9 and 11 people. They also balanced to the groups in terms of sort, social state and ethnic property. And the main group is a form of qualitative investigations in which they ask a people group about his opinions, belief and attitudes towards a product, a service, a concept, an announcement, an idea, or packing. Questions become in an interactive adjustment of the group where the participants are free to speak with other members of the group. Limited those situations where mounted.

E-observation: As resulting from the interest raised in the atmosphere investigation that learns in line, a later increase of the interest is and the use of qualitative methods the deepest penetration in line to learn obtains atmospheres. A great amount of studies, qualitative, opinions, the experiences have been published and the education examines practice in atmospheres in line. Nevertheless, the suitable exploration of the use of qualitative methods of investigation in line of the atmosphere that learned has not continued being.

E- Interviews: The e-interview is a digital, asynchronous version of the interviewing process, a specific form of conversation, which is foundational in qualitative research. Some researchers perceived the interview as “… a process of dyadic, relational communication, with a predetermined and serious purpose designed to interchange behavior and involving the asking and answering of questions”.

**Online Survey Research**: Internet-based survey research is a practical option for social science researchers to administer low-cost and convenient questionnaires to various populations. In order to effectively serve these populations, researchers must consider the benefits, limitations and implications for using this form of data collection.

i) **E-mail Survey**: The electronic mail and the Internet provide promise means to lead the future examinations as the proportion of accessible direct email of people or the Internet continues rising. Esteem that 45% of houses now have computers, and the proportion in the Internet is 22%.

Although these percentage are much too small to lead surveys on population in general by e-mail, the access has reached almost 100% after some groups of interest of the examination, such as used of the company and members of the association. Until the moment, the use of the surveys on the e-mail has been restricted by the tendency of investigators to only apply it to such populations with the almost universal access of the e-mail. The risk of the error of the not-cover has avoided that the investigators apply a methodology of the e-mail to other groups. Nevertheless, a strategy of the e-mail could be used more by far.

(ii) **Web Survey**: The examination was observed under the fabric-based form of questionnaire; the primary reason of this approach, in comparison with the reading and the information of academic publication compilation, was that we wished to free itself and to the common participants of the TWO and to put los' it's to the speech of scientific papers.
Chapter 2 takes people little forward by understanding the E&M commerce technologies through their various models and technologies which are coming into the trend. These models are as follows.

The business-to-consumer (B2C) group is a most newer area and largely equates to electronic retailing over the Internet. This category has expanded greatly in the last 1990s with the growth of public access to the Internet. The business-to-consumer category includes electronic shopping, information searching (e.g. railway timetables) and also interactive games delivered over the Internet. Popular items purchased via electronic retailing are airline tickets, books, computers, videotapes and music CDs.

Business-To-Consumer. A transaction that occurs between a company and a consumer, as opposed to a transaction between companies (called B2B). The term may also describe a company that provides goods or services for consumers.

Business-to-business (B2B) describes commerce transactions between businesses, such as between a manufacturer and a wholesaler, or between a wholesaler and a retailer. Contrasting terms are business-to-consumer (B2C) and business-to-government (B2G).

The volume of B2B (Business-to-Business) transactions is much wider than the volume of B2C transactions. [The primary reason for this is that in a typical supply chain there will be many B2B transactions involving sub components or raw materials, and only one B2C transaction, specifically sale of the finished product to the end customer. For example, an automobile manufacturer makes several B2B transactions such as buying tires, glass for windscreens and rubber hoses for its vehicles. The final
transaction, a finished vehicle sold to the consumer, is a single (B2C) transaction.

B2B is also used in the context of communication and collaboration. Many businesses are now using social media to connect with their consumers (B2C); however, they are now using similar tools within the business so employees can connect with one another. When communication is taking place amongst employees, this can be referred to as "B2B" communication.

(G2B) model: Government seeks to automate their interaction with business. Although we call this category government to business(G2B), the relationship work two ways: government-to-business and business-to-government. Thus, G2B refers to e-commerce in which government sell to business or provides them with services, as well as to businesses selling products and services to government.

(C2G) model: In this model, an individual consumer interacts with the government. For example, a consumer can pay his income tax or house tax online. The transactions involved in this case are C2G transactions.

Displaying Large Images: In mobile atmospheres, the size of great images often exceeds the zone visualization of the output device of the user. There are too many pixels that they have to be exhibited eligible.

Presentation of Abstract Information’s

Visualization of Hierarchies Due to the limited screen space of mobile handhelds, we can only present small parts of an abstract information set at once. Therefore, we need a special treatment to connect different parts of the information set to support navigation and orientation. One way in doing so is the
visualization of relationships between these different parts of the information content.

