INTRODUCTION

1.1 Background

The history of The Indian Railway began on 22 Dec 1851 when a goods train started. The first passenger train started on 16 Apr 1853 between Bombay and Thane. Currently, the Indian Railways is having more than 8700 passenger trains. A normal passenger train consists of eighteen coaches where 9 coaches are sleeper class; 3 to 5 are air-conditioned coaches. A normal passenger sleeper coach accommodates 60 to 72 passengers. Indian Railways makes 70% of its revenues and most of its profits are from the freight sector.

Indian Railways operates with more than 7,500 Engines, more than 37,800 passenger coaches and more than 2,22,000 wagons. There are approximately 6,850 stations and 700 repair shops. Indian Railways maintains total workforce of 15,40,000 and is the largest employer in the world. Electronic Commerce is defined as "buying and selling of goods and services through electronic technology utilising online services such as Internet, interactive television, commercial online services and screen telephones so that an organization's objective can be achieved." In the 21st century, digital technologies will push beyond the existing boundaries in all the spheres of our lives [Choi, S. Y. 2000]. The transition from brick-and-mortar business to "clicks" business is happening in all sectors of the]. Any size business can have an e-commerce strategy; from a garment shop, to a medium sized business selling confectionary to a giant retailer like Wal-Mart.

Some e-commerce companies sell only over the Internet; others sell both over the Internet and in standard brick-and-mortar distribution channels. The railways airline managers realize that a major business transition is taking place. Some believe that the various processes by which this monopoly has developed will need to change.

Regardless of which business model the Railways adopt, to be successful, it needs to understand how the Web and e-commerce affects their business. The Railways need to develop an overall strategy covering: strategic management, IT infrastructure, design, content, e-commerce systems, marketing and customer service.

The Railways also needs to be creative and entrepreneurial. As every entrepreneur knows, one will only be truly successful if one provides genuine value to the customers and solve a problem for them. The scope of this research was to create an e-business solution, which will concentrate on developing a Customer-Centric E-Business (CCEB) System Model for the Indian Railways.
Even though e-ticketing services appear to be the future of operations for many organizations seeking to streamline operations and improve customer service, research regarding e-ticketing and e-service indicates that these processes have not been without their challenges, contend that e-ticketing services, much like many internet and mobile applications, developed in an ad hoc manner. This has created a situation in which the function and utilization of e-tickets has not been actively integrated into the strategy of the organization. Other scholars examining the adoption of e-ticketing contend that a host of cognitive variables impact consumer decision-making, leading positive or negative perceptions regarding e-ticketing as a principle method for acquiring service within an organization. In addition, the cognitive elements of e-ticketing have become such an important issue of concern for organizations in recent years as efforts to expand e-ticketing progress. Specifically, the issue of customer satisfaction in e-ticketing has become a central issue of focus, prompting organizations to investigate the specific variables that shape customer outcomes when choosing e-ticketing options. Using this as a foundation for investigation, the current research utilizes customer satisfaction as the dependent variable to assess what specific independent variables (customer technical support, infrastructure, data security and/or user-friendliness) shape customer satisfaction in decision-making when it comes to purchasing an e-ticket. By correlating independent variables with customer satisfaction, it will be possible to acquire a deeper understanding of how customer satisfaction is developed when it comes to e-ticket purchasing and use by consumers.

Sales channels include on-board vehicles (usually only for single tickets), at vending machines, counters, retail shops, on internet, by phone or via affiliates. Whatever are the fare structure and the payment scheme, for the passenger it is often the user-friendliness of the system that will be most important. In this respect, harmonising and integrating fares and ticketing will facilitate the use of EMTA – Study on e-ticketing in public transport public transport. An integrated ticketing system is defined as one in which it makes no difference, in terms of price, if a passenger has to board more than one public transport vehicle to complete their journey. Fare integration provides an incentive to travel, because public transport is much easier to use and more accessible for travellers. New technologies (e-ticketing) can be a great help in implementing complex fare structure and fare integration while keeping the system easy to use.

Four subsequent generations of ticketing systems co-exist in the world today and sometimes even in the same city:
• The oldest system of tokens or paper tickets is still widely used worldwide.
• The magnetic ticketing system that was introduced in the 70s, can be classified into two categories:
  • Ticketing with automatic belt drive (the most common format)
  • Ticketing with manual a sweeping motion of the ticket by the passenger.
Contactless ticketing appeared in the 90s. The technology has many advantages and it is fast replacing the other two types of ticketing. Some public transport networks are replacing their first ticketing generation system directly by a contactless one, omitting the magnetic ticket generation stage. Contactless ticketing uses Radio Frequency Identification (RFID) or Near Field Communication (NFC) technology to establish a communication between the card and the validation device.

In public transport, e-ticketing systems are not only means of payment but process huge amount of information which offer a large range of possibilities to make public transport easier to use, to manage and to control. They offer as well opportunities to introduce integrated pricing structure that are not easy to implement with traditional payment tools. The table below lists these different possibilities.

