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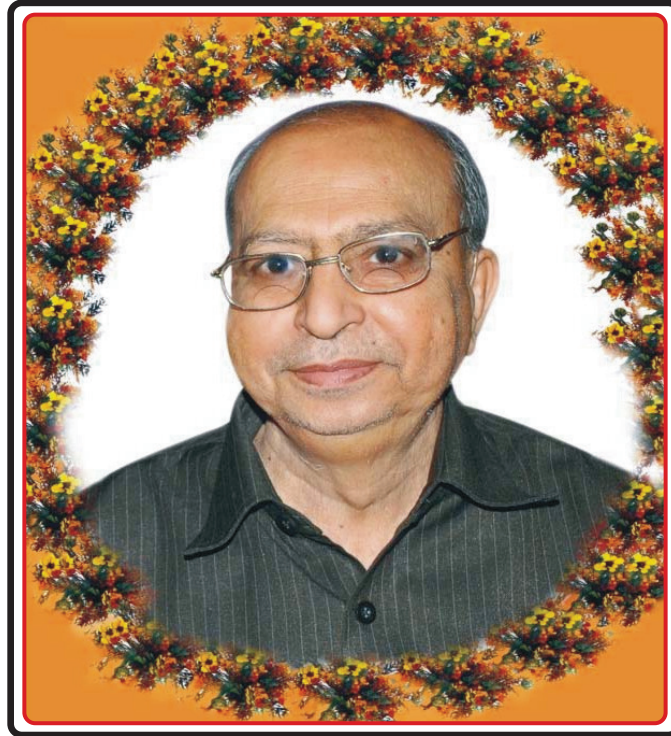
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## **EDITOR'S PAGE**

We are happy to launch the fifth issue of “Trinity Journal of Management, IT & Media (**TJMITM**)”. The present issue incorporates 16 research papers – 09 from Management, 04 from IT & Computer Science and 03 from Media. All these papers were presented in the 4<sup>th</sup> National Conference of Trinity Institutes held on 22<sup>nd</sup> March, 2014. With this issue, TJMITM is completing five years of uninterrupted publication. During all these years, we have received unstinted support from our Editorial Board without which it would not have been possible for timely publication of the journal. We also received constructive feedback from the readers and contributors for improvement in quality. I express my sincere thanks to our Editorial Team members for their dedicated involvement in printing the 5<sup>th</sup> issue of TJMITM.

India is plunged with number of grim areas, such as exorbitant increase in food prices, inflation in all consumable products, unemployment, illiteracy, etc. The world has been witnessing tremendous advancements in technology usage in various sectors including IT, Media and Commerce. The internet and world wide web have transformed commerce in a direct manner through the fulfillment of transactions directly over the internet and can be broadly referred to as e-commerce. Therefore, we can really tackle burning issues that India currently faces with the innovative use of technology in our hand. However, for that we need change in our thinking perspective through our new generation of young leaders. Keeping this in mind, the 4<sup>th</sup> National Conference was arranged on the topic: **“Shaping the Future of Business and Society: By Virtue of IT, Management and Media”**. The academic conference was a true facilitator towards enhancing the knowledge on emerging trends and current scenarios from a wide spectrum of media, technology and management. The conference helped in adding new perspective on the topic by bringing intellectuals and research scholars together with their edifying presentations. We received 64 research papers for presentation in the said conference. Out of 64 papers received, this issue carries only 16 papers. This is due to space constraint. The research papers which have not been included in this journal are very much worthy of publication in other national and international journals.

This journal is an acclaimed platform for young academicians and researchers to inspire and motivate them for disseminating their research papers, research articles, literature reviews, case studies and book reviews, etc. This issue of TJMITM covers a regular mix of articles and research papers from Management, IT & Computer Science and Media. All the papers open up new dimensions of research in the identified areas. My thanks to the authors who have presented the papers in the 4<sup>th</sup> National Conference and extended their cooperation in making the conference a grand success.

On behalf of the Editorial Team of TJMITM, I extend my sincere thanks to Dr. R. K. Tandon, Chairman, TIPS who has always been a guiding force, encouragement and prime inspiration to publish this journal. We are grateful to Ms. Reema Tandon, Vice Chairperson, TIPS for her continuous support to bring out the journal in a proper form.

I do hope that this issue of TJMITM will generate immense interest among researchers.

**Dr. L.D. Mago**  
Editor-in-Chief &  
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# A STUDY OF GROWTH AND FUTURE OF M-COMMERCE IN INDIA WITH SPECIAL EMPHASIS ON CULTURAL ISSUES



Dr. Rajeshwari Malik \*

## ABSTRACT

E-Commerce industry is booming in India, and m-Commerce is following its lead. With both big and small online businesses developing special mobile websites and apps, it is evident that even they have realised how prominent this platform is. In a country where there are over 930 Million mobile subscribers against 160 Million Internet users (Including 86 Million mobile Internet users) it is quite possible for m-Commerce to become even bigger than e-Commerce. According to a report by Avendus, there were over 39 Million Smartphone users in India, but over 436 Million Internet capable mobile devices in use in India as of December 2013, thus forming a strong consumer base for m-Commerce. And in India, there is a large young consumer base, who want fast instantaneous processes on the move. Even though e-Commerce has spread its roots throughout the country, it still hasn't reached the places where people have no broadband or no computer. M-Commerce could and will change this. A mobile payment could be made by an app, data connection, IVR and even SMS, so anyone who has a bank account can make a transaction. Low rates of internet services will encourage people to use more of Mobile Internet, and eventually engage into m-Commerce as well. This paper is an attempt to study the cultural issues associated with the growth of m-commerce.

## KEYWORDS

E-commerce, M-Commerce, Ubiquitous, Accessibility, Locational Information

## 1. AN INTRODUCTION

"Mobile commerce or M-commerce can be described as the act of performing an electronic transaction that has financial implications from a mobile device such as a cellular phone or Personal Digital Assistant (PDA)". Mobile commerce encompasses all activities related to a (potential) commercial transaction conducted through communications networks that interface with wireless (or mobile) devices (Tarasewich, Nickerson, and Warkentin, 2001). Mobile commerce involves the delivery of products and services via wireless technologies to enable internet commerce activities without restrictions of time and space (Liao et al, 1999). Mobile Commerce refers to any direct or indirect commercial transactions conducted through a variety of mobile devices over a wireless telecommunication. Mobile commerce applications are broadly divided into two categories: content delivery (i.e., reporting, notification, and consultation) and transactions (i.e. data entry, purchasing and promotions) (Balasubramanian et al, 2002.). M-commerce transaction is any type of business transaction of an economic value that is conducted using a mobile terminal that communicates over a wireless telecommunications or Personal Area Network with the e-commerce infrastructure.

Few famous definitions of the concept by various authors are:

Durlacher (1999) says "M-commerce can be defined as any transaction with a monetary value that is conducted via a mobile telecommunications network".

Sadeh (2002) characterizes M-commerce broadly, as "the emerging set of applications and services people can access from

their Internet-enabled mobile devices." Typically, M-commerce takes place in a strategic platform called a "mobile portal."

Mobile Commerce (also known as M-Commerce, mCommerce or U-Commerce, owing to the ubiquitous nature of its services) is the ability to conduct commerce, using a mobile device e.g. a mobile phone (cell phone), a PDA, a smartphone and other emerging mobile equipment such as desktop 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."

The description of the m-commerce solutions lifecycle has been divided into five phases by Kalakota and Robinson:

1. **Messaging** – M-commerce was in the first phase in 2002 when their division was introduced. Messaging means short message services (SMS)-based M-Commerce.
2. **Info-Connectivity** – Web based M-Commerce where the user needs an enhanced device with an xhtml-extension. To some extent, M-Commerce has experienced this phase in Finland.
3. **Transactions** – This means an M-Commerce strategy for organisations in order to evolve revenue-generating M-Commerce. M-Commerce has introduced applications that support phase three to some extent, but end-users, either individuals or organisations, have not found them to any great extent.
4. **Transformation** – This means that M-Commerce is interconnected and implemented into business processes within and between organisations. The largest gains in terms of business value will be found in this phase.
5. **Infusion Mobility** and M-Commerce is a normal way to do business – this means a culture change from one in which technology is occasionally handed over to the other one where technology is an accepted part. During this phase, the m-commerce industry will undergo strong consolidation.

## 2. M-COMMERCE: THE CONCEPT

The term e-commerce (electronic commerce) denotes business processes on the Internet, such as the buying and selling of goods. There is a distinction between B2B (business-to-business) and B2C (business-to-consumer) markets. In the first case, the business processes are carried out between businesses; in the latter case, they are carried out between businesses and end consumers. This general definition of E-Commerce does not say anything about the kind of device that the end user employs to gain access to the Internet. The underlying technology could be wire line (e.g. using a home PC as end user device) or wireless (e.g. using a mobile phone as end user device). The term M-Commerce (mobile commerce) is all about wireless E-Commerce, that is, where mobile devices are used to do business on the Internet, either in the B2B or B2C market. As such, m-

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commerce is a subset of e-commerce. With the omnipresent availability of mobile phones (and other mobile devices), m-commerce services have a promising future, especially in the B2C market. Future applications include buying over the phone, purchase and redemption of ticket and reward schemes, travel and weather information, and writing contracts on the move. However, the success of m-commerce very much depends on the security of the underlying technologies. For example, today the chargeback rate for credit card transactions on the Internet is 15%, versus 1% for POS (Point-of-Sales) credit card transactions. Chargeback rates grow to 30% when digital products are sold. For m-commerce to take off, fraud rates have to be reduced to an acceptable level. As such, security can be regarded as an enabling factor for the success of m-commerce applications.

## 2.1 DIFFERENCES TO E-COMMERCE

In comparison to e-commerce, m-commerce offers both advantages and disadvantages. The following list summarises the advantages of m-commerce:

**Ubiquity** – The end user device is mobile, that is, the user can access M-Commerce applications in real time at any place.

**Accessibility** – Accessibility is related to ubiquity and means that the end user is accessible anywhere at any time. Accessibility is probably the major advantage by comparison with e-commerce applications involving a wired end user device.

**Security** – Depending on the specific end user device, the device offers a certain level of inherent security. For example, the SIM card commonly employed in mobile phones is a smart card that stores confidential user information, such as the user's secret authentication key. As such, the mobile phone can be regarded as a smart card reader with smart card.

**Localisation** – A network operator can localise registered users by using a positioning systems, such as GPS, or via GSM or UMTS network technology, and offer location-dependent services. These include local information services about hotels, restaurants, amenities, travel information, emergency calls, and mobile office facilities.

**Convenience** – The size and weight of mobile devices and their ubiquity and accessibility makes them an ideal tool for performing personal tasks

**Personalisation** – Mobile devices are usually not shared between users. This makes it possible to adjust a mobile device to the user's needs and wishes (starting with the mobile phone housing and ringtones). On the other hand, a mobile operator can offer personalised services to its users, depending on specified user characteristics (e.g. a user may prefer Italian food) and the user's location.

## 2.2 SECURITY CHALLENGES

M-Commerce is not possible without a secure environment, especially for those transactions involving monetary value. Depending on the point of view of different participants in an m-commerce scenario, there are different security challenges. These security challenges relate to:

**The mobile device** – Confidential user data on the mobile device as well as the device itself should be protected from unauthorized use. The security mechanisms employed here include user

authentication (e.g. PIN or password authentication), secure storage of confidential data (e.g. SIM card in mobile phones) and security of the operating system.

**The radio interface** – Access to a telecommunications network requires the protection of transmitted data in terms of confidentiality, integrity, and authenticity. In particular, the user's personal data should be protected from eavesdropping.

**The network operator infrastructure** – Security mechanisms for the end user often terminate in the access network. This raises questions regarding the security of the user's data within and beyond the access network. Moreover, the user receives certain services for which he/she has to pay. This often involves the network operator and he/she will want to be assured about correct charging and billing.

**The kind of m-commerce application** – M-commerce applications, especially those involving payment, need to be secured to assure customers, merchants, and network operators. For example, in a payment scenario both sides will want to authenticate each other before committing to a payment. Also, the customer will want assurance about the delivery of goods or services. In addition to the authenticity, confidentiality and integrity of sent payment information, non-repudiation is important.

## 2.3 REVIEW OF LITERATURE

This section explores the literature available on M-Commerce. Various empirical studies have been conducted in this area abroad; but not much in India. This present study will attempt to bridge the gap.

A series of papers by Barnes (2002a, 2002b) were among the pioneering efforts in mobile research in general. He proposed preliminary frameworks for value-chain creation and wireless advertising, respectively. His works were purely conceptual, but his frameworks provided a useful foundation for those who subsequently undertook empirical explorations. Needless to say, mobile Internet service adoption has been the most popular topic in the m-commerce research literature. Hung, Ku, and Chung (2003) conducted one of the most comprehensive studies of mobile Internet adoption, adopting Davis's [1989] Technology Acceptance Model (TAM) to consumers' WAP adoption behaviour in Taiwan. From a theoretical point of view, the TAM has been the most frequently used base for m-commerce adoption, followed by the Theory of Reasoned Action (TRA) (Fishbein and Ajzen 1975) and the Theory of Planned Behaviour (TPB) (Ajzen 1991). For example, Lu, Yu, Liu, and Yao [2003] proposed a TAM-based conceptual framework for wireless Internet adoption. This is not surprising, given that this theory has frequently been used to study wired Internet adoption.

Nysveen, Pedersen, and Thorbjørnsen's recent exploration (2005) have become one of the most significant contributions to date on mobile Internet adoption. The study was carried out in Norway, and partially replicates Hung, Ku, and Chung's study. Nysveen, Pedersen, and Thorbjørnsen formulated a causal model based on the TAM, TRA and TPB, to examine cross-service comparisons via multi-group structural equation modelling. SMS-based marketing is another "main stream" of M-Commerce research. For example, Barwise and Strong (2002) and Tsang, Ho, and Liang (2004) provided solid empirical

evidence regarding “permission-based” advertising in the UK and Taiwan, respectively. On the other hand, although sporadic industry reports indicate actual use of SMS campaigns, there have been few attempts to investigate multinational firms' strategic perceptions of mobile marketing.

Okazaki (2005) conducted a qualitative interview of 54 multinational firms marketing executives operating in Europe. This study was based on Roger's (1980) new technology diffusion model, and found that multinational firms consider branding one of the most important attributes of mobile advertising adoption. Few researchers have examined the specific nature of mobile Internet services, and the studies have been published in a rather sporadic way.

Kleijnen, de Ruyter, and Wetzels (2004) published an interesting study of mobile gaming adoption in the Netherlands. They applied a series of sophisticated multivariate analyses to examine mobile gamers' profiles. Their paper is one of the few empirical studies of this topic. In a recent study, Kleijnen expanded her expertise into the more psychological aspects of new technology adoption (2005), an approach that seems to provide insightful implications for future M-Commerce research. From the industry perspective, one of the most successful mobile Internet services, i-mode, has seldom been examined empirically, although Baldi and Thau's (2002) conceptual studies explained its adoption process from cultural perspectives. In the same token, Barnes and Huff (2003) used the TAM framework in their theoretical paper. Okazaki (2004) conducted an empirical study of a pull-type advertising platform on i-mode. His proposed model was based on uses and gratifications theory and on Dacoffee's (1996) Internet advertising value model. His findings suggest information, entertainment, and irritation as the three primary factors that influence consumers' intention to “click” text-banner ads in mobile platforms. These are few research studies that have been taken up by various authors in the past.

### 3. CULTURAL ISSUES IN M-COMMERCE

In human-computer interaction and computing, mobile phone usage is mostly addressed from a feature-driven perspective, i.e. which features do a certain user group use, and/or a usability perspective, i.e. how do they interact with these features. Although the feature driven and usability focus carry value, it is not the full picture. There is also an alternative or wider perspective: mobile phone use is influenced by demographic, social, cultural, and contextual factors that complicate the understanding of mobile phone usage.

The mobile device market has widened to a global scale and consequently mobile devices are distributed throughout the world (Kim and Lee 2005). As the use of mobile phones pervades the world, the globalization of mobile device user interface design is becoming more crucial to business success and building a loyal customer base. Communications technologies are entirely dependent on a social network for adoption and use, and therefore the diffusion of these technologies within a culture should be studied (Urbaczewski, Wells et al. 2002). The context of the mobile user includes user culture and the influence of culture on mobile phone use (Urbaczewski, Wells et al. 2002; Teo and Pok 2003a; Jones and Marsden 2005). This necessitates a review of culture as an essential part of understanding users and

the factors that influence mobile phone usage. The word 'culture' originally stems from an agricultural root: 'culture as cultivation of the soil and plants' (Hartley 2002). Applying this to people offers a metaphor for the cultivation of products, minds and social relations. The term “Culture” as varied by different authors can be seen through these definitions:

Culture can be seen as the social production of sense, meaning and awareness (O'Sullivan, Hartley et al. 1994). Culture can be seen as learned behaviour consisting of thoughts, feelings and actions (Del Gado 1996). Hall (1990) describes culture as communication through words, material things and behaviour. Honold (2000) argues that it is more meaningful to find a definition of culture that suits the specific area of research than to produce a general definition. Ford (2005) defines culture in the context of HCI as 'the patterns of thinking, feeling, and acting that influence the way in which people communicate among themselves and with computers'. This definition is also applicable to mobile interaction and we consequently adapted it for the purpose of this study to consider culture as 'the patterns of thinking, feeling, and acting that influence the way in which people communicate among themselves and use mobile devices'. Technology adoption involves the user, the technology and the context (Humphreys 2005). Various models for understanding technology adoption have been proposed. Pedersen lists Roger's innovation diffusion model, the domestication model and the technology acceptance model (TAM) as the three most commonly applied.

Rogers' innovation diffusion model was founded in sociology but has also been applied to the world of marketing where users are seen as economic entities. The model provides an approach to understanding how innovations are adopted by a particular population. Silverstone and Haddon (1996) proposed the domestication model where users are seen as social entities and the model aims to provide a framework for understanding how technology innovations change and are changed by their social contexts. The technology acceptance model was developed by Davis (1989) to explain the determinants of computer acceptance and usage behaviour. While Rogers' innovation diffusion model focuses on marketing and sales processes, the domestication approach deals with a more global analysis of adoption ex post facto, and TAM focuses on information technology adoption in organisations. This paper focuses on understanding the cultural factors that influence mobile phone adoption and usage and we therefore consider all three adoption models in more detail in order to establish their applicability.

#### 3.1. CULTURAL ISSUES ASSOCIATED WITH THE INTRODUCTION AND UPTAKE OF M-COMMERCE

The basic premise is that mobile consumers will want everything to work just as well as it does in the real world. They would want to be able to make m-commerce payments in the same way that they make e-commerce or physical world payments - easily, quickly, safely and with confidence.

This means that m-commerce transactions must share the same characteristics as all other payment transactions - cardholder and merchant authentication, data integrity, privacy, confidentiality and non-repudiation.

It is essential that these issues be identified to determine the consumer protections that are currently in place, and those that



need to be established to ensure that consumers are adequately protected before widespread uptake.

### **3.1.1 PRIVACY**

Privacy issues have always been a key reason for potential online consumers to avoid E-Commerce. In the early days of E-Commerce, a significant fraction of consumers thought that credit cards could be "snatched" off the Internet. Solid encryption technologies have reduced most of those fears, and for the most part, new consumers don't worry about losing credit cards while transacting online. However, there remains some very real privacy issues associated with conducting transactions electronically, which may be exacerbated with the capacity to undertake mobile transactions. These include unauthorized access to stored data, especially personal information and transaction history.

### **3.1.2 SECURITY**

Securing m-commerce may be even more difficult than protecting wired transaction. Constrained bandwidth and computing power, memory limitations, battery life and various network configurations all come into play, raise the questions as to whether there will be adequate security for users without compromising the ease of use and speed. In the use of text messaging, a number of security issues have already been identified, and will extend to the use of m-commerce. While a direct SMS message is relatively safe because it is encrypted for its transition from one mobile handset to the other, because of its store forward nature, messages are vulnerable to being corrupted. Like voice messages, SMS are stored on a server before being forwarded to the receiver. There is no mandatory encryption and access protection for storage. The only way to secure the entire transmission would be with end-to-end encryption. Messages exchanged between two service providers can also be violated in transit if the link between the two networks is not protected. If this information is related to payment details or authorization to make transactions, there is even more danger. The reliability of SMS is also in question. The capacity to check and ensure that sent messages are received will be essential to build and maintain trust in the use of m-commerce.

Mobile technologies manufacturers are developing improved security for applications with authentication and encryption technologies.

### **3.1.3 LOCATIONAL INFORMATION**

The nature of wireless networks and devices makes it possible to determine approximately where the user is located at any point in time, and, should they be travelling, the direction they are going. Mobile operators will be able to track calling patterns, and with eventual precision in positioning technology, will know where users are when they are conducting a transaction. This makes it possible to deliver local information such as the location of nearby stores, offices and emergency facilities backed up with connections to their wireless sites for information on services, hours and prices. Consumers can access local news or weather, or check on local housing prices. Essentially, the location of a wireless device can be used as one more search criterion in browsing the Web, focusing results on sites relevant to the user's immediate surroundings. The adverse effects of this have led the Federal Trade Commission (FTC) in the United States to ban the

ability to determine a consumer's geographical location through the use of the wireless device. The concern of the FTC was raised because the technology allowed targeted, direct advertising and could also encroach on privacy rights if people were not given the option of deciding whether they want to be targeted in such a way.

### **3.1.4 LIABILITY FOR TRANSACTIONS**

The youth market for financial services has become increasingly competitive, and providers have started to tempt teenagers with offers of free advanced phones that can manage M-Commerce applications, to sign up for specific accounts. The impact is that young people are drawn into expensive contracts that they cannot necessarily afford to maintain, with the promise of the smallest and most advanced mobile phone.

The ramifications of this could be exacerbated with m-commerce services, as young people become drawn into credit relationships, and purchasing services over their phone. How will the accounts of young people be monitored to ensure that they are not over committing in the use of these services, including how the content that consumers will be accessing is monitored and what sort of mechanisms will be put into place to restrict purchases that are legally prohibited, such as alcohol or pornography. Issues arise as to whether the Credit Code would provide adequate protection.

### **3.1.5 RELATIONSHIPS BETWEEN SERVICE PROVIDERS AND CONSUMERS**

There are a number of contractual issues that are likely to be raised with the introduction of M-Commerce. For example, what responsibility will the network operator have for sales of inappropriate goods and services, for example, in the sales of cigarettes or R-rated movie tickets to minors, if it participates in the billing and collection of such payments. Similarly, who will have the responsibility of checking information that the network operator collects and holds about customers, and their transactions. The new relationships and third party alliances that m-commerce is likely to introduce will also raise concerns for consumers.

### **3.1.6 ADVERTISING AND SELLING PRACTICES**

New selling practices are already emerging with the popularity of mobile phones, and this is likely to continue with mobile transactions. In many ways, the written text that will characterise m-commerce could improve the capacity for consumers to prove advertising offers etc. However there are other issues likely to emerge, including the extent to which SMS messaging represents a form of unsolicited direct marketing. This is currently being considered, with the U.K. regulator often increasing its powers to deal with unsolicited SMS messages.

### **3.1.7 CONTENT**

With regard to content transactions, the issue of who will be responsible for breach of regulations, i.e. the content regulator or the telecommunications regulator, will also require consideration. It is anticipated that m-commerce, like the Internet, will be largely a 'pull' rather than 'push' medium, which questions who would be held liable for the transmission of illegal content. There will be other issues which need to be considered, including the risk associated with legal liabilities such as

defamation, obscenity, copyright, trade mark and patent infringement, data protection compliance etc.

### 3.1.8 STANDARDS AND COMPETITION

In the long term, competition problems may arise as a result of network effects. There is limited scope in the market for payment services for a large number of incompatible M-Commerce payment processes. Users have a high preference for ubiquity. Firstly, a user wants the ability to send and receive money from other users. Secondly, a user wants to be able to use a payment function wherever he is. The usefulness of a payment system increases with the number of users, and a payment network is more valuable to each of its users. This positive network externality favours the emergence of a standard and technical interoperability.

At the moment, as new systems are struggling to obtain precedence in the market, there is limited competition between m-commerce providers. There are many different schemes, each of which is trying to reach critical mass. At the same time, mobile payment systems will not stop at national borders. On an international level, multinational companies like large telecommunications companies, credit-card firms and technology providers will have a strong interest in setting a common standard. A large number of interoperable schemes may restrict the adoption of m-commerce and hinder its future development. Thus, policy action might be called for in order to foster standardisation and the creation of interoperable systems. However, adopting standards at the early stage may result in sub-optimal standards being chosen, and hinder innovation. At the same time, coercive standard setting may not fully meet the needs of consumers in the market. The existence of network effects calls for interoperability between the systems of different network operators. Interoperability can only be achieved by cooperation, which introduces a host of other problems, including the potential of collusive behaviour to the disadvantage of consumers.

### 3.1.9 PROVISION OF CREDIT

The extent to which m-commerce operators will be providing credit to enable purchases and transactions to be made is one issue that has the potential to raise considerable problems. Already, issues are emerging with young people finding themselves in mounting debt as a result of mobile phone subscriptions, and this, coupled with the capacity to pay for purchases that can be charged to your mobile phones could introduce significant payment issues. Credit providers will need to conform to the requirements under the Consumer Credit Act, which covers the provision of personal credit to consumers; however the extent to which this covers the access to credit for m-commerce applications could be ambiguous. It is often assumed that the system will be regulated as a result of credit providers avoiding customers who pose a high risk. However, this is questionable, particularly in the introduction of new services that are struggling to obtain market dominance, and could pose considerable credit risk.

### 3.1.10 EVIDENCE AND ENFORCEMENT

Perhaps one of the most important issues that regulators, including State and Territory regulators, will need to grapple with is how any existing and future consumer protection

regulations, along with the other components in the broad regulatory framework will be enforced with regard to m-commerce, and m-commerce providers. A key question is evidence. Given the small size of mobile phones, the limited display options, and even the memory capability, it may be difficult for consumers to retain messages or content that has been sent to them on their phones for a period long enough to have the complaint recognised and dealt with.

### 3.1.11 EDUCATION AND AWARENESS

Enforcement is also likely to be difficult given that mobile phones and the messages that are sent or downloaded are usually only available to the individual who can see the screen and access the handset. An awareness and education campaign will be required to ensure that consumers are aware of their rights and obligations in the use of m-commerce.

## 4. CONCLUSIONS

We can safely conclude that m-commerce is going to be a much bigger domain than the e-commerce because of the following reasons:

1. **Affordability of mobile devices:** It is no denying the fact that mobile devices like cell phones and tablets are far more affordable than desktops and laptops, and an average Indian consumer doesn't have much disposable income in his hand to buy high end devices. Plus, one doesn't even really need expensive smart phones to shop online or make mobile transactions. Moreover, due to their mobility and affordability, even tablets are high in demand in India.
2. **Doing things on the go:** Mobile devices give the freedom to do things like shopping, booking tickets, making hotel reservations etc. anytime and anywhere. One doesn't need to wait to reach home or a cyber cafe to pay bills or make an urgent purchase online.
3. **Mobile Internet connectivity:** M-Commerce customers are not bound by limited wired and Wi-Fi Internet connections. In the last 3-4 years, the number of users who access the Internet through a 3G connection has grown to around 22 Mn. Now compare this with the 15 Mn fixed line broadband connections accrued over the last 17 years, there is a notable difference.
4. **Mobile Payments:** Mobile Payments is a new mode of payment as an alternative to traditional methods like cash, cheque, credit cards, etc. A customer can use a mobile phone to transfer money or to pay for goods and services. This could aid in reducing cash-dependencies of people, particularly in rural India.
5. **Security:** Mobile platforms are still relatively free from viruses and other threats. And even in case of a fraudulent activity, credit tracking by GSM/GPRS/GPS is easy and quick, thus increasing the credibility and giving better assurance to the skeptical Indian population. Also, seldom do people part with their phones, so there are less chances of misuse of login information that may happen on computer systems.
6. **Bridging the gap between e-commerce and conventional stores:** Brick and mortar stores are getting a lot of heat from online stores, which are luring their customers away by offering better products, prices and discounts. When a person goes out for shopping, mobile acts as a conduit



between the two poles, people compare prices online before buying something. This could be used by retailers to their benefit by offering location based services, barcode scanning, and push notifications to improve the customer experience of shopping in physical stores.

7. **Greater target audience for advertisements:** The problem with online advertising is that people have to be 'online' to view it. Several e-Commerce players in India have come out with TV commercials to advertise their websites. However, mobile is a better platform to do the same. Even with Government's regulation on bulk messaging, companies could still target a mass of people collectively by sending promotional content via SMS if a user hasn't activated the DND service or wants to receive those ads.
8. **Low tariffs-High revenue:** Mobile data tariffs in India are the cheapest in the world. Unlike PC Internet, affordability of 3G connectivity has improved significantly. Low rates will encourage people to use more of Mobile Internet, and eventually engage into m-Commerce as well. Considering the large mobile user base in India, the government could work with mobile companies to increase the overall revenue, by increasing Average Revenue Per User (ARPU).
9. **Government policies:** To bridge the digital gap in the country, in September this year, the Indian government had proposed a scheme to spend INR 7860 crore to distribute 2.5 crore mobile phones and 90 lakh tablets specifically to the rural population. Plus there is another initiative to give tablets to the college students. If these schemes are successfully implemented, then the mobile device user base will further grow and in turn increase the customer base for m-Commerce services.
10. **Personalisation:** In a true sense, Personal Computers are not really personal. Desktops and even laptops are shared by multiple people living in the same family or working together in an office. Whichever strata of the society a person may belong to, a phone has become an indispensable extension of oneself. People are more comfortable using their phones for various activities, as it gives them a sense of privacy and security, while offering easy usability. Since already there are way more mobiles in India than computers, m-Commerce could gradually grow bigger than e-commerce.

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# FROM FOLK ART TO SUSTAINABLE LIVELIHOOD CASE OF A WOMAN ARTISAN



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## ABSTRACT

*Handicrafts have been one of the major mainstays of the Indian economy and have subsequently acquired the status of a major livelihood opportunity for a large number of women in India. Madhubani paintings are one of the oldest art forms from Mithila region of Bihar. It is known as Mithila Painting. For centuries, women from the region of Mithila have been making ritualistic paintings and expressing their own social world through the medium of paintings.*

*This paper discusses the case and journey of a woman entrepreneur involved in madhubani paintings and other handicrafts who has not only fought out of the clutches of poverty but has also impacted the lives of sixty local women of Muzaffarpur District of Bihar. The present study aims to understand the role and potential of handicraft sector in improving and providing a sustainable livelihood option for local people especially women in the poverty ridden state of Bihar by strengthening of social capital linkages of women artisans and production in the homestead site, so that women could be economically active without leaving the home or being vulnerable to harassment or violence and empowerment of women as they learn to deal with traders. The paper also tries to identify the challenges faced by such small entrepreneurs.*

## KEYWORDS

*Sustainable Livelihood, Handicrafts, Social capital, women entrepreneur*

## INTRODUCTION

Handicrafts have been one of the major mainstays of the Indian economy and have subsequently acquired the status of a major livelihood opportunity for a large number of women in India. Madhubani paintings are one of the oldest art forms from Mithila region of Bihar. It is known as Mithila Painting. For centuries, women from the region of Mithila have been making ritualistic paintings and expressing their own social world around them through the medium of paintings. These handicrafts not only portray aesthetic and cultural dimensions but present various socio – economic characteristics, the major one being that the handicrafts sector is a home-based industry, which requires low capital and infrastructure investment. Moreover, it makes use of locally available skills and raw materials, thus acting as a major source of livelihood by creating home based entrepreneurship options. The current research is focussed towards understanding the role and potential of handicraft sector in improving and providing a sustainable livelihood option using a case based approach.

According to Carree & Thurik, (2003) entrepreneurship can be considered as a necessary condition for sound long-term economic development. It is the entrepreneurs who introduce new products and new production processes in an economy. The term “Women Entrepreneurship” means an act of business ownership and business creation that empowers women

economically, increases their economic strength as well as position in society. Patel (1987) classified three categories of women entrepreneurs- 'chance', 'forced' and 'created' entrepreneurs-based on how their businesses got started. Chance entrepreneurs are those who start a business without any clear goals or plans. Their businesses probably evolved from hobbies to start economic enterprises over time. Forced entrepreneurs are those who were compelled by circumstances (e.g., death of a spouse, the family facing financial difficulties) to start a business; their primary motivation, hence, tends to be financial. Created entrepreneurs are those who are located, motivated, encouraged and developed through Entrepreneurship Development Programs. Based on the in-depth interview conducted with the entrepreneur, this case tries to assess motives, obstacles, goals, aspirations, needs and business identity of a woman entrepreneur in the district of Bihar. It tries to bring forth how a woman entrepreneur does not only innovate new products and methods of production in the society but can also be a source of empowerment for other women in the society. The paper tries to develop a model of challenges faced by a small time forced entrepreneur.

## HOW IT STARTED

The organization “Aroona” which personifies spiritual power acts as a glow of rising sun to 65 women in its organization. It all started in the year 1993 when entrepreneur Aruna started her business of embroidery in Muzaffarpur district of Bihar. She was 28 year old, separated from her husband and had two children to look after. Low confidence and no family support forced her to look out for a number of things for sustenance. She took up home tuitions, became a life insurance agent, but the compensation in these jobs was not enough to support her family. Then one day she decided to take over embroidery as her business as this was the only thing she knew as she had grown up watching her mother do it.

## DEVELOPING HUMAN RESOURCE

Aruna, a very timid and introvert woman earlier, is now gracefully working towards her art and helping 13 girls to learn this art. She picks up girls from nearby villages and trains them in madhubani painting and embroidery (Katha work, Applique, Chikankari etc) for three months and then starts giving them work. She provides free of cost training and the trainees are generally absorbed by the organization. However, many women have started their own ventures of embroidery houses. The organization also provides part time work opportunity to women i.e. if some women want to work during the holiday season they can do so. The resources like sari, cloth, threads colors etc. are all provided by the organization. The payments are made on the basis of work done by the women. The monthly income is flexible both for Aruna and other workers as it depends upon sale.

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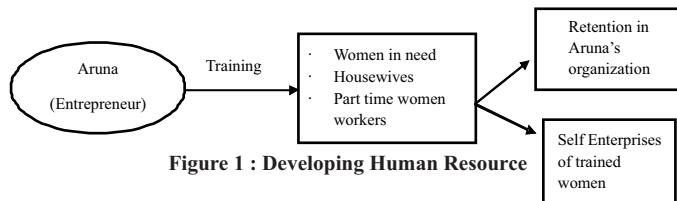


Figure 1 : Developing Human Resource

### WORKING OF THE ORGANIZATION

The entrepreneur does not use any form of advertising and works on the model of word of mouth for selling her products. This form of promotion itself seems to work for the organization as her customers belong to places like Delhi and Pune and range from teachers, professors, corporate to housewives. She started business with just one order, whereas today her organization boasts of having various orders from far flung places for Sarees, Suits, Dupattas and wall hangings. The various marketing models used by the entrepreneur are:

**Direct Marketing** – The entrepreneur directly engages with her customers for selling and customization of her products. This is the very first channel she used for marketing her products. The channel provides her an opportunity to interact with her customers to understand their requirement and customize products as per their needs. This also helps her understand the current fashion status, thus helping her make her products according to market demands.

**Participation in Trade Fairs** – The entrepreneur takes active participation in artisan trade fairs organized in her city in order to create awareness about her product. This marketing model has helped her create awareness for her venture and has grown to be one of the major revenue generation models for her firm. This has helped her create some high value loyal customers for her organization who not only buy her readymade products but also engage in customization of her art.

**Chain Marketing** – Some of the customers who buy from Aruna buy them in bulk for reselling purpose. This is especially the case with customers belonging to far flung areas like Delhi, Mumbai and Pune.

### CHALLENGES

**Low Productivity** – The entrepreneur faces the challenge of low productivity due to lack of professional infrastructure. The organization lacks essential infrastructure like work sheds, proper storage space and proper packing facilities. Lack of work sheds restricts the entrepreneur to recruit and train higher number of girls, thus limiting the productivity.

Another problem faced by the entrepreneur relates to the lack of financial capability to upgrade technology in production and undergo specialized training from time to time.

**Inadequate Inputs** – The entrepreneur faces the challenge of inadequate inputs at two levels:

- \* Raw Material
- \* Finance

**Raw Material** – Small raw material requirements result in low bargaining power for the entrepreneur thus many a times forcing her to buy sub standard material at high prices.

**Finance** – A major challenge faced by the entrepreneur relates to that of lack of finance which acts as a major hindrance to take up bulk orders, as it becomes difficult to buy raw material in high

quantity, arrange for workers and simultaneously take care of her children.

**Value Chain Problems** – Due to high prices of handicraft products the customers are generally urbanized, while the artisans and small entrepreneurs still continue to sell in their local markets. Low level of training and formal education makes it difficult for the entrepreneur to make use of technology and make her products available through internet.

**Lack of prior work Experience** – Due to lack of proper work experience and formal education in the field, the entrepreneur faces various challenges like determining the extent of stock to be maintained, maintaining relations with customers and other marketing and sales skills.

**Family Situation** – The entrepreneur has two dependent family members which hinders her from taking excessive risk of venturing to other markets thus resulting in her taking calculated risks and limited area of business.

**Social Ideologies** – Belonging to a small place the entrepreneur faced obstacles in starting up her own venture as the business required not only training girls but communicating with suppliers, customers' etc. The entrepreneur faced parental pressure to devote time to taking care of her children rather than spending most of her time in growing her entrepreneurial activity. She also faced the pressure of keeping her business small and not getting into large scale activity as that would have meant going out and marketing her products and interacting with different kinds of people. The pressure was to keep the business at a level at which it could be run from home and would not require her getting out and travelling.

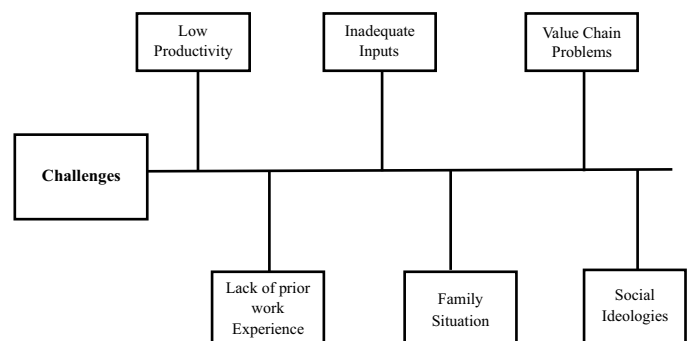


Figure 2 : Challenges faced by the Entrepreneur

### CONCLUSION

Handicraft sector is the largest unorganized sector of the Indian economy. The craftsperson's form the second largest employment sector in India after agriculture. The focus of the paper was to understand the journey of a forced entrepreneur in the field of handicraft and challenges faced. The paper suggests how a forced entrepreneur has not only fought out of the clutches of poverty but has also impacted the lives of sixty five local women of Muzaffarpur District of Bihar. The entrepreneur was successful in influencing some of these trained women to take up entrepreneurship as a full time activity thus impacting the lives of these women and empowering them. The organization follows a flexible model of working wherein the trainees are compensated based on the work done by them and not on the basis of a fixed wage which motivates them to actively participate in the working

of the organization and gives them a sense of ownership in the organization. The organization has been successful in creating specialized entrepreneurs in the field of mithila painting, chikankari etc thus creating a cluster of organizations which share their orders thus creating social capital linkages. However, the sector is not free from its own challenges which have been discussed in the paper. But this does not hinder the opportunity handicraft sector presents for sustainable livelihood. The advantages outnumber the challenges presented by the sector, the major being its benefit of providing livelihood at homestead site.