**Magic Eye View:** The original Magic Eye View was designed for regular PCs or workstations. The technique is based on a 2D hierarchy layout, which is mapped onto a hemisphere such that each hierarchy node is located at the hemisphere’s surface after the mapping. Furthermore, a projection is introduced in order to achieve a Focus & context display.

**Presentations of Compound Information**

**Browsing the World Wide Web**

There are several approaches for the adaptation of Web pages

- Device based adaptation
- Layout based adaptation
- Client based adaptation
- Document based adaptation

The new technology is coming into trends are

**Adoption of 3G Technique**

3G or 3rd generation mobile telecommunications is a generation of standards for mobile phones and mobile telecommunication services fulfilling the International Mobile Telecommunications-2000 (IMT-2000) specifications by the International Telecommunication Union.[1] Application services include wide-area wireless voice telephone, mobile Internet access, video calls and mobile TV, all in a mobile environment.

Several telecommunications companies market wireless mobile Internet services as 3G, indicating that the advertised service is provided over a 3G wireless network. Services advertised as 3G are required to meet IMT-2000 technical
standards, including standards for reliability and speed (data transfer rates). To meet the IMT-2000 standards, a system is required to provide peak data rates of at least 200 kbit/s (about 0.2 Mbit/s). However, many services advertised as 3G provide higher speed than the minimum technical requirements for a 3G service. Recent 3G releases, often denoted 3.5G and 3.75G, also provide mobile broadband access of several Mbit/s to Smartphone and mobile modems in laptop computers.

Chapter 3

After giving the overview of IT, in chapter three we gives insight of various topics like:

Digital watermarking is the process of embedding information into a digital signal which may be used to verify its authenticity or the identity of its owners, in the same manner as paper bearing a watermark for visible identification. In digital watermarking, the signal may be audio, pictures, or video. If the signal is copied, then the information also is carried in the copy. A signal may carry several different watermarks at the same time. Paul LevinsonFuture of the Information Revolution (1997), where he called for the use smart patent numbers (p. 202) or the embedding of electronic chips in every piece of technology, which would give an updated listing of all of its inventors.

Book also covers the incent knowledge through the topics like

- History of watermarking
- Digital Watermarking Methodology
- Watermarking applications: Digital watermarking is a flexible technology used in a broad range of applications. The first watermarking approaches were directed at owner authentication or copyright protection, where an owner or
producer identification is embedded to prove ownership or source of the cover.

I. Digital Watermarking for Copyright Protection
II. Digital Watermarking for Copy Protection
III. Digital Watermarking for Fingerprinting
IV. Digital Watermarking for Content Authentication
V. Digital Watermarking for Broadcast Monitoring
VI. Digital Watermarking for System Enhancement

- Classification of digital watermarking
- Attacks on digital watermarking
- Problems on Digital Watermarking

Second topic in this chapter is about Digital rights management (DRM) is a class of access control technologies that are used by hardware manufacturers, publishers, copyright holders and individuals with the intent to limit the use of digital content and devices after sale. DRM is any technology that inhibits uses of digital content that are not desired or intended by the content provider. Copy protections which can be circumvented without modifying the file or device, such as serial numbers or key files are not generally considered to be DRM. DRM also includes specific instances of digital works or devices. Companies such as Amazon, AOL, Apple Inc., the BBC, Microsoft and Sony use digital rights management. In 1998 the Digital Millennium Copyright Act (DMCA) was passed in the United States to impose criminal penalties on those who make available technologies whose primary purpose and function is to circumvent content protection technologies.

The use of digital rights management is controversial. Content providers claim that DRM is necessary to fight copyright
infringement online and that it can help the copyright holder maintain artistic control or ensure continued revenue streams. Those opposed to DRM contend there is no evidence that DRM helps prevent copyright infringement, arguing instead that it serves only to inconvenience legitimate customers, and that DRM helps big business stifle innovation and competition. Further, works can become permanently inaccessible if the DRM scheme changes or if the service is discontinued. Proponents argue that digital locks should be considered necessary to prevent intellectual property from being copied freely, just as physical locks are needed to prevent personal property from being stolen.

**Existing frameworks of DRM**

**Functional Architecture**
- Intellectual Property (IP) Asset Creation and Capture
- IP Asset Management
- IP Asset Usage

**Information Architecture**
- Modeling the entities
- Identifying and describing the entities
- Expressing rights statements

**Future Issues of DRM**
- General Vulnerabilities
- Secure Container Methods
- Watermarking
- Fuzzy Hashing
- Competing with Piracy
HOTEL MANAGEMENT:

Building that provides lodging, meals, and other services to the traveling public on a commercial basis. Inns have existed since ancient times (e.g., along the Roman road system during the Roman Empire) to serve merchants and other travelers.

Further in this Thesis, in chapter four, author discusses about the CRM strategies, defines the Customer Relationship, Customer Relationship Management (CRM) refers to the methodologies and tools that help businesses manage customer relationships in an organized way.