Electronic ticketing technologies are classified according to the way they are used for payment. The closer the card is to the payment system, the more reliable the transaction is, but the more constraining it is for the user. Therefore, the long-term objective is for the customer to be able to pay for public transport without having to show or validate any card, relying on fully automatic fare payment EMTA – Study on e-ticketing in public transport 9 systems. Contact-based technologies are mainly based on a standardized communication between user devices (only memory or smart cards) and access systems according to the ISO 7816 standard.

1.2 Main issues to be addressed when developing e-ticketing

When developing an e-ticketing system, a number of issues must be discussed and will influence the scope and possibilities offered by the system. They cover mainly the following aspects:

• The fare levels and structure
• The ticketing spectrum
• The possibilities for integration
• The smartcard technology
• The interoperability issue
The business case  
The business model  
The clearing mechanisms  
The exploitation of data  

They above-listed are discussed in the present section illustrated with examples from selected public transport networks.

For developing countries like India, e-commerce offers considerable opportunity. E-commerce in India is still in nascent stage, but even the most-pessimistic projections indicate a boom. It is believed that low cost of personal computers, a growing installed base for Internet use, and an increasingly competitive Internet Service Provider (ISP) market will help fuel e-commerce growth in Asia’s second most populous nation. Indian middle class of 288 million people is equal to the entire U.S. consumer base. This makes India a real attractive market for e-commerce. To make a successful e-commerce transaction both the payment and delivery services must be made efficient. There has been a rise in the number of companies' taking up e-commerce in the recent past. Major Indian portal sites have also shifted towards e-commerce instead of depending on advertising revenue. Many sites are now selling a diverse range of products and services from flowers, greeting cards, and movie tickets to groceries, electronic gadgets, and computers. With stock exchanges coming online the time for true e-commerce in India has finally arrived. On the negative side there are many challenges faced by e-commerce sites in India. The relatively small credit card population and lack of uniform credit agencies create a variety of payment challenges unknown in India. The delivery of goods to consumer by couriers and postal services is not very reliable in smaller cities, towns and rural areas. However, many Indian Banks have put the Internet banking facilities. The speed post and courier system has also improved tremendously in recent years. Modern computer technology like Secured Socket Layer (SSL) helps to protect against payment fraud, and to share information with suppliers and business partners. With further improvement in payment and delivery system it is expected that India will soon become a major player in the e-commerce market. While many companies, organizations, and communities in India are beginning to take advantage of the potential of e-commerce, critical challenges remain to be overcome before e-commerce would become an asset for common people. India’s e-commerce industry is on the growth curve and experiencing an outburst in growth. The Online Travel Industry is the biggest segment in e-commerce and is booming due to a large Internet-savvy urban population. The other segments, categorized
under online non-travel industry, include e-Tailing (online retail), online classifieds and Digital Downloads (still in a nascent stage). The online travel industry has some private players such as Makemytrip, Cleartrip and Yatra as well as a strong government presence in terms of IRCTC, which is a successful Indian Railways initiative. The online classifieds segment is broadly divided into three sectors; Jobs, Matrimonial and Real Estate. Mobile Commerce is also growing rapidly and proving to be a stable and secure supplement to e-Commerce due to the record growth in mobile user base in India, in recent years. Growth drivers and barriers are present in equal measures for new ecommerce ventures.

A report by the Internet and Mobile Association of India has revealed that India’s ecommerce market is growing at an average rate of 70 percent annually and has grown over 500 percent since 2007. The current estimate of US$ 6.79 billion for year 2010 is way ahead of the market size in the year 2007 at $1.75 billion. The below Figure is showing the contribution of Indian e-commerce business to global B2C sales from 2010 to 2013 and based on the trends it also forecasted the contribution as of 2016 by Indian e-commerce business. In 2013, Indian e-commerce business has contributed 1.4% of global B2C sales which is expecting to increase 1.8% in 2016.

1.3 Prosperity and Prospective of Indian E-Commerce Business

The increasing Internet penetration and availability of more payment options boosted the ecommerce industry in 2013. Besides electronics gadgets, apparel and jewellery, home and kitchen appliances, lifestyle accessories like watches, books, beauty products and perfumes, baby products witnessed significant upward movement in last one year“- D S Rawat, ASSOCHAM Secretary General. India’s e-commerce market grew at a staggering 88 per cent in 2013 to $16 billion, riding on booming online retail trends and defying slower economic growth and spiralling inflation, according to a survey by industry body ASSOCHAM7.

According to the survey made by ASSOCHAM (2013), India’s e-commerce market, which stood at $2.5 billion in 2009, reached $8.5 billion in 2012 and rose 88 per cent to touch $16 billion in 2013. The survey estimates the country's e-commerce market to reach $56 billion by 2023, driven by rising online retail. As per responses by 3,500 traders and organised retailers in Delhi, Mumbai, Chennai, Bangalore, Ahmedabad and Kolkata who participated in the survey, online shopping grew at a rapid pace in 2013 due to aggressive online discounts, rising fuel prices and availability of abundant online options.