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# REACHING THE CUSTOMERS: ROLE OF MULTIPLE DELIVERY CHANNELS IN BANKING INDUSTRY



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## ABSTRACT

*The Indian banking industry plays an important role in the economic development of the country and is the most dominant segment of the financial sector. It is emerging as one of the fastest vehicle in the panorama of the burgeoning service sector in India. Banking is practically a necessity to business activity and is important for the growth of the economy. It is the center point of the economy as it caters to the need of all sections of the society. Attracting and retaining customers is always a key focus area for banks to be successful. Banks are finding new ways to reach their customers with a mix of traditional and modern techniques. This has necessitated a vigorous distribution system to reach out to customers across the expanse of a vast country especially in India. There is a need of adapting a system with multiple delivery channels which enables banks to expand their pool of potential customers by appealing to a greater number of segments, and catering to a wider range of needs. The present paper focuses on the multiple delivery channels available to bank customers for various banking services and it further examines the role of multiple delivery channels in Banking Industry in India.*

## KEYWORDS

*Banking Industry; Attracting and retaining; Intermediary system; Bank Customers; Multiple Delivery Channels, etc.*

## 1. INTRODUCTION

The Indian banking industry plays an important role in the economic development of the country and is the most dominant segment of the financial sector. It is emerging as one of the fastest vehicle in the panorama of the burgeoning service sector in India. Banking is practically a necessity to business activity and is important for the growth of the economy. It is the center point of the economy as it caters to the needs of all sections of the society. Banks are serving both the urban and rural areas although their penetration in rural areas is still a challenge. Attracting and retaining customers is always a key focus area for banks to be successful in the current arena of unforgiving competition. Bank marketers are not only facing competition from other banks, but also from the organisations which provide the same need satisfaction to the customers. For reaching the new customers, banks are finding new ways with a mix of traditional and modern techniques. This has necessitated a vigorous distribution system to reach out to customers across the expanse of a vast country like India. There is a need of adapting a system with multiple delivery channels which enables banks to expand their pool of potential customers by appealing to a greater number of segments, and catering to a wider range of needs. It is important for the banks to address each group of customers with the channels they require and then actively sell its products and services to those customers.

## 2. LITERATURE REVIEW

A key area of strategic importance for retail banks is distribution

channel management (Bruce et al., 2009; Capgemini et al., 2008). Fundamentally, a distribution channel can be described as any delivery method through which a bank can provide services to customers. Each individual bank typically operates an array of distribution channels, collectively termed as the bank's multi-channel mix. Across the multi-channel mix, those channels that do not involve physical face-to-face contact with bank staff members have been called 'direct channels.' Examples of the most commonly employed direct channels include: call centres, web banking, direct mail, and automated teller machines. Historically, banks have actively sought to migrate simple transactions, products and services away from tellers towards direct channels. This global trend has been driven by a combination of three underlying forces. Firstly, migration towards direct channels represents a cost saving opportunity for banks, particularly migration towards web banking (Peppard, 2000; Farquhar & Panther, 2007). Secondly, the migration of simple, low-value activities away from in-branch tellers, allows staff to focus instead on the sale of high-value products and services (BearingPoint, 2006). Thirdly, direct channels have the potential to offer customers enhanced levels of service and convenience (Peppard, 2000).

Clark (2008) suggested that as a Channel the mobile phone can augment the number of channels available to consumers, thereby giving consumers more low-cost self-service options by which to access funds, banking information and make payments. Mobile as a channel delivers convenience, immediacy and choice to consumers.

Uppal R.K. (2010) studies the extent of mobile banking in Indian banking industry during 2000-2007. The study concludes that among all e-channels, ATM is the most effective while mobile banking does not hold a strong position in public and old private sector banks. However, in new private sector banks and foreign banks m-banking is good enough with nearly 50 pc average branches providing m-banking services. Suoranta (2003) found that the average mobile banking user is married, 25 to 34 years old, has intermediate education and average income in clerical work. She found that age and education have a major influence on the use of the mobile phone in banking services. The adoption theories assume that use of Internet banking precedes the adoption of the mobile phone in banking. However, Suoranta (2003) found that some mobile banking customers omit Internet banking adoption when adopting the mobile phone for banking actions. Polatoglu et al. (2001); Al-Ashban and Burney (2001); Karjaluo et al. (2002); Black et al. (2002) support findings of Suoranta in their respective studies.

Social Media Banking is also in trend as approximately fifty banks and credit unions have developed Facebook pages (Bruene, 2008) and a number of major US financial institutions have opened Twitter accounts (e.g. Bank of America and Wachovia).

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Most banks must now manage innovation across a broad range of both direct and indirect distribution channels. There are very less academic studies which highlight the role of multiple delivery channels in banks' performance. The present study seeks to provide a deeper insight into the nature of multiple delivery channels in the Indian Banking sector. In particular, this study seeks to identify different delivery channels for banks by which they can efficiently service their current and prospective customers.

### 3. RESEARCH METHODOLOGY

The study is based on secondary data which is collected from the published reports of Reserve Bank of India and other concerned organisations. Other secondary sources include books, journals, newspapers, websites, and research studies in the related area. Critical analysis of the data and information collected from published sources was done keeping the objectives of the study in mind.

### 4. OBJECTIVES OF THE STUDY

The study was planned with the following main objectives:

1. To identify Multiple Delivery Channels in Banking Industry in India,
2. To discuss the advantages and role of Multiple Delivery Channels,
3. To suggest the ways by which Multiple Delivery Channels can be made effective.

### 5. INDIAN BANKING SECTOR

Banking in India is generally fairly mature in terms of supply, product range and reach, even though reach in rural India and to the poor still remains a challenge. The government has developed initiatives to address this through the State Bank of India expanding its branch network and through the National Bank for Agriculture and Rural Development with statistics like . Indian Banking Industry currently employing 1,175,149 employees and having a total of 109,811 branches in India and 171 branches abroad and an aggregate deposit of 67504.54 billion (US\$1.1 trillion or €790 billion) and bank credit of 52604.59 billion (US\$860 billion or €620 billion). The net profit of the banks operating in India was 1027.51 billion (US\$17 billion or €12 billion) against a turnover of 9148.59 billion (US\$150 billion or €110 billion) for the fiscal year 2012-13. It is because of the multiple delivery channels that banks are able to manage the needs of the customers by targeting different market segments.

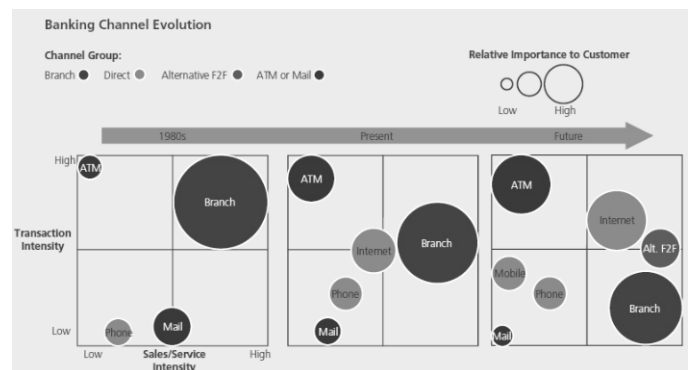
### 6. BANKING CHANNEL EVOLUTION

Many banks have made strong progress in improving their customer experiences, particularly in the following areas: customer data and segmentation; leveraging data to deliver a better product mix; creating a distinct brand image; and improving service operations. A bank's challenge is to improve and integrate its multiple distribution channels to consistently deliver an enhanced experience and foster better customer relationships. As the primary means of customer service and sales interaction, distribution channels play a central role in the customer relationship process, which fuels growth. That's why retailers place great importance on the look, feel, layout, and customer convenience of distribution channels, whether they

comprise of physical locations, Web sites, kiosks, or interactions with sales professionals. For the same reason, they make attracting and retaining customers within and across these channels a top priority. Banks must do the same.

For most banks, the branch presently dominates their distribution approach, while other methods of interaction such as direct channels and alternative face-to-face (F2F) outlets are less important and not well integrated. But this situation is changing fast as most of the young generation prefers to work with the direct channels like ATMs, internet banking, online kiosks, mobile banking, etc.

Branches will still play a vital part in the new equilibrium, but they will be very different. As transactions begin to take place via other channels, branch networks will behave like traditional retailers where the focus is on selling complex and high-value products and services. Meanwhile, technological advances can enhance the ability for direct channels to fulfil their potential as a source of banking sales and services with higher convenience at lower costs. Alternative F2F channels will also emerge as strong, viable distribution options in this new landscape because people will still value personal interactions.



**Figure 1: Banking Channel Evolution**  
Source: Deloitte Centre for Banking Solutions

### 7. MULTIPLE DELIVERY CHANNELS IN BANKS

A distribution channel is a route to the market for a supplier. In the case of a bank, the distribution channel is the way the banking product or service from the bank reaches its customers. Delivery channels are various technology based means through which the customers can transact with the bank at their convenience anywhere and at anytime of the day or night. Different means or channels have been evolved to serve the needs of the customers. Most banks have multiple channels to serve their customers. The various delivery channels perform a number of key functions, as follows:

- ☞ Sales and offer of services and products, as well as advising customers.
- ☞ Contact and communication with advertising and public relations agencies to assist in designing more effective advertising/promotional campaigns.
- ☞ Gathering of information necessary for planning marketing activities, strategy decisions and product development.
- ☞ Customer acquisition, satisfaction & retention
- ☞ Increase the speed of delivery of new products to the market
- ☞ Cross selling opportunities

- ☞ Round the clock availability of products and services
- ☞ Handle any number of transactions
- ☞ Reduce the waiting time in branches
- ☞ Allow the bank to manage its services consistently and economically
- ☞ Migration towards direct channels like ATMs, internet banking, etc. represent cost saving opportunities for banks
- ☞ Migration of simple, low-value activities away from in-branch tellers, allows staff to focus instead on the sale of high-value products and services

Customers have a choice of transacting through ATM, Internet Banking, Tele-banking, Mobile banking or through plastic cards such as Credit Card, Debit Card, Smart Card, etc. at the time of their choice and can be accessed at multiple locations, including overseas locations. Multiple Delivery channels in Banks are branch networks, tele-banking/call centres, mobile banking, direct mail, ATMs, Electronic Fund Transfers (EFT), Electronic Fund Transfers at Point Of Sale (EFT POS), internet banking, cash management services and social media banking.

### 7.1 BRANCHES/BRANCH NETWORK

The most important channel of providing the products and services to the customers of banking industry is the Branch Network. Most of the customers access the branch for getting the products and services of the banks. These are the face of the bank and a place where the client meets the bank. The distribution is made by traditional counters. There are more than 2.35 lakh branches in India as shown in Table 1. Customers prefer branch network especially for complex and high-value products and services since they can interact face to face with the bank employees at the branch networks and can also seek advice in making the choice of appropriate products and services as per their needs and requirements.

**Table 1: Branches Of Scheduled Commercial Banks**

Branches of Scheduled Commercial Banks					
(As at end-March 2013)					
Banks	Branches				
	Rural	Semi-urban	Urban	Metropolitan	Total
Scheduled Commercial Banks	26,493	25,009	19,027	18,033	88,562
Public Sector Banks	24,124	19,554	15,080	13,903	72,661
Nationalised Banks	17,036	13,539	11,320	10,585	52,480
Private Sector Banks	2,361	5,445	3,882	3,881	15,569
Old Private Sector Banks	1,069	2,332	1,514	1,132	6,047
Foreign Banks	8	10	65	249	332
Total	71,091	65,889	50,888	47,783	2,35,651

*Source: Report on Trend and Progress of Banking in India 2012-13 RBI*

**According to a survey carried out by Accenture in September 2008**, the branch is the most preferred channel for all the interactions that emotionally involve customers, such as buying complex products (76% preference), receiving financial advice (71%) and resolving an issue (59%). 73% of the customers visiting a branch say that they are looking for a personalized contact.

In this respect, the branch is a distribution channel where the human factor plays a dominant role. Bank's major distribution outlets are their branches. **The Design and development of the branch network will be affected by:**

- ☞ Characteristics of the product – Importance of service quality, inseparability of the product, intangibility of the

product, complexities of the product, value of the product, etc.

- ☞ Customer needs – convenience, operating hours, availability of ATM, tele-banking, home banking and so on.
- ☞ Environment factors – legislation, development of information technology.
- ☞ Competitors – if a branch network is efficient, it will be a competitive advantage against competitors.

Advantages of the branch network include its accessibility to customers; it keeps a bank's name in the public eye; and banks become accepted as an important member of the community. Branch network also has some disadvantages as it's costly to maintain the premises; staff costs; major investments involved – the amount of capital tied up in it; it is old fashioned, difficult to modernize; and small branches can be difficult to enlarge when expansion is necessary.

Branches can be further categorised into the following:

**Specialized branches:** Specialized branches are the branches which have been created as an alternative for the classic branches. These specialized branches are focused on a certain type of activity such as: operations for individuals, for small businesses or for corporate clients. The main reason for establishing such branches was to have a close relationship with these corporate customers and to provide services of interests for their clients. Their primary activities are the consumer loans and basic operations for individuals (payments, foreign exchanges etc.). For example: Karnataka Bank Specialized branches: Agricultural Development Branch, Overseas Branches, Foreign Exchange Branches, Industrial Finance Branch, Service Branches, Asset Recovery Management Branches, Currency Chests, Central Processing Centre.

**Corporate branches or private banking branches:** In order to better serve certain range of clients, banks have also created corporate branches or private banking branches. These clients require more sophisticated products and services and high standards of quality. Therefore, the staff employed in these branches should be seniors in terms of product knowledge and the quality of service delivery should be the best.

**Mortgage branches:** Among the specialized branches, we can also mention the mortgage branches whose focus is on selling mortgage loans.

**Self banking branches:** Self banking branches were first created by ING. These branches have two areas: one where the customers are served by bank employees (usually 3 or 4 persons) during the normal working hours and one where the customers can use self banking devices. The access to this area is given to all the bank customers who have a debit card. Here, the clients can make deposits, payments, cash withdrawals, invoice payments, repayments of loans instalments, etc.

One of the latest examples from Indian Banking sector is ICICI 24x7 Electronic Branch. ICICI Bank has launched 24x7 electronic branches which are one-stop shops for all banking transactions. Customers can transact on their own, at a time of their convenience, with the help of various automated devices and kiosks. The electronic branch offers the facilities of a cheque deposit machine, an interactive kiosk through which internet banking services can be accessed easily by just swiping a debit

card, a cash deposit machine with instant credit facility and 24-hour video conferencing with ICICI Bank's customer care personnel. The customers can deposit cash upto 2 Lac per day. There are more than hundred such electronic branches across various locations in India.

**Mobile Branches:** In Mobile Branches, a mobile van is used for providing the products and services to users in the rural areas or the areas which are untouched by the bank networks. The aim of this van is to promote and sell the bank's products. In India, banks like SBI, PNB and HDFC are using this channel for providing ATM services. One of the examples from the Indian Banking Industry is SBI's Bank On Wheels. Under the concept of Bank On Wheels, the various financial services are available to the rural Indians in their villages which includes No Frills Savings Bank Account– Cash Deposits/Withdrawals, Savings Bank Tiny Recurring Deposits Account, Remittance / Money Transfer Facility, Loans / Overdraft Facility, Life Insurance Products and Other Services.



Figure 2: SBI Bank on Wheels

Another example is of ICICI's Branch on wheels. The 'Branch on Wheels' is a first of its kind initiative by any private sector bank in India. It offers a wide range of banking products and services such as savings accounts, loans, cash deposit/withdrawal, account balance enquiries, statement printing and funds transfer/DD/PO collections, among others. The 'Branch on Wheels' is operated through a van. It is stationed at specific timings of the day in pre-identified, unbanked villages at specified locations, equipped with a GPS tracking system, laptops with 3G connections, LED TV, a safe, a printer, public announcement system, a UV Lamp that detects forged cheques, a note counting-cum authentication machine that identifies fake currency notes and a unique low weight ATM. Two ICICI Bank officials and a guard manage the 'Branch on Wheels'. The nearest branch of the Bank acts as the parent branch of the 'Branch on Wheels', routing all the cash and transactions for it. Odisha was the third state where ICICI Bank has expanded its 'Branch on Wheels' network in February 2014 after Chhattisgarh in February 2014 and Maharashtra in September 2013.

## 7.2 TELE BANKING / CALL CENTRES

Telephone banking is a service provided by a bank, which allows its customers to perform some banking transactions over the telephone. Most telephone banking services use an automated phone answering system with phone keypad response or voice recognition capability. To ensure security, the customer must first authenticate through a numeric or verbal password or through security questions asked by a live representative. By dialing the given tele-banking number through a landline or a mobile from anywhere, the customer can access his account and by following the user friendly menu, entire banking can be done through Interactive Voice Response (IVR) system. With sufficient numbers of hunting lines made available, your call hardly fails. Calls that could not be answered through IVR are directed to a Customer Service Agent (CSA). Banks are seeking to leverage these inbound services calls to drive cross-sales. The call centre acts as a necessary remote channel for less tech savvy customers and for those without internet access. It also acts as a useful customer support service for both the web banking and branch channels. With the obvious exception of cash withdrawals and deposits, it offers virtually all the features of an automated teller machine: account balance information and list of latest transactions, cheque book request, funds transfers between a customer's accounts. The system is bi-lingual and offers the following facilities:

- ☞ Balance inquiry and transaction inquiry
- ☞ Inquiry of all term deposit account
- ☞ Statement of account by Fax, e-mail or ordinary mail.
- ☞ Cheque book request
- ☞ Stop payment which is on-line and instantaneous
- ☞ Transfer of funds with Core Banking Solution (CBS) which is automatic and instantaneous
- ☞ Utility Bill Payments
- ☞ Renewal of term deposit which is automatic and instantaneous
- ☞ Voice out of last five transactions.
- ☞ Various inquiries such as term deposit rates, forex rates, etc.

## 7.3 MOBILE BANKING

Mobile banking (also known as M-Banking) is a term used for performing balance checks, account transactions, payments, credit applications and other banking transactions through a mobile device such as a mobile phone or Personal Digital Assistant (PDA).

### Mobile Banking Applications



Figure 3 : Mobile Banking Applications



The following functionalities are available:

- ☞ Funds transfer (within and outside the bank)
- ☞ Interbank Mobile Payment Services (IMPS)
- ☞ Enquiry services (Balance enquiry/ Mini statement)
- ☞ Cheque book request
- ☞ Bill Payment (Utility bills, credit cards, Insurance premium), Donations, Subscriptions
- ☞ Mobile Top up
- ☞ M Commerce (Top up of Tata Sky, BigTV, SunDirect, DishTV, Digital TV and Videocon d2h connections, SBI life insurance premium, etc.)

Mobile phones are becoming more sophisticated and, therefore, more capable of handling advanced applications and services. Banking via mobile phones appeals to consumers on multiple fronts. Customers may not know the location of their closest branch or even where their credit or debit cards are, but they always have their mobile phones nearby. Mobile phones also serve as an efficient vehicle for making contactless payments or person-to-person transfers, providing greater security protocols and storing in-depth preference information. This is efficiently accomplished via an existing device, without the need to load an extra smart card. Various software platforms for mobile phones and other devices will allow consumers to use the Web through their handhelds as easily as they do through their computers. It is anticipated that this will spur rapid demand for mobile-banking services over the next decade.

#### 7.4 DIRECT MAIL

Direct mail is another distribution channel for banking products and services. At the same time, direct mail is also a promotional tool. The aim of delivering the banking products and services by mail can be, not only just simply informing the clients about a new product, but also convincing the client to buy a certain product.

The main advantage of delivering by mail is the fact that the bank can promote its products and services to a certain segment of clients. In this way, the bank can target a certain group of clients in order for the message and products to be tailored accordingly. It is rarely used as banks are finding other innovative channels which are more efficient in reaching the customers.

#### 7.5 AUTOMATIC TELLER MACHINES (ATMS)

ATM is an electronic telecommunications device which enables the clients of a financial institution to perform financial transactions without the need for a cashier, human clerk or bank teller. ATMs have been rapidly moving from just a cash-dispensing machine to a self-service banking channel. ATMs offer the convenience of withdrawing /depositing cash and performing other banking transactions without having to visit the branch during pre-fixed business hours. These machines work round the clock, are safe to transact in an isolated and secure environment. With the inter-connected ATMs, the convenience becomes much more acceptable as the customer can transact from any ATM most convenient to him/her. Thus ATM network gives the card holder freedom to choose his day, time and place to transact in his account.

The driving forces of this movement are: firstly, the pursuit of operational efficiency and then, the battle for differentiation in

the service being offered. ATMs can increase the marketing potential by providing services to clients in others places than the bank branches. ATMs are also serving as an alternative for crowded desks in branches. ATMs can reduce the waiting time in branches.

The services offered through these ATMs are:

- ☞ Cash Withdrawal and Deposits
- ☞ Balance Enquiry
- ☞ Mini statement
- ☞ Stop Payment of cheque
- ☞ Inter-bank Fund transfers
- ☞ Cheque related services including cheque book request
- ☞ PIN Change

The clients appreciate the user-friendly feature of ATMs, the large number of operations that can be performed through ATMs, the speed and the security of these devices and last but not least the theoretically unlimited availability of ATMs. Besides all these, all the transactions are automatic, which reduces the risk of human mistakes in transactions.

**Table 2: Number of ATMs**

No. of ATMs			
(As at end-March 2013)			
Banks	ATMs		
	On-site	Off-site	Total
<b>Scheduled Commercial Banks</b>	55,760	58,254	1,14,014
<b>Public Sector Banks</b>	40,241	29,411	69,652
<b>Nationalised Banks</b>	21,533	15,528	37,061
<b>Private Sector Banks</b>	15,236	27,865	43,101
<b>Old Private Sector Banks</b>	4,054	3,512	7,566
<b>Foreign Banks</b>	283	978	1261
<b>Total</b>	<b>1,37,107</b>	<b>1,35,548</b>	<b>2,72,655</b>

*Source: Report on Trend and Progress of Banking in India 2012-13 RBI*

There were more than 2.7 lakh ATMs at the end of March 2013 as shown in Table 2, which are helping the banks in reaching more customers.

#### 7.6 KIOSKS

Kiosk is one of the innovative distribution channels which enable the bank to offer its services at a point nearest to the customer. These kiosks are generally installed at the shopping malls or at the areas where the foot falls of the customers is large and a large number of customers have the opportunity to avail the services of these online touch screen kiosks. Banking sector need to constantly introduce innovative and improved services to retain and attract customers. Touch Screen kiosks in banking and finance environment can handle customers' transaction needs, and provide customers with information about bank products & services, especially e-banking options. Touch Screen computer interface is possibly the fastest growing alternative for the mouse and the keyboard. Touch based kiosks offer many advantages over traditional computer hardware - they are user-friendly, easy to install, require low or nil computing skills to operate. In such a setting, touch screen kiosks enable banks to:

- ☞ Promote a bank's website
- ☞ 24x7 accesses for customers. No queues, provide anytime banking
- ☞ Provide demonstrations of electronic banking

- ☞ Answer frequently-asked customer questions
- ☞ Online banking and bill payment activation
- ☞ Highlight banking products, services, interest & loan rates, etc.
- ☞ Offer self-service facility for selected operations
- ☞ Capitalize on existing systems & increase effective technology deployment
- ☞ Customers can check their account balance, print a mini statement and make cheque book requests
- ☞ The data that is generated from the kiosk transactions are further used for MIS reports and database creation. This leads to minimizing back-end operations of the bank
- ☞ Customers can deposit their cheques; get an immediate receipt with a scanned image of the cheque with every detail listed. The cheque is endorsed at the back, while the transaction details are generated for the bank's MIS
- ☞ Kiosks also help in promoting various value-added financial services and related bank products and services, such as credit offerings, online credit, commission-based online securities trading, and investment and wealth management with the help of advertisements on the screen.

### 7.7. EFT (ELECTRONIC FUND TRANSFER)

Electronic funds transfer (EFT) is the electronic exchange, transfer of money from one account to another, either within a single financial institution or across multiple institutions, through computer-based systems. EFT with online marketing can be used for number of concepts like cardholder, direct deposit, direct debit, online payment through ecommerce websites, wire transfer and many more.

Benefits of using EFT through e-commerce website for financial transactions are as follows:

- ☞ Payments through EFT are much safer as compared to cheques.
- ☞ There are no issues of lost or stolen cheques.
- ☞ Payments through EFT are quicker as compared to that of the cheques.
- ☞ Payments through EFT are quite convenient and easy.
- ☞ Payments of EFT facilitate online banking through e-commerce websites.
- ☞ Other benefits include lowering of administration costs, greater security and increased efficiency.

With so many advantages of EFT the need for paper bills is slowly reducing. Due to these advantages the use of EFT has widely increased in all the sectors related to finance.

### 7.8 EFT POS (ELECTRONIC FUNDS TRANSFER AT POINT OF SALE)

EFTPOS (Electronic Funds Transfer at Point of Sale) is a payment method that can be described as a distribution channel. EFTPOS is an electronic payment system involving electronic funds transfer based on the use of payment cards, such as debit or credit cards, at terminals located at points of sale. EFTPOS is a system by which the clients pay the services they acquired just by using a bank card. This system is used in shopping, travelling, booking tickets, etc. This is one of the advanced channels which

solves the problem of carrying cash in wallet and provides safety to the customers against theft.



Figure 4: EFTPOS

### 7.9 INTERNET BANKING

Internet became a distribution channel by providing an entire range of services, i.e., payments, information about account balances and other important services. The arrival of the World Wide Web and other technologies has radically changed banking and wealth management sector. Banking institutions are now offering their products and services on the internet which are accessible to larger base of potential customers. The Internet has not only provided an efficient mode of transaction, accessible anytime and anywhere, but also allowed customers to use self-help features to take informed decisions. It also provides the opportunities for cross selling by placing relevant advertisements on online banking portals. Many banks provide dynamic product selectors to assist customers choose financial products based on their needs and expectations of return. Online banking enables customers to interact with a relationship manager using the chat facility, to give them a branch-like experience without the costs. Last but not the least, it makes transactions paperless.

The Internet facilitates payments for services (taxes, etc.) with the help of virtual cards. The Internet is also a tool for acquiring new clients through online applications for different products. In terms of clients' preferences, the internet is more preferable as compared to other distribution channels because of simplicity, availability and customization. The only constraint is the fact that the Internet is not accessible to all the clients. On their part, banks must pay attention to the following issues pertaining to the online channel:

- ☞ Customers' reluctance to use electronic interactions for wealth management decisions.
- ☞ Cyber-attacks on portals.
- ☞ Server maintenance in order to support high traffic.
- ☞ Unauthorized access and fraudulent transactions.

### 7.10 CMS (CASH MANAGEMENT SERVICES)

CMS is a banking service which enables customers to manage their Receivables and Payments efficiently and effectively. Under the cash management services, banks provide collection



and payment (paper and electronic) facilities as shown in Table 3. Traditionally, cash management system in India, having a paper-based clearing system involving not only high processing cost but security risk has certainly undergone a paradigm change. From a product-centric approach, the focus for almost all banks today has shifted emphatically to the customer. And success is all about bringing the maximum possible delivery channels to the prospect's doorstep.

Technology has been the key driving force behind every successful bank. In such an environment, the ability to recognise and capture market share depends entirely on the bank's competence to evolve technically and offer the customer a seamless process flow. The objective of a cash management system is to improve revenue, maximise profits, minimise costs and establish efficient management systems to assist and accelerate growth.

There are many banks that provide Cash Management Services in India. Some of them are Axis Bank, HDFC Bank, ICICI Bank, IDBI Bank, Standard Chartered Bank, United Bank of India, Andhra Bank, Yes Bank, etc.

**Table 3: Cash Management In India**

Cash Management in India	
Products offered by banks under collections (paper and electronic):	Products offered by banks under payments (paper and electronic):
<ul style="list-style-type: none"> <li>Local cheque collections.</li> <li>High value (0 Day clearing).</li> <li>Magnetic ink character recognition (MICR)</li> <li>Outstation cheque collections.</li> <li>Cheques drawn on branch locations.</li> <li>Cheques drawn on correspondent bank locations.</li> <li>Cheques drawn on coordinator locations.</li> <li>House cheque collections.</li> <li>Outside network cheque collections.</li> <li>Cash collections.</li> <li>ECS-Debit.</li> <li>Post dated cheque collections.</li> <li>Invoice collections.</li> <li>Capital market collections</li> </ul>	<ul style="list-style-type: none"> <li>Demand drafts/bankers cheques.</li> <li>Customer cheques.</li> <li>Locally payable.</li> <li>Payable at par.</li> <li>RTGS/NEFT/ECS.</li> <li>Cash disbursement.</li> <li>Payments within bank.</li> <li>Capital market payments.</li> </ul>

#### **Cash Management Solutions Offered in India:**

**Account reconciliation services** - Balancing a chequebook for a very large business can be quite a difficult process. Banks have developed a system to overcome this issue. They allow companies to upload a list of all the cheques whereby at the end of the month, the bank statement will show not only the cleared cheques but also uncleared ones.

**Positive pay** - It is an effective anti-fraud measure for cheque disbursements. Using the cheque issuance data, updated regularly with cheque issuance and payment, the bank balances all cheques offered for payment. In case of any discrepancies, the cheque is reported as an exception and is returned.

**Balance reporting services** - Balance reporting provides help in procuring a company's current banking information from its accounts. With this service the banks can offer almost all types of transaction-specific details on activities related to payment like deposits, cheques, wire transfers etc. It also helps in an effective and efficient management of regular cash flow.

**Lockbox** - Lockbox is a service where customer payments are delivered to a special post office (PO) box instead of being delivered to a business address. It is only the customers' payments that are delivered in the PO box and the company's own bank collects the amount and delivers them to the banks of the customers. The customer's bank opens and processes the payments for direct deposit to the bank account. Lockbox contents are regularly removed and processed.

## **7.11 SOCIAL MEDIA BANKING**

Social media has become an increasingly pervasive element of everyday life for consumers. Social channels such as Twitter have become a powerful platform for consumers to voice experiences of consumer care, both good and bad; a far more public and hard-to-manage consumer forum than banks were once used to. However, the social channel does create an opportunity for new services and models of interaction with customers. The social dimension provides the opportunity for much more personalised dialogue than the transaction-orientated traditional online banking model. Banks have their presence on social media sites like Facebook, Twitter, LinkedIn, etc. They are using these social media sites to promote their products and services and for creating a strong brand image with the help of advertisements, slogans, stories, articles and festival wishes. Banks have also created their official pages on these sites. For example, ICICI Bank has created its webpage on Facebook and is very active on the website. There are different ways by which ICICI is reaching its customers. It has various posts on different issues; interesting facts; fan of the month contest and different photos by which they provide an opportunity to the Facebook users to start an initial interaction with the Bank.

Social Media helps in developing more relevant and targeted products and incentives for the customers. Recent years have seen social media creeping up alongside cell phone banking. Banks feel the need to counteract the impersonality of our digital age by offering customers greater contact on a perceived one-to-one level. Although most social media platforms still rely heavily on marketing content, the trend is firmly set towards development of more interactive services.

## **8. HOW TO MAKE MULTIPLE DELIVERY CHANNELS EFFECTIVE**

While banks have succeeded in leveraging available technology and provide alternate avenues to customers for banking services, the challenge it faces today is optimizing the usage of these channels. While ATMs are becoming popular among customers for cash withdrawal, the other channels viz., internet banking, mobile banking, etc. are less popular as the customers hesitate to use these channels because of security concerns.

The alternate channels have greatly reduced the transaction costs for the banks. But banks can realize the full benefit of the roll out of alternate channels only if there is a perceptible increase in the usage by customers. It is imperative for the banks to take steps in regulating the customers to move to the new modes of banking so as to cross the minimum critical mass. Multiple delivery channels can be made effective in the following three ways:

1. **Educating the Customers:** Customer education plays an important role to induce customers to use ATMs, e-banking, mobile banking, etc. Many consumers are apprehensive of using their credit and debit cards over the internet because of the perceived risk of frauds. They do not shop online because they do not trust online payment systems. Banks would need to address these issues effectively if they have to remain customer centric. They should remove the fear of cyber frauds from the minds of customers by educating them on the proper use of technology. They should appraise the customers of the steps taken by them for securing the systems. They should also constantly educate the customers

on safe keeping of the plastic cards, securing user id and password, periodically changing the passwords, not sharing the passwords with any one, known or unknown, etc.

2. **Training of Staff:** Banks should train their staff on new channels, products and services and make them fully conversant with the new technology based banking products and services. They should make all staff to use these channels so that they in turn can market / cross sell the products and services better and educate the customers on the use of new devices, products and services.
3. **Cohesive Multi-channel Strategy (Connected and Collaborative Channels):** A cohesive multi-channel system should integrate with the banking platform to address all components of the entire lifecycle of customer experience management. Banks should provide a consistent experience across all channels and an ability to seamlessly move between channels within a customer case/interaction – an ability which is possible only if channels are connected to deliver collaboration. This collaboration is important for monetizing customer and channel interactions to further enhance ROI.
4. **A Balanced Channel Strategy (Right Transactions into Right Channels):** The key to a successful channel strategy is to achieve an apt balance between business and customer needs. Banks should have the ability to deliver the right service at the right time through the right channel. Banks need to assess the key factors in creating the right channel mix that can provide a convenient, consistent and personalized banking experience seamlessly across all channels. A successful multi-channel strategy needs to consider the following to formulate the right mix:
  - ☞ Customer demographics/segments and customer preferences
  - ☞ Simple vs. complex transactions, and correspondingly putting them into appropriate channels (which is profitable to banks as well as convenient to customers)
  - ☞ Traditional channels vs. self-service channels
5. **Integrating the Channels:** Banks' challenge is to improve and integrate their multiple distribution channels to consistently deliver an enhanced experience and foster better customer relationships. There is a need of offering integrated channels, with the optimal balance of services, prices and offer across channels. As the primary means of customer service and sales interaction, distribution channels play a central role in the customer relationship process, which fuels growth. That's why retailers place great importance on the look, feel, layout, and customer convenience of distribution channels, whether they comprise of physical locations, websites, kiosks, or interactions with sales professionals. The bank should define exactly how they are going to use each channels, what services and products in which channels, how to mix and integrate the channels and how to support the channels.

## 9. CONCLUSION

The growing use of instant messaging as a business tool, the expanded use of social networking sites, and increasing consumer acceptance of self-service kiosks is likely to influence consumer preferences for banking delivery channels. Banks are

finding new ways to reach their customers - through a mobile van, or an online touch screen kiosk at the shopping mall, or a social media website which is trying to connect with the customers of the bank. Multichannel banking is more than just offering multiple channels, but offering integrated channels, with the optimal balance of services, prices and offers across channels. Banks should have the ability to deliver the right service at the right time through the right channel. The bank should define exactly how they are going to use each channel, what services and products in which channels, how to mix and integrate the channels and how to support the channels.

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# THE RELATION BETWEEN EMOTIONAL INTELLIGENCE AND JOB SATISFACTION



Ritika Kaur \*

## ABSTRACT

*Nowadays, in almost all fields, analysis of relation between Job Satisfaction and Emotional Intelligence has been one of the most crucial research subjects to get high productivity. These two are the main concepts in modern work environment. This paper aims at studying relationship between Job Satisfaction and Emotional Intelligence. For this reason, 50 managers of Government Banks were chosen (random stratified sample) and the data was gathered by running Sibia Shiring Emotional Intelligence Questionnaire and Bray field & Rothe Job Satisfaction Questionnaire. After that, to analyze the data, Pearson correlation analysis was done. Results showed that there is a relation between Emotional Intelligence and Job Satisfaction. The relation between job satisfaction and each of the emotional intelligence criteria (self-awareness, self-control, self-motivation, Intimacy and social skills) were upheld. The analysis gave a positive relation between two variables. This study will help various researchers and practitioners in realising the link between these two variables.*

## KEYWORDS

*Emotional Intelligence, Job Satisfaction, productivity.*

## INTRODUCTION

Job Satisfaction plays a very important role in today's organisations. Employees play the role of a pillar in the organisation and their satisfaction directly or indirectly affects the productivity. Various authors have given different approaches towards job satisfaction. Various reasons were studied regarding factors which affect job satisfaction like salary, family, designation, promotional patterns, education etc. But it was also seen that the presence of these factors can also lead to failure. When the root cause was searched, it pointed towards Emotional Intelligence.

People who attain and sustain the skills of emotional intelligence are healthier, less depressed, happier and more productive as compared to those who do not attain it. Many organisations send their employees to attend various emotional courses and team up with consultants and researchers to initiate various programs about emotions.

An employee would be able to make sound decisions if he has the ability to recognise his own emotions. An employee should be able to understand emotions of his peers in order to be effective.

This paper analyses the role of Emotional Intelligence (EI) in job satisfaction of employees which is interesting lots of researchers now a days.

## LITERATURE REVIEW

**Job Satisfaction** - Job satisfaction is one of the most important topics for researcher today. As discussed various authors have given different approaches to define Job satisfaction. Some of them are cited below:

Job satisfaction according to Happock, is a combination of psychological, physiological and environmental circumstances

that cause a person truthfully to say I am satisfied with my job. This means that there are various external factors which have an effect on job satisfaction but there is something internal that has to do with the way an employee feels. This simply states that there are various factors which affect employee's feeling towards satisfaction or dissatisfaction.

According to Vroom, Job satisfaction focuses on the role of the employee in the workplace. Thus he defines that work roles which the employees are occupying presently do effect Job satisfaction (Vroom, 1964).

According to Spector, job satisfaction is how people feel about it and its various other aspects. This basically includes the liking and disliking towards their jobs.

Workers can have various positive and negative feeling towards their work which represents job satisfaction. In an organisation where a worker is employed, management's expectations and the actual performance given by the worker represents job satisfaction. If expectations and performance matches, it is assumed that the employee is satisfied with the job otherwise he/she is not satisfied with the work.

If an employee has positive and favourable feelings towards his/her job, then it indicates job satisfaction but if there are negative or unfavourable feelings towards his / her job then it indicates job dissatisfaction. (Armstrong, 2006)

Satisfaction degrees can range from extreme satisfaction to extreme dissatisfaction. It may include factors like peers, supervisors, subordinates, pay, leaves, etc which may create a different kind of attitude towards the job.

The term "Job Satisfaction" seems to be simple and easy to understand but its not. It is a complex phenomenon.

Job satisfaction is considered a very important aspect today because there can be various negative consequences of job dissatisfaction like absenteeism, lack of loyalty, increasing number of accidents etc.