- CRM processes that provide employees with the information they need to know their customers' wants and needs, and build relationships between the company and its customers.

Electronic CRM concerns all forms of managing relationships with customers making use of Information Technology (IT). ECRM is enterprises using IT to integrate internal organization resources and external marketing strategies to understand and fulfill their customers’ needs. Comparing with traditional CRM, the integrated information for eCRM intraorganizational collaboration can be more efficient to communicate with customers.

Mobile CRM (mCRM) is a business strategy used for integrated management of relationship with customers through mobile marketing, mobile sales force automation and mobile customer service. In situations where conventional communication channels and the Internet fail to expand customer relationships, mCRM efficiently solves the problem. mCRM enables convenient and speedy communication between organizations and customers.

Relationship between E-CRM and M-CRM efficiency, convenience and personalization are the most important desired of
mobile customers determining the differences in customer satisfaction perceptions both on technology and marketing service through mCRM. First at all, there is no denying that technology provides mCRM communication on implementation through the mobile medium. Enterprises operate mCRM server to access of handling such as sending, receiving and storing of SMS or MMS messages for targeted customers.

**The Customer Profile:** Customer description that includes demographic, geographic, and psychographic characteristics, buying pattern, creditworthiness, purchase history etc. Profiles can be demographically or behaviorally based, and the difference is very important to your business.

Managing and Sharing Customer Data: The business person of just a couple decades ago had to spend a great deal of time and money on intensive research and outdated databases to get even a slight understanding of his or her customers. Today, however, you easily can find yourself overwhelmed with customer information. Current “canned” data reporting on the psychographics and demographics of specific geographical areas is available inexpensively from hundreds of sources. And you can even purchase fairly sophisticated data collection software tailored for your business for just a few thousand dollars.

**Resetting CRM Strategy**

**Phase 1. Are You Hitting Your Target?**

The ultimate test for your CRM strategy and the tactics you’re using to implement it is customer satisfaction. Go back to your ideal Customer Service/Sales Profile. Are you getting the number of initial/stand-alone transactions that you
want or need to give your profile a strong foundation? How about repeat customers? And customer advocates? Are the percentages of each of the three levels of customer relationship right for your business?

**Phase 2. Does Your CRM Strategy Work for Your People?**

This phase is about checking in with the employees responsible for creating, managing and expanding customer relationship. Is your CRM Strategy working for them? If they do not feel aligned with your CRM strategy, it will not matter how carefully you crafted it, and it will never live to its potential.

**Phase 3. Time for Change:** Now, you’re ready to create the reset for the CRM strategy. Pull together the information gathered. It may be helpful to display key findings in two parts.

First, list the CRM strengths and successes you uncovered. It’s important to acknowledge and celebrate what you’re doing well.

The second part of your key findings identifies weaknesses. Prioritize this list. If your findings show that you need a major CRM strategy, and use that process one again.

More often, your list of weakness or opportunities will focus on specific CRM tactics and tools. You can address these in a working session with a group of the individuals responsible for customer relationships.
Analytical Framework of CRM strategies on Internet & Mobile Channels:

Customer Loyalty In order for a CRM system to become successful, a company must make it an integral part of their philosophy and corporate strategy. It is not simply enough to view CRM as simply being another technological solution. It is a paradigm, a method of doing business that will foster a stronger relationship between companies and the customers they provide products and services too. Customer loyalty describes the tendency of a customer to choose one business or product over another for a particular need.

Branding As the definition of brand evolves to be the relationship between a product and its user, CRM becomes a critical contributor to brand awareness. Developing brand relationships sounds like a good thing to do.

Customer Satisfaction CRM solutions present unified and integrated customer information at the fingertips of anyone who comes in contact with customers. This decentralizes decision making resulting in quicker response to the customer and resolution of his problems. As a result, companies are able to provide efficient and effective service their customers.

Customization is an important contributing factor to successful CRM. It requires a comprehensive support from the customization of products and services. Perceived quality of the product is determined by the level of customization. By tailoring products and services to individual customers, a company can fulfill and exceed customer expectation and increase perceived product quality.

Trust is one of the most widely examined and confirmed constructs in relationship marketing research. There is the notion
that trust constitutes the belief, attitude or expectation of a party that the relationship partner’s behavior or its outcomes will be for the trusting party’s own benefit. Trust affects customer satisfaction and customer loyalty, and it directly influences the effectiveness of the eCRM strategy. Trust is built on the level of risk, which can be determined by network infrastructure, web and mobile applications, customer privacy issues, security of data transfer, and system authentication.

As the chapter 5 heading says payments trends, this chapter talks how payments are important to the business and to the people’s life.

A payment is the transfer of wealth from one party (such as a person or company) to another. A payment is usually made in exchange for the provision of goods, services or both, or to fulfill a legal obligation.