Main Purposes of Using E-Commerce and Industry Size of Indian E-Commerce Business

The underneath Figures are showing the main purposes of using e-commerce by Indian consumers
as well as the total e-commerce business in India from December, 2009 – December, 2013.

According to the first Figure, 50% of the total digital consumers are mainly using e-commerce to book their domestic air tickets, whereas 39% of the total digital customers are booking their railway tickets through various e-commerce websites. Again 6% and 2% of the total digital consumers are using various e-commerce websites to book their international air tickets and hotels respectively. But compared to other purposes, less numbers of digital customers are using e-commerce websites for the purpose of booking Bus Tickets (2%) and Tour Packages (1%).

- Number of Online Shopper’s in India (Age and Gender Wise) And Average Order Value per Year

The underneath Figures are showing the total number of online shopper’s in India as well as the average order value of the customers per year as mentioned in the magazine named India Retail Magazine, July, 2014. According to the first Figure, in 2012 the total number of online shoppers was 13 million which was increased to 20 million in 2013 (increased by 35% in one year). And the magazine also projected that the total number will be doubled (40 million) in 2018.

1.4 Factors Encouraging Online Shopping in India

The growth of the online shopping in India is immensely growing and is getting better and stronger day by day. The following are the prominent factors why online shopping has flourished in India:

Broadband Internet

After 2005, a rapid growth has been seen in the people using internet and currently there are more than 65 million people log-in on to web. This is due to increased internet services and penetration of 3G services that has given faster internet access.

According to the survey report of Statista in 2011 the number of total internet users was 83.2 million which is expecting to grow up to 193.8 million within 2016. As per the survey report by Statistic, the maximum number of internet users are falling in the age group of 25-34 (38% of the total users), followed by the age group of 15-24 (37% of the total users) as of September, 2013.

- Standard of living: The living standard of the people has made them inclined towards online shopping. The increased per capita income has also played its part in this inclination.
• Availability of wider range: Online market has a much wider range of products than any retail shop. People have found the products online and bought them those are not available at the retail shops.
• Free classified sites: These sites have been launched where more consumers can buy and sell used goods as well.
• Discounts or Coupons and cheap rates: Through offers these sites sell the products to customers. Hence, products can be purchased at lesser price than the offline markets and not sacrificing the quality. Availability of different discount coupons on.
• The sites proves to be a great profit for the customers.
• Improved online banking services: With improved and safer online banking services people are now less afraid to make payments online which in turn gave them faith to shop online.
• Cash on delivery and home delivery: Cash on delivery along with home delivery has played a great role in the inclination of people toward online shopping.

All these factors have encouraged people to shop online and have also helped them to transform themselves into better online shoppers.

1.5 Benefit of E-Ticketing

Each organization is planning an event and is responsible for selling tickets for the event can enhance the activity on the website. All the promoters who sign up will be approved by administrators before they can start selling tickets so that only those who can demonstrate that they are the main event will be allowed to promote the event. This system allows the customers to promote a free event and sell tickets for the event to a wider audience. This also means customers do not have to pay a fee to set up this system or the administration. E-ticketing offers many benefits, they are:

a. Cost savings means reduce costs associated with printing and mailing tickets to ticket buyers. Eliminate or reduce the need tickets for the stock, envelopes and mail.

b. Labor savings means reduce labor associated with printing and mailing tickets. Cut down on the effort required to take the e-ticketing to buy will call orders.

c. Safe and secure means e-ticket safe and secure. Barcode validation eliminates the possibility of counterfeit and duplicate e-ticketing.

d. Actual attendance reporting means find out how much customer’s eticket patrons attended customer’s event and when they arrived.
e. Instant delivery means ticket buyers happy to be able to print their tickets immediately. No need to wait for a letter or waiting in line at the event. Customers can print their electronic tickets as soon as they buy it. This makes e-tickets are ideal for last minute gift or a last minute decision.

f. Additional information means e-tickets to provide space for additional information such as street maps, directions, and other customer information customer may need to know.

g. Advertising means e-ticket provides unique advertising capabilities. Increase company’s revenue by offering ad space on web ticket. While maintaining high safety standards is the main priority to ensure flight safety, a number of full-service airlines have adopted e-ticketing as part of an effort to improve service to customers. e-ticketing system that allows passengers to book a plane e-ticketing to get copies of records they receive inventors or reservation number and e-ticket number. e-ticket that is beneficial for both airlines and travelers. Eliminate this problem and the cost of travelers’ expectation when they lose a paper ticket. If a boarding pass is lost, replacement is often easy to get as up to the e-ticketing counter and give confirmation number for the new one.