Rue and Byars gave a different approach regarding the factors of job satisfaction which states that Job satisfaction can result in commitment towards the organisation and job dissatisfaction can result in absenteeism, accidents, strikes, Grievance etc. Factors resulting in Job satisfaction or dissatisfaction can be working conditions, manager's concern for people, compensation, social relationships, long term opportunities etc.

Job satisfaction can be measured by using Minnesota Satisfaction Questionnaire and Job Satisfaction Index. There are two versions of Minnesota Satisfaction Questionnaire 1967 version (Not satisfied, Somewhat satisfied, satisfied, very satisfied and extremely satisfied) and 1977 version (Very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied and very dissatisfied) out of which the obvious choice was of version 1977 because it was more balanced.

**Emotional Intelligence** - Before understanding the concept of

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EI let's get a brief on the concept of emotions.

Emotions according to dictionary, are a feeling involving thoughts, expressions or behaviour etc. Even in a person's life play different role and it is not necessary that each person will behave in the same manner. Each individual perceives a situation in his or her own way and then react to it accordingly.

Traditionally, it was assumed that individuals with sound logical skills and high reasoning skills are intelligent. The terms "feelings" and "emotions" are generally used interchangeably. Wierzbicka (1999) observed that certain languages (French, German, Russian) do not have an equivalent term for the English word 'Emotions'.

But there is a difference between 'Emotions' and 'Feelings'. Feelings can be any physical sensation like uneasiness, which is because of emotions. Emotions are more appropriate to thoughts.

Origin of Emotional Intelligence came from the studies of "social intelligence" in 1920 by Thorndike. Thorndike (1920) defined social intelligence as "the ability to understand and manage men and women, boys and girls, to act wisely in human relations".

Psychologists, Salovey and Mayer, first formally identified the term "Emotional Intelligence—EI" in 1990. They defined EI as a subset of Social Intelligence which has the ability to monitor one's own and other's feelings and emotions.

Emotional intelligence has grown as an area of interest over the past few years. There are various definitions of EI, but none of them have clear and simple view.

Goldman (1998) defined EI as "the capacity for recognising our own feelings and those of others, for motivating ourselves and for managing emotions well in ourselves and in relationships". Emotional Intelligence is somehow more important for achieving success in life.

Mayer and Salovey's four branch model of EI lays emphasis on Emotional Perception, Emotional Assimilation, Emotional Understanding and Emotional Management.

Emotional Perception is the ability to be self aware about emotions and to express them correctly. This is the first step and when an individual is aware of the emotions he is experiencing then he moves to next level that is Emotional Assimilation. It helps to distinguish between various emotions he is undergoing and to identify emotions which will affect his thought process. The next level is that of Emotional Understanding which is the ability to understand complex emotions and also to recognise the transition from one emotion to another. By this stage, an individual is able to deal with his emotions and manage them properly. Thus, emotions are managed and controlled by intellectual processes.

In contrast, Reuven Bar-On and Goleman proposed the mixed ability models which include certain personality traits as well. Bar-On's (2002) model of emotional intelligence relates to the potential for performance and success, rather than performance or success itself and is considered to be process oriented rather than outcome oriented.

His model outline five components namely Intrapersonal, Interpersonal, Adaptability, Stress management and General mood components.

It is found that a certain level of Emotional Intelligence can affect physical and mental health, success and so on. Successive studies have also found a considerable relation between EI and Job Satisfaction. It is found that a considerable level of emotional intelligence has resulted in job satisfaction or job dissatisfaction.

### **RELATIONSHIP BETWEEN EMOTIONAL INTELLIGENCE AND JOB SATISFACTION**

This section will include inferences drawn from various studies done by various researchers.

☞ Study done by C. Swarnalatha and G. Sureshkrishna on relation between EI and Job satisfaction in automobile industries of India: Here EI and its components were taken as independent variables and Job Satisfaction as dependent variable. The findings showed a significant positive relation between EI and Job Satisfaction. Each and every job requires different degree of EI. Some job do not require high degree of EI, so the people with high EI may not be very successful in those jobs. Employees in automobile industry have a lot of pressure in terms of working hours. Working long hours with machinery results in stress which ultimately affects satisfaction and performance. Emotional intelligence has an advantage here as it helps in understanding and managing people.

☞ Probationary Officer, Abu Ealias (2012) did a study to see the correlation between Emotional Intelligence and job satisfaction. The study was conducted on an international electronic firm operating in India using self administered questionnaire. This research proposed the effect of emotional intelligence on job satisfaction. It was seen that there is positive relation between Emotional Intelligence and Job satisfaction. Various factors like designation, marital status, work experience do not have effect on emotional intelligence or job satisfaction which, for a layman, are important factors affecting Job satisfaction or Emotional Intelligence. Job satisfaction is the predictor of behaviour at work like absenteeism, low productivity etc. Research has found that job satisfaction is correlated to life satisfaction. This relation means that if the person is satisfied with life, he will tend to be satisfied with his job. It would be wrong to say that only few factors affect Job satisfaction as there can be 'n' number of reasons for job satisfaction.

☞ In a study done by LU Kangyin and Bai Yanguo Wang Yujie (2011) on the relationship between Emotional Intelligence and Employee Performance it was found that Emotional Intelligence or some aspect of Emotional Intelligence positively effects Employee performance. It was found that for dimensions of Emotional Intelligence (Emotion Perception, Emotion management by oneself, Emotion management by others) has a significant positive effect on performance.

Emotions play a very important role nowadays in life of individuals because they not only affect their mental health but physical health also. Therefore, nowadays there is a need for emphasis on recreational activities to have control over emotions.

It would be wrong to say that researches conclude relation of EI with Job satisfaction only. There are so many other variables which are affected because of EI like Job Performance, Leadership qualities, Management styles etc.



☞ Another study was done by U.W.M.R.Sampath Kappagoda on the relation between principal's EI and teachers job satisfaction in national schools of Sri Lanka. It was based on convenience sampling. He concluded that it is very important that passion of educating children is seen among teachers because if they are not passionate they will not be able to deliver any information or knowledge to their students.

It is necessary that teachers are satisfied with their work for productive results. Emotional Intelligence an important concept that leaders need to learn for achieving success.

Daniel Goleman, who brought up this concept of EI, said that leaders who are effective tend to have high degree of emotional intelligence.

Locke (1969) defines job satisfaction and job dissatisfaction as “complex emotional reactions to the job”.

In the study it was observed that EI of principal and Job satisfaction of teachers were positively related to each other because an effective leader who has high degree of EI would be able to monitor and manage teachers in a proper way rather than a principle with low degree of EI.

So, it was concluded that if the principal understands the emotions of teachers, then the teachers would be highly motivated and satisfied.

It had also been seen that for increasing Job satisfaction emotional intelligence skills can be used in teaching and consulting.

☞ A study done by Hakimeh Sharifzadeh, Faculty of Humanity & Social Science, Mazandaran University showed that coordinators with EI experience increase in Job satisfaction.

Results of study about emotional intelligence and perfect management will support this fact that emotional abilities can distinguish successful coordinators from other coordinators. (Kavola & Bernize, 2004).

The updated fields of emotional intelligence's five-section model by Golman in 1998 consist of:

1. **Self-awareness:** Consists of features such as emotional awareness and self-confidence.
2. **Self-regulation:** Consists of self- controlling, reliability and innovation.
3. **Motivation or self-simulation:** Consists of progress initiative and optimism.
4. **Empathy:** Consists of attributes such as understanding other people and political awareness.
5. **Social skills:** Consist of features of influence, conflict management and team capabilities (Kiarouchi et al, translated by Najafi Zand, 2006).

In this study, the relation between elements of EI (self-awareness, self-controlling, self-simulation, empathy and social skills) and Job Satisfaction was expressed. All dimensions of EI have significant relationship with Job satisfaction except self-awareness and empathy.

## OBJECTIVES

Primary objective of this paper is to study the relation between Job satisfaction and various criteria of Emotional Intelligence (Social Skills, Intimacy, Self Control, Self Motivation).

## RESEARCH METHOD

Due to the nature of this research called the relation between emotional intelligence and job satisfaction of Government Bank Managers, this research is considered as correlation research.

**Emotional Intelligence Questionnaire:** Siberia Schernig's Emotional Intelligence Questionnaire was used to measure the emotional intelligence of the teachers. The questionnaire had 33 questions using Likert scale and consisted of 5 subscales – self-awareness, self-control, motivation, empathy, and social skills. The developer of the scale examined the validity of the questionnaire using concurrent validity and its construct validity through internal consistency, factor analysis, and convergence test. Further, Jirabket (1996) deemed this test as valid and reliable. Mansouri (2001) used construct validity to determine the validity of the questionnaire and based on the results it can be claimed that Siberia Schernig's Emotional Intelligence Questionnaire is sufficiently valid. Regarding the reliability of the mentioned questionnaire, Jirabket (1996) obtained 0.94 and 0.91 using the split-half method and Cronbach's alpha. Mansouri also obtained 0.86 as its alpha coefficient (Eidi, 2007).

**Participants:** Participants are all employees, men and women, of the bank.

**Sample Group:** 50 managers, from Government Bank.

**Type of Sample:** Random stratified.

## DATA EXPLANATION

There is a high correlation between self control and job satisfaction. Among the surveyed criteria, self control and emotional intelligence is more important and effective than the others. Thus, to increase job satisfaction in people, self control is an important factor.

Table 1: Correlation between Job satisfaction and Emotional Intelligence

Job Satisfaction Criteria Emotional Intelligence	r (Pearson-Coefficient)	p value (significance)
Self Motivation	0.93 61	0.01 9203
Self Control	0.95 21	0.01 2494
Intimacy	0.59 88	0.285 98
Social Skills	0.72 02	0.1700 13
Emotional Intelligence	0.91 17	0.03 1077

Based on Table 1, the correlation between emotional intelligence and job satisfaction is significant at  $P \leq 0.05$  level. In other words, based on the findings of the research it can be asserted with 95% confidence that there is a significant positive relationship between emotional intelligence of Bank managers and their job satisfaction.

Between job satisfaction and emotional intelligence Pearson correlation is taken in which high correlation is observed, thus, as far as companies and people can increase emotional intelligence, job satisfaction goes higher too and work output is also higher.

## CONCLUSION

Be it automobile industry, teaching environment, consulting environment or banking sector EI plays an important role. All the

above mentioned studies conclude to have strong relationship between EI and Job satisfaction. Studies revealed that high EI in coordinators, managers and employees result in Job satisfaction. Employees with High degree of EI are calm and patient which results in job satisfaction. EI is a new concept which has affected branches like psychology, Job satisfaction etc. Various dimensions have shown a positive relation of EI and these branches

The research was done to study the relation between bank manager and Emotional Intelligence and Job satisfaction. The analysis was done through Pearson's coefficient (r) and significance value (p). It was seen that social skills, intimacy, emotional intelligence, self motivation and self control have a positive correlation with Job satisfaction which states that Job satisfaction will be high if these parameters are high. The next step was to study significant value which showed that except for social skills and Intimacy rest all have significant value.

One item cannot lead to job satisfaction, rather a group of different issues lead the individual to feel satisfied about his job.

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# ECO-FRIENDLY MARKETING: THE MARKET POTENTIAL FOR SUSTAINABLY MANAGED WOODEN PRODUCTS - HOME & OFFICE FURNITURE, IN INDIAN SCENARIO



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## ABSTRACT

*The purpose of this paper is to study the possibility of promoting wooden furniture for houses and offices, coming from sustainable managed forests, in order to support Indian enterprises and the Institutions of the Indian wooden furniture for houses and offices involved by applying effective green marketing methods. This research design is based on a prototype structured questionnaire, according to objective of the research, 55 responses were collected from Indian wooden furniture stores for houses and offices, enterprises in 2012. The questionnaires were analyzed with the statistical program SPSS, using descriptive statistics and correlation analysis. The main aim was the investigation of use, knowledge and promotion of wooden furniture for houses and offices that emanates from forests that are under sustainable management, and thus planning the green marketing of these products.*

*The Indian enterprises of the wooden furniture for houses and offices expressed a great concern for the protection of forests. Majority strongly supports the certification of a sustainable management of Indian forests. The enterprises believe that the movement of green buildings moves with a slow pace and forecast that eco consumers are prone to offer an additional of around 6% on price in order to buy wooden furniture for houses and offices. A high percent of most Institutions of Education promote that they use wooden furniture for houses, hostels and offices, and propose their image building through newspapers, magazines, Internet portals, websites, etc of high approach. This research study discusses reflections and forecasts on the growth of this new market of wooden furniture for houses and offices. It offers valuable insights on the market of wooden furniture for houses and offices, and also future developments in the coming years, which can support both enterprises and the institutions involved in strategy forming and decision making, to surmount an important share of the market of eco consumers. The study also proposes an effective method of eco marketing applications.*

## KEYWORDS

*Green Marketing, Forest Sustainability, Marketing Planning, Timber Markets, Marketing Research, Ethics, Environment-friendly, Wooden Products, Furniture*

## INTRODUCTION

Today, the environmental problems concern citizens, enterprises and institutions all over the world much more than thirty years ago. International researches show that the consumers worry more about the environment and gradually change their buying or purchase behaviour. Hence, new market segments for viable or sustainable products emerge, that are also strengthened by active consumers, because it is one important way to contribute and add value in the process of protection of environment. The organizations gradually recognize the competitive advantage and opportunities that arise from this ecological approach, entering the word "eco" in their activities. It is important to note that in parallel with the Corporate Social Responsibility, the concept of "ecological marketing" has also been cultured with effective practices. The term "Ecological marketing" refers to the planning, development and promotion of products or services that satisfy the needs of consumers for quality, output, accessible

prices and services, without however a negative effect on the environment, with regard to the use of raw material, the consumption of energy etc (Davis, 1991; Kangis, 1992; Meffet and Kirchgeorg, 1994; Jain and Kaur, 2004; Peattie and Grane, 2005; Grant, 2008; Pride and Ferrell, 2008). According to Kangis (1992), ecological marketing must be more than either an ecological way of marketing, or the marketing of so-called ecological products. According to the literature, the environmental parameter have been included in the strategy of marketing from the beginning of 1990s (Herbig and Butler, 1993; Lampe and Gazda, 1995; Peattie, 1999). Notwithstanding the existing obstacles, "ecological marketing" progressively gains more supporters, specifically in sectors that concern the climatic change and forest protection. In India, even if we are in initial stages of ecological marketing, it is expected to strengthen, and influence the market even more in future. Consumers have to spend an additional 7%-20% in order to buy "ecological" furniture products and reject the non-viable conventional alternatives. Today, there is an increase of environment-friendly conscious consumers resulting in increased demand for ecological products. Researches have shown that consumers that are interested in environmental related issues take buying and purchasing decisions with those criteria that are beyond the usual consumption models. More and more customers are conscious of destructive consequences in the environment because of industrial processes. For them it is also one way to prove that they disapprove non-environment friendly activities of such manufacturers, suppliers, distributors or investors. The problem both for marketers and consumers come from the environmental terms used for promotion of their "ecological" or "environment-friendly" products. Terms like "recyclable" and "friendly" have got hard criticism and are today avoided by the organizations because of the complicatedness of their definitions' documentation (Lampe and Gazda, 1995). The problem faced when promoting "ecological" environment marketing was the increased number of consumers that did not believe in the companies' environmental statements (Schwartz, 1990). In their research, Lampe and Gazda (1995) pointed out that "every aspect of the product: design, production, packaging, use and disposal, provides an opportunity for a company not only to protect the environment but also to benefit from positive consumer attitudes towards the environment".

Grant (2008) points out that "sustainability changes everything", while Johri (1998) shows that the future of ecological marketing strategy passes through the perception that consumers like "ecological" messages and Yudelton (2009) claims that the ecological marketing space is wide enough for large retailers and developers. "Ecological marketing" is considered by many researchers as an important entrepreneurial opportunity to innovate even more and as an outstanding advantage against the competition (Ottman, 1992; Kaufman, 1999; Laroche et al., 2001; Vaccaro 2009). Pride and Ferrell (2008) consider that the

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objectives of ecological marketing should be: a) to eliminate waste, which should focus on the production of products without waste instead of getting rid of waste, b) to re-invent the concept of product in order to become consistent with the environmental commitment, c) to price the products portraying the real cost, which means high value for the consumer's money and d) to create profitability via the creation of operational occasions that derive from the environmental conscience in the market. In his study Donaldson (2005) initially concluded that in general, the environment-friendly attitude of consumers changed positively. Grunert (1993) finds crucial differences among the individuals of different professional groups with respect to various levels of environmental consciousness. Although the relationship of occupation with the environmental consciousness differs according to the type of product, the results indicate that the professionals segment of consumers, have the strongest environmental consciousness with regard to most of the environmental matters. The "activation" of society for the defence of the environment has set the protection of forests and their sustainable management as priorities of its agenda. Key subjects, related to the forests are reduction of emissions from deforestation and promoting aforestation. The fundamental objectives of forest certification are: a) improvement in the management of forests, b) guarantee of new markets, capable for the absorption of produced products and c) control of certification of all processes up to the sale of final products, in order to safeguard their sustainable origins (Hansen, 1997; Hubbard, 2005).

The certification of the sustainable origin of forest products can be used by the Indian organizations that are activated in the wooden furniture for houses and offices sector as an effective marketing strategy tool to position and re-position to enter new markets and to improve their environment-friendly profile (Juslin and Hansen, 2002; Papadopoulos and Karagouni, 2007). According to Dr N. Stamou (2005): the products of wooden furniture for houses and offices, sooner or later, will prevail and control this market that will emanate from sustainable and environmentally friendly managed forests. The role of the consumer with environmentally friendly buying or purchasing behaviour of final purchaser of products of wooden furniture for houses and offices, will become continuously more important. Products of wooden furniture for houses and offices that will not emanate from sustainable managed forests will not be able to easily find a place in the market. There will be a gradual development of organizations with products of wooden furniture for houses and offices. The existence and viability or the exclusion of organizations of wooden furniture for houses and offices, in the market will be directly influenced by the environmental sensitization of citizens. Consumers are shifting into purchasing green products since the increase in green marketing activities that were taking place in different countries all over the world (Cohen, 1973). Green marketing went into a backlash during the 1990's (Wong, Turner and Stoneman, 1996). This backlash is said to be the second stage of green marketing. The backlash took place because consumers' green purchasing behavior was not in-parallel with the concern those consumers have (Schrum, McCarty and Lowery, 1995). The third stage of green marketing started with the beginning of the 21th century. We are living this stage nowadays where green marketing is "making come back" (Ottman, Stafford, and Hartman, 2006,

p.26). In this third stage a huge improvement and an escalation in the level of confidence had affected green products (Ottman, 2007; Gurau and Ranchhod, 2005). Sustainable development is the basic argument for this century covering three fundamental functions; environmental sustainability, economic sustainability and socio-political sustainability. According to Lee (2008), the near future of green marketing will include two unavoidable trends. The first trend is doing business under the banner of eco-friendly and going green approaches will be pushed into the main stream (Hanas, 2007). Second trend is the attempt of international green marketers to expand their markets, grow sales and profits by means of their positive public image towards their green products and brands in the developed countries (Johri and Sahasakmontri, 1998; Gurau and Ranchhod, 2005).

In his recent article, Kotler (2011) reconsidered the marketing mix, the four P's to fit the new demand of environmentally imperative marketing nowadays. The four P's are restated as follows, and we can refer to them as green four P's: Product (generally, the products produced must be environmentally friendly and even more it can help settle some environmental damages); Price (different product with different levels of environmental friendliness should be offered); Place (to encourage online selling, e-marketing, decentralized production facilities and others to guarantee distribution channel with minimal environmental effects); and Promotion (companies must use specific green marketing tools such as eco label and special sales promotions anxious for their corporate social responsibility). A green consumer is the one who avoids products that endanger the health of people, damaging the environment, energy inefficient, causes excessive waste, and endanger environment and species (Strong, 1996). Fitzpatrick and Byers (1990) suggested that "green consumerism" might turn into a potent force in the market. Consumers who share a "life style of health and sustainability" are known as "LAHOS" (Environmental Leader, 2009). Green users are altering in significant ways (Vermillion and Peart, 2010). Green market is growing rapidly worldwide, with environmental concern being the millennium primary top concern for consumers. For this, it is so important for researchers and scholars to keep on their studies about green consumers. The future of environment will depend on the intensity of behaviours translated from green consumers support to environmental (Dunlap and Scarce, 1991).

Recently, consumers are sensing the huge impact of their purchasing behavior towards environment (Abdul Wahid, Rahbar and Shyan, 2011). Green or environmental friendly purchasing behavior is defined by the means of consuming products that are environmentally "benevolent / beneficial", "recyclable / conservable" and "sensitive / responsive" regarding ecological concerns (Mostafa, 2007). A new dimension for consumers to choose between brands is the degree of social responsibility of companies toward environment (Kotler, 2011). Companies should pay more attention to the "green word of mouth" and its effects on the green purchasing behavior of green and non-green consumers. Growing in importance of green word of mouth, Yuhong and Shaoping (2010) suggested that businesses should launch a special green channel to spread word of mouth. Consumers consciousness for environment is been dramatically translated into green purchasing behavior nowadays.

## RESEARCH-METHODS

Adopting Lee (2008) survey that was used to examine the important factors affecting green purchasing behavior in Hong Kong and their weights, three environmental factors of green purchasing behavior extracted from her review of literatures were chosen. The three factors are: "social/peer influence", "environmental attitude", and "environmental concern". These factors were not examined in the Indian context. Social Influence: Social influence is a very wide field to study. In this study we are interested to examine the effect of friends as a social group on the green behavior of individuals. Social influences can be found within peer pressure, conformity compliance, and many others. Ewing (2001) suggested that norms acquired socially can stimulate ecological consumer behaviour. Hoyer and Mac Innis (2004) argued that general consumption is influenced by inspirational and associative reference groups. With the ease to share information using different channels of social networking as Facebook, twitter, blogs and emails, it is obvious that social influence will be a dominant factor affecting green purchasing behavior.

**Environmental Attitude:** Environmental attitude is a complex mental state involving beliefs and values to behave environmentally. In other words, it taps the consumer's cognitive judgment with respect to the value of environmental protection and green living (Lee, 2009). Contrasting and indecisive results have been found between attitudes and behaviours (Harthman and Apaolaza Ibanez, 2006). Few existing studies found a positive correlation between environmental attitude and green purchasing behavior (Mostafa, 2007), while other concluded a moderate or tenuous correlation (Lee, 2009).

**Environmental Concern:** According to Lee (2008), environmental concern is the consumers' emotional involvement regarding different environmental matters. As to Yeung (2004), environmental concern represents a consumer's doubts, fears, likes/dislikes and sympathy regarding the environment and its quality. Environmental concern is what interests us about environment because of the importance affection and anxious feelings it carries for the self. Environmental concern hold three interrelated issues: concern for the biosphere, concern for the people, and concern for the self (Schultz, 2000). However, it is not necessary for an individual to behave or purchase green if he or she is concerned for the environment, identified as value-action gap (Pickett- Baker and Ozaki, 2008). The aim of this research was using quantitative & qualitative methods to find out the existing situation and analyze the prospects of market growth of wooden products coming from sustainable managed forests. It further intends to evaluate consumer response, benefits and potential reflections to the referred products idea, prior to their introduction to the market. The analysis would lead to the determination of the 4Ps of ecological environment marketing (product, price, place, promotion), so that Indian organizations and Indian consumers are supplied with ecological products effectively and thus contribute directly and / or indirectly to the protection of the environment in the best possible ways.

The data for this primary research was collected using the method of questionnaire formulation, collection and elaboration. The questionnaires were specifically structured for the objective of the present research, according to the basic principles of marketing research. The sample population includes the

customers. 101 potential customers from outside or inside the furniture and home furnishings stores in Delhi-NCR were randomly selected. They are all directly related to the Indian wooden furniture for houses and offices, market and they were questioned during their presence also at the Trade Show of Furniture Exhibition, and manufacturers and marketers showrooms of furniture items, marketers of furniture at multi-brand outlets. The questions were structured to be short and comprehensible in order to be easily answered. The pilot application of the questionnaire in five showrooms revealed the weak points of questions which were further elaborated and led to its improved final form. The data was processed and analyzed with the special statistical program SPSS.

## HYPOTHESES

**Social-Influences** - Generally speaking, consumption is strongly influenced by associative and inspirational reference groups (Hoyer and MacInnis, 2004). Lee (2008) found social influence to be the top predictor of green purchasing behavior for adolescents in Hong Kong out of seven factors tested. Ling (1997) found that individuals living in cultures of collectivist orientation are influenced by such orientation, especially on their recycling behavior, therefore we propose the following relation:

H1: Social influence is positively related to green purchasing behavior.

**Environmental-Attitude** - Lee (2009) stated that the relationship between environmental attitude and environmental behavior is not clear. Hoyer and MacInnis (2004) found that attitudes affect people's purchasing behavior by affecting people's thoughts and feelings. Kotchen and Reiling (2000) found a positive relation between environmental behavior and environmental attitude. Thus we propose:

H2: Environmental attitude is positively related to green purchasing behavior.

**Environmental-Concern** - Previous studies indicated a relation between the environmental concern and green behavior (Roberts and Bacon, 1997; Van Liere and Dunlap, 1980); however these studies were conducted in western countries. In a recent study conducted by Datta (2011), Datta concluded that a positive relationship was found between overall environmental concern and consumers' green purchasing behavior in a general buying behavior context. We also propose the following relation:

H3: Environmental concern is positively related to green purchasing behavior.

The questionnaire is composed of five sections. The first three sections measures three different factors: social influence, environmental attitude, and environmental concern. The five-point Likert-type scales were used in all measures. Social influence was measured using six items; environmental attitude was measured using seven items; and environmental concern was measured using four items. Green purchasing behavior was measured using four items. Characteristics of demographics were measured in the fifth section.

The questionnaire used in this study was a five-page questionnaire with a brief introduction of instructions and objectives of such research. The introduction also emphasized the confidentiality of the research. The items of the questionnaire were adapted from Kaman Lee (2008). The questionnaire was

administered to a sample of individual consumers having an independent purchasing power. Participants responded voluntarily and were not compensated for their participation. Participants were given enough time to respond to the questionnaire electronically.

A total of 101 completed questionnaires were obtained with a response rate of 75%. Our sample consisted of 101 respondents, 58.4% were males and 41.6% were females. The average age of our sample was 24; 56.4% of the sample were single and 62.4% have a Bachelor degree. The major industries represented in our sample were disturbed among the following: 16.8% from the education, 7.9% from the banking and finance, 6.9% from the marketing and advertising and the remaining were distributed among other different industries.

### ANALYSIS & FINDINGS

Before examining the proposed hypotheses we tested the reliability of our measures by calculating the Cronbach's alpha ([alpha]). Our results provided empirical support to the previous studies of the following tested scales: social influence ([alpha]=.867), environmental attitude ([alpha] = .901), environmental concern ([alpha]=.859), and green purchasing behavior ([alpha] =.862). To test the proposed hypotheses we used correlation and regression analysis. The correlation results provided support to H1 and H3 in same directions as proposed and a significant relation was identified for H2 but not in the same direction as hypothesized. In accordance with our H1 a significant positive correlation ( $r = .44$  at 0.01 sig. level) was found between social influence and green purchasing behavior. The results also provided support for H3 in which a significant positive correlation ( $r = .589$  at 0.01 sig. level) between environmental concern and green purchasing behavior. As to H2 a significant negative correlation was found between environmental attitude and green purchasing behavior ( $r = -.165$  at 0.05 sig. level) not supporting our hypothesis. In addition to the positive correlation analysis conducted, we conducted regression analysis as well. The results provided support to the correlation results. In H1 we proposed a positive relation between social influence and green purchasing behavior, the results of the regression also indicated the coefficient of determination  $[R.\text{sup}.2] = .194$ , indicating that 19.4% of the variation in the green purchasing behavior is explained by the social influence factor. Thus H1 supported. In H2 we proposed a positive relation between environmental attitude and green purchasing behavior and the regression results indicated a negative relation, with the coefficient of determination  $[R.\text{sup}.2] = .027$  which indicate that just 2.7% of the variation in the total green purchasing behavior is explained by the environmental attitude factor. As to H3 we proposed that there is a positive relation between environmental concern and green purchasing behavior, the regression results supported our argument with the coefficient of determination  $[R.\text{sup}.2] = .347$  which indicates that 34.7% of the variation in green purchasing behavior is explained by environmental concern.

### DISCUSSION

The positive relation found in our research between social influence and green purchasing behavior is a complement to similar positive relation found by other researches. One of the researches suggested that norms that are acquired socially can

stimulate ecological consumer behavior. In simple words, social impact of norms is acquired from society as one of the social influences, can lead to green purchasing behavior, which is a pattern or kind of ecological consumer behaviors. In India, norms acquired socially are instituted to a great extent. The positive relation between social influence and green purchasing behavior is also supported by the finding of Lee (2008) which suggested social influence to be a top predictor of green purchasing behavior for adolescents in India. The strong peer influence, a kind of social influence, is suggested to be a reason behind the group effect in environmental behavior (Lee, 2009). From all what proceeds, it is so important to pay attention for what we call a "green word-of-mouth". Green consumers investigate for green products; they search intensively for all information available from any possible source in their society. More emphasis should be given for the "green word-of-mouth" as a communication tool to increase the green purchasing behavior, given that such tool is one of the ways that shape social influences. What is optimistic for green purchasing behavior is the increase in the social influence, which will take place with the ease and advancement of communication taking place in the Middle East, especially in Indian. Clearly, social influence will continue to affect green purchasing behavior positively. Environmental attitude is negatively correlated with green purchasing behavior. In general, attitude is a state of mind or feeling someone has toward a specific subject. The results found in our research suggest that not any person whose environmental attitude is positive will necessarily engage in green purchasing behavior. According to the negative relation found, environmental attitude is actually not a predictor of green purchasing behavior. The positive environmental attitude will not lead to a green purchasing behavior. A possible reason for the negative relation found can be the difference between real attitudes (not expressed attitudes) and behaviors. Inconsistency between people's attitude as verbally expressed and their actual behavior was first suggested by Richard LaPiere (1934). Furthermore, Wicker (1971) found a weak and perhaps nonexistent correlation between actual behavior and measured attitudes. As to the environmental concern factor, the more a consumer is concerned about his environment the more this consumer will purchase green products. The concern is represented in the consumer's emotional involvement with the subject of concern. Our results indicated that the more we are concerned about our environment an increase in green purchasing behavior will be achieved. The positive correlation between environmental concern and green purchasing behavior is an additional support for previous results by Datta (2011); Roberts and Bacon (1997); Vanliere and Dunlap (1981); Arbuthruth and Ling (1975). Schultz (2000) suggested three interrelated issues for environmental concern, these issues are: biosphere, people and self. This wide scope of environmental concern factor can lead us to know that it is significant to have a positive correlation between environmental concern and green purchasing behavior. Logically speaking, any consumer will have at least one concern for one of the three issues. Finally, our results provided additional empirical support to the existing research and provided guidelines to both practitioners and researchers with regard to a non-western sample approach to green purchasing behavior.



## LIMITATIONS & FUTURE-RESEARCH

As any research this study has limitations. The first limitation is the small size of the sample. Future research should attempt to collect data from a larger sample. The second limitation is the customer self-reported responses. Future studies should collect data from other stakeholders as well to examine the real impact of these three factors. Furthermore future research should examine additional factors that may impact green purchasing behavior for example, personality type, concern for self-image and perceived environmental responsibility.

## CONCLUSIONS

The Indian organizations of the wooden furniture for houses and offices, sector show a great interest in the protection of forests in the entire world against illegal loggings and traditional management. This big sensitivity of Indian organizations appears to create favourable conditions for the promotion of wooden furniture for houses and offices that comes from sustainable managed forests. Bigger organizations express relatively a weaker interest in the protection of forests. The entrepreneurs encourage the certification of the sustainable management of Indian forests and believe that the trend towards ecological buildings will emerge also in India but at a slow pace. They forecast that the ecological consumers are prone to offer a premium of a 6% roughly in order to buy wooden furniture for houses and offices, products. The recent economic crisis may cause a minor delay in charging an "additional price". Nevertheless, it will not take long to be accepted, since the recovery of the building activities is forecast to raise also demand in "ecological" buildings over next two years. Focus should be on an intense informative advertising, with a particular emphasis on "ecological consumers", who comprise the initial target – market. Most Institutions of Higher Education (Universities and Technological Educational Institutes) are trusted to be more capable of promoting the wooden furniture for houses and offices, products. Publicity campaigns are proposed to be better and more effectively contacted by news research studies, magazines and the Internet, by high visiting portals. The promotion campaign has to be carefully planned and fully supported. Furniture producers, wooden furniture for houses and offices, traders and the entire wood industry play a significant role, since they are the direct stakeholders in ecological products promotion. They must be committed to collect and disseminate the relevant information, create attractive advertisements in order to arouse consumers' interest and undertake the risks. Companies express fundamental thoughts and problems in the growth of this new wooden furniture for houses and offices, market, mostly referring to the probabilities of such a development and the role of consumers, market conditions and the competition as well as the price, the guarantees and the economic benefits that will characterize the product. The wooden furniture for houses and offices, market depends directly on the growth of forestry. Synergies are necessary for the sake of the world economy and the protection of environment. It is well established that the certification of forests and wooden furniture for houses and offices, products contributes in the protection of environment. The structured strategy of ecological marketing can be seen as an antidote to the present economic recession as well as to future growth. The wooden furniture for houses and offices, sector should create and follow strategies and policies in

order to constantly improve quality, pricing, innovativeness especially on environmental matters and fame. A high level of overall integration will allow the Indian wooden furniture for houses and offices, sector to adequately meet external economic challenges, when the crisis settles. The trend towards "ecological buildings" should be supported all over India. At the same time incentives should be given for Indian forests' certification, which are even today under informal sustainable management. Furthermore, the current development policy in India focuses on "ecological development", which appears the only feasible and viable solution for the country that both serves the human beings and respects the environment. The implementation and promotion of the above mentioned activities are essential for an effective publicity of wooden furniture for houses and offices. It requires however the involvement and combined actions of the relevant institutions such as confederations, Higher Education Institutions, Non Governmental Organisations, editors, volunteers etc. Besides the conventional communication and promotion means, the so - called social media could be also used to present a fresh direction for wooden furniture for houses and offices, marketing. Companies and Institutions could create Face-book groups and blogs, such as "Ecological Buildings", "Forests under sustainable management", "Use of strictly Wooden furniture for houses and offices, Products" etc.

Consumers should become aware of their power to contribute to environmental protection, even through the purchase of wooden furniture for houses and offices,. Besides, they should become aware of the multiple benefits of wooden furniture for houses and offices, coming from sustainable managed forests. Literature review has shown that the majority of successful organizations that trade wooden furniture for houses and offices, products have incorporated environmental policies in their commercial strategies and practices. Government's commitment to the implementation of key policy reforms is substantial. The Indian state is called to apply a sustainable economic development strategy for the forest industry, which will adapt to global developments and ensure the viability of forest exploitations. Policies should also be able to support and strengthen the intentions of organizations to supply sustainable wooden furniture for houses and offices,. Ecological consumers seem to become a driving force behind how companies do business, and they are creating a new economy. The supporters of this new to India "ecological consumers movement" are more conscious and with a higher responsibility on natural resources' management and environment protection. Their number is constantly increasing in India, as all over the world and they are the main target groups for the producers of wood products. The proposed ecological marketing can only but assist companies' development and benefit the consumers, the State, the environment and the individuals. The research results will form useful and practical tools for the policy makers who are responsible for the planning and implementation of ecological development and ecological entrepreneurship policies. Further research could be conducted to determine the intention of Indian consumers to use wooden furniture for houses and offices, from sustainable managed forests after the diffusion of the present findings, as well as the intentions and culture of manufacturers and the building industry on the ecological buildings movement and the use of wooden furniture for houses and offices,. The last ones exert a great influence on house buyers. The research could

also help revealing the intention of the State and its relevant authorities (e.g. Ministries, Chambers, Forests Inspections, Organisations for the conservation of the natural environment etc) about the certification of already sustainable managed forests and the supply of more and stronger incentives to consumers in order to turn to wood products. The suggested research could offer more feedback for alternative policy implications, initiatives and incentives that encourage both organizations and consumers.

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# POTENTIAL AND CHALLENGES OF THE DEVELOPING COUNTRIES IN COMBATING GLOBAL FORCES IN SHAPING THE FUTURE OF BUSINESS: SPECIAL REFERENCE TO THE BRICS COUNTRIES



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## ABSTRACT

*Business Environment, which involves both the micro and macro environment is highly influenced by global forces. These forces have a profound influence on the competitiveness of the business of an economy. It is imperative that an economy or a society adapts or tries to cope with the global forces. The niche of an economy is determined by the adaptive nature of the economy to the global forces that shape the nature and future of the business. The developing economies have to take into account the global forces in curving out their path of development. BRICS represents a group of developing and newly industrialized countries viz., Brazil, Russia, India, China and South Africa. It is imperative to understand the competitiveness of these four emerging economies. In this paper, an endeavor has been made to study the competitiveness level of these emerging economies with respect to the challenges posed by global forces. The study is based on secondary data from Global Competitiveness Report 2013-14, published by the World Economic Forum. The study will provide a vivid explanation of the importance of global forces shaping the future of business and how the developing countries are trying to cope with the changes and challenges posed by these forces.*

## KEYWORDS

*BRICS, Global Competitiveness Index, 12 pillars, Global forces Demographic dividend, Market size, Financial Institutions, Technological readiness and Innovation.*

## INTRODUCTION

In the present global scenario, the complexity in the Business environment has increased manifolds. Both the Micro and Macro business environment are profoundly influenced by the global forces. These global forces have a dynamic character. There has been a paradigm shift in the global forces and therefore it becomes imperative for a nation, industry or a firm to understand the global forces and their impact. These forces can shape the future of the Business and the society. There have been many efforts made by academicians, industrial experts, researchers and social scientists to understand the cluster of forces affecting the future of the business and the society globally. The global forces affect the business environment of the firm, industry and the nation.

In a study conducted by McKinsey, he has tried to identify certain global forces that may influence the future of the global business and society. These forces include, rise of emerging markets as centers of consumerism ,innovation; the imperative to improve developed-market productivity; ever expanding global networks; the tension between rapidly rising resource consumption and sustainability; and the increasingly larger role of the state as a business regulator and partner.

Since 2005, The World Economic Forum has evolved a comprehensive index which is a very valuable index to explore and understand the national competitiveness of an economy in a

comprehensive manner. The Global Competitiveness Index (GCI), takes into account all the relevant forces that can shape the future of the business and the society. The 12 pillars of the Global Competitiveness Index represent the forces and necessary preparations that would make an economy globally competitiveness. The competitiveness can be studied at different levels viz., country, industry and firm level. This study endeavours to study the competitiveness at the country level.

Global competitiveness Report has defined competitiveness as, “the set of institutions, policies, and factors that determine the level of productivity of a country. The level of productivity, in turn, sets the level of prosperity that can be reached by an economy. The productivity level also determines the rates of return obtained by investments in an economy, which in turn are the fundamental drivers of its growth rates. In other words, a more competitive economy is one that is likely to grow faster over time.”