The simplest and oldest form of payment is barter, the exchange of one good or service for another. In the modern world, common means of payment by an individual include money, cheque, debit, credit or bank transfer, and in trade such payments are frequently preceded by an invoice or result in a receipt. However, there are no arbitrary limits on the form a payment can take and thus in complex transactions between businesses, payments may take the form of stock or other more complicated arrangements.

In law, the payer is the party making a payment while the payee is the party receiving the payment.

**Current payment System**

**a) Cash Payments:** cash is fixed legal as anyone means of exchange that is immediately negotiable and without restrictions. It includes the currencies, the bank you notice, the checks, the
postal orders, the deposits of savings bank and the deposits of banks. Essential requirement is that it should, she is immediately available legal ace to offer consequently, the loans in the employees, the stamps and the deposits of constant period they cannot considered as ‘cash’ for reasons of balance-sheets of accountancy since they being in the transformation before available as cash Because cash is the liquid assets, it is the most easily misused.

b) Bank Payment:

1. Payment by check. A check or control it is to negotiable body the guidance of economic body in order to it overwhelms to makes specific sum of makes specific currency from to clarified assessment of requirement kept in the name of constructors of/depositor with that body. And the constructor and the beneficiary of payment may be individual or legal persons.

This chapter also tells about the various system of payment which is currently used in this global era. This system includes cash payment and bank payment. Bank payment talks how bank becomes the intermediary between two parties to make their transactions more convenient and safe.

2. Payment through Credit Transfer. accountant transport or advanced attitude the terms that are used by the colleges and the universities for the process the credit in student for the educational experience or the lines of courses that are undertaken in a to other body.

3. Payments through Clearing House. Automated clearing House is an electronic for network economic transaction in the United States. ACH processes big volumes of
transactions of credit and debits in batch. ACH credit transfers include direct deposit payroll and vendor payments. ACH direct debit transfers include consumer payments on insurance premiums, mortgage loans and other kinds of bills. Debit transfers also include new applications such as the Point-of-Purchase check conversion pilot program sponsored by NACHA.

4. **Wire Transfer services**. Transport of cables or accountant transport it is to method the individual money from to or body in other. To transport of cables can become from to banking account into other banking account or via a transport of cash in an office.

c) **Payment through payment cards**: The term card of payment it covers to line of different cards that can be presented from holder of card in order to they make to payment.

- Types
- Credit card
- Debit card
- Card of expenses
- Card of store-estimates
- Card of fleet
- Other

d) **Consumer preference in payment systems.**

**Direct mobile pricing**: To consumer you use the mobile choice of pricing AT the duration of control in a electronic trade region-such as in direct connection lucky game region-for to make to payment.
Mobile payments of Web

To consumer you use additional web page that is demonstrated or the applications downloaded and that is installed in the mobile telephone for they make to payment.

Direct pricing of operators

To direct connection in the platform of pricing of operators requires the completion with the operator, but provide to number of profits:

- Simplicity
- Instant payments
- Need answers
- Safety
- Better transformation percentages
- Decreased expenses support costs

Requirements for payment systems

a) fraud Prevention: The prevention and the detection of fraud is important form of management of danger in the industry of credit cards. Fraud prevention describes measures to stop fraud occurring in the first place. When the prevention fails then the detection of fraud activates.

b) confidentiality: Confidentiality it you have been determined by the international organism for standardization (ISO) in ISO-17799 Accessible as “ensuring that the information is only in those that are approved in order to they have Access” and there is one from to corner stone’s of safety of information. For The confidentiality is one from the objectives of drawing to lot of cryptographic systems, that are
realize into practice by the techniques of modern system cryptographies.

**c) Fault tolerance:** Fault-tolerance it is the property that allows the system in order to it, you continue suitably in marries of failure certain from his components. If to her functioning quality is decreased by not means, the reduction is proportional to the severity of failure, as it is still compared with to naively-drawn system in a what and small failure it can causes the total interruption.

**Properties of Payments**

*Small and Low Value Payments*

*Divisibility:*

*Transferability:*

*Offline Usability*

*Financial Status Transparency*

*Cost Efficiency*

After the study of basic IT structure, now thesis takes students forward to discuss the topic chapter-6 Future Payment Technology. In this chapter thesis covered topics like E-Payment Technology.

1) **E-payment technology:** E-payment or Electronic payment is any digital financial payment transaction involving currency transfer between two or more parties.

E-payment is an electronic payment device that is used in modern times. This has payment by via net possible to businesses, banks and citizens. However, it is important that when you are talking about e-payment you should know that they are connected EBusiness and moreover, the online payment has become one of the solutions to businesses. , it tells how electronic payment works towards the betterment of people & their daily life.
Various techniques are also been discussed in this chapter. So that a students can get much better aspect of Payment Technology.