The competitiveness of an economy also propagates the process of growth, especially for the developing economies as it reflects the level of economic prosperity and opportunity for growth acceleration. A higher level of competitiveness would always invite more investments into these economies. Therefore, an economy should always strive to increase its level of competitiveness.

India has registered commendable success in the sphere of economic growth and development. During the same period, the other economies have also paved their way in the path of growth. In the contemporary economic environment, BRICS is representing a group of developing and newly industrialized countries. BRICS stands for five emerging economies viz., Brazil, Russia, India, China and South Africa. It is imperative to understand the competitiveness level of Indian economy in comparison to these four emerging economies. This would provide a clear picture of Indian economy and its global positioning in terms of competitiveness.

Global Competitiveness of an economy is one of the most vital parameters to understand the position of the economy in the global business environment. It is an indicator of the potential, readiness and productivity level of an economy.

## REVIEW OF LITERATURE

In order to have clear insight and develop a clear notion on how the global competitiveness is necessary to tame the global forces that affect the global business environment, it is necessary to look into the literature available.

Momaya, Kiran Kumar (2001), in his book International Competitiveness: Evaluation and Enhancement, had examined the industries of auto components, construction and telecom spread over the empirical universe of India, Japan, Korea and USA. The book provides an understanding of the concept of

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competitiveness and an approach to evaluate competitiveness. Based on secondary data, the book provides a comprehensive coverage of comparative performance of the auto components, construction and telecom industries.

Bhatia, B. S. & Dogra, Balram (2005), in their book “Global Competitiveness and Productivity”, had tried to analyse competitive scenario and productivity trends and strategies for improving all the sectors of the economy. Low productivity is found to be a deterrent in developing and achieving the goal of competitiveness.

Harry P. Bowen, Wim Moesen (2011), in their research paper, had examined how using of weights that are endogenously determined for each country is going to affect the competitiveness index of World Economic Forum instead of aggregated using the WEF's fixed set of weights applied to all countries. Their findings show that there is a bias that favors countries that score high on the “technology” sub-dimension of the index.

Delgado, Mercedes, Ketels, Christian, Porter, Michael E. and Stern, Scott (2012), in their Working Paper 18249 “The Determinants of National Competitiveness”, had tried to offer a framework that provides a novel methodology for the estimation of a theoretically grounded and empirically validated measure of national competitiveness.

The competitiveness can be studied at different levels viz., country, industry and firm level. The competitiveness at the country level plays a vital role in determining the competitiveness of the industries and firms in the economies. A country has to develop its potential and be well prepared to combat the forces that shape the future of global businesses and society.

The Global Competitiveness Index (GCI) provides a platform which takes into consideration the 12 pillars viz, 1. Institutions 2. Infrastructure 3. Macroeconomic Environment, 4. Health and Primary Education, 5. Higher education and Training 6. Goods market, 7. Labor market, 8. Financial market 9. Technological Readiness, 10. Market Size, 11. Business Sophistication, 12. Innovation, that shape the future of global business and society. These pillars of the Global Competitiveness Index represent the forces and necessary requirements that would make an economy globally competitive. We, therefore, consider the Global Competitiveness Index to gauge the global forces that influence the future of business and society.

Based on the literature review, the present paper endeavours to achieve the following objectives.

### OBJECTIVES

- ☞ To explore the global forces that influence the business and society.
- ☞ To understand the potential of the economies of Brazil, Russia, India, China and South Africa in developing their competitiveness w. r. t. the global forces.
- ☞ To understand the potential of Brazil, Russia, India, China and South Africa in enhancing / the society w.r.t. the global forces.
- ☞ To find the avenues in which Indian economy can capitalize in order to build the competitiveness.

## METHODOLOGY

The present study is based on secondary data collected from the Global Competitiveness Report 2013-14 and published data of World Economic Outlook. The Global Competitiveness Index has been applied to compare the present competitive levels of Brazil, Russia, India, China and South Africa. All the countries have been compared based on their ranks in the 12 pillars of Global Competitiveness Report.

### COMPARATIVE ANALYSIS OF THE COUNTRIES IN BRICS

BRICS comprises of Brazil, Russia, India, China and South Africa. A comparison among the countries of BRICS as shown in Table 1 gives a vivid picture of the emerging scenario. Among the member nations, China leads the tally with the highest population followed by India. As far as GDP is concerned, the GDP of India is lower than China, Brazil and Russia. In terms of government spending, it is really disturbing to see that India has very low level of government spending as compared to the other members. Import bill of India is just next to China and higher than the rest of the member nations. GDP per capita amount is lowest in India among all the member nations. Similarly, India is behind all the member nations of BRICS in terms of literacy. Life expectancy in India is just higher to South Africa and less than rest of the members in BRICS.

Table 1: Comparison of the Countries in BRICS

Country	Population	GDP (Nominal) \$ Billion	Government Spending \$ Billion	Exports \$ Billion	Imports \$ Billion	GDP (Per Capita) PPP \$	Literacy Rate (%)	Life Expectancy (Years)
Brazil	201,046,886	2,695.90	846.60	256.00	238.80	13,623.00	93.50	74.60
Russia	143,451,702	2,021.90	414.00	542.50	358.10	17,708.00	99.60	69.70
India	1,210,193,422	1,824.00	281.00	309.10	500.30	3,829.00	74.04	64.20
China	1,354,040,000	8,227.00	2,031.00	2,021.00	1,780.00	9,161.00	92.20	72.70
South Africa	51,770,560	384.30	95.27	101.20	106.80	11,375.00	86.40	51.20

Source: Compiled from World Economic Outlook Database, April 2013

In order to comprehend the competitiveness of Indian economy, it is imperative that we make a comparative analysis of the Indian economy with the economies that have fared well in the Global Competitiveness Index (GCI). BRICS represents a group of developing and newly industrialized countries. The comparison will be more clear and meaningful when we compare India with the other countries in BRICS (Brazil, Russia, India, China and South Africa.)

Table 2: The Global Competitiveness Index 2013–2014

Country	2011-12		2012-2013		2013-2014	
	Rank/142	Score	Rank/144	Score	Rank/148	
		(1-7)		(1-7)		(1-7)
Brazil	53	4.32	48	4.40	56	4.33
Russia	66	4.21	67	4.20	64	4.25
India	56	4.30	59	4.32	60	4.28
China	26	4.90	29	4.83	29	4.84
South Africa	50	4.31	52	4.37	53	4.37

Source: Compiled from The Global Competitiveness Report: 2013–2014

As shown in Table 2, Indian economy ranks 60th in 2013-14 (GCI) report. India was earlier ranked 56th and 59th in 2011-12 and 2012-2013 respectively. This seems to be a discouraging factor.

China is far ahead among the members of BRICS with the 29th rank. Rest of the members of BRICS seem to be almost on the



same platform. But, India has been lagging behind and has secured the lowest rank among the BRICS members.

**Table 3: The Global Competitiveness Index 2013-2014**

Country / Economy	Overall Index		Basic Requirements		Efficiency Enhancers		Innovation and Sophistication Factors	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Brazil	56	5.33	79	4.45	44	4.39	46	3.92
Russia	64	4.25	47	4.88	51	4.32	99	3.35
India	60	4.28	96	4.23	42	4.41	41	4.00
China	29	4.84	31	5.28	31	4.63	34	4.10
South Africa	53	4.37	95	4.24	34	4.54	37	4.06

*Source: Compiled from The Global Competitiveness Report: 2013–2014*

Table 3, makes it clear that Indian economy, ranked at 60th position, has made a dismal performance in the Sub index “Basic Requirements”. Among the BRICS, India has performed miserably in the sub-index “Basic Requirement”. China is ranked 31 in this sub index.

But, Indian economy has performed well in the other sub-indices viz., Efficiency Enhancers and Innovation and Sophistication Factors. Among BRICS, India has performed well in the sub index “Efficiency Enhancer” but has been ranked below China and South Africa.

In the sub index “Innovation and Sophistication Factors”, India is good enough. Russia and Brazil are ranked low. But, among BRICS, China is the best performer.

**Table 4: The Global Competitiveness Index 2013-2014**

Country / Economy	1. Institutions		2. Infrastructure		3. Macroeconomic Environment		4. Health and Primary Education.	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Brazil	90	3.70	71	4.02	75	4.63	89	5.43
Russia	121	3.28	45	4.61	19	5.93	71	5.71
India	72	3.86	85	3.65	110	4.10	102	5.30
China	47	4.24	48	4.51	10	6.29	40	6.06
South Africa	41	4.53	66	4.13	95	4.39	135	3.89

*Source: Compiled from The Global Competitiveness Report: 2013–2014*

Indian economy is a developing economy. It has to take the sub index “Basic Requirements” seriously because unless this sub index is taken care of, the competitiveness level of Indian economy cannot improve. As shown in Table 4, there was a dismal performance of Indian economy in the pillars under the sub index Basic Requirement. There has to be a lot of improvement in the institutions and infrastructure. Indian economy needs to manage the macroeconomic environment by bringing in more prudent fiscal discipline. Despite the efforts of the government, the sectors of health and primary education in India are still lagging behind and affecting the competitiveness level. Among BRICS, India has been ranked lowest in the pillars “Infrastructure” (Rank 85) and “Macro-economic environment” (110). In the Fourth Pillar - “Health and Primary Education”, South Africa is placed at 135th position, but India has performed miserably again with 102nd position.

As shown in Table 5, In the fifth Pillar “Higher education and Training”, India has failed to make a improvement. India has been placed at 91st rank. It exhibits the need for improvement in both qualitative and quantitative sense. Among BRICS, Russia is in a better position. China has just been able to secure the 70th

**Table 5: The Global Competitiveness Index 2013-2014**

Country / Economy	5. Higher education and Training		6. Goods market		7. Labor market		8. Financial market		9. Technological Readiness		10. Market Size	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Brazil	72	4.22	123	3.82	92	4.13	50	4.40	55	4.14	9	5.65
Russia	47	4.66	126	3.80	72	4.31	121	3.39	59	3.97	7	5.78
India	91	3.88	85	4.18	99	4.08	19	4.83	98	3.22	3	6.25
China	70	4.23	61	4.32	34	4.64	54	4.32	85	3.44	2	6.85
South Africa	89	3.94	28	4.75	116	3.93	3	5.80	62	3.92	25	4.89

*Source: Compiled from The Global Competitiveness Report: 2013–2014*

rank. In the sixth Pillar “Goods Market”, India is placed in 85th rank, better than Brazil and Russia. But, China is placed at a higher rank. South Africa has a very commendable rank (28th Rank) as compared to others. Switzerland is again ranked high. Most of the countries in BRICS have not performed well in the seventh pillar “Labour market” except China. Switzerland and USA have done really well in this pillar. Indian economy has a good financial market. This is reflected by the 19th rank of India in the eighth pillar. South Africa is placed at the 3rd rank. Technological readiness requires a huge boost and development. Almost all the members of BRICS, especially India and China, need to take care of the ninth pillar. In the tenth pillar, almost all the members of BRICS are ranked comfortably. India has secured the third rank, after USA and China. “Higher education and Training” requires reforms and attention. India is having a huge population and if India is able to develop its human resources in a productive manner, then the Indian economy can make wonders and be a global leader.

**Table 6: The Global Competitiveness Index 2013-2014**

Country / Economy	11. Business Sophistication		12. Innovation	
	Rank	Score	Rank	Score
Brazil	39	4.42	55	3.42
Russia	107	3.56	78	3.13
India	42	4.38	41	3.62
China	45	4.31	32	3.89
South Africa	35	4.49	39	3.64

*Source: Compiled from The Global Competitiveness Report: 2013–2014*

Indian economy, as shown in Table 6 has better scope in the sub-index “Innovation” and “Sophistication” factors. India ranks 42nd and 41st in “Business Sophistication” and “Innovation” respectively. Indian economy can bank upon these pillars as well to develop the level of competitiveness. Amongst BRICS, China is placed in a lower position in “Business Sophistication”.

## INDIA'S POSITION VIS-À-VIS THE BRICS COUNTRIES

Indian economy has made a dismal performance in the Global Competitiveness Index ranking. Amongst BRICS, China leads the group, followed by South Africa, Brazil, India and Russia. India has relegated its position from the rank of 56 in 2011-12 to 60th rank in the Global Competitiveness Report 2013-14. Indian economy is a developing economy and there will be few inherent bottlenecks in the process of economic growth. But, despite these limitations, Indian economy has to march forward and improve the level of competitiveness. Indian Economy has a huge population which is a young working population. India can enjoy the fruits of demographic dividend if the human resource is taken

care of and managed efficiently. The primary health, education both primary and higher has to be developed in order to bring about proper human resource development.

The huge market base of Indian economy is a very fundamental strength which can be used to develop the economy. India has the potential to withstand any disturbance of international business environment on account of the huge market size. The financial market in Indian economy is fairly well developed. As far as the technological development is concerned, there is need for technological upgradation. A synergy between the universities, research centers and the markets would help. Meanwhile, the macroeconomic environment continues to be characterized by large and repeated public deficits. Despite a prudent effort, fiscal discipline has not been achieved. India has to imperatively pay great attention to innovation, as innovation will pave the way for further glory and growth. India, therefore has to take stock of the strengths and capitalize on the strong fundamental pillars and at the same time develop the other areas of concern to improve the level of competitiveness for which it is destined. This builds a strong case for Indian economy to develop and build up its competitiveness.

### BRICS VIS-À-VIS THE DEVELOPED COUNTRIES

We have tried to compare the countries in BRICS with United States of America and Switzerland in order to understand and recognize the position of the countries in BRICS in the global scenario. As shown in Table 7, Switzerland and United States of America have been ranked first and fifth respectively in the Global Competitiveness Index, 2013-2014.

**Table 7: The Global Competitiveness Index 2013–2014**

Country	2011-12		2012–2013		2013–2014	
	Rank / 142	Score	Rank / 144	Score	Rank / 148	Score
		(1-7)		(1-7)		(1-7)
Switzerland	1	5.74	1	5.72	1	5.67
United States	5	5.43	7	5.47	5	5.48

*Source: The Global Competitiveness Report: 2013–2014*

As shown earlier in Table 2, Indian economy ranks 60th in 2013-14 (GCI) report. India was earlier ranked 56th and 59th in 2011-12 and 2012-2013 respectively. This seems to be a discouraging factor. China is far ahead among the members of BRICS with 29th rank. Rest of the members of BRICS seem to be almost on the same platform, but India has been lagging behind and has secured the lowest rank among the BRICS members. Switzerland has been consistent with its rank in the Global Competitiveness Report. United States of America has been retaining the 5th rank in GCR with a slip to the 7th position in 2012-13.

**Table 8: The Global Competitiveness Index 2013-2014**

Country / Economy	Overall Index		Basic Requirements		Efficiency Enhancers		Innovation and Sophistication Factors	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Switzerland	1	5.67	3	6.15	5	5.44	1	5.72
United States	5	5.48	36	5.12	1	5.66	6	5.43

*Source: The Global Competitiveness Report: 2013–2014*

As shown earlier in Table 3, it is clear that Indian economy,

ranked at 60th position, has made a dismal performance in the sub index “Basic Requirements”. As shown in Table 8, Switzerland and USA are far ahead. China is ranked 31 in this sub index.

But, Indian economy has performed well in the other sub-indices viz., Efficiency Enhancers, Innovation and Sophistication Factors. Among BRICS, India has performed well in the sub index “Efficiency Enhancer”, but has been ranked again below China and South Africa.

In the sub index “Innovation and Sophistication Factors”, India is good enough. Russia and Brazil are ranked low. But, among BRICS, China is the best performer. Switzerland and USA have excelled in this sub- index

### CONCLUSION

Amongst BRICS, China leads the group, followed by South Africa, Brazil, India and Russia. Indian economy has made a dismal performance in the global competitiveness index ranking. India has relegated its position from the rank of 56 in 2011-12 to 60th rank in the global competitiveness report 2013-14. The economies in BRICS have inherent limitations. Their competitiveness level is far below the developed countries. The BRICS countries are gearing themselves towards preparing for a greater role in the global business. The drive is being supported by a number of initiatives in different BRICS countries to increase their global competitiveness. The basic challenge is to enhance the competitiveness and make a niche in the global business.

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# GUERRILLA MARKETING IN INDIA

## EMERGING OPPORTUNITIES AND CHALLENGES



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### ABSTRACT

*Guerrilla marketing is an unconventional marketing tool which has developed importance in the modern market. This concept has enabled the companies to stand out from the crowd by using cost-effective ways. Additionally, people are on social networks, and the relationships are becoming more and more integrated into everyday life. Social media tactics can be targeted, are inexpensive, and very personalized, and coordinated with offline street team work. As a result, businesses have increased the rate of targeting consumers who are on social media networks by using guerrilla marketing. Even in the season of elections, many political parties are using this concept to reach every section of the society. This paper discusses how businesses and political parties have increased the rate of targeting their consumers and voters respectively with the help of guerrilla marketing and allows it to affect their decisions. Moreover, the paper explores the challenges and opportunities which businesses and political parties have with guerrilla marketing. The paper also examines the present trends of guerrilla marketing in India and describes the reason why companies and political parties are adopting it and concludes that guerrilla marketing is something that will continuously grow in both practice and demand.*

### KEYWORDS

*Guerrilla Marketing, Social Media Tactics, Cost-Effective.*

### INTRODUCTION

“Throwing Seeds Not Cash” - The original term of “Guerrilla Marketing” was given by Jay Conrad Levinson in his book *Guerrilla Marketing* (1984). Guerrilla marketing is an interesting advertising strategy which focuses on unconventional tools such as flash mobs, graffiti, and sticker bombing with low cost and getting maximum results. The term guerrilla marketing is easily traced to guerrilla warfare, which utilizes a typical tactic to achieve a goal in a competitive environment. The objective of guerrilla marketing is to create a unique and thought-provoking concept to generate buzz, and consequently turn viral. It relies on new and innovative ideas i.e. shocking, funny, creative and adding emotions to the message so that audience get surprised & they stop and think of the intended message which draws their attention. It focuses on low cost creative strategies of marketing. The basic requirements are time, energy, and imagination and not money.

Every company needs to focus on its customer base. Guerrilla marketing is an effective tool for small businesses to reach maximum people. Even though advertising through radio, television, print media & internet is on mount, still marketers need to tap new ways to attract consumers. So, now - a - days, business giants are also using this strategy to compliment with their marketing campaign. In Guerrilla marketing, marketers use innovative techniques to attract consumers and build brand image. People are more on social networks, and the relationships between them are becoming more and more integrated. Guerrilla

social media tactics can be targeted as they are inexpensive, and very tailored, and coordinated with offline street team work. The aim of guerilla campaign is to draw a long lasting attention of people and it is achieved by evoking a surprise effect and a diffusion effect while keeping the costs low.

As per Jay Conrad Levinson, guerilla marketing is “the achievement of conventional goals (e.g. Profit) using unconventional methods such as investing energy and ideas instead of money.”

Guerrilla marketing may be defined more specifically as “an aggressive, highly targeted and sometimes subversive street-level promotional campaign intended to create unexpected and memorable encounters between a product and its consumers” (Mohawk Paper Mills, Inc., 2006). Guerrilla marketers want to raise maximum attraction – this fact is supported by definition of guerrilla marketing as an unconventional marketing or stunt designed to attract maximum attention (Media Smart UK, 2008).

As per Investopedia, “It's a marketing tactic in which a company uses surprise and/or unconventional interactions in order to promote a product or service. Guerrilla marketing is different than traditional marketing as it often relies on personal interaction and has a smaller budget and focuses on smaller groups of promoters that are responsible for getting the word out in a particular location rather than on wide-spread media campaigns”.

### RESEARCH METHODOLOGY & OBJECTIVES

The study is based on secondary data which is collected from websites, books and journals. This study is descriptive in nature and is based on case studies. This study was planned with the following objectives:

1. To understand the concept of guerrilla marketing and the various techniques involved in guerrilla marketing.
2. To study the challenges and trends in guerrilla marketing.
3. To study the guerrilla tactics adopted by firms and political parties.

### LITERATURE REVIEW

Guerrilla Marketing is defined as “Tactics available to every small firm to compete with bigger firms by carving out narrow, profitable niches. These tactics include: 1) extreme specialisation, 2) aiming every effort at favourably impressing the customers, 3) providing service that goes beyond the customer's expectation, 4) fast response time, 5) quick turnaround of jobs, and 6) working hours that match the customer's requirements.” (Business Dictionary 2009).

Guerrilla marketing is first defined and then described through successful campaigns that helped organizations find new ways to access prospects, interact with audiences, impact a spot market, create buzz, and build strong relationships (Zou & Veil, 2007).

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Guerrilla marketing is achieving conventional goals, such as profits and joy, with unconventional methods, such as investing energy instead of money (Kaden, 2007). Prévot (2006) defined guerrilla marketing as means to gain maximum exposure through minimal cost to the company.

Most importantly, as the father of guerrilla marketing, Jay Levinson defined it as unconventional marketing intended to get maximum results from minimal resources (Levinson, 14 2000). Guerrilla marketing uses profits as the only yardstick for measuring its performance; it based on psychology-laws of human behaviour-more than on marketers' own guesswork and judgment (Levinson, 1999).

According to Levinson (2001), it's pretty easy to generate awareness from the customers, but that's not nearly enough to sell the products or service. The difference between creative marketing and creative guerrilla marketing is that the later one always having customers needs as the source of inspiration. As Levinson (2001) stated that guerrilla creativity isn't something the marketers do. Instead, it's something that prospects get. The marketers should take the mind off themselves, and direct it to the prospects.

Levinson (2001) explained in Guerrilla Creativity that some marketers did not gain instant results from their first efforts at marketing is the reason that they believe frequent changes might help sell more products. However, the guerrilla marketers believe that even the marketing campaign needed to be changed; it can be changed with the headlines and copies but not guerrilla creativity. Guerrilla creativity should be consistent in all the marketing communications. The real challenge of guerrilla marketing is demonstrating guerrilla creativity in a way that people can remember. The idea should be consistent but the way of demonstrated it should be full of imagination and energy.

"If executed properly, a guerrilla campaign can be a low-cost, high-impact way to connect with prospects, introduce your name, or remind customers you are still here" (Hatch 2005, p. 53). The paper analyzes the effectiveness of guerrilla marketing techniques and evaluates their impact on consumer's buying behaviour in modern day marketing emphasizing on attractiveness or popularity and commonality (Brennan & Binney, 2010).The research deals on an unconventional way of promoting a product to the market.

### ORIGIN OF GUERRILLA MARKETING

Initially, the expression "Guerilla" appeared at the beginning of the 19th century during the independence war between Spain and Portugal. This word can be translated as "battle" from Spanish and its meaning lies in a military tactic which was used by small armed forces against the massive ones. The term gained its publicity through Ernesto Che Guevara Lynchde la Serna (1928–1967), who used that guerilla military tactic against opponents for political concept domination. Since Che Guevara and his forces did not own many resources, like money, weapon and advantage of fighters' quantity, the only chance to accomplish a successful revolution in Cuba was to base their operations on acts of sabotage. Che Guevara's small army was well - coordinated and flexible, which led them to victory over enemies.

Over time, the Spanish leader summarized basic principles in the book "Guerrilla Warfare" which was written in 1961. The most important elements that he pointed out were ultimate goal, usage

of surprise effects and tactical superiority which subsequently became the starting point for guerilla marketing principles.

Companies do mass marketing with an endless flow of messages, which makes people easily tired of countless print advertisements, TV commercials and other conservative approaches. These have become less efficient today and are not able to reach potential buyers sufficiently anymore. In a clutter of ads, people prefer to switch the TV or radio channels when they hear the same promotional messages often because of being bored. Jay Levinson revolutionized marketing strategies for the small-business owner with his take-no-prisoners approach to finding clients. Based on hundreds of solid ideas that really work, Levinson's philosophy has given birth to a new way of learning about market share and how to gain it.

Griffin (2002, 20) argues that there is a strong need in searching for totally new promotional tools that can attract customers in adventurous ways and have a direct focus on targeted segments. Furthermore, Levinson (2006) also supports a strong need for marketing to create new, innovative and effective methods than can be cost efficient at the same time. This is how the concept of Guerilla marketing percolated through the marketing wars.

### NEED OF GUERRILLA MARKETING

With the big businesses downsizing, decentralization, affordable technology, and a revolution in consciousness, people around the world are gravitating to small business in record numbers.

Small business failures are also establishing record numbers and one of the main reasons for the failures is a failure to understand marketing.

Guerrilla marketing has been proven in action to work for small businesses around the world. It works because it's simple to understand, easy to implement and inexpensive.

### AIDA MODEL

The AIDA model is an approach used by advertisers to describe the different phases of consumer engagement with an advertisement. According to the AIDA model, the objective of advertising is to get the attention of the customer. If this objective is not met, the further objectives - interest, desire and action cannot be achieved.



The aim of Guerrilla marketing is basically to do unexpected things that arouse the attention of the customers. As the customers gives their big attention, it leads to arousal of interest. Once the interest is aroused, it is very essential to create a desire by using creativity which will lead the customer to buy that product or service. But it is a very difficult and long process to

take the person to the last stage. Guerrilla marketing helps in achieving these stages through innovative ideas.

AIDA is an acronym used in marketing and advertising that describes a common list of events that may occur when a consumer engages with an advertisement.

**A - Attention (Awareness):** Attract the attention of the customer. To attract the attention of the consumer, the best approach is called disruption. This is a technique that literally jars the consumer into paying attention. It can be done in many ways, including:

**Location:** Placing ads in unexpected situations. This is often called guerrilla or ambient media.

**I - Interest:** Raise customer interest by focusing on and demonstrating advantages and benefits (instead of focusing on features, as in traditional advertising).

**D - Desire (Decision):** Convince customers that they want and desire the product or service and that it will satisfy their needs.

**A - Action:** It is basically 'Closing the Sale' that lead customers towards taking action and/or purchasing.

If you fail at step four, i.e. if they don't take action, then you at least leave a lasting and positive impression about your product. That's why doing a great job with the first three steps is very important.

#### TYPES OF GUERRILLA MARKETING

**Viral Marketing:** It is a marketing technique that relies on and encourages people to pass along a marketing message by word-of-mouth or word-of-e-mail marketing. Viral marketing uses blog and social networks to produce positive word-of-mouth brand awareness. A successful viral campaign uses existing communication networks (you tell two friends, they each tell two friends, and so on), doesn't require much in terms of resources, and has the potential to be unstoppable.

**Ambient Marketing:** It allows a business to create brand recognition without necessarily pushing their products. It's about placing ads on unusual items or in unusual places you wouldn't normally see an advertisement. These kinds of ads often make someone think about a certain place or thing differently.

**Ambush Marketing:** It is a promotional tactic designed to associate a company, product, or service with a particular event, or to attract the attention of people attending the event, without paying any money, although they are not the official sponsor.

**Tissue-pack Marketing:** It was made popular in Japan, but today it's spreading to infiltrate the rest of the world. Tissue packs are low cost, high impact tools for innovative advertising. They are a new and unanticipated way to grab a consumer's attention. This simple but ingenious marketing method works well because who would turn down free stuff? The giveaway is a useful item; it stays close to the target consumer until it's been used up.

**Astroturf Marketing:** It involves creating an artificial buzz about a product or company, and it's mighty risky in the information age. It is a deceptive tactic of stimulating grassroots support for a product, cause etc. undertaken by organizations with an interest in shaping public opinion. It reaches the customers by making them find about the product through repetitive messages that refer to the product (the messages are not always true).

**Experiential Marketing:** It is based on the entire experience a consumer has with a product or service. It focuses on allowing the consumer to try the service or product for himself. It aims to give you an experience rather than send you a one-way message. Experiential marketing lets you interact with the product and associate your immediate emotional responses with that brand.

**Live-in Marketing:** It is a term used to describe a variant of marketing and advertising in which the target consumer is allowed to sample or use a brand's product in a relaxed atmosphere over a longer period of time. Much like product placement in film and television, LIM was developed as a means to reach select target demographics in a non-invasive and much less garish manner than traditional advertising.

**Wild Post Marketing:** It is an inexpensive form of advertising with high degree of gained exposure when postings are placed in large numbers on several places in order to attract maximum attention. Posters are often adhered to construction site barricades, building facades, in alleyways, and on assorted buildings with no guarantee of time of exposure as poster could be there for one day, one month, or one hour.

**Undercover Marketing:** It is a marketing approach that is used to attract the interest of customers without making those consumers aware that they are being subjected to a marketing approach. It is a strategy that involves spreading the word about a good or service from one person to another. Often, the approach is somewhat low key and does not appear to have a great deal of direct involvement with the producer of the product, and may even include the distribution of free samples to target customers.

#### CHALLENGES FACED BY GUERRILLA MARKETING

**Content and intent:** Guerrilla marketing is desirable only if the content is proper and acceptable. Many a times, the content may invite moral policing if there are images of bloodshed or wartimes. The target should receive the message with same objective. If there are any lapses in interpretation, then the effectiveness of ad is diminished.

**False and Misleading Advertisements:** Then there is the issue of false and downright disingenuous advertisements. While in itself this is an important ethical issue, an extension of this is the question of credibility. Nowadays, newspaper columns are rife with advertisements which blatantly compare features of brands with those of their competitors. With the opinion of 'experts', these advertisements claim their brands to be quantitatively and qualitatively better than those of their rivals. In India, a leading car manufacturer had to recall its ad campaign when it incorrectly stated that one of its car models was superior to that of its competitor's.

**Information misuse:** Many marketers are found misusing the information. The ads may deliver something which is not true and not disclose correct facts. In this case, the audience is forced to take a wrong decision. The information source is also a major concern in such types of advertisements.

**Brutal:** Many images or actions are brutal or deadly which is not good for the society. Situations like car or bike driven at a high speed or many people dead on road after accidents are all quite brutal content to be displayed to general audience.

**Negative emotions:** Marketers use negative emotions like fear and anger to provoke people to purchase their product. The use of

fear appeals may lead to a murky communication if used for a prolonged period. Use of negative emotions should be negligible and should be used only if highly necessary.

**Distraction:** It has been found that ad placements under these strategies are quite unusual. Marketers select places where people do not expect to see an ad, such places like inside the wash rooms, under the bridges, hangings from the ceiling, paints on the public wall or stunts at public places. Many of such incidents may cause distraction and lead to accidents.

**Exposure to children:** There are no ad filters so even children are exposed to some ads which might not be suitable for them. Ads of deodorants like Axe, wild stone, etc are aired during prime time when even children are watching TV. The content of all these ads is not suitable for children.

**Acceptance in society:** Many issues like live-in relationships or one night stands are not acceptable in society. So if the ads are targeting such issues, then social acceptance will not be there. Many ads also highlight the racial or color discrimination in their ads to attract attention, but over a period of time, social acceptance will not be there.

**Surrogate Advertisements:** In India, alcohol and cigarette advertisements were banned outright some years back. However, alcohol and cigarette companies alike are using the avenue of surrogate advertisements to press forward their case. For the viewer though, the 'subtle' pointer towards the real deal is enough as the surrogate advertisements leave no ambiguity in their minds.

**Unhealthy Competition:** Many companies try to adapt this as their marketing strategy but it may lead to unhealthy competition as this is a low cost strategy. If all the marketers show the content not acceptable to all, then it will lead to unhealthy competition in the market.

## STRATEGIES ADOPTED FOR EFFECTIVE GUERILLA MARKETING

- ☞ It should be based on human psychology.
- ☞ Humans do pay attention to advertisement. They give time to those which interest them.
- ☞ Don't try to sell the products but build brand awareness.
- ☞ Sell the benefits of the product as people don't buy products, they buy features.
- ☞ Be innovative and creative in ideas.
- ☞ Deliver a message in a smart and impactful way

### CASES OF GUERILLA MARKETING

1. Coca Cola: Generous ATM Machine:- A Coca Cola ATM machine in Spain that dispenses 100 euros for free, on the condition that the receiver shares the reward with someone. This came as an addition to the overall Coke's vision of spreading happiness. And talking about Coca Cola, this is another small campaign execution amplified on-line.
2. Japanese Retailer uses Kinect Powered Mannequins:- Japanese are far ahead in technology, and this guerrilla advertising example proves it quite well. Already fascinated by the robot culture, United Arrow apparel store in Japan hooked up the mannequins on their store display with Microsoft Kinect. The shoppers and passers-by had a great

time making the mannequins mimic their moves as a large crowd spent hours in front of the store.



Figure 1



Figure 2

3. To promote Eatalica burgers a 'Caution Wet Floor' board was placed near an Eatalica burger signboard. The copy on the board reads 'Oogling at the burger may involuntarily cause drooling which may in turn lead to a wet floor issued for your safety by the management of Eatalica restaurant'. Eatalica is an American-Italian Food Joint in Chennai, India.



Figure 3

4. BIG BAZAR placed this creative add :-  
Keep West-aSide. Make a smart choice!  
Shoppers! Stop. Make a smart choice!  
Change Your Lifestyle. Make a smart choice!



Figure 4

5. Anando Milk, from India, wanted to increase milk consumption among children, so the McCann Erikson Agency came up with this amazingly creative ad placed on one of Mumbai's buildings, where you can see a child strong enough – a benefit of the milk, of course– to move part of the building.





Figure 5

### GUERRILLA MARKETING ADOPTED BY POLITICAL PARTIES

**AAMADAMI PARTY (AAP is drawing in droves...)** - Arvind Kejriwal, is a new 'guerrilla marketer' in India's political jungle. While much has been made about Aam Aadmi Party's remarkable transformation from political underdogs to the party that ruled Delhi, marketing experts believe it's a great example of guerrilla marketing applied to the political milieu. Mr. Dilip Pandey AAM admi party spokesperson and secretary, AAP proclaims that "We are fighters and a group of guerrillas,". "We played their game, but with our rules." The politics may have been conventional but the approach was not.

Guerrilla warfare seems a perfect descriptor of AAP's political battle. Its game plan to ambush opponents in their own territory was a combination of sharp strategy and smart tactics, both hallmarks of guerrilla warfare. This is an example of the brand's message being in sync with its actions. AAP was bang on target in consistency of its branding. They made a focused attempt, had a defined task, and put the elements of symbolism and branding perfectly in place. Moreover it is very important to state here that guerrilla opportunities arise when a large company discontinues a product, thereby leaving a gap which a nimble rival can exploit. This is exactly what happened in Delhi.

Two large political outfits - the Congress and BJP - discontinued their product i.e. quality governance. While the ruling party failed to deliver on its promises, the main opposition party frittered away an opportunity to win over the people. The gap was there and AAP capitalized by acting swiftly.

Tactically, AAP used all the three principles of guerrilla warfare as listed by Ries and Trout:

- ☞ Identify a segment small enough to defend,
- ☞ never act like the leader even if successful in the guerrilla attack, and
- ☞ be ready to enter or exit on short notice.

AAP identified a segment to test the political waters i.e. New Delhi, and came up with a very interesting value proposition:



zero tolerance to corruption. Both the main political outfits in Delhi had lack of clarity and no value proposition for the buyers (voters). "Consumers don't buy an iron just because it heats up. The product has to offer something specific and obviously it has to be differentiated. AAP went to the basics" adds Koshy. They said they won't be corrupt and it struck a chord with the audience, and this was communicated across every touchpoint.

"Guerrilla marketing typically targets a specific demographic segment, and again AAP did that. It came up with separate manifestos for each electoral constituency in Delhi something that no political party ever did. So, their customized manifestos had something for everybody, rather than the one-size-fits-all approach. The electoral manifesto carpet reached both the masses and the classes. Piggy backing on auto rickshaws, the message was driven home to every aam aadmi. The vision of a corruption-free India resonated to distant shores via social media platforms. AAP never acted like the leader - the second main principle of guerrilla marketing. In fact, they started from a position of weakness. They did use nonconventional techniques" admits the political commentator. What AAP has done may be classic case of guerrilla marketing, but marketing experts sound a word of caution"

**Guerrilla Marketing Can Even Prevent Dictatorship** - One of the most-viewed videos in Tunisia a couple months ago was the guerrilla marketing political campaign done by Mamac Ogilvy in Tunis. The video documents a campaign where a giant building-sized poster of former dictator President Zine al-Abidine Ben Ali is hung on the side of a large building. On January 14th 2011, the people chased former Dictator President Ben Ali out of Tunisia. Since then many had lost interest in politics. After many ineffective attempts to push Tunisian people to go out and vote for the upcoming elections, a new campaign was set up in La Goulette, to the shock of residents. Their reaction was filmed. Onlookers become so outraged by the poster, a mob gathered to tear it down only to find a very related message.

### FUTURE OF GUERRILLA MARKETING

There will always be a future in Guerrilla Marketing because:

1. People are always changing their buying habits so there is always a need for marketing to evolve. The people who change first are seen as unconventional.
2. Technology will keep giving us new ways to communicate.
3. GMI is run by true marketing leaders that know when it's

time to move forward with new cutting edge best practices like social media or when it's time to go retro with something almost forgotten like direct mail.

A lot of Guerrilla Marketing practices are now considered mainstream marketing. For over two decades, the GMI organization has authored and co-authored books with the visionaries who introduced the newest guerrilla tactics in marketing. There's no reason to believe that this will not continue. The Guerrilla legacy is set in stone and new careers have been launched that will carry on the cutting edge, unconventional nature of GMI.

Guerrilla Marketing can be used in any industry. A lot of industries sit in a windowless room waiting for some new concept or idea. Every industry needs to look outside their own world to see what other people are doing. It is easily the most uncomplicated school of marketing ever created, and it works 100% of the times if you do it right. GMI exists to show the world how to do it right.

### EMERGING TRENDS IN GUERRILLA MARKETING

Emerging trends in technology allow advertisers to reach tech-savvy consumers in whole new ways. Including the latest gadgets in guerrilla marketing campaigns can increase consumer participation and create buzz around the campaign in the social media world. Most of the applications that are found pre-installed in cell phones of today were not even in existence a few years back. A cell phone without additional features such as a camera, GPS and internet applications are not considered functional enough for today's youth. Creative media play an important role in adding fun features in ad campaigns.

**QR Codes Are All The Rage:-** Quick response (QR) codes on cell phones are basically symbols, which direct the cell phone's web browser to websites when photographed. This process is termed as hard linking. It is one of the latest methods of alternative advertising. Guerrilla marketers are starting to understand the power of this technology and looking to employ it in their future campaigns. It is similar to other forms of coded information, except that decoding is especially fast. Owning a smart phone is necessary for this to work. QR coding makes promotions really simple as it allows users to reach a website without having to type anything. QR codes nowadays allow you to link URL's of images and videos, which can be transferred on to anything you want. This makes advertising really easy, regardless of whether it's a company's information or a personal portfolio that is being promoted.

**Google Goggles Used To Promote Businesses:-** Another new technology that has come forth in the field of mobile-based promotions for Guerrilla marketers is the Google goggles. It is similar to how Google traditionally works except for the fact that it uses images to search instead of search terms – “visual search.” This application is available for the “Android” platform of google phones. All you need to do is to use the phone's camera to take a picture of an object you want information about. Google Goggles tries its best to identify the image and displays relevant results. It is making text based search obsolete. An additional feature of this application allows one to identify local businesses using the camera and obtain meaningful information about it. It works in a way similar to quick response codes, except that it takes it a step further by letting you get information about the

product instantly. This technique can be used to promote brand logos in guerrilla marketing campaigns.

**Guerrilla goes digital:-** As customers become desensitized even to the most innovative guerrilla techniques, smart brands up the ante. With technologies become more sophisticated, this opens up a whole new world of possibilities. Companies are already reaching out to customers via blogs, Youtube, and social networking. One key to guerrilla marketing for business success will be identifying the next big thing and getting in on the ground floor.

**Guerrilla gives back:-** Company-run charity programs are not a new idea, but the way they are presented has changed immensely. Companies now give special thought to giving back as a part of their brand. Rather than choosing a popular charity, many now purposefully choose on what is congruent with their image, such as a men's suit store donating career clothing to people looking to re-enter the workforce. Moreover, companies are increasingly tooting their own horn in this area, making sure the public associates the charitable act with both the company and the logo design. This strategy has been very effective among guerrilla marketers.

### CONCLUSION

Guerrilla Marketing is one of the most recent trends in marketing. It can be done by practice and it is a unique method which helps marketers to think out of the box. The marketers who use guerrilla marketing do innovative thinking and are open to new and creative ideas. According to a research study, it has been proven that the case of guerrilla marketing can be implemented profitably and effectively and its significance has to be estimated and taken into consideration in every business environment. Lot of industries sit in a windowless room waiting for some new concept or idea. Guerrilla marketing campaigns affect customers more than any other campaigning strategies. It also seems that they need more creativity all the time to make the consumer react to those campaigns. Someone thought that humor is a great way to catch the attention of the consumer and that advertising campaigns are supposed to arouse emotions in some way. Other thoughts were that old companies and big companies tend to have more eye-catching marketing campaigns than smaller companies. Someone said that they thought that the type of guerrilla campaigns shown to them demanded that the brand is already well known to make a bigger impact. Guerrilla tactics are widening their scope. It is not only confined to business but few political parties are also using this concept. But how much of it will be successful is further a question.

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# CORPORATE SOCIAL RESPONSIBILITY: NOT AN OPTION BUT AN OBLIGATION FOR ALL BUSINESS



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## ABSTRACT

*This paper will give the meaning of the CSR and recognize some of the factors that led to the emergence of corporate social responsibility. It will also discuss the importance of corporates setting up corporate social responsibility projects, and the impact these have on their performance and society as well.*

## INTRODUCTION

Social responsibility is an idea that has been of concern to mankind for many years. Over the last two decades it has become of increasing concern to the business world as well. The World Business Council on Sustainable Development defines CSR as the commitment of business to contribute to sustainable economic development, working with employees, their families and local community and society at large to improve their quality of life. CSR is a process with an aim to hold responsibility for the company's actions and promote a positive impact through its activities on the environment, consumers, employees, communities, stakeholders and all other members of the public sphere who may also be considered as stakeholders. This has resulted in growing interaction between governments, businesses and society as a whole.

## EMERGENCE OF CSR

The term "Corporate Social Responsibility" (CSR) came into limelight in late 1960s and early 1970s, after many MNCs coined the term Stakeholders, terming those on whom an organization's activities have an impact. It was theorized that corporate owners were different than stake holders. Those in favor of CSR stated that corporates make longer term profits by operating with CSR philosophy and those against stated that CSR distracts from the economic role of business. It has been stated that, in India, CSR has developed in four phases:

**First Phase** - Charity and philanthropy were the main components of CSR. During this period wealthy business communities spent their income for building temples for religious causes. During British period after 1850, concept of CSR changed and Indian business houses focused on economic and social well being aspects.

**Second Phase** - During struggle for freedom from British rule, based on the philosophy of Mahatma Gandhi, business houses established trusts for schools and colleges and helped in opening of training and scientific institutions.

**Third Phase** - 1960-1980s saw the emergence of Public Sector Undertakings, enactment of labor and environment related laws, focusing on regulations, industrial licensing, levying of high taxes etc. PSUs took over the roles of private sector business houses. PSUs were established by Government to ensure suitable

distribution of resources to the needy population. In 1965 businessmen, politician and academicians set up a national workshop on CSR. They emphasized upon transparency and social accountability. However, not much progress was made in the field of CSR in this phase.

**Fourth Phase** - During this phase (1980 – till date), Indian business houses left the practice of traditional CSR and merged into a sustainable business strategy. In 1990s, post liberalization, economy improved with many fold growth. Many companies took to CSR with positive attitude. Indian companies had to meet the requirements of international companies concerning labor practices and child labor, etc.

Corporate social responsibility is no longer defined by how much money a company contributes to charity, rather it's about overall involvement in activities that improve the quality of people's lives. Corporate responsibility has come up as a significant subject in the international business community and is increasingly becoming a mainstream activity. There is growing recognition of the significant effect the activities of the private sector have on the workforce, clients, the society, the environment, competitors, business associates, investors, shareholders, governments and others groups.

Among other countries, India has one of the richest traditions of CSR. Much has been done in recent years to make Indian entrepreneurs aware of social responsibility as an important segment of their business activity but CSR in India has yet to receive widespread recognition. Big corporate houses have been involved in community service and development through charity and community development. The basic objective of CSR these days is to maximize the company's overall impact on the society and stakeholders. CSR policies, practices and programs are being comprehensively integrated by an increasing number of companies throughout their business operations and processes. A growing number of corporates feel that CSR is not just another form of indirect expense but is important for protecting the goodwill and reputation, defending attacks and increasing business competitiveness. Provision of improved medical and sanitation facilities, building schools and houses, and empowering the villagers and in process making them more self-reliant by providing vocational training and a knowledge of business operations are the facilities that these corporations focus on. Many of the companies are helping other people by providing them good standard of living by way of building schools, conducting various healthcare related awareness programmes in schools and community, medical camps, eye check up and cataract surgery camps, school children health screening programs, HIV/AIDS awareness programs, etc.

Many corporate houses have started collaborative programs with Non Governmental Organizations for the community social upliftment projects. Many corporates have been doing social

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development programs for local community without naming or considering it as corporate social responsibility. The ability to make a significant difference in the society and to improve the overall quality of life has clearly been proven by the corporates.

### **THE IMPORTANCE OF CORPORATE SETTING UP CORPORATE SOCIAL RESPONSIBILITY PROJECTS**

Corporate social responsibility has gone main stream. It's about more than just good PR. It's about telling people that an organization keeps social responsibility ahead of profits, so that they can earn more profits. While profit may be the end goal for any business, responsible businesses have managed to attract more investors, reduce their risks and address stakeholder concerns by practicing CSR. It's also about good business and taking care of customers. If done properly and systematically, CSR will help an organization to build trust, credibility and manage its reputation which in turn gets converted into sales and of course profits. It also gets spread through news stories with positive messages about an organization that also builds goodwill among the customers. It helps in the image building of an organization which is beneficial in the long run.

### **REASONS FOR HAVING CSR CAMPAIGNS**

**Media Coverage** - Getting positive media coverage to build a good public image is important for every business. This coverage can only be procured by corporate social responsibility. More CSR activities mean greater coverage which means more benefits.

On the other hand, if a corporate participates in activities that bring upon negative community impacts, the media will also pick this up which will adversely affect the reputation of the organization. Media coverage is very important as it sheds a positive and negative light on your organization.

**Social Media Visibility** - One of the reasons that corporate should have a viable CSR campaign is because of the importance and popularity of social media. Organizations must understand that social media is an integral part of public perception. Corporate exercise social responsibility in the form of fund raising or setting up camps/workshops that provide demos, free services or health checkups. Promotion through social media helps to create a positive branding environment and is a great way to engage with the audience on a deeper level that goes beyond the products or services.

**Public Relations Benefits** - Public relation is a powerful tool for shaping consumer perception and building a company's image. A corporation's public image is at the mercy of its social responsibility programs. Organizations that actively promote their social responsibility activities often publicize their efforts through the media. Getting the word out about corporate donations at the time of natural calamities, employee welfare programs, promotion of education and other welfare activities or other CSR initiatives is a powerful branding tool that can build credibility of an organization in the eyes of the public. For example, if a company is greatly involved in the practice of donating funds or goods to local nonprofit organizations and schools, or if it takes great care to make sure that the materials used in its products are eco friendly and the process is sustainable, this gets noticed by the public and gets long term benefits for the company.

**Government Relations** - While dealing with politicians and government regulators, corporate have an easier experience that place an emphasis on corporate social responsibility. On the other hand, organizations that disregard social responsibility tend to find themselves into various inquiries and probes which are enforced on them at the persistence of public service organizations. More a corporate takes social responsibility seriously, more positive the public perception will be. Lesser the seriousness towards CSR, more likely it is that activist groups will launch public campaigns and demand government inquiries against them.

**Building a Positive Workplace Environment** - An organization is able to build the positive work environment by promoting social responsibility in the workplace which is one of the prominent benefits of CSR. Employees will likely be more enthusiastic and engaged in their jobs if there is mutual understanding between employer and employees. This can build a sense of commitment and teamwork which brings everyone together and leads to satisfied and more productive work force.

### **IMPACT OF CSR ON SOCIETY**

Corporate Social Responsibility (CSR) is how companies direct the business processes to produce an overall encouraging impact on society. Companies consider the interests of society by taking responsibility for the impact of their activities on customers, suppliers, employees, shareholders, communities and other stakeholders, as well as the environment. It has been observed that organizations are willingly taking further steps to improve the quality of life for employees and their families as well as for the local community and society at large. If a company chooses to follow the way of CSR, it will put together ethical concerns in its activities and in its interaction with all the stakeholders. This implies that the corporate units function in such a way that their CSR activities in all likelihood actually reach out to the beneficiaries—the society in general.

Another positive impact corporate social responsibility has is the likelihood of corporate partnerships. These partnerships are important for corporate as it builds credibility among its local community. They are also important to a nonprofit organization as they do not have the resources for major marketing campaigns. It is only their image in the local community which serves as a source of awareness in society.

For a corporate, a partnership with a local or national nonprofit organization improves the company's image in the public eye, as consumers can clearly see the positive impact a corporate is having on their community. It makes it easier for consumers to trust a company which is associated with a nonprofit organization.

For a nonprofit organization, a partnership with a local or national corporate puts its name on marketing materials that otherwise would have been a very costly affair for them as they have low budgets. A key benefit is that such partnership brings additional awareness to their work.

CSR goes by many names, which include: corporate citizenship, corporate giving, corporate community involvement, community relations, community affairs, community development, corporate responsibility, global citizenship etc. It is an innovative way of doing business to cater to the needs of the

market and its stakeholders. Companies and business are attaching additional importance to corporate social responsibility. They are the ones who give the most whenever natural calamities and disaster happens. According to Forbes (2010), corporate social responsibility works in two ways. The company gives back to the society and in turn, people get to know about the company who helped them most and cater to their products and services. It is about how companies manage the business processes to produce an overall positive impact on society. It is now an integral part of the wealth creation process - which if managed properly should boost the competitiveness of business & maximize the value of wealth creation in the society.

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# EMPIRICAL EVIDENCES OF CUSTOMER SATISFACTION A STUDY OF MOBILE BANKING SERVICES



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## ABSTRACT

Technology has played a vital role in the evolution of Indian banking sector through speed, accuracy, efficiency, promptness and reduction in cost. Banking services are now tilting to "Anywhere Anytime banking" aspect. Today banks are providing services through different automated channels like ATM, Debit Card, Credit Cards, Internet Banking, Mobile Banking, Phone Banking, RTGS, NEFT and ECS etc. Mobile banking is a system of providing services to the customers to carry out banking transactions on the 'Mobile Phone' through a cellular service provider. Mobile Banking is gaining increasing acceptance amongst various sections of the society. The objective of the proposed paper is to study the customer satisfaction towards mobile banking services provided by various banks operating in Delhi and NCR. To achieve the objective of the study, primary data was collected through a structured questionnaire from the respondents using mobile banking services (public, private and foreign banks). In total, 187 respondents were studied with the help of a convenience sampling method. To analyze the collected data, SPSS version 19 was used. The various statistical techniques used for analysis and achieve the objectives of the study are frequency distribution along with percentages, mean, standard deviation. To test the null hypothesis, parametric tests such as t test and ANOVA was used. The major findings of the study reflected that 'sector of the banks', 'occupation of respondents' and 'age of the respondents' has significant impact on customer satisfaction. The study provides meaningful direction to bank managers and decision makers to improve their service quality for higher customer satisfaction.

## KEYWORDS

Indian Banking, Primary data, Customer Satisfaction, Mobile Banking Services and Information and Technology.

## INTRODUCTION

Mobile banking has a great contribute in online banking revolution, which is giving a competitive edge to the banks against their rivals. Mostly "Transaction Alert/ Confirmation" is most demanded service by mobile banking users. Customers feels that after monetary transaction, an SMS should be received and they prefer the version of the IVR (Interactive Voice Response) banking service that provides (out-of-band) SMS confirmation (Peevers et.al. 2010).

Technology has played a vital role in the evolution of Indian banking sector through speed, accuracy, efficiency, promptness and reduction in cost. Today, banks are providing services through different automated channels like ATM, Debit Card, Credit Cards, Internet Banking, Mobile Banking, Phone Banking, RTGS, NEFT and ECS etc. Banking services are now tilting to "Anywhere Any time banking" aspect. Mobile banking is a system of providing services to the customers to carry out banking transactions on the mobile phone through a cellular service provider. Modern technology has transformed the functioning of business. It has bridged the gap in terms of reach and coverage of systems and enabled better decision making based on latest and accurate information, reduce cost and overall improvement in efficiency (Uppal, R. K. 2011).

The era of mobile banking in India began several years back when the RBI mandated alerts to customers through SMS for their physical banking activities. Presently, in India 65 banks have been approved for conduct of mobile banking and 12.23 million bank customers have so far registered for mobile banking services. At the end of January 2012, the total wireless subscriber base was 936 million, which included 313 million subscriptions in the rural areas (Shukla Neha, 2012).

Mobile Banking is gaining increasing acceptance amongst various sections of the society. The customers of the banks can have their financial transactions with plastic cards & bank account and transact through telephone, mobiles and internet banking facilities from their convenient places (Selvi, D. 2012).

The terms m-banking, m-payments, m-transfers and m-finance refer collectively to a set of applications that enable people to use their mobile phones to manipulate their bank accounts, store value in an account linked to their handsets, transfer funds, or even access credit or insurance products. Banking system, such as chequebooks, ATMs, voicemail / landline interfaces, smart cards, point-of-sale networks, and internet resources, the mobile platform offers a convenient additional method for managing money without handling cash (Karjaluo, 2002). The appeal of these m-banking / m-payment systems may be less about convenience and more about accessibility and affordability (Cracknell, 2004). Mobile phone operators have identified m-banking / m-payment systems as a potential service to offer customers, increasing loyalty while generating fees and messaging charges.

Table 1: Various Banking Queries Through Mobile Banking Services

Banking Queries while using Mobile Banking Service	Banking Transactions through Mobile Banking Service
Review account balance	Transfer Funds between your accounts
Mini statement	Transfer funds to a third party
Review credit card balance	Pay your utility bills
Status of Cheque	Order a Cheque book
Alert on account transaction	Shop online
Change of pin number	Pay and Create / Renew Fixed / Recurring Deposits Online
Access to loan statement	Online Demand Draft / Pay order
Credit card bill due date	Pay Credit Card Dues
Branch and ATM location	Prepaid Mobile recharge
Stock market updates and statement	Withdrawal at banking agent
Exchange and interest rate	Insurance premium payment
Inquire about your Fixed Deposit	Tax Payments
Inquire about your TDS details	
Request Stop Payment on a Cheque	
Apply for loan and mortgages	
Apply for Internet Banking / ATM / Debit Cards	
Change user ID and password	
E-mail Support	

Source: Compiled from various banks websites and research papers

Vyas (2009) stated that Indian banks will target non-online banking users who may lack regular access to desktop internet but are very likely to own a mobile device, thus reporting great

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potential of mobile banking in India. This report of Vital Analytics suggested huge potential of mobile banking in India, as it found that checking account balance is the most frequently cited reason for using mobile banking by urban Indian customers. Total 40 million Urban Indians used their mobile phones to check their bank account balances followed by viewing last three transactions. Rao & Prathima (2003) found that there is huge potential of mobile banking in India but Indian banks offering m-banking services still have a long way to go.

**Flow of Paper** - The first section of the paper explains the introduction and importance of mobile banking, followed by review of literature which includes a few important papers related to mobile banking. Research methodology is in the third part of the paper including objective, data collection and tools for analysis. The fourth part of the paper is results and discussions. The fifth section of the paper is major findings of the study. The last two sections involve implications and future research directions.

## REVIEW OF EXISTING LITERATURE

Mobile Banking is gaining acceptance amongst various sections of the society. This growth can be partly traced back to technological and demographic developments that have been influencing important aspects of the socio-cultural behavior in today's world. The need/wish for mobility seems to be the driving force behind mobile commerce in general.

In this section, some important studies are reviewed to have a deep insight towards present research. Some of them are as follows:-

**Malarvizhi V. and Rajeswari A. (2012)** study the user's criteria for selecting mobile banking services in Coimbatore district and found that mobile banking users are all educated, belong to business group and middle income group. Further, the study concluded that if customers find mobile banking more useful, their expectations would also increase. Hence, the banks must be ready to meet their expectations and provide them a hassle-free mobile banking experience.

**Shah A. (2012)** conducted a study on Market Research on 'Factors Affecting Customer Adoption of Internet Banking' and found that banking needs, followed by risk and privacy concerns, and cost saved were the major factors that promote the adoption of internet banking. Further, convenience and feature availability were found to moderately affect internet banking adoption.

**Shukla Neha S. and Bhatt Vimal K. (2012)** conducted a study to find out the adaptation of mobile banking they use, their view about the fee charged for mobile banking by banks and their overall satisfaction through mobile banking. Results of the study indicate that age, income and education are strongly associated with usage of mobile banking service. The main reason for not using the mobile banking facility is less knowledge about the operation of the mobile banking facility. Customers also feel the services of mobile banking too complex to use and risky.

**Sharma H. (2011)** examined consumer's adoption of a new electronic payment service as mobile banking and the factors influencing the adoption of mobile in India. The study concluded that risk of transaction and security are the most considerable significant factors for banking service adoption especially in relation to new electronic environment. Further study reveals

that the perceived risk in the adoption of mobile banking services appears to indicate that consumers are serious about the risk of conducting banking via a wireless channel, measured in terms of overall security and trustworthiness of the services offered.

**Zhou Tao (2011)** examined the initial trust to mobile banking user adoption. The results indicated that structural assurance and information quality are the main factors affecting initial trust, whereas the information quality and system quality significantly affect perceived usefulness. Initial trust affects perceived usefulness, and both factors predict the usage intention of mobile banking.

**Namho Chung (2009)** studied whether trust in mobile banking influences the relationship between customer satisfaction and perceptions of the system quality, information quality and information presentation of mobile banking. Partial least square method was adopted by the researchers and the analysis revealed that information quality and system quality influence customer satisfaction, whereas information presentation does not have an effect on customer satisfaction. The study clearly investigated how perceptions of the system quality, information quality and information presentation of mobile banking moderated by trust influence customer satisfaction.

**Sharma and Singh (2009)** found that Indian mobile banking users are specially concerned with security issues like financial frauds, account misuse and user friendliness issue - difficulty in remembering the different codes for different types of transactions, application software installation and updation due to lack of standardization.

**Anyasi F.I. and Otubu P.A. (2009)**, focused vividly on the use of mobile phone in the banking industry, its economic implications and in general, a systematic look into the various forms of mobile banking with emphasis on the security measures that makes the whole process safe for adoption. Study reveals that mobile banking is attractive to the younger, more 'tech-savvy' customer segments. Further, because of safety and security issues, customer mostly prefers mobile banking for balance enquiry and making bill payments.

**Hanudin (2006)** made an analysis of mobile banking acceptance by Malaysian customers. The study confirmed that traditional measures were found to be significant factors of the behavioural intention to use mobile banking and this was influenced by the extent of security and privacy factors. Thus, the study suggested these five constructs to range customers' intentions to use the relatively new mode of financial transactions. However, these constructs can be integrated with others to provide a more comprehensive understanding of mobile banking.

**Sathye's (1999)** study focused on the major cities of Australia where use of internet and population was likely to be high and suggested that security concerns and lack of awareness about Internet banking and its benefits stand out as being the obstacles to the adoption of Internet banking in Australia. The author suggested some of the ways to address these impediments. Further, he suggested that delivery of financial services over the Internet should be a part of overall customer service and distribution strategy. These measures could help in rapid migration of customers to internet banking, resulting in considerable savings in operating costs for banks.

## RATIONALE OF THE STUDY

The above mentioned review of literature has clearly given us the idea that very few studies have been conducted in relation to the customer satisfaction, specifically for mobile banking users. It is very much clear that mobile banking needs various supportive aspects such as compatible mobile set, internet facility, specific prescribed software of bank to execute the mobile banking services etc. Information and technology has changed the way of banking and given each and every possible service / facility to the banking customers. The entry of private sector banks and foreign sector banks specifically affect the way of banking from customer's point of view. Today, with the help of IT, banks are trying their level best to attract new customer base and retain their existing ones. Various researches of marketing have proved that satisfaction level of customers has a significant relation with attracting and retaining the customers. Hence, the above mentioned facts make it important and worthy to study the satisfaction level of customers who are using various services provided by banks through mobile banking.

## OBJECTIVES OF THE STUDY

☞ To study the level of customers' satisfaction regarding the various mobile banking services provided by the public, private and foreign sector banks operated in Delhi and NCR.

☞ To establish a relationship between socio economic variables (gender, age, education, occupation, area of residence, income and sector of bank) and level of customer satisfaction towards various mobile banking services provided by public, private and foreign banks.

## HYPOTHESIS (NULL)

There is no relationship between the socio economic variables:

- ☞ Gender of respondents;
- ☞ Age of respondents,
- ☞ Education of respondents,
- ☞ Occupation of respondents,
- ☞ Area of residence of respondents,
- ☞ Income of respondents
- ☞ Sector of bank of respondents, and
- ☞ Level of customer satisfaction towards various mobile banking services (listed in the paper) provided by various banks.

**Data Collection:** To achieve the above mentioned objectives, questionnaire method of primary data collection was used. To finalize the structured questionnaire, various parameters / variables were studied thoroughly. One important source for selection of parameter was website of various banks (that are providing mobile banking options). Apart from this, various research papers have been studied, which have included the dimensions of mobile banking and important issue related to satisfaction level of the mobile banking users.

The socio economic variables were of nominal and ordinal nature and the respondents were asked to indicate their response regarding various aspects of the mobile banking services on a five point Likert scale.

**Population and Sample:** The population defined for this research paper was limited to the mobile banking users of various

banks operated in Delhi/NCR. In this study, convenient sampling technique has been used and in total 187 respondents were studied (total 225 questionnaire were distributed) to achieve the objectives of the study.

**Statistical Tools and Techniques:** The collected data is nominal (socio economic variables gender, area of residence, sector of bank and occupation) and ordinal in nature (education, income and variables included in questionnaire to study customer satisfaction). The collected data was analyzed by using descriptive statistics such as frequency distribution, percentages, mean scores and standard deviation as these techniques are widely used tools for this type of data and best fitted. To test the null hypothesis, t-test (two groups) and F-test (more than two groups) have been applied. These statistical techniques are run through SPSS version 19 for windows.

## RESULTS AND DISCUSSIONS

The frequency distribution and their respective percentages of various socio economic variables are presented in Table 2. Out of a total of 185 Mobile banking users, 130 (69.5%) are male, 77 respondents (41.2%) belong to age group of between 26-35 years and income category less than 3 lakhs.

**Table 2: Distribution of Respondents on the basis of Socio Economic Variables**

Socio Economic Variables	Categories	No. of Respondents
Gender	Male	130 (69.5 %)
	Female	57 (30.5 %)
Income Classification	Less than 3 lakhs	77 (41.2 %)
	3 to 6 lakhs	63 (33.7 %)
	6 to 10 lakhs	39 (20.9 %)
	Above 10 lakhs	8 (4.3 %)
Age (in years)	18 to 25 Years	45 (24.1 %)
	26 to 35 Years	77 (41.2 %)
	36 to 45 Years	55 (29.4 %)
	46 to 55 Years	8 (4.3 %)
	56 Years and Above	2 (1.1 %)
Occupational Category	Business	32 (17.1 %)
	Service	104 (55.6 %)
	Professional	44 (23.5 %)
	Student	7 (3.7 %)
Education Qualification	Graduation	79 (42.2 %)
	Post Graduation	108 (57.8 %)
Sector of Bank	Private Sector Bank	76 (40.6 %)
	Public Sector Bank	80 (42.8 %)
	Foreign Sector Bank	31 (16.8 %)

*Source: Primary Data*

Table 3 depicts the frequency distribution regarding satisfaction level of users towards mobile banking services and their respective percentages. It is apparent from the tables that in case of all the listed factors above, 50 percent of the respondents were

found satisfied.

**Table 3: Frequency Distribution of Respondents Toward Mobile Banking Services**

Sr. No	Dimension of Customer Satisfaction	Highly satisfied	Satisfied	Neutral	Dissatisfied	Highly Dissatisfied
1.	MB is Convenient (S1)	36 (19.3)%	121 (64.7)%	26 (13.9)%	3 (1.6)%	1 (0.5)%
2.	Easy to Subscribe and Operate (S2)	19 (10.2)%	106 (56.7)%	47 (25.1)%	9 (4.8)%	6 (3.2)%
3.	It is Easily accessible (S3)	48 (25.7)%	72 (38.5)%	48 (25.7)%	16 (8.6)%	3 (1.6)%
4.	It provide Prompt Services (S4)	38 (20.3)%	78 (41.7)%	45 (24.1)%	15 (8.0)%	11 (5.9)%
5.	It reduces Cost of transactions (S5)	30 (16.0)%	79 (42.2)%	48 (25.7)%	19 (10.2)%	11 (5.9)%
6.	Any time any where services (S6)	26 (13.9)%	79 (42.2)%	46 (24.6)%	24 (12.8)%	12 (6.4)%
7.	It is very Safe, Secure, and maintain Privacy (S7)	27 (14.4)%	73 (39.0)%	53 (28.3)%	22 (11.8)%	12 (6.4)%
8.	Connectivity with mobile and Network (S8)	23 (12.3)%	72 (38.5)%	54 (28.9)%	30 (16.0)%	8 (4.3)%
9.	Multiple access points (S9)	18 (9.6)%	72 (38.5)%	52 (27.8)%	27 (14.4)%	18 (9.6)%
10.	Quality of display / Information Provide to you (S10)	25 (13.4)%	77 (41.2)%	52 (27.8)%	20 (10.7)%	13 (7.0)%
11.	Account Statement and transaction summary (S11)	24 (12.8)%	79 (42.2)%	47 (25.1)%	25 (13.4)%	12 (6.4)%
12.	Time duration to complete the queries and transactions (S12)	16 (8.6)%	64 (34.2)%	74 (39.6)%	22 (11.8)%	11 (5.9)%
13.	Customer care facility/response of employees (S13)	30 (16.0)%	56 (29.9)%	60 (32.1)%	29 (15.5)%	12 (6.4)%
14.	Usefulness of mobile banking service (S14)	28 (15.0)%	70 (37.4)%	43 (23.0)%	33 (17.6)%	13 (7.0)%
15.	Updating and innovativeness (S15)	29 (15.5)%	58 (31.0)%	67 (35.8)%	21 (11.2)%	12 (6.4)%
16.	Payments through Mobile banking services (S16)	29 (15.5)%	78 (41.7)%	45 (24.1)%	25 (13.4)%	10 (5.3)%

*Source: Primary data*

In case of all the 16 statements listed in Table 3, less than 10 percent of the respondents have shown their complete dissatisfaction. As high as 64.7 percent of respondents said that mobile banking is convenient for them, whereas 56.7 percent have accepted that it is easy to operate the mobile banking.

Table 4 presents the overall mean values, their ranks and S.D. about satisfaction level of respondents while using mobile banking services. The responses of respondents gave first rank to 'convenience(S1)' with a mean value (1.99). The second rank in terms of satisfaction is provided to the statement 'easy access (S3)' with a mean score (2.21), followed by 'easy to subscribe and operate (S2)' (2.34), and 'It provides Prompt Services (S4)' (2.37). Customers showed less level of satisfaction regarding some issues namely 'Customer care facility / response of employees (S13)' (2.66), 'Time duration to complete the queries and transactions (S12)' (2.72), and 'Multiple access points (S9)' (2.75) as all the statements have secured last ranks.

From Table 4, it is also very much apparent that respondents are satisfied with the mobile banking services as the mean values of all the parameters studied in this paper are below 3.00, which is a measure of neutral response.

**Table 4: Overall Mean Values of Various Dimension of Customer Satisfaction regarding Mobile Banking**

Sr. No.	Dimension of Customer Satisfaction	Mean	Rank	Std. Deviation
1	MB is Convenient (S1)	1.99	1	0.66
2	Easy to Subscribe and Operate (S2)	2.34	3	0.84
3	It is Easily accessible (S3)	2.21	2	0.97
4	It provide Prompt Services (S4)	2.37	4	1.07
5	It reduces Cost of transactions (S5)	2.47	5	1.06
6	Any time any where services (S6)	2.55	7	1.08
7	It is very Safe, Secure, and maintain Privacy (S7)	2.56	8	1.07
8	Connectivity with mobile and Network (S8)	2.61	11	1.03
9	Multiple access points (S9)	2.75	16	1.11
10	Quality of display/Information Provide to you (S10)	2.56	9	1.07
11	Account Statement and transaction summary (S11)	2.58	10	1.07
12	Time duration to complete the queries and transactions (S12)	2.72	15	0.98
13	Customer care facility/response of employees (S13)	2.66	14	1.11
14	Usefulness of mobile banking service (S14)	2.64	13	1.14
15	Updating and innovativeness (S15)	2.62	12	1.07
16	Payments through Mobile banking services (S16)	2.51	6	1.07

*Source: Primary data*

The forthcoming explanation is related to acceptance or rejection of hypothesis with the help of t-test and F-test performed with the help of SPSS.

Table 5 represents one-way analysis of variance regarding the satisfaction level of mobile banking users. The t and F statistics on the first factor namely 'convenience (S1)' shows significant association with demographic variable 'age' at 1 percent level of significance. The second statement, 'easy to subscribe and operate(S2)', is showing the significant difference with 'age', 'occupation' and 'sector of bank' at 1 percent level of significance respectively.

The F statistics on the third parameter, 'easy access (S3)', reveals that there is a significant difference among the respondents of various categories of occupation at 1 percent level of significance. The forth, and fifth factors namely 'promptness of login / access (S4)', and 'cost effectiveness (S5)' are showing the significant difference with the demographic variables with 'age' and 'occupation' at 1 percent level of significance. The F statistics on the statement 'any time anywhere services (S6)' have shown significant difference with socio economic variable 'age' and 'sector of bank' at 1 percent level of significance.

The F statistics on the seventh statement, namely 'It is very Safe, Secure, and maintains privacy (S7)', reveals that there is a significant difference with 'sector of bank' at 1 percent level of significance. The F statistics regarding the eighth statement 'connectivity with mobile and network (S8)' reveals the associations of demographic variables differ significantly from 'age' and 'sector of bank' at 5 percent and 1 percent level of



significance respectively.

**Table 5: Results of t- test and ANOVA of Various Dimension of Customer Satisfaction Regarding Mobile Banking**

Various Dimension of Customer Satisfaction regarding Mobile Banking	t-test Values and significance		One way ANOVA Values and significance				
	Demographic variables						
	Gender	Education	Age	Annual Income	Occupation	Sector of Bank	
	S1	-1.351 (.180)	1.319 (.254)	5.516 (.000)**	.556 (.645)	1.381 (.250)	.821 (.442)
	Null Hypothesis	Accepted	Accepted	Rejected	Accepted	Accepted	Accepted
	S2	1.239 (.218)	1.123 (.317)	5.659 (.000)**	.221 (.881)	4.037 (.008)**	4.635 (.011)**
	Null Hypothesis	Accepted	Accepted	Rejected	Accepted	Rejected	Rejected
	S3	.899 (.370)	.434 (.685)	1.933 (.107)	.943 (.421)	5.228 (.002)**	2.607 (.076)
	Null Hypothesis	Accepted	Accepted	Accepted	Accepted	Rejected	Accepted
	S4	1.512 (.133)	-1.020 (.337)	3.862 (.005)**	2.253 (.084)	4.913 (.003)**	2.174 (.117)
Null Hypothesis	Accepted	Accepted	Rejected	Accepted	Rejected	Accepted	
S5	1.497 (.137)	-1.585 (.170)	4.647 (.001)**	.864 (.461)	6.167 (.001)**	2.845 (.061)	
Null Hypothesis	Accepted	Accepted	Rejected	Accepted	Rejected	Accepted	
S6	-.340 (.735)	1.131 (.312)	4.259 (.003)**	.787 (.502)	1.367 (.254)	9.165 (.000)**	
Null Hypothesis	Accepted	Accepted	Rejected	Accepted	Accepted	Rejected	
S7	-.558 (.578)	.344 (.747)	1.399 (.236)	1.058 (.368)	.063 (.979)	5.759 (.004)**	
Null Hypothesis	Accepted	Accepted	Accepted	Accepted	Accepted	Rejected	
S8	.174 (.862)	-.031 (.976)	3.288 (.012)*	1.057 (.369)	.099 (.961)	6.018 (.003)**	
Null Hypothesis	Accepted	Accepted	Rejected	Accepted	Accepted	Rejected	
S9	2.066 (.041)*	-.102 (.923)	4.192 (.003)**	1.305 (.274)	1.482 (.221)	5.024 (.008)**	
Null Hypothesis	Rejected	Accepted	Rejected	Accepted	Accepted	Rejected	
S10	1.909 (.059)	.298 (.779)	1.403 (.235)	2.676 (.049)*	1.058 (.368)	1.567 (.211)	
Null Hypothesis	Accepted	Accepted	Accepted	Rejected	Accepted	Accepted	
S11	1.276 (.204)	-1.108 (.322)	3.482 (.009)**	.828 (.480)	3.897 (.010)*	3.603 (.029)*	
Null Hypothesis	Accepted	Accepted	Rejected	Accepted	Rejected	Rejected	
S12	.182 (.856)	1.276 (.269)	4.226 (.003)**	.188 (.905)	2.884 (.037)*	.101 (.904)	
Null Hypothesis	Accepted	Accepted	Rejected	Accepted	Rejected	Accepted	
S13	.107 (.915)	1.067 (.342)	2.949 (.022)*	.965 (.410)	2.284 (.081)	.685 (.505)	
Null Hypothesis	Accepted	Accepted	Rejected	Accepted	Accepted	Accepted	

**\*\*significant at 1 percent level (null hypothesis rejected at 99 percent level of confidence)**

**\* significant at 5 percent level (null hypothesis rejected at 95 percent level of confidence)**

The t and F statistics on ninth dimension 'multiple access points (S9)' reflected that the respondents who belong to different 'age group', 'sector of bank' and 'gender' differ significantly at 1 percent and 5 percent level of significance respectively.

The tenth factor related to 'quality of display / information provided to you (S10)', reveals the existence of significant difference among the respondents belongs to different 'annual income group' at 5 percent level of significance. The eleventh statement namely 'account statement and transaction summary (S11)' reveals that there is a significant difference among the

respondent's of different 'age groups' at 1 percent and with 'occupation' and 'sector of bank' at 5 percent level of significance. The twelfth factor 'time duration to complete the queries and transactions (S12)' is showing significant difference with 'age' and 'occupation' at 1 percent and 5 percent level of significance. The t and F statistics on thirteenth factor namely 'customer care facility/response of employees (S13)' is significantly associated with different demographic variables 'age group' at 5 percent level of significance.

The fourteenth statement namely 'usefulness of mobile banking (S14)' is showing the significant impact of demographic variable 'age group' and 'occupation' at 5 percent level of significance. The fifteenth statement 'Updating and innovation (S15)' shows a significant relation with 'age' at 5 percent level of significance. The t and F statistics on statement 'mobile payments (S16)' shows a significant relation with different demographic variables 'age', 'occupation' and 'sector of bank' at 1 percent and 5 percent level of significance.

### MAJOR FINDING AND CONCLUSIONS

The study found a significant relation between gender multiple access point. Remaining all other issues are perceived equally by the respondents of different gender groups.

The education level is highly associated with some dimensions of mobile banking services such as 'convenience', 'easy to subscribe and operate', 'promptness of login/access', 'cost effectiveness', 'reliability and all time availability', 'connectivity with mobile and network', 'multiple access points', 'account statement and transaction summary', 'time duration to complete the queries and transactions', 'customer care facility', 'usefulness of mobile banking service', 'updating and innovativeness' and 'mobile payments'.

Further, the study pull and out that occupation has a strong bearing on satisfaction level of mobile banking users in case of some dimensions, namely 'easy to subscribe and operate', 'easy access', 'promptness of login/access', 'cost effectiveness', 'account statement and transaction summary', 'time duration to complete the queries and transactions', 'usefulness of mobile banking service', and 'payments through mobile banking'.

The study revealed that 'sector of bank' also have significant association with the dimensions namely 'easy to subscribe and operate', 'reliability and all time availability', 'safety, security, privacy and trust', 'connectivity with mobile and network', 'multiple access points', 'account statement and transaction summary' and 'mobile payments' as far as mobile banking is concerned.

Further, the study found that the in satisfaction level of respondents regarding mobile banking services, there is absence of significant association as level of education group is concerned.

The dimension 'quality of display / information provide to you' is associated with level of respondent's income. Remaining all other dimensions are perceived in similar way by all the income groups.

Further study revealed that no dimension is significantly associated with all the demographic variables so it can be concluded that the respondents have different opinions regarding demographic variables as far as mobile banking is concerned.

## CONCLUSION AND FUTURE RESEARCH DIRECTIONS

The present study is a step to measure the satisfaction level of respondents regarding the various aspects of mobile banking. The study concludes that the socio economic variables such as age of the respondents, income level of respondents, occupation and sector of bank have significant impact on the satisfaction level. A number of aspects related to mobile banking services remained unsolved in this study and form the interesting topics for future research. It is observed that there are a number of factors that encourage customers for mobile banking. The researcher can find out these factors and they can choose different areas to unfold the issues related to mobile banking services.

## MANAGERIAL IMPLICATIONS

The study is helpful to plug out weak areas, which need improvement with special reference to mobile banking services provided by various banks. The study provides meaningful direction to bank managers, information and technology persons and decision makers to improve their service quality for higher customer satisfaction.