Cryptography is the practice and study of techniques for secure communication in the presence of third parties (called adversaries). More generally, it is about constructing and analyzing protocols that overcome the influence of adversaries and which are related to various aspects in information security such as data confidentiality, data integrity, and authentication.[4] Modern cryptography intersects the discipline of mathematics, computer science, and electrical engineering. Applications of cryptography include ATM cards, computer passwords and electronic commerce.

Cryptography prior to the modern age was almost synonymous with encryption, the conversion of information from a readable state to apparent nonsense. The sender retained the ability to decrypt the information and therefore avoid unwanted persons being able to read it. Since World War I and the advent of the computer, the methods used to carry out cryptology have become increasingly complex and its application more widespread.

**a) Encryption and decryption:** In cryptography, encryption is the process of transforming information (referred to as plaintext) using an algorithm (called cipher) to make it unreadable to anyone except those possessing special knowledge, usually referred to as a key.

**b) Symmetric encryption:** A type of encryption where the same key is used to encrypt and decrypt the message. This differs from asymmetric (or public-key) encryption, which uses one key to encrypt a message and another to decrypt the message.
Symmetric Encryption is an encryption algorithm where the same key is used for both Encryption and decryption. The key must be kept secret and is shared by the message sender and recipient.

c) **Message digesting:** The representation of text in the form of a single string of digits, created using a formula called a one-way hash function. Encrypting a message digest with a private key creates a digital signature, which is an electronic means of authentication.

d) **Kerberos:** Kerberos is a computer network authentication protocol, which allows nodes communicating over a non-secure network to prove their identity to one another in a secure manner.

e) **Asymmetric Encryption:** Asymmetric Encryption is a form of encryption where keys come in pairs. What one key encrypts, only the other can decrypt.

f) **Digital signatures:** **Definition** - A digital signature or digital signature scheme is a mathematical scheme for demonstrating the authenticity of a digital message or document.

Another topic in this chapter, talk of Credit Card based system and how this system works to fulfill the transactions successfully. It is also discussed that once the transactions are done successfully after that how electronic checks been done to verify the status of the transactions and these system also used to transfer the account from one to another.

g) **RSA:** In cryptography, RSA (which stands for Rivest, Shamir and Adleman who first publicly described it) is an algorithm for public-key cryptography. It is the first algorithm known to be suitable for signing as well as encryption, and was one of the first great advances in public key cryptography.
h) **Elliptic Curve Cryptography:** Elliptic Curve Cryptography (ECC) is a public key cryptography. In public key cryptography each user or the device taking part in the communication generally have a pair of keys, a public key and a private key, and a set of operations associated with the keys to do the cryptographic operations.

i) **Public key infrastructure:** Public Key Infrastructure (PKI) is a set of hardware, software, people, policies and procedure needed to create, manage, distribute, use, store and revoke digital certificates.

j) **(Transport Layer Security) or Transport of security information:** A security protocol from the IETF that is based on the Secure Sockets Layer (SSL) 3.0 protocol developed by Netscape.

k) **DUAL SIGNATURE:** The order but not the authorization is provided to the Merchant—the authorization is encrypted with the acquirer’s public key, and thus the merchant can’t see the plaintext—and the authorization not the order is available to the acquirer.

l) **Nonces:** is an abbreviation of number used once (it is similar in spirit to a nonce word). It is often a random or pseudo-random number issued in an authentication protocol to ensure that old communications cannot be reused in replay attacks.

m) **Blind signatures:** In cryptography, a blind signature, is a form of digital signature in which the content of a message is disguised before it is signed. The resulting blind signature can be publicly verified against the original, unblinded message in the manner of a regular digital signature.

n) **A smart card:** chip card, or integrated circuit card (ICC), is any pocket-sized card with embedded integrated circuits which can
process data. This implies that it can receive input which is processed “by way of the ICC applications” and delivered as an output.

**Credit card based systems:** A credit card is part of a system of payments named after the small plastic card issued to users of the system. It is a card entitling its holder to buy goods and services based on the holder’s promise to pay for these goods and services.

- **a) Moto transactions:** MOTO processing an acronym for Mail Order/Telephone Order credit card processing and is a type of card-not-present (CNP) credit card processing service offered by many merchant banks and e-commerce merchant account providers online.
- **b) Unsecured network payment:** It is necessary to make sure that your network is fully secured is to ensure that it cannot be hacked or any of your information passed on to third parties; this is primarily because extremely important information will invariably be passed from one computer to another computer, within the network during a working day.
- **c) Virtual cards:** Virtual Card Services was established in 1996 to offer a solution to the mail order market which found conventional methods of securing large volumes of credit card payment cumbersome and costly.
- **d) Once credit card number system:** Today, e-commerce transactions are performed by sending the customer’s credit card details over the Internet between a web browser and the e-commerce site. Despite rudimentary security, there are many points at which the process can be compromised by a fraudster.
e) I- key protocol: is a cryptographic protocol to prevent unauthorized access to backup or archive data. The protocol results in a public key that can be used to encrypt data and an offline private key that can later be used to decrypt that data.

f) Secure electronic transactions: Secure Electronic Transaction (SET) was a standard protocol for securing credit card transactions over insecure networks, specifically, the Internet. SET was not itself a payment system, but rather a set of security protocols and formats that enable users to employ the existing credit card payment infrastructure on an open network in a secure fashion.