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# SHAPING THE FUTURE OF BUSINESS IN SOCIAL MEDIA



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## ABSTRACT

*A new trend of social media is shaping the future of business environment according to its operations. It has also helped businesses to increase their worthiness, cultivate strategic partnerships and increase their contact with customers and suppliers. It has become important for business owners and marketers to understand how social media works as a communication and marketing tool. The study focused on establishing the effect of social media on the growth of SMEs in Bihar. The study used descriptive research design. Questionnaires were administered on 206 SMEs in Bihar, with the respondents being either the owners or managers. Cluster sampling was used to divide the population of interest and then simple random probability sampling technique was used to further identify the specific businesses to be used for the study. Both quantitative and qualitative data was collected and then analyzed using SPSS. The study established that social media tools offer greater market accessibility and CRM, which in turn have a significant impact on the growth of SMEs. It revealed that geographical barriers can be broken down by the use of social media tools.*

## KEYWORDS

*Social Media, Customer Relationship Management, Entrepreneurship*

## INTRODUCTION

New phenomena come and go on a frequent basis. The business world is not immune to any impact that may arise. Social media is one such phenomenon. Social media, which is sometimes referred to as social networking and Web 3.0 refers to a collaboratively produced and shared media content and network communities. The users of social media have the ability of sharing their views and encounters. This assists in creativity, open communication and sharing of knowledge among users. Facebook, Twitter, Skype and discussion forums are examples of social media tools.

In 2012, we saw social media as a way of connecting with potential consumers and building brand awareness. Looking at findings from various companies, it seems that popularity of Facebook is declining. As per the study, around 34% of Facebook users say that the time they spend on the site has decreased over the past year, with only 3% saying that they will spend more time on the site in the coming year. Facebook needs to re-evaluate its standing as a social network and focus on this rather than the many other things that have been reported in recent months.

Despite Facebook's declining popularity, it seems social media overall, will continue to rise. Social media usage is up to 38% over the previous year and is likely to increase to around 50% by the end of 2013. The increase in social activity is mostly due to smartphone users and we all know the mobile market is booming.

People's expectations are changing. Social media is now more than just networking; rather its a way of successfully building a brand. There's an old saying that all human behaviour is goal directed. We need a purpose that has to be obvious and in the absence of this behaviour, the task itself will not happen. This

applies to social media and how it is going to act in the future. Without a direction in the form of a social media strategy, a business will suffer online.

A lot of companies will be weighing up the benefits of spending their time on social media because as we all know time is money. As said by a famous philosopher, all human behaviour occurs to gain pleasure or avoid pain. In the beginning, the purpose served by using social media was just the pleasure of connecting with people in a new and unique way. This soon had its difficulties pertaining to how much time one can devote to social networking activity and how to communicate online. Looking into the future, networking has to have some kind of tangible benefit otherwise it may not be worth it.

When looking into the future of Social Media, you will need to consider the following:

**Tribes** – We as humans, by nature, are social despite the many years spent relying on mass marketing. We will be using social media as a way to have conversations and build a community or tribe that shares the same interests.

**Relevancy** – Something that will always be crucial to social media is how relevant the content is that you are sharing.

**SoLoMo** – We are in a new era now where being Social, Local and Mobile are an important part of being on social media.

Social media allows an enterprise to connect with both existing and potential customers, engage with them and reinforce a sense of community around the enterprise's offering(s). Further, an information rich website can help a business to develop relationships with customers by providing more effective marketing, new communication and distribution channels, shorter time to market, customized products, 24hour online technical support and online interactive community. Social networking can be an excellent way to acquire new customers and retain existing ones. The real challenge lies in finding ways to engage with the audience on a personal level. Social networking sites can build online groups around various companies, where clients and prospective customers can interact with each other. These groups provide valuable insights and useful feedback that help the marketers to improve their products to suit the needs of their customers.

There is a general perception that North Bihar is in the dark when it comes to Internet. This, however, is not true considering the continent at large is undergoing a connectivity revolution. There are three leading success stories of independent social media projects taking off in North Bihar; viz, Madhubani, Jhanyharpur and Darbhanga (a North Bihar aggregator of NB blogs, Jobs, Online shopping, E-business and news etc.) Developing countries need to adopt Internet technologies especially in small to mid size businesses in order to improve processes, efficiency and to be more competitive. The problem is that many SMEs do not know where to go or they think that they cannot afford it.

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The North Bihar Vision 2020 strategy is to undertake reforms in key sectors that form the foundation of society for socio-political and economic growth such as infrastructure, higher education, science & technology and innovation. In North Bihar, social media and social networking are still gaining popularity and their understanding as marketing tools is yet to be embraced. Conservative marketing practices in the country are undergoing a transformation owing to the Internet. For example, consumers no longer look up items in the Yellow pages of the postal directory but instead they search for them on the Internet. SMEs have a significant function in national economies both as employers and by cooperatively contributing an average of 90% of national economic output.

### CUSTOMER RELATIONSHIP MANAGEMENT (CRM)

In the traditional sales cycle, CRM forms a data driven structure that powers an overall customer life cycle. Based on historical transactions, the insights into what a customer may need next, or when a particular customer may be ready for an up sell, offers are generated based on past transactional data and the larger purchase or use patterns that exist across the entire customer base. On the social web, where the customer is now becoming an integral part of the sales process, CRM is being adapted to support this new role of the customer. This provides a highly valuable window of insight into what your customers are really thinking, and what they are likely to do next. This has led to the coining of the term Social CRM. Social CRM is an approach to business that formally recognizes the key of the customer in understanding and managing conversations around the brand, product and service. All businesses need to capitalize on having employees who can tap into the potential that Internet technologies have to offer. Having access to talented new employees who will improve the productivity and efficiency of the business is important in the adoption of social media tools for any business.

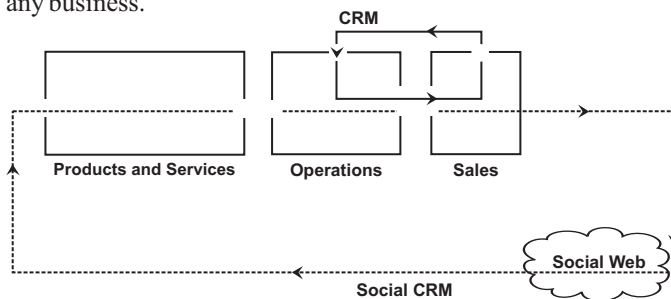


Figure 1: (CRM and Social CRM in a Business Context)

They are also able to learn the type of consumers who interact with their brand through their sites. Marketers are able to engage in audience sizing and get to better understand their customers and as such companies can quickly add products and change prices or descriptions.

Customer intelligence gathered from social media is important in driving the innovation in a business. The use of social technologies provides insights, thoughts and ideas on how to better serve customers and enables businesses to discover innovative ways to conduct business or offer new products and services to customers.

Products and services innovation translates into ideas becoming a reality. This eventually leads to the financial growth of

businesses. The growth of social media network platforms on the World Wide Web has brought a remarkable impact on the facilitation of global social interconnections. Social media offers unparalleled constant connectivity for users, allowing them to share, collaborate and establish online communities.

### SPECIFIC OBJECTIVES

- To determine the effect of social media on the market access of SMEs in North Bihar.
- To establish the effect of social media on the innovativeness of SMEs in North Bihar.
- To determine the effect of social media on the pricing of products from SMEs in North Bihar.

### RESEARCH DESIGN AND METHODOLOGY

A research design is a plan and structure of investigation to obtain answers to research questions (Kothari, 2009). In order to examine the effect of social media on the growth of SMEs, descriptive research design was used. The target population for this study was SMEs within North Bihar. A list of 2,064 enterprises sourced from the portal of Bihar was used as the sampling frame.

The reasons for sampling in this study included lower costs, greater speed of data collection and availability of population elements. Firms in the population were selected based on their respective district from the small agricultural producer / processor / dealer sector as given in the database of the Bihar portal – Licensing Department register. Cluster sampling was used to divide the entire population of interest. 9 districts in north Bihar made up the clusters – Purnia, Katihar, Supaul, Motihari, Samastipur, Sitamarhi, Darbhanga, Madhubani and Muzaffarpur). Each district was considered a cluster. Further on, to get equal 10% representation of SMEs from each cluster, simple random sampling was used. After the elements were selected, the specific respondents were identified using simple random probability sampling technique.

This ensured that each object had an equal chance of selection and thus avoid biased selection.

Table 2: Sampling Frame

Cluster	No. of SMEs	Percentage	Size
Purnia	300	10%	30
Katihar	280	10%	28
Supaul	180	10%	18
Motihari	132	10%	13
Samastipur	171	10%	17
Sitamarhi	160	10%	16
Darbhangha	320	10%	32
Madhubani	200	10%	20
Muzaffarpur	321	10%	32
<b>Total</b>	<b>2064</b>	<b>10%</b>	<b>206</b>

A structured questionnaire was administered to 246 managers of the SMEs. The questionnaire comprised of both closed questions to enhance uniformity and open-ended questions to ensure

maximum data was collected. The questionnaires were administered on a “drop and pick-later” basis. The research assistant went through the questionnaire with the respondents and left it with them to fill. The respondents then later submitted the completed questionnaire to the assistant at an agreed time.

The data was analyzed using Statistical Package for Social Sciences (SPSS) for the Windows platform version 17.0, where measures of central tendency and correlation analysis were undertaken to establish the degree of relationship between the variables. Qualitative Data Analysis (QDA), using Quick Impressionist Summary, was undertaken for the non-numeric information gathered.

### DISCUSSION OF FINDINGS

**Effect of Market Access on SMEs** - From the research, it emerged that 49% of the respondents agreed that they experienced greater market accessibility for SMEs as a result of social media, while 51% refuted this. Social media has enabled SMEs to acquire customers from outside their zone of operation. By venturing into new markets, they were able to grow their sales and serve a variety of customers. Social media has removed geographical barriers and given the SMEs an opportunity to venture into new markets.

**Effect of CRM on SMEs** - Research findings indicated that 77% of respondents agreed that CRM within SMEs had improved as a result of social media and had also led the businesses to manage and communicate with their customers more effectively.

**Effect of Innovation on SMEs** - The study found that 26% of the respondents agreed that little innovation in products had been experienced in their SMEs while 74% saw no effect of social media in increasing the innovative level of SMEs that would lead to growth.

**Effect of Pricing of Products on SMEs** - 86% of SMEs in North Bihar saw no impact of pricing through social media on growth. This may have been experienced probably because of the nature of business of the SMEs that were studied. The correlation analysis also indicated that there was a weak relationship i.e., growth of SMEs was not attributed by the pricing of the products they offer. Therefore, social media can be an important tool to provide information on what details a business could add to its products or services in order to have a competitive edge over its competitors in terms of pricing.

### CONCLUSION

The study established that most SMEs in North Bihar have not fully understood and internalized the potential of social media for their businesses. Those who use social media do not optimally utilize social media tools as they use only selected few tools due to limitations emanating from technical capabilities and infrastructure. This means that businesses in North Bihar have not benefited adequately from technology and specifically social media despite its wide usage by potential customers. This is an opportunity that could enhance SMEs growth and gain a competitive edge against large organizations that traditionally have resources and have been in business for a longer time. The study had sought to establish how social media affects the market accessibility of SMEs. It revealed that social media has broken down geographical barriers and heralded new ways of doing business to those who are flexible and keen to adapt to changes in

technology and business environment. The study also sought to find out if social media had affected SMEs and found that SMEs in North Bihar had not been able to use social media to be innovative in their product offerings or operations, yet social media networks enable generation and sharing of insights as well as ideas on innovative ways of doing business in an effort to serve customers better.

Businesses in North Bihar must be aware that social media networks provide information to customers as well as increased choices. SMEs therefore need to be price sensitive the same way their customers are. The effect of social media on the customer relationship management of SMEs was looked into. Traditionally, customer relationship was largely based on transactional data and context. With social media, the situation has changed where social CRM has assumed significant importance. SMEs in North Bihar may have tapped into this element but there is still much room to further utilize CRM for their growth. CRM brings a magnitude of opportunities for businesses to communicate with customers as well as build databases that are necessary for future growth in terms of accessing new markets that will translate to increased sales.

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# IMPACT OF ROLES PORTRAYED BY WOMEN IN MEDIA A DEBATE ON ETHICAL OR UNETHICAL CONTENT



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## ABSTRACT

*The roles which women portray in media have been the subject of much public criticism and debate. Over the years, this topic has received serious attention in developing social status of women in the society. Mass media can be considered as a dynamic instrument to promote social and economic value for women and foster social development in urban and also less developed regions of the nation. In order to truly contribute to the status of women in the society, it is necessary for researchers and academicians to have a thorough understanding of how people react or behave after watching the roles essayed by women. Taking this into consideration, the present study aims to analyze the "Impact of Roles Portrayed by Women in Media: A Debate on Ethical or Unethical Content, A study in Gurgaon Region." This paper reviews & describes some problem areas whose exploration will provide useful insights aimed at improving the ethical content in advertising, over-all marketing strategy and films. The present paper also identifies the effects of projected roles of women by mass media on women psychology and health and also on the image of women in the society. Portrayal of women can have both positive and negative effects on women and their image. This study will also give an insight on the impact of various variables such as crime against women, repeated exposure of sexy roles, reverse gender roles, portrayal of lean, attractive and decorative body of women etc. on the behavior and psychology of men and women, especially young girls and boys in the society. The responsibility of filmmakers, advertisers, marketers, scriptwriters, story writers, directors and producers, actors etc. becomes imperative in developing ethical content for the growth of humanity in the world. The focus will be also on the role of mass media and its impact on public in various campaigns and court cases such as Femina's Campaign, - "Raising The Bar", Jessica Lal Murder, Arushi Murder and Nirbhaya Case. The need is to enrich the idea of change and development in the society while developing meaningful and ethical content through mass media.*

## KEYWORDS

*Women portrayal, mass media, ethical content, projected roles*

## INTRODUCTION

An independent mass media is one of the important foundations of a democratic society like India. Certainly, the recommendations are often sought to be considered against the degree of independence enjoyed by its media professionals. The media, in some state of affairs, claims that the facts are in the 'public interest' to disclose and need wide dissemination for that purpose, are often accused of sensationalizing information, distorting reality, trivializing events, transgressing individual privacy, unethical content and worse: lying, cheating and deceiving. The mass media virtually affects all aspects of society and intrudes the lives of each and every citizen. Since the media is playing an increasingly important role in influencing not only the way people dress-up, eat and speak but also the way they think and act; in other words, moulding public opinion and life styles. Media is concerned with promoting ethical decision-

making and behavior. The fundamental and creative importance of ethical practices in mass communication accomplishments cannot be vulgar and earthy. The media is compromising its role as society's watchdog and instead becoming a lapdog of advertisers and owners of media organizations. The sense of social responsibility of media practitioners must take care of public interest where there is a risk of social disorder or offence to decency and good taste.

The rising influence of commercialization on the industry has spelt significant changes for the Indian media, in terms of both format and content. The influence of advertising, movies and daily soaps on the public has changed the way people think. The technological developments offer better opportunities for product presentation. Programs and advertising today use all the arrows in its quiver-information, image, personality, and lifestyle. Mass communication is a social practice and various media used here reach out to large number of people. However, in context of the phrase 'mass communication', we refer to reaching out to a large, heterogeneous, shapeless, faceless, amorphous, undefined and undifferentiated body of people. This study aims to know the effects of representation of women in advertising, movies, TV-serials and other media. Women have been portrayed stereotypically for centuries. There are many advertisements and programs which portray women in roles such as babysitting ads, domestic product, as well as sex object in order to sell the product and to entertain the public. This strategy is used to make them look good and get attention from viewer. Visual projections are highly suggestible and persuasive elements of everyday life that help to form and strengthen gender stereotypes. In this paper, we will examine some ethical aspects and consider the main social issues which pervade the media industry and the ethical dilemmas involved therein.

## RECENT TRENDS IN PORTRAYAL OF WOMEN IN MEDIA

There are some noteworthy ads and movies that came on air in recent times about working women in India. The first ad many could think of was the recent HDFC Women's Plan that shows a young woman sending her parents on a holiday to Europe. Clearly, the ad is an acknowledgement of the growing purchasing power of working women in India. More importantly, it highlights many ways in which Indian women are taking care of their families; something new in a tradition where parents are not supposed to "take" anything from their daughters. With working women in India no longer a rarity in any sector, some ads reflect the same. The ad for MIOT hospitals is interesting for what it doesn't focus upon – the pilot's gender. She's just a pilot who happens to be a woman, and needs support on a grueling job, like any pilot would. An ad for the Mia range of jewellery from Tanishq is explicitly targeted at working women in India. Attempting to be tongue-in-cheek, it suggests that jewellery can

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offer some solace for a hard day at work – but at least, brands are waking up to the fact that women's problems go beyond choosing the day's wardrobe. Problems like heart health, for instance. Ads show a woman worrying about her man's heart only, never her own? The Britannia commercial for Vita Marie Gold surely deserves some stature for having an Indian woman who wants to show her heart some love. Advertisement of Nirma which shows the united power and confidence of doing something good by pulling out an ambulance stuck in mud is a lesson to bystanders. Advertisements of Taza Tea show the confidence of a woman in fulfilling dreams on her own. We can even take note of the movie “English Vinglish”, in which Sridevi (the famous Bollywood actress) had shown the capability and determination of a housewife. We can consider the famous TV serial “Balika Vadhu”, “Meri Bhabhi”, “Yeh House Wife Hai Sab Janti Hai”, “Chhanchhan” and “Sanskar Dharohar Apno Ki”, “Jee Le Jara”, “Desh Ki Beti Nandani” etc. where we can look at the positive role of an Indian woman. We can even take the example of the reality show “Dance India Dance: Supermoms” and “Kaun Banega Crorepati”, which show that women have much more talent than being a sex object. Femina's campaign - “Raising The Bar”, which created awareness about existing laws related to women and the loopholes in these laws, was awarded the Laadli Media and Advertising Award for Gender Sensitivity 2012-13 (Northern and Western Region). According to Dr. A. L. Sharada, Director, Population First, “Femina's campaign - Raising The Bar, is a unique method of creating awareness about crime against women and the laws under which women can fight such crimes.” Kavita Krishnan, a leading women's rights activist and Secretary of All India Progressive Women's Association (AIPWA), emerged as the voice of the December 16 mass protests. A year ago, a massive movement erupted on the streets of Delhi and the whole country was against the brutal gang rape of a young woman on a bus, leading to her death. The Nirbhaya Case, where the whole country participated to get her justice, was highlighted by mass media. Same was the scene with Jessica Lal and Aarushi Murder cases. This contribution of media was appreciated by many organizations. In 1980, researchers from the United Nations Educational, Scientific and Cultural Organization suggested that repeated exposure to sexist roles is a contributing cause to havoc in society and many social problems, including such behavior as violence against women and sexual harassment and eating disorders. Jennings, Geis, & Brown, in a 1980 study, found that women who viewed reversed gender roles were more self-confident than women who viewed roles with typical gender roles. In addition, Atkin & Miller in 1975 showed that children who viewed programs and ads and films depicting reversed gender roles rated male oriented jobs as more appropriate for women, as opposed to those children who viewed them with women in a traditional homemaker role. Later studies have shown that roles portraying women as homemakers may activate the belief that women are domestic and nurturing, whereas programs that show half-naked women, may activate the belief that women are alluring, frivolous sexual objects. Whereas Vibha Padalkar, ED and CFO, HDFC Life in an interview (in an article “Ladies Only” in Times of India dated March 5, 2014) emphasizes that playing down the stereotypical behavior is a starting point where the support from companies and male colleagues can make all the difference for working women. Chhavi Leekha, Group President (Brand and Corporate

Communication), Spice Global, wrote on the role of women in business leadership in Times of India dated March 5, 2014. She said that “ever since the opening up of the economy, Indian society has undergone a sea change with rising aspirations and breaking of stereotypes, especially with regards to the evolution women. Women, in these 22 years, in increasing numbers have been playing the 'Super Ninja' daily, juggling stiff demands at work and also at home. This rigorous drive to exceed their limits has taken them to leadership positions in business.” However, these portraits of women shown/written in media have changed the way people think, but there is still a lot to do to develop an environment where women would feel freedom in the society.

## OBJECTIVES OF THE STUDY

The aim of the study is to identify the impact of the content of feminist roles on the psychology and health of women in the society.

The goal of the study is to know the effects of women portrayal in media on the psychology and behavior of men in the society.

The objective of the study is to understand the importance and role of ethical content in mass media which could build a good image and help in maintaining dignity of women in contemporary society while discussing various campaigns and cases.

## METHODOLOGY

This research deals with the study of roles portrayed by women in media. The research analyzes different responses collected through the questionnaires filled by the selected sample. The analysis of data is done on the responses collected from the selected sample of 350 who are between the age group of 18-50 years. The sample of our research is an audience from Gurgaon, Haryana, India.

## FINDINGS

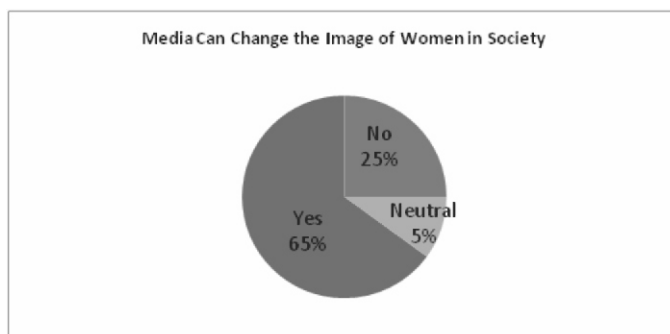
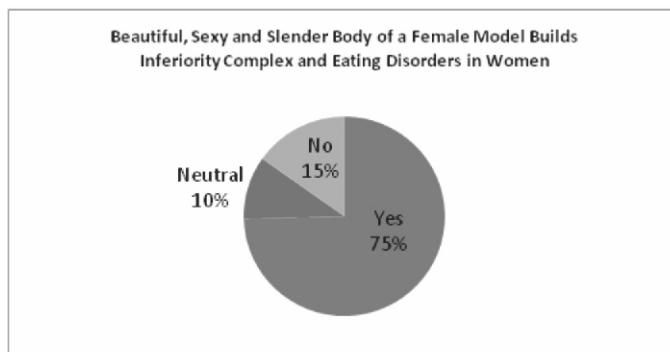
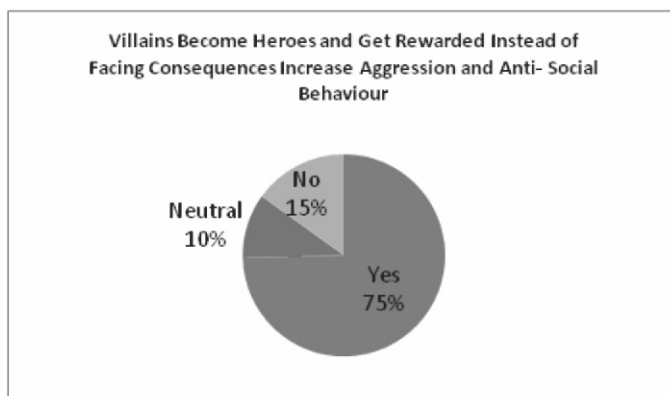
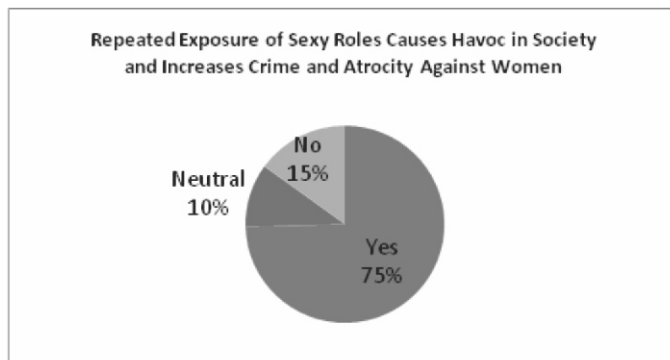
The following set of information is received through the answers of the target audience.

Table 1: Findings of Study

S.No.	Points Discussed in Questionnaire	Yes	Neutral	No
1	Effects of positive roles of women on women are self boosting.	95%	5%	-
2	Effects of negative roles of women on women are depressing and agonizing.	90%	-	10%
3	Positive roles of women have no effects on men or worthless for men.	60%	28%	12%
4	Negative roles of women make men happy and satisfy their ego.	63%	7%	30%
5	Repeated exposure of sexy roles and crime and atrocity against women give birth to criminal in men.	75%	10%	15%
6	Unethical and stereotype portrayals of women have no effects on men.	85%	-	15%
7	Men feel weary when women play reverse gender roles.	55%	25%	20%
8	Women feel proud and confident when women play a reverse gender role.	95%	-	5%
9	Men enjoy watching sexy and slender physique of a woman. It entertains them.	95%	5%	-
10	Beautiful, sexy and slender physique of a female model builds inferiority complex in women.	75%	10%	15%
11	Mass Media can change the image of women in society.	65%	10%	25%

The study shows that the roles play by women in different media strongly affect both men and women. The positive roles played by women motivates women and the negative role played by women de-motivates women. It develops a feeling of revulsion in women. The negative roles also provoke women to fight and conspire against others to harm the peace. The program which shows positive roles of women develops courage to do best for their home and of course for their country. But as we can see from Table 1, many men think that if a woman plays a positive role, it is insignificant for them. They pay no attention to the work women do. The programs, movies and advertisements chosen by 60% men give a clear picture that women oriented positive roles have no effect on men. But 63% men think that negative roles portrayed by women satisfy their ego and give them contentment. On the other hand, 30% of men say that they do not agree with this fact. They say that women must enjoy the same status as men. According to the table, 75% of the audience said women oriented programs and movies which show crime and atrocity against women give birth to criminal in men. But as shown in the table, 10% were neutral and 15% disagree with this. This shows that the crime and unpleasant behavior shown in different media really affect the psychology of public both positively and negatively. Specially, the youth gets affected by these types of scenes and due to immaturity they take wrong paths under the influence of such roles, act upon what they had never planned. Study has shown that violence is now on all television programs and it is often glamorized. Villains become heroes and often get rewarded instead of facing consequences. Furthermore, violence on television can increase aggression and anti-social behavior in teenagers, and therefore, adolescents who watch a lot of television violence face increased risks of dangerous and criminal behavior (KFF, 2003). India, the land of diverse cultures, traditions and rituals, where women were once considered to be 'avatars' of goddesses are now either being victimized by the continual curse of domestic violence, or as a perpetrator of violent criminal activities. The cases like Nirbhaya Case, Jessica Lal and Aarushi Murder Case, pushed the government to take strong action and form committees. The present paper found out that media actually plays the role of a catalytic source both in the increase and reduction of criminal activities and we can also add that if bad content or unethical content has this brutal impact on the society then why can't media take the social responsibility to produce good and ethical content? We can say that the producers of programs on media or writing in media have a great impact on users. The content in new media such as any personal information on Facebook or Twitter or You Tube can ruin the life of the person. We have seen many suicidal cases of teenagers because of breakups flash on social networking sites and can say that the content matter should be censored here. These incidents educate us about the fact that certain ethics, rules and regulations must be followed by the technologically changed media in the modern era. Be it any type of media, the only thing which matters is the content. The access to internet and smart phones has changed the lifestyle of the society. We can see the changes in youngsters as they are more technology savvy. They participate in many social issues these days. They joined hands together in issues like Jessica Lal Murder Case, Aarushi Murder Case and Nirbhaya Case when media reported the proceedings. Public compelled the authorities to take action and to form committees for amendments in Laws

which were reported by the media at every single stage. The committees like Justice Verma Committee on the amendments in Laws related to atrocities against women and the campaigns like Femina's "Raising The Bar" awarded by Laadli Media and Advertising Award for Gender Sensitivity 2012-2013 have changed the way people think and also highlight the role of content in media. We had observed the social and political reform when Anna Hazare set for Lokpal Bill and Aam Admi Party won in Vidhan Sabha Elections, 2014.



One interesting fact that came out from the present study is that 95% women viewers feel proud and confident when women play a reverse gender role. On the other hand, 55% men viewers feel resentful and worthless when women play reverse gender roles. 95% men enjoy watching sexy and slender physique of a woman, whereas an attention-grabbing fact came out of the study that beautiful, sexy and slender physique of a female model builds inferiority complex in 95% women of the sample. Once there was a time when people used to say that the body of a woman must have curves, but today the zero size body shape is in fashion, the consequences of which are unhealthy women. This again has repercussions that many women are now suffering from many diseases just because they opted for wrong treatments to have size zero body shape, beautiful skin and fair complexion. However, the study shows that it has created many health conscious groups in the society which is actually good. Excessive dieting for sexy body leads to malnutrition and some do commit suicide just because of inferiority complex.

According to the table, only 65% public says that mass media can change the image of women in the society but rest about 25% public disagree with it. The present study discloses that mass media is the main factor for psychological and behavioral changes in the society. The study shows that the content in mass media is the biggest reason due to which public gets influenced and adopt that behavior and values and take action. It means that mass media must be ethical content wise so that the users can get the benefits. Media must use themes, pictures and photographs, scripts and dialogues which actually could make the difference in the society. The advertisers, producers and writers should produce such ethical content which would actually bring revolution in the society in good sense.

### CONCLUSION

Dr. Radhakrishnan says, "the position of women in any society is a true index of its cultural and spiritual level". So tracing back the dictum of Manu, "Where women are respected Gods reside or rejoice". My request is - let men respect or rejoice first, the Gods will follow there after.

Changes have occurred in the use of gender references in roles in recent years which are owed more to the producer's perception of their audience than to any considerations of morality, decency or good taste, or even to the influence of the feminist movement. Most advertisers now realize that women have at least as much buying power as men, and consequently take pains to avoid offending them. This does not mean that there is less sex exposure in contemporary advertising, just that it is used more subtly. We can say that ads for health and beauty products should appeal to a woman's sense of well being for her own sake, and not to enhance her status as a sex object. One can always try to look slim in a healthier way and that should not be under the influence of any actor or model or under the influence of any profit making beauty and slimming centre. All these kinds of issues need to be addressed by the media because media is a medium of great exposure which has actually persuaded the public to go for such things. The present study shows that women are trying to look like a zero size model or heroine whom they saw on TV. Specially, young girls when gaze at models and heroines having slender and sexy body, with very fair and glowing skin in designer costumes and jewellery and also with a shine in their

hair, they also want to look like these models. Unfortunately, because of all that, they apply cosmetics and medicines beyond the limits and suffer from many side effects due to overdose of steroids and drugs. Whether a woman works or not, she should be shown as competent and creative in using products and performing any role which help her to perform the tasks, her roles and lifestyle status. Women should be free to take jobs outside the home if they want them. Show women as congenial and supportive of one another in a setting appropriate to the life style of the target market. Traditional women will attribute higher credibility to an authoritative male figure. This is especially true in product categories such as major appliances or those products which represent new technological developments. The contemporary women prefer a female role which has the necessary level of technical expertise. The portrait of a woman in the eyes of men is of no value from the study. It means some immature men who watch women oriented roles, crime and atrocities against women, alluring roles get impulsive and plan for such actions just for their enjoyment, without realizing the repercussions. The intended role portrayal will be most effective if all elements of the ad or program are in harmony with the ethical content.

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# ROLE PLAYED BY CONVERGING MEDIA IN FAST-TRACKING THE PROSECUTIONS OF DEC. 16TH, 2012 DELHI GANG-RAPE CASE



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**Manish Kumar Bharti \*\***

## ABSTRACT

*Converging media refers to integration of distinct media of creating, sharing, accessing and consuming information with shared interface. Technological convergence has steered the blending of old media, such as newspapers and radio, with the new forms of media like online communication, while offering the advantages of both. The growth in digital communications has not only facilitated the enhanced interaction among masses but it has also provided a platform for news organizations to reach a wider audience with increased swiftness. Such a platform proved to be an influencing means of aid for December 16th, 2012 Delhi gang-rape case proceedings. The exclusive inclusion of both national and foreign media in this unfortunate incident inspired a whole generation to stand together for women's rights and more stringent laws regarding women's safety. Converging media not only restrained itself to just tracking the case, rather it led the individuals to introspect by bringing the incident to global attention. This incident unlocked the pathway to use social media for sharing information and mustering the needed support for a given cause. The unison of people, owing to the various means of communication offered by the converging media, exerted an inevitable societal pressure which commanded accelerated hearings and trials related to the case, evidently resulting in deliverance of swift justice. The objective of the present study is to review the inducing role played by various resources of converging media in covering as well as triggering the onset of fast-tracking the prosecutions of December 16th, 2012 gang-rape case.*

## KEYWORDS

*Converging media, Delhi gang-rape case, Social media, Fast-tracking*

## INTRODUCTION

Converging media, while utilizing distinctive means of communication, obviously tends to reach a significantly much wider audience with enhanced rapidity and credibility.[1] Alongside scaling down of the expenses, converging media facilitates an efficient use of manpower in the information sharing processes.[2] The notion of reaching out to a varying audience by combining different medium's resources not only benefits the News organizations but also enables the public in receiving any given generated information with increased quality.[3] Converged media has become a one-stop source for all aspects of news story or event and has proved itself to be playing a vital role when it comes to efficient coverage of any news or event. Efficiently and thoroughly covered news can have a much deeper influence on the people which can lead to the onset of a required transformation.[4] Such a role was played by the converging media in December 16th, 2012 Delhi gang-rape case. The said incident jolted the very core of the entire world when a 23-year old female was brutally gang-raped by six males in a mobile bus which led to the early demise of the victim.[5] As the news of the rape broke, the media dedicated all of its resources to uninterrupted coverage of the incident. In

compliance with the Indian law, the real name of the victim was initially not released to the media, so pseudonyms were used for her by various media organizations instead, including Jagruti (Awareness), Jyoti (Flame), Amanat (Treasure), Damini (Lightning, after the 1993 Hindi film) and Nirbhaya (Fearless One).[6] Converging media directed the focus of the individuals, irrespective of the distinctive races, religions, social or economic ethics, upon the incident. It laid the groundwork for a nationwide protest by continuously updating the populace through all the means available with the bitter truths of the incident as they were being uncovered. The masses interacted with each other through social networking sites and applications like Facebook, Twitter, Whatsapp etc. and came together to raise a common voice demanding an impartial, but most importantly, swift justice. Perhaps, for the first time social media was utilized as a means to inform and mobilize public support throughout India. Various protest rallies and demonstrations took place throughout India as well as overseas and social media had a very noteworthy part in mustering the support needed for the same.[7] These protest rallies and demonstrations not only exerted a societal pressure on the government for delivering justice but also forced the government for a swift one. By bringing the incident to the forefront, both traditional and social media helped the people to retain the pressure on the government which eventually lead to the quick arrest, conviction, prosecution and sentencing of the all the offenders. Fast Track courts were set up by Delhi High Court for the deliverance of swift justice in rape cases and converging media was a critical component behind such decisions.[8] If it was not for the media and social networking sites, which provided the platform and space to the people, activists and journalists to gather and interact, it cannot be said for sure that justice would have been delivered within the same time duration. The introduction of Criminal Law Ordinance and the establishment of Fast Track courts was a considerable step towards women's safety, protection and a change in civilian policy and mindset.[9,10] The aim of the present study is to review the imperative role played by the converging media through various media houses in triggering the onset of 'necessary' fast-tracking of the prosecutions of December 16th, 2012 gang-rape case for a justice served too late is no justice at all.

## ACTIVE ROLE OF CONVERGING MEDIA

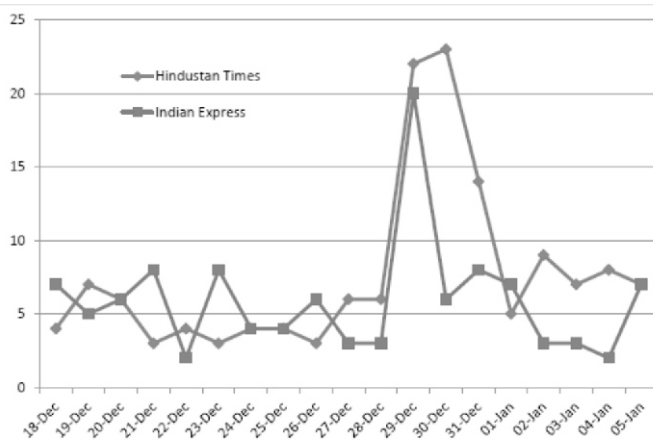
The most significant part played by the converging media in this case was to provide a means for the distinguished and diversified populace to be in unison. The ability of the converging media to reach a wider audience with specific and distinct choices for consuming information proved to be a deciding factor in achieving the required unanimity. Individuals of every class, creed or origin bonded for the cause and the rising public sentiment led the government to deliver an impartial and timely

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verdict for all six defendants of the incident. The undisputed outrage amongst urban Indians led everybody to the streets to protest and force the Indian government to face up to the unfortunate shortcoming of the judicial system when it comes to delivering a prompt verdict. Unfortunately, sometimes considerable time period passes before the justice is served. The involvement of the people from all over the globe through convergent media made sure that this case did not encounter such a fate.

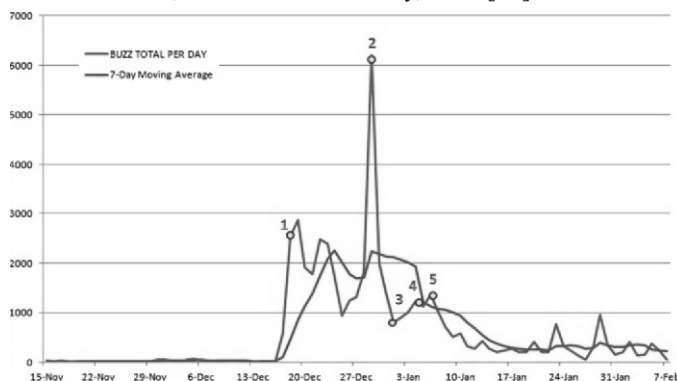
Various media houses covered the protests and demonstrations extensively from every street and brought the public outrage to the center of the political deliberations. The exclusive coverage was not only limited to the said incident but growing crime statistics were also brought into public attention. Dailies like The Hindu, Hindustan Times, Indian Express, Deccan Herald, Times of India etc., continuously covered the protests through both print as well as electronic means. On 19th December, 2012, TOI dedicated its front page to 'Times View' with the headline 'Enough Talk. Let's make women safe'. [11]



**GRAPH A: Number of articles published per day between 18 December, 2012 and 5 January, 2013**

The incident remained in highlight for around a month and the converging media facilitated the general public to follow the progress of the case throughout. Graph A depicts the number of articles published per day between 18th December, 2012 and 5th January, 2013 for Indian Express and Hindustan Times.

Graph B is an analytical representation of volume of the conversations on social media about women's rights between 15th November, 2012 and 7th February, 2013. [12] It is evident



**GRAPH B: Buzz volume on social media and 7-day moving average between 15 November, 2012 and 7 February, 2013**

from the graphs that the incident triggered public sensitivity about the safety of the women. After the demise of the victim, the volume of conversations on the social media as well as number of articles published related to the case attained a peak value.

Table A illustrates the magnitude of the coverage and publication of the various articles related to the incident by Deccan Herald and The Hindu between 18th December, 2012 and 9th January, 2013. [13]

**TABLE A: Number of article covered by Deccan Herald and The Hindu between 18 December, 2012 and 9 January, 2013**

DURATION	DECCAN HERALD					THE HINDU				
	Reports/Pics		Editorials	Articles	Letters to Editor	Reports/Pics		Editorials	Articles	Letters to Editor
	Front Page	Inner Pages				Front Page	Inner Pages			
DEC 18-22	5 (3)	11 (3)	2	1	4	4 (2)	11 (3)	1	2	19
DEC 23-27	7 (5)	26 (15)	1	4	11	8 (4)	27 (10)	1	10	32
DEC 28 - JAN 1	10 (2)	33 (15)	2	3	4	9 (5)	33 (8)	2	8	30
JAN 2-6	6 (1)	25 (13)	0	5	2	6 (0)	16 (4)	2	5	21
JAN 7-11	3	8 (3)	0	2	2	4	12 (2)	1	1	42
<b>TOTAL</b>	<b>31 (11)</b>	<b>103 (49)</b>	<b>5</b>	<b>15</b>	<b>23</b>	<b>31 (11)</b>	<b>99 (27)</b>	<b>7</b>	<b>26</b>	<b>145</b>

## UNIVERSAL INTERVENTION AND REACTION

International entities as well as communities also reacted on the matter and acknowledged their concern further by creating pressure on the government to act sensibly. Foreign media also covered and broadcasted the incident and dailies like The New York Times and Washington Post prudently covered the progress of the matter. [14] UN Women condemned the incident and called on the Indian Government to take radical reforms and ensure justice. Change.org, an online petition platform, received more than 65,000 signatures for an appeal seeking the intervention of the President and Chief Justice of India. The petition "President, CJI: Stop Rape Now!", initiated by ex-journalist Namita Bhandare, intended to sought immediate action from the government and judiciary to prevent a repeat of such incidents.

Members of the Indian parliament, political leaders, activists, journalists and even celebrities demanded severe punishment for the perpetrators. On 29th December, 2012, a statement was released by the American embassy offering their condolences to the victim's family. [15]

## FAST-TRACKING OF ARRESTS, TRAILS, CONVICTIONS AND VERDICTS

Owing to the continuously increasing local as well as international social pressure and rising sentimental outrage, the authorities acted instantaneously. Within 24 hours of the crime, police arrested some of the suspects. By identifying the bus from a highway CCTV vehicle, police traced it and caught the driver who was later presented before the Metropolitan Magistrate on 18th December 2012.

The male victim who was accompanying the female victim on the day of the incident testified in court on 19th December 2012. [16] In the presence of the Deputy Commissioner of police, the female victim recorded her statement with a sub-divisional magistrate at the Safdarjung Hospital (New Delhi) on 21st December, 2012. [17] Under the ongoing stress for speedy

justice, on 24th December, 2012, police assured the filing the charge sheet within one week.[18] On the 17th day of the crime, first of the five fast-track courts, approved by Delhi High Court, was inaugurated by Altamas Kabir, Chief Justice of India, in Saket court complex of South Delhi. These fast-track courts were suggested by the Delhi's Chief Minister to specifically deal with rape and sexual assault cases.[19] Five days after the victim's death, on 3rd January, 2013, the police filed charges against the five adult men for rape, murder, kidnapping, destruction of evidence, and the attempted murder of the male victim.[20] Excluding the bus driver who committed suicide on 11th March, 2013 and one juvenile suspect, the four surviving adult defendants went on trial in the fast-track court. A verdict in the case was scheduled to be announced on 25th July, 2013, but was deferred until 5th August and then deferred again to 19th August, 2013.[21]

On 10th September, 2013, the four adult defendants were found guilty of rape, murder, unnatural offences and destruction of evidence and were sentenced on 13th September, 2013 to death by hanging.[22]

### THE AWAITED OUTCOMES

In sight of the extensive protests and demonstrations throughout India, both center and state governments announced to take several necessary steps for the safety of women. Various states governments suggested setting up fast-track courts to deal with cases pertaining to crime against women.

The Justice Verma Committee was appointed to submit suggestions for amendments in criminal laws to firmly deal with the sexual assault cases. The committee insisted the people, legal professionals, NGOs, women's groups and civil society to share their views, knowledge and experiences suggesting possible amendments in the criminal and other relevant laws to provide for quicker investigation, prosecution and trial, and also enhanced punishment for criminals accused of committing sexual assault of an extreme nature against women.[23] The committee received more than 6000 e-mails in its first meeting.

On 3rd February 2013, the Criminal Law (Amendment) Ordinance was announced by the President, advising for the death penalty in cases of rape. Around 90 percent of the suggestions given by the Justice Verma Committee Report were incorporated into the Ordinance.[24]

### CONCLUDING REMARKS

Public protests which started in New Delhi on 21st December, 2012 at India Gate initiated a sequence of protests and demonstrations in every major city demanding stringent laws and changes in the judicial system for enhanced safety of women in the country. Converging media was indeed a key factor in creating awareness about the case and highlighting social issues. Social media was utilized extensively to stimulate debate, raise awareness and change attitudes in order to promote respect and protection of women. The support and unison of public led to some necessary and significant changes in criminal laws and the judiciary system. These amendments, though necessary, would not have been achieved if technological convergence had not been involved on such a high scale. It is clear from the incident that media, both traditional and social, is a key player in facilitating justice and is a vital pillar of a changing and

developing society leading to a better and safe environment.

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# DISTRIBUTED NETWORK AND ITS SECURITY ISSUES



**Mahesh Sharma \***

## ABSTRACT

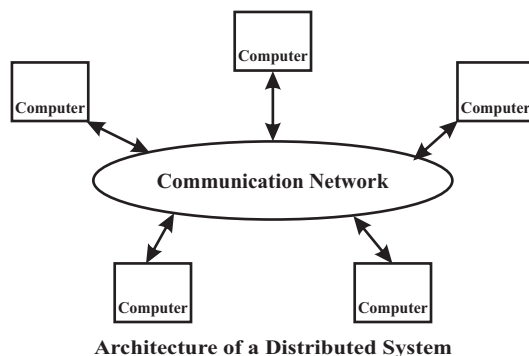
*It is a situation where a computer programming and the information or data to be worked on is widely spread over more than one computer, typically over a network. Prior to economical computer power on the desktop, computing was actually centralized. Networking and distributed systems provide the infrastructure for computation, communication and storage involving a heterogeneous and potentially large number of people, hardware devices, and software processes. Issues of concern include performance, security, scalability, functionality, and manageability.*

## KEYWORDS

*Computer Programming, Network, Computing, Storage*

## 1. INTRODUCTION

A distributed network is a type of computer network that is spread over different networks. This provides a single data communication network, which can be managed jointly or separately by each network. Besides shared communication within the network, a distributed network often also distributes processing. Distributed networks are part of distributed computing architecture, in which enterprise IT infrastructure resources are divided over a number of networks, processors and intermediary devices. A distributed network is powered by network management software, which manages and monitors data routing, combining and allocating network bandwidth, access control and other core networking processes. Distributed networks and processing work together to deliver specialized applications to different remote users. This means that an application may be hosted and executed from a single machine but accessed by many others. A client/server computing architecture is an example of a distributed network where the server is the producer of a resource and many interconnected remote users are the consumers who access the application from different networks.



## 2. NUMBER OF TIERS (N-TIER)?

Number of tiers (n-tier) is an enterprise computing architecture in which the entire application is distributed across multiple tiers of hardware nodes. Number of tiers defines the distribution of

logical layers of application, presentation and data management over physically tiered enterprise infrastructure.

In n-tier, "n" refers to the number of tiers being used, such as 2-tier, 4-tier, etc. By breaking an application into tiers, developers can modify or add layers without having to rewrite the entire application. Application architectures exist in the seventh layer of the OSI model.

A number of tiers architecture may also be referred to as multi-tier.

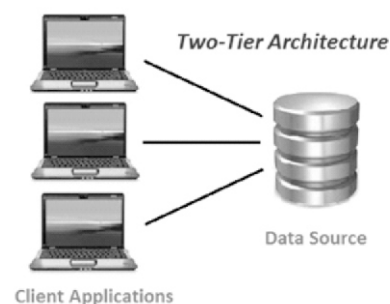
Number of tiers is primarily used to describe the number of hardware layers required to execute, host and manage an enterprise-level application. Generally, there are three distinct tiers in such applications, with one layer being the user's application interface, the other serving as the primary application and the last existing for storage and managing data/database. All of these layers are operated separately on different hardware tiers.

Generally, the computing architecture based on n-tier concepts are independent of each other. In other words, each tier - and its respective logical layer - can be modified, updated and executed separately. N-tier architecture is based on concepts from distributed computing and client/server computing architecture.

## TWO-TIER CLIENT/SERVER ARCHITECTURE

A two-tier client/server is a type of multi-tier computing architecture in which an entire application is distributed as two distinct layers or tiers. It divides the application logic, data and processing between client and server devices. A two-tier client/server works when most or all of the application logic and data is hosted on a server. The client integrates with the presentation layer and accesses the server for application specific tasks and processing.

For example, the core application and data are installed at a central server. One or more client devices uses its client-end application to request data or processes from the server. The server sends the required data or performs a process to fulfill the query. In another two-tier client/server instance, such as a data backup architecture, the application access and logic may be with the client device, whereas the server stores and provides the core data.



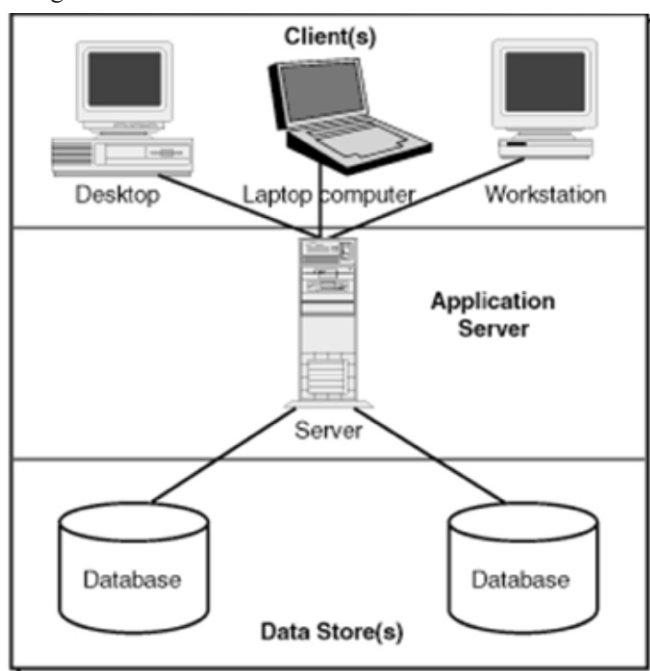
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### THREE-TIER CLIENT/SERVER ARCHITECTURE?

A three-tier client/server is a type of multi-tier computing architecture in which an entire application is distributed across three different computing layers or tiers. It divides the presentation, application logic and data processing layers across client and server devices.

It is an example of three-tier application architecture.

A three-tier client/server adds an additional layer/tier to the client/server-based two-tier models. This additional layer is a server tier that acts as an intermediary or middleware appliance. In a typical implementation scenario, the client or first tier holds the application presentation/interface and broadcasts all of its application-specific requests to the middleware tier server. The middleware or second tier calls the application logic server or third tier for application logic. The distribution of the entire application logic across three tiers helps optimize the overall application access and layer/tier level development and management.



### 3. SECURITY ISSUES AND SOLUTIONS

Security management is a task of maintaining the integrity, confidentiality and availability of systems and services. The reality of the present time is that increasing number of people, organizations, and enterprise are installing and subscribing to the Internet, consequently raising the concerns of security.

Thus, the security management is an issue of paramount importance. First of all, it is necessary to identify the risks by identifying the attacks and intrusions that the networks are exposed to. Applying security management is a two-fold activity. Firstly, the security architecture is to be deployed to protect networks against the attacks by detecting attacks. Secondly, when attacks are detected the security architecture is to respond to attacks and to take security measures, preferably in real time. An intrusion or attack can be defined as any set of actions that attempt to compromise the integrity, confidentiality or availability of a resource.

Intrusion detection is a practical approach for enhancing the security of computer and network systems. The goal of IDS is to detect attacks especially in real-time fashion. There are systems based on host audit- trail and/or network traffic analysis to detect suspicious activity. These systems use one or both approaches of intrusion detection. The first approach is the behavior-based intrusion detection, which discovers intrusive activity by comparing the user or system behavior with a normal behavior profile. The second approach is a knowledge-based intrusion detection approach, which detects intrusions upon a comparison between parameters of the user's session and known pattern attacks stored in a database. The behavior-based intrusion detection approach allows detecting unknown intrusions contrarily to the knowledge-based intrusion detection approach, which detects well-known intrusions. We focus our work on network intrusion detection systems and we present below two specific systems DIDS (Distributed Intrusion Detection System) and CSM (Co-operating Security Managers).

DIDS operates on a local area network (LAN) and its architecture combines distributed monitoring and data reduction with centralized data analysis. A DIDS director, a LAN monitor, and a series of host monitor constitute it. The LAN monitor reports to the DIDS director unauthorized or suspicious activities on the network. The host monitors collect audit data for the individual host and perform some simple analysis on the data. The relevant information is then transmitted to the DIDS director. This director is responsible for analyzing all these data and detecting possible attacks. A shortcoming of DIDS is that the centralized nature of DIDS will limit its usefulness in wide area networks where communication with a central director from all hosts may swamp portions of the network.

CSM was designed to perform intrusion detection in a distributed environment. A CSM must be run on each computer connected to a network to facilitate the co-operative detection of network intrusions. It consists of following parts:

- ☞ A local intrusion detection component. It performs intrusion detection for the local host and is responsible for proactive detection of attacks on other host ;
- ☞ A security manager which co-ordinates the distributed intrusion detection between CSMs ;
- ☞ An intruder handling component. Its role is to take actions when an intruder is detected ;
- ☞ A graphical user interface ;
- ☞ A command monitor which intercepts the commands executed by a user and sends for analysis ;
- ☞ A TCP communication module.

CSM takes an approach that does not use established centralized director but each of the individual managers assumes this role for its own users when that manager suspects suspicious activity. The most important feature of CSM is that the co-operation among CSMs permits them to handle certain type attacks in a proactive manner (e.g. doorknob rattling attack). In a heterogeneous environment, two CSMs can communicate because communication takes place via messages that relay information that need not be system-specific. However CSM cannot simply be ported from one computer system to another because the action-based intrusion detection module is heavily system-specific. Looking at these approaches undertaken to

counter security attacks, some features of these approaches can be derived as main requirements:

**Distribution of activities:** This aspect is found mainly in all the approaches. It is very important to distribute the control of security management among a number of entities that can monitor the network and system behaviors at different points.

**Autonomy:** The CSM and DIDS approaches have shown the necessity to have a certain level of autonomy in the various entities that constitute the system. They differ in the sense that the final decision in the DIDS system is taken by a centralized manager, whereas in the CSM some decisions can be directly taken in the entity.

**Co-operation:** The CSM has shown also the necessity of security manager co-operation in order to detect security attacks that can not be detected by individual manager.

### INTELLIGENT AGENT CONCEPT

Intelligent agent technology is a growing area of research and new application development in telecommunications. Having highlighted the main requirements for security management, the intelligent agent concept seems to be a candidate approach to fulfill these requirements. What is the Intelligent Agent concept? Until now, there is no an internationally accepted definition of an intelligent agent concept. The term Agent is a concept used in different area and having different meaning depending on the context. Nevertheless, different types of agents reflect a set of properties, which are common among them and as described below:

**Autonomy:** Is the ability of an agent to operate without direct intervention of humans or other agents and to have some kind of control based on its internal and/or external environments.

**Co-operation:** An Agent is co-operative and is able to have a social ability. This sociability allows an agent to interact with other agents for the purpose of performing tasks that are beyond the capability of a particular agent. This capability goes from delegation (distribution of sub-tasks) to peer-to-peer interworking.

**Proactiveness:** It is the agent's ability to anticipate situations and change its course of action to avoid them. Proactive agents are capable of exhibiting goal-direct behaviors by taking some initiative.

**Reactivity:** This kind of behavior means that the agent reacts in real-time to changes that occur in its environments.

**Adaptability:** Is the ability of an agent to modify its behavior over time to fulfill its problem-solving goal.

**Intelligence:** The term "Intelligence" means that the agent is able to exhibit a certain level of intelligence priority, ranging from predefined actions (planning) up to self learning (define new actions).

**Flexibility:** Is the ability an agent should have to adapt itself to cope with the environment in which it is situated.

**Mobility:** An Agent is mobile. It is capable of moving from one localisation to another in order to perform a particular task or to react to a particular event. Having studied the properties of the IA and the aspects and requirements of a security management, it can be concluded that IA provides a more coherent and flexible approach of security management. The security management

architecture based on the concept of IA can be conceived as if it were made of the autonomous IAs co-operating with each other to achieve Global Security Policy.

## 4. DIANA AGENT ARCHITECTURE

In this section, we present the DIANA agent architecture. The DIANA Architecture is the shell of our system. The key characteristics of these agents are their ability to acquire new capabilities and skills, without interrupting their operations, permit network management applications to be easily adaptable when changes occur. The DIANA agent architecture consists of two main component types:

### 4.1 THE AGENT'S BRAIN

The Brain, which is responsible for managing agent skills and the skills, which provide the agent with capabilities and behaviors.

The Brain (Figure 1) offers two types of necessary facilities for the agent operation: local and interagent facilities.

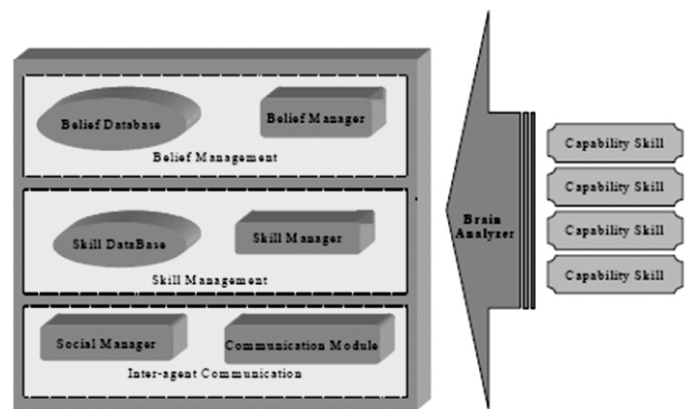


Figure 1: DIANA agent architecture

The main role of the Brain is to manage both agent's Belief Database and agent's Skill Base. "An agent belief expresses its expectations about the current state of the world and about the likelihood of a course of action achieving certain effects". Beliefs hold network management information as well as information about the agent itself and the other agents. These beliefs can be accessed concurrently by several skills, therefore, the Belief Manager maintains the integrity and the coherent access to the Belief Database.

Skills can be downloaded dynamically into the agent inside its Skill Base. The main role of the Skill Manager is to check the availability of pre-requisite skills required by newly loaded skills and if they are not yet loaded, it must search for them either locally or on distant agents. It is also responsible for disposing off no useful skills to keep the agent's size as small as possible. During its operation, the skill can update or delete existing beliefs or create new ones. A skill operation may depend on beliefs created by other skills, and the Skill Manager is therefore in-charge of dispatching asynchronously these beliefs to the interested skill in a transparent way. It holds all the necessary information about the skills in the Skill Base.

The Brain Analyzer is responsible for the parsing of the messages that the Brain receives, either from the skills or from the inter-agent communication. Both the Communication Module, which is responsible for managing interactions with the other agents and the Social Manager, which holds information about the other



agents, support inter-agent communication facilities in the agent.

## 4.2 CAPABILITY SKILLS

A capability skill, which is a piece of software specialized in a network management area, uses information and services offered by lower-level skills and offers in its turn new services to higher-level skills. The skills inform the Brain about the pre-requisite skills needed for its operation and the services offered to other skills. Therefore, the role of the Brain is first to manage the availability of pre-requisite skills. Then to decide which skill is concerned by a service request to forward it to that skill to be performed. And finally to notify the skill of an information or a requested service.

## 5. PROPOSED MULTI AGENT SECURITY MANAGEMENT ARCHITECTURE

In our proposed approach, we define a new architecture, called MA-SM (Multi Agent Security Management). It is viewed as a collection of autonomous and intelligent agents located in specific network entities. These agents co-operate and communicate in order to perform intrusion detection tasks efficiently and achieve consequently better performance.

### 5.1 PHYSICAL ARCHITECTURE

The key characteristics of the security architecture are flexibility, adaptability, and distribution of security mechanisms. The MA-based Security Management Architecture consists of four main components as described in the following figure:

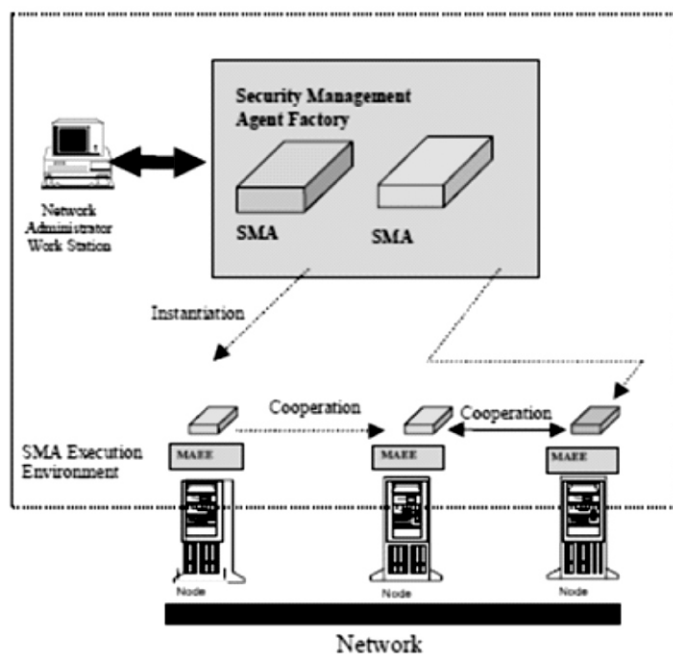


Figure 2: Intelligent Agent Security Management Architecture

**The Management Agent Factory (MAF)** is an environment, in which security management intelligent agents are created, initiated, resumed, and controlled. The environment also serves as an access point for network security administrator.

**The Security Management Agent (SMA)** is an intelligent agent that collects, filters management information and performs security management activities. The management activities are defined by the administrator and reflect the Security Policy.

Thus, network environment is populated by a set of SMA that co-operate with each other in order to perform global security management activities.

We have identified two SMA types: Master SMA (MSMA) and Slave SMA (SSMA). The SSMA is responsible for managing the security of his domain constituted of several hosts. There are several SSMA that performs some analysis before informing the MSMA when they suspect an attack. The MSMA is responsible for coordinating SSMA tasks and correlating information received from SSMA. The MSMA, in his turn makes his own analysis to confirm or detect an occurred attack and take appropriate actions [like informing the security officer (S.O)]. The SSMA can communicate and co-operate before sending their reports to the MSMA. We identified a specific agent named External Agent, whose role is to manage all activities going in or out the monitored network.

**The Management Agent Execution Environment (MAEE)** is a set of components necessary for the execution and the migration of IAs.

**The Network Administrator Workstation (NAWS)** is an interface with which a security administrator (a person) interacts with the architecture. A security administrator must specify the security policy to apply and to create, instantiated, control the Intelligent Agents. For these operations, the security administrator needs to access the MAF, and NAWS facilitate security administrator with an access to MAF.

### 5.2 SECURITY POLICIES

The architecture relies on many IAs for assuring intrusion detection. The IAs operate autonomously but according to a predefined security policy. These policies can be defined at the initialisation of the IA or dynamically according to the global business policy.

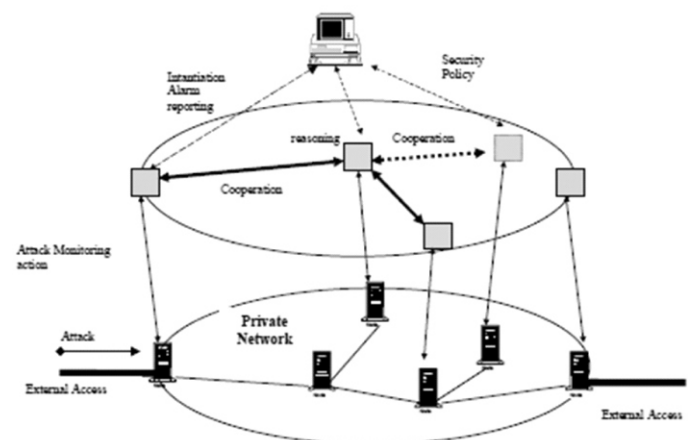


Figure 3: Security Intelligent Agent Monitoring of Telecommunication Services

The first step to specify this security policy is to use access control rules. The access control rules provide a flexible means of specifying management policy as a relationship between initiator domain and target domain in terms of the operations client can perform on remote hosts. Constraints (contextual information) also make up a part of the access control rules and specified in the rules. Access control procedures (i.e. validation of Initiator-bound Access Control Information (ACI), identification of the Target etc.) are performed according to the

established Security Policy, which is specified by access control rules.

The access control rules is the part of the ACI, which represents the permitted operations and the conditions upon their execution in a security domain. There are five classes of access control rules that are to be applied:

**Globally deny rules:** These deny access to all targets. If a global rule denies access, then no other rule shall apply. If a global rule does not deny access, then the item deny rules are imposed.

**Item deny rules:** These deny access to particular targets. If an item deny rule denies access, then no other rule shall apply. If an item deny rule does not deny access, then the global grant rules are applied.

**Global grant rules:** These grant access to all targets. If a global rule grants access, then no other rule shall apply. If a global rule does not grant access, then the item grant rules are imposed.

**Item grant rules:** These grant access to particular targets. If an item grant rule grants access, then no other rule shall apply. If an item grant rule does not grant access, then the default rules are applied.

**Default rules:** These rules are to be applied when no other rule has specifically granted or denied access. The default rules shall grant or deny access. The IAs should monitor the network in order to detect security-relevant events and then react according to the behaviour specified by the administrator. The IAs may also report the administrator Workstation the security-relevant events. In case of a special event, the IAs may also co-operate to check or have some information in order to have a more precise status on the special event. For example, if an agent detects an “unauthorizedAccessAttempt”, it can co-operate with others agents to check if there are other login attempts on their hosts. An example of this functionality is given below.

Suppose that an intruder came from an external network, in the night or in the weekend, obtained an access, and had an unauthorised activity. The agent that is monitoring all the incoming connections detects an “unknownAddress” and an “outOfHoursActivity” event. This agent can track the intruder by migrating to the host where the intruder is working. If the intruder “travel” from one host to another host, migrating agent can follow intruder's activities by co-operating with the others agents, responsible for monitoring these hosts. If one of the co-operating agents detects, for instance an “unauthorizedAccessAttempt”, or an “suspiciousActivity”, the first agent can migrate to the host on the entry of the internal network and close the connection or to ask another agent to do it.

### 5.3 REQUIRED SKILLS

In order to support the previous functionalities of SMA and according to the DIANA agent architecture, a number of skills have been identified for the purpose of security management. These skills are:

**User Interface Skill:** This skill permits the security officer to transmit to the agents, particularly to the MA, some requests, like a new security policy or a new intrusion to detect or a new security event to monitor, ...It sends the security officer requests to the Security Manager Skill.

**Security Manager Skill:** It is responsible for managing the

security of the agent domain. When an intrusion is detected, it takes appropriate actions like for example interrupting a connection and/or informing the Security officer. In the case of the master agent, it is responsible for delegating detection tasks to the different SA.

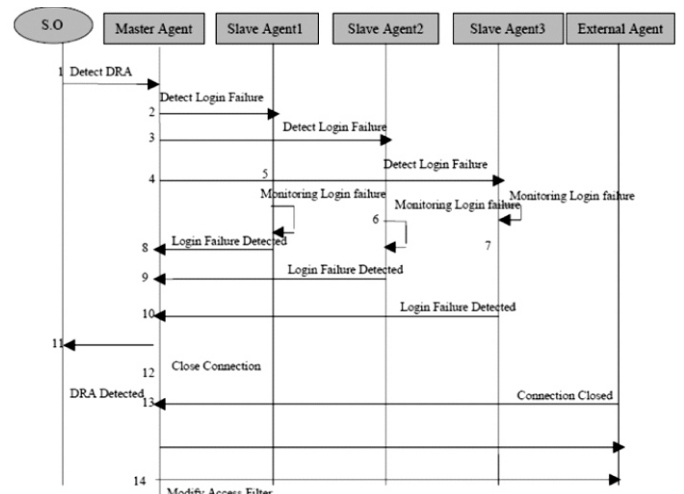
**Intrusion Detection Skill:** It is responsible for performing intrusion detection for the agent domain. In the case of the master agent, it is also responsible for coordinating the information collected by the different SA. When an intrusion occur, it sends an alarm to the Security Manager Skill.

**Instrumentation Skill:** It is responsible for instrumenting the necessary beliefs about the security events monitored by the Syslog Skill. These beliefs are then used by the Intrusion Detection Skill.

**Syslog Skill:** Its role is to report security events to the Instrumentation Skill. For example it reports all the “login failure” events. It collects its information from the log files and it is system-dependant.

### 5.4 EXAMPLE OF AGENTS INTERACTIONS DIAGRAM

In this diagram, we show the interactions between the different agents in order to detect the network attack called Doorknob Rattling. In this attack, the intruder attempts to log in to several hosts with any user-id/password combination in order to obtain an access to an account.



This diagram presents various interactions between the agent in order to detect in a distributed manner the Login Failure Attack. The different messages exchanged between the agent permit to have a global view of what is happening in the network. This is the only way that permits to detect attacks in different points of the network. The agents should keep a history of the alarm message so that to correlate them together to identify any attack pattern.

### CONCLUSION

This paper has first introduced security management problems in the context of deregulated telecommunication and generalization of Internet access. The generalization of network access renders corporate information infrastructure very fragile. In this work, the objective is to investigate the use of agent technology to propose new types of solutions. The idea is to

propose flexible and efficient solutions for a problem that is difficult to handle with conventional approaches. The proposed architecture is based on various agents disseminated across the network and host. The global security management activity is distributed among the various agents. Each agent has a particular skill that permit to exhibit a particular behavior. The combination of skills and cooperation activities between agent is the key idea of this approach. By cooperating between each other, agents are able to detect security attacks that will not be possible by a centralized approach.

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# DETECTION AND ANALYSIS OF MALWARE



**Ms. Natasha Maniktahla \***  
**Ms. Preeti Goel \*\***

## ABSTRACT

*The paper will begin with an introduction describing the various types of malware. Types of malware described include Virus, Worms, Trojans, Adware, Spyware, Backdoors and Rootkits that can disastrously affect a Microsoft Windows operating system.*

*A brief description of the steps of an incident response plan will be described. The role of malware analysis and what steps it pertains to in an incident response plan will be described. The next section will discuss the goals to be accomplished by performing malware Analysis. After discussing malware acquisition for malware analysis, a methodology is presented for performing malware analysis.*

## KEYWORDS

*Worm, Malware, Trojan horses etc.*

## INTRODUCTION

The purpose of this paper is two fold: to help Information Security professionals and to allow the reader to see the underlyings of how malware analysis fits into an organization.

This paper will also serve as a guideline for the reader to perform malware analysis by providing definitions, tools to use, and real world examples with enough information to successfully perform malware analysis.

It should be noted that if an Incident Response plan is not already in place, do not attempt to create one during an infection. Rather, remove the infected server from the network.

Create a plan to systematically return the infected server to its pre-infected production condition before beginning the recovery process. Incident response is not a responsibility that a single person can handle. Recovering a compromised server in a haphazardly fashion can create more system issues and do more damage than the initial compromise.

While discussing malware it is vital for the reader to have an understanding of cost of malware infections that occur in organizations. According to Computer Economics 2007 Malware Report, malware infections in 2006 cost \$13.3 billion dollars. Although the trend over the last two years is a down turn in the cost of malware infections, the cost of malware should concern companies of any size. The report states two factors for the reduction in malware infections cost, the wider spread deployment of Anti-Malware applications and malware targeted at specific organizations and people (Computer Economics Online, 2007). Before discussing malware analysis, it is important to identify key terminology that will be used throughout this paper. Below is a list of terms and definitions the reader of this paper should be familiar with:

☞ **Viruses (Merriam-Webster Online, 2007)** – A computer program that is usually hidden within another seemingly

innocuous program and that produces copies of itself and inserts them into other programs and usually performs a malicious action (as destroying data)

☞ **Worms (Merriam-Webster Online, 2007)** – A usually small self-contained and self-replicating computer program that invades computers on a network and usually performs a destructive action.

☞ **Trojans Horse (Merriam-Webster Online, 2007)** – A seemingly useful computer program that contains concealed instructions which when activated perform an illicit or malicious action (as destroying data files).

☞ **Spyware (Merriam-Webster Online, 2007)** – Software that is installed in a computer without the user's knowledge and transmits information about the user's computer activities over the Internet.

☞ **Adware** – Software installed that provides advertisers with information about the users browsing habits, thus allowing the advertiser to provide targeted ads.

☞ **Backdoors (Skoudis and Zeltser, 2003)** – Bypasses normal security controls to give an attacker unauthorized access.

☞ **Rootkits (Skoudis and Zeltser, 2003)** – Trojan horse backdoor tools that modify existing operating system software so that an attack can keep access to and hide on a machine.

☞ **Sniffers** – An application used to monitor and analyze network traffic. Reverse Code Engineering (Eilam, 2005) – the process of disassembling software to reveal how the software functions.

☞ **Disassemblers (Eilam, 2005)** – Programs that take a program executable binary as input and generate textual files that contain the assembly code for the entire program or parts of it.

☞ **Debuggers (Eilam, 2005)** – Programs that allow software developers to observe their program while running it.

☞ **Decompiler (Eilam, 2005)** – A program that take an executable binary file and attempts to produce readable high-level language code from it.

Overall, malware analysis is an interesting, exciting and challenging field of computer security research. The complexity of malware analysis is only one area of the security profession that is constantly evolving.

## EXISTING SYSTEM OF MALWARE DETECTION

As we have observed that in current system there are different tools that are used to analyse and detect malware. The tools that will be used for behavioral analysis are listed below along with a brief description of what the tool does and the website from where you can download the tool.

☞ **BgInfo** - Small application providing import system

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information such as hostname, IP address, OS version, etc. <http://www.microsoft.com/technet/sysinternals/Utilities/BgInfo.mspix>

☞ **Process Explorer** – Small application that find out what files, registry keys and other objects are open, which DLL's they have loaded. <http://www.microsoft.com/technet/sysinternals/Utilities/ProcessExplorer.mspix>

☞ **Process Monitor** – Small application used to monitor file system, registry, process, thread and DLL activity in real-time. <http://www.microsoft.com/technet/sysinternals/Utilities/processmonitor.mspix>

☞ **PSfile** – Application that shows a list of files on a system that are opened remotely. <http://www.microsoft.com/technet/sysinternals/Utilities/PsFile.mspix>

☞ **Rootkit Revealer** – Application that scans system for known rootkit-based malware. <http://www.microsoft.com/technet/sysinternals/Utilities/RootkitRevealer.mspix>

However existing system have a lot of demerits There is no focused approach of detection and analysis of malware. Hence forth we have proposed a new framework which uses an efficient technique for analysis of malware. Instead of using normal malware detection tools it focuses on incident response plan for detailed analysis of malware.

### PROPOSED SYSTEM

Now that there is an understanding of how malware analysis fits into an organization's Incident Response Plan the next step can be discussed. Before performing malware functions so that defenses can be built to protect an organization's network there are two key questions that must be answered. The first: how did this machine become infected with this piece of malware? The second: what exactly does this malware do? After determining the specific type of malware, you will have to determine which question is more critical to your situation. A framework has been devised for the same which has two parts as follows:

1. Framework for Malware Analysis.
2. Framework for Incident Response.

**1. Framework for Malware Analysis** - There are two types of malware analysis that security professionals perform: code (static) analysis or behavioral (dynamic) analysis. Although both types accomplish the same. After successfully reversing malware, the reader will be able to see how the “source code of the malware functions. Seeing how the code function allows the reader to build better defenses to protect their organization as well as serve as a sanity check on the completed behavioral analysis.

Once the malware code has been reversed, an understanding on how the malware infects the system will become clear. With malware today becoming more targeted, understanding how malware infects systems can reduce infections to an organization, thus reducing the overall cost.

Behavioral analysis is the “quick and dirty” way of malware analysis. When performing a behavioral analysis, look at how the malware behaves and what changes the malware makes on a base lined system. It should be noted, that while performing behavioral analysis it is critical the malware lab in not connected to another network. For the best protection of production networks, the malware lab should never be connected to any network. If files must be transferred, use a read only media such as CD-ROM.

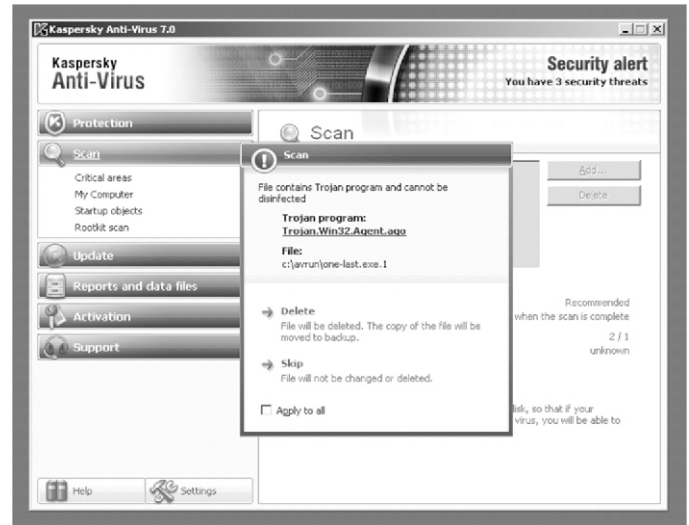


Figure 1: Method of Malware Analysis

When performing behavioral analysis, we look for changes to the system as well as any unusual behavior on an infected system. Changes on the system that should raise a red flag include files that have been added and/or modified, new services that have been installed as shown in figure 1.

**2. Framework for Incident Response** - Incident Response is an organized approach for addressing and managing the aftermath of a security breach or attack (also known as an incident). The goal is to handle the situation in a way that limits damage and reduces recovery time and costs. As noted earlier, Incident Response Plans should not be created during a security incident nor should one person be assigned to develop an Incident Response Plan. Incident response should be the responsibility of different members from different groups in an organization. Management buy-in is essential for an Incident Response Plan to work and through a consensus process a six step incident handling plan needs to be followed to prepare for and deal with a computer incident. The six steps of the incident response process are:

- Preparation
- Identification
- Containment
- Eradication
- Recovery
- Lessons learned.

By following these six steps, an organization can recover from an incident with as little time and money lost to the business as possible, while also ensuring that the incident will not happen again during the preparation phase of the Incident Response Plan.

### CONCLUSION

The reader should now have a basic understanding of malware analysis as well as a view of the exciting and ever evolving field of malware analysis.

Throughout the course of the paper, critical elements have been discussed which began with the key terms of malware analysis. The purpose has been two-fold: to allow the reader to see the underlyings of how malware analysis and incident response fits

into an organization. Incident Response Plan sheds light on the value of malware analysis and brings the implementation to an organization, by defining and identifying malware analysis.

Detailed methodology has been outlined so that the reader can perform successful analysis on malware. Also it can be used to build defenses with the information gathered that can be used to protect their organization for the utilisation of defense in depth philosophy.