Electronic checks and account transfer

The explosion of Internet and World Wide Web is rapidly changing the way. The business transactions are carried out and it is emerging as a medium through which the goods and services are being provided to the customers. One of the main bottlenecks in the growth of E-Commerce is lack of suitable Payment Instrument and corresponding Electronic Payment System.

In chapter 7, thesis discusses about the E-cash depending on the properties of the payment transactions, one distinguishes between on-line and off-line electronic cash. The first off-line e-cash system was proposed by Chaum and Naor. Like the first on-line method, it is based on RSA blind signatures.

a) Project CAFÉ (conditional access for Europe): Conditional Access (abbreviated CA) is the protection of content by requiring certain criteria to be met before granting access to this content. The term is commonly used in relation to digital television systems, most notably satellite television.
b) **Net Cash:** Net cash will enable new types of services on the Internet by providing a real-time electronic payment system that satisfies the diverse requirements of service providers and their users. Among the properties of the Net cash frameworks are: security, anonymity, scalability, acceptability and interoperability.

Net cash was designed to facilitate anonymous electronic payments over an unsecure network without requiring the use of tamper-proof hardware. Net cash provides secure transactions in an environment where attempts at illegal creation, copying and reuse of electronic currency are likely. In order to protect the privacy of parties to a transaction, Net cash implements financial instruments that prevent traceability and preserve the anonymity of users.

c) **Mondex:** Mondex is a smart card electronic cash system which was originally developed by National Westminster Bank in the United Kingdom and subsequently sold to MasterCard International. Mondex launched in a number of markets during the 1990s, expanding from an original trial in Swidon, UK to Hong Kong, Guelph and New York. It was also trialed on several British university campuses from the late 1990s, including the University of Edinburgh, University of Exeter (between 1997 and 2001), University of New York, University of Nottingham, Aston University and Sheffield Hallam University.

d) **EMV cash cards:** EMV is a standard for interoperation of IC cards ("Chip cards") and IC capable POS terminals and ATMs, for authenticating credit and debit card payments. The name EMV comes from the initial letters of Europay, MasterCard and VISA, the three companies that originally
co-operated to develop the standard. The EMV standard defines the interaction at the physical, electrical, data and application levels between IC cards and IC card processing devices for financial transactions. Portions of the standard are heavily based on the IC Chip card interface defined in ISO/IEC 7816.

e) **Smart Axis**: Smart axis can be said when any transaction is been done without any problem and fulfilled in a very short period of time without wasting of time.

**Micro Payment System**: Micro payments are financial transactions involving very small sums of money and mobile payment systems.

- Millicent
- Subscript
- Pay world
- Hash chain trees
- Micro-mint
- Probability based micro-payments

**Mobile payments**: Mobile payment is a new and rapidly-adopting alternative payment method – especially in Asia and Europe. Instead of paying with cash, cheque or credit cards, a consumer can use a mobile phone to pay for a wide range of services and digital or hard goods such as:

- Music, videos, ring tones, online game subscription or items, wallpapers and other digital goods.
- Transportation fare (bus, subway or train), parking meters and other services.
- Books, magazines, tickets and other hard goods.
Mobile Internet Architectures: In E-Cash system author describes about the project CAFÉ and other topics like net cash, mondex etc have been discussed. Another topic describes Millicent, Subscript, pay world, Micro-mints etc. These all are the micro payment system and the last topic in this chapter gives the details of Mobile payments.

Mobile network operator as bankers: As the RBI (Reserve Bank of India) act as a banker’s bank, and operates the working of other banks. Same as mobile network operator works to mobile customers. It takes responsibility of all the processing of the network, so that the network process can work properly without any disturbance. Mobile network operator takes care of all the customers sake and gives a good services to their customers.

Credit card based system: A credit card is a small plastic card issued to users of a system of payment. It allows its holder to buy goods and services based on the holder’s promise to pay for these goods and services. The issuer of the card grants a line of credit to the consumer (or the user) from which the user can borrow money for payment to a merchant or as a cash advance to the user. Usage of the term "credit card" to imply a credit card account is a metonym.

Last 8 chapter in this thesis talk of the Impact of E-Commerce and M-Commerce Technologies on Developing Countries. In this chapter, author gives the brief on life cycle of technology adoption In his book “Crossing the Chasm,” Geoffrey Moore discusses the evolution of technology and how we as a society adopt and mature along with the technological advance. He introduces the “Technology Adoption Lifecycle” as a representation of the population grouped by psychological profile and demographics (Moore, 2002). The bell curve also signifies the
lifecycle and the point that each group is willing to accept the technology (see following page). The groups are divided into Innovators, Early Adopters, Early Majority, Late Majority and Laggards. For many years, developing countries were classified as either a Late Majority or Laggards from the perspective of technology adoptions. There are many reasons why they were classified as such:

- Education
- Cost
- Government

**Nature Of The Demand of M-Technology** : Mobile commerce is viewed as the next generation e-commerce. It refers to any transactions, either direct or indirect, via mobile devices, such as phones or personal digital assistants (PDAs). The most significant features of mobile technology are mobility and portability.

Wireless Hype Cycle illustrates the marketing hype or visibility of a technology versus its maturity stage and the timeline for the technology to reach plateau of acceptance. The cycle goes through the following stages-Technology Trigger, Peak of Inflated Expectations, Through of Disillusionment, Slope of Enlightenment and Plateau of Productivity. Each technology is marked to indicate its position and the time to plateau or adoption speed.

**Business models for mobile technology**: Mobile technologies are significantly changing current business models, even with the fast pace evolution of e-commerce. The principles guiding the evolution of m-commerce are anytime, anywhere, by/for anyone, with anything. Many in the industries like to think of the m as representing: multilingual, multicultural, multimodal, multiservice, and so forth. And lastly discusses about the various developments which are occurring due to introduction of new technology.
a) **Value Chain Analysis:** In developing countries many of the governments still manage and control the entire value chain. Keys to success include market reforms, deregulation and privatization of many of the industries. This will allow outside and local firms to compete and meet the future demand for m-commerce. The following section provides an example of newly formed enterprises within developing countries that utilize the lower cost and effectiveness of m-commerce.

b) **The “Village Mobile Phone” Programme:** This business strategy started out in the late nineties and has grown through the years. The Grameen Phone women have expended their enterprises and are selling other services related to mobile technologies. The cost of the cell phone has deceased significantly, becoming a viable replacement for landlines or pay phones. Companies have created low cost or even disposable cell phones with a prepaid function built into the system. The Grameen Phone women are able to sell those newer phones without having to establish accounts or set up a billing system.

c) **Tele-centers and Community:** Access Using a low cost tower, shop owners in many developing countries are setting up local area networks (LAN) and are providing complimentary services within their community. In the late nineties the focus was on communication between the local villager and those village members who left for a job abroad. In the last few years, those businesses have transformed themselves and are now providing newer service such as Internet access, billing service, and commerce. There are several cited examples of farmers looking for a better location to sell their
products based on pricing information they receive through the Internet via PC and cell phones.

d) Worker Migration: Many of the villages were losing their population due to lack of jobs and opportunities. This trend alarmed many of the village leaders and the government of those developing countries. In order to provide opportunity and maintain connectivity with rural areas, many of the villages have set up training centers for the locals to learn more about the use of personal computer, mobile devices and the application and services that they enable. This approach creates a way for companies to offer more services to the villages and help the villages maintain their infrastructure for developing new capabilities.

Development due to Introduction of New Technology: Much of the success of the mobile phone is the fact that it serves a more basic need of communication. Many of the breadwinners in these villages end up going abroad to earn more money to support their families. The only mode of communication is letters and packages, which are slow to arrive and are an unprotected mode of transferring money to the families. Mobile phone satisfied the need to connect with family members and maintain the close community ties so ingrained in those cultures.

a) Social Development: Given the growing demand for digital technologies, policy makers will have to take decisions that adjust technological potential to the requirements of social development. Yet the .digital landscape is kaleidoscopic. On the one hand, there are strong expectations that digital technologies will create a bright future. On the other hand, there are very
pessimistic projections that point to serious social and economic problems.

\textit{b) Political Development}

- Changes in the Political Landscape
- Regulation
- Implementing Change

**FINDINGS & SEARCH FOR BETTER RESULT**

Necessary questionnaire is to prepared to collect the data from different enterprises, different officers and from entrepreneurs. In the end the whole study is to be summarized and conclusions are to be drawn. It is also proposed to give suggestions for improving the present system in the field of E-Commerce and M-Commerce.

During this research work, we have provided some interesting subjects for further research to those who would like to involve in this field of e-CRM and Digital payment benefits.

It would be better to have more investigation done in the field of technology. There is no doubt that lot of research work has been done in this field, but integration of customers in this field needs to be taken care of. In simple words that would be the expectations of customers towards technology.

The emergence of electronic payment systems raises a whole range of both legal and regulatory issues that needs to be taking a look at. An effective national low value electronic payment System will certainly remove what is currently a major obstacle to the expansion of general business activities. The emergence of an electronic
payment system which is easy to use, cheap to process, and boost trade, is likely to have a range of only partly anticipated side effects.

Further research work can be done to see why different organizations have different opinions on their view of e-CRM, even though it is relatively similar phenomenon.

During our research work we have tried to show relationship between two organization on terms of e-CRM usage, and how they identify different benefit perceived by the customers. This area is not fully covered in the literature. Steps for extending research in this area should be undertaken. We hope that findings from our thesis can serve as the basis for building valid hypotheses, which can be used to generate same results.

**SUGGESTIONS FOR IMPROVEMENT**

- Forty percent of companies are focused on generating effective customer relationship management (CRM) strategies in order to increase their competitiveness when the economy recovers.

- We should behave as a peer with our customer, not a pal. Our customer community may be fairly rambunctious, even course online, but that does not mean We should match their behaviour.

- Leveraging current CRM procurement opportunities without ‘breaking the bank’ will minimize short and long term CRM cost impact while providing value to existing customer, prospectus and channel partners.
There is a little question in today’s competitive B2B markets that being a top performer requires doing a better job than the other guy in formulating and executing a strategic approach to accounts. Those who are good at it have several things in common.

The analyst firm acknowledged that IT budgets are being cut, but said that companies can improve their CRM processes without spending more money.

“Many organisations have large investments in call centers, websites, marketing systems and sales force automation,” said the report.

Another suggestion is to use analytics tools. “Many companies have more information than they know what to do with, and now have the opportunity to put this to good use studying attrition models, looking at the next-most-likely-to-buy models, and figuring out channel usage patterns,” But the report warned companies to bear in mind that customer behavior may change when the economy improves.

The use of cash for frequent transactions apart from the problems enumerated in this study, it is risky, costly and inefficient for consumers. The need therefore to migrate from the use of paper to electronic payment instruments cannot be overemphasized.

Government needs to ensure that the cost of telecommunications, hardware and software are made cheap, which will involve examining existing taxes and import duties. New technology and changes in the banking laws can produce change. Therefore, there is the need for the
government to remove barriers to innovation, including regulatory barriers to pave way for rapid development of the electronic payment systems in Ghana.

- The emergence of electronic payment systems raises a whole range of both legal and regulatory issues that needs to be taking a look at. An effective national low value electronic payment system will certainly remove what is currently a major obstacle to the expansion of general business activities. The emergence of an electronic payment system which is easy to use, cheap to process, and boost trade, is likely to have a range of only partly anticipated side effects.

- There is the need for banks to educate consumers about all of their payment system options and the pro and cons of each. Consumers will need to be informed about the potential liability for the use of new types of electronic payment, so they can understand how it differs from cash. Although, Ghana can learn valuable lessons from the experiences of other countries, the country must develop its own payment system.

- At the moment, most payment cards in Ghana utilize a magnetic stripe and need an online connection to the issuing bank for the approval of transactions. This means that if the bank is offline, the transaction will be denied. But in emerging markets such as Ghana, the majority of merchants are off-line, which makes magnetic stripe cards almost useless. Considering the low level of technological infrastructure in Ghana, chip cards are best for the country because it has been successful in environments where the communication infrastructure is lacking. Chip-base payment
products can bring payment to people who lack the infrastructure required for conventional magnetic stripe payments. Off-line technology is likely to succeed for some time in Ghana, because it is cheaper in an environment where there is without any form of telecommunications.

- This study cannot present a full proposal for promoting successful e-commerce transactions in developing and transition economies for several reasons. (1) Each country may have a different stage of development with regard to the legal and business framework where this kind of policies may fit. (2) Each country has an asymmetrical development of technological and socio-economic factors. Hence, each policy or strategy must be customised to the particular situation of each country.

- Develop a dialogue to discuss these issues within a diverse, large and informed community of stakeholders.

- Deeply examine and assess the available technologies to be used, including their obsolescence.

- Develop a foreseeing scenario of which technologies will be in use (with regard to e-commerce) in the next ten years.

- Fully assess the providers of the technology, procedures, and the transfer to local firms and institutions.

- Assess the implications and effect of the implementation of these technologies in different industries.

- Develop the necessary human capital capacity in order to successfully transfer the technology to local developers.
• Create a bid process for technology acquisition to include as many technology providers as possible and to reduce the price of the technology.

• Allow adequate time for a legal framework to be developed and enacted.

• Seek advice of international organisations and institutions with authority in the issues.

• Investigate who will buy digital signatures, how many owners there will be.

Finally, we advised firms to study customer processes and digital payment system with a view to creating greater business efficiencies.