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# OFFLINE SIGNATURE VERIFICATION USING VARIOUS METHODS: A REVIEW



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## ABSTRACT

Offline signature verification was the first approach to be applied for solving the signature verification problem. It involves the discrimination of genuine and forged signatures on static images. Unlike online systems, offline systems have only the static image containing the signature as an input, without having any knowledge on the signing process. Some difficulties that may arise in offline systems are related to the scanning process (noise on the image) and to the signature acquisition process where different pen tips and widths can produce different shapes. This paper presents a brief study on offline signature verification and recognition using various methods, FAR and FRR is calculated for each method and results are compared.

## KEYWORDS

DCT, FAR, FRR, signature verification, features, PMT.

## 1. INTRODUCTION

Hand written signature is the most widely form of personal identification, especially for cashing cheques and credit cards transactions. However, for several reasons the task of verifying human signature can't be consider a trivial pattern recognition problem because signature samples from the same person are similar but not identical. A person's signature often changes radically during his/her life. We cannot see much variability in signature according to country, age, time, and psychological or mental state, physical and practical conditions. Currently all signature verification for daily transaction is based on visual inspection by teller or clerk with the result that large amount of resources are wasted. In the business word an automatic signature verification system would be extremely useful for reduction of forgery in monetary transaction. There are two types of handwritten recognition schemes practised today: Online and offline.

On-line handwriting recognition involves the automatic conversion of text as it is written on a special digitizer, where a sensor picks up the pen-tip movements as well as pen-up or pen-down switching. That kind of data is known as digital ink and can be regarded as a dynamic representation of handwriting. The obtained signal is converted into letter codes which are usable within computer and text-processing applications. This method focuses on Dynamic systems produces signal with time (velocity, acceleration, pressure and time). Offline handwriting recognition involves the automatic conversion of text in an image into letter codes which are usable within computer and text-processing applications. The data obtained by this form is regarded as a static representation of handwriting. The technology is successfully used by businesses which process lots of handwritten documents, like insurance companies. The quality of recognition can be substantially increased by structuring the document (by using forms). In Offline

recognition case the signature appears as a 2D (gray level or binary) image.

## Forgery

Signature forgery refers to the act of falsely replicating the signature of another person. In signature verification, forged signatures can be broken up into three different categories.

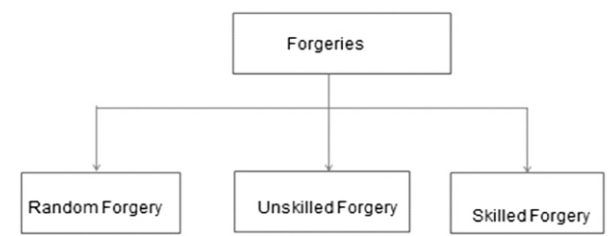


Figure 1. Types of Forgery

**Random forgery** - It is produced when the signer knowing the name of the victim and produced signature in his own style. This forgery is easily detected by the visual analysis. In random forgery the forger does not know the signer's name or signature shape.

**Unskilled forgery** - In simple forgery or unskilled forgery, the forger knows the name of the original signer but not what his signature looks like. He produces the signature in his own style without having any previous experience.

**Skilled forgery** - It is produced by looking the original signature or by having idea about the signature of the victim. Generally this kind of forgery is generated by the professional persons who have experience in copying the signature. This type of forgery cannot be easily detected by visual analysis.

## 2. PREPROCESSING

Image processing is a technique to convert an image into digital form and perform some operations on it, so that can get an enhanced image or to extract some characteristics from it. It is a type of signal processing in which input is image, 2-d image, video frame and output may be image or information associated with that image. Usually Image Processing system treating images as two dimensional signals and applying already set signal processing methods to them. Most image-processing techniques involve treating the image as a two-dimensional signal and applying standard signal-processing techniques to it. It basically means manipulation and modification of images.

### Color Inversion

A gray scale or grey scale digital image is an image which carries only intensity information. Images like this, also known as black-and-white, are composed by gray, varying from black at the weakest (0) intensity to white (1) at the strongest. This range is

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represented in an abstract way as a range from 0 (total absence, black) and 1 (total presence, white), with any fractional values in between. This notation is used in academic papers, but this does not define what "black" or "white" is in terms of colorimetric.

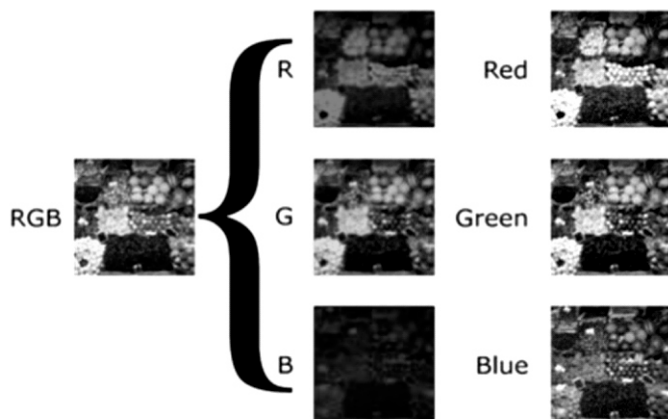


Figure 2: Gray scale image

### Filtering

When an image is captured by a digital camera or other imaging system, often the system for which it is intended is unable to use it directly. The image may be distorted by random variations in intensity, noisy variations in illumination, or poor contrast that must be removed within the early stages of vision processing. Image filtering is useful for many applications, including smoothing, sharpening, dropping noise, and edge enhancement. A filter is defined by a kernel or convolution mask, which is a small array placed to each pixel and its neighbors within an image. In most applications, the center of the kernel is aligned with the current pixel, and is a square with an odd number (3, 5, 7, etc.) of elements in each dimension. The process used to apply filters to an image is known as convolution, and may be applied in either the spatial or frequency domain. Fig. 3 shows the image before the filtering and after the filtering.

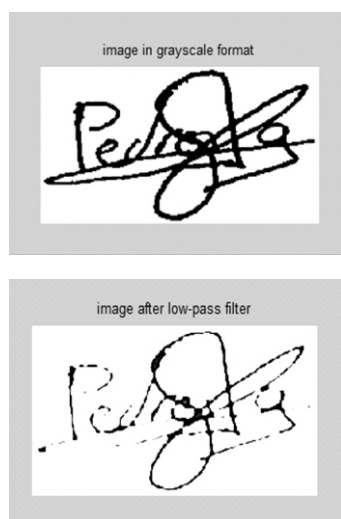


Figure 3: Before and After Low-Pass Filter

### Binarization

A binary image is a digital image that has only two possible values for each pixel such as 0 or 1. Only the two colors are used

for a binary image i.e. black and white though any two colors can be used. The color used for the object(s) in the image is the foreground color while the rest of the image is the background color. In the document-scanning this is often referred to as "bi-tonal".



Figure 4: Binarized image

### 3. FEATURES EXTRACTION

Feature extraction is necessary to the success of a signature verification system. In an offline environment, the signatures are acquired from a medium, usually paper, and pre-processed before the feature extraction begins. Offline feature extraction is a fundamental problem because of handwritten signatures variability and the lack of dynamic information about the signing process. An ideal feature extraction technique extracts a minimal feature set that maximizes interpersonal distance between signature examples of different persons, while minimizing intrapersonal distance for those belonging to the same person. Some of these features are as follows:

**Area:** Actual number of pixels in the region.

**Centroid:** Horizontal and vertical centres of gravity of the signature.

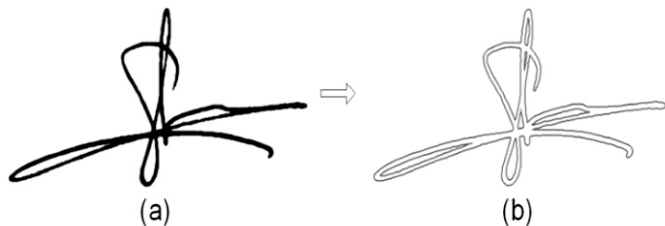
**Eccentricity:** It is the central point of the signature. If deviation in the central point of an image but this is not enough evidence by itself. The central point is acquired by applying the ratio of the major to the minor axes of an image. The ratio of the distance between the foci of the ellipse and its major axis length.

**Skewness:** It is a measure of symmetry, or more precisely, the lack of symmetry. A distribution or data set, is symmetric if it looks the same to the left and right of the centre point allows us to determine how bowed are the lines in each segment of the signature. The percentage of this torsion is then calculated and extracted. Most signatures are complicated, with no edges but twists, and the width and height of these twists is very important.

**Kurtosis:** It is a measure of flatness of distribution. Basically measure of whether the data are peaked or flattened, relative to a normal distribution. Data sets with high kurtosis tend to have a distinct peak near the mean, decline rather rapidly, and have heavy tails. Data sets with low kurtosis tend to have a flat top near the mean rather than a sharp peak. It also measures the existence, or the absence of tails, that are unconnected lines with no peaks.

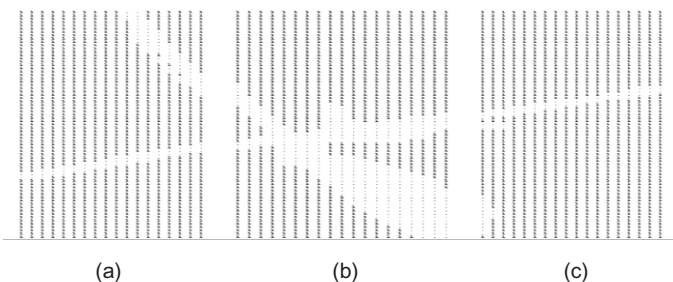
**Boundary:** The boundary of each signature is extracted prior to the feature extraction process. To reduce the amount of data to be processed the binary image of signature is processed and the contour is extracted. Contour is the outer boundary extraction of the signature.

**Trisurface:** The surface area of two visually different signatures could be the same. For the purpose of increasing the accuracy of feature describing the surface area of a signature, the 'Trisurface'



**Figure 5: Boundary Extraction**

feature was investigated, as an extension, in which the signature was separated into three equal parts, vertically. The surface area feature is the surface covered by the signature, including the holes contained in it. The total number of pixels in the surface were counted, and the proportion of the signature's surface over the total surface of the image was calculated. This process was used for the three equal parts of the signature, giving three values between 0 and 1.



**Figure 6: The Trisurface feature**

#### 4. CLASSIFICATION

Ali karouni et al.<sup>1</sup> used Area, Center of gravity, Eccentricity, Kurtosis and Skewness. Before extracting the features, preprocessing of a scanned image is done. Training the network with 6:4 ratio, i.e., with 6 genuine signatures and 4 fake signatures. Testing is done with 4:2 ratios, i.e., with 4 genuine signatures and 2 fake signatures.

**False Acceptance Ratio (FAR):** The false acceptance ratio is given by the number of fake signatures accepted by the system with respect to the total number of comparisons made.

**False Rejection Ratio (FRR):** The false rejection ratio is the total number of genuine signatures rejected by the system with respect to the total number of comparisons made.

Both FAR and FRR depend on the threshold variance parameter taken to decide the genuineness of an image time. Then artificial neural network (ANN) was used to verify and classify the signatures: exact or forged, and a classification ratio of about 93% was obtained under a threshold of 90%.

Tulsi Gupta et al.<sup>2</sup> extracted the features such as global feature, mask feature and grid feature. In this database of signature taken from 5 different persons, 11 genuine and 11 forged samples from each person, and four feature are extracted for all the samples namely, centroid, trisurface, six-fold surface and shape number feature and then calculates the FAR and FRR. The results show that using a localized threshold outperforms for False Acceptance Rate is 43.6% and False and False Rejection rate is 38.1%.

Suhail et al. and Manal Khalil et al.<sup>3</sup> proposed a method for offline signature verification and recognition by using MLP

neural network that used four features; eccentricity, skewness, kurtosis, and orientation, which can be extracted by image processing. The neural network was trained using back-propagation algorithm. A 21.2% error rate is reported by this approach, a great improvement over other published studies that reported error rates of around 44.9%.

V.E. Ramesh et al. and M. Narasimha Murty et al.<sup>4</sup> used four different types of pattern representation schemes are implemented, viz., geometric features, moment-based representations, envelope characteristics and tree-structured Wavelet features. The individual feature components in a representation are weighed by their pattern characterization capability using Genetic Algorithms. The conclusions of the four subsystems (each depending on a representation scheme) are combined to form a final decision on the validity of signature. Threshold-based classifiers (including the traditional confidence-interval classifier), neighbourhood classifiers and their combinations were studied. Benefits of using forged signatures for training purposes have been assessed.

A. Piyush Shanker et al. and A. N. Rajagopalan et al.<sup>5</sup> proposed a signature verification system based on Modified Dynamic Time Warping (DTW). Authors made modifications to the basic DTW algorithm for stability of various components of a signature. Basically assigning weights to various components of a signature depending on their stability. These weights are then used to modify the cost function corresponding to the warping paths. Authors conclude that the system based on the modified DTW algorithm performed significantly better than the basic DTW system. The method is computationally efficient and runs in real-time systems. Authors reported that with a threshold value of 1.5, the system is near to 0% acceptance rate for casual forgeries, 20% acceptance rate for skilled forgeries, and about 25% rejection rate for genuine signatures.

Indrajit Bhattacharya et al. and bir Ghosh et al.<sup>6</sup> proposed an off-line signature verification and recognition system using pixel matching technique. PMT (Pixel Matching Technique) is used to verify the signature of the user with sample stored in the database. The performance of the proposed method was compared with the existing ANN (Artificial Neural Network's) back-propagation method and SVM (Support Vector Machine) technique.

Prashanth C. R. et al.<sup>7</sup> computed the angular features of the genuine and fake signatures and compared with the threshold value to authenticate the signatures.

S. Rashidi et al, A. Fallah et al and F. Towhidkhah et al.<sup>8</sup> presented a simple and efficient approach to on-line signature verification, based on a discrete cosine transform, which had been applied to 44 time signals, such as position, velocity, pressure and angle of pen. The proposed system was tested with different classifiers, with skilled forgery, and equal error rates were 3.61%, 2.04% and 1.49% calculated.

In paper<sup>9</sup> authors proposed machine learning algorithms for binary classification based on recent advances in statistical learning theory. Support Vector Machine (SVM) was used to verify and classify the signatures and FAR of 16.0% and FRR of 13.0% was obtained.

Ibrahim S. I. Abuhaiba et al.<sup>10</sup> proposed Graph Matching Technique used to testing genuine and forgery signatures



produced by five subjects. An error rate of 26.7% and 5.6% was achieved for skilled and random forgeries, respectively.

R.Sabourin et al.<sup>11</sup> an off-line signature verification system using Hidden Markov Models to detect random, unskilled, and skilled forgeries features: a pixel density, a pixel distribution and an axial slant features are extracted from a grid segmentation scheme. A FAR of 2.83% is obtained and a FRR of 1.44%, 2.50%, and 22.67% are obtained for random, unskilled, and skilled forgeries, respectively.

## 5. RESULTS

The performance of system can be determined by accuracy of classification between the genuine and forged signature. Signature verification system is having basically two evaluation parameter FAR and FRR. The performances of different methods with results are shown in Table 1.

**Table 1: Results for different methods**

S.No	Methods	FAR (%)	FRR (%)
1.	Graph Matching Technique [10]	26.7	5.6
2.	Hidden Markov Model [12]	02.83	22.67
3.	Two Stage Neural Network classifier [2]	09.81	03.00
4	Back-propagation Neural Network Prototype [3]	10.00	06.00
5.	Morphological Parameter based [13]	02.08	14.58
6.	Wavelet-based verification [4]	10.98	05.60
7.	Support Vector Machine [11]	04.83	05.30
8.	Virtual Support Vector Machine [9]	16.00	13.00
9.	Dynamic features based [14]	13.78	14.25
10.	Discrete Cosine Transform[8]	2.04	1.49
11.	Pixel Matching Technique[6]	0.88	0.12
12.	Angular Feature Based[7]	4.9	8.5
13	Modified Dynamic Time Wrapping [5]	20.0	25.0

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## 6. CONCLUSION

This paper presents a brief study on the offline signature verification and recognition. The results shows that the accuracy of existing available signature verification systems is not enough to discriminate the genuine and fake signatures thus more research on Static Signature verification system is required. A robust system has to be designed which should not only be able to consider all the factors but also detect various types of forgeries. Hence the need for research in efficient automated solutions for signature recognition and verification has increased in recent years to avoid being vulnerable to fraud.

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# REVIEW OF DIFFERENT BLOCK MATCHING MOTION ESTIMATION ALGORITHMS & THEIR COMPARATIVE STUDY



**Monika Rani \***  
**Kavita Khanna \*\***

## ABSTRACT

*Video compression is used to remove the temporal redundancy and spatial redundancy by using video codec. Motion estimation (ME) is to be done in the encoder side to find the best MV (motion vector) so that it can be applied on stored frames by motion compensated block to generate the predicted video in video compression. In this paper, we have taken various fast search techniques which are employed to find the best matching point i.e. best motion vector (MV) in reference frame. In this paper we have explained already implemented various block based motion estimation techniques namely Full Search (FS), Three Step Search (TSS), New Three Step Search (NTSS), Diamond Search (DS), Four Step Search (4SS), Adaptive Rood Pattern Search (ARPS). In this paper, these six different BMA using motion estimation are considered & implemented. Comparisons are made through the Peak Signal to Noise Ratio (PSNR) and search points per macro block (i.e. computation time) for different sizes of macro blocks and search areas. The results predict that among all the algorithms, ARPS has the best optimal PSNR based on computation time & algorithm.*

## KEYWORDS

*MS, BMMS, Different Algorithms like FS, TSS, NTSS, 4SS, Diamond Search, ARPS, comparisons.*

## 1. INTRODUCTION

In multimedia communication, the important requirement is to achieve high processing speed and a low computing time simultaneously without sacrificing in image quality. Video signal processing has become an extremely attractive area of research based on the recent advances of technology and its demand. The demand for communications with moving video picture is rapidly increasing. In normal video processing, the system needs to send dozens of individual frames per second to create an illusion of a moving picture. For this reason, several standards for compression of the video such as MPEG-1, MPEG-2, MPEG-4 and MPEG-7 have been developed. Video compression is vital for efficient storage and transmission of digital signal in multimedia. Video coding achieves higher data compression rates without significant loss of picture quality. Video Compression is essential for Multi-Media Communication. Video compression is the process of reducing the amount of data required to represent a digital video signal, prior to transmission or storage by reducing the temporal redundancy existing in a video sequence. The Video coding exploits the high correlation between successive frames to improve coding efficiency, which is usually achieved by motion estimation (ME) and motion compensation techniques. Hence in video compression one of the computationally expensive and resource hungry key element is the Motion Estimation. The motion estimation is a process to predict the motion between two successive frames.

Motion estimation is defined as searching the best motion vector,

which is the displacement of the coordinate of the best similar block in previous frame for the block in current frame. In a video sequences there exists a high level of redundancy between consecutive frames which means the changes from one frame to the other are minimal. In temporal redundancy the reduction of redundancy involves encoding first a reference frame and for the consecutive frames encode only the difference between the reference frame and the current frame, while doing so, lot of complexity is involved in motion estimation in a video codec in video compression. In effort to reduce the computational complexity of ME algorithms, a variety of methods have been presented by many researchers such as block matching algorithm (BMA). Block matching algorithms are very useful in achieving the efficient and acceptable motion estimation. We can reduce enormously the memory space needed for video storage and processing. All these block-matching algorithms were minimizing the search time either by having different search patterns or less number of searching points.

## Motion Estimation & Compensation

Motion compensation (MC) prediction has been used as a main tool to remove temporal redundancy that comes from little change in the contents of the image from one video sequence to the other, thus providing coding system with high compression ratio. Motion compensation prediction assumes that the current frame can be locally modeled as a translation of the frames in the previous (or previous and next) time. In order to get motion compensation, the motion of the moving objects has to be estimated first, this is known as motion estimation (ME).

The motion estimation algorithm is performed with a variable size of search area depending on block types varying from 8x8 block to complete frame. A block in a specific region in the previous frame can belong to the same region at that position in the current frame. A block in background region may lie in the background region in the current frame.

The changing block shows the percentage of the difference from background to active region or vice versa. ME module is usually the most computationally intensive part (60-80% of the entire system) in a video encoder. The most popular technique used for motion estimation is the block matching algorithm (BMA). Motion estimation algorithms have attracted much attention in research and industry, because:

- ☞ ME is computationally, the most demanding part of the video encoder (60-80% of the total computation time) and this limits the performance.
- ☞ The ME algorithm has a high impact on visual performance for a given bit rate.
- ☞ The algorithm for the extraction of motion vectors (MV) is not standardized, and so is open to competition.

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### Block Matching Motion Estimation

Block matching motion estimation was one of the most important modules in the design of any video encoder. There are several approaches to motion estimation, and these can be divided as follows: region matching, gradient based methods and transform methods. Block matching approach is mostly selected as the ME package in video coding applications and is also implemented in most existing video coding standards because of its simplicity and good performance. The most important steps in block matching are as follows:

- Step1:** Subdivide every frame into square blocks such as  $16 \times 16$ .
- Step2:** Find one displacement vector for each block motion vector (MV)
- Step3:** Within a search range, find a best “match” that minimizes an error measure.
- Step4:** Intelligent search strategies can reduce computation.

The main idea related to the block matching motion estimation is that, there is a high correlation between each pixel and its surrounding in a frame. Therefore, it is not necessary to assign motion vector to each pixel. It is enough to identify one motion vector per block of pixels. In a typical frame work to block matching motion estimation, a frame is divided into blocks of  $n \times n$  then, for the maximum motion displacement of  $P$  pixels per frame, the current block of pixels is matched against a corresponding block at the same coordinates but in the previous frame, within the square window of width/height  $n+2P$ , the best match on the basis of a matching criterion yields the displacement. In block matching approach, each image frame is divided into non-overlapping rectangular blocks of equal size of  $8 \times 8$  pixels, each of which consists of luminance and chrominance blocks. Generally, motion estimation is performed only on the luminance block. For each luminance block, the algorithm finds matching block – a block in the reference frame that matches the current block best under the constraint of cost function, we can obtain the best matched block by minimizing the cost function, and finally, the motion vector (MV), which represents the displacement between the current block and the best matched block, together with the residual signal, which is the pixel difference between the current block and the best matched block, are transported to the next process to be coded. We assume the input images are grayscale only. The best candidate block is found and its displacement (motion vector) is recorded.

Total computation cost and bit budgeting can be efficiently controlled by properly modifying block matching algorithms. Due to the computational complexity of the search algorithms, the search process is limited to a window of a fixed size.

There are a space with  $P$  pixels around the block which is defined to search in the assumption area in order to find the best matching block based on any types of criteria like MSE or MAD. It is spread to four side of macro block,  $p$  is 7 here, but it can get different values. This 'P' is defined as the search parameter. Large motions need a large  $P$ , and the larger the search parameter the more computationally expensive the process of motion estimation becomes.

The bigger value for  $n$  means that the number of total blocks which need to process in each frame are decreased and for this

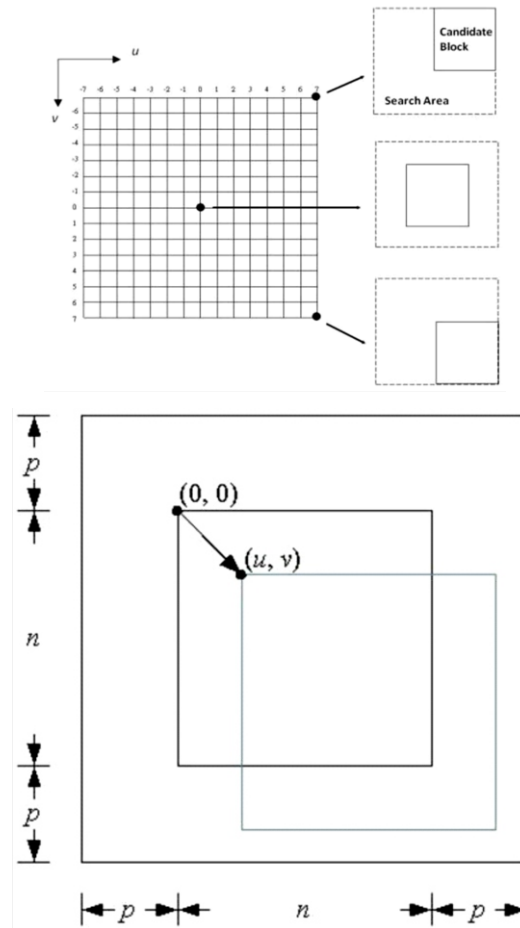


Fig 1: Block Matching Motion Estimation

reason, it is clear that the computational complexity will reduce. However, finding the high similarity and correlation in more pixels, exists in the larger size of block rarely happens so it means that it is difficult to find a good match block for the given block in its surrounding and hence, the PSNR will decrease based on increasing the size of  $n$ . In terms of block matching, two important subjects are considered, searching strategy and matching criteria.

**Matching criteria:** Indeed, block matching is a subset of image matching. In many image processing tasks, sometimes it is essential to examine two images or two portions of images on a pixel by pixel basis. These two images or two image regions can be chosen from a spatial image sequence. The aim of the examination is to determine the similarity between the two images and two portions of images. The similarity measure or correlation measure, is a key element in the matching process. On the other hand, instead of finding the maximum similarity, or correlation, an equivalent yet more computationally efficient way of block matching is to find the minimum dissimilarity, or matching error. In the literature, there are several types of matching criteria, such as The “Mean Squared Error” (MSE) uses the sum of squared differences between the two luminance values illustrated by equation 2,. The sum is divided by the quantity of the compared pixels to normalize the result and mean absolute difference (MAD) is the most popular choice illustrated by equation 1. It is noted that the sum of square difference (SSD), or the sum of squared error (SSE), is essentially the same as MSE.



$$MAD = \frac{1}{N^2} \sum_{i=0}^{N-1} \sum_{j=0}^{N-1} |C_{ij} - R_{ij}| \quad (i)$$

$$MSE = \frac{1}{N^2} \sum_{i=0}^{N-1} \sum_{j=0}^{N-1} (C_{ij} - R_{ij})^2 \quad (ii)$$

$$PSNR = 10 \left( \log_{10} \frac{(\text{Peak to peak value of original data})^2}{MSE} \right) \quad (iii)$$

### Applications Of Video Compression

Many applications such as, plant root growth, hand posture analysis, human posture analysis, lip movement for user authentication, Cinematography, robotic heart surgery, breathing motion estimation and many more.

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## 2. DIFFERENT BLOCK MATCHING ALGORITHMS

**Full Search (Exhaustive Search):** This algorithm is the most computationally expensive block matching algorithm of all. It is also known as Exhaustive search algorithm. This algorithm calculates the cost function at each possible location in the search window. In searching for the best match, the correlation window is moved to each candidate position within the search window. There are a total  $(2p+1) * (2p+1)$  positions that need to be examined, where  $p$  is the search range for the block. The minimum dissimilarity gives the best match. The full search is brute force in nature and it delivers good accuracy in searching for the best match. This algorithm gives the global minimum block distortion position which corresponds to the best matching block.

This acts as a benchmark for evaluating the efficiency of all existing fast block-matching motion estimation algorithms.

Advantages & Disadvantages:

- ☞ It finds the best possible match and gives the highest PSNR amongst any block matching algorithm.
- ☞ Because large amount of computation is involved, it is useless in real-time encoding.
- ☞ Calculation costs of this algorithm are very high because we have to check all the candidate blocks for minimum BDM point.

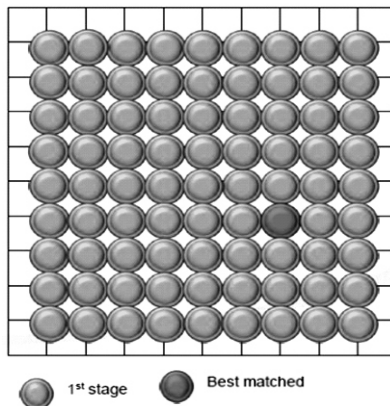


Figure 2: Full Search Algorithm

**Three Step Search (TSS):** It became very popular because of its simplicity and also robust and near optimal performance. It searches for the best motion vectors. The algorithm may be described as:

**Step 1:** An initial step size is picked. Eight blocks at a distance of step size=4 from the centre (around the centre block) are picked for comparison.

**Step 2:** The step size is halved. The centre is moved to the point with the minimum distortion. The point which gives the smallest criterion value among all tested points is selected as the final motion vector  $m$ .

Steps 1 & 2 are repeated till the step size becomes smaller than 1.

TSS reduces radically the number of candidate vectors to test, but the amount of computation required for evaluating the matching criterion value for each vector stays the same.

This algorithm is used in the MPEG video standard. It is mainly used for low bit-rate video compression applications (such as videophone and video conferencing), because of its simplicity and effectiveness.

Advantages & Disadvantages:

The advantages of the TSS lie in its simplicity, significant computation reduction, and good performance.

One problem that occurs with the Three Step Search is that it uses a uniformly allocated checking point pattern in the first step, which becomes inefficient for small motion estimation as it will be trapped into a local minimum.

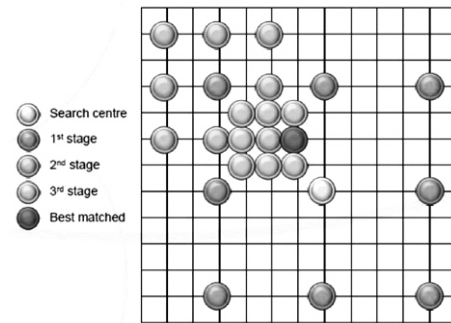


Fig 3: Three Step Search Algorithm

TSS is more efficient to find the global minimum particularly for those sequences with large motion.

It reduces the quality of the motion compensation system.

**New Three Step Search (NTSS):** The NTSS algorithm is a more centre biased variant of TSS algorithm. In the first step, the eight directly adjacent coordinates to the centre coordinate are added to the initial search pattern. The steps of the algorithm in detail:

**Step 1:** Create the initial search pattern, which consists of the centre coordinate, the eight coordinates surrounding it at a distance of one pixel and at a distance of four pixels. Search the minimum BDM of this pattern. If the centre coordinate is the minimum BDM, the search is finished. Otherwise: Go to step 2.

**Step 2:** If the minimum BDM is one of the eight direct neighbors of the centre coordinate, add the eight direct neighbors of this coordinate and search it again for the minimum BDM. After that, the search is done. Otherwise, continue like TSS: add

the four coordinates surrounding the BDM like an “X” at a distance of 2 pixels and search for the new minimum BDM.

**Step 3:** Search the four coordinates surrounding the current minimum BDM like an “X” at a distance of 1 pixel for the final minimum BDM.

Advantages & Disadvantages:

The improvement introduced by the New Three Step Search (NTSS) is a better estimation of the motion with low amplitude.

The search pattern of this algorithm is fixed and no predefined threshold operations are required.

This algorithm does not perform well in worst case condition, because 33 (9+8+8+8) blocks are compared in worst case.

This algorithm performs better than FS algorithm when compared with number of compared blocks. Both TSS and NTSS give same PSNR value, which indicates poor performance than FS algorithm.

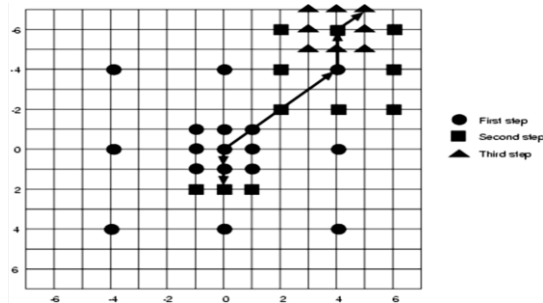


Figure 4: New Three Step Search Algorithm

**Four Step Search (4SS):** The 4SS algorithm utilizes a center-biased search pattern with nine checking points on a 5 x 5 window instead of a 9 x 9 window in the TSS. The 4SS algorithm is summarized as follows:

**Step 1:** Create a 5x5 search pattern around the centre of the search area, consisting of the nine coordinates surrounding the centre. Find the BDM of these coordinates. If the minimum is located at the centre, proceed with Step 4. Otherwise: Go to Step 2.

**Step 2:** The search pattern still has the size of 5x5. Depending on the location of the current BDM, new search coordinates are added to the pattern.

- ☞ If the current minimum BDM is located at the corner of the pattern in Step 1, add 5 additional coordinates positioned next to the corner.
- ☞ If the minimum BDM is located at the centre of a vertical or horizontal axis of the search pattern in Step 1, add 3 coordinates to the pattern. Search for the new BDM. If its position has not changed after this search, continue with Step 4.

**Step 3:** Repeat Step 2 once and proceed with Step 4.

**Step 4:** The search window size is reduced to 3x3 around the minimum BDM. Search all eight new coordinates in this pattern for the final minimum BDM.

From the algorithm, we can find that the intermediate steps of the 4SS may be skipped and then jumped to the final step with a 3 x 3 window if at any time the minimum BDM point is located at the center of the search window. Based on this four-step search pattern, we can cover the whole 15 x 15 displacement window

even only small search windows, 5 x 5 and 3 x 3, are used.

Advantages & Disadvantages:

This algorithm helps in reducing the number of search points when compared to the TSS and hence is more robust.

This produce better performance than the TSS and it also possesses the regularity and simplicity of hardware-oriented features.

FSS algorithm is also based on the TSS algorithm. In worst case situation, it compares 25 (9+5+5+8) blocks. Hence, FSS performs better in the worst case when compared with NTSS algorithm.

Computational complexity and picture quality remain almost same when compared to the TSS and NTSS algorithm.

This algorithm is better than FS algorithm when compared with number of compared blocks.

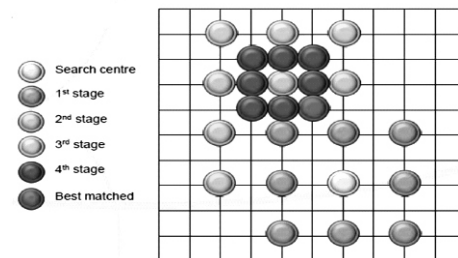


Figure 5: Four Step Search Algorithm

**Diamond Search (DS):** The DS algorithm employs two search patterns. The first pattern, called Large Diamond Search Pattern (LDSP) comprises nine checking points from which eight points surround the center one to compose a diamond shape. The second pattern consisting of five checking points forms a small diamond shape, called Small Diamond Search Pattern (SDSP). DS algorithm is exactly the same as four step search but the search point pattern is changed from a square to a diamond, and there is no limit on the number of steps that the algorithm can take. The DS algorithm is summarized as follows.

**Step1:** The initial LDSP is centered at the origin of the search window, and the 9 checking points of LDSP are tested. If the MBD point calculated is located at the center position, go to Step 3; otherwise, go to Step 2.

**Step2:** The MBD point found in the previous search step is re-positioned as the center point to form a new LDSP. If the new MBD point obtained is located at the center position, go to Step 3; otherwise, recursively repeat this step.

**Step3:** Switch the search pattern from LDSP to SDSP. The MBD point found in this step is the final solution of the motion vector which points to the best matching block.

The DS pattern can find large motion blocks with fewer search points. The compact shape of the DS pattern around the center also yields fewer search points than other square-shaped algorithm for finding stationary or small motion vectors. Therefore, DS algorithm give overall good performance.

Advantages & Disadvantages:

It also outperforms the well-known TSS algorithm while reducing computation by 20%-25% approximately.

This algorithm consistently performs well for the image

sequence with wide range of motion content.

The PSNR close to that of ES while computational expense should be significantly less.

This algorithm can find global minimum very accurately.

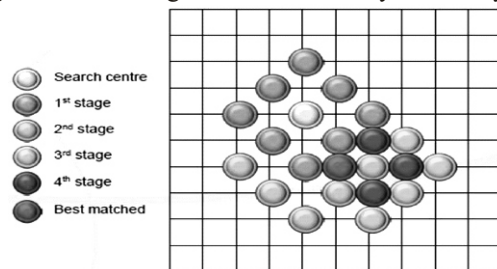


Figure 6: Diamond Search Algorithm

**Adaptive Rood Pattern Search (ARPS):** This algorithm makes use of the fact that the general motion in a frame is usually coherent, i.e. if the macro blocks around the current macro block moved in a particular direction then there is a high probability that the current macro block will also have a similar motion vector. This algorithm uses the motion vector of the macro block to its immediate left to predict its own motion vector. The predicted motion vector points to (3, -2).

In addition to checking the location pointed by the predicted motion vector, it also checks at a rood pattern distributed points, where they are at a step size of  $S = \text{Max}(|X|, |Y|)$ . X and Y are the x-coordinate and y-coordinate of the predicted motion vector. This rood pattern search is always the first step.

It directly puts the search in an area where there is a high probability of finding a good matching block. The point that has the least weight becomes the origin for subsequent search steps, and the search pattern is changed to SDSP. The procedure keeps on doing SDSP until least weighted point is found to be at the center of the SDSP. A further small improvement in the algorithm can be to check for Zero Motion Prejudgment, using which the search is stopped half way if the least weighted point is already at the center of the rood pattern.

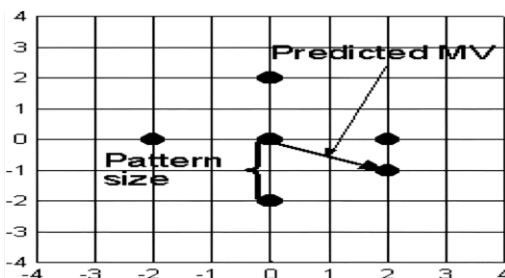


Figure 7: Adaptive Rood Pattern Search Algorithm

### 3. COMPARISON RESULTS

FS finds the best possible match and gives the highest PSNR amongst any block matching algorithm but having large amount of computation, it is useless in real-time encoding. TSS lie in its simplicity, significant computation reduction, and good performance. PSNR value of TSS and DS are approximately close to each other, but the computations of TSS are greater than DS for all the video sequences. NTSS algorithm performs better than FS algorithm when compared with number of compared blocks. Both TSS and NTSS give same PSNR value, which indicates poor performance than FS algorithm. ES takes more no.

of searches per MB, but gives highest value of PSNR in H.264 CODEC. The PSNR of DS is close to that of ES while computational expense should be significantly less. DS algorithm can find global minimum very accurately. PSNR value of 4SS is more than that of ARPS. Therefore in six considerable algorithms ARPS is the best one to implement and save time processing and get the better PSNR.

### CONCLUSION

In this paper we have compared six motion estimation algorithms. We have discussed and analyzed the most common block matching algorithms. From this analysis, we have found that the full search (FS) technique produces better quality image as it gives better performance in PSNR calculation, but takes larger number of search points, out of which diamond search algorithm is giving the best results in terms of number of computations and the image quality. The DS algorithm comes pretty close to the PSNR results of ES with reduced number of computation, for distance  $d=1$  without scarifying the image quality.

Overall the diamond search algorithm is giving the highest PSNR with reduced number of computations for slow video motion. whereas, diamond search (DS) take a few numbers of search points and also give average performance in PSNR calculation. Other algorithms (i.e. TSS, NTSS) take lesser number of search points, but produce distorted image because of poor PSNR performance. As DS algorithms take fewer number of search points, they are faster. Therefore, getting a better quality image by reducing number of search points remains a goal. The ARPS has PSNR close to FS and also the computational complexity is reduced. Therefore in six considerable algorithms ARPS is the best one to implement and save time processing and get the better PSNR.